SOCIO-DEMOGRAPHIC AND SPATIAL RELATIONSHIP BETWEEN LARGE SIZED VILLAGES AND URBAN CENTRES IN ASSAM, MANIPUR, TRIPURA AND ARUNACHAL PRADESH

BY

BHIMLAL SARMAH

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CENTRE FOR THE STUDY OF REGIONAL DEVELOPMENT
SCHOOL OF SOCIAL SCIENCES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI--110057

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CENTRE FOR THE STUDY OF REGIONAL DEVELOPMENT
SCHOOL OF SOCIAL SCIENCES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI--110057

Certified that the dissertation entitled "SOCIO-DEMOGRAPHIC AND SPATIAL RELATIONSHIP BETWEEN LARGE SIZED VILLAGES AND URBAN CENTRES IN ASSAM, MANIPUR, TRIPURA AND ARUNACHAL PRADESH" submitted by Shri BHIMIAL SARMAH, in fulfilment of six credits out of the total requirement of thirty credits for the degree of MASTER OF POPULATION STUDIES of the University, to the best of my knowledge, is his original work and may be placed before the examiner for evaluation.

G.S. Bhalla.

CHAIRMAN

Asok Mitra

SUPERVISOR

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Bhimlal Sarmah
27.11.76.

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INTRODUCTION

1. Problem

In a country with a predominantly agricultural economy, the surpluses from agriculture need a central place where these are marketed. With advance of time, the importance of the place goes on increasing and after sometime the place qualifies to be an industrial or service settlement. The place which functions as a central place is a place of high concentration of population. As such we see that large sized rural settlements in due course of time grow to become urban centres. Urban centres in different Indian censuses have been definded in different way in different places. However in 1961 Census a uniform definition has been adopted for urban centres. In addition to other characteristics, population of a settlement is one of the important characteristics to qualify a settlement as an urban centre. Hence the study of a place with large sized settlement throws some light into the understanding of the process of urbanization. Moreover some of the large sized rural settlement are found to function as a central place to its surrounding places as that of an urban centre but does not qualify to be a town. The study of the factors in relation to urban centres will help town planning in the country. Because even distribution of urban centres is very useful for its economic development.

Some of the worth mentioning studies, done in the field of urbanization are Market Towns and Spatial Development[1], Urbanization and Urban India[2], Urbanization in India[3]. In addition to these some detailed studies on metropolises like Calcutta, Bombay, Delhi etc. are also available. These studies differ from the present study which based on topography, soil type etc. of the region. It appears that there are no studies on large sized settlements excepting those on locational factors.

2. Objectives of the study

The present study is likely to help in understanding the role of large sized rural settlements and urban centres in different regions and their inter-relationship in Demographic and Economic characters. It also aims at a study of such factors as high density, high growth rate, high sex ratio and literacy rate of the settlements.

The role of a large sized settlement is determined by its function for its surrounding small sized settlements. If there is concentration of large sized settlements, the centrality of the settlements is found to be less as compared to the area of small sized settlements. The even distribution of trade and service centres determines the development of a region. This study therefore helps to understand these aspects of settlements.

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1. NCAER
2. SOVANI N.V.
3. BOSE ASISH.

3. Area of study

The area of the present study consists of Assam, Manipur, and Tripura. All the villages with a population of 2,000 and above and all the urban centres of the region have been considered in this study. This is a part of an all India study. In case of other states of India excepting Kerala the large sized settlements considered are villages having population of 5,000 and above and all the urban centres. Kerala State has been excluded from the study because of its peculiar settlement pattern. In the case.of Kashmir valley, all the villages have been considered. In Assam Manipur, Tripura and Arunachal Pradesh, there being only a few rural settlements with populations of 5,000 and above, villages with a population of 2,000 and above have been chosen for the study. The state of Nagaland has been excluded from the present study for non-availability of 1961 village-wise data. The State of Assam consists of 11 districts in 1961, while Manipur and Tripura are one district states (Map-I). Arunachal Pradesh at the foot-hills of the Himalayas consists of five divisions. All the large sized settlements of the region are concentrated in the State of Assam due to its better topography, better communication and fertile soil. Out of the total 561 large sized settlements, 463 are in Assam, 37 in Tripura and 54 in Manipur and only 7 settlements are in Arunachal Pradesh.

The table below gives the number of settlements districtwise and classwise*

TABLE - 1

DISTRIBUTION OF SETTLEMENTS BY SIZE-CLASS (DISTRICTWISE)

Name of District	SIZE CLASS OF SETTLEMENTS I	II	III	IV	V	VI	Villages	Total
Goalpara	-	-	1	2	6	-	20	29
Kamrup	1	-	2	1	5	4	84	97
Darrang	-	-	1	-	3	1	55	60
Lakhimpur	-	1	1	2	3	2	85	94
Nowgong	-	-	2	1	1	-	44	48
Sibsagar	-	-	1	2	2	1	64	70
Cachar	-	-	2	1	1	2	49	55
K & J Hills	-	1	-	1	1	-	-	5
North Cachar & Mikir Hills	-	-	-	-	-	1	1	2
Mizo Hills	-	-	-	1	-	-	1	2
Garo Hills	-	-	-	-	1	-	-	1
Manipur	-	1	-	-	-	-	53	54
Tripura	-	1	-	1	4	-	31	37
Arunachal	-	-	-	-	-	-	7	7
Total	1	4	10	13	28	11	494	561

*Class I - Population size of 100,000 and above

Class II - Population size of 50,000 - 99,999

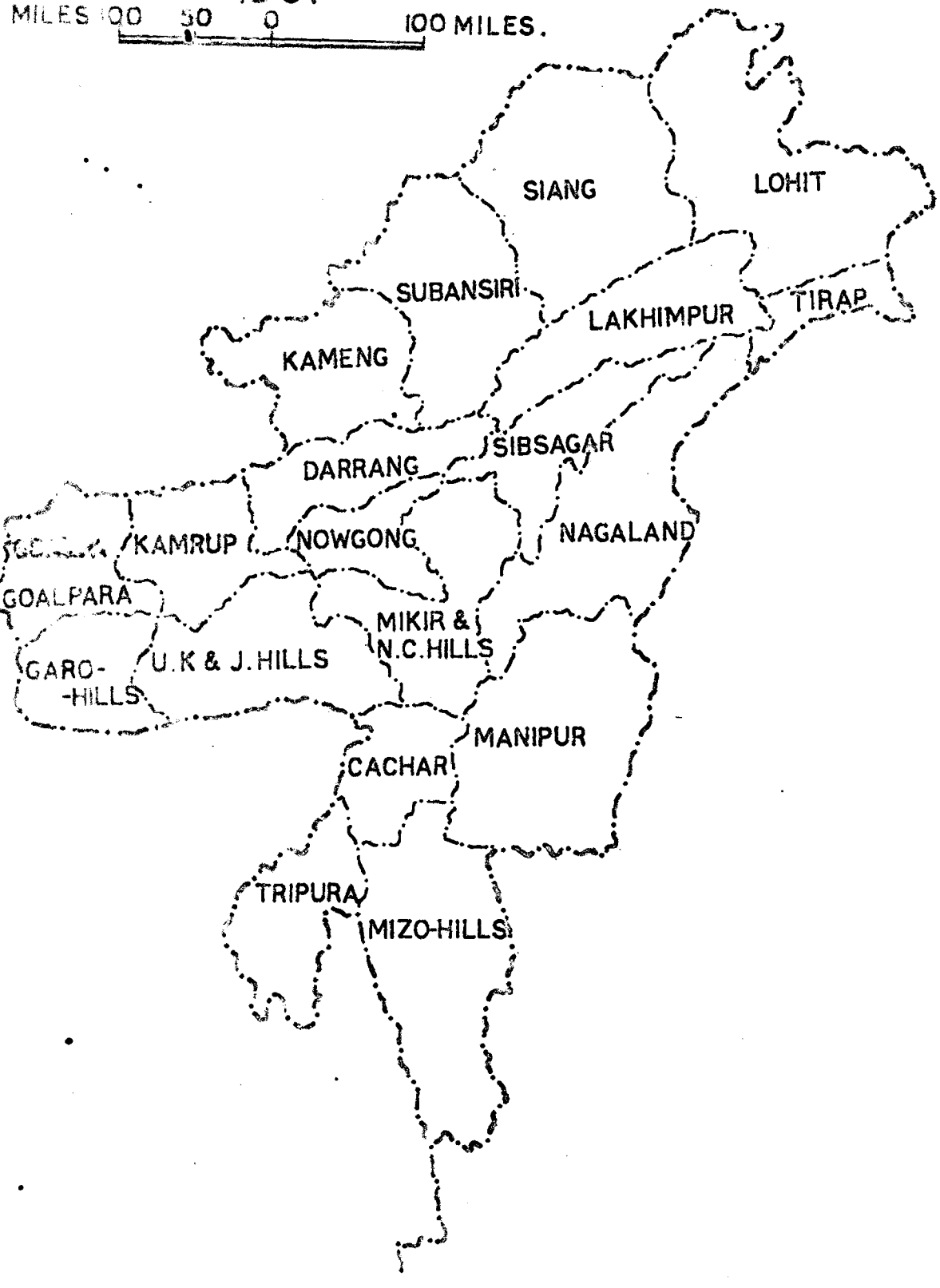
Class III - Population size of 20,000 - 49,999

Class IV - Population size of 10,000 - 19,999

Class V - Population size of 5,000 - 9,999

Class VI - Population size less than 5,000

ADMINISTRATIVE BOUNDARY
1961



Out of the total 561 settlements of the region 494 are rural settlements and 67 are urban settlements which shows the predominant rural character of the region. Thus there are only five towns with population above 50,000.

4. Chapterization (Chapter Plan)

The present study is confined to Eight Chapters. The first chapter contains Physical settings Drainage Systems, Climate & the Transport net works of the region. An analysis of the distribution of settlements with respect to soil type, transport net work and their randomness and eveness on the basis of near neighbourhood technique has been presented in the second Chapter. The Demographic Character of the settlements have been analysed in the third chapter. In the Fourth Chapter connectivity index of the settlements has been worked out and its relationship with Demographic Characters of the settlements has been analysed. Functional classification of the settlements has been done in the Fifth Chapter and the influence of transport net work has been analysed and the regional variation studied. Theavailable ammenities of the settlements have been discussed, composite score is obtained and the hierarchy of settlements is formed in the Sixth Chapter. Economic profile of settlements has been discussed in the Seventh Chapter. In the last chapter urbanization, development of transport and soil type of the tea gardens are discussed and the relationship of the gardens with urban centres and road and rail net works is studied.

CHAPTER - I

The North-Eastern Region is bounded by Bhutan, Tibet and China on the North, Burma on the East and South, and the West is bounded by Bangladesh and West Bengal.

I.1 Natural division

All the states of the North-Eastern Region can be sub-divided into the following regions & sub-regions[1].

TABLE I.1.1

TABLE SHOWING REGION, SUB-REGION, DIVISION OF THE NORTH - EASTERN STATES

Region	Sub-Region	Division	Number of district.	Name of districts
Himalayans	North-Eastern Region	(1) Assam Hills (Meghalaya)	4	United K & J Hills, United Mikir Hills. North Cachar Hills, Garo Hills and Mizo Hills.
		(2) North-Eastern Border Hills.	3	Nagaland, Kohima Mokokchung.
		(3) "	1	Manipur.
		(4) "	1	Tripura.
	Eastern Himalaya	Assam/Bhutan Himalayas	1	Arunachal
Northern Plain	Assam Valley	(1) Brahmaputra	6	Goalpara, Kamrup, Darrang Nowgong, Sibsagar Lakhimpur
		(2) Surma Valley	1	Cachar

1. Dr. Asok Mitra Levels of Regional Development Part II A.1961.

The first natural region called Himalayan region is formed by the mighty himalayan mountain ranges. The second natural division called the Northern Plain is an alluvial plain lying almost east to west on the foot hills of the Himalayan ranges.

1.2 Physical settings

The region is almost covered by Plateaus, hills and mountains. The elevation ranges from 160 m to 320 m. The two river valley plains namely Brahmaputra on the north and Surma on the south are within the mountain gridle. Apart from these two river valleys, the altitude of the region seldom falls below 160 m (Map -2).

Assam minus Brahmaputra valley and Cachar Valley consist of ranges of hills with average elevation of 1280 metres and is called Assam hill division. The Brahmaputra valley is an alluvial plain of about 225 kilometres in length and its average width is about 30 kms. The broadest part of the valley is where the river Brahmaputra divides the district, Lakhimpur and Sibsagar. The valley generally contracts towards west due to encroachment of different hills ranges. The valley widens from Goalpara and at Dhubri it opens upto the great Delta of Bengal.

Surma valley comprising only one district is also of haterogeneous land with high hills, low lands and level plains. Almost whole of the region, both on the north and south of the river Barak, is dotted with isolated hills. These are called Tillas which rise from the level of alluvium soil. The southern part of the district is covered with dense evergreen forest and Bamboo Jungles.

The surface of Tripura is found to be broken by frequent low hills covered with dense forest. There are 6 principal hill ranges situated at an interval of 18 kms. A strip of low land is there in the north eastern and southern boundary. In the western boundary, some portion towards north and south; broken grounds consisting of hillocks alternating with marshy valleys are observed. These are very fertile.

Manipur which is almost rectangular in shape has a very small river valley in its centre. About 10/11th of the area of the state is covered with continued hill ranges. Most of the hills of the area are covered with dense forest and thick bumboo jungles.

Arunachal Pradesh consists of snow capped mountain ranges and high valleys. There are some very fertile valleys at elevations 3000 metres to 4000 metres. They are found to be extending towards the south along with their dividing ranges. Some outer hills in the region are comparatively small and are of less height. The plain area is bigger in Lohit river basin which is the south-eastern boundary of the region.

1.3 Drainage system

The drainage system of the region is wholly controlled by the river Brahmaputra (Map - 3). It flows through Arunachal Pradesh and in the extreme east of Assam it joins with two other rivers namely Lohit and Dibang and flows throughout Assam as the mighty Brahmaputra. The river has more than 35 tributaries. Many of them are almost as big as the main river. The other important river of the region is the Barak river which rises from the lofty ranges of Nagaland. It flows through the centre of the

Cachar district. Khowai, Dholaimanu, Jhuri, Longai, Gomati, Feni and Mahuri of Tripura and the Imphal river of Manipur are the principal rivers of that area.

1.4 Soil type

The soil of Brahmaputra valley is mainly alluvial in character. In Kamrup, Lakhimpur, Nowgong and Sibsagar districts small areas with laterite soil are found. In the hill division of Assam three types of soil are mainly found. Red soil occupy almost the entire region. This and the slightly lateritic soils are ideal for tea growing in Assam, Cachar and Tripura. The old alluvium soil is found in areas bordering plains. Lateritic soils are there in some places in the south west. The soil of Cachar and Tripura region is alluvial in nature. The highlands locally known as tillas contains lateritic soils. In Manipur also two distinct type of soils are found. Red soil in the hill and thick clay deposit in the central plain. The soils in the valley of Manipur are clayeand rich in organic content. Thus it is seen that major soil of the region is alluvial in character.

1.5 Climate

The climate of the region is characterised by excessive humidity. During moonson periods there is heavy down-pour. The winter is characterised by cool weather and there are casual interruptions by showers associated with western disturbances. The climate of hill regions differ from that of plains due to its high relief. The climate in the hill region veries according to the height. The low elevation region has oppressive heat during summer as a result of high temperature,

whereas the high altitude places enjoy a pleasent climate. The climate of foot hills region is slightly warm and humid.

1.6 Transport and communication

The region is not so developed in terms of transport and communication. The whole of the region is connected with the rest of India by a narrow corridor between the Himalayas and Bangladesh. Brahmaputra Valley, in comparison to surrounding areas has better Transport System. The region has about 1718 kms of metergauge railway. The broadgauge line covers only a distance of 100 kms. in the region. The two main railway lines of the region run longitudinally on both the banks of the river Brahmaputtra. They connect most of urban centres on both the banks. The existance of numerous rivers and streams which change their courses very often in addition to its rough terrain stand as a barrier for the development of road transport. The two trunk roads namely south and north Trunk roads run almost paralled to the river Brahmaputtra from one end to the other. They have many feeder roads spread over the entire region. Most of the roads are not dependable during the rainy season. The Inland waterways in the region covers a considerable distance. Some of the distance is nevigable by steamers and large country boats throughout the year.

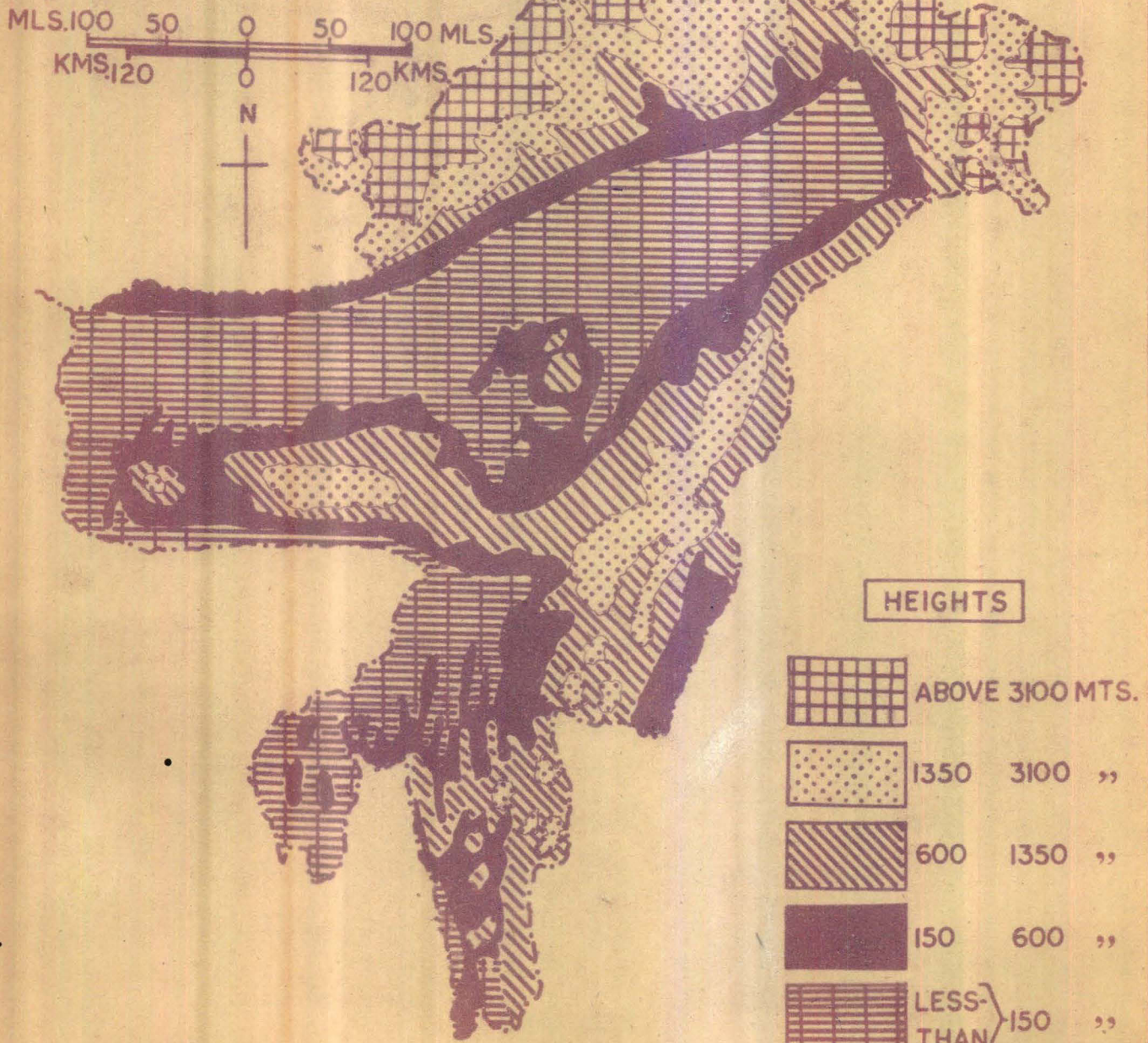
The important road ways of the region are shown in (Map.4). The worth mentioning road ways of the region are:

(1) NH - 37 - This road passes through most of the important administrative centres. The worth mentioning are Goalpara, Gauhati, Nowgong, Jorhat, Sibsagar; Dibrugarh to Saikhowaghat.

Map-2

PHYSIOGRAPHY

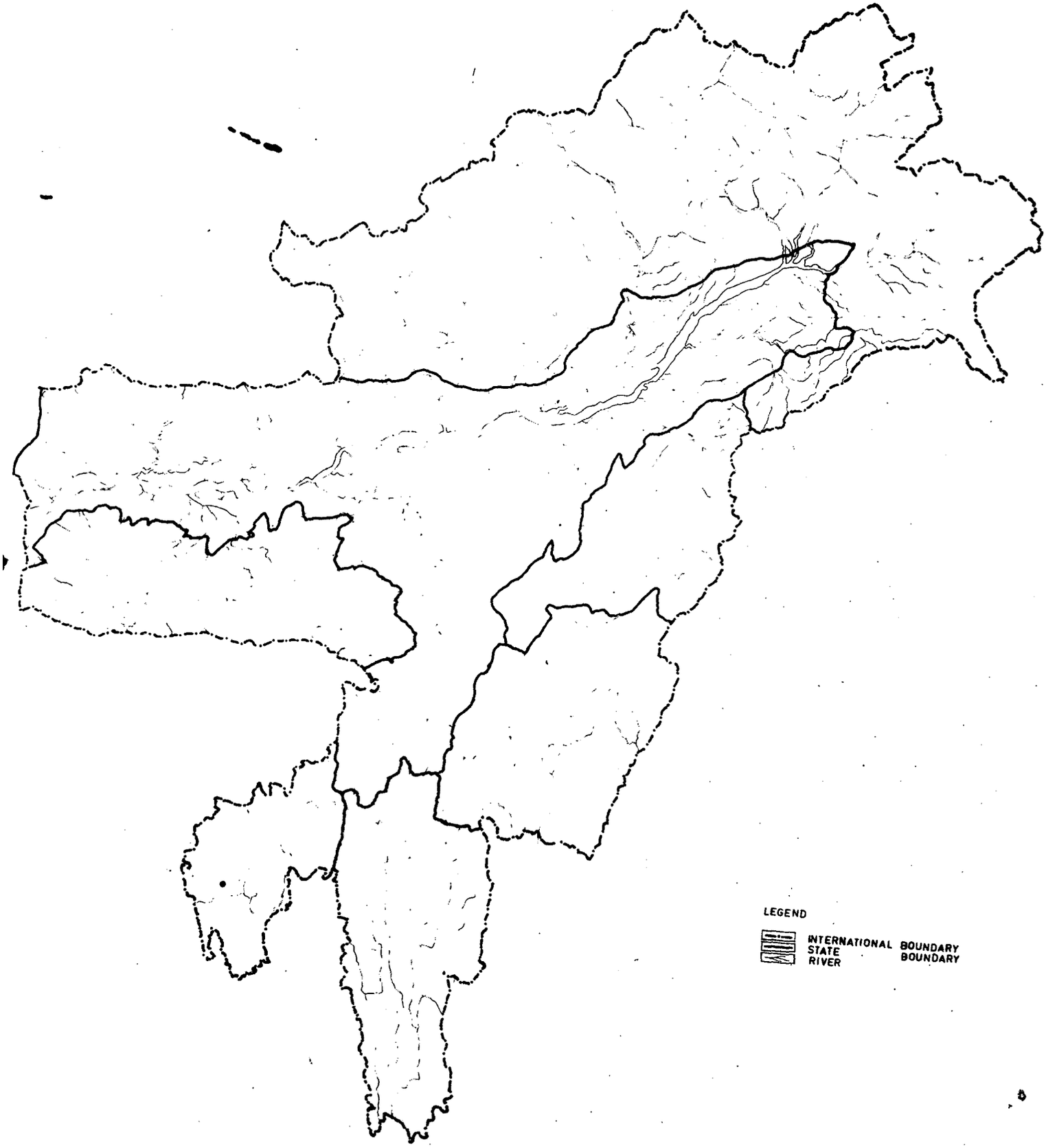
NORTH EASTERN STATES.



Map-3

DRAINAGE PATTERN: NORTH EAST REGION-INDIA

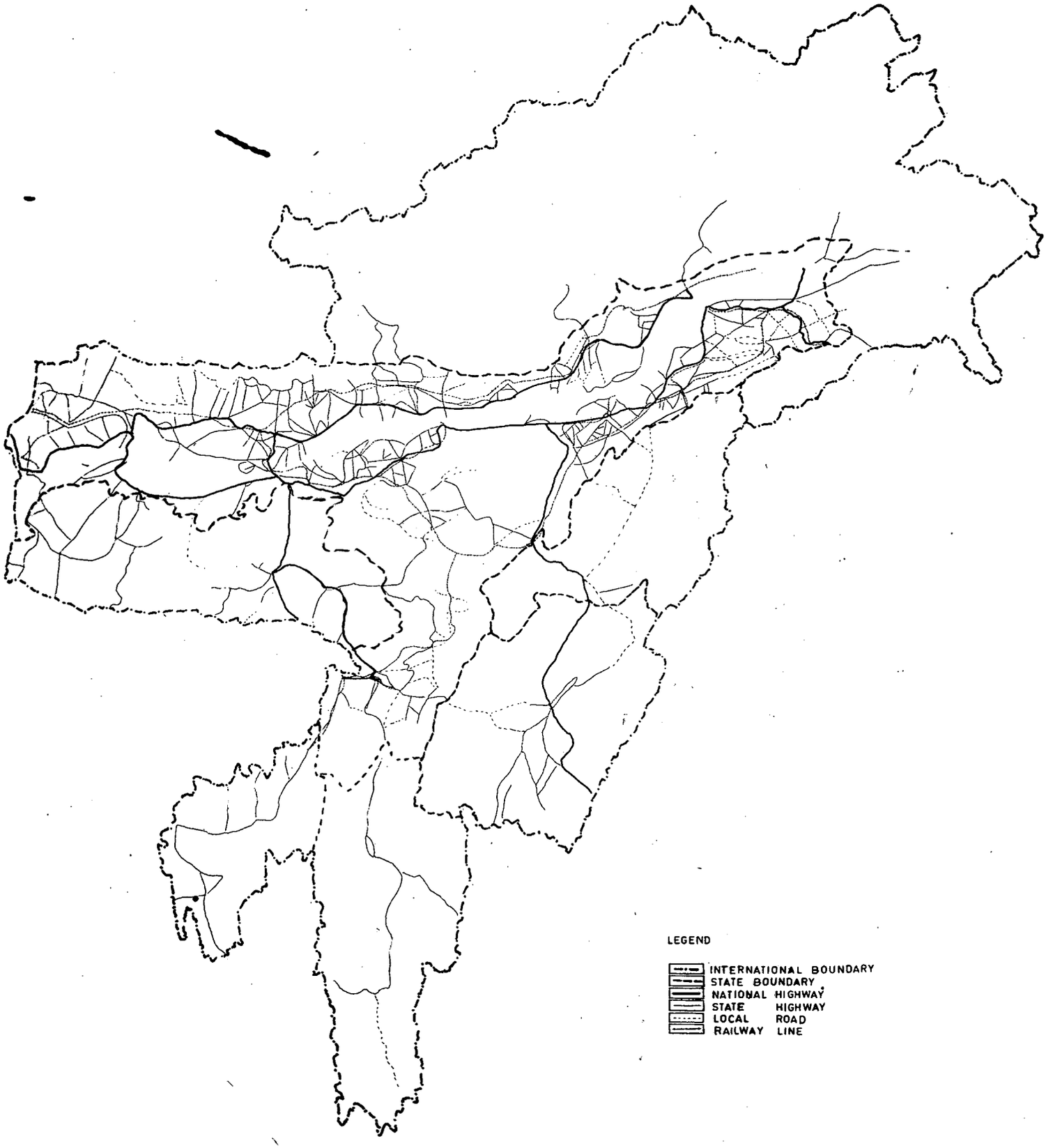
SCALE : 1 INCH=16 MILES



Map-4.

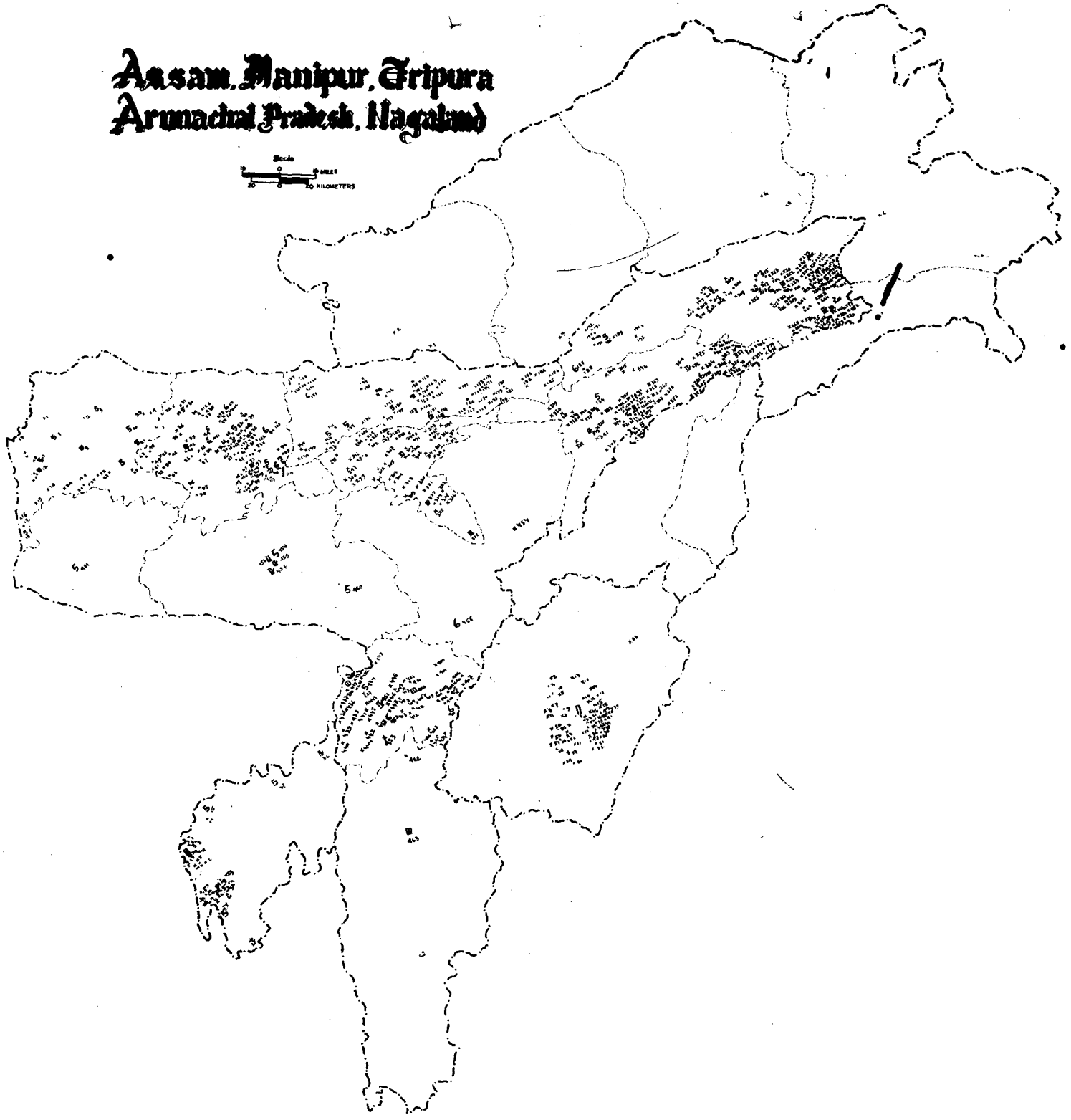
TRANSPORT SYSTEM : NORTHEAST REGION-INDIA

SCALE : 1 INCH = 16 MILES



Map-5

Assam, Manipur, Tripura
Arunachal Pradesh, Nagaland



(2) NH - 40; it passes through the Shilling plateu.

(3) The NH - 39; it starts from Golaghat and ends at Tamu-along, the Indo-Burmese border. It touches Imphal, Kohima and Dimapur.

(4) NH - 38; it runs from Dibrugarh to Lakhapani in Tirap district in Arunachal Pradesh.

(5) Gauhati - North-Lakhimpur Road; it runs through Mangoldoi, Tezpur, Charali and ends at North-Lakhimpur.

(6) Shillong Jowai - Passi-Badarpur Road; it links Tripura with south Assam.

(7) The important route which connects Assam with the rest of India is Gauhati - Siliguri route.

In addition to these important national highways, there are some roads of worth mentioning which joins important centres with these national highways and important places. Imphal is connected to Lakhimpur, Agartala to Karimganj and Lungleh to Silchar. Most of the important places of Arunachal Pradesh are connected with the main road links of the Brahmaputtra valley.

Moreover, there are many jeepable roads and numerous Bridle paths in hill areas and plains.

All the important towns of the region are connected by air. The air service is extended to some of the inaccessible areas of Arunachal Pradesh.

CHAPTER - II

2.1 DISTRIBUTION OF SETTLEMENTS ACCORDING TO GEOGRAPHICAL REGION

The table below shows the distribution of settlements according to Geographical Region and Sub-Region.

TABLE NO.2.1.1

DISTRIBUTION OF SETTLEMENTS ACCORDING TO NATURAL REGION

Region	Sub-Region	Division	SETTLEMENTS BY SIZE-CLASS I	II	III	IV	V	VI	Village	Total
Himalaya	North-Eastern	Assam Hills	-	1	-	3	3	1	2	10
		North-Eastern Hills	-	2	-	1	4	-	84	91
	Eastern Himalaya	Assam/ Bhutan Himalaya	-	-	-	-	-	-	7	7
Norther Plain	Assam Valley	(1)Brahma-puttra Valley	1	1	8	8	20	8	352	398
		(2)Surma Valley	-	-	2	1	1	2	49	55
Total			1	4	10	13	29	11	494	561

It is clear from the above table that the geographical conditions have cumulative effect on the distribution of settlements in the north-estern region. The physiographic features, especially the east mountains explain the regional disparity of the distribution of settlements. The rugged topography of the hill do not allow the even distribution of of settlements.

In the Assam hill division, we have only 10 settlements of which 8 are urban settlements and the 2 are rural settlements. The Assam hill division is a hilly tract which consists of the Assam range which is interposed between the Brahmaputtra valley and the Surma Valley. The various protion of the ranges are abode of different tribes. The ranges are named by tribes who inhabit

them such as Garo hills, the Khasi and Jayantia hills, North Cachar and the Mikir hills. These hilly inhospitable mountaineous regions, with their primitive habit of Jhum Cultivation and great backwardness of Transport and almost complete absence of any Industry great or small, are the main reasons for the absence of large sized settlements in these regions. However the rugged terrain is one of the main reasons for the absence of large sized settlements. In these areas most of the settlements are very small in size with an average of 150 persons per village. These villages are confined to the gentle slopes and mountain valleys, suitable for agricultural activities. A few households usually own a large area due to the non-productivity of land. Some of the villages are found even with leas than 10 inhabitants in the hill division. This is due to the dependancy of the people on shifting cultivation. Only a few of them live in a village keeping around them a big jungle. In addition to poor soil and unhealthy nature the region is scarcely populated because the hill districts are autonomous under the provision of sixth schedule of the constitution of India. People from out side autonomous areas cannot settle in these districts without permission of the district council and such permission is rarely given. The only two large sized rural settlements that are in this region have comeup as a result of their administrative importance. One of the rural settlements is district headquarters enumerated as a rural area in 1961 Census, the other is sub-divisional head-quarters. Out of the 8 urban centres in the division, Shillong with its three satellite towns

is the only conspicuous urban concentration in the region. Its development is mainly due to its administrative base; being the State Capital. All the satellite towns of Shillong namely, Shillong cantonment, Mawlai, Nongthymmai are contiguous suburbs of Shillong proper and they have grown separately to accommodate the growing population of the State Capital. The growth of other towns of this division is due to improved transport system and administrative importance. They are either district headquarters or sub-divisional headquarters. The north-eastern border hill region comprising the State of Tripura and Manipur also have very uneven distribution of settlements. Tripura is a good combination of alternating hills and plains. The western part of Tripura which is plain, though soil is of inferior quality large sized settlements are seen. In the hill areas of Tripura also small and scattered settlements are found. Because shifting cultivation is confined to these areas. The large portion of the fertile plain is under permanent intensive cultivation and as such the large sized settlements are confined to these regions only.

Manipur Valley which is situated at the centre of the hills occupies only 8 percent of the total area but supports 65 per cent of the total population. This is due to the fact that this is almost a level plain, its soil is fertile and its situation is amidst vast hill ranges. No such other land is available in the region. The surrounding hill tracts though cover more than 90 per cent of the total area, owing to various

disadvantageous factors account for about 1/3rd of the total population. In the hill areas the settlements are dotted on the flat topped ridges, where climate is healthy. The layout of the villages is generally found to follow the ridge on which they are situated. The villages are mostly of temporary settlements which changes with the need of shifting cultivation.

In this division we have 91 settlements in total. 7 settlements are urban settlements and the rest are rural. The urban settlements have grown as a result of administrative importance. Imphal which is the capital of Manipur is situated in Manipur, the other urban settlements are in Tripura. One of the Urban Centres of Tripura is a State Capital and the remaining are sub-divisional headquarters, which got the status of town in 1961 as they gained importance as administrative centres. Most of the rural settlements of this division are situated in Manipur in the sub-divisions of central valley. Only one settlement in this State is in hill area which has gained much importance due to administrative purpose and is well connected by roads. In Tripura all the rural settlements are concentrated in west and south-west river plains. The rivers which rises from the hill ranges flow over these regions and accummulate considerable silt in the region. This increase the productivity of the soil. The practice of settled agriculture on the fertile soil, has helped for the growth rise of large sized settlements in the region.

The Assam Himalayas is one of the most sparshly populated area with an average density of 14 persons per Km^2. The narrow fertile valleys and the arrable hill sides of the Himalayas have been populated. The general pattern of distribution follows the physical and climatic zones from North to South. The relatively densely settled southern zones are characterized by scattering of population clusters. The productive land is related to the clearings in the narrow rugged mountain valleys and the settlement pattern consists of dispersed hamlets on the lower slopes above the cultivated land. According to 1961 Census there are only 7 large sized settlements which are all rural. They are scattered in the southern zones. The large sized settlements have grown as a result of military base and administrative importance. One of the large sized settlements in the region has grown as a camp for the refugees from Tibet. The region had no Urban Centres in 1961.

Nearly 71 per cent of the settlements of the region have been concentrated in the Brahmaputtra Valley. The settlements are scattered on both the banks of the river Brahmaputtra and the distribution of the settlements follows a linear pattern (Map-5). The urban settlements are distributed far apart from one another in the midst of the rural settlements and act as nerve centres for various commodities of the region. These urban centres are in close proximity of the river Brahmaputtra. Most of the urban settlements of the Valley are small in size. There are only two big towns namely Dibrugarh and Gauhati in the valley. The rest 50 towns are small in size. The low

population even in the important towns is due to the fact that they are industrially backward. Almost all the urban centres of the valley have developed as administrative headquarters, commercial centres and transport foci. The town Dighoi in the eastern part of the valley has grown as an oil town and Tinsukia has grown as commercial town. Excluding these two towns, other towns are mostly sub-regional administrative centres or market towns. They serve to feed the surrounding villages.

The region has 352 large sized rural settlements. These large sized settlements are mostly tea gardens and are concentrated in the eastern and southern part of the valley. The total number of tea garden settlements of the region is 154. High concentration of Agricultural settlements are confined to Kamrup, Nowgong and Goalpara districts. The tea garden regions of the valley have only 41 agricultural settlements.

The distribution pattern of rural settlements of Surma Valley is also of similar fashion as in the Brahmaputtra Valley. The urban settlements in this plain have also been uniformely distributed Owing to its natural setting with hill on all sides. There are 6 urban centres in this region. Accepting Badarpur Railway Town which has come as a transport foci all the towns are grown as administrative and commerce centres. The centrally located Silchar town governs all the urban centres of the region.

2.2. SOIL TYPE AND DISTRIBUTION OF SETTLEMENTS

The soil of the region can be divided broadly into (a) Forest hill, old and new alluvium (b) Old and New alluvium (c) Red soil and alluvium (d) Red soil (e) Forest and hill soil, (f) Alluvium laterite, hill and forest soil. The distribution of settlements according to soil type is shown on the next page.

TABLE NO. 2.2.1

DISTRIBUTION OF SETTLEMENT WITH RESPECT TO SOIL TYPE

Soil Type	NUMBER OF SETTLEMENTS I	II	III	IV	V	VI	Village	Tea Estate	Total
Forest Hill old and new Alluvium.	1	1	4	4	18	5	159	38	230
Old and New Alluvium.	-	1	4	5	6	3	79	114	212
Red soil and Alluvium.	-	2	2	4	4	3	77	27	119
Total*	1	4	10	13	28	11	315	179	561

In order to examine the relationship of the soil type with distribution of settlements; X^2 test is applied with a hypothesis that there is no relationship of soil type with distribution of settlements. The calculated value of X^2 is found to be 139.7 for 4 d.f.@ at 5 per cent level which is greater than table value 9.49, which rejects our hypothesis. This shows that the soil type plays an important role for the distribution of the settlement in the region. The New alluvial soils are suitable for the cultivation of rice, jute, pulses, mustered etc. The old alluvial soils are acidic and are usually deficient in available phosphate. The acidic character of these soils make suitable for tea plantation. These are suitable for sugarcane, fruits, rice and vegetables. In the Brahmaputtra Valley excluding the forest and hill soil of norther part, the whole of the valley occupies old and new alluvium. The acidic character of the soil is mostly available in the eastern Assam where a large number of tea gardens.

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* Settlements are grouped in to three prominant type of soils of the region to facilitate application of X^2.

@ Settlements are classed as Towns, Villages and Tea estates to calculate X^2.

are grown. Along with the tea gardens, a large number of towns have also grown in this region. The region is having 212 settlements of which 114 are tea gardens and 19 are Urban Centres. The low lands of the region is suitable for agriculture as such 79 rural settlements have also grown in this soil type. The soil of western Assam which is forest hill old and new alluvium is suitable for Tea, Rice, Vegetables and Jute. The production of tea is less in this soil as compared to eastern Assam, as such we have only 38 tea gardens. In this soil type we have 19 urban centres which have grown as trade and commerce centres due to better transport linkage. The soil type, plenty of water for cultivation and timely rain has helped for the growth of large number of agricultural settlements in this soil type. Jute cultivation is as important in this region as tea in the eastern Assam.

The Red and alluvium soil of the region which is suitable for both agriculture and tea gardens in the hill slopes contain 27 tea gardens and 23 villages. The area being mostly hilly we have smaller number of settlements as compared to the number of settlements in the soil type as mentioned above. Fruits and vegetables also grow in abundance in this type of soil. The red soil region mostly comprises Manipur and Mizo hills district of Assam. These soils are also suitable for cultivation, of rice fruits and vegetables. These region being also hilly we have only a few settlement they are mostly concentrated in the river valley. The soil contains only two urban centres.

The Assam Himalaya which contains forests and hill soil is less fertile and also cultivation is not as easy as that in the Brahmaputtra valley. Here we have only 7 large sized scattered settlements in this region.

2,3 TRANSPORT NETWORK AND DISTRIBUTION OF SETTLEMENTS

The table below shows the distribution of settlements with respect to Transport net works.

TABLE 2.3.1

DISTRIBUTION OF SETTLEMENTS WITH RESPECT TO TRANSPORT NET WORK

Size Class	TRANSPORT NET WORK							
	Broad Gauge Station.	Meter Gauge Station.	Broad Gauge Junction.	Meter Gauge Junction.	National Highway.	State High way	Local road	River
I	-	1	-	-	1	-	-	1
II	-	1	-	-	3	1	-	4
III	-	7	-	2	8	2	-	5
IV	-	7	-	-	6	7	-	3
V	3	10	-	2	14	14	-	4
VI	-	8	-	-	5	6	-	2
VIIL.	-	24	-	-	96	121	98	10
Tea Estate	-	12	-	-	46	66	67	-
Total	3	70	-	4	179	217	165	29

As mentioned in the previous Chapter, the region is not so well developed in road and railways. Only recently some developments in both railways and roads have taken place in the region. The

settlements in the region are often arranged either on the high levels of Brahmaputtra and its tributaries where the valley is wide above the flood plains or along with the transport arteries. All the urban centres of Brahmaputtra valley are concentrated in close proximity of the river Brahmaputtra which has long been serving as the carrier of commerce. All the important urban centres are situated just on the bank of the river. The other urban centres though they have not clung to the river, they are at some distance away by the side of Railways, State or national highway giving thereby a linear pattern.

The region has broad gauge line covering only a distance of 100 kms. It has recently been constructed. Only 3 large sized settlements of western Assam has been connected by this broad gauge line.

The two railway lines which run longitudinally on both the banks of the valley touch almost all the important towns of Assam and also a few villages and Tea gardens. As a result of the development of railways in the region some urban centres have grown and they are mostly situated at the junction of the railways.

The national highways which run parallel to river Brahmaputtra from one end of the valley to the other touches many urban centres, and manyvillages and tea gardens. The State highways which are working as feeder roads to the national highways also touche most of the urban centres, village

and tea gardens. The local roads which are also either feeder roads of State highways or national highways connect a large number of villages and tea gardens of the region. The National highway running from Golaghat to More in the Indo Burmese border touches 21 large sized villages of Manipur valley and the Imphal town. The other settlements are either connected by State highways or national highways.

The hill division of the region has practically no railways, excepting a main line of North-Eastern Railway which passes through United Mikir and North Cachar Hills. This line touches both the large sized settlements of the region. Khasi and Jaintia Hills is well connected by national highway which passes through the centre of the pleatue and touches all the urban centres of the region. All the settlements in Mizo and Garo Hills are well connected by State Highways.

All the six urban centres of Surma Valley are well connected by railways and either by national highways or state highways. All the rural settlements of this region are well connected by national highways, state highways and local feeder roads to national and state highways.

In Tripura region the railway is extended upto one urban centre only. The rest are connected well by state highways. The large sized settlements of this region are either connected by state highways or local roads.

All the settlements of Arunachal Pradesh are also connected by well built motorable roads. These roads are actually the

feeder roads of national highways of Assam Valley.

There is well developed air service also in the region. Gauhati, Tezpur, North-Lakhimpur, Dibrugarh, Jorhat, Silchar, Agartala and Imphal are connected by air service.

It can be said that development transport and communications in the region has helped the growth of large number of towns and also the large sized settlements.

2.4 NEAREST NEIGHBOUR TECHNIQUE AS A MEASURE OF SPATIAL RELATIONSHIP

The nearest neighbour analysis is a test to recognize the randomness or otherwise the distribution of the settlements in the space. The distribution is uniform if the settlements tend to disperse uniformly with reference to each other and cluster if the settlements tend to occur in clums. Their analysis is based on the measurement of actual straight line distance between a settlement and its nearest neighbour settlement and comparison of these distances with expected distance. If $\sum r$ be the total distance of the 'N' settlements distributed in random manner 'r_e' be the expected distance of these settlements. Then the relation, $\frac{\bar{r}_a}{\bar{r}_e} = 2\sqrt{\rho}\,\bar{r}_a$ is defined as the nearest neighbour statistic and is denoted by Rn. where $\bar{r}_a = \frac{\sum r}{N}$, $\bar{r}_e = \frac{1}{2\sqrt{\rho}}$ and $\rho = \frac{N}{A}$ N = Number of settlements and A = Area of the distribution of the settlements. The value of Rn ranges from O to more than one according as the distribution of settlements are cluster and random. If the value of Rn $\angle$ .75 the distribution is cluster and if lies between .75 - 1.499 the distribution is randomrand if it is greater than 1.5 the distribution is even.

The technique is applied to study the population cluster with the above Rn Scale

Table - 2.4.1

TABLE SHOWING NATURE OF SETTLEMENT PATTERN

Units	Number of settlements.	Area Sq. Km.	Density of settlement per unit area	Mean Obs. distance	Expected Mean distritc.	Nearest neighbour statistic	Nature of Pattern
Goalpara	29	3979.1	0.007	5.6	0.167	0.935	R
Kamrup	96	3811.2	0.025	1.8	0.316	0.5688	C_1
Darrang	94	5012.0	0.019	1.5	0.275	0.412	Cl
Lakhimpur	94	5012.0	0.019	1.5	0.275	0.412	Cl
Sibsagar	70	3476.0	0.020	2.7	0.283	0.764	R
Nowgong	48	2200.0	0.022	3.5	0.296	1.036	ev.
Cachar Hill	54	2680.0	.020	3.9	0.283	1.103	ev.
Garo Hill	1	3152.0	315.2	17.3	112.285	-	-
United Khasi & Jaintia	5	5554.0	.001	5.7	0.0632	0.3602	-
United Mikir & North Cachar Hill	2	5883.0	0.003	31.1	0.0346	1.076	-
Mizoram	2	8143.0	.0002	19.9	0.0282	0.561	-
Manipur	54	8628.0	0.006	3.5	0.1549	0.5421	Cl
Tripura	37	4036.0	0.009	3.9	0.1897	0.73	Cl
Arunachal	7	31,438	0.0002	17.3	0.0282	0.489	-

After necessary computation results found have been tabulated as above indicating the distribution Pattern of All the three plain districts namely Kamrup, Darrang and Lakhimpur show cluster pattern. The aggregation of population cluster correspond to the fertile agri land and a good number of tea

R - Rendom Cl - Cluster ev - even

gardens in the Upper Assam Valley. The uniform character of population in Nowgong district may well be attributed to the fact that the entire region is a level plain with no physical handicap as in the other districts of Assam. Presence of well distributed communication lines through out the entire district has also contributed to a great extent of the uniform pattern of settlement. The same may be said in case of Cachar district. In case of Mizo, United Mikir and North Cachar district, Garo Hill district, Khasi Jaintia hills district and Arunachal Pradesh, the number of settlements being less than 10, it is difficult to measure the cluster or Randomness. In the case of Sibsagar and Goalpara districts though the pattern of distribution is random they are tending towards an even nature. It is mainly due to the fact that it is a limited area/handicapedfor population cluster. In the cases of Manipur and Tripura, settlements are found to be elustered as the plain alone is suitable for efficient agriculture

CHAPTER - III

DEMOGRAPHIC PROFILE OF SETTLEMENTS

Some of the demographic characters such as density, growth rate, literacy rate, sex ratio and dependancy ratio of the settlements of the region have been analysed here.

3.1 Density

The population per unit area gives a crude measure of density. The average urban density of the region as a whole is 8303 persons per square mile, which is higher than national urban density which is 5302 persons per square mile. The following table gives distribution pattern of settlements in the region in different density group.

TABLE NO. 3.1.1.

TABLE SHOWING DISTRIBUTION OF SETTLEMENTS IN DIFFERENT DENSITY GROUPS

Density	Assam	Manipur	Tripura	Arunachal	Total
8,500 +	28	7	4	-	39
7,000-8,500	9	2	1	-	12
5,500-7,000	23	4	2	-	29
4,000-5,500	22	1	1	-	24
2,500-4,000	58	5	2	-	65
1,000-2,500	183	28	5	-	216
<1000	140	5	8	-	153
NA	-	2	14	7	23
Total	463	54	37	7	561

The table shows that the density of the settlements in the region is not even. Almost all the settlements in the

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region are concentrated in the lower density group. 14.4 per cent of settlements are above national average group, which contains 4.3 per cent of the settlements. The rest 81.3 per cent of the settlements are below the national average group. In the Brahmaputtra Valley, the local variation in the density of population is observed from one part to the other part within the valley. The density of lower Assam is considerably higher than the Upper Assam. This may partly be attributed to the early occupation of the area, being located in the close proximity of the very densely populated region of Bengal and availibility of large tracts for the agricultural immigrants. The following table establishes the truth.

TABLE 3.1.II

DISTRIBUTION OF SETTLEMENTS IN DIFFERENT DENSITY GROUPS IN THE REGION

	BRAHMAPUTTRA VALLEY				SURMA VALLEY			
Density	Lower	Centry	Upper	Hill div.	Cachar	Manipur	Tripura	Total
8,500+	11	4	7	3	3	7	4	39
7,000-8,500	2	3	3	-	1	2	1	12
5,500-7,000	11	3	4	2	3	4	2	29
4,000-5,500	6	4	8	1	3	1	1	24
2,500-4,000	25	16	12	-	5	5	2	65
1,000-2,500	55	45	56	4	23	28	5	216
/1000	16	44	63	-	17	5	8	153
Total	126	119	153	10	55	52	23	538

The lower Assam, in addition being the place of early

settlement is a place of high urbanization with best transport net work. As such we have greater number of settlements in the higher density groups. The central Assam which consists of Darrang, Nowgong and North part of Lakhimpur district is partly agricultural, and partly tea gardens region. Darrang and North part of Lakhimpur district is not so well developed in transport and communication in comparison to its component district Nowgong which is purely agricultural. In this region we observe lesser number of settlements in the higher density groups. In hill division where 80 per cent of the settlements are urban settlements are in higher density groups. The Upper Assam region which is predominently a tea garden region is also urbanized in comparison to central Assam. Here we observe a large number of settlements both in higher and lower density groups. The distribution pattern of settlements in Surama Valley is as that of central Assam. In Manipur a large number of settlements are concentrated around Imphal Town. All large sized settlements situated near Imphal town are in high density groups. More than 50 per cent of the settlements of Manipur are situated in the entirely rural areas in the south of Manipur. Excepting a few settlements of this region which are administrative centres all other settlements have low density in comparison to settlements near urban centre.

The distribution pattern of settlements in Tripura region is similar to that of Manipur Valley. Apart from the urban centres, the villages situated on the fertile soil in the southern part of Tripura are dense. The region through which the rivers from the

hills pass through, accummulate considerable silt. This increases the productivity of the soil. In such regions villages with high density are seen.

The classwise distribution of settlements give some idea of the density of different urban centres, villages and tea gardens of the region.

TABLE 3.1.III

TABLE SHOWING DISTRIBUTION OF SETTLEMENTS ACCORDING TO SIZE CLASS IN DIFFERENT DENSITY GROUPS.

Density	I	II	III	IV	V	VI	VIII.	Tea Estate	Total
8,500+	1	3	7	5	2	-	21	-	39
7,000-8,500	-	-	1	2	4	-	5	-	12
4,000-5,500	-	-	-	2	6	3	9	4	24
2,500-4,000	-	-	-	1	5	3	43	13	65
1,000-2,500	-	-	2	-	5	1	150	58	216
∠1000	-	-	-	-	-	-	54	99	153
Total	1	4	10	13	28	11	292	179	538

From the table above it is observed that almost all the tea gardens are in lower density groups, for which the tea region of both Brahmaputtra and Surma Valley have large number of settlements with low density. More than 74 per cent of Urban Centres of the region are in higher density groups. In areas which contain large number urban centres a good number of settlements with high density are observed In Lakhimpur district, which is basically a tea garden district, has a good number of Urban Centres which are grown

as a result of exploitation of natural resources, and the existance of tea gardens, a large number of settlements in the higher density groups are observed. The highest number of villages (6) are found in Manipur Valley, where the land is limited for cultivation and as such concentration of population in the limited area is quite natural. The only two rural settlements of the hill division fall in the lower density groups.

3.2 GROWTH RATE OF SETTLEMENTS

The average urban growth rates of population in Assam, Manipur and Tripura during 1951-61 are 122.5 per cent, 172.4 per cent and 59.8 per cent respectively which is highest in comparison to national urban average (36 per cent). The following table gives the distribution of settlements in different states in the region.

TABLE 3.2.I

DISTRIBUTION OF SETTLEMENTS IN DIFFERENT GROWTH RATE GROUPS IN DIFFERENT ESTATES OF NORTH-EASTERN REGION

Growth rate	Assam	Manipur	Tripura	Arunachal	Total
100+	91	4	-	-	95
66-99.9	22	5	-	-	27
56-65.9	19	3	-	-	22
46-55.9	25	3	-	-	28
36-45.9	44	9	-	-	53
26-35.9	76	16	1	-	93
16-25	63	5	-	-	68
6-15.9	66	6	-	-	72
0-5	15	-	-	-	15
/0	22	1	-	-	23
NA	20	2	36	7	65
Total	463	54	37	7	561

From the table above it is observed that, the region as

a whole has 32.3 per cent of settlements above the national average group which contains 9.4 per cent of the settlements. The distribution of settlements below the national average is slightly more than 44 per cent. Out of total 463 settlements of Assam 34.3 per cent of settlements are above national average group and 52.0 per cent of settlements are below national average. The settlements in the national average group is 9.6 per cent. Manipur has 27.3 per cent of settlements of its total settlements above national average group and 50.6 per cent of settlements below national average group. The number of settlements (17.2 per cent) in the national average group in Manipur is slightly higher than that of Assam. The distribution of pattern of settlements of both Manipur and Assam in different growth rate groups is to some extent similar.

The following table shows the variation of growth rate of settlements in different growth rate groups within the region.

TABLE 3.2.II

TABLE SHOWING REGIONAL VARIATION OF GROWTH RATES OF SETTLEMENTS IN THE NORTH-EASTERN REGION

Growth rate	Brahmaputtra valley			Surma valley	Hill div.	Mani-pur.	Tri-pura	Arun-achal	Tot-al.
	Low-er.	Central	Upper						
100+	38	20	23	5	5	4	-	-	95
66-99.9	3	7	8	4	-	5	-	-	27
56-65.9	5	8	4	2	-	3	-	-	22
46-55.9	3	6	12	3	1	3	-	-	28
36-45.9	12	13	17	2	-	9	-	-	53
26-35.9	19	17	32	7	1	16	1	-	93
16-25.9	17	16	19	11	-	5	-	-	68
6-15.9	11	21	21	13	-	6	-	-	72
0-5,9	4	5	4	2	-	-	-	-	15
-0	4	3	11	4	-	1	-	-	23
NA	10	3	2	2	3	2	36	7	65
Total	126	119	153	55	10	54	37	7	561

The distribution pattern of settlements in different growth

rate groups in the region is of similar nature, with large number of settlements in the higher growth rate groups. It has been observed that the regions having the large number of settlements in higher density groups, have also larger number of settlements in the high growth rate groups.

Here at attempt is made to see whether there is any effect of the size class in the distribution of settlements. The table below gives the distribution of settlements by size-class.

TABLE 3.2.III

TABLE SHOWING DISTRIBUTION OF SETTLEMENTS SIZE CLASSWISE IN DIFFERENT GROWTH RATE GROUPS

Growth rate	I	II	III	IV	V	VI	Village.	Tea Estate	Total
100+	1	1	1	2	6	1	70	13	95
66-99.9	-	-	1	3	1	-	12	10	27
56-65.9	-	-	-	1	-	-	13	8	22
46-55.9	-	1	4	-	1	2	11	9	28
36-45.9	-	-	1	2	1	1	29	19	53
26-35.9	-	2	1	1	2	-	45	42	93
16-25.9	-	-	2	1	-	-	42	23	68
6-15.9	-	-	-	-	1	1	41	29	72
0-5.9	-	-	-	-	-	-	6	9	15
∠0	-	-	-	-	-	1	5	17	23
N.A.	-	-	-	3	16	5	41	-	65
Total	1	4	10	13	28	11	315	179	561

It is seen from the table that most of the towns of different size-classes in the region are centred round national average group. All the new towns of 1961 are seen to have high

grow-rates. There is only one town in the region with negative growth rate. It is because a greater portion of the town has been washed away by the river Brahmaputtra. Lower Assam which is highly urbanized, records for larger number of rural settlements in the higher growth rate groups. Upper Assam has also a larger number of settlements in the higher growth rate groups. The region being rich in mineral resources such as oil, good number of towns have come in this region. These have some impact on the growth of large number of settlements in the higher growth rate groups. Villages situated just on the vicinity of urban centres show higher growth rates. This is due to migration of people from outside. In case of tea gardens, the growth rates are observed to be as that of other agricultural villages situated far from the urban centres. In tea gardens where employment is available for a limited number of persons control the migration from outside and hence the growth is purely natural. A few tea gardens are seen to come up in the highest growth group. Such tea gardens have growth of semi-urban places on their vicinity, where the migration from outside is higher. Newly opened tea gardens also show high growth rates as there are labour migration from outside. The negative growth rate in some of the gardens is either damage done by the river Brahmaputtra to the tea gardens or decaying of some of the tea gardens. Moreover sometimes there is transfer of tea garden labourers from one tea garden to another as and when required which gives low growth rates in one and high growth rates in the other. Some of the villages situated on the bank of river

Brahmaputtra and on the national high way have recorded negative growth rates. This appears that errosion by the river compelled some people to leave the place. The acquisition of land for roads, oil pipe lines may have also the shifted some of the people from one place to another giving rise to negative growth rate in one place and high growth rate in the other.

As a whole the region has highest growth rate. This may be attributed due to Pakistani infiltration rapid Industrialization, Urbanization, and various developmental works done in the region.

3.3 LITERACY

The person who can read and write is defined as literate in Indian Census. The north-eastern region as a whole has low rates of literacy due to its rugged terrain and difficult communication. The table below shows the distribution of settlements in different literacy groups.

TABLE 3.3.I

DISTRIBUTION OF SETTLEMENTS, STATEWISE IN THE REGION IN DIFFERENT LITERACY GROUPS

Literacy rate	Assam	Manipur	Tripura	Arunachal	Total
67+	9	-	-	-	9
57-66	36	-	-	-	36
47-56.9	50	14	6	2	72
37-46.9	44	13	6	3	66
27-36	65	17	5	2	89
17-26	80	6	9	-	95
/17	179	4	11	-	194
Total	463	54	37	7	561

From the table above it has been observed that excepting Arunachal all the states have considered number of settlements in the lower literacy group. Though Arunachal is

not so advanced it seen that all the settlements are either in national average group or around it. The large settlements of Arunachal being the administrative centres of the region with military base show higher literacy rates. In Manipur the large sized settlements are centred to a limited valley where communication is easy with comparatively good distribution of educational facilities large number of settlements in and arround national average groupsare seen. Tripura has a larger number of settlements below the national average group. Here communication is not so easy as that of Manipur Valley due to alternate hills and rivers. Moreover heavy migration of unskilled labourers to this area from Bangladesh accounted for the large number of settlements in the Lower literacy groups.

In Assam the large number of settlements in the lower literacy group is accounted for the existence of tea gardens in the region where literacy rate is low. The Muslim immigrants have also brought down the literacy rates of rural settlements in Assam. The Muslim immigrants are intelligent and are hard working and work from sun rise till sunset. They have no time for education, even the small children have to do household works such as tending or feeding cattles, goats and fowls or taking meals for those working in the field. Another cause of low literacy of the Muslim immigrants is that they do not send their female children for education. However urbanization and development in communication in the region has

helped for the growth of large number of settlements in the higher literacy groups. An attempt is made here to see whether there is any regional variation in the literacy of the settlements.

TABLE 3.3.II

TABLE SHOWING DISTRIBUTION OF SETTLEMENTS REGIONWISE IN DIFFERENT LITERACY GROUPS

Literacy rate	Brahmaputtra Valley			Hills Div.	Surma valley.	Manipur	Tripura	Arunachal	Total
	Lower Assam	Central Assam	Upper Assam						
67+	3	1	2	2	1	-	-	-	9
57-66.9	6	5	14	5	6	-	-	-	36
47-56.9	16	16	14	2	2	14	6	2	72
37-46.9	30	6	4	1	3	13	6	3	66
27-36.9	28	20	11	-	6	17	5	2	89
17-26.9	22	14	17	-	27	6	9	-	95
∠17	21	57	91	-	10	4	11	-	194
Total	126	119	153	10	55	54	37	7	561

The Lower Assam region which is an area of high density and high growth rate is seen to be a region of high literacy rates with a large number of settlements in the higher literacy groups. High degree of urbanisation resulting expansion of educational facilities have contributed to the growth of a large number of settlements with high literacy rates.

Central Assam which is agricultural and which also has a large number of tea gardens shows low rates of literacy in comparison to the other two regions of the valley. The presence of 43 tea gardens in the region account for the largest number settlements in the lower literacy groups. Similarly the Upper Assam region which is predominently a tea garden region has a very large number of settlements in the lower literacy group. The region accounts for 108 tea gardens of the state. One of the two districts of this region has better educational facilities and as such it has a large number of settlements belonging to the high-literacy category i.e. above national average group.

The distribution of settlements, by size class helps us to understand the types of settlements contributing to higher literacy rates and lower literacy rates. The following table is presented showing the settlements by size class in different literacy groups.

TABLE 3.3.III

DISTRIBUTION OF SETTLEMENTS BY SIZE CLASS IN DIFFERENT LITERACY GROUPS

Literacy rate	I	II	III	IV	V	VI	Village	Tea Estate	Total
67+	1	-	1	2	-	-	5	-	9
57-66.9	-	2	6	5	8	3	12	-	36
47-56.9	-	2	3	4	11	8	44	-	72
37-46.9	-	-	-	2	7	-	57	-	66
27-36.9	-	-	-	-	2	-	84	3	89
17-26.9	-	-	-	-	-	-	57	38	95
∠17	-	-	-	-	-	-	56	138	194
Total	1	4	10	13	28	11	315	179	561

It can be seen from the above table that literacy rate

in nine towns equal the national average and two are below the national average. The rest of the towns are above the national average. All the rest urban centres of all sizeclass are above the national average group. The two towns which are situated on the western part of Assam, where the migration from Bangladesh is comparatively higher. The emergence of these two places as towns for the first time in 1961 with low rates of literacy give some hints of concentration of illiterate migrants in these areas. In these two towns more than 40 per cent of male workers are found engaged in transport and communication. This indicates that the migrants have been of working as rickshaw pullers, petty shop keepers and hawkers are there.

More than 50 per cent of the villages are found below the national average group. The low rates of literacy in villages is due to the fact that indigeneous people of Assam are indifferent to send their female children to school for various social customs. Lack of Economic incentive has also got a lot to do with parental indifferences to send their female children to school. Moreover the schooling facilities even at the Primary level are not available in some of the villages. Migration, social taboos, non availability of schooling facilities and poor economic conditions are the main causes of Low Literacy in case of villages. Villages having better schooling facilities with better communications show high literacy rates.

For the low literacy of tea gardens, can also be explained in the same way.

3.4 SEX RATIO

The sex ratio is defined as the number of females per thousand males in the population. Assam has an average urban sex ratio of 672 which is lower than the national urban average of 845. The urban sex ratio of Manipur and Tripura is 884 and 985 respectively. The table below gives the distribution of settlements in different sex ratio groups in different states of the region.

TABLE 3.4.I

DISTRIBUTION OF SETTLEMENTS OF NORTH-EASTERN REGION

Sex ratio	Assam	Manipur	Tripura	Arunachal	Total
1000+	20	32	3	-	55
950-999	46	18	7	-	71
900-949	135	4	16	-	155
845-899	134	-	8	-	142
800-844	43	-	3	-	46
750-799	16	-	-	-	16
700-749	22	-	-	-	22
⁄700	47	-	-	7	54
Total	463	54	37	7	561

There is marked variation in sex ratio in different States. In Assam large number of settlements are concentrated in the national average group and the group above it. In case

of Manipur all the settlements are above the national average group which shows predominant rural character of the state. Large sized settlements in Arunachal are grown as a result migration of people from outside as such all settlements are in lowest group.

An attempt is made to see whether there is any regional variation in sex ratio in different regions in North-Eastern States. The following table gives the distribution of settlements in different region of the States.

TABLE 3.4.II

DISTRIBUTION OF SETTLEMENTS REGIONWISE IN DIFFERENT SEX-RATIO GROUPS.

Sex ratio	Brahmaputtra Valley			Hill Div.	Surma Valley	Mani-pur	Tri-pura	Aru-na-chal	Total
	Low-er	Cen-tral	Upp-er						
1000+	14	2	2	1	1	32	3	-	55
950-999	15	14	6	1	10	18	7	-	71
900-949	29	35	52	-	20	4	16	-	155
845-899	32	34	48	3	17	-	8	-	142
800-844	15	9	18	-	1	-	3	-	46
750-799	3	5	5	1	2	-	-	-	16
.700-749	4	6	9	1	2	-	-	-	22
⁄700	14	14	14	3	2	-	-	7	54
Total	126	119	153	10	55	54	37	7	561

It is seen from the above table that the region of tea gardens have lower number of settlements in the highest

sex ratio group. The over all picture of distribution of settlements in different sex ratio groups in Assam is of uniform nature with highest number of settlements above national average and comparatively smaller number of settlements in the lower sex ratio groups.

Villages situated just on the cicinity of urban centres are having lower sex ratios. Villages functioning as administrative centres also have low sex ratios, this is because of migration of male people from outside. Some villages which are grown on the 'Chapori' or the 'Char' of Brahmaputtra are seen to have low sex ratio. These being newly formed fertile lands for agriculture, high migration of cultivators from different parts is generally observed there. Such places are generally used as 'pam' a place used for cultivation only and not for permanent settling. In such places only a few female migration is there, and this is also seasonal that is during the peak season of agriculture. Such type of villages generally have low sex ratio. We have 8 such villages in the Brahmaputtra Valley. The another types of villages which have grown as 'satras' have shown comparatively lower sex ratio. All the tea gardens excepting 20 which are in lower groups of sex ratio are in higher groups.

In Manipur and Tripura all the settlements are seen above the national average group.

The variation of sex ratio by size class has been

examined in the following table.

TABLE 3.4.III

DISTRIBUTION OF SETTLEMENTS BY SIZE CLASS IN DIFFERENT SEX RATIO GROUPS.

Sex ratio	I	II	III	IV	V	VI	Village	Tea Estate	Total
1000+	-	-	-	-	1	-	51	3	55
950-999	-	1	-	-	1	-	54	15	71
900-949	-	-	-	1	3	1	72	78	155
845-899	-	1	1	5	4	-	68	63	142
800-844	-	-	-	-	4	1	26	15	46
750-799	-	1	4	1	1	1	6	2	16
700-749	-	-	-	4	3	1	12	2	22
⟨700	1	1	5	2	11	7	24	3	54
Total	1	4	10	13	28	11	315	179	561

It is seen from the above table that almost all the urban settlements of higher classes have low sex ratios. Only one Class II town of Manipur has shown highest sex ratio, it is because inclusion of a large portion of rural area in Urban Centres during 1961 Census. The class V and Class VI towns which emerged mostly as new towns in 1961 have high sex ratios. This indicates that the small towns show some rural character of the region where as larger towns do not. Nearly 75 percent of the urban settlements in all the size class

are below the national average group. The only class I town of the region which has the lowest sex ratio (496) is below the national group. Generally it has been noticed that in all size class of towns higher the sex ratio, higher is the dependency ratio. In case of Class II towns of Manipur and Agartala some deviation has been found. In Agartala the sex ratio (874) is lower than the sex ratio of Imphal (985), But examining the per cent of female workers in these towns it is noticed that, in Agartala only 4 per cent females are engaged in works where as in Manipur 40 per cent ofemales are engaged in works. Such fact is found in case of other towns also.

In some of the villages also same pattern is found to follow. However participation of females in household Industry such as spinning, weaving etc in most of the villages brings doan the dependancy ratio though sex ratio is high. So is the case in tea gardens, where participation of women and children is high.

3.5 DEPENDENCY RATIO

The proportion of non-workers to total workers gives a crude measure of dependency ratio. The percentage of non-workers in Assam, Manipur, and Tripura according to 1961 Census is 56.7, 54.1 and 61.7 respectively. In case of Assam and Manipur it is slightly lower than 57 per cent which is all India percentage of non workers. In the north-eastern region

Tripura has the highest number of non-workers in comparison to the neighbouring States. As such we have no settlements in the lowest dependency group in this State. In all other States we have settlements distributed both in higher and lower groups of dependency. The table below gives the distribution of settlement in different States in different dependency ratio groups.

TABLE 3.5.I

DISTRIBUTION OF SETTLEMENTS IN DIFFERENT DEPENDENCY RATIO GROUPS

Dependency ratio	Assam	Manipur	Tripura	Arunachal	Total
382	-	-	-	-	-
332-381	4	2	-	-	6
282-331	13	-	3	-	16
232-281	52	3	16	-	71
182-231	86	4	17	-	107
132-181	120	8	1	-	129
82-131	181	35	-	3	219
/82	7	2	-	4	13
Total	463	54	37	7	561

The table above shows that there are no settlements in the lowest dependency ratio group in case of Tripura where as all the other States are having settlements in lowest dependency ratio groups.

The regional variation in sex ratio has been examined with the help of the following table.

TABLE 3.5.II

DISTRIBUTION OF SETTLEMENTS REGIONWISE IN DIFFERENT DEPENDENCY RATIO GROUPS

Dependency ratio	Brahmaputtra Valley Lower	Central	Upper	Hill div.	Surma valley.	Manipur.	Tripura	Arunachal	Total
382+	-	-	-	-	-	-	-	-	-
332-381	3	-	-	-	1	2	-	-	6
282-331	5	2	-	-	6	-	3	-	16
232-281	21	10	3	1	17	3	16	-	71
182-231	20	21	19	3	23	4	17	-	107
132-181	46	26	36	4	8	8	1	-	129
82-131	30	58	91	2	-	35	-	3	219
/82	1	2	4	-	-	2	-	4	13
Total	126	119	153	10	55	54	37	7	561

The variation of dependancy is well marked in the three regions of Brahmaputtra Valley. The central Assam and Upper Assam region contains a large number of settlement in the lower dependency ratio groups. These being the tea garden regions, women participation rates is high even the children of certain age group participate in works. The non-tea garden region, lower Assam has also considerably large number of

settlements in the lower dependency ratio groups. The region is well known for weaving and spining. Silk is produced in large scales in this region, women generally take part in this Industry for which dependency ratio is low. In the whole of Assam spinning and weaving is a common practice where women flocks take parts. This is the reason why we have large number of settlements with low dependency ratios. In hill districts of Assam all the able bodied women work in different fields for which dependency ratio is low in hill districts. It has already been mentioned in the sub-section of sex ratio that some villages in Assam are there where sex ratios are low. It is found that these villages having low sex ratios, have also low dependency ratios. Manipur Valley is also famous for weaving and spinning where mostly women take part. Here also we have large number of settlements with low dependency ratios. In Tripura where we have already noticed that almost all the settlements are in the higher sex ratio groups. Here women participation in weaving and spinning is less as compared to Assam and Manipur as such we have most of the settlements in the higher dependency ratio groups. Same pattern is noticed in Surma Valley also. However the presence of some tea gardens in this Valley put some settlements in the lower dependency ratio groups.

Arunachal Pradesh is having only 7 settlements, which have lowest sex ratio (sex ratio varies from 29-272).

These settlements are also having lowest dependency ratios. The settlements having slightly higher sex ratios have slightly higher dependency ratios, indicating non-participation of females in work.

The following table gives the distribution of settlements by size class in different dependency ratio groups.

TABLE 3.5.III

DISTRIBUTION OF SETTLEMENTS BY SIZE CLASS IN DIFFERENT DEPENDENCY RATIO GROUPS.

Dependency ratio	I	II	III	IV	V	VI	Village	Tea Estate	Total.
382+	-	-	-	-	-	-	-	-	-
332-381	-	-	-	-	1	-	5	-	6
282-331	-	-	1	-	1	-	14	-	16
232-281	-	1	-	3	7	3	57	-	71
182-230	-	1	4	7	7	1	84	3	107
132-181	1	2	5	2	10	5	52	52	129
82-131	-	-	-	1	2	2	95	119	219
/82	-	-	-	-	-	-	8	5	13
Total	1	4	10	13	28	11	315	179	561

From the table above it is seen that there is no marked variation in dependency ratio in between villages and urban centres.

3.6 ANALYSIS OF VARIANCE

The growth rate of a region apart from its natural growth

rate is attributed to either by size class, soil type or due to the impact of both. In order to test the validity of the hypothesis whether

(1) Soil type and Size Class has impact on growth rate

(2) The Soil type has impact on growth rate

(3) Size Class has impact on growth rate

The two way analysis of variance is carried out with the following additive model.

Y_{isk} = Growth rate of particular settlement.

$$= A + B_i + C_j + D_{ij} + E_{ijk}$$

where A = component of over all system

B_i = Influence of soil type (i=1,1.....)

C_j = Component of size class of town (I, II etc.)

D_{ij} = Influence of soil type as well as size class.

E_{ijk} = Random component or component due to peculiarity of settlements.

The soil type of north-eastern region is classified as per Dr. Mitra's Level of Regional Development Part II A. The soil of the region is mainly classified as

(1) Forest and hill soil, old and new alluvium

(2) New and old alluvium

(3) Red soil and old alluvium

(4) Red soil

(5) Alluvium laterite and hill and forest

(6) Hill and forest soil.

The different districts of the region come under different soil type as below.

Forest & hill and New and old Alluvium.

1. Kamrup, Goalpara Darrang.

New & Old Alluvium

2. Lakhimpur, Nowgong and Sibsagar

Red soil and old alluvium

3. Mikir, Garo & Cachar, U.K. and J. hills.

Red soil.

4. Manipur and Mizoram.

Alluvium laterite and hill and forest

5. Tripura

Hill and forest soil

6. Arunachal Pradesh.

With the above classification of the districts in different soil types the analysis of variance is carried out.

TABLE 3.6.I

ANALYSIS OF VARIANCE TABLE

Variation due	Sums of Square	df.	Mean Square	Calculated value of F	Table of F at 95%
Soil type	56971.52	3*	18990.50	1.82	
Size Class	137194.77	5	27438.95	2.64	
Interaction	278192.37	15	18546.15	1.78	1.67
Error	490050.66	471	10404.46		
Total	5567025.61	494			

The calculated value of F(1.78) being greater than

table value of F (1.67), it is significant i.e. both soil type and size class has impact on growth rate.

In the north-eastern region, the vast alluvial soils have attracted a vast population from out side the country. Particularly from east Bengal. These immigrants are settled both in rural & urban areas. The influx of population to different towns is also high from outside the State & also within the State. In urban areas better medical facilities, better public health system has also impact on natural growth rate, in addition to migration. These reason may lead to the validity of the hypothesis i.e. soil type and size class has impact on growth rate.

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*Village wise 1951 Population for Arunachal Pradesh and Tripura not being available, the States of Assam and Manipur have only been considered, for the analysis. There are only 4 types of soil in these states as such we have only 3 degrees of freedom as two types of soil have been ignored.

3.7 RELATIONSHIP OF DENSITY, SEX RATIO, LITERACY RATE AND DEPENDANCY RATIO WITH SOIL TYPE

It is observed from the analysis of variance table that soil type has impact upon the growth rates of the settlements. It is generally believed that soil type has also impact on density, sex ratio, literacy rate and dependancy ratio. It is because when there is higher growth rate obviously density is higher and other variables such as sex ratio, literacy rate and dependancy ratio are related to grwoth rate and density of population.

In order to examine the relationship of soil type with density, sex ratio, literacy rate and dependancy ratio the following tables are prepared and χ^2 test is applied with a hypothesis that there is no relationship of soil type with density, sex ratio, literacy rate and dependancy ratio.

TABLE NO.3.7.I

DISTRIBUTION OF SETTLEMENTS IN DIFFERENT DENSITY GROUP BY SOIL TYPE

Soil type/ density	Forest,hill, old and new Alluvium (1)	Old and new Alluvium (2)	Red soil & Alluvium (3)	Total
High*	37	19	24	80
Medium	48	26	15	89
Low	124	167	78	369
Total	209	212	117	538@

TABLE NO.3.7.II

DISTRIBUTION OF SETTLEMENTS IN DIFFERENT LITERACY GROUPS BY SOIL TYPE

Soil type/ Literacy rate	Forest,hill, old and new Alluvium	Old and new Alluvium	Red soil & Alluvium	Total
High	39	46	32	117
Medium	82	33	40	155
Low	109	133	47	289
Total	230	212	119	561

Foot notes on next page.

TABLE NO.3.7.III

DISTRIBUTION OF SETTLEMENTS IN DIFFERENT SEX RATIO GROUP BY SOIL TYPE

Soil type/ Sex ratio	Forest, hill, old and new Alluvium	Old and new Alluvium	Red soil & Alluvium	Total
High	47	16	63	126
Medium	123	130	44	297
Low	60	66	12	138
Total	230	212	119	561

TABLE NO.3.7.IV

DISTRIBUTION OF SETTLEMENTS IN DIFFERENT DEPENDANCY RATIO GROUP BY SOIL TYPE

Soil type/ Dependancy ratio	Forest, hill, old and new Alluvium	Old and new Alluvium	Red soil & Alluvium	Total
High	51	12	30	93
Medium	101	86	49	236
Low	78	114	40	232
Total	230	212	119	561

The calculated rate of X^2 for tables 3.7.I, 3.7.II, 3.7.III and 3.7.IV are 39.36, 50.55, 96.09 and 74.53 respectively which are much higher than the table value of X^2 (9.49) for 4 d.f. at 5 per cent level and hence the hypothesis stands rejected, we therefore conclude that there is relationship between soil type and density, sex ratio, literacy rate and dependancy ratio of settlements.

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* National average group and one group below national average is considered as medium, all the groups above national average are considered high and the rest as low.

@ Excluding settlements for which density is not available.

(1) Predominantly rice and jute growing soil.

(2) Predominantly tea growing soil.

(3) Predominantly rice growing soil.

CHAPTER - IV

4.1 CONNECTIVITY INDEX

Connectivity index is a composite score that an individual settlement gets in terms of linkage by National Highways, State highways and railways. This index is useful for the study of socio-economic and demographic characteristics of a region, as transport and communication is one of the indicators of development. In order to find out connectivity index, some arbitrary weights have been assigned to a settlement. The weights are higher for higher order transport system and lower for lower order transport system. Combining all the weights of a particular settlement we can get the composite index of that settlement. The following are the weights for different transport and communication systems:

(1) National highway	- 4
(2) State highway	- 2
(3) Local roads	- 1
(4) Metre gauge Junction	- 4
(5) Broadgauge railway station	- 2
(6) Metre gauge railway station	- 1

Assigning the weights as above for different settlements in terms of transport linkages of the settlements the following table is obtained. The grouping of the settlements is done in such a way that one can differentiate the settlements having higher transport linkages and the

settlements having least linkages.

TABLE 4.1.1

DISTRIBUTION OF SETTLEMENTS IN DIFFERENT CONNECTIVITY INDEX GROUPS

Connectivity index	No. of settlements
8 - 11	8
4 - 7	215
2 - 3	173
2	165
Total	561

From the table above it has been observed that the numbers of settlements in the highest connectivity index group are only 8. The region has broad gauge line only covering a distance of 110 Kms. The region is mostly covered by metre guage railway lines and national and state highways which has led to the growth of large number of settlements with medium connectivity. It has been observed that 165 settlements have the lowest connectivity indices. These settlements are far off from national or state highways and are connected with the main roads through a system of local roads.

Here an attempt is made to study the relationship of connectivity indices with that of density, growth rate, literacy rate, sex ratio and dependancy ratio. It is a matter of common belief that higher the connectivity index of a settlement, higher is the density growth rate, literacy rate, dependency ratio and lower is the sex ratio.

4.2 DENSITY

The table below gives the relationship of connectivity indices with different density groups.

TABLE 4.2.I

DISTRIBUTION OF SETTLEMTNS IN DIFFERENT DENSITY GROUPS WITH RESPECT TO CONNECTIVITY INDICES

Density/ Connectivity Index	8500 +	7000-8500	5500-7000	4000-5500	2500-4000	1000-2500	/1000	NA	To-tal
8+	2	-	-	4	2	-	-	-	8
4 - 7	17	8	17	7	29	88	42	7	215
2 2 - 3	15	2	8	8	18	62	51	9	173
/2	5	2	4	5	16	66	60	7	165
Total	39	12	29	24	65	216	153	23	561

From the above table it has been noticed that the settlements in the higher density groups have highest connectivity indices. Though some new towns have highest connectivity indices, they have slightly lower density. It is also noticed that some of the settlements having low connectivity indices have also very high density. Generally some settlements though connected by local roads are at vicinity of urban centres and their densities are high. The migrants from different parts to newly opened land also give rise to high density to settlements though not well connected. In such places growth rates are also found high.

4.3 GROWTH RATE

The table below gives the distribution of settlements with respect to connectivity indices and 1951-61 growth rates.

TABLE 4.3.I

DISTRIBUTION OF SETTLEMENTS IN DIFFERENT GROWTH RATE GROUPS WITH RESPECT TO CONNECTIVITY INDICES

Growth rate/ Connectivity Ind	100+	66-99.9	56-65.9	46-55.9	36-45.9	26.35.9	16-25.9	6-15.9	0-5.9	∠1	NA	Total
8-11	-	-	-	1	1	-	-	1	-	-	5	8
4 - 7	41	15	11	9	21	31	32	23	5	8	19	215
2 - 3	25	9	2	7	20	28	22	25	4	1	30	173
∠2	29	3	9	11	11	34	14	23	6	14	11	165
Total	95	27	22	28	53	93	68	71	15	23	65	561

The table above shows that the settlements having the highest growth rates have higher connectivity indices. However some of the settlements having lower connectivity indices also show higher growth rates. The negative growth rates in some of the settlements may be due to migration of population for better prospects. The shifting of population which may necessiated for construction of new roads and oil pipe lines.

4.4 SEX RATIO

The settlements having higher connectivity indices are highly developed in all respect and it is believed that there is high male migration to such places and the sex ratio of such settlements is low. The table below gives an idea of sex ratio with respect to connectivity indices.

TABLE 4.4.I

DISTRIBUTION OF SETTLEMENTS IN DIFFERENT SEX RATIO GROUPS WITH RESPECT TO CONNECTIVITY INDICES

Sex/ Connectivity Index	1000+	950-999	900-949	850-899	800-849	750-799	700-749	⁄700	Total
8+	-	-	-	-	-	3	-	5	8
4 - 7	24	17	45	50	17	5	12	45	215
2 - 3	19	34	48	46	17	5	4	-	173
⁄2	12	20	62	46	12	3	6	4	165
Total	55	71	155	142	46	16	22	54	561

It is found to be true that all the settlements having highest connectivity have low sex ratios. As the connectivity index goes on decreasing there is an increase of the number of settlements in the higher sex ratio groups. Some erratic trend is observed in the lowest connectivity index group. This is explained in Chapter III under sub-heading sex ratio.

4.5 LITERACY

The places having higher connectivity index are well developed with educational facilities and the literacy is high for the places having high connectivity indices whereas the literacy rate is low for the places with lower connectivity indices. It may be tested with the help of the following table.

TABLE 4.5.I

DISTRIBUTION OF SETTLEMENTS IN DIFFERENT LITERACY GROUPS WITH RESPECT TO CONNECTIVITY INDICES

Literacy rate/ Connectivity Index	67+	57-66.9	47-56.9	37-46.9	27-36.9	17-26.9	/17	Total
8+	-	3	4	1	-	-	-	8
4 - 7	8	26	32	42	37	22	38	215
2 - 3	1	7	34	22	32	31	46	173
/2	-	-	2	1	20	42	100	165
Total	9	36	72	66	89	95	194	561

From the table it is found that the places having the highest connectivity indices have no settlements in the highest literacy groups. These settlements with highest connectivity are urban centres grown due to improvement in communication and some as trade and commerce centres. In such places migration of illiterate workers is high in comparison to other service towns and educational towns. For this reason no settlements are found in the highest literacy group.

4.6 DEPENDENCY RATIO

The settlements having higher connectivity generally have higher dependency ratio. The reason is that these settlements are either urban centres or rural settlements with better school facilities and the school going children increase the dependency ratio. This can be seen with the help of the following table.

TABLE 4.6.1

DISTRIBUTION OF SETTLEMENTS IN DIFFERENT DEPENDENCY RATIO GROUPS WITH RESPECT TO CONNECTIVITY INDEX

Dependency ratio/ Connectivity Index	332+	282-231	232-281	182-231	132-181	82-131	/82	Total
8+	2	-	-	2	4	-	-	8
4 - 7	3	7	26	39	52	82	8	215
2 - 3	1	8	22	23	49	76	2	173
/2	-	1	23	43	24	61	3	165
Total	6	16	71	107	129	219	13	561

It can be seen from the above table that some of the settlements having the highest connectivity indices have comparitively lower dependency ratio. These being newly born towns and some of the towns with lowest sex ratio and as such dependency ratio is low. In the case of settlements with lower connectivity have also lower dependency ratio which is explained in Chapter III under the heading Dependency Ratio. Except for these erratic trends noted above, the table is found to justify our assumption.

CHAPTER - V

5.1 FUNCTIONAL CLASSIFICATION OF SETTLEMENTS

The settlements having 50 per cent and above of Agricultural workers have been considered as predominently Agricultural settlements and the functions of the remaining settlements are classified by tri-angular Co-ordinate Method as adopted by Dr. Mitra*.

The North-Eastern region being an agro-industrial region we have 46 per cent of settlements in Assam 6.6 per cent of settlements in Manipur and nearly 3 per cent of settlements in Tripura with 50 per cent and above agricultural workers. In Arunachal where large sized settlements are administrative centres and have no settlement with the proportion of agricultural workers exceding 50 per cent.

The table below gives the distribution of settlements in different States in the region.

TABLE 5.1.I

SETTLEMENTS WITH DEGREE OF FUNCTIONAL DIVERSITY

Degree of functional diversity.	Functions highly accentuated.	Functions accentuated.	Functions moderately diversified	Predominent functions highly diversified	Total
		ASSAM			
Service	30	8	4	5	47
Industrial	197	5	2	1	205
Trade & Trpt.	20	12	6	4	42
		MANIPUR			
Service	-	-	-	-	-
Industrial	22	-	-	-	22
Trade & Trpt.	-	1	-	-	1
		TRIPURA			
Service	6	5	2	2	15
Industrial	4	1	-	-	5
Trade & Trpt.	-	1	-	-	1
		ARUNACHAL PRADESH			
Service	7	-	-	-	7
Industrial	-	-	-	-	-
Trade & Trpt.	-	-	-	-	-

*Patterns of population change in India 1951-61 Edited by BOSE ASHISH.

Out of a total of 345 settlements having less than 50 per cent of Agricultural workers, 69 settlements are found to be service dominating, 232 Industry dominating settlements and 44 Trade & Transport dominating settlements. The existence of tea industry in Assam has played a dominant role for the growth of larger number of settlements in Industrial Sector. Apart from tea Industry the existance of other Industries based on agriculture and mineral has also contributed for the growth of Industrial settlements. In Manipur also we have observed almost all the settlements in the Industrial Sector. The growth of industrial settlements in Manipur is due to the existence of Industries mainly Cotton Weaving in handlooms, manufacturing of wooden furniture and fixture, making of textile garments and tunning of musical instruments. In this state all the settlements are in Industrial Sectors. In Tripura the settlements in Industry are only 5. There are no big Industries in the State excepting tea in some places. Some improvements have been made in some household Industries such as crafts like carpentry, smithy, leather works, processing of food stuffs and other handicrafts. Arunachal which is industrially backward has no settlements in Industrial Sector. All the settlements in this region have come up as service centres. In Assam there are 47 service dominating settlements. The growth of tea industries and exploration of oil in the region is one of the reason for the growth of 42 trade & transport dominating settlements.

TABLE 5.1.2

Degree of functional Diversity	Functions highly accentuated I	II	III	IV	V	VI	Village	Tea Estate
Service	1	1	-	4	8	3	26	-
Industry	-	-	1	2	1	1	68	-
Trade & Transport	-	1	3	1	8	1	7	-

Contd.2

Degree of functional Diversity	Functions Accentuated I	II	III	IV	V	VI	Village	Tea Estate
Service	-	1	3	2	2	-	5	-
Industry	-	-	-	1	2	2	1	-
Trade & Transport	-	1	-	1	2	3	3	3

Contd.3

Degree of functional Diversity	Predominant funs.moderately diversified I	II	III	IV	V	VI	Village	Tea Estate
Service	-	-	1	1	1	-	3	-
Industry	-	-	-	-	-	-	2	-
Trade & Transport	-	-	1	1	-	1	3	-

Contd.4

Degree of functional Diversity	Predominant Funs. highly diversified I	II	III	IV	V	VI	Village	Tea Estate
Service	-	-	-	1	1	-	5	-
Industry	-	-	-	-	-	-	1	-
Trade & Transport	-	-	-	1	1	1	1	-

The table 5.2.1 shows the settlements by size class with functional diversification. From this table it has been observed that more than 50 per cent of towns of Assam in all size class has functions highly accentuated. All the tea gardens and 84 villages have functions highly accentuated. 20 urban settlements and 11 rural settlements have functions moderately accentuated. These urban settlements are mostly Class V towns. Five towns and 8 villages have functions moderately diversified. Out of total 10 settlements having functions highly diversified 7 are villages and the rest are Class IV and V towns.

An attempt is made here to see whether there is any regional variation in the distribution of settlements with degree of diversification of functions.

TABLE 5.1.3

REGIONWISE DISTRIBUTION OF SETTLEMENTS WITH DEGREE OF DIVERSIFICATION OF FUNCTIONS

Region	Degree of functional diversity	Functions highly accentuated	Functions moderate Accentuated	Functions moderately diversified	Predominant functions diversified	Total
LOWER BRAHMAPUTTRA VALLEY	Service dominating.	10	2	1	3	16
	Industry dominating.	27	2	-	-	29
	Trade & Transport dominating.	6	7	-	2	15

Contd.2

Region	Degree of functional diversity.	Functions highly accentuated.	Functions moderate Accentuated	Functions moderately diversified	Predominant functions diversified	Total
CENTRAL BRAHMAPUTTRA VALLEY	Service dominating	1	2	2	1	6
	Industry dominating	33	-	2	-	35
	Trade & Transport	8	1	4	-	13
UPPER BRAHMAPUTTRA VALLEY	Service dominating	7	1	1	1	10
	Industry dominating	110	3	-	1	114
	Trade & Transport dominating	3	2	1	1	7
HILL DIV.	Service dominating	10	-	-	-	10
	Industry & Trade transport	-	-	-	-	-
SURMA VALLEY	Service dominating	2	3	-	-	5
	Industry dominating	27	-	-	-	27
	Trade & Transport dominating.	3	2	1	1	7
MANIPUR	Service dominating	-	-	-	-	-
	Industry	22	-	-	-	22
	Trade & Transport dominating.	1	-	-	-	1

Contd.3

Region	Degree of functional diversity.	Functions highly accentuated.	Functions moderate Accentuated.	Functions moderately diversified	Predominant functions diversified.	Total
TRIPURA.	Service dominating	6	5	2	2	15
	Industry dominating	4	1	-	-	5
	Trade & Transport dominating	-	1	-	-	1
ARUNACHAL.	Service dominating	7	-	-	-	7
	Industry dominating	-	-	-	-	-
	Trade & Transport dominating	-	-	-	-	-
TOTAL	Service dominating	43	13	6	7	69
	Industry dominating	223	7	2	-	232
	Trade & Commerce	21	13	7	3	44

It has been observed from the above table that lower Assam region which is also a highly urbanized region has larger number of service settlements. The settlements of the hills division being purely administrative centres all are found to be service dominating.

Lower Assam region being famous for silk and bell metel industry has large number of industry dominating settlements also. The region being well advance in Trade & Transport in comparison to other regions has also highest number of Trade and Transport dominating settlements. The central Assam region is the region of tea and agriculture as such we have large number of settlements which are industry dominating. The highest number of industry dominating settlements are found in Upper Assam which is predominantly a tea region. The pattern of distribution of settlements in Surma Valley is found to be that of central Assam. In Manipur all the settlements are industry dominating, where as in Tripura largest number of settlements are service dominating. In Arunachal Pradesh all settlements are seen service dominating. An analysis of settlements by soil type is done below.

TABLE 5.1.4

SOIL TYPE AND DISTRIBUTION OF SETTLEMENTS WITH DEGREE OF FUNCTIONAL DIVERSITY

Soil Type	Degree of functional diversity	Functions highly accentuated	Functions accentuated	Functions moderate diversified	Functions highly diversified	Total
Forest hill & old & new Alluvium	Service dominating	24	8	4	5	41
	Industry dominating	60	3	1	-	64
	Trade & Transport dominating	10	8	1	2	21

Contd.2

Soil Type	Degree of functional diversity	Functions highly accentuated	Functions accentuated	Functions moderate diversified	Functions highly diversified	Total
Old and New Alluvium	Service dominating	7	2	2	2	13
	Industry dominating	114	4	1	-	119
	Trade & Transport dominating	7	3	4	1	15
Red Soil Alluvium	Service dominating	12	3	-	-	15
	Industry dominating	49	-	-	-	49
	Trade & Transport Dominating	5	2	1	-	8
Total	Service dominating	43	13	6	7	69
	Industry	223	7	2	-	232
	Trade & Transport	21	13	7	3	44

It has been observed from the table above that Forest and hill, and old and new alluvium soil contains large number of settlements of service dominating. The area containing this soil being highly urbanized, the number of

settlements both in service and Trade Sector are highest this soil contains a few tea gardens also as such we have 64 settlements in this soil.

The old and new alluvial soil with acid contains being suitable for tea gardens, we have large number of the tea gardens in this region as such we have the highest number of settlements in this soil which are Industry dominating. The existance of tea gardens and exploration of oil has also helped to grow a large number of marketing areas, for which we have a large number of settlements (15) as trade & transport dominating settlements.

Red soil and alluvium, soil is suitable for both tea, agriculture, vegetables etc. A large number of tea gardens have also come up in this soil for which we have large number of settlements which are Industry dominating. A good number of administrative and market towns are also seen in this soil. For which we have considerable number of service and trade dominating settlements some parts of the soil being suitable only for agriculture in some settlements of such region are seen agricultural. However household industry & other minor industries of this region helps to grow a large number of settlements as industrial settlements.

In order to see the relationship of functional diversification with soil type X^2(chi) test is applied. The calculated value of X^2 is found to be 29.67 which is much more than the table value of X^2 (chi) at 4[1] degrees of freedom at 5 per cent level which is 9.94. This shows that the soil type has impact on functional classification of settlements.

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1 X^2 is calculated by considering soil type & total settlement in service, industry, trade and transport.

The table below gives the distribution of settlements with degree of functional diversity with respect to transport net works.

TABLE 5.1.5

DISTRIBUTION OF SETTLEMENTS WITH RESPECT TO TRANSPORT NETWORKS WITH DEGREE OF FUNCTIONAL DIVERSITY

Transport network	Degree of functional diversity	Functions accentuated.	Functions accentuated.	Functions Moderately diversified	Functions highly diversified	Total
NATIONAL HIGHWAY	Service dominating	30	9	4	4	47
	Industry dominating	58	4	1	-	63
	Trade & Transport dominating	12	7	5	2	26
STATE HIGHWAY	Service dominating	13	4	2	3	22
	Industry dominating	62	3	1	-	65
	Trade & Transport dominating	9	6	2	1	18
LOCAL ROADS RLY.	Industry dominating	103	-	-	-	103
	Service dominating	16	6	3	1	26
	Industry dominating	19	4	1	-	24
	Trade & Transport dominating	11	11	4	-	25
TOTAL	Service dominating	43	13	6	7	69
	Industry dominating	223	7	2	-	232
	Trade & Transport dominating	21	13	7	3	44

From the table it has been observed that most of the service dominating settlements are connected by national highways. Only 22 service settlements are connected by State highways. Highest number of industry dominating settlements are connected by local roads. These being mostly tea gardens. Most of the tea gardens situated on both the banks are found linked with main roads, by link roads. These roads are constructed by the tea gardens, and the local boards maintained these roads. All the Trade and Transport settlements are either connected by national highways or state highways. 26 service settlements and 24 industry dominating settlements are connected by Railways and 25, Trade and Transport dominating settlements are connected by Railways. Excepting Industry dominating settlements all the settlements in other categories are well linked with transport lines.

CHAPTER - VI

ECONOMIC PROFILE OF SETTLEMENTS

The study of economic profile of a region helps us to understand the development of the region and the culture of the population. The North-eastern region is predominently an agricultural region. Next to Agriculture the economy of the region is fully dominated by the tea industry. It is also purely rural in character.

6.1 AGRICULTURAL WORKERS

Agriculture in this region is away of life rather than a business or commercial proposition. The unit of labour employed is the farmer himself and his family. Mechanization is still negligible and bullocks and buffaloes provide the draught power in rural farming.

Agriculturally the region is not so homogeneous (Map-6). In the Brahmaputtra Valley itself the difference is well marked. In the north there are innumerable tributaries running down from Arunachal and Bhutan Himalaya which dibuch abruptly to the valley and forms alluvial fans. This has caused to tarai and Semi tarai conditions resulting dense forest. The southern part of the valley is less wide and uneven. The tributaries in the south-east are considerably larger in comparison to south west which is very narrow. The tributaries in the south-east running in the mendaring courses give rise to a good number of ox-bow lakes and beels. The low gradient brainded the river and forms some reverine Island. The soils of Brahmaputtra Valley and Surma Valley are very fertile. They are composed of old and new forming a mechanical

mixture of sand and clay. Tea is being grown on the foot hills we have generally low per cent (= 25 per cent) male agricultural workers in this region. The general characteristic of the soil of the region is acidity. New alluvial soils representing the lands of the river banks are less acidic. They are often neutral or even alkaline. The land is suitable for Paddy, Mustered Pulses etc. As such we have large number of settlements with high agricultural workers in between foot-hills and the river bank. The extreme north and east area being occupied by tea gardens we have less number of settlements with high per cent of male agricultural workers in this region. Towards west some settlements with high per cent of male agricultural workers have grown on the river bank. In central Assam region, the northern part being tea region, have settlements with less than 20 per cent. Towards south agricultural activities increases and is the highest near the river. To the extreme south the agricultural activities decreases for its hilly Terrain. In lower Assam also settlements with high per cent of male workers in agriculture are confined to the river banks. In hill regions the soil is poor which is either sandy loam or clayey loam and hence agriculture is not so developed. The flat land of Tripura is suitable for agriculture. Settlements with high per cent of agricultural workers are concentrated in the south-west, where the rivers passing through from the hills make the land fertile. The soil of Surma Valley is almost similar to Brahmaputtra. The soil of the district is

fertile due to annual deposit of slit. Regular flood of the district causes nearby areas of the river bank water logged even after the moonson. The agriculture in rainy season is mainly confined to high lands only. The hill slopes leading to valley are suitable for tea and have many tea gardens in this region.

In Imphal Valley, all the settlements with high per cent of agricultural workers are concentrated in the Central Plain. The main cultivation of Manipur is Paddy and 80 per cent of total area is under paddy cultivation.

Rugged terrain, in hospitable climate and primitive system of cultivation is responsible for not growth of large sized settlements with high per cent of male agricultural workers in Arunachal Pradesh.

The table below gives an idea of the regionwise distribution of settlements with male agricultural workers in different percentage groups.

TABLE 6.1.I

DISTRIBUTION OF SETTLEMENTS IN DIFFERENT PERTENTAGE GROUPS OF MALE WORKERS IN AGRICULTURE

Workers in Agriculture	Brahmaputtra Valley				Surma valley	Hill div.	Manipur	Tripura	Arunachal	Total
	Lower	Central	Upper	Total						
75+	56	42	12	110	10	-	38	8	-	166
50-75	26	13	8	47	10	1	4	8	-	70
25-50	10	17	14	41	11	-	4	6	-	62
/25	34	47	119	200	24	9	8	15	7	263
Total	126	119	153	398	55	10	54	37	7	561

From the table above, it is seen that the most of

the settlements with high per cent of male workers are concentrated in the lower and central Assam Valley where as the Upper Assam has small number of settlements with high percent of male workers. This being predominantly a tea region, highest number of settlements are in the lower groups of Agricultural workers. The distribution of settlements in Surma Valley is found to be of uniform nature in the higher workers groups however the presence of tea gardens have contributed for a large number of settlements in the lower groups of workers also. In hill divisions, all most of all settlements have grown as administrative centres as such per cent of male workers in agriculture is low in this division.

In Imphal Valley all the large sized settlements are agricultural settlements excepting one urban centre. The region being Industrially underdeveloped has also large number of settlements with high per cent of male agricultural workers. In Tripura region also most of the settlements are agricultural settlements and have grown in the fertile river valley. The high lands of this State also suitable for tea gardens but the gardens are not so developed as that of Surma Brahmaputtra Valley.

6.2 FORESTRY, PLANTATION, MINING AND QUERRYING

Tea has played a dominant role in this sector of economy in Assam. The climate, soil and the surface confugarations of the foot-hills region are most congenial for cultivation of tea. The districts of Lakhimpur, Sibsagar, Nowgong and Cachar

are the important tea growing areas. The Brahmaputtra Valley of Assam is considered to be the finest tea producing area in the world, on account of climatic conditions and soil fertility of the region. The Upper Brahmaputtra Valley has high concentration of tea gardens with high per cent of male workers in plantations (Map - 7). In Central Assam the male workers engaged in plantation is slightly lower than the Upper Assam region. Most of the tea gardens of this region situated on the bank of the river Brahmaputtra have sufficient land for cultivation, and these are cultivated to produce paddy. However the tea gardens on the foot-hills region have high per cent of male workers in plantation. In Surma Valley due to very low rates of production of tea most of tea gardens have become uneconomic. The percentage of male workers engaged in plantation is smaller in comparison to Brahmaputtra Valley. In Lower Assam region the acrerage for tea is very small (5 per cent only). In comparison to 75 per cent in Upper Assam and 20 per cent in Surma Valley. There are no big tea gardens in this region. In this region it is observed a small stirp for 3-5 per cent of male workers along the river bank.

Oranges are grown in some portion in this region towards east. Excluding tea regions all over the region, it is observed that the per cent of male workers in forestry plantation, mining and quarrying is less than 3 per cent.

The table below gives the Regional variation of workers in forestry, plantation, mining and quarrying.

TABLE 6.2.I

REGIONWISE DISTRIBUTION OF SETTLEMENTS IN DIFFERENT PERCENTAGE GROUPS OF WORKERS IN FORESTRY, PLANTATION, MINING AND QUARRYING.

Workers forestry etc.	Brahmaputtra Valley				Surma valley	Hill div.	Manipur	Tripura	Arunachal	Total
	Lower	Central	Upper	Total						
∠3	108	67	35	210	23	10	52	28	6	329
3-5	10	2	-	12	1	-	1	4	-	18
5-50	8	12	25	45	26	-	1	5	1	78
50-75	-	18	43	61	5	-	-	-	-	66
75+	-	20	50	70	-	-	-	-	-	-

The table above shows that tea garden regions have highest number of settlements in the highest group of workers in forestry, plantation, mining and quarrying. These are mostly concentrated in the Brahmaputtra Valley. In comparison to this table with that of previous table it is noticed that the region having lowest number of workers in agriculture has highest number of workers in forestry, plantation, mining and quarrying.

6.3 HOUSEHOLD AND NON-HOUSEHOLD INDUSTRIES

The region as a whole is Industrially backward due to its rugged terrain and transport bottleneck. However Brahmaputtra Valley is Industrially developed in comparison to other areas adjoining it. The Industries of the region can be divided into 4 categories, namely (a) Agro based (b) Mineral based

(c) Forest based and (d) Miscellaneous. Agro based Industry can be sub-divided as (a) Food processing (b) Tea processing (c) Textiles. The food processing consists of rice and flour mills, fruit canning, limited number of diary units and oil crushing mills and a few backeries which are concentrated in Major Urban Centres. Textile Industry of the region is not so developed. The spinning and weaving of cotton and silk is in general a household industry in the region. The region is rich in forest wealth. Sal, Teak Sesum, Hollock, Nahar, Tita Champa all first class timbers and pine simalu, Hollong as well as other soft wood timber are produced abundantly in this region. These has helped to grow industries like saw milling, Plywood manufacturing, Match factory, Paper Pulp, Rayan and Hardbord. There are extensive cane forests which helped for the growth of industries like basket making, and furniture making.

The miscellaneous industries of the region are printing, ice manufacturing distelleries and repair works which are also concentrated in the urban centres. The region being rich in mineral deposits also helped for the growth of mineral based Industries.

Map 8 shows that there is high concentration of settlements with higher percentage of workers in Industries in urban centres in lower Assam. Big small and medium sized Industries of the region are located in commercial towns and Industrial Co,onies. Match factory, oil refinary is situated in this region. The region is also famous for brass and bel-matel utensil making and handloom silk production. The only bicycle factory,

allumunium utensil factory, are situated in this region. Central Assam is found to be less developed industrially with only two settlements with high per cent of male workers in industry. The old industries such as (a) Sericulture (b) Cane and bamboo works (c) Gold and Silversmithy (d) Pottery (e) Blacksmithy (f) Brass and Bell metals are in extinction in may regions. Sericulture Weaving has been developed slightly with some step for industrial development. Along with Sericulture Weaving and bamboo works are there in this region. The establishment of Jute and Spun mill in this region has shifted some population from Agricultural to Industrial Sector. Excepting one urban centre of the region all other urban centres have shown high proportion of male workers in Industrial Sector. In Upper Assam the existance of tea gardens has helped for the growth of forest based Industries along with steel industries. The exploitation of natural resources has helped for the growth of mineral based Industries in this region. High concentration of Industrial workers is observed in the urban centres of this region. All the urban centres of the hill division have male workers in 5-10 per cent group. only one urban centre of the region has 20 per cent and above male workers. In the hill areas, the urban centres have Industries such as food processing, repairing and fruit carrying etc. and other miscellaneous industries. The existance of tea gardens in Surma Valley have helped for the growth of small and big Industries in this region which are mainly concentrated to urban centres.

In Manipur Valley high concentration of settlements with high per cent male workers is found near the only urban centre of the region. The per cent of male workers is found to decrease for the villages at a greater distance from urban centres. The region has a large number of Industries which are distributed in the different administrative units. Most of the Industries of the region are cotton weaving in handlooms, manufacture of wooden furniture and fixtures, making of textile garments, rice mills etc. Tripura region though backward in large scale Industries, it is not so backward in small and household industries. The settlements with high per cent of male workers are found in this region also in the urban centres and the villages near the urban centres. Arunachal which is Industrially most backward fall in the group of /5 per cent of male workers.

The table below gives the Regional variation of workers engaged in Industries.

TABLE 6.3.I

REGIONWISE DISTRIBUTION OF SETTLEMENTS IN DIFFERENT PER CENTAGE GROUPS OF WORKERS IN INDUSTRIES.

Workers in Industries.	Brahmaputtra Valley				Surma Valley	Hill div.	Manipur	Tripura	Arunachal	Total
	Lower	Central	Upper	Total						
/5	83	82	97	262	40	-	38	12	7	359
5-10	15	16	25	56	3	7	4	5	-	75
10-20	19	17	25	61	10	2	2	16	-	91
20+	9	4	6	19	2	1	10	4	-	36
Total	126	119	153	398	55	10	54	37	7	561

From the table above it is noticed that highest number

of settlement with high per cent of workers in Industries, are in regions namely Central Assam, Upper Assam, Surma Valley has comparatively smaller number settlements in the higher worker groups. Manipur has larger number of settlements in the highest group. The limited cultivable area may has diverted the economy of the people to small industries. In hill areas excepting one urban centre other settlements have moderate per cent of male workers in Industry. In Arunachal Pradesh all the settlements have low per cent of workers in Industries. In Tripura Region there are considerable numbers of settlements in the higher worker groups.

6.4 TRADE AND COMMERCE

The region as a whole is not so developed in Trade and Commerce (Map - 9). However the lower Assam Region is found to be well developed in Trade and Commerce in comparison to other area. Almost all the urban centres and the nearby rural areas of the region are found to contain workers more than 20 per cent in Trade and Commerce. Some of villages in this region is found to serve as Trade and Commerce Centres. These rural centres are found to contain 10-20 per cent of male workers. In Central Assam all the Urban Centres of the villages in its vicinity are found to contain male workers 20 per cent and above in Trade and Commerce. Only a few rural settlements of this region are functioning as trade and commerce centres. Most of the urban centres of Upper Assam Region are also found with 20 per cent and above male workers in trade and commerce.

The per cent of workers in Trade and Commerce is found to decrease at the periphery of the urban centres. Most of the rural centres serving as Trade and Commerce Centres in this regions have 5-10 per cent of workers in trade and commerce.

In the hill region excepting one settlement, all other settlements have male workers below 20 per cent. These being mainly administrative centres partly function as business centres.

In case of Surma Valley high per cent of male workers in trade and commerce are seen to confine to urban centres and villages close to urban centres. A small number of rural centres in this region are found to contain male workers in higher per centage groups.

The distribution of settlements in Manipur Valley and Tripura region also follows the same pattern with concentration of high per centage of workers in urban centres and nearby villages where as the distant villages have low per centage of workers in Trade and Commerce.

The table below gives the regional variation of workers in trade and commerce.

TABLE 6.4.I

REGIONWISE DISTRIBUTION OF SETTLEMENTS IN TRADE AND COMMERCE IN DIFFERENT PERCENTAGE GROUPS OF WORKERS

Trade & commerce workers	Brahmaputra Valley Lower	Central	Upper	Total	Surma Valley	Hill div.	Manipur	Tripura	Arunachal	Total
/5	72	82	109	263	31	-	38	11	4	347
5-9	10	7	15	32	12	1	7	4	-	56
10+	44	30	29	103	12	9	9	22	3	158
Total	126	119	153	398	55	10	54	37	7	561

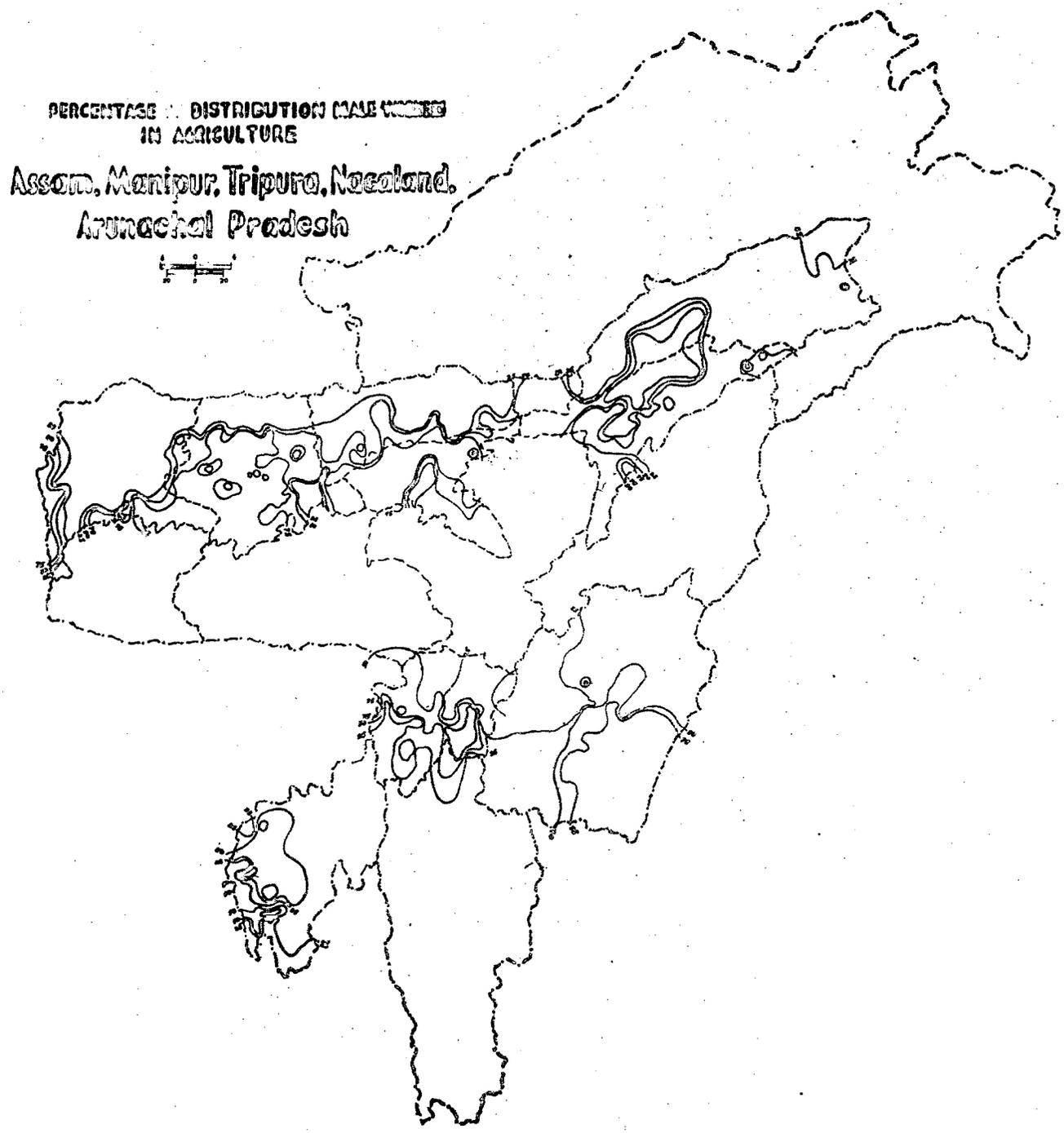
From the table 6.4.I it is seen that the male workers having 10 per cent and above in Trade and Commerce are highest in Lower Assam. More than 50 per cent and above male workers in Trade and Commerce. Central Brahmaputtra Valley and Upper Brahmaputtra Valley have nearly equal number of settlements in the higher groups. In hill division almost all the settlements have high per cent of workers in higher groups. In Manipur the only urban centre and the 15 rural settlements have shown high percentage of male workers in Trade and Commerce. In Arunachal Pradesh only 3 settlements are having 10 per cent and above male workers in Trade and Commerce.

6.5 SERVICE

The North-Eastern region being predominantly agro Industrial, we have only a few settlements with high per cent of workers in service. These are mostly clustered in the Lower Assam Region. It has been observed from the map (Map 10) the villages situated near the urban centres have highest per cent of workers in service which indicates that people who are in service prefer to stay nearby semi urban areas where all facilities are available at cheaper. More-over the working people generally buy a plot of land in the adjucent areas and construct their houses for residential purposes. Some of the villages with administrative headquarters also have shown high percentage of male workers in service. Only two urban centres has shown highest percentage of workers in service in Lower Assam. In Central Assam only a few villages have shown high

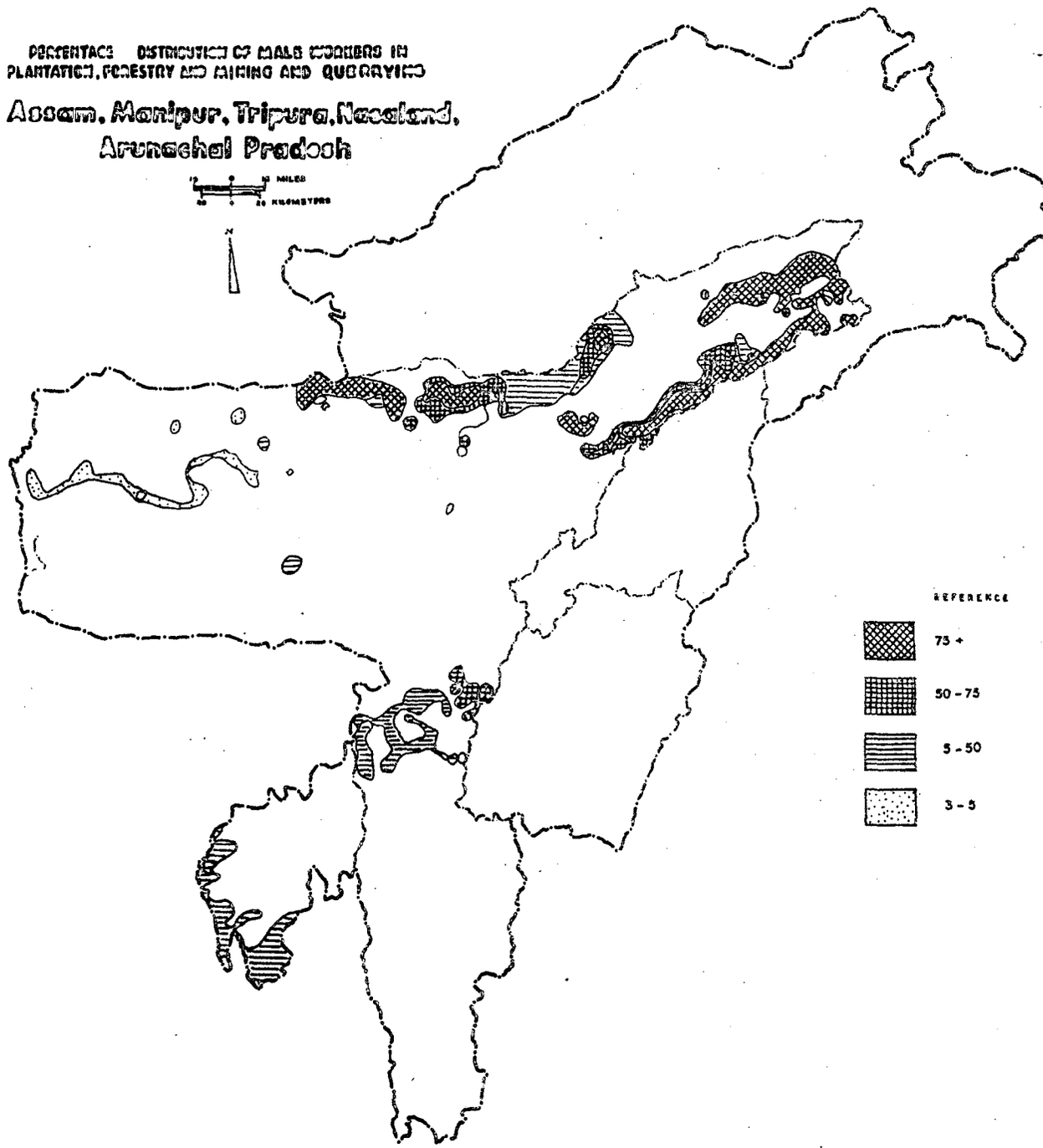
percentage of workers in service. These villages are either administrative centres or situated just near urban centres. In Upper Assam region also the number of settlements with higher percentage of workers in service are less. Most of the area being covered by tea gardens we observe the settlements with high percentage of workers in service are less. The urban centres grown in the middle of tea gardens have generally high percentage of workers in Trade and Commerce as that of other urban centres of the region. In hills region almost all the settlements being grown as administrative centres have high percentage of male workers in service. In Surma Valley only one rural settlement has highest per cent of workers in service. Almost all urban centres of this region has 25-50 per cent workers in service. It is seen here that the villages which are grown as administrative centres and the villages situated close to urban centres have high percentage of workers in service. In Tripura region all urban centres have 25-50 per cen of male workers in service two administrative rural centres have shown high per cent of male workers in this region. In Imphal Valley all the villages with high per cent of male workers in service are found to cluster round the only urban centre of the region. Only two rural settlements of the region have highest per cent of male workers in service. In Arunachal Pradesh all the settlements being administrative centres have bighest per cent of workers in service.

Map-6


PERCENTAGE DISTRIBUTION MALE WORKERS
IN AGRICULTURE
Assam, Manipur, Tripura, Nagaland,
Arunachal Pradesh

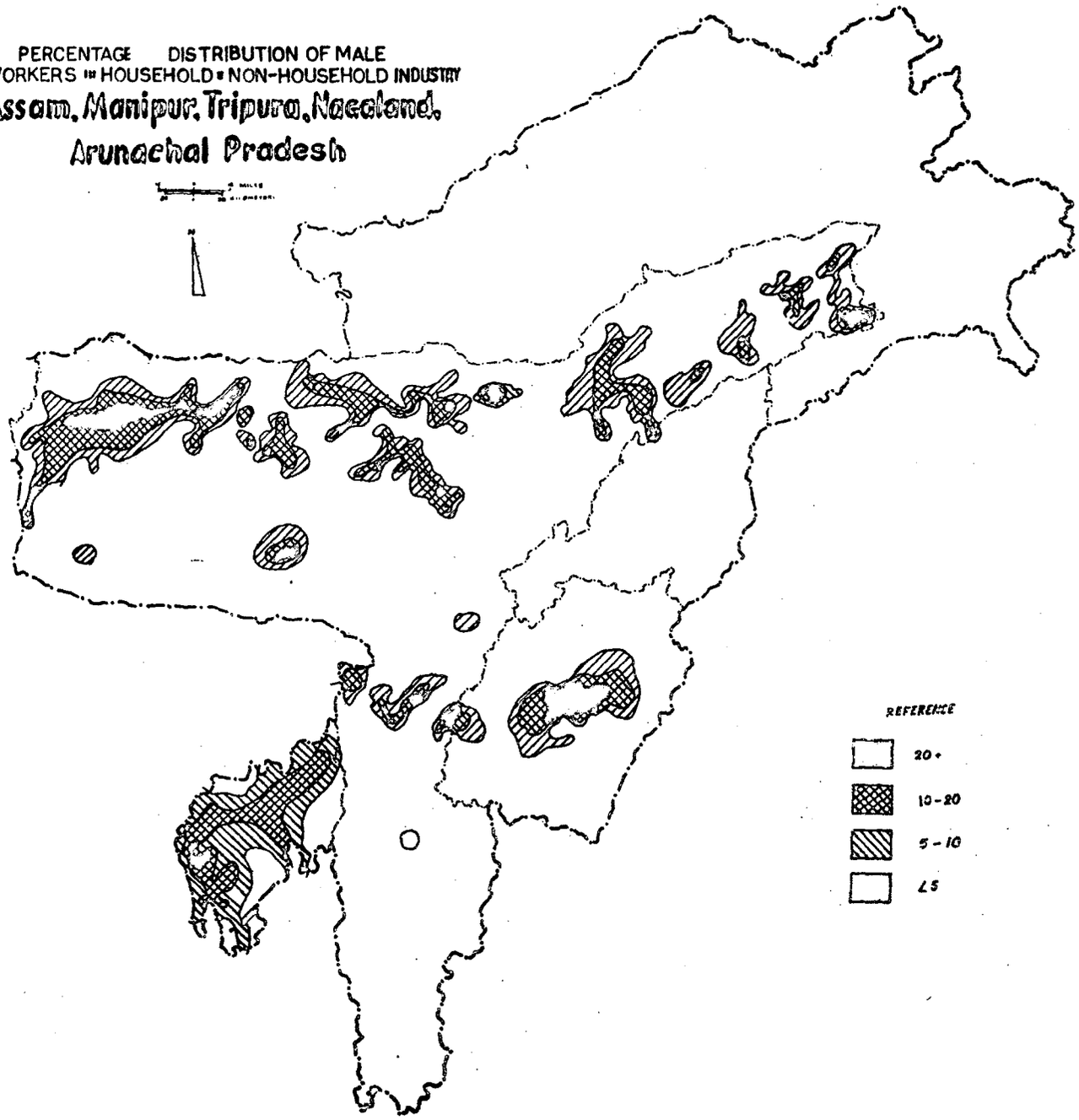
PERCENTAGE DISTRIBUTION OF MALE WORKERS IN PLANTATION, FORESTRY AND MINING AND QUARRYING

Assam, Manipur, Tripura, Nagaland, Arunachal Pradesh



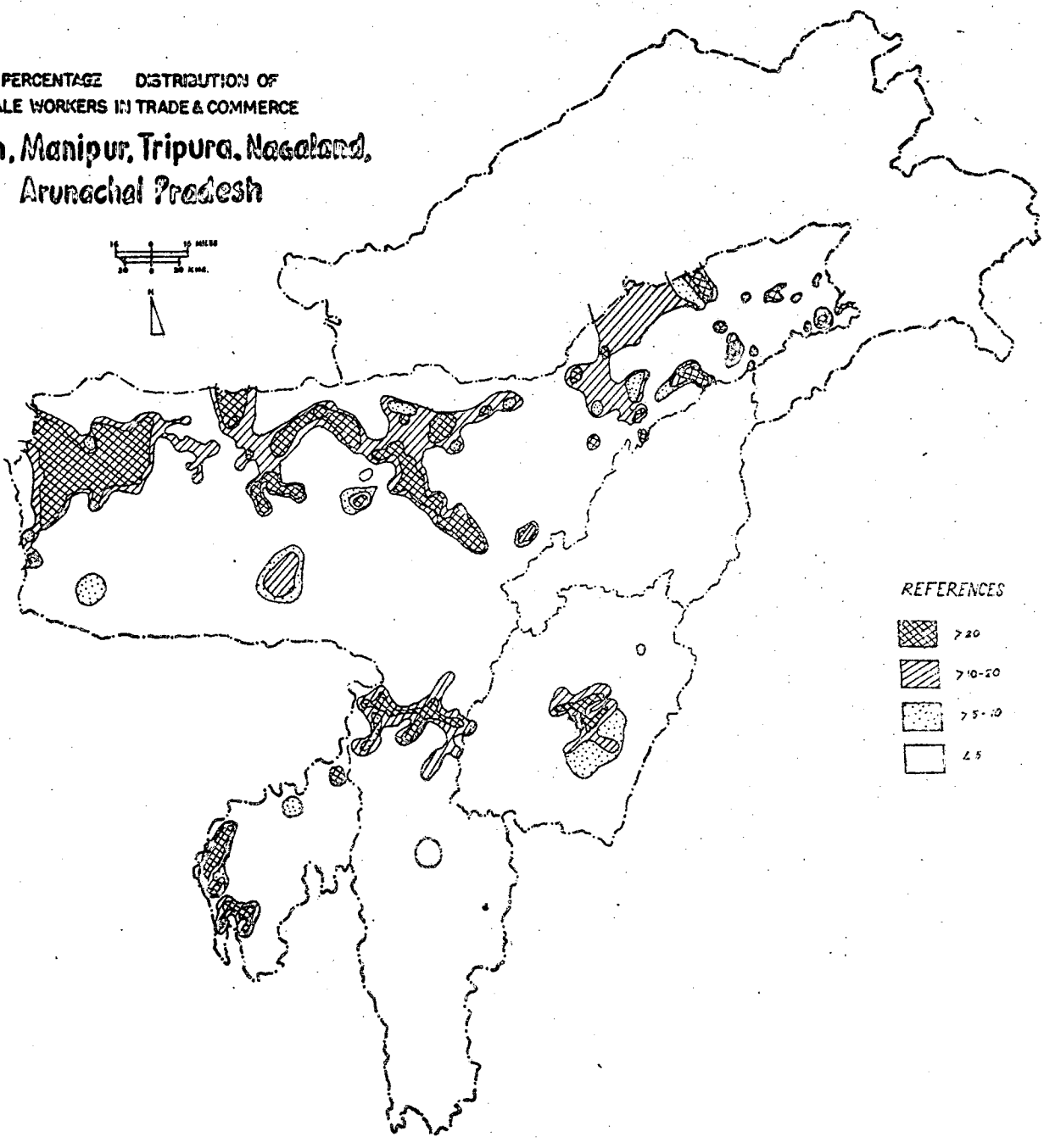
PERCENTAGE DISTRIBUTION OF MALE WORKERS IN HOUSEHOLD & NON-HOUSEHOLD INDUSTRY

Assam, Manipur, Tripura, Nagaland, Arunachal Pradesh



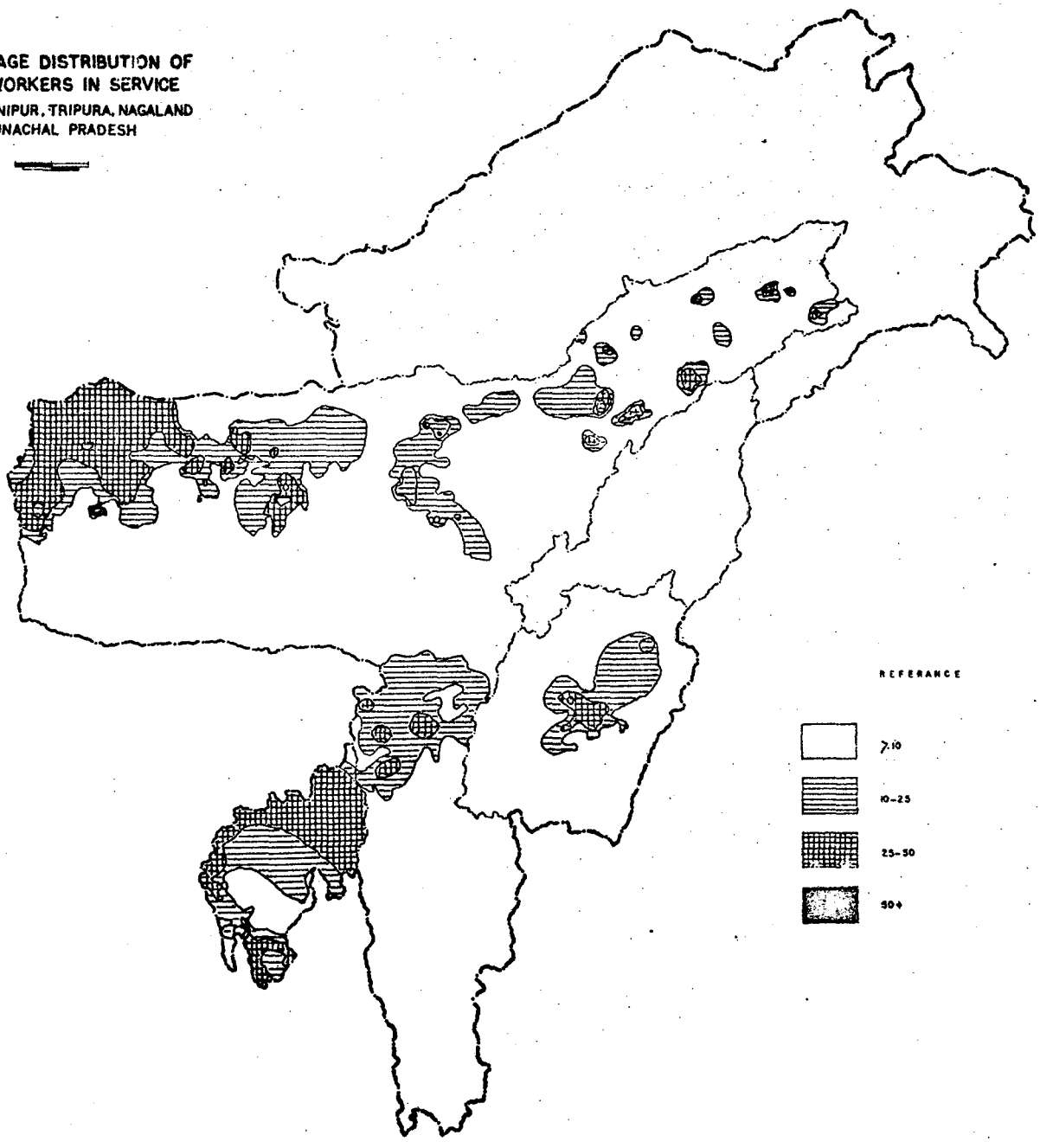
PERCENTAGE DISTRIBUTION OF
MALE WORKERS IN TRADE & COMMERCE

Assam, Manipur, Tripura, Nagaland, Arunachal Pradesh



Map-10

PERCENTAGE DISTRIBUTION OF
MALE WORKERS IN SERVICE
ASSAM, MANIPUR, TRIPURA, NAGALAND
ARUNACHAL PRADESH



The table below gives a clear picture of the regional variation of the workers in service.

TABLE 6.5.I

REGIONWISE DISTRIBUTION OF SETTLEMENTS IN DIFFERENT PERCENTAGE GROUPS OF WORKERS IN SERVICE

Workers in service	Brahmaputtra Valley				Sur-ma Valley	Hill div.	Mani-pur	Tri-pura	Aru-na-chal	Total
	Low-er	Cen-tral	Upp-er	To-tal						
/10	41	78	118	237	21	-	33	8	-	299
10-25	49	29	17	95	24	-	11	11	-	141
25-50	28	11	16	55	9	1	8	16	1	90
50+	8	1	2	11	1	9	2	2	6	31
Total	126	119	153	398	55	10	54	37	7	561

From the table above it is seen highly urbanized Lower Assam Region has larger number of settlements in the higher groups where as least urbanized central Assam has smaller number of settlements. Upper Assam which is a tea region has also least number of settlements in the higher percentage groups. Surma Valley, Manipur/velly have equal number of settlements in the higher percentage groups of workers. In case of Tripura the number of settlements in the higher percentage groups is higher in comparison to Cachar and Manipur. The settlements in the hill region including Arunachal Pradesh being the administrative centres, almost all the settlements have high percentage of workers in service.

CHAPTER - VII

SOCIAL AMENITIES IN THE LARGE SIZED VILLAGES IN THE NORTH EASTERN STATES AND SETTLEMENT HIERARCHY

The North-Eastern Region has a total of 561 large sized settlements of which 67 are urban and 494 are rural. The basic ammenities available in the settlements are recorded in the District Census Handbooks of 1961 Census have been considered for the present study. The number of functions considered for this study are (1) educational (2) medical (3) veterinary (4) marketing (5) drinking water (6) communication and (7) Community development centres.

A brief description of the available facilities is given below:

(1) Educational: The primary schools, middle schools and high schools have been considered within this category. The region as a whole not being educationally advanced, we observe that many of the settlements have no educational facilities even at the primary level. Out of 494 settlements only 451 settlements have lower primary schools. The region has 179 tea gardens, as large sized settlements, of which only 9 have no primary schools. Nearly 8 per cent of the total rural settlements in the region have no primary schools.

Middle schools and high schools are mostly distributed to the rural settlements other than tea gardens. Out of 123 settlements having middle schools only 9 are tea gardens and the rest are rural settlements other than tea gardens. Only 53 settlements including 3 tea gardens are having

high schools in the region. There are no institutions for higher studies and technical education in any of the rural settlements.

(2) Medical: There are 184 settlements with hospitals and 180 settlements with dispensaries in the region. It is interesting to note that excepting a few tea gardens all the tea gardens have either hospitals or dispensaries. Taking out the tea gardens only a few rural settlements have medical facilities. However, the presence of child and maternity house, medical practitioners and homeopaths and other have not been considered as these informations are not available.

(3) Veterinary: 31 per cent of the large sized settlements have veterinary hospitals. Out of these 35 are tea garden settlements and the rest are non tea garden rural settlements. It is observed that public health facilities are highly concentrated in the tea gardens where as veterinary hospitals are mostly concentrated in rural settlements other than tea gardens.

(4) Marketing: Marketing is one of the primary needs of the people. There are 305 settlements having weekly markets and 56 settlements having daily markets. All these markets provide the basic need of the people. All the tea gardens have marketing facilities. These markets serve not only the tea garden population but also nearby village population.

(5) Drinking water: Drinking water facility is of vital importance. There are two types of drinking water facilities in the settlements, (i) pucca well and (ii) pipe and ring wells. 93 settlements are having pucca wells and 401 settlements which are either having ring wells or pipes. Almost all the tea gardens have second type of drinking water facilities. Separate information for each pipe and ring well not being available they have been classed in one class.

(6) Communication: 5 types of communication systems are prevailing only in some of the settlements. They are (i) post office (ii) branch post office (iii) sub post office (iv) extra departmental branch office and (v) central sub office. Highest number of settlements (41) are having extra departmental branch offices and 31 settlements are having branch post offices. The settlements having sub office and central sub office are 20 and 13 respectively. Only 14 settlements under study are having post offices. These are distributed in villages and tea gardens. Out of the total 179 tea gardens in the region, only 18 are having postal communication system of different types.

(7) Community development: As a part of development plans of the rural areas, the government has established community development centres in different rural areas. 103 number of settlements under our study are having community development centres. These community development are mostly distributed in other than tea garden settlements only 20 tea garden settlements are having community development centres.

7.1 CATEGORISATION OF SETTLEMENTS

An attempt is made to categorize the dependency of settlements. It is done on the basis of number of functions on which one settlement depends on the other. Functions considered for the purpose are (i) primary school, (ii) middle school, (iii) high school, (iv) medical, (v) veterinary,(vi) marketing, (vii) drinking water, (viii) communication and (ix) community development centre.

7.2 LEVEL OF FUNCTIONAL HIERARCHY

If any settlement depends upon more than 50 per cent and above functions on other settlement it is termed as dependent settlement. If a settlement depends on other settlement on 30 - 50 per cent of functions it is termed as partially dependent settlement and if a settlement depends on other settlement on 20 - 30 per cent of functions it is termed as intermediate settlement.

If a settlement has 8 or more functions it is independent and if it has 7 functions it is intermediate and if it has 5 or 6 functions it is partially dependent and the rest are dependent settlements (Map - 11).

On the basis of above assumption the following result is obtained:

TABLE 7.1.I

DISTRIBUTION OF SETTLEMENTS IN ORDER OF DEPENDENCY

Category of settlements	No. of settlements
1. Independent	14
2. Partially dependent	21
3. Intermediate	199
4. Dependent	260
Total	494

If we separate out the tea gardens of the region and and categorize them as above the following result emerges.

TABLE 7.1.II

DISTRIBUTION OF TEA GARDENS IN ORDER OF DEPENDENCY

Category of settlement	No. of settlements
1. Independent settlements	Nil
2. Partial dependent settlements	2
3. Intermediate settlements	84
4. Dependent settlements	93
Total	179

It is attempted to see whether population size has some impact on the availability of amenities but this gives no clear picture. Population size is found to vary from 2000 to 8000 in all the categories. Some of the villages having a population of 8000 and above also seen to come under intermediate category.

The ranking of settlements is closely associated what Christaller has defined as Centrality Settlements. Centrality is an objective measure of functional importance of settlements. In Indian condition centrality cannot be assessed by considering only a number of particular services like number of telephone calls, frequency of bus services. In such situation an absurd picture may emerge. It is therefore necessary to consider a variety and type of functions available. Again it is to be noted that a centre may contain other sub-functions as a component. It is possible to identify at different levels at which it is being performed. Health service is performed at primary health centre level, health sub-centre level and at the civil hospital. On such a basis it is possible to construct, a functional hierarchy scale.

7.3 THE SCALE OF FUNCTIONAL HIERARCHY

Considering the relative importance of functions the scale can be interpreted. For example a hospital is relatively of higher importance than that of dispensary or health sub-centres. Therefore functional hierarchy of a place determines the centrality of the place. Higher the level of functional hierarcy of a place higher will be the centrality of the place performing that function. The number of central functions performing at a place affect the importance of a central functions. A place which offers a number of services will generally have a wider complementary region. The region which has only a few items of services will have smaller region. In case, two settlements

have same number of functions a problem arises for determination of hierarchy. In such cases the quality of functions may be considered. The centrality of a settlement is determined only by measuring the varieties and the level of functions performed. It can be said that centrality is nothing but a matter of relative importance.

7.3 WEIGHTAGE OF CENTRAL FUNCTIONS

The levels of functional hierarchy of a settlement can be determined by assigning some weightage to it. By using the formula $W = \frac{N}{\Sigma F_i}$ we can calculate the weightage for a certain function where N = total number of settlement and ΣF_i = total number of settlements having the 'i' the facility and W = weightage. The weightage of different functions obtained by using the above formula is tabulated below:

TABLE 7.3.I

WEIGHTAGE TO DIFFERENT FUNCTIONS

	Functions	Weightage
I	Educational Facilities	
	1. Primary School	1.1
	2. Middle School	4.0
	3. High School	9.3
II	Postal Facilities	
	1. Post Office	35.3
	2. Central Sub-Office	33.0
	3. Sub-Office	24.7
	4. Branch Office	15.9
	5. Extra departmental branch office	12.1
III	Marketing	
	1. Daily Bazar	8.8
	2. Weekly Bazar	1.6
IV	Medical	
	1. Hospital	2.8
	2. Dispensary	2.6
	3. Veterinary	2.5
V	Drinking water	
	1. Pucca well	5.3
	2. Pipes, Ring well etc.	1.1

With the help of the weightages as above, the centrality of settlements can be determined.

That we do in such case is that the number of functions present in a settlement are multiplied by the corresponding weightages and the values of each function is added to get a total value which is called the composite score or composite index. Mathematically composite index can be represented as:

$C = \Sigma Fi \times Wi$ where i = 1, 2 .....

F = Function

W = Weightage.

The higher the levels of functional hierarchy, the higher will be the centrality of the place performing that function, the lower the level of functional hierarchy the lower will be the centrality.

On the basis of the composite score obtained by a settlement, the hierarchy of settlement is determined in such a way that independent and partially dependent settlements come in the highest score group and also we can identify the settlements having minimum functions.

TABLE 7.3.II

HIERARCHY OF SETTLEMENTS

Order of settlements	Composite score range	Number of settlements
I	40 +	35
II	30 - 40	38
III	20 - 30	74
IV	10 - 20	160
V	⟨10	187
Total		494

The above distribution of settlements show an overall pattern of broadly based pyramid with the lowest ranking settlements at its base and tappering gradually at the appex.

On the basis of the above table we can work out also dependency ration for each settlement. The ratio of first order settlements to the second order of settlements gives an idea of the number of settlements in the second category depending upon each settlement in the first category. Similarly ratios worked out for the second order settlements to the third order and so on give picture of the number of settlements in the group depending on each settlements of preceding order. The calculated ratio is as below:

I : II = 1 : 1.1

II : III = 1 : 1.9

III : IV = 1 : 2.1

IV : V = 1 : 1.1

The ratio 1 : 1.1 means 1.1 of the settlements in the second order depends on each settlement in the first order. Similar is the statement for other ratio groups.

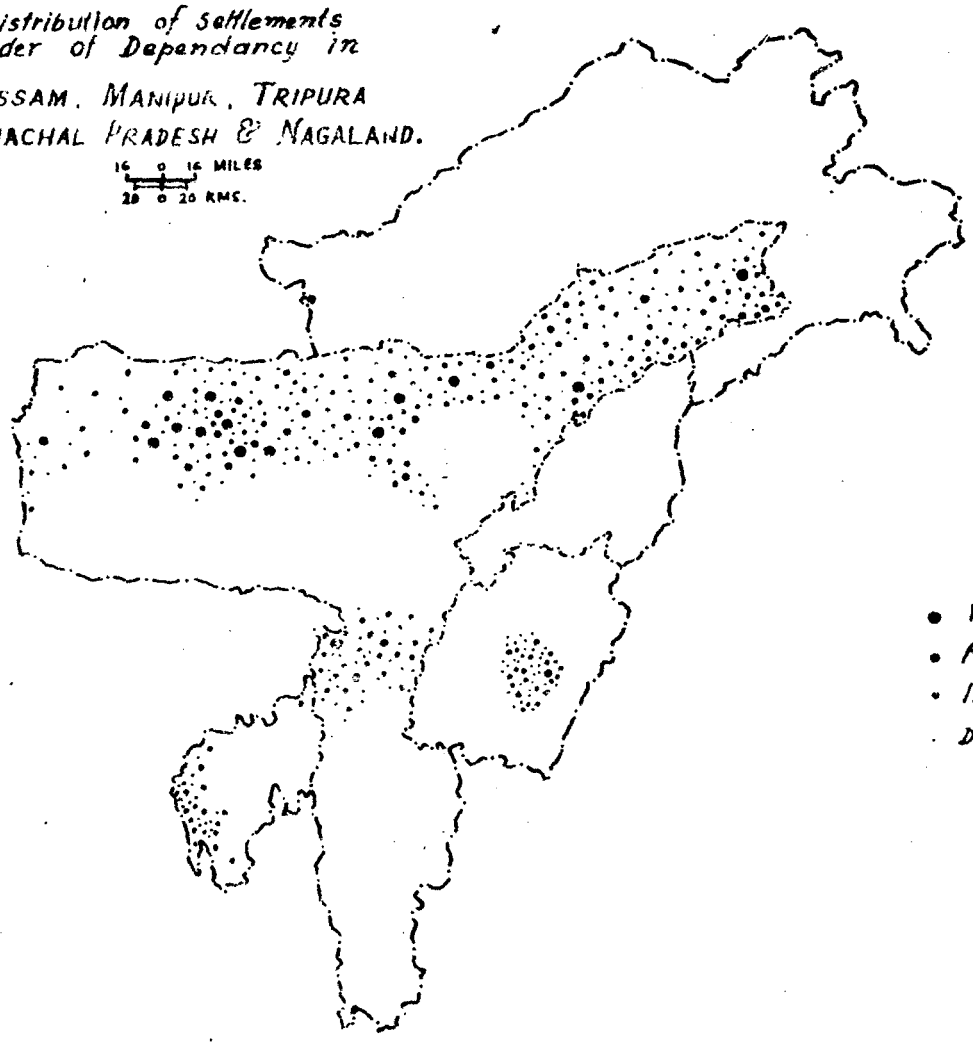
LIMITATIONS

The study in this Chapter is done with some limitations. The most important one is that no data for amenities availaable in 1961 District Census Handbooks of North-Eastern Region. As such weightage for urban centres cannot be worked out. Secondly, the information of available amenities is incomplete for our present study. The information on the number of

Distribution of settlements in order of Dependancy in

ASSAM, MANIPUR, TRIPURA ARUNACHAL PRADESH & NAGALAND.

16 0 16 MILES
25 0 25 KMS.



REFERENCES

- Independent
- Partial dependent
- Intermediate
- Dependent

available amenities within the settlements is not available in the District Census Hand Book of the region. Therefore the study is purely based on the availability of functions and not on the degree of functions of the settlements. Thirdly, the lack of uniformity in the data collected in different States posed a great problem. The different States have collected data in different manners. In case of Tripura, Manipur and Arunachal Pradesh the collection of data is more extensive than that of Assam. The presence of technical institutions, colleges, telegraph office etc. have also been collected in those States. But in the case of Assam these informations are not available. This cannot be assumed that these amenities are not available in Assam. With a view of maintaining uniformity the common informations available for all the States have been considered in this study.

CHAPTER - VIII

SOIL TYPE OF TEA GARDENS, PROCESS OF URBANIZATION RELATIONSHIP OF TEA GARDENS WITH ROAD RAIL NET WORKS AND URBAN CENTRES

8.1 EARLY HISTORY OF TEA

It is not easy to trace out the discovery of tea as a beverage. According to William H. Ukers tea had its genesis in China untold centuries ago, but its real history is lost in the obscurity of China's venerable antiquity and for most part is traditional. "According to Chinese legends tea as a beverage was known to that country as early as in 1937 B.C. But the first recorded reference about tea, it appears, is found in a classical compilation by confucious about 500 B.C."[1]

According to Samuel Bailden tea was indigenous only to India and no country of the world. "Mother natures tea gardens were mainly located in the Moonson region of the South-East Asia."[2] According Gait in the History of Assam, Assam is the original home of tea and in the third century it spread to China and from there in course of time China became the sole producer of tea in the world.

The honour as a first discoverer of tea in Assam goes to Major Robert Bruce of the Bengal Army. In 1823 he visited Gargaon in the Upper Assam. "There he leart of its existence from a Singpho Chief who promised to obtain some speciman for him. Some of the plants thus obtained were submitted to David Scott by whom they were forwarded to the Superintendent

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1 Awasthi R.C. Economies of tea Industry.
2 Uker's W.H. All about Tea Vol.I.

of the Botanical gardens in Calcutta for Examination. They were pronounced to be the same family, but not the same spacies as the plant from, the Chinese manufacture their tea."[3]

It was confirmed by Captain Jackins in 1832 that tea was existed in Assam. The Botanists of Calcutta doubted its identity with the tea of commerce. Although its existance made them believe that the tea of commerce would thrive in India. The Government of India began to think to introduce tea in India.

The inception of tea industry in Assam is associated with the refusal of Chinese Government to renew the British trade pact. As soon as monopoly trade of British with China ended the British Government took interest in cultivation tea in Assam and Bengal.

If we look into the history of first tea plantation in Assam, we observe that the place was located near the confluence of Brahmaputtra and Kundil river. The soil of the place was found porous, poor and not suitable for tea. The plants were shifted to Joypur and a new tea garden was opened there. The production of tea at the initial stage was carried out by the Government agents. The area under which the experimentations of tea were carried out in Assam was foreign territory under a local ruler. The administration of Sibsagar and Lakhimpur areas of Assam was taken over by British Government in 1939. This gave incentive to private enterprise to start production

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3 History of Assam. . Gait. E.A.

of tea in Assam. The companies were formed by private enterprenures in 1839. They were amalgamated under the name of 'Assam tea Company' in 1840. It established factories at Dibrugarh. At the first few years the company could not prosper. The prospects began to improve by 1852. By the end of 1859 there were only 51 tea gardens. The Jorhat Tea Company was incorporated in 1859. This was the second company with limited liability with its gardens in Assam. By 1860 more private companies engaged in the production of tea. New gardens were established not in Assam but in Darjeeling Dooars, Surma Valley, South India and Chotanagpur area.

8.2 Natural conditions for tea plantation in Assam

Productivity, quality and crop distribution is dependent on climate. A year in North-East India can be divided into three distinct seasons (a) Cool and dry, (b) Hot and dry and (c) Hot and humid. November to February is the cool and dry season. Hot and dry season prevails from March to June and June to October is humid season. The temperature which prevails during the highest cropping season in the plain districts of Assam varies from 5° C. to 6.5° C. and the relative humidity is also high. It is said to be good for tea. The rainfall suitable for proper cultivation of tea is about 150 Cms. The rainfall in the tea districts of Assam varies from 155 Cms. (Tezpur) to 250 Cms. (Dibrugarh). Rapid growth of tea is helped by warm and humid climate. Sunshine is also an important climatic factor. It controls the temperature of

the air. The average daily sunshine in Assam Valley is 6 hours. The least sunny month is September with average 4 hours. The Surma Valley get less sunshine that Assam Valley which effects the quality of tea.

8.3 SOIL TYPE OF ASSAM TEA GARDENS

Tea soils of Assam are mostly alluvial. These soils are available in the old riverine and in the mountain valley beds. Soils where tea is grown are fairly flate or gently sloping valley beds. The nature of climate of Assam makes for a movement of water through the soil and the high temperature during wet season, such movement brings about laterization. This helps leaching out of lime and bases like potash and Magnesium and formation of Acid soil. "Tea thrieves on an Acid soil and it is considered that the optimum PH in Assam is 5.4 and increase of value above 6, the soil probably needs treatment if tea is to grow."[4] The soil which is sufficiently acidic the available nitrogen of the soil determines the quality of the tea.

In Assam Valley which contains the largest number of tea gardens 5 important local types of soil may be distinguished.

(a) A bed of alluvial micaceons sand skirting the Himalayan base, Kamrup and Magaldoi.

(b) The slits of the plateau rising suddenly out of the lower plain in Tezpur, Biswanath, Sibsagar and Golaghat and sandy silt soils in Nowgong and Jorhat.

(c) A heavy soil chiefly of very fine silt in Dibrugarh and North Lakhimpur.

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4 Harler C.R. 'The Culture & Marketing of Tea".

(d) A series of sandy ridges running more or less across the valley of Jorhat extending east and west particularly from Titabor to Janji river.

(e) A series of low hills skirting the base of Naga hills and separated by rolling land.

In Surma Valley or in Cachar the alluvium is derived from the surrounding sand stone. A characteristic of the valley is (a) teela or low hillock. There are also (b) plateau and (c) bheel soil. The tilla soil is uniform in texture red in colour and fairly light and has a stiff red sub-soil with gravel and sand stone sandy strata down below.

The bheel soils has a high content of organic matter and is sutable for top dressing band soil. Bheel soils are areas once occupied by lakes that on draining exposed peat soils. Between the tillas are flats which vary in texture from sand to heavy clays.

The Brahmaputtra Valley of Assam is considered the finest tea producing area in the world on account of climatic condition and soil fertility.

The table below gives the distribution of districtwise total tea gardens and also the tea gardens having population of 2000 and above.

TABLE NO.8.3.I*

TABLE SHOWING DISTRICT-WISE TOTAL TEA GARDENS AND TEA GARDENS HAVING A POPULATION OF 2000 AND ABOVE

District	Total Tea Estates	Tea gardens with Population 2000 +
Darrang	100	38
Goalpara	9	-
Kamrup	15	-
Lakhimpur	213	72
Nowgong	23	2
Sibsagar	234	42
Cachar	128	25
Total	722	179

From the table above it is observed that tea is grown all over Assam excepting hill districts. In Upper Assam, comprising of districts Lakhimpur and Sibsagar, the soil and climate being most suitable for tea has highest number of tea gardens and the concentration of large sized tea gardens is highest in this region. The other important tea producing districts Darrang and Cachar has also good number of large sized settlements.

The production of tea in Kamrup, Goalpara and Nowgong is small in quantity. Only Nowgong district has two large sized tea gardens.

About 75 per cent of total tea acreage is concentrated in Sibsagar, Darrang and Lakhimpur, 20 per cent in Cachar

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* Source - Tea Board Records, Calcutta and D.C.H. 1961.

Valley and only 5 per cent in Nowgong, Goalpara and Kamrup districts.

8.4 TEA TO THE DEVELOPMENT OF COMMUNICATION AND TRANSPORT

(i) Waterways: The development of transport system in Assam is closely associated with the development of the tea industry. Till the beginning of this century, the river Brahmaputtra served the purpose of transport. In 1847 the Government introduced an irregular service of paddle steamers between Calcutta and Gauhati. In 1883 it was made a daily service. The similar service was placed in the Surma Valley in 1887. Gradually the steamer services were started between Calcutta and Dibrugarh. This was the principal source of communication in this region since long.

(ii) Railways: In 1885 first railways Jorhat provincial and Dibrugarh - Sadiya were started in Assam. The purpose was to carry stores and tea between the tea estates and the steamer ghats. In 1905, the Assam Bengal metre gauge line was constructed from Chittagong. It passed through Surma Valley and Barail range and meet Brahmaputtra Valley at Lumding and was extended upto Tinsukia where it joined Dibru - Sadiya line. Land slides being common in between Naga and Jayantiya hills the route was not so satisfactory. A new line was opened between Lumding and Gauhati to provide alternative route to Calcutta. In 1910 a last link was constructed to link Calcutta and Gauhati. It was between Lalmonirhat and Gauhati. Most of the branch railways were constructed connecting tea districts either with the mainline or the steamer ghats. The partition of India in 1947, cut across railway communication

in between Assam and the rest of country. This has affected both inter state travel and intra state travel. Upper Assam became an isolated part of the country, inaccessible easily either by road link or by rail. However, the river Brahmaputtra helped a lot. In order to remove the transport difficulties the Government of India started Assam rail and road link projects at the end of 1948. It was just to connect the isolated areas of Dooras and Darjeeling along with whole of Assam with the main tea centres and Calcutta.

(iii) Roadways: There had been very few metal roads in Assam till the middle of this century. The roads were generally bad. The development of proper road system had many difficulties in the region due to physical handicap. However, the road network in the state has been developed by the tea gardens. Assam trunk road is the main road connecting Upper Assam and Lower Assam. It passes through the main tea producing areas of Assam. The gardens away from the trunk roads have been well connected by link roads. The tea gardens have not only contributed for construction of link roads but also made responsible for the maintenance of such roads by local boards.

(iv) Airways: Lifting of tea in small quantities and passenger travel by air from Assam to Calcutta was started during the second world war. Till 1950 regular services were arranged by private companies engaged in tea or oil industries in Assam. The regular air service between Assam and Calcutta was started by Government of India with the formation of Indian

Airlines Corporation. Almost all the district headquarters are well connected by air now.

8.4 RELATIONSHIP OF RAIL AND ROAD TO TEA GARDENS

Here an attempt is made to see whether the road and rail network has any influence on the demographic structure of the tea gardens.

Density: In Tea Gardens as mentioned in Chapter III density is very low. Only a few tea gardens come in the highest density group. The table below gives the distribution of settlements by transport networks.

TABLE 8.4.I

DISTRIBUTION OF SETTLEMENTS BY TRANSPORT NETWORKS IN DIFFERENT DENSITY GROUP

Density	National highway/ Railway	National highway	State highway/ Railway	State highway	Local Roads	Total
5500 +	-	2	-	-	3	5
4000 - 5500	1	2	1	-	-	4
2500 - 4000	1	1	-	2	9	13
1000 - 2500	3	18	6	14	17	58
500 - 1000	-	13	-	32	29	74
/500	-	5	-	11	9	25
Total	5	41	7	59	67	179

From the table above it has been observed that almost all the highly dense tea gardens have been connected by national highway or state highway. The tea gardens connected by local roads have also shown high density. The local roads connecting

the tea gardens are well built all weather motorable roads and no much distinction can be made with these roads with that of National or State high way. The density of tea gardens is found to be higher in such tea gardens where residential areas are located in one place and the gardens are located in another place.

Growth rate:- Growth rate in tea gardens is moderate excepting in some newly started tea gardens where growth rate is high and in some low productive tea gardens where growth rate is low or even negative. In some of the well connected tea gardens by State or National highways, it is seen that some sort of semi-urban types of places have grown, in such tea gardens generally both density and growth rate is found to be high the table below gives the distribution of tea gardens in different growth rate groups in relation to transport network.

TABLE NO.8.4.II

TABLE SHOWING DISTRIBUTION OF TEA GARDENS IN DIFFERENT GROWTH RATE GROUP BY TRANSPORT NETWORK

Growth rate	National highway/ Railway	National highway	State highway/ Railway	State highway	Local roads	Total
100+	2	4	-	5	2	13
66-99.9	-	4	-	3	3	10
56-65.9	-	2	1	2	3	8
46-55.9	-	2	-	3	4	9
36-45.9	1	3	-	6	9	19
26-35.9	1	9	2	12	18	42
16-25.9	-	5	2	9	7	23
6-15.9	1	4	-	11	13	29
0- 5.9	-	2	1	3	3	9
0	-	6	1	5	5	17
Total	5	41	7	59	67	179

From the table above it has been observed that most of of the tea gardens connected by National highway/Railway, national highway, State highway/Railway or State highway have high growth rates. A good number of tea gardens have been found to have negative growth rates. Uneconomic tea gardens and some of the gardens situated on the river banks show negative growth rates. Moreover, transfer of labour from one garden to another garden also may be one of the reason of negative growth rate.

Sex ratio:- In almost all the tea gardens sex ratio is high. The table below gives the distribution of tea gardens in different sex ratio group with respect to transport network.

TABLE NO.8.4.III

DISTRIBUTION OF SETTLEMENT IN DIFFERENT SEX RATIO GROUP WITH RESPECT TO TRANSPORT NETWORK

Sex ratio	National highway/ Railway	National highway	State highway/ Railway	State highway	Local roads	Total
1000+	-	1	-	1	1	3
950-999	1	3	-	5	6	15
900-949	2	13	5	23	35	78
845-899	2	18	1	22	18	61
800-844	-	6	1	3	5	15
750-799	-	-	-	1	1	2
700-749	-	-	-	2	-	2
∠700	-	-	-	2	1	3
Total	5	41	7	59	67	179

For the nature of works involved in tea gardens, the sex ratio of tea gardens whether connected by national highway, State highway/Railway, State highway or local roads is high, showing the predominant rural character of tea gardens.

Literacy:- The existance of child labour system and of different socio-economic conditions of the tea labourers the literacy rate of tea gardens is very low. The table below shows the distribution of tea gardens in different literacy group with respect to transport networks.

TABLE NO.8.4.IV

DISTRIBUTION OF TEA GARDENS IN DIFFERENT LITERACY WITH RESPECT TO TRANSPORT NETWORKS

Literacy rate	National highway/ Railway	National highway	State highway/ Railway	State highway	Local roads	Total
27+	-	1	1	1	-	3
17-26.9	2	0	-	21	6	38
10-16.9	2	23	4	34	29	92
∠10	1	8	2	3	32	46
Total	5	41	7	59	67	179

From the table above it has been observed that only a few tea gardens which are well connected by national highway/Railway, national highway, state highway/railway or state highway have highest literacy rates. Most of the tea gardens though connected by state or national highway have low literacy rate. This may be due to poor schooling condition. We can have some idea from the parliamentary committee report of 1961. It is reported 86 per cent of the plantations' educational facilities exist . Out of these 86 per cent, school arrangement is not sufficient in 2 per cent, arrangement is at par in 2 per cent and in the rest the school arrangement is below par.

Dependancy ratio:- Women and the children of certain age being engaged in works in tea gardens, the dependancy ratio of tea gardens is very low. It has been observed that the tea gardens,

where per centage of agricultural workers is slightly higher, the dependancy ratio is slightly high. In order to seen whether transport net work has any incluence on the dependancy ratio of tea gardens the following table is prepared.

TABLE NO.8.4.V

DISTRIBUTION OF SETTLEMENT IN DIFFERENT DEPENDANCY RATIO WITH RESPECT TO TRANSPORT NETWORK

Dependancy ratio	National highway/ Railway	National highway	State highway/ Railway	State highway	Local roads	Total
182-231	-	1	-	3	2	6
132-181	3	11	2	13	23	52
100-131	2	21	4	32	35	94
/100	-	8	1	11	7	27
Total	5	41	7	59	67	179

It has been observed from the table above that the tea gardens though well connected have low dependancy ratio showing no impact on the dependancy ratio of tea estates. The female and also children of certain age group participate in work in tea gardens. For such peculiarity of tea gardens we observe such result.

8.5 URBANIZATION IN ASSAM

Urbanization is a complex social structure brought by industrialization, expansion of governmental machinery, trade and commerce, transport and communication. Three distant types of urbanization process can be observed in the region.

The region was predominantly rural before the occupation by the British. There were a few towns in days of Ahom Kings.

The difference between a village and a town in those days was that in villages people lived in diffused manner whereas in towns people lived in compact form. That is to say villages with high concentration of population acquired the character of a town. Gauhati and Gargoan were the famous towns in those days . Gargoan was the capital of Ahom Kings and Gauhati gained its importance due to strategic point of view. The region did not experience the urban tradition of Moghal period as experienced by other parts of India.

As soon as the region was captured by the British it gained importance due to many reasons. The discovery of tea is one of the most important factor of attraction for a good number of planters in the region. A large number of traders had been attracted by rich forest wealth and silk etc. The simple tribal population of the region had also attracted a good number of Christian missionary who found them easy to convert. To dominate the regional powers the Britishers kept military in different places. Basing on the facts above the Britishers had created some out posts in the region. These out posts gradually turned to be urban centres. Along with the deyelopment of Railways, Roadways and the spread of administration a large number of towns emerged in the region in the later stage.

The table No.8.5.I gives the growth of urban population since 1901 - 1961.

GROWTH OF TOWNS. 1901 — 1961.

MILES 40 20 0 40 MILES.

DOOMDUMA
TINSUKIA
DIBR-UGARH
DIGBOI
DIGBOI OIL-TOWN
NORTH LAKHIMPUR, NAHARKATIA
SIBSAGAR
BIHPURIA
NAZIRA
JORHAT
MARIANI
GOLAGHAT
DERGAON
TEZPUR
DHING
NOWGONG
BARPETA
NALBARI
KOKRAJHAR
BILASIPARA
N.GAUHATI.
GAUHATI
GOALPARA
AMINGAON
KAMAKHYA
PANDU
DHUBRI
SAPATGRAM
CAURIPUR
HOJAI
DIPHU
LUMDING
MAWLAI
SHILLONG
NONGTHYMAI
SHILLONG CANNT.
JOWAI
TURA
HAFLONG
KARIMGANG
SILCHAR
HAILAKANDI
IMPHAL
LALAGHAT
BADARPUR
DHARMANAGAR
KAILASAR
KHOWAI
AGARTALA
AIJAL
RK.PUR
BELONIA

YEAR OF ORIGIN

- 1901
- 1911
- 1921
- 1931
- 1941
- 1951
- 1961

DEVELOPMENT OF RAILWAYS

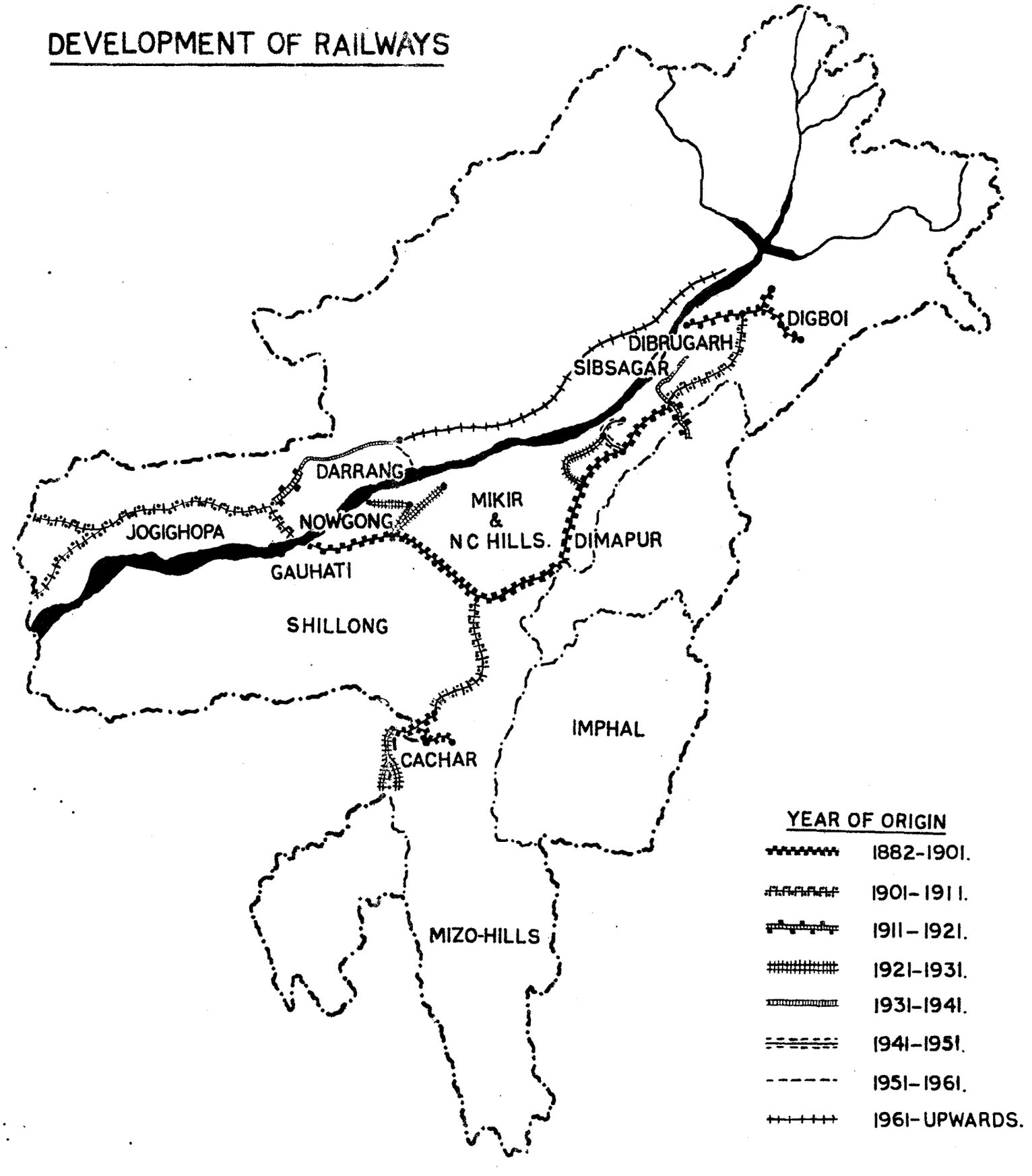

TABLE NO.8.5.I

TABLE SHOWING GROWTH RATES OF TOWNS 1901-1961

Name of Towns	GROWTH RATES					
	1901-11	1911-21	1921-31	1931-41	1941-51	1951-61
Dhubri	55.41	15.47	40.67	34.59	29.44	24.43
Goalpara	-5.14	4.15	3.26	21.48	30.78	34.34
Gauripur	-	-	29.71	3.41	32.28	27.99
Gauhati	7.49	32.04	32.78	35.78	47.36	130.90
Palasbari	-	-	26.83	11.23	27.46	-16.30
Barpeta	22.77	9.22	17.45	34.03	14.46	5.06
Nalbari	-	-	-	-	18.00	109.97
Tezpur	6.68	37.08	39.87	15.68	58.94	27.96
Mangaldoi	-	-	65.78	613.03	70.62	139.64
Doomdoma	-	-	63.51	14.57	42.35	164.35
Lakhimpur	-	-	7.83	31.60	10.90	112.54
Dibrugarh	29.71	9.91	17.03	23.79	63.82	53.93
Tinsukia	-	-	67.53	61.58	46.45	132.49
Jorhat	80.44	26.66	25.77	39.95	38.58	54.37
Sibsagar	9.91	-7.55	25.14	13.34	41.05	42.21
Golaghat	-5.22	63.46	28.26	16.68	51.43	77.46
Nazira	-	1.89	32.37	1.38	23.69	15.53
Gowgang	55.41	15.47	40.67	34.59	79.44	24.43
Lumding	-	-	16.72	393.15	295.39	51.76
Silchar	55.41	15.00	28.08	27.63	105.16	20.56
Karinganj	14.40	-30.10	25.02	37.28	144.44	50.19
Hailakandi	-	52.39	-10.15	54.04	166.54	71.94
Aijal	-	-	-	-	-	105.14
Haflong	-	-	-	-	40.59	50.60
Shillong	49.77	39.00	37.69	44.69	74.91	37.09
Shillong Cantt.	-	-	-	42.43	-37.77	138.60

From the table it has been observed that all the towns have shown steady growth of urban population upto 1951. But during the decade 1951-61 there is an abrupt rise in urban population indicating urban growth, at a high rate. As a result of partition of country a large number of refugees from East Bengal increased the population of most of the towns. Many new towns also grew during this decade.

The table below gives the district-wise number of towns added during the period.

TABLE NO.8.5.II

CLASS-WISE TOWNS ADDED DURING 1951 - 61

Name of district	Size classes III	IV	V	VI	Total
Goalpare	-	1	5	-	6
Kamrup	1	1	4	3	9
Darraig	-	-	2	1	3
Lakhimpur	-	2	1	2	5
Sibsagar	-	-	2	-	2
Nowgang	-	1	1	-	2
Cachar	-	-	1	2	3
K.& J. Hills	-	1	2	-	3
Garo hills	-	-	1	-	1
Total	1	6	19	8	34

With the partition of the country, military and adminstrative activities in the region has increased along with the development in Transport and Communication. During the plan period large scale social and public services have been carried out through sub-divisional head quarters, which satisfied the definition of town. With the strengthening of infrastructure and and exploitation of natural resources in the region have gained the importance of some of the places and they have been declared as towns.

It is interesting to note that no towns in Assam in successive censuses excepting Sadiya in 1961 have been diclassified

The diclassification of Sadiya in 1961 is due to the fact that whole of the town is washed away by the river Brahmaputtra.

8.6 RELATIONSHIP OF TEA GARDENS WITH URBAN CENTRES

An attempt is made here to see whether there is any influence of urban centres on the economic and demographic character of tea gardens, having population 2000 and above. For this purpose all the tea gardens have been grouped into five distinct distance group namely (0 - 5 miles), (6 - 10 miles) (11 - 15 miles) and (15 + miles). This grouping has been done according to distance of tea gardens from the nearest urban centres.

TABLE NO.8.6.I

TABLES SHOWING DENSITY OF TEA GARDENS WITH RESPECT TO DISTANCE FROM THE NEAREST URBAN CENTRES

Distance in miles/ Density	0 - 5	6 - 10	11 - 15	15 +	Total
5,500 +	1	2	2	-	5
4,000 - 5,500	-	1	-	3	4
2,500 - 4,000	2	2	3	6	16
1,000 - 2,500	14	8	4	32	58
500 - 1,000	20	20	12	22	74
⁄500	3	5	3	14	25
Total	40	38	24	77	179

TABLE 8.6.II

TABLE SHOWING DEPENDANCY RATIO OF TEA GARDENS WITH RESPECT TO DISTANCE FROM THE NEAREST URBAN CENTRE

Distance in miles/ Dependancy ratio	0 - 5	6 - 10	11 - 15	15 +	Total
182 +	1	2	-	3	6
132 - 181	15	14	5	18	52
100 - 131	17	16	13	48	94
⁄100	7	6	6	8	27
Total	40	38	24	77	179

TABLE NO.8.6.III

TABLE SHOWING GROWTH RATE OF TOWNS WITH RESPECT TO DISTANCE FROM THE NEAREST URBAN CENTRES

Distance in miles/ Growth rate	0 - 5	5 - 10	11 - 15	15 +	Total
100 +	2	4	3	4	13
66 - 99.9	1	-	2	7	10
56 - 65.9	1	-	1	6	8
46 - 55.9	1	4	1	3	9
36 - 45.9	6	2	3	8	19
26 - 35.9	13	12	4	13	42
16 - 25.9	7	5	3	8	23
6 - 15.9	8	4	4	13	29
0 - 5.9	1	2	-	6	9
Total	40	38	24	77	179

TABLE NO.8.6.IV

TABLE SHOWING SEX RATIO OF TEA GARDENS WITH RESPECT TO DISTANCE FROM THE NEAREST URBAN CENTRES

Distance in miles/ Sex ratio	0 - 5	6 - 10	11 - 15	15 +	Total
1,000 +	1	-	-	2	3
950 - 999	5	3	2	5	15
900 - 949	19	14	9	36	78
845 - 899	11	15	10	25	61
800 - 844	2	3	3	7	15
750 - 799	1	1	-	-	2
700 - 749	-	1	-	1	2
∠700	1	1	-	1	3
Total	40	38	24	77	179

TABLE NO.8.6.V

TABLE SHOWING LITERACY RATES OF TEA GARDENS WITH RESPECT TO THE DISTANCE FROM THE NEAREST URBAN CENTRES

Distance in miles/ Literacy rate	0 - 5	6 - 10	11 - 15	15 +	Total
27 +	1	-	1	1	3
17 - 26.9	8	7	3	20	38
10 - 16.9	22	21	14	35	92
⁄10	9	10	6	21	46
Total	40	38	14	77	179

It is generally believed that density, growth rate, literacy rate, dependancy ration are higher in case of tea gardens near the urban centres and lower in case of tea gardens situated a greater distance. Sex ratio is supposed to be lower near urban centres but greater at a greater distance. This proposition is found to be true in case of some tea gardens only, which are closer to the old towns. Some of the tea gardens though situated at a greater distance from the 1961 urban centres are nearer to the sub-divisional administrative headquarters which are qualified to be towns in 1971 census. These areas have some influence on the gardens near to them. Most of the tea gardens are found to be closer to the new towns of 1961 census. These towns themselves being not so well developed have little influence on these tea gardens. The socio-economic condition of the tea garden labourers made them abstain from the influence of urbanization. Only after independence their social status has been increased a lot as it has not raised to the matured state in 1961.

SUMMARY

The distribution of settlements is found to follow the geographical pattern of the region with concentration of all the settlements in the plain areas. The transport network of the region has also helped for the growth of large sized settlements specially the urban centres at the junctions of the transports. The soil type also played an important role for the growth of large sized settlements. Where there is fertile agricultural land in between hills, the concentration of large sized settlements has been observed. A distinct regional disparity in the demographic characters has been observed. The highly urbanized region is generally found to be the region of high density, high growth rate, high literacy and high dependency ratio and low sex ratio. The tea region of the state is found to be predominantly rural, accepting a few urban centres which are grown for administrative and market purposes. The tea gardens are found to be the region of lowest density, lowest growth rate and of highest sex ratio. The dependency ratio of the gardens is also found to be lowest in comparison to other rural settlements. Urbanization and development of road and transport found to have some effect in the demographic characters of the tea gardens. Soil type has found to have dominant role in determining the function of the settlements. Almost all the industry dominating settlements are found to concentrate in the tea soil. Transport network of

the region has helped for the growth of trade and commerce settlements in different places. In some cases the transport networks are seen to have little effect, being the recent development in the region. In some cases the urban centres also seen to have very little or no influence on the settlements. The urbanization of the region is very recent and the towns are small to exert influence on the surrounding settlements. Almost all the settlements of the region are either agricultural or industrial (tea gardens). The rural settlements situated near the urban centres are found to have higher per centage of workers in other activities than in agriculture. The predominance of women and children labour in tea gardens and weaving and spinning being the common practice where women take part attributed for lowest dependency ratio in the region. The urban centres are also found to have low dependency ratios. Some of the rural settlements which are grown for only administrative purposes show purely urban characters, but dependency ratios of such settlements are found to be low.

A P P E N D I X

LIST OF VILLAGES AND TOWNS UNDER STUDY

A S S A M

1. Gossaigoan Town	2. Basugoan	3. Kokrajhar
4. Patidoha	5. Sagolia	6. Takerchar South
7. Sapatgram Town	8. Bilasipara Town	9. Modhusolmari Pt.II
10. Bidyapara Pt.I	11. Bidyapara Pt.II	12. Dhubri Town
13. Gauripur Town	14. Chotakalia Pt.I	15. South Salmara Pt.I
16. Jhawdanga Pt.III	17. Jordanga Pt.I	18. Mancachar Town
19. Aolatali	20. Bongaigon Town	21. Abhayapuri Town
22. Joybhum	23. Ramharirchar Pt.I	24. Morisabari Reserve
25. Lakhipur	26. Takimari Grazing Reserve	27. Budhuchar
28. Goalpara Town	29. Bijani Town	30. Balasipara Pather
31. Khoirabari	32. Sorbhog Town	33. Barpeta Rd.Town
34. Borbhamkhata	35. Barbang	36. Ambari
37. Pathsala Town	38. Barbala	39. Sundaridia
40. Palhaji	41. Khudra Amrikhowa	42. Bayas Kuchi
43. Barpeta Town	44. Sarthebara Town	45. Sairachara N.C.
46. Balukuri N.C.	47. Kismatmayabari	48. Deulidi N.C.
49. Balukuri N.C.	50. Kodamtola N.C.	51. Mowkhowachar N.C.
52. Ujirchar N.C.	53. Baghmarachar N.C.	54. Mussalmanpur
55. Nizchenga	56. Balapara	57. Tarabari
58. Niznamati	59. Jalkhana	60. Khudramakhibaha
61. Harbhanga	62. Balipart I	63. Tihu Town
64. Rupiya bathan	65. Nizchamta	66. Belsor
67. Kakaya	68. Gandhiya	69. Amoni
70. Solmari	71. Piplibari	72. Barigoan

73. Barribari	74. Nizpakaula	75. Barnadi
76. Bangoan	77. Barkhetribari	78. Jagara
79. Azara	80. Janigog	81. Nijbapjani
82. Nalbari Town	83. Dobock	84. Rangiya Town
85. Loharkatha	86. Soniadi	87. Majarkusi
88. Bagta	89. Nizhajo	90. Kulhati
91. Bahana	92. Sarudampur	93. Sualkuchi Town
94. Changsari	95. Rudraswar	96. Naitor
97. Maubaripather N.C	98. Jambari	99. Palligaon
100. Sarapara	101. Kochpara	102. Amranga
103. Dakhala	104. Nahira	105. Rampur
106. Uparthati	107. Mazirgoan	108. Garal
109. Arara	110. Dharapur	111. Sikarhati
112. Palasbari Town	113. Amingoan Town	114. Kamakhya Town
115. Pandu Town	116. Dakhingarigoan	117. Uttar Jhalukbari
118. North Gauhati Town	119. Gauhati Town	120. Kaithalkuchi
121. Gamarimuri	122. Dhuhi	123. Manahkuchi
124. Siminanov	125. Goreswar	126. Muguri
127. Badla T.E.	128. Nomalpara T.E.	129. Orangijuli T.E.
130. Bhutiachang T.E.	131. Paneri T.E.	132. Haticher T.E.
133. Tangala Town	134. Lamaberi T.E.	135. Bahipukhuri T.E.
136. Kachamari Nepali N.C.	137. Kharupetia Town	138. Upper Kurua
139. Bhuktabari	140. Maroi	141. Ojahgoan
142. Maomarichpri	143. Nangali	144. Mangaldoi Town
145. Barchala P.G.R.	146. Dibru Darrang	147. Tinkhoria T.E.
148. Chapari T.E.	149. Singri T.E.	150. Dhekiajuli Town
151. Hindugoan	152. Ruragoan	153. Nizbihaguri

154. Barikachuburi 155. Tarrajuli T.E. 156. Dhendai T.E.
157. Sonajuli T.E. 158. Borjuli T.E. 159. Dhulapadung T.E.
160. Sessa T.E. 161. Harchara T.E. 162. Kacharigoan T.E.
163. Naharoni T.E. 164. Panipata T.E. 165. Tezpur Town
166. Nizsootea 167. Bagariati 168. Siporiachapori
169. Bhojmari 170. Charali 171. Dokorai T.E.
172. Pratapgarh T.E. 173. Majuligarh T.E. 174. Borpukhuri T.E.
175. Pabhoi T.E. 176. Mijikajan T.E. 177. Baghmari T.E.
178. Monabari T.E. 179. Bihapukhuri T.E. 180. Ketala T.E.
181. Borgang T.E. 182. Halem T.E. 183. Buroi T.E.
184. Dufflagarh T.E. 185. Gohpur T.E. 186. Nayaghogra T.E.
187. Harmoti T.E. 188. Bihpuria Town 189. Ghoramora
190. Doolahati T.E. 191. Kailamari T.E. 192. Joyhind T.E.
193. Dejoo T.E. 194. Silonibari T.E. 195. Lakhimpur Town
196. Kowarchari 197. Matmera 198. Tinkhonyagoan
199. Konwarhandique 200. Teparpathar 201. Chiringgoan
202. Mijan T.E. 203. Jamirah T.E. 204. Sessa T.E.
205. Ramai T.E. 206. Lauhual T.E. 207. Bokel T.E.
208. Nagaghuli T.E. 209. Thani T.E. 210. Hazalbank T.E.
211. Dibrugal Town 212. Makum Town 213. North Baligan T.E.
214. South Baligan T.E 215. Badlava T.E. 216. Nahartoli T.E.
217. Chabua T.E. 218. Hatiali T.E. 219. Dikam T.E.
220. Nalani T.E. 221. Nakhroi T.E. 222. Limbuguri T.E.
223. Katchujan T.E. 224. Hapjan T.E. 225. Tinsukia Town
226. Chabua Town 227. Tansukia 228. Philobari
229. Raidang T.E. 230. Senchowa T.E. 231. Sangang T.E.
232. Bisakupi T.E. 233. Doimukhia T.E. 234. Deemuli T.E.

235. Rupai T.E.	236. Baghjan	237. Digjan T.E.
238. Pabhajan T.E.	239. Doidan T.E.	240. Hookanguri T.E.
241. Hilika T.E.	242. Longsoal T.E.	243. Tippuk T.E.
244. Talap T.E.	245. Khobang	246. Dangari T.E.
247. Tanganagoan T.E.	248. Komsang T.E.	249. Bishakupi T.E.
250. Bordubi T.E.	251. Barakpara T.E.	252. Badblabheta T.E.
253. Tara T.E.	254. Domdoma Town	255. Balijan T.E.
256. Hugrajan T.E.	257. Deuhal T.E.	258. Chabua T.E.
259. Jumbari T.E.	260. Itakuli T.E.	261. Rajgarali
262. Lakhipather	263. Bogapani T.E.	264. Pangeri T.E.
265. Tangana T.E.	266. Digboi Town	267. Digboi Oil Town
268. Ashabam T.E.	269. Namrup T.E.	270. Joypur T.E.
271. Naharkatia Town	272. Agbandhabangali	273. Lido-Tekok Settlement
274. Margherita Town	275. Dehing T.E.	276. Makum T.E.
277. Segumbari T.E.	278. Nandang Rly.& Oil Company	279. Tiponipani T.E.
280. Borgolai T.E.	281. Mairabarigoan	282. Hatimuria
283. Lengeribari	284. Barangabari	285. Silpukhuri
286. Lahkarkhat	287. Amlakhi T.E.	288. Dhanibheti
289. Dhing Town	290. Maheripur	291. Uttarkhatowal
292. Lailuri	293. Rupahi Town	294. Borguli
295. Barangabari	296. Ouguri	297. Nizdandua
298. Pachatiamorigoan	299. Nakhulagoan	300. Nakolagrant
301. Charaibahi	302. Nazbarapujia	303. Raha Town
304. Hariamukh	305. Bhatikuri	306. Raidongia
307. Mazjagari	308. Kujidohanamati	309. Dimaruguri
310. Nowgang Town	311. Panigoan	312. Paghali
313. Gotanga	314. Halowagoan	315. Nizchalchali

316. Antali
317. Salona T.E.
318. Barpetia
319. Kathkatiabhakat-goan
320. Barjanmazgoan
321. Nizdabaka
322. Hajoi Town
323. Sarenghipather
324. Golaghatia
325. Lankagoan
326. Lankapatty
827. Lankeswarigrant
328. Lamding Town
329. Kuruabhigeen
330. Borchapori T.E.
331. Numligarh T.E.
332. Dhodanggoriya-goan
333. Jogania
334. Dergoan Town
335. Sialekhati
336. Rongagora T.E.
337. Hautly.
338. Lettekujan
339. Rongajan T.E.
340. Borjan No.1 T.E.
341. Jamuguri T.E.
342. Gamariguri
343. Golaghat Town
344. Arichapuri No.1
345. Kamlabarisatra
346. Dakhinpatsatra
347. Potiagoan
348. Nowbaisa
349. Mautigoan
350. Chengaligoan
351. Sonarigoan
352. Atilagoan
353. Chekanidhara
354. Sensoagoan
355. Dakargorakumar-goan
356. Meleng T.E.
357. Kakojan T.E.
358. Rajai T.E.
359. Chinamara T.E.
360. Murmuria T.E.
361. Doklongia T.E.
362. Kathonibari
363. Sycotta T.E.
364. Khorikotia
365. Jorhat Town
366. Mariani Town
367. Baishahabi T.E.
368. Kothalguri T.E.
369. Naginijan T.E.
370. Gotonga T.E.
371. Hilika T.E.
372. Hulwadong T.E.
373. Barbam T.E.
374. Karigoan
375. Rajmai T.E.
376. Sibsagar Town
377. Napambamunati
378. Bihubargrant T.E.
379. Bamunpukhuri T.E
380. Lakhimijan T.E.
381. Makheypur T.E.
382. Ligiribukhuri TE
383. Muthurapur T.E.
384. Charaideo T.E.
385. Santok T.E.
386. Naharhabi T.E.
387. Nazira Town
388. Sepon
389. Teokgoan
390. Kothiakhunda
391. Domardalong T.E.
392. Kumtai No.1 T.E.
393. Kumtai No.2 T.E.
394. Deepling T.E.
395. Napukgrant T.E.
396. Zorkokgrant T.E.
397. TenglibumgrantTE
398. Barhali T.E.
399. Nizkatigora
400. Dayapur T.E.
401. Kumba T.E.
402. Nizbaskandi III
403. Singerbond IV
404. Baldhangrant T.E
405. Borthal T.E.

406. Thailoo T.E. 407. Labok T.E. 408. Lallang T.E.
409. Dewar T.E. 410. Pallerbond T.E. 411. Lakhipur Town
412. Chotojalengagrant 413. Rangpur II 414. Kanakpur Pt.II
415. Ambikapur Pt.IX 416. Ambikapur Pt.X 417. Tarapur Pt.IV
418. Tarapur Pt.III 419. Cleverhouse 420. Hatichera Pt.III TE
421. Hatichara Pt.VIII T.E. 422. Silchar Town 423. Dakshinmaherpur
424. Rukni T.E. 425. Bhubandhar T.E. 426. Dharmakhal T.E.
427. Kanisail 428. Botaroshi 429. Mazigram
430. Brahmansachan 431. Singaria 432. Lofasail
433. Karimganj Town 434. Bardarpur Town 435. Babrigrant T.E.
436. Chandkhira T.E. 437. Sephijuri T.E. 438. Putni T.E.
439. Hatikhira T.E. 440. Ishabil T.E. 441. Ramkrishnanagar
442. Tongibar 443. Chargola T.E. 444. Singlachera T.E.
445. Bidyanagar T.E. 446. Sudarsanpur II 447. Rajyeswaripur VII
448. Serispur 449. Aenakhal T.E. 450. Koiya T.E.
451. Hailakandi Town 452. Lala Town 453. Dhalalmalai
454. Dipu Town 455. Haflong Town 456. Shillong Town
457. Nongthumai Twon 458. Mawlai Town 459. Jowai Town
460. Shillong Cantt. 461. Tura Town 462. Kolashib
463. Aijal Town 464.

TRIPURA

1. Ishanpur 2. Dakshintranagar 3. Narayanpur
4. Ramnagar 5. Charipara 6. Madhyabadarghat
7. Uttarbadarghat 8. Purbabadarghat 9. Indranagar
10. Natun nagar 11. Jogendranagar 12. Anandanagar
13. Agartala Town 14. Paschimlaksmibal 15. Khoiwai Town
16. Chowmupani 17. Jhumerdhapa 18. Bhatinalchar

19. Melaghar	20. Bardual	21. Khedabari
22. Sonamura Town	23. Amtoli	24. Basantanagar
25. Kushamura	26. Mirjamota	27. Dudhpuskariani
28. Khilapara	29. Phulkumari	30. Moghpuskoroni
31. Radhakrishorepur Town	32. Bilonia Town	33. Madhya Pilak
34. Sabroom Town	35. Dharmanagar Town	36. Kailashar Town
37. Rajdhinagar	38.	

MANIPUR

1. Imphal Town	2. Sekmai	3. Lamjaotongba
4. Naoriapekhanlegpa	5. Oinam Thingal	6. Chajing
7. Mayang Imphal	8. Bengul	9. Khagempalli
10. Singjamai	11. Sagolband	12. Khuraisajorleikai
13. Heingang Kongtha	14. Khetrigar	15. Khongman
16. Torban	17. Thougju	18. Kerai
19. Andro	20. Leimapokpam	21. Oinam
22. Bishenpurawang	23. Ningthoukhong-awang	24. Kingthoukhongkha
25. Mairang Pt.I	26. Mairang Pt.II	27. Khathinungei
28. Kwakta	29. Kumbi	30. Wangoo
31. Thanga	32. Irongchesaba	33. Raisangthem
34. Khekman	35. Haoreibi	36. Lilong
37. Kiyamsiphai	38. Moijing	39. Heirok Pt.I
40. Heirok Pt.II	41. Wangsing	42. Athokpam
43. Khangabok	44. sangaiyumpham	45. Tentha
46. Hiyanglam	47. Wabagai	48. Kakchingkhullen Pt.II
49. Irengbad	50. Kakchingwairi Pt. II	51. Kakchingkhunon
52. Wangao	53. Ukhrol	54. Sanvomtipaimukh

ARUNACHAL PRADESH

1. Bhalukpung	2. Bomdila	3. Kimin
4. Along	5. Pasighat	6. Tezu
7. Namsai		