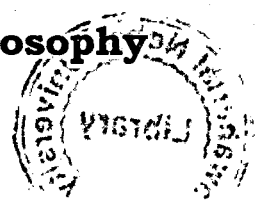
Levels of Development in the hills of North East

Dissertation submitted to the Jawaharlal Nehru University in partial fulfilment of the requirement for the award of the Degree of

Master of Philosophy



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2001

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Date 19th June 2001

Certificate

We certify that the dissertation entitled ***"Levels of Development in the hills of North East"*** has been submitted by Miss K. Ryngnga for the partial fulfilment of the degree of Master of Philosophy (M.Phil.) is a bonafide work to the best of our knowledge and may be placed before the examiners for evaluation.

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"I cannot do it alone;
The waves run fast and high,
And the fogs close all around,
The light goes out in the sky;
But I know that we two
Shall win in the end,
Jesus and I.

Coward and way ward and weak,
I change with the changing sky;
Today so eager and bright,
Tomorrow too weak to try;
But He never gives in,
So we two shall win,
Jesus and I.

I could not guide it myself,
My boat on life's wild sea;
There's One who sits by my side,
Who pulls and steers with me,
And I know that we two
Shall safe enter port,
Jesus and I."

Streams In The Desert

ACKNOWLEDGEMENT

This dissertation seeks to analyze the levels of development in North East in general and the hill areas in particular. It is an attempt at bridging the gap that exists today in the sphere of not only state level planning but also in various other strategies of backward area development, by developing a method of delineating regions on a basis of a method for identification of regions.

In carrying out this work, I am immensely indebted to my supervisor Dr. B.S. Butola, Asstt. Professor Centre of Study of Regional Development, Jawaharlal Nehru University, New Delhi, who is a dedicated teacher and a critical scholar. This work would not have been completed if it were not for his untiring guidance, profound interest and inspiration.

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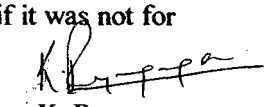
Above all I do offer thanks and praise to God Almighty - His grace is truly amazing. The excellence of His ability to exceed anything and everything I could ever ask or think is a continual source of awe and inspiration – Thank you God.... I could have never reached this far if it was not for You Lord.



K. Ryngnga

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Chapter I

Introduction

Statement of the Problem:

Discourses on development are a common place, every one claims to know something or the other about development. However, the concept continues to be protean with ever increasing concern shown by scholar in comprehending it. It is vulnerable to multiple interpretations. To some it may mean building a bridge, to others increases in incomes and to still others higher moral and ethical standards etc. It is therefore an extremely 'value loaded' concept and without bringing these value premises incorporated into the understanding of it, the concept remains incomplete.[1]

However, the study of economic development has attracted the attention of economists, planners and scholars' right from Adam Smith down to Marx and Keynes, yet most of these formulations were essentially static in nature and largely based on the experiences of Western European framework of social and cultural institutions. In other words "development" as a concept was Euro-centric for a long time. It is only during decades of the last Century and especially after the World War II that economists started devoting their attention towards analyzing the problems of underdeveloped countries. This had become an imperative particularly after the resurgence of national consciousness that swept the Asian, Latin American and African Nations. These

[1] A.C.Mohapatra.; *Area development, The North East Dilemma*, R.K.Rai et.al. "Hill Area Development' Geographical Society of N E Region; Shy 1990, p.5.

movement threw up new leadership on these countries to promote rapid development coupled with the realization on the part of the developed nation that poverty anywhere is a threat to prosperity everywhere.[2] Meaning thereby, development is a secular process involving greater efficiency in the structural and functional co-ordination of the system.

Assuredly, the socio-economic aspects constitute an integral part of it and involve interrogating problem like why some areas have remained underdeveloped? Is it because that they have lacked in their socio-political prerequisites for development? Or is the restrictive character of semi-feudal institution, weak governments, social legislation, absence of incentives, inadequate education and poor health etc. that are responsible for the same? Or, is it that the on going process of change in the poorer nations that has taken place after their integration in the modern world system is only a stage in the development process? The answer to these questions can be both theoretical as well as practical. It is merely an irony that the two have been hardly synthesised in one to evolve praxis. It is particularly true in case of the post colonial country like India. The situation is more serious when similar approaches are adopted for the study and analysis on giving development processes at the level of state and region within the country. The North Eastern States, situated in the strategically sensitive

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[2] Jhingan M.L., *Economics of Development and Planning*, Konark Publishers, N.D., 1997, p.3.

periphery of the country have been experiencing the problem arising out of the incompatibility between the theory and practices undertaken in the name of development in the region. It is well over five decades of independence and plan development in India but the results of the regional economy and society are a pointer to a serious lacuna in the on-going development process in the region.[3] It is one of the laggard regions in the country. It accounts the bottom most position in almost every aspect of development. Moreover, underdevelopment in its nature, form and content that was introduced by the colonisers in the 19th century continues to be the guiding principle for each and every new development activities in the region. Uneven regional development, drain of resources, destruction of indigenous skill and craft and finally the dependence of this region on rest of the country for every thing has become the characteristic feature of this region. It is not only a peripheral region but also a marginalized one with striking intra regional disparities.

Study Area an Introduction

The North Eastern Hill region occupies a strategic position and has several physical as well as socio-economic features that are markedly different from the rest of the country. Like the rest of India, agriculture is the dominant activity in the region. However, it is different in its nature and level of agriculture productivity. Jhumming is the dominant form of

[3] Praxis is the concept evolved by A.Gramsci in Prision Notebook. International Publisher, New York. It mean a theoretical guide to action where one is blended with the order.

agriculture in the region and a significantly high proportion of it is under mono crop.

Moreover, the physical remoteness of the region with low productivity in agriculture has in its turn also influenced the tempo and pattern of industrial development. Situated in the extreme corner of the country, the region has a difficult terrain. Consequently, transportation of necessary inputs for agriculture and industry as well of the consumer goods brought from the other parts of the country is difficult. It has direct bearing on in escalating the cost as well the prices of the commodities.

From the resource point of view this region is favourably situated. It is rich in natural resources. It has large land area and per capita availability of cultivable land is above national average. Paddy, oil seeds, jute, etc. are important crops grown here. This region also a produces a unique muga, silk, which is rarely available any where else in the world. It is worthy to mention here that the region is not only rich in land resources but possesses huge potentials for the development of animal resources. Animal husbandry is another important part of traditional agricultural system, but livestock population is not of the quality to produce enough to meet consumption requirement of meat, milk and poultry products. In fact, it is paradoxical that a land gifted with rich forest and evergreen thick vegetation cover offers an ideal condition for

cattle rearing depends for most of the above mentioned animal products on the import from other region of India.

If one looks at the mineral resource situation in the region it is satisfying to note that it has huge deposits of some strategic mineral like oil, natural gas, and uranium etc. Oil in Assam and Coal in Arunachal Pradesh, Nagaland, and Meghalaya are important mineral reserves. Apart from these limestone and dolomite are also found in abundance in the hilly areas like Meghalaya, Assam, and Arunachal Pradesh. It is also believed that the region is well endowed with forest resources. Most of the states in the region have area under forest much above the national average. Bamboo of different type and cane are some of the major forest products in the region. Though, the forest cover of the region had experienced sharp decline during colonial days but, due to favourable environmental conditions the forest continues to grow rapidly. Moreover, plenty of rainfall plays a significant role in the evolution of perennial drainage in the region. It offers an immense potential for generation of hydel power and development of inland water transport. However, not much has been done to derive full benefit from these rich natural resources.

It is undoubtedly a rich region as far as resource base is concerned, but unfortunately, various sectors of the economy, particularly, infrastructure, agricultural, industry, tourism continue to

be quite poor. These have serious repercussion on the overall development of the region including development of human resources.

The Development Scenario

In the context of development, particularly in the North Eastern Region of India, the concept of backward region, its identification and measure of the extent of backwardness needs to be understood carefully and clearly. Any strategy adopted for the development of a backward region, has to begin with the identification of regions, mapping it in all possible details like its resource base, levels of development, prevalent culture and value systems etc. Thus, in order to achieve the objective of promoting the growth rate in backward region and to reduce regional disparities it is essential to identify regions according to the divergent levels of development and to assess the relative positions of the different regional units and also to delineate homogenous regions so that for different type of regions, different strategies may be adopted.

Compared to the other states of India, development in the region is low or it is relatively slow. It occupies lower most position among all the states of the country. It has very high concentration of tribal population living from hand to mouth. Consequently, there is little capital formation and little exposure to relatively more developed regions of the country. Moreover, during the period of British domination the infrastructure that was developed to buttress the colonial interests continue to survive though in modified forms and continues to accentuate distortions in the

nature of development over time and space. Thus, one can say that these have failed to development according to the needs of the local people. Perhaps, a legacy of the British Colonial rule continues to loom large in the region. Though, uninterrupted exploitation of resources and expansion of the colonial market remained the prime motives during the colonial days yet, to some extent it did break the splendid political isolation of the ethnically and geographically autonomous area in the region. This was also the single most important factor that also triggered off the process of demographic distortions. As a consequence large influx of people from other regions of south Asia too found their destination in this rich resource yet thinly populated tribal dominated North-Eastern Region. Rapid population growth and fast changing ethnic composition and declining resource population ratio etc. were some of the inevitable consequences of the same. The process that was initiated in the mid nineteenth century continue to persist even today and at times provides the basis for inter ethnic conflicts in the region. Land alienation, stagnation of agricultural, depletion of natural resources and unemployment among the educated youths have assumed serious proportion in the name of development particularly during the plan periods after the independence of the country. Industrialisation, too remains a far cry in the region, it continues to be the exporter of raw material and importer of manufactured goods. The situation is grim that even the traditional costumes like Mekhla, Gamochar of the Assamese,

Tapmohkhlieh of the Khasis etc. are imported from Bombay, Bangalore, Madras and other cities out side the region. This in turn is further demoralizing the native entrepreneurs and industrialists. As a consequence, de-industrialisation is a common experience of the regional economy. The situation of the agriculture sector too is far from satisfactory. Large quantities of rice are now brought from outside the region. Thus secular stagnation of economy and high population growth due to heavy in flux of outsiders and high birth rate has contributed in producing such characteristics results like:

1. Communities which came in contact with modern civilization only recently say within the last 200 yrs inhabit the region.
2. The hilly terrain is a hindrance to rapid economic development because of the difficulties in the construction of transport and communication linkages. This has adverse effects even on the introduction of settled agriculture in the region.
3. Lack of facilities for the development of permanent agriculture, cultivators depend upon shifting cultivation that is considered unsuitable for maintaining an economically developed community.
4. Rapid growth of population, narrow world view, lack of progressive outlook, lack of proper utilisation of human and natural resources, increasing regional disparities and fast growing gaps between the

rich and the poor have introduced new bases of social conflicts in the region.[4]

5. Peripheral location and lack of development contributes in emergence of numerous separatists movements in the region.

Nevertheless, whatever, the situation was, during the last decades the Government of India is trying to project its focus on the issues of development of the North Eastern hill region through various governmental organs particularly the North Eastern Council (NEC), Indian Council of Agricultural Research (ICAR) and State Governments etc. for tapping immense development potentials. Scholars too, on their part have tried to analyse the reasons for the backwardness as well as uneven levels of development in the region. In the present study research scholar attempts to undertake the study with following objectives in mind:

Objectives

1. To understand the complex relationship between physical environment and socio-economic structure of the region; so as to determine the personality of the area in its entirety.
2. To analyse the various geographical and economical aspects that are responsible for the persistence present regional structure and which in their turn influence levels of development.

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[4] S.M.Dubey (ed.) *North East Region: A Sociology Study*, 1980, Concept Publishing Company, New Delhi, pp.2-4.

3. To assess the contributing potentialities of different sectors of economy in the over all development of the region.
4. To analyse the levels of intra regional disparity.
5. To present the typology of backwardness/development regions and to delineate homogeneous districts in the region.
6. To find out the relationship between quality of house hold amenities and rural-urban disparities.

It is clear from the objectives as well as from the statement of the problem that disparities in the levels of development in the region are a complex and multifaceted problem. There could be both subjective as well as objective method of assessing and analysis the same. But, in order to make an objective study with certain amount of scientificity an analytical approach has been preferred over a descriptive one. For this purpose it proposes to formulate following hypothesis is order to give specificity and direction to the problem under study:

Hypotheses:

1. Low levels of functional organisation reflect low level of regional development. Areas governed by traditional institutions and customary laws are likely fare badly in terms of development than that are governed by modern institutional arrangements.
2. Spatial variations in the prevalent social structure is likely to determine the performance of different sectors in the economy rather than the availability of resources.

3. In hilly areas availability of socio-economic amenities over space is a function of population pressure rather than accessibility.

It is evident from the above that multidimensional nature of the problem as well as the research questions that this research wants to address can be undertaken from subjective as well as objective positions. But, a research aimed at capturing some of the significant processes at work for the purpose of making some generalization an object and analytical method is considered most appropriate. Data and factual information are most desirable in this regard. Similar approach has been followed in this research work too. Therefore, identification of data base and collection of data are vital component of the study.

Data Base:

It was mentioned that the study proposes to be objective, analytical and scientific. To be objective means to be factional. Hence, facts constitute the basic building block of an objective study.

Available statistical data and records pertaining to different aspects of the Hill Regions of the North Eastern India are quite insufficient to assist a reliable study of the region at micro level. The data for the present study have been collected of mainly from secondary sources at district and state levels. Some of the important data source used here are:

- Census Publications 1991 Government of India have been used for obtaining data on demographic aspects like

demographic structure, rural urban population, gender ratio, literacy, participation of workers in different sectors of the economy etc.

- North-Eastern Council Basic Statistics have been used for getting information on basic infrastructure and number of industrial units, availability of power etc. This also provides information of most of the aspects covered under census publication. Since, this is exclusively concerned with the North-Eastern Region it has more detailed information.
- Indian Council Agricultural Research, North Eastern Hill Region, Shillong publications have been used for getting information on physical aspects such as relief, drainage, soil characteristics, agriculture and animal husbandry.
- Statistical Handbooks of Different states of the region provided information on land use, irrigation and basic infrastructure etc.

Apart from the above mentioned secondary data sources, a large number of other published and unpublished literature, records, government reports, daily and weekly newspapers, unpublished records of the public administration, semi government agencies, periodicals, unpublished conference proceedings, district gazettes, etc. have been used here.

Methodology:

Most often it is believed that research makes new revelations. This is definitely the most ideal goal for any research. But, at times things presented differently too can contribute in the growth of knowledge. In both the cases methods employed to make new revelations as well as alternative modes of presentation are important. The present research does not claim to make new revelations on the contrary it aims to present the facts and information by using analytical mode of presentation. For this purpose different methodological tools have been used:

Procedural method incļudes:

1. For knowing about the physio-economic account of the region, evaluation of development theories and planning experience of India, a descriptive methodology has been used.
2. The data obtained from the secondary sources mentioned above was first transformed into variables and subsequently into indicators. It was based on the theoretical premise that development is an interdependent as well as correlative active. For sustained development association among various aspects of the regional personality is imperative. To make these comparable with each other normalization by subtracting the mean (x) of every indicator and divided by their respective standard deviation (σ) is used in the present research work. The normalized data has been added to find the aggregate development score

3. The levels of development is thus represented on the map by categorising into different levels viz., namely, exceptionally high, high, medium, low, very low.
4. Choropleth technique is used to depict the levels of development on the map. Use of bar, line graphs, map drawing has been done to show different demographic, social and economic indicators.

Chapterisation

Finally the entire work is been systematically arranged in the form of chapters, containing 6 chapters. Chapter I is on the statement of the problem.

Chapter II highlights the introduction to the study area, personality of the study area with its aims and objectives of the subject matter. It seeks to study the environmental bases of the regional structure of the study area. It highlights the relationship of physical and social background of the region and also presents a blue print of various resources — physical, natural population which are held responsible for levels of development in the region.

Chapter III is on the theoretical conceptual background of Regional Development its issues, applicability in the specific regional context. It is said that mere bricks do not make a house and bars a bridge. House and bridge become possible only after a methodological arrangement of the building block. Similarly data and factional information need to be arranged in an order. It needs to follow a method. In the present study,

specific method have been used to process the data so that the facts can become indicative of some aspects of the reality under analysis.

Chapter IV shift the focus to structure and spatial patterns of the economy, the occupational structure namely agriculture, industries, infrastructure household amenities in which these are separately discussed.

Chapter V emphasize the spatial processes of the structure and spatial pattern of the economy. It provides a detailed analysis of agricultural growth, industries, infrastructure, household amenities in the levels of development which accounts to the overall levels of development.

Chapter VI includes the summary and conclusion where it summaries the major findings of the study, discussion in the dimensions and manifestation in the levels of development and finally some suggestion, future policy and research, is discussed in order to integrate the hill area development and planning.

Chapter II

Personality of the Study Area

The North Eastern Hill Region occupies a strategic position in the geography, political and history of India. It has several physical as well as socio-economic features that are markedly different from the rest of the country. It has a distinction of being recognized as one of the hot spots that has very rich bio-reserves of the world. Moreover, it is also one of the few regions that have such rich, vivid and diverse cultural identities living over the centuries. The hill areas of the region are particularly important in this respect.

The Hill Region of North Eastern India has a deep-rooted history, a separate geographical identity, distinct socio-cultural dimensions and sharp patterns in its social structure. Both its physiography and social mosaic are widely diverse. The economy and the society in these Hill Areas are still in the womb of traditional ethos struggling to emerge to the vibrancies of modernity. Though, the history of the region dates backs in the antiquity but unfortunately the modern historical methods have failed to reconstruct large part of the history for want of concrete evidences. It is only with the emergency of oral historiographical methods that attempts are being made to establish the missing links. But, it is still in its nascent stages and nothing conclusive has come to light so far. However, it is sufficient to state that the struggle for their past is also the struggle for their recognition as far as the people of this region are concerned. Moreover, the concern for identity involves a complex mosaic of nature and culture in the region. In other words, things that are man

made and things natural account for even contribution in the personality of the region. Realization of this synthesis has always been the central concern to most of the cultures in the region but it received a fresh impetus in the penultimate decades of the last century when most of the important cultural identities were also reorganized as full-fledged state within the India union. An important feature of this was that most of the states were reorganized involving most of the hill areas of the region.

LOCATION:

It is evident from the figure 2.1 that the North Eastern Hill Region comprises the states of Assam, Arunachal Pradesh, Manipur, Meghalaya, Nagaland, Tripura, Mizoram. It is also worthy to mention the region in its administrative divisions and boundaries of districts and headquarters as seen in figure 2.2. The region lies between 21°2′ to 29°5′ north latitudes and 85°5′ – 97°5′ east longitudes and is characterised by difficult hilly terrain which range from a few hundred meters to over 7300 meters in evaluation.[1] The region has a total geographical area of 255036 km^2. It is bounded by China in the North, Bhutan in the North West, Myanmar in the East and Bangladesh in the South West. The state of West Bengal also forms the western border of the region. The relative as well as specific location of the region has significant influence upon the other natural and socio-economic aspects of the region. Thus, the climate of

[1] ICAR, Agricultural Research, Education and Extension in NEH region 1997, N.Delhi, p.1.

LOCATION MAP OF THE STUDY AREA

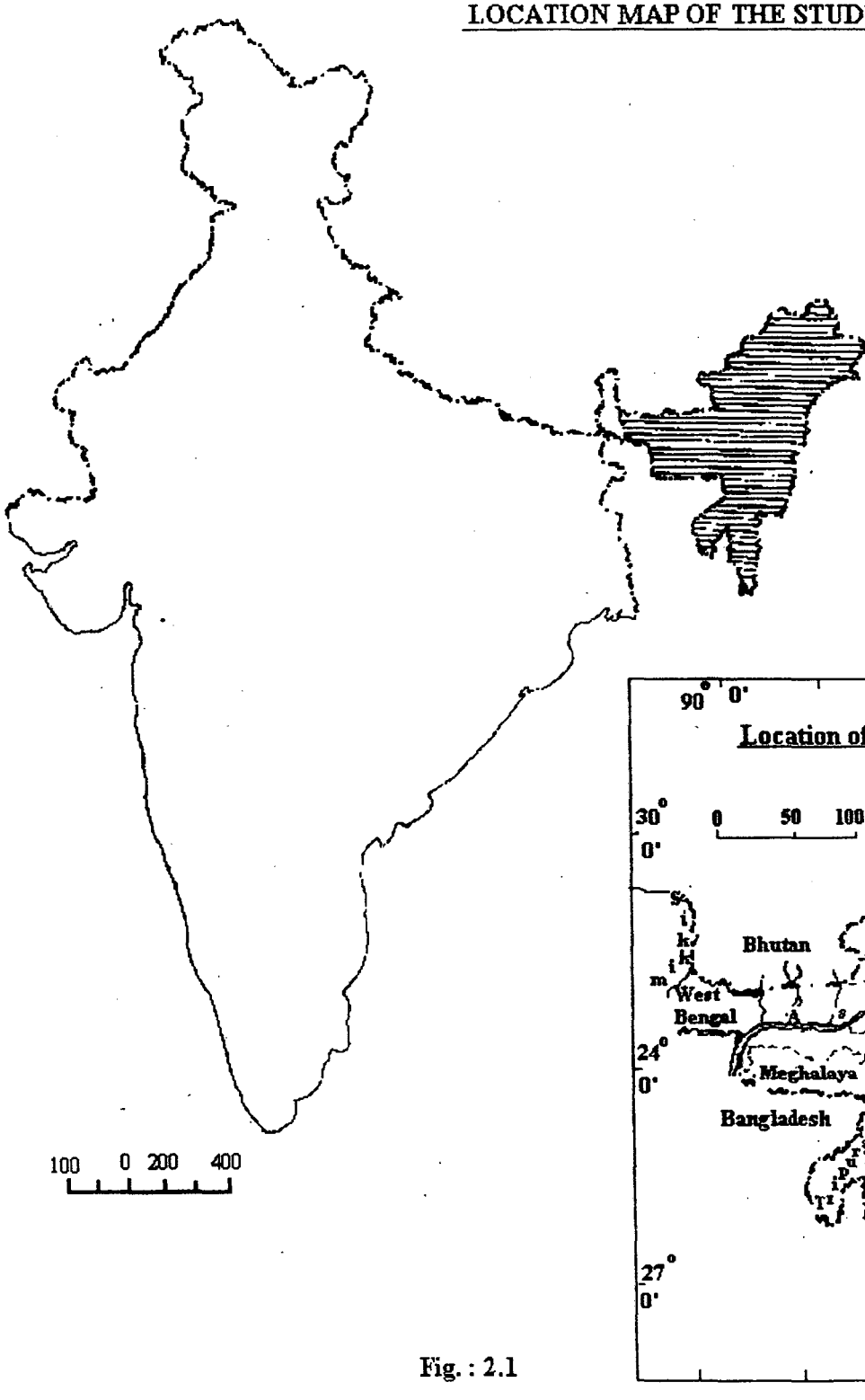

Fig. : 2.1

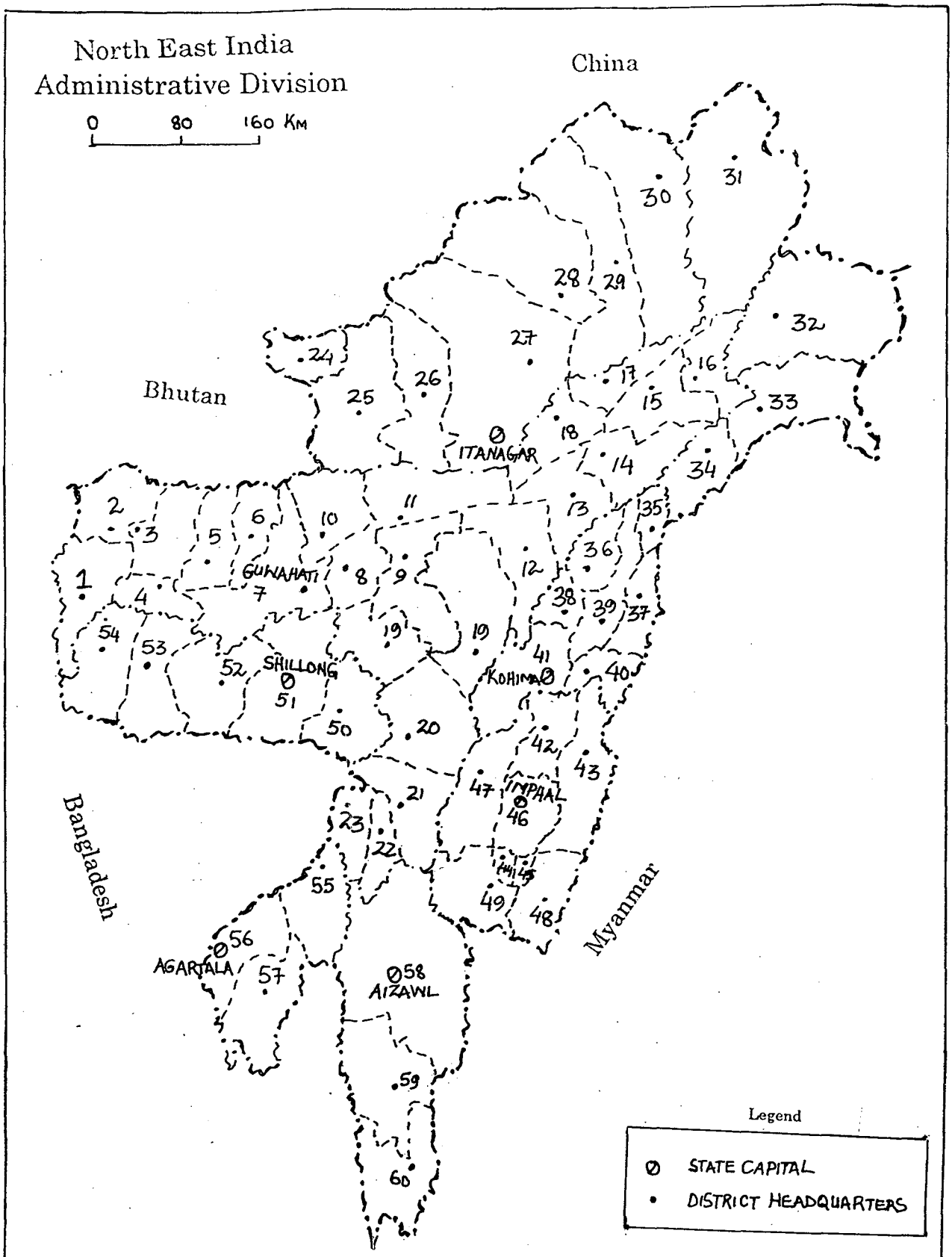
North East India
Administrative Division
0 80 160 Km
China
Bhutan
Bangladesh
Myanmar
ITANAGAR
GUWAHATI
SHILLONG
KOHIMA
IMPHAL
AGARTALA
AIZAWL
Legend
STATE CAPITAL
DISTRICT HEADQUARTERS

Fig.2.2

Districts and Headquarters of North-East India

Sl. No.	Districts	Headquarters
1.	Dhubri	Dhubri
2.	Kokrajhar	Kokrajhar
3.	Bongaigoan	Bongaigoan
4.	Goalpara	Goalpara
5.	Barpeta	Barpeta
6.	Nalbari	Nalbari
7.	Kamrup	Guwahati
8.	Marigoan	Marigoan
9.	Nagoan	Nagoan
10.	Darrang	Darrang
11.	Sonitpur	Tezpur
12.	Golaghat	Golaghat
13.	Jorhat	Jorhat
14.	Sibsagar	Sibsagar
15.	Dibrugarh	Dibrugarh
16.	Tinsukia	Tinsukia
17.	Dhemaji	Dhemaji
18.	Lakhimpur	New Lakhimpur
19.	Karbi Anglong	Diphu
20.	North Cachar Hills	Halflong
21.	Cachar	Silchar
22.	Hailakandi	Hailakandi
23.	Karimganj	Karimganj
24.	Tawang	Tawang
25.	West Kameng	Bomdila
26.	East Kameng	Seppa
27.	Lower Subansari	Ziro
28.	Upper Subansari	Dapariyo
29.	West Siang	Along
30.	East Siang	Pasighat
31.	Dibang	Roing
32.	Lohit	Tezu
33.	Changlang	Changlang
34.	Tirap	Khunsu
35.	Mon	Mon
36.	Mokokchung	Mokokchung
37.	Tuensang	Tuensang
38.	Wokha	Wokha
39.	Zunhebeto	Zunhebeto

40.	Phek	Phek
41.	Kohima	Kohima
42.	Senapati	Senapati
43.	Ukhrul	Ukhrul
44.	Bishnupur	Bishnupur
45.	Thoubal	Thoubal
46.	Imphal	Imphal
47.	Tamenglong	Tamenglong
48.	Chandel	Chandel
49.	Churachandpur	Churachandpur
50.	Jaintia Hills	Jowai
51.	East Khasi Hills	Shillong
52.	West Khasi Hills	Nongstoin
53.	East Garo Hills	William Nagar
54.	West Garo Hills	Tura
55.	North Tripura	Kailashahar
56.	West Tripura	Udaipur
57.	South Tripura	Agartala
58.	Aizawl	Aizawl
59.	Lunglei	Lunglei
60.	Chimtuipui	Saiha

the region too varies from tropical to sub-topical and ultimately temperate types. The rainfall and temperature patterns also shows variations according to altitudes. The amount of rainfall received in the region varies from 1100 mm to 12500 mm. Soils in most of the hilly areas are either sandy loam or mountain soils. However, between 80 to 90 per cent of the soil of the region are acidic in nature mainly due to excessive leaching resulting into losses of the bases. Depending upon these physical variations the socio-economic phenomena too show marked variations over space. Take for example the density of population ranges from 7 persons/km^2 in Arunachal Pradesh to 197 persons/km^2 in Tripura. These diverse aspects of the environment have significance bearing upon the levels of regional development in the region. In this chapter attempts have been made to study.

1. Physiography, relief, climate, vegetation, soil, drainage system etc. as resource base for development.
2. Density of population, gender, sex ratio, urbanisation, literacy etc. to assure the nature of human response to a given environment and their ability to transfer the natural space into cultural development space.

Physiography Of The North Eastern Hill Region:

From the figure 2.3 it can be seen the North Easter Hill region has a diversity of topographic features. In Arunachal Pradesh, the elevation of the hill varies from 150 meters to over 7,300 meters. The hill ridges

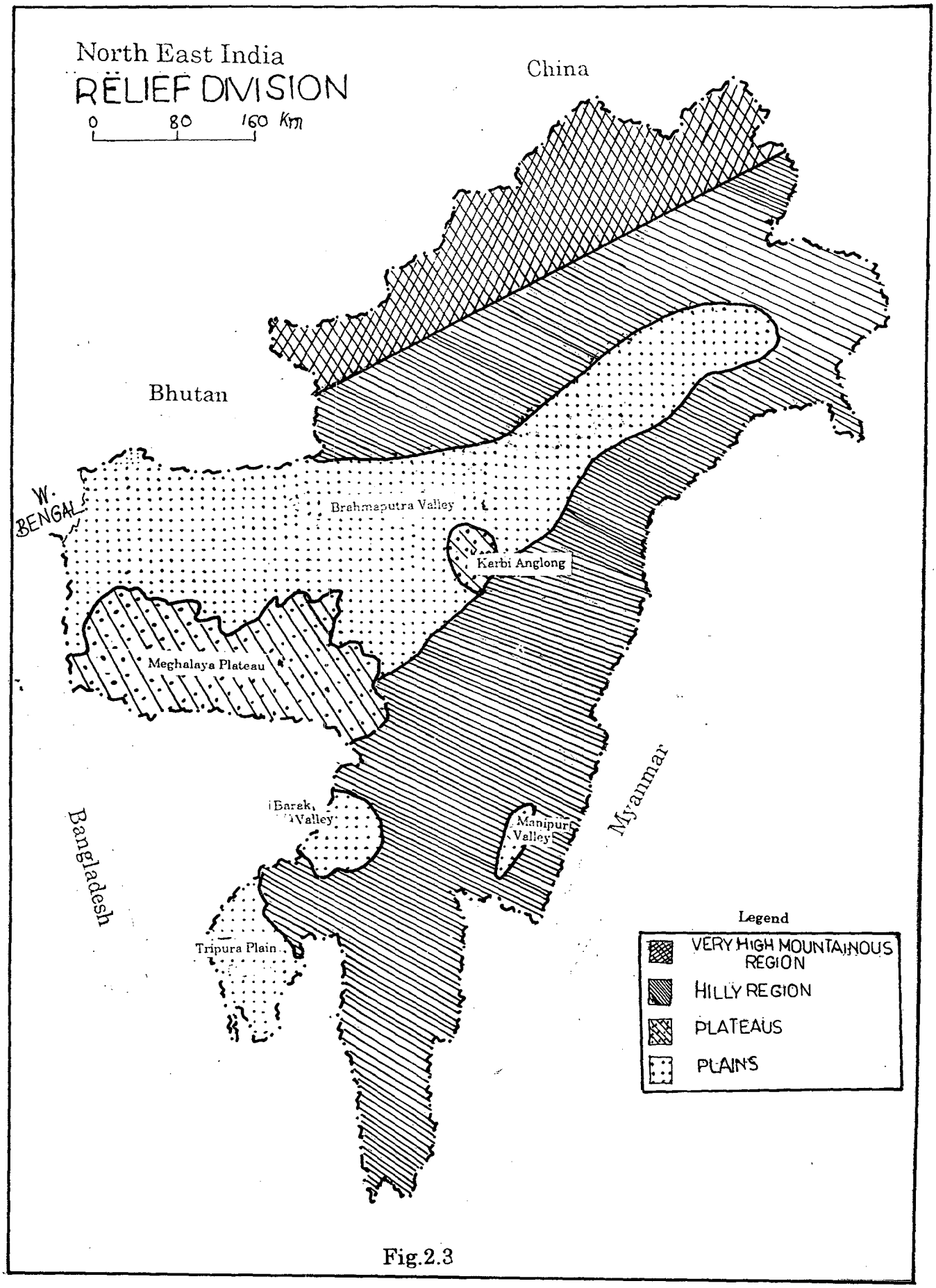
North East India
RELIEF DIVISION
0 80 160 Km
China
Bhutan
W. BENGAL
Brahmaputra Valley
Kerbi Anglong
Meghalaya Plateau
Barak Valley
Manipur Valley
Myanmar
Bangladesh
Tripura Plain
Legend
VERY HIGH MOUNTAINOUS REGION
HILLY REGION
PLATEAUS
PLAINS

Fig.2.3

are situated in very haphazard manner comprising many ridges and valleys. Because of these ridges and valleys the relief of Arunachal Pradesh is found varied almost everywhere that also results into numerous geographical regions made of isolated valleys drained by various important river and stream of the state. Broadly the state can be divided into two major physiographic divisions: the Mishami hills and Patkai Bum.

Nagaland is the other important state of the region it is bordered on the east by the Naga range which also known as the Patkai range forms the watershed between India and Myanmar. Saranati is the highest peak (2826 meter) on the Naga Range and there are other peaks over 3,000 meter in the state. Further west are the Kohima hills and Japvo (2,995 meter) which is the highest peak in this range. The ranges of Japvo hills and inter range valleys are the important feature of the local topography that dominates greater parts of the Kohima hills. The ridge and valley character of the eastern mountains is more pronounced in the Manipur hills. Extending from the Tuensang hills in the North to about 24'N parallel in Myanmar and western boundary about against the Cachar plain and hills form the Manipur hills. The central part of the state has large basin of approximately 50 km. long and 30 km. It is surrounded on all sides by high mountains. This appears to be the bed of an old lake known as the Loktak Lake. It is approximately 12 km long and 8 km broad. The hill ranges on either side of the valley run

practically to the same height a little over 2,500 meter and have flat rolling slopes. Barak is the largest river in the Manipur hills. It rises from the Japvo peak in Nagaland and flows southwestern direction.

To the south of the region is the Mizoram hill. These are also known as the Lushai hills. The general alignment of these hills is from north to south spreading parallel ranges and intervening valleys that are unique. Conspicuous absence of hard rocks on the surface distinguishes from the rest of hill ranges of the region. A traverse from the Tripura border in the west to the eastern frontier along 23°45'N parallel hill reveals the presence of eight smaller ranges of the eastern type. The slope is much steeper in the west than in the east.

Tripura comprises long ranges alternating with valleys. Tripura hills can be divided physiographically into four valleys named after the towns of Dharamnagar, Kailasahar, Kamalpur, and Khowai and one upland named after Agartala. The Gomti is the largest river in the state. It receives a number of south flowing streams and cuts right across the ranges in a steep sided valley from east to west before emerging out of the hills near Radhakishorepur.

The Meghalaya plateau though considered a part of north east ranges is really an eastward extension of the Peninsular India. Lying to the east of the great gap (Jamuna) is a part of Archean terrain.(1) This ancient land was submerged partially by the encroaching sea during the Mesozoic era and early Tertiary times and was uplifted slowly from the

flow of the Tethys. The orogenic movement was so slow and free bulking that the sedimentary beds retained their horizontal character and gave rise to structural platforms particularly in Cherrapunji area. Physiographically eastern parts can be grouped together under the name Khasi and Jaintia hills and the western part forms the Garo Hills. The later is lower in elevation and rises more gently from the southern Bangladesh plains.[2]

The relief and physiography of the region have a close inter-dependent relationship with the other environmental aspect like climate; drainage and vegetation etc. of these drainage have a special significance as a resource base as well as in the spatial interaction.

Drainage System of NEH Region

The drainage system of region can be viewed in its entirely only with the inclusion of Assam valley in this description. Brahmaputra is the most important river system in the region. However, some parts of Meghlaya and Mizoram are also drained by the tributaries of Meghna and Chindwin river systems respectively. Different hill ranges forming the watershed of the Brahmaputra drainage system are the Siwalik hills of the Assam and Arunachal Himalayas, Patkai Bum ranges of Naga hills, East and West Manipur hills, the Mizo hills, the Barail ranges and the Tripura hills. The Brahmaputra receives

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[2] I.C.A.R. *fauna of the N.E.H. region with special to their economic importances,* special bulletin, No.1, 1982, Shillong, p.2.

tributaries from the Kameng Subansari, Dibang Dimang, Sub basin in the north, Lohit and Burhi Dihing in the North East; and Dhansui, and Kalang in the south. Meghna drainage receives its tributaries through the Surma valley contributed by the river originating in the Barail ranges and the Mizo hills.

The Chindwin-Irrawady system receives a part of its drainage from the Naga hills and Imphal basin. Dihang (siang) after its union with Dibang, and Lohit takes the name of Brahmaputra. This river rises from the south of the Chemayungdung glacier. It runs eastward for 1,250 km in a shallow valley through Tibet, takes the name Tsangpo before marking a sharp turn southward and cuts through the deep gorge of Dibang.[3]

It is important to know that physiography and drainage of the region is greatly influenced by the climate of the region. It's location and topography encircled on three sides by high mountain ranges and the presence of a precipitous Meghalayas plateau outward the course of the incoming South-West monsoon winds have rendered it's climate somewhat different from that of the other parts of India.

Climate:

Being within the monsoon belt of the south and south east Asia the hill region falls under the tropical monsoon climate. The sub tropical locational and positional significance of the hill region, its mountain and

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[3] Ibid. p.3.

plateau girdle are particularly contributive to its climate character.[4] The winters are generally very cold and at many places the temperature remain below 5°c. The hills of Arunachal Pradesh experience severe snowfall during winter. Summer are pleasant and receives maximum rainfall. The valleys experience mild winter and humid summers. On the basis of annual variation in temperature and rainfall the climate of the region can be divided into four seasons.

1. Winter Season: In this season the temperature generally drops down over the hill often to less than 5 Celsius. December and January are the driest and coldest month. With the southward migration of the sun, temperature begins to fall over the region and winter sets in towards the latter part of November. It continues upto the end of February. In fact, the high Himalayan areas of Arunachal experiences a temperature below 0°C especially at Night. The hills of Nagaland, Mizoram, Manipur experience a minimum temperature of 4°C. Meghalaya, similarly has a very low temperature. An important feature of the weather of this period is the presence of thick fog all over the region.

2. Pre Monsoon Season: The pre-monsoon period is a transitional season between the dry cool winter and warm and moist rainy season. The average temperature in this season rises to 20°C –

[4] M.Taher and Ahmed; "Geography of North Eastern India" Eldorado Publications 1998, pp.30-31.

25°C in the region. With the end of February, temperature begins to rise. March, April and May become sufficiently hot and the rain are yet to come. The important characteristics of this season are the rapidly increasing temperature, disappearance of fog and not infrequent occurrence of thundershowers and hail storms.

3. Monsoon Season: This season prevails during the month of June to September. It is in this season that the region receives rainfall throughout, particularly in the Meghalaya plateau. The temperature over the region remains quite high and reaches a maximum of 35°C over the plains and 25°C over the hills. Incessant rain some time lasting over a weak are most common sights in most parts of the region.

4. Post Monsoon Season: In this season the temperature comes down to 15°C – 20°C in the hill region, rainfall too decreases. However, this is a short season covering only the months of October and November.[5] Occasional downpours mainly due to local distribution is also experienced during these months.

The combined impact of these aspects of the natural environment is most intensely expressed in the quality of soil. This in turn significantly influences other interrelated aspects of the environment including vegetation and economy.

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[5] Dr.H.Barch, Encyclopaedia of India Meghalaya Konark Publication, New Delhi, 1998 Vol.22, p.6

Soil

Soil consists of mechanical mixtures and chemical compounds of the materials found on the surface of the earth. The physical and chemical characters of the parent rocks, physiography, altitude, climatic condition and plants and animals of the surrounding region influence the process of soil formation. Climate varies according to the location and situation of the places. As a result, there are intra regional differences in the type of soils found in the region. The hills generally have red soil over lower attitudes and laterite soil over medium altitude. In the hills of Assam, red soil is common and only patches of laterite over the highest part of the hill ridges. In Arunachal Pradesh alluvial soil is found along the narrow stripe of the river valley while in areas above 4500 meter has soil mixed with fluvial deposits. Meghalaya has red soil over the hills except the higher central part where laterite is found to be present. Mizoram has mostly residual soil. Red soil predominates with only thin patches of laterite over the higher ridges. In Manipur alluvial soil is dominant only in the plain but the hills have residual red soil which is sandy in texture. Nagaland too has red soil but are by and large fine grained. Tripura has alluvial soils over the piedmont plains and red soil over the hills, a few patches of laterite are present over the higher hills.[6]

[6] M.Taher and Ahmed "opcit", pp.67-68.

The relief, climate, drainages, vegetation and soils of the region have played significant role in the life and economy of the traditional community of the region. However, with the increasing inter regional and inter cultural interaction the economic importance of various environmental attributes have changed rapidly. Diversified uses of different components of environment have become the hallmark of external influences in the region. As a consequence the objects of nature have been transformed into resource base of the region which inturn determine the pace as well as nature of spatial interaction and levels of development in the region. Therefore, these resources play an important role in the development of the region.

Natural Resources

It is well known fact that existence or the absence of favourable natural resources can facilitate or retard the process of economic development in a region. There is a wisdom in saying that the extent of a country's resources is obviously a limit on the quality and quantity of development that it can undergo.[7] Underdeveloped countries, embarking on programme of economic development often experiences either absent or distortions in their resources use. Usually these countries have to begin with and concentrate on development of locally available natural resources. This alone can yield multiplying results like providing initial condition for lifting local levels of living and purchasing power, for

[7] Lewis W.A. The Theory of Economic Growth, Allen and Union Publication, 1960, p.52.

obtaining foreign exchange etc. ultimately setting in motion the development process itself.[8] It is also true for the North Eastern region some of the important resources of the region include:

Land Resources:

Land is the most crucial and vital resource of the region. It is evident from the table 2.1 (appx.) that the total geographical area of the region is 28509 sq. km. and out of this reported area is only is 88.3 percent, and area covered under forest is 45 percent. The land not available for cultivation constitutes only 18 percent. Though, land is one of the most widely available and extensively used resource in the region yet, there are large variations at the state level in terms of its utilization. Data given in the table 2.1 (appx.) show that Arunachal Pradesh is the largest state in the region followed by Assam. These states account for 32 and 30 percent of the total geographical area of the region respectively. Manipur, Meghalaya, Mizoram with 8.95 percent, 8.79 percent and 8.26 percent of the reported area respectively are the medium size states while Nagaland with 6.62 percent and Tripura 4.19 percent are relatively smaller states in the region.

Out of the total reported the percentage of net sown area is 72.66 in Assam followed by Tripura (7.25 percent), Meghalaya (5.42 percent), Nagaland (5.09 percent), Arunachal Pradesh (4.0 percent) and Mizoram

[8] J.I. Fisher, The Role of Natural Resources in Economic Development Principle & Pattern Eds. H.F.Williamson & J.A. Buttick, 1964, p.32.

(1.24 percent). It shows that the relief and local environmental conditions largely influence use of land under agriculture. But, the picture differs sharply with the alternative use of land. Forest is one of the most crucial and sensitive resource of the region.

Forest Resources:

Forest is a precious resource given by nature. It is often termed as multipurpose resource. From the viewpoint of environment forests are important because they influence rainfall and protect soils from being eroded, besides keeping the carbon dioxide and oxygen levels steady.

Forest resources were rich in the region not in very distant part but reckless cutting of trees, clearing of forest and lack of concerted efforts in afforestation have resulted into unprecedented depletion of this precious resources particularly during and after colonisation of the region.

Table 2.2: Forest coverage in NE (State-wise)

State	Forest (in % of total)
Arunachal Pradesh	82.3
Assam	33.2
Manipur	80.0
Meghalaya	69.8
Mizoram	86.2
Nagaland	86.9
Tripura	50.9
Total	65.9
All India	19.5

Source: Basic Statistics, North-Eastern Council Shillong, 1995.

From the above table, it can be seen that the forest coverage of all India is only 19.5 percent and the North Eastern Region is above the national average. Nagaland is the leading state (86.9 percent) followed by Mizoram (86.2 percent). Assam is the last of all with only 33.2 percent. Though, area under forest is higher than the national average but the recent satellite pictures of the region shows that this resources is depleting at an alarming rate. The table below provides a better understanding of forest resources in the region through time.

Table 2.3: Per capita forest area and its percentage in the region

State	Forest Area (1980 in thousand)	Percentage
Assam	3070.8	24.62
Manipur	1515.7	12.15
Meghalaya	854.0	6.94
Nagaland	287.6	2.30
Tripura	593.2	4.85
Arunachal Pradesh	5154.0	41.32
Mizoram	712.7	5.71

Source: Development forests and forest products. Ministry of Agricultural and Forest Government of India, July 1984.

It can be seen that out of 747.4 million hectares of total forest area of India the North East region has 12.2 million hectares. The contribution of each states to total forest area of this region are Arunachal Pradesh 42.28 percent, Assam 25.19 percent, Manipur 12.43 percent, Meghalaya 7.0 percent, Mizoram 5.83 percent, Tripura 4.86 percent and Nagaland 5.83 percent of the total geographical area.

Furthermore it is seen that in most of the states, forests are lost due to the shifting cultivation and commercialization of forest products.

Mineral Resources

Apart from the forest resources the North East India is also fairly rich in mineral resources. Although petroleum, coal, limestone and silimanite are some well known mineral resources found in the region yet the region is also rich in other valuable mineral resources. Most of these have not been extracted so far, for want of better accessibility. The minerals whose presence has been detected in the region include copper, cobalt, nickel, fine clay, kaolin, gypsum, shale, mineral salt etc.

The following table shows the important location of some of the important minerals:

S. No.	Minerals	Location	Production
1.	Iron ore	Tirap, Bosadaiyang Tiru Pahar, Telpung Dhubri, Meghalaya foothills, Garohills, Athiabari, Nichangram, Cherrapunji, East Kameng, East Siang	Not available
2.	Copper	Mahamaya hills of Dhubri, Barduar of Kamrup, Umpyrtha, Ranikor of Meghalaya, Nungon, Kongol, Thani, Ningthi of Manipur.	Not available
3.	Chromite and some other related minerals	Nagaland (Patkai range) Manipur (Siro hills of Ukhrul, North of Chandel) Meghalaya (Siju basin) Aru. Pradesh (Tiding Valley)	Not available

4.	Coal	Meghalaya (South Garo Hills, Khasi & Jaintia Hills) Karbi Anglong, Upper Assam, Nagaland (Dikhu, Valley of Mon, Mokokchung) Aru. Pradesh (West & East Kameng) Manipur (Churachandpur) Tripura (Kailashhar area)	346 ('000 tonnes) 612 ('000 tonnes)
5.	Petroleum	Upper Assam (Digboi, Noonmati, Bongaigoan, Naharkatia, Moran, Hoogrijan) Aru. Pradesh (East Siang, Ningru & Kumcha of Lohit and Bardumsa Namchik of Changlang) Nagaland (Champang in Mokokchung)	5076 ('000 tonnes) 43 ('000 tonnes)
6.	Natural gas	Assam (Brahmaputra Valley particularly Naharkatia, Moran Lakasa) Tripura (Agartala)	2082 million m^3 1.2 lakh cu.m of gas per day.
7.	Limestone	Meghalaya (Garo hills – Simsang river, Shella, Jowai) Assam (North Cachar hills, Hamren, Kopili) Mizoram (Muthi, Tuirial, Vakku) Tripura (Shankan range) Aru. Pradesh (Tela, Tidding area of Lohit, Tezu, East & West Siang) Nagaland (Phek & Tuensang)	232 ('000 tonnes) 271 ('000 tonnes) 3 ('000 tonnes)
8.	Sillimanite	Meghalaya (Sonapahar, Lalmati of West Khasi hills) Assam (Karbi Anglong – Samenlangso, Chailangso, Bamuni)	1642 ('000 tonnes)
9.	Dolomite	Aru. Pradesh (Rupa, Dedza in West Kameng District) Meghalaya (Cherrapunji)	Not available

It is evident from the above discussion that the region has rich reserves of natural resources. In fact these were one of the main sources of attraction for the outsiders including the British colonizers that brought them in such a large number and ultimately colonised this region in the first half of the 19th century. There were numerous consequences of the colonization in the region. Depletion of its resources leading ecological degradation was of grave consequences. But, apart from it change in the social composition of the region was equally significant. British were largely responsible for bringing large influx of outsiders to this region mainly in the plantations and construction of railway tracks. This also brought an end to the relative isolation of this region. Today, the social composition of the region displays an unique mosaic of continuity and change and it has far reaching consequences on the levels of development.

Social Background

Availability of sufficient and qualitatively good resources is an important prerequisite for development in any region. But, the process of development in a region also depends to a large extent upon the people living in it. It is for this reason that the study of demographic characteristics have become important in the context of national planning. No effective planning can take place unless the basic data particularly population is made available. The experiences of the last few centuries show that due to the tremendous increase in population it has

also become necessary to have manpower planning as an important part of national planning. This calls for producing the basic data on population for the region under investigation.

Looking at the North East Hill Region from the point of view of both social and economic development and population growth we can see that the population has certainly been increasing sharply from one census to the other.

Table 2.5: Growth of population in North East India (1901-91)

Census years	Population in million	Decade growth
1901	4.3	—
1911	5.1	18.4
1921	6.0	18.7
1931	7.2	19.4
1941	8.6	20.2
1951	10.3	19.1
1961	14.5	41.3
1971	19.6	35.0
1981	26.6	33.2
1991	31.9	21.9

The total population of North East India as has been mentioned earlier was 31.38 million (1991). More than 71 per cent of the regional population resides in Assam. In all other states the percentage share of population is below 10 (Also refer to figure 2.4). The state wise distribution of population in the region is given below.

Growth of Population in North East Region (1901-91)

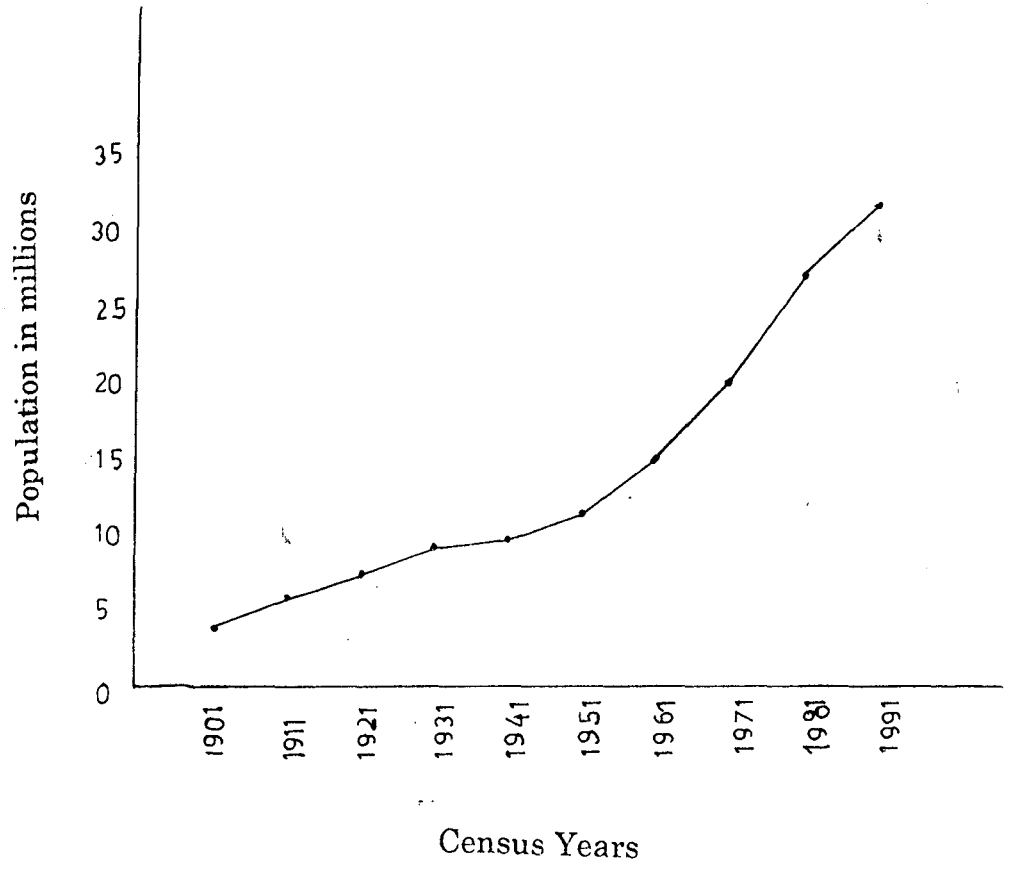


Fig.2.4

Table 2.6 Population of the States of North East Region

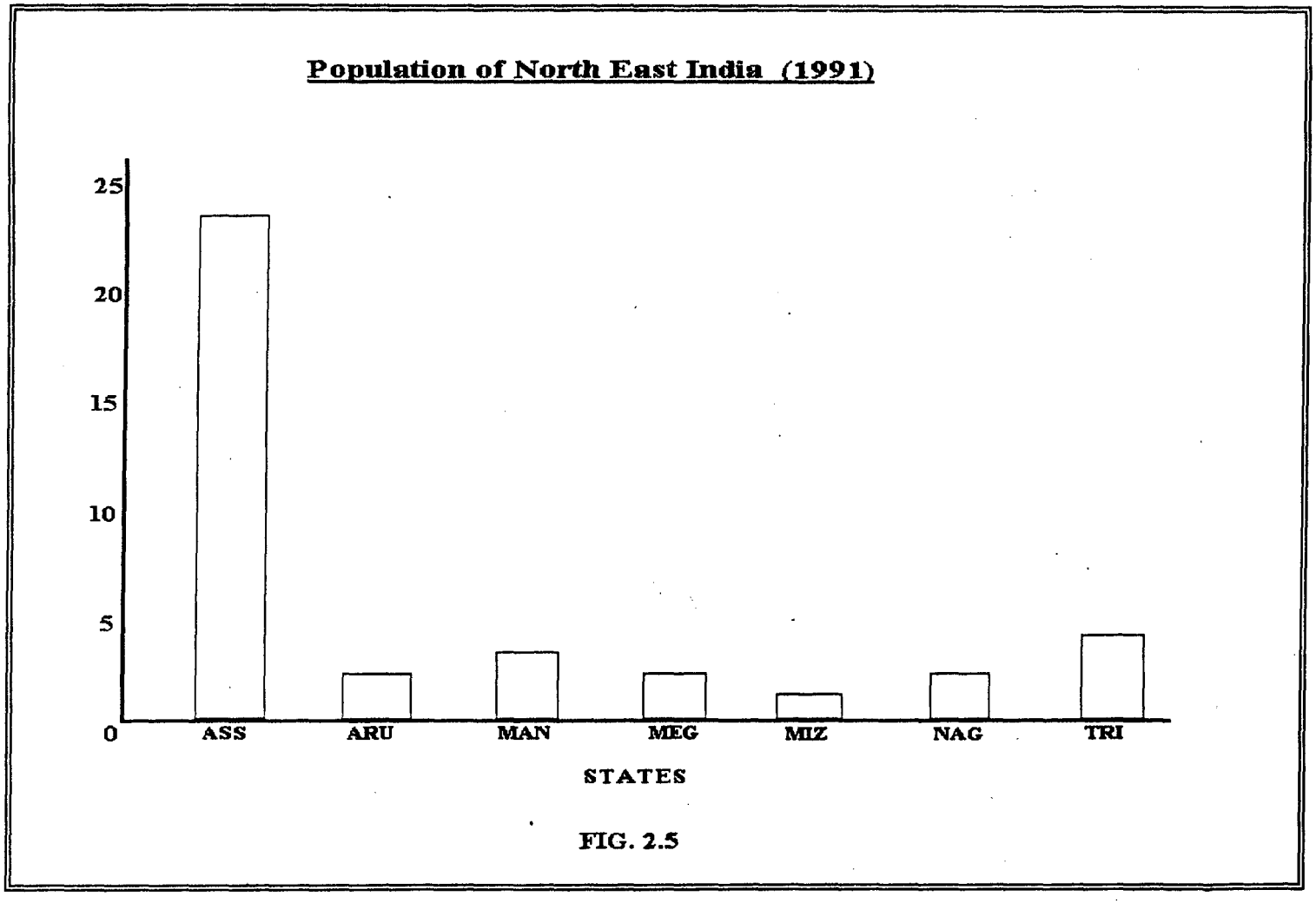
States	Population in 1981 (in million)	Population in 1991 (in million)
Assam	19.9	23.3
Arunachal Pradesh	0.6	0.9
Manipur	1.4	1.9
Meghalaya	1.3	1.8
Mizoram	0.8	0.7
Nagaland	0.8	1.2
Tripura	2.1	2.1
NER	26.6	31.4

Source: Basic Statistics of North Eastern Region 1995, North Eastern Council

Since 1947 the annual growth rate of population in the North-East region has been very high specially during 50's (1951-61) and this trend continues in Arunachal Pradesh. Nagaland, and Tripura, the other states have shown a decrease in the growth rate.[9] (Also refer to figure 2.5)

At the district level it can be seen that the hill areas of Assam experienced a very high growth rate. Karbi Anglong experienced an increase of 74.74 per cent. North Cachar hills with 98.30 per cent in 1991 recorded the highest growth rates in the region. The reason for such high growth rate, which is above national average, indicates the incoming of large immigrant population, during the last census decade (1981-91). Arunachal Pradesh experienced a record growth of 35.86 percent in which Lohit and Changlang districts topped with 57.85 per cent and 53.56 per cent respectively. The lowest growth rate is in East Kameng with only 17.92 per cent. In Manipur the over all growth is

[9] NEC, Basic Statistics of North Eastern region 1995.


Population of North East India (1991)
25
20
15
10
5
0
ASS
ARU
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MIZ
NAG
TRI
STATES

FIG. 2.5

28.56 per cent where all the districts experienced more or less similar rate of increase. It was ranging between 26-28 per cent.[10] In Meghalaya the district-wise variation in the growth of population during this decade shows that the highest decadal growth was recorded by Jaintia Hills (40.14 per cent) followed by East Garo Hills (38.44 per cent) while the lowest growth was recorded by East Khasi Hills (28.50 per cent). In Mizoram, Chimtuipui recorded the highest growth rate (50.03 per cent) followed by Aizawl (39.47 per cent) while Lunglei (28.55 per cent) recorded the lowest. In Nagaland, Tuensang came out first with 69.92 per cent followed by Kohima (65.10 per cent) while Zunhebeto district with 35.04 per cent ranked last. In Tripura, the highest growth rate is recorded by South Tripura district (40.76 per cent) followed by West Tripura (32.04 per cent) and North Tripura (29.51 per cent).[11]

Apart from immigration, there are two other factors that contributed such am impressive rise in the population in the region.

1) inter-district immigration within respective states in search of economic opportunities and
2) nearly perfect enumeration in the last census, following improvement in transport and communication made it possible to make almost all the settlements even in the hilly terrain, accessible to the enumerations.

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[10] Taher and Ahmed, op.cit. p.237.
[11] Government of India, *Census of India, 1991, and Final Population*, Totals Paper 2 of 1992.

An important feature of the population in the hill region is the predominance of Scheduled Tribe population. There are states like Mizoram and Arunachal Pradesh that have more than 80 per cent tribal population. In Arunachal Pradesh the concentration of tribal population at the district levels shows that the district of East Kameng recorded the highest Scheduled Tribe population with 85.56 per cent of the total population. It is followed by Upper Subansari (85.92 per cent). Changlang district recorded the lowest Scheduled Tribe population of 34.79 per cent. North Cachar hills one of the few tribal districts of Assam had 65.54 per cent of Scheduled Tribe population followed by Karbi Anglong (51.56 percent).[12] In Meghalaya highest tribal population was recorded in East Garo Hills district (96.83%), while the lowest Scheduled Tribe concentration is recorded by East Khasi Hills (78.39 percent). In Nagaland the highest Scheduled Tribe population is recorded by Zunhebeto (97.07 percent) followed by Phek district (94.0 percent) and the lowest Scheduled Tribe population district is Kohima (74.47 percent).[13] An important feature to note here is that districts that have higher percentage of urban population and workers in tertiary sector have recorded relatively less percentage of tribal population. There are four reasons which can be attributed to such concentration as well as higher growth rate of the tribal population in the region:

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[12] Statistical Hand book of Assam 1992.
[13] Statistical Hand book, Meghalaya, 1995.

firstly as mentioned above, a more extensive and effective canvassing of census schedules after independence,

secondly, fall of infant mortality due to extension of improved maternity and general health care,

thirdly, a fall in general mortality and increase in longevity due to mitigation of drudgery of life and improvement of health and hygiene and transport conditions and;

fourthly voluntary return by some tribal people of the plains as tribes in the recent censuses, who had earlier recorded themselves as 'Hindus'.

It is believed that tribal and modernity are world apart. They are believed to be closely associated with areas that are either forested or difficult from the viewpoint of accessibility and sustenance. This has definitely affected the distribution of population in the region.

Distribution and Density

With the growth of population through natural process and also due to immigration to the region the pattern of population distribution has experienced occasional kinds. As it is evident from figure 2.4 that the distribution of population in the region is very much uneven. It was mentioned that about 72 per cent of the region is covered by mountains, hills and plateaus where the distribution of population is sparse. It is only the remaining 28 per cent of the area, covered by the plains that supports bulks of the population of the region. Apart from the fertile soils

in the plains improved means of transportation and communication too offer better opportunities for the development of modern sectors of the economy which in turn influence human habitation. It is found that Assam with its extensive Brahmaputra and Barak plains support about 2/3rd of the total population of the region though there are intra state variation. The hills of Karbi Anglong (63) and North Cachar Hills (31) are among the sparsely populated districts of the state. Tripura, though, accounts for high density of 262 persons per sq. km. but is highest in West Tripura with 364 persons per sq.km. followed by North Tripura 228 persons per sq. km. The lowest density of 196 persons per sq. km. is recorded by South Tripura. In Manipur the plains districts of Imphal (576), Thoubal (565) and Bishnupur (363) are among the densely populated areas. On the other hand the hill districts of Tamenglong (19), Chandel (21), Ukhrul (24), Churachandpur (39) and Senapati (63) are sparsely populated. In Meghalaya, East Khasi Hills district has the highest density (126) followed by West Khasi Hills (86), while in Nagaland, Kohima district containing the largest towns of the state, Kohima and Dimapur, have relatively higher density (98) closely followed by Mokokchung (97) while Phek district near the Indo-Myanmar border has the lowest (50)[14] density of population in the state. In Mizoram, where steep slopes, hilly terrain and deep gorges provide hindrances to development of agriculture and transport network has low population

[14] M.Taher and Ahmed *op.cit.* pp.240-241.

density. Highest density in the state is in the district of Aizawl (38 persons/sq.km.) and it is lowest in the district of Lunglei and Chimtuipui with a density of 25 persons per sq.km. each.

Arunachal Pradesh, which is traditionally sparsely populated because of its high mountain and rugged terrain records low density of population. Highest density in the state is in Tirap (36) followed by adjoining district of Changlang (20). Five of its districts viz. Lohit (10) West Kameng (8) West Siang (7.49) Upper Subansari (7.12) and Dibang Valley (3) lying in the mountainous border region has a density of population less than 10/ km^2 in each.

Sex Ratio

An important consequence of the uneven levels of development in terms of means of inter and intra region interaction is seen in the behaviour of various demographic parameters. Area subjected to migration show marked distortions in the demographic structure. In North East India too similar distortions are found. Taking for example the sex ratio in the region, it is noticed that there were only 920 females per 1000 male in the region. And there are marked variations in the same. The state wise sex ratio in the region shows that it was highest in Manipur (958) followed by Meghalaya (955), Tripura (945), Assam (923), Mizoram (921), Nagaland (886) and Arunachal Pradesh (859). The sex ratio has been found to be lower than the national norm in Assam, Mizoram, Nagaland and Arunachal Pradesh. Looking at the district wise

sex-ratio in Arunachal Pradesh, East Kameng recorded a highest sex-ratio (962) followed by Lower Subansari (931) and the East Siang has a lowest sex-ratio (748). In the districts of Meghalaya, Jaintia Hills has the highest sex ratio (976) followed by East Garo Hills (960) and the lowest sex ratio is recorded by East Khasi Hills (926). In Manipur, Bishnupur district recorded the highest sex ratio (984) followed by Thoubal (980) and Imphal (73). The lowest sex ratio is recorded by Ukhrul district (884). In Mizoram, Aizawl district has a highest sex ratio (929) followed by Chimtuipui district (917) and Lunglei (910). In Nagaland, highest sex ratio of 931 is observed in Zunhebeto district whereas Kohima district has the lowest sex ratio of 871. The districts of Phek, Tuensang Kohima has a sex ratio below the state average during 1991.

Development of men and material constitute the essence of human progress. Literacy and education are the most indispensable attribute of the same. It is often found that developed regions have higher percentage of literate population. But, perhaps the North-Eastern region may be an exception to this norm as some of the states in the region have recorded exceptionally high levels in the country despite being at the bottom most position in terms of economic development.

Literacy

The growth of population plays a very important role in determining the literacy rate in any region. In North East India almost half of the population (6 yrs and above) are illiterate. Primitive

agricultural economy and lack of adequate degree of modernisation have kept the literacy level of the region low. However, it is noticed that there is relatively high degree of literacy in the hills states especially among the tribal population of Mizoram, Nagaland, Manipur and a few districts of Meghalaya. This is mainly due to the efforts of the Christian missionaries, who emphasised on the spread of education and established schools and institutions. As a result of this, efforts taken by state governments after independence have been responded well by the people of the region. Except Meghalaya (49.10 per cent) Arunachal Pradesh (41.59 percent), other states have higher rate of literacy than the national average (52.21 per cent). Mizoram has the highest literacy (82.87 per cent) second highest in the country followed by Nagaland (61.65 per cent) Tripura (60.44 per cent) Manipur (59.89 per cent) Assam (52.89 per cent).[15]

Even in case of female literacy, the region except Arunachal Pradesh is relatively advanced. Female literacy is highest in the region again in Mizoram (78.09 per cent) followed by Nagaland (55.72 per cent) Tripura (51.22 per cent) Manipur (48.64 per cent) Assam (48.64 per cent) and Meghalaya (44.78 per cent) as against 39 per cent of the country. In Arunachal Pradesh however, it is significantly lower (29.37 per cent).

Similarly it can be seen that there are variation in the literacy at the district level. In Arunachal Pradesh, highest literacy is recorded in

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[15] Government of India. Census 1991, p.21.

Lohit district (41.21 percent) followed by Dibang Valley (46.88 percent) while the lowest literacy prevails in East Kameng district. In the hills of Assam, North Cachar Hills (46.77 per cent) is the more literate district compared to Karbi Anglong (37.4 per cent). Manipur's most literate district is Imphal with 70.74 per cent.[16] In Meghalaya, the over all literacy is 49.10 percent where East Khasi has the highest literacy (48.70 per cent) followed by West Khasi hills (39.0 per cent). The lowest literate district is Jaintia hills (27.9 per cent).[17] In Nagaland the Aos have a long tradition of schooling and hence Mokokchung district has the highest literacy (77.85 per cent) followed by Wokha (72.92 per cent) and Kohima (69.16 per cent) while distantly located Mon district has the lowest (36.02 per cent). West Tripura district (65.83 per cent) leads the state in literacy, while distantly located South Tripura (51.35 per cent) has the lowest literacy in the State. Such a pattern of literacy has significantly influenced the nature of human resource utilization. An educated person mostly finds his employment in the non primary sector while illiterates are the main workforce in the traditional sectors.

Occupation Composition

The region's literacy rate also has a greater influence on the occupational composition. Generally speaking the North East economy is backward, with lack of industrial development and prevalence of shifting

[16] District Profile, 1991, Manipur.
[17] Meghalaya District Profile, 1991.

cultivation especially in the hill states. Apparently, the proportion of working population in the hill states is found to be relatively higher than the national average. It is only in the plains of Assam and Tripura that have lesser proportions of workers than the country. The table below presents the proportion or workers and dependents to total population.

Table 2.7: Proportion of Workers and Dependents North East Region 1991

States	Main Workers	Marginal Workers	Total Workers	Dependent
Arunachal Pradesh	45.39	2.07	47.46	52.54
Assam	31.70	4.67	36.37	63.63
Manipur	37.36	4.15	41.51	58.49
Meghalaya	40.85	2.21	43.06	56.94
Mizoram	42.29	7.07	49.36	50.64
Nagaland	41.56	2.64	44.20	55.80
Tripura	28.91	2.45	31.36	68.64
India	34.12	3.52	37.64	62.46

Source: Census of India, paper 3 of 1991

From the table it can be seen that in Arunachal Pradesh there is maximum main workers with 45.39 per cent of the main workers and it has only 2.07 per cent marginal workers. When we look at the total workers Mizoram has the highest with 49.36 per cent followed by Arunachal Pradesh (47.46 per cent).

One may wonder why there is higher proportion of workers in the hill states, although these have no industrial activity. The main reason for it is that largely proportions of tribal population of all the hill states carry out shifting cultivation as the principal occupation where the

services of children, women and old people alike are required. It is also clear from the fact that female working population is also high in the hill states. Mizoram (49.36 per cent) has the highest proportion of working population followed by Arunachal Pradesh (47.46 per cent), Nagaland (44.30 per cent) Meghalaya (43.06 per cent) and Manipur (41.51 per cent). The two largely plain states of Assam and Tripura where sedentary agriculture predominates have only 36.37 per cent and 31.36 per cent of working population respectively.

When one looks at the sector wise distribution of working population, one notices that the proportion working population is maximum in agriculture and other primary activities than in secondary and tertiary activities.

Table 2.8: Occupational Categories, 1991

(Percentage of Working Population)

States	Agricultural and other primary activities	Manufacturing other secondary activities	Services trade commerce tenting activities
Arunachal Pradesh	67.44	8.66	23.90
Assam	73.90	5.65	20.45
Manipur	70.00	9.66	20.34
Meghalaya	74.81	3.73	21.48
Mizoram	65.99	5.07	28.94
Nagaland	75.26	3.48	21.26
Tripura	68.08	6.41	25.51
India	67.37	12.13	20.50

Source: Census India Series 1 paper 3 of 1991

The table above shows that all states of North East India except Mizoram have higher proportions of working population engaged in agriculture, the highest being Nagaland (75.26 per cent) followed by Assam (73.90 per cent), Manipur (70.00 per cent) Tripura (68.08 per cent) and Arunachal Pradesh (67.44 per cent), Mizoram and Meghalaya (65.9 per cent).

The table also shows that the proportion of workers engaged in industry is by far less as compared to the national average. However, it is interesting to note that Manipur (9.66 per cent) having some cottage and household industries lead the region in the number of workers engaged in the service sector, followed by Arunachal (8.66 per cent), Tripura (6.41 per cent) and Assam (5.65 per cent). In Assam this sector has a few manufacturing industries like oil refinery petro-chemical processing and cement, paper and fertilizer product. Arunachal has few cottage industries and in Tripura there are some household and processing industries. Workers engaged in various services, transport and communication, trade and commerce, construction etc. are also proportionately high in Mizoram (28.94 per cent) followed by Tripura (25.51 per cent), Arunachal Pradesh (23.90 per cent). However, a very low proportion of workers is secondary activities betrays over all industrial backwardness.

On the basis of the above discussion it can be concluded that resources — natural, human is very vital from the point of view of economic welfare. A progressive economy cannot project itself in terms of

development when various socio-economic components is not emphasised, these reflect the pattern of development in an economy, and since it determines the course of development in a region.

Chapter - III

Regional Development: Theoretical Conceptual Background

The concept of development once perceived within the framework of spatial interrelationships and organisation of a society it evolves into and reflects the praxis of regional development. Space and economy of a region are the two basic determinants of regional development. The process of regional development within the framework of regional space and economy ensembles a hierarchy of areas by their size and locations, based on their functional characteristics. By size criteria, the regions may take as natural, politico-administrative and planning areal units like village, town district, state etc. into consideration. These are spatial units of politico-administrative importance while planning criterion determines as macro, meso and micro level spatial units. On the other hand the locational criterion identifies regions like flood prone areas, hill and mountainous areas, desert, and tribal areas etc. for the purpose of comprehending special location specific problems. Scholars world over, have tried to comprehend the processes involved and if possible try to develop a generalize theory for wider application.

The theories postulated so far, to explain the state and process of regional development could be put under these major schools of Anglo Saxon, Dualist (Indonesian) and Latin American Origin. The theories related to the first two schools are neither applicable nor valid in the set up of colonial/dependent economies. A simplified skeletal model of consequent spatial structure, based on lines of Latin American School explains that the hinterlands of primary produce including areas

specializing in the production of plantation crops and other areas of sub-marginal subsistence are controlled by Metropolitan centres through their Satellite centres in the peripheries.[1] However, in crystallization of such views have taken a long journey before these could be accepted as a separate school of thought known as the ***"Dependency School"***.

Providing justification to the need of regional development, in ***The Culture Of Cities***, Lewis Mumford expresses the recognition of the region as a basic configuration in human life accepting that within it, there will be natural diversities, natural associations, cultural influences and a centre of economic activities. He sees it as an implicit geographic fact and, far from being archaic and reactionary as belonging to the future. To him, the grasp of the region as a dynamic social reality is the first step toward a constructive policy of planning, housing and urban renewal. According to him, if we are to continue to take pride in our system of democratic governance and if we are, as citizens to have any effective opportunity in taking part in public affairs we must look very closely at the balance of responsibility between local and central government. and at the mechanisms to achieve equity and efficiency. Further more the local administrations can reflect the variety of regional and local needs for the better.[2]

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[1] R.C. Scharma *"Regional Planning for Social Development"* Centurion Publication, New Delhi, 1989, pp.68-70.

[2] Geographical Association 'Regions and Regional Planning', 1969, Vol.54, pp.129-139.

The earliest attempt to correlate land use patterns with spatial relationship of a city to its surrounding regions was made by Johann H. Von Thunen. In this classical work on the location of agricultural land use zones first published in 1826 paved ways for regional development in which he not only laid the foundation for refined analysis of location of agriculture but stimulated interest in a much broader area of locational analysis. The basic form of the land use patterns are a series of concentric shells ranging from narrow bands of intensive farming and forest. The land use zones at the micro level of the village and farm was a pioneering step in developing a theory of location of certain economic activities.[3]

Weber's theory of industrial location is another theory published in 1909. This holds that industries become sited at least-cost locations and more specifically such sites are frequently the point of minimum transport costs. This theory although puts emphasis on transport costs and incorrectly assumes that such costs are directly related to distance and weight[4] yet it reflects the function of a location.

Christaller's central place model is a major theory within settlement geography. In 1933, he sought to explain the size and distribution of settlements in terms of the marketing of goods and services. Four basic premises underline this theory: (a) that most

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[3] Von Thunen of H. (1826) *Von Thunnen's Isolated State'*, Translated by C.M. Warterbengh, London, Oxford University Press, 1966.
[4] Weber Alfred, *'Theory of Location of Industries"*, 1929, Oxford University Press.

settlements act according to ranging degree, (b) that central place vary in the range and quality of goods and services they provide, (c) that most efficient spatial organization is achieved if the central places are located on a lattice equilateral triangles and (d) that consumers will use the nearest centre offering goods and services.[5]

Losch later formulated central place theory in 1954.[6] He attempted to incorporate manufacturing as well as retailing of goods and services into his model, which is inevitably much, more complex. To him, functions are not grouped into orders but rather each is seen as having its own unique threshold and range value, its own distinctive hexagonal hinterland.

Christaller and Losch suggested one thing common related to the function in the settlement that creates the city rich and city poor region according to their distance from the function.

Regional Planning experience in former the USSR, Yugoslavia, America needs to be made mention here. It is so, because their experiences provided a great help to them and other nations of the world as well. Of all, Soviet experiences had special significance in India. India was among the foremost nation among the newly independent countries that had pioneered in accepting the soviet model of development with

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[5] Christaller, *Central Place Industrial Location; Southern Germany;* translated by C.W. Baksi German, Prentice Hall, 1966.

[6] Losch, *"Economic of Location"*, 1940 : Translated from German by W.P. Stopler Yale University Press, 1954.

suitable modifications. In fact the path of Mixed Economic Development opted by India soon after its independence under the planning was quintessentially an acceptance and translation of Soviet model of development, in the Indian conditions.

Researchers in India and particularly geographers too had played their role in this regard. In this connection two research articles brought out by N. Patnaik (1953)[7] and A.B. Mukherjee (1957)[8] on weekly and biweekly market can be taken as attempts to work on the research activities on the problem of distribution of social facilities and their role in bringing about regional development in India in the 50's. In 1957, a report on rural development, published by the Reserve Bank Of India paved way for social scientists to begin with the development studies. Soon after the publication of the report, A Mayor and Associates (1959)[9] too prepared a report on the pilot project of district Etawah and a clarification submitted by A.T.A. Learmonth (1959) on the Pilot Regional Survey of the Mysore State conducted during 1956-58 by the government of India proved to be a milestone in this direction. The decades followed thereafter only carried the work to new heights as far regional development studies in India is concerned.

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[7] Patnaik, N., *Study of the Weekly Market act Barpali*, Geographical Review of India, vol.XV, No. 1 Manu, 1953, pp.19-31.

[8] Mukherjee, A.B., *Agricultural Regions and Geographic Planning for Indian Agriculture*, National Geographer, vol.5 Dec. 1962.

[9] Learmonth, A.T.A., '*A regional survey of Mysore State for Planning Purposes*, Bombay Geographical Magazine, Vols. 6 and 7, No.1, Sept. 1959.

Development during the Sixties

The period of the sixties had a good start of publication of survey reports and research works. The Government of India brought out the Delhi Master Plan in 1961 for the development of social provision in the metropolis. The Government also published a report on the Macro Regional Survey of South India conducted in 1962. It provided an applied strategy for the region planning for socio-economic facilities. At the meso level studies, the National Council of Applied Economic Research (NCAER) in 1962[10], brought out a Report on Techno Economic survey of states and selected regions in 1962, which were conducted during 1961-62. These works gave a detailed analysis of physical resource base and economic structure of states to ensures optimum utilisation of available resources for development.

The field of research on market facilities in India, got a substantial encouragement after the of geographical work of B.J.L. Berry (1967)[11] on the problem of market centres and retail distribution. In 1968, Twenty First International Geographical Conference took place in India it also revolutionised the research activities in India pertaining to studies of spatial analysis and regional planning. The highlights of the conference were large number of research papers presented by specialized

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[10] N.C.E.A.R., *Reports of Techno-Economic Survey of States and Selected Regions*, New Delhi and Economic Atlas of Madras State, national Council of Applied Economic Research, New Delhi - 1962.

[11] Berry B.J.L. and Garrison, W.L., *A Note on Central Plan Theory and the Range of a good*, Economic Geography, vol.34, 1958, pp.304-311.

researchers and eminent scholars working in different fields in geography and their ability to focus upon the problems of regional development.

Development during the Seventies

The work on Regional Planning started gaining pace in India during seventies. The work of Wanmali (1970)[12] consists of a systematic account of the central place in hierarchy of settlements, complementary regions for regional planning with special reference to Eastern Maharasthra. Another work of landmark was by L.K. Sen et. al. (1971)[13] on Munjalgada Taluka. It has special importance for focusing on the approach of integrated area development at the Taluka level.

In 1972, different researchers have come up with their contributions to regional development and planning. Works of R.P.Misra et.al. (1972)[14] on urban systems and rural development, L.K. Sen (1972) on Micro Level Planning and Rural Growth Centres, H Prasad (1972)[15] on Integrated Area Development are the worth themes of research outcome. In 1973, major contributions were made on integrated area development, transport and recreational facilities. A report of the Ford Foundation project conducted on settlement planning for integrated development

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[12] Wanmali, S., *Clustering of Services, as a function of population Distance in Settlement System*, Journal of Behavioural Science and Community Development, Vol.VI, No.1, NICD, Hyderabad, 1972, pp.40-47.

[13] Sen, L.K. (ed.), *Readings on Micro Level Planning and Rural Growth Centre*, N.I.C.D., Hyderabad, 1972.

[14] Misra, R.P., *Methodology of District Planning, Development Studies* No.6, I.D.S., Mysore 172.

[15] Prasad H., *Integrated Area Development and its Appraisal in Dehra Dun*, I.I.R.S., Vol.IV, No.2, 1972, pp.186-192.

based on geographical approach was brought out in (1973)[16]. It accelerated the momentum of the rural development and consequently the Government of India (1973)[17] began to formulated district plans for regional development. Further the work of L.K. Sen and G.K. Misra (1974)[18] on regional planning for rural electrification at the Taluka level too proved to be a base work in the same direction. Moreover, a number of works and articles were brought out on regional planning with special reference to growth centres, health, market and transport facilities in 1975. A model study by L.K. Sen and others (1975)[19] was brought out on growth centres taking a case of district level integrated area planning in district Raichur (Karnataka). This model study has a systematic methodology based on applied statistical and cartographic techniques. It proved to be a guideline not only for researchers but also for the regional planners. M.L. Patel (1975)[20] explained through an economist's approach the theoretical and behavioural aspects of balanced regional development in the India.

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16 Ford Foundation, *'A Geographical Approach to Settlement Planning for Integrated Area Development*, ford Foundation, New Delhi, 1973.

17 Govt. of India, *Malkangiri Development Plan, Town and Country Planning Organisation,* New Delhi 1973.

18 Sen, L.K. and Misra, G.K., *Regional Planning for Rural Electrification, A study in Suryapet Taluk Nalgonda District, Andhra Pradesh,* N.I.C.D., Hyderabad, India, 1974.

19 Sen. L.K. et.al., *Growth Centre in Raichur : An Integrated Area Development Plan for district in Karnataka,* N.I.C.D.; Hyderabad, 1975.

20 Patel, M.L. *Dilemma of Balanced Regional Development in India,* Progress Publishers Bhopal, 1975.

The work of L.S. Bhat et.al. (1976)[21] is also worth mentioning where he did a case study at tehsil level on micro level planning which also strengthened others research works on regional development and planning. The year 1976 seems to have been known for the field research at block level. Among these are the edited works of P. Roy and B.R. Patil (1976)[22] published as manual for block level planning. The planning commission (1977)[23] also published the Dantwala Committee's Report on block level planning and E. Swaminathan (1970) produced a methodological approach on hierarchy of market centres. His major contribution was use of quantitative approach on functional hierarchy of regions.

Development during the Eighties

During 1980's a variety of research studies were brought out some interesting development in the field of regional development. To mention some of these are the contribution made by R.C. Sharma (1980)[24] on conceptual, chronological and attributive assessment to the approach of integrated areas development and by A.N. Sharma (1980)[25] on intra-urban market organisation which important. In 1981, a good number of

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[21] Bhat, L.S. *Regional Planning of India,* Statistical Publishing Society, Calcutta, 1972.
[22] Roy, P. and Patil, B.R., (eds.), *Manual for Block Level Planning,* Macmillan India Ltd., Delhi, 1977.
[23] Swaminathan, E., *'A Quantitative Approach to the Study of the Spatial Distribution and Functional Hierarchy of Shopping Centre in Coimbatore,* N.G.J.I., vol.25.
[24] Sharma R.C., *Regional Planning for Social Development Exterior,* Publication, New Delhi, 1980.

[25] Sani, A., *Intra-Urban Market, Geography : A Case Study of Patna Concept,* Publishing of New Delhi - 1980.

research works were brought out on the problems of education, health, transport and recreation facilities at the regional level. Moniz Raza (1981) gave a clear outline on levels of Regional Development in India taking the agricultural and industrial base of regional economy as the main parameters. In 1982, R.C. Tyagi et.al. made their contributions on the spatial organisation of film theatres in U.P. which can be taken into account as representative contribution[26] of modern recreation industries in regional development.

In 1983, K.V. Sundaram did his work on the spatial dynamics of under development. This article was in two parts the 1st part was on conceptual framework of spatial inequalities among the backward areas and the other part was a case studies on different countries of south east Asia.[27] P.N. Sharma and C. Shastri (1984)[28] brought out the study on problem on conceptual framework of social planning and in 1985 R.P. Misra highlighted the developmental issues of his time. To strengthen his argument, he incorporated the need of economic growth with in the overall societal development process.[29]

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[26] Tyagi R.C., et.al., *Spatial Variations in Distribution of Film Theatres in Uttar Pradesh 1955-80 : A plea for policy Reorientation,* The N.G.S.I., Vol.XXVII, Parts 3 & 4 Sept.-Dec. 1982, pp.149-165.

[27] Sundaram, K.V.(ed.), *Geography and Planning Essay in Honour of V.L.S.P. Rao,* Concept Publishing Co., New Delhi, 1985.

[28] Sharma, P.N. and Shastri, L., *Social Planning : Concept and Technologies,* Print House (India) Lucknow, 1984.

[29] Misra, R.P. (ed.) Rural Development : *Capitalist and Socialist Patterns,* Concept Publishing Co., N. Delhi, 1985.

It has been observed that the approaches of area development, backward area development, tribal area development and integrated area development have been the most important themes of area development in recent times. The research works of A.C. Sen et. al. (1976),[30] A.N. Bose (1978)[31] on comprehensive area development, R.P. Misra (1979)[32] on backward area development and several other on regional aspects are worth mentioning. An attempt was made by R.P. Misra, K.V. Sundaram, and V.L.S.P. Rao (1970) to apply the new approach to regional development to an extremely backward tribal region. The area of study was tribal district Bastar from the state of M.P. in Central India. In this study, the district was studied after identifying eight tribal zones with an intention to find out the levels of socio-cultural development among the major tribal areas against a background that is changing rapidly under the pressure of circumstances. It mentioned that each tribe has its distinctive pattern of living, but at the same time contacts with non-tribal people have made dents in the tribal cultural configuration. In this process each tribal area has reached a particular level of development and acculturation. An attempt was made to take note of these

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[30] Sen, A.C., et.al. (eds.) *Comprehensive Area Development - Proceedings and papers of a workshop, District Mirzapur, U.P.* Feb. 17-22, 1975, AVARD ND.-1976.

[31] Bose, A.N., *West Bengal : Possibilities - A report on the working of West Bengal Comprehensive Area Development Corporation* (1974-78) W.D. CADC Aug. 1978.

[32] Misra R.P. et.al. *Regional Development Planning in India, A New Strategy,* Vikas Publishing House Pvt. Ltd., New Delhi, 1979.

differential levels of development and particularly of the impact of the development activities initiated by the government.[33]

Regional development is also well understood when the concept of Integrated Area Development (IAD) was incorporated in the Indian plans. The term IAD refers to two types of integration, functional and spatial. Functional integration is the co-ordinated expansion of various social and economic services needed for the development of an area e.g. transportation, communication, banking etc. The spatial integration on the other hand, seeks to utilise the linkages between various levels of urban, rural and other spatial units through which space economy is organised for the development of the region.[34] The process of economic growth is also conceived of as essentially imbalanced process involving a succession of dynamic poles through time. One of the basic objectives of Perroux's hypothesis is to advance a dynamic theory of economic growth taking the concept of innovative firms as the starting point. The channels through which development processes extend from the leading industry (technologically advanced) to others are considered by Perroux to be inter-industry linkages that are well established, where developmental activities will spread out automatically.[35]

Balanced regional development has always been one of the main objectives of economic planning in India. It was necessary in order to

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[33] R.P. Misra (et.al) Ibid pp.239-281.
[34] L.S. Bhat, et.al., op.cit., p.1.
[35] Misra : op.cit., p.1-83.

draw the available human and natural resources through out the country into developmental process and to enable people everywhere to share the benefits of development. The first five year plan followed a strategy of balanced growth of the economy and gave top most priority in agriculture development while at the same time emphasizing the vital role of industries in decentralised sector. The second plan too admitted that in any comprehensive plan of development, it is axiomatic that the special needs of the less developed areas should received due attention.[36] The third plan programme were so prepared as to "reduce disparities" of development between different states although in the nature of things this process must take time. Accordingly, the third plan included schemes to enlarge the possibilities of development of areas that had been neglected in the past resulting into their relative backwardness.[37] The increasing regional disparities during the period 1951-1966 made it inevitable for the government to set up two working groups, one for the identification of industrially backward areas and the second for suggesting an elaborate set of fiscal and financial incentives for encouraging the setting up of industrial units.[38]

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[36] Govt. of India, *Planning Commission*, 2nd Five Year Plan, 1956, p.36.
[37] Govt. of India, *Planning Commission*, 3rd Five Year Plan, 1961, p.9.
[38] In 1968, two working groups under the chairmanship of B.D. Pande and N.N. Wancho were set up by the Planning Commission. The objectives were the "identification of industrially backward areas" and "bringing out simultaneously an elaborate set of fiscal and financial incentives for setting up industrial units in demarcated areas".

The fourth and fifth five-year plans recognised the complexity of the problem of inter-state and intra-states imbalances and the need for coordinated effort at the central, state and district levels. The backward areas were identified and grouped into two categories areas with unfavourable physico-geographic conditions and climate such as drought prone areas, tribal areas and hill areas, and the second consisted of the economically backward areas marked by adverse land-man ratio, lack of infra structure and of inadequate development of resource potentials.[39]

Moreover, the Indian Constitution also envisages a special position for the protection and development of tribal communities. The task force on "Development of Tribal Areas" constituted by the Planning Commission on the eve of Fifth Plan, after reviewing the past performance observed that in spite of investments for tribal development in the special plans, specific problems of the tribal such as primitive methods of agriculture, land alienation, indebtedness and poor health etc. have not been solved over these years.

As a consequence, the tribal development schemes were critically reviewed on the eve of the Fifth Plan. The problem of tribal development was broadly classified into two categories (I) areas of tribal concentration and (ii) dispersed tribal. In respect of the former, it was decided to accept an area development approach with a focus on tribal upliftment. For dispersed tribal, it was decided that family oriented programmes

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[39] Govt. of India, *Planning Commission, Draft Fifth Five Year Plan 1974-79*, Vol.1, 1973.

would be taken up. Thus the strategy of tribal sub-plan for areas of tribal concentration was evolved in the Fifth Plan.[40]

In order to study the problem of tribal development the national committee constituted a Working Group on Tribal Sub-Plans consisting of senior and experienced administrators from a number of states as well as the representatives of the concerned ministries in the Government of India. The working group was particularly asked to review the ongoing programmes for the development of tribal areas and also allocation of resources by the State/Central Government for the same.

Having, thus, broadly defined the tribal sub plan approach, it was necessary to define the strategy for development. The important features of the sub plans were as follows:

1. development in the tribal areas have to be conceived in comprehensive terms. Therefore, formal categorisation of various developmental activities that had emerged over the matter in earlier two decades should not be governing criteria so far as the tribal areas were concerned. The resources for development should be pooled and the priority within these resources should be worked out with reference to the needs of these areas,
2. development of the tribal areas has to be an integral part of the total development of the State and the nation. The major thrust of their development has to be provided by the various sectoral

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[40] Govt. of India, *Planning Commission Report on Development of Tribal Areas*, p.2-3.

authorities themselves. The basic investments for development of tribal areas therefore, should flow from the normal state plan,

3. each Central Ministry is responsible for the development of these areas in relation to its functional jurisdiction. They should review the tribal situation and provide necessary investments for their speedy development. It was agreed that the nodal and the residual responsibility will rest with the Ministry of Home Affairs. Thus, the roles of all partners of development were defined and a mechanism for their translation in operational terms was also provided.

4. another basic premise in tribal development is the recognition of the fact that the socio-economic situation may require a specific answer. The basic unit of planning and implementation, which should be homogenous and viable, was defined as an Integrated Tribal Development Project. It was also envisaged that the sub-Plan should be built from below and represent an organic built of project planning,

5. the primitive tribal communities should be identified and special programme with adequate flexibility should be built up for them,

6. the administrative system for tribal areas should be simple and over specialisation is discouraged so that the system was within the comprehension of the community which it was supposed to

serve. Adequate administrative and financial powers should be delegated and responsibility at each level should be specific.[41]

The Sixth Five Year Plan revealed that the main strategy of this plan was to strengthen the infrastructure for both agriculture and industry so as to create conditions for an accelerated growth in investment and output. The Integrated Rural Development Programme (IRDP) is one of the project in this plan period that was evolved as a strategy for removal of poverty from poorer section of the society. The plan also proposed to raise 6.1 million of the poor in urban areas above the poverty line through public redistributive services like health and education programmes etc.[42]

The seventh plan aimed at creating condition necessary for self sustaining growth and to provide basic minimum needs for all. To attain these objectives the overall strategy was of sustain and enhance momentum of economic expansion, adoption of effective promotional measures to raise productivity.[43]

The objective evaluation of these five-year plans revealed that the balanced regional development had been one of the principal accepted objective of economic planning in India but unfortunately it was ignored in practice, right from the inception of planning. The Community Development Programme failed as these were ambitious both in scope

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41 Ibid., pp.15-16.
42 Govt. of India, *Planning Commission, Sixth Five Year Plan 1980-85*, 1981.
43 Govt. of India, *Ibid, Seventh Five Year Plan 1985-90*, Vol.1, 1 Oct. 1985.

and geographic coverage and followed a strategy of global character. The rural development was considered in isolation and did not encompass urban areas within its purview. The approach to development planning in India had been macro-oriented or aggregative in nature, emphasizing mainly on material objectives and priorities and seeking to ensure sectoral consistencies with regards to physical and financial inputs/outputs for a desired growth. The sad neglect of spatial dimension of planning and the lack of co-ordination between national and sub-national levels hinders different phases of regional development processes and regional economy. Therefore, the framework of a regional physical plan becomes an important tool.

The North East Experience

In the context of the North Eastern Region of India, the strategy of regional development was mooted more than two decades back, although the follow up measures do not suggest any seriousness on the part of planners and administrations to drive to its logical conclusion.

In the case of agriculture of the region, it is well known that the practice of shifting cultivation has manifested its devastating effects both on people and environment but ironically enough, despite lots of measures to control the practice of jhumming in the region, large scale prevalence of it in states like Mizoram, Meghalaya, Nagaland, Tripura and Arunachal Pradesh has made a mockery of such measures. It is no doubt that successive five-year plans have had their effects and these

succeeded in breaking the continuing economic stagnation but the growth rate continues to be too low to display any discernable change. As a consequence of this the potentials of abundance of natural resources and other comparative advantage of the region remain untapped. Apart from geographical constraints, general security considerations arising out of extremist activities, public opposition and employment policies have also created disincentives for industrial entrepreneurs. The politicisation of the issue of industrialisation has created a big question mark over development in the North Eastern Region of India.

Therefore, regional growth is as much a matter of decision made inside and outside the region since planning in India, is the process of balanced regional development. Both, fall within the purview of centrally controlled and regulated planning process in the country. Though, the initiative lies with the planning Commission but the local leadership can hardly afford to absolve itself from their own responsibilities. The character of regional development is such that "it is a process of integration based upon economic, social and administrative forces: Region growth is however speeded up by specialisation and the creation of economy to scale".[44]

Neglect of the region by the centre is often blatant. The best example of Central indifference is manifested in the continuance of North

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[44] Bimal J. Deb, *'Regional development in North East India, issues and prospects"*, Reliance Publishing House, New Delhi, 1995, pp.1-5.

Eastern Council as a half way house far short of the expectation generated by the first ever attempt at regional planning in India more than two decades back. Since its birth its wings were clipped by tagging it to the Union Home Ministry instead of keeping it in company with its natural ally; the Planning Commission. The creation of North Eastern Council in 1971 was only a clear recognition of the imperative need for regional economic planning as a strategy of backward development of the area. This land locked geographic region was taken to be conterminous with a planning region primarily on the basis of it special characteristics encompassing the seven states whose fate is bound together not only in terms of their backwardness but also in terms of psychological oneness and solidarity with common threat to identity.

Over the years the North Eastern Council has been functioning like an isolated island in the planning process without manifesting its complementary with the overall development ethos generated in India. For all practical purposes it ceases to an agency for removing the region's backwardness development. On the contrary, it is more and extension centralized and bureaucratized set up at the regional level. The character of regional development is such that it is the process of integration with the national economic development. In the context of modern global development, a regional plan can achieve full significance only as part of a set of national and supra-national objectives and these must be reflected in the regional plan. It goes without saying that regional

development is aimed at increasing the welfare of the region as expressed by several indicators like: income per capita, availability of social services, employment opportunities, greater productivity and level of infrastructural development etc.

Finally to conclude the above discussion, it can be said that this chapter aims to investigate the development trend in India particularly, the North-Eastern region, thereby identifying the regional imbalances so that the necessary and sufficient development, momentum can be set in motion to neutralise the imbalances. There is also a need of the hour in adopting regional planning and to remove the paradoxical situation of under-development prevailing in the resources abundant region.

Chapter - IV

Structure of Spatial Economy

The role of spatial patterns in the process of development in hill areas can hardly be overstressed. Development of secondary and tertiary activities in the hill areas is difficult partly due to the physiographical constraints and partly due to sociological and economic reasons. Agricultural development in the hill areas must not be planned short-sightedly, hill areas have been subjected to severe resource exploitation which has namely come through shortsightedness. It is, therefore, a serious matter of concern now that our prospective must be wide enough to find out the way and means to keep up environmental quality and achieve a faster pace of development of spatial pattern in the area.

The present chapter tries to analyse the nature and levels of development in the hill region of the North East India.

Agriculture :- Agriculture is the main source of livelihood in the region. Therefore special emphasis needs to be given for the proper development of this sector. Agriculture plays a very important role in the life and economy of the hill areas of the region. It is the backbone to the economic system. Agriculture not only provides food and raw material but also employment opportunities to a very large proportion of the rural population. Therefore it is the main source of livelihood to the people which also adds to the contribution of the state income.

Agricultural activity in this region can be broadly classified into two main types. (i) Settled Agriculture : It is confined to valley areas of Assam, Manipur and Tripura, (ii) Shifting cultivation is confined to the

hill slopes of Arunachal Pradesh, Meghalaya, Mizoram and Nagaland. This is not to say that Assam, Manipur, and Tripura do not have shifting cultivation. It has been estimated that of the total reporting area of about 22.5 million hec 3 million hectares are under settled agriculture and 2.7 million hectares monthly (91) in the hill forests are under Jhum or shifting cultivation.[1]

Though agriculture is reported active in the region but due to primitive production technique and old agricultural practices have adversely affected the levels of agricultural development in the region. Lack of village and farm level land survey has proved detrimental in the same too. However due to improper care and management of land agriculture has been stagnant in the region. As mentioned above the inadequate information about cadastral survey and level records at the household and village levels continues to bother the process of modernisation of agriculture. But, this is more severe in case of Jhum cultivation.

Extent of Jhum in NER: The table 4:1 (appx) shows the area under jhumming. It can be seen that the incidence of jhumming is very high in Nagaland accounting 38.18 percent and is low in Mizoram (8.91 percent). However, the proportion of annual area under jhum is low in Tripura (22.3 sq km.). It is important in exceptional cases that the jhum cycle

[1] Govt. of India "Industrial and Economic Development of the NER", Background Information, vol.I, May 80, pp.13-14.

ranges from 4-10 years. Jhumming is not only an economic activity in the region but it is also a way of life for about 443,336 tribal families of the entire region. Nagaland has the distinction of accounting approximately 26.18 per cent of the total families practising shifting cultivation.

Land utilisation: It is also important to note that the land utilised for agricultural activities commands supreme importance. As unlike the situation in the past, the present is faced with the problem of an ever-increasing number of people who need to be fed with the help of limited available land.

Out of the total geographical area of about 25 million hec as shown in fig. 4:1, the reporting area available for land utilisation is only 22.76 million hec. The net area as reported in 90-91 is 5.1 million hec (ref. Table 2:1 appx). The land under forest is 10.92 million where by Arunachal has the highest with 47.5 percent and the least is Manipur with 0.29 per cent.

It is evident from table 4:2 (appx.) that agriculture has dominance in land utilisation of the region, thus the operational holdings is taken into account. As it is seen that area operated is greater in Nagaland with 933 million hec followed by Assam with 443 million hec but the size operational holding ranges from 1-7.5 hec with Nagaland at the top (7.46 hec.).

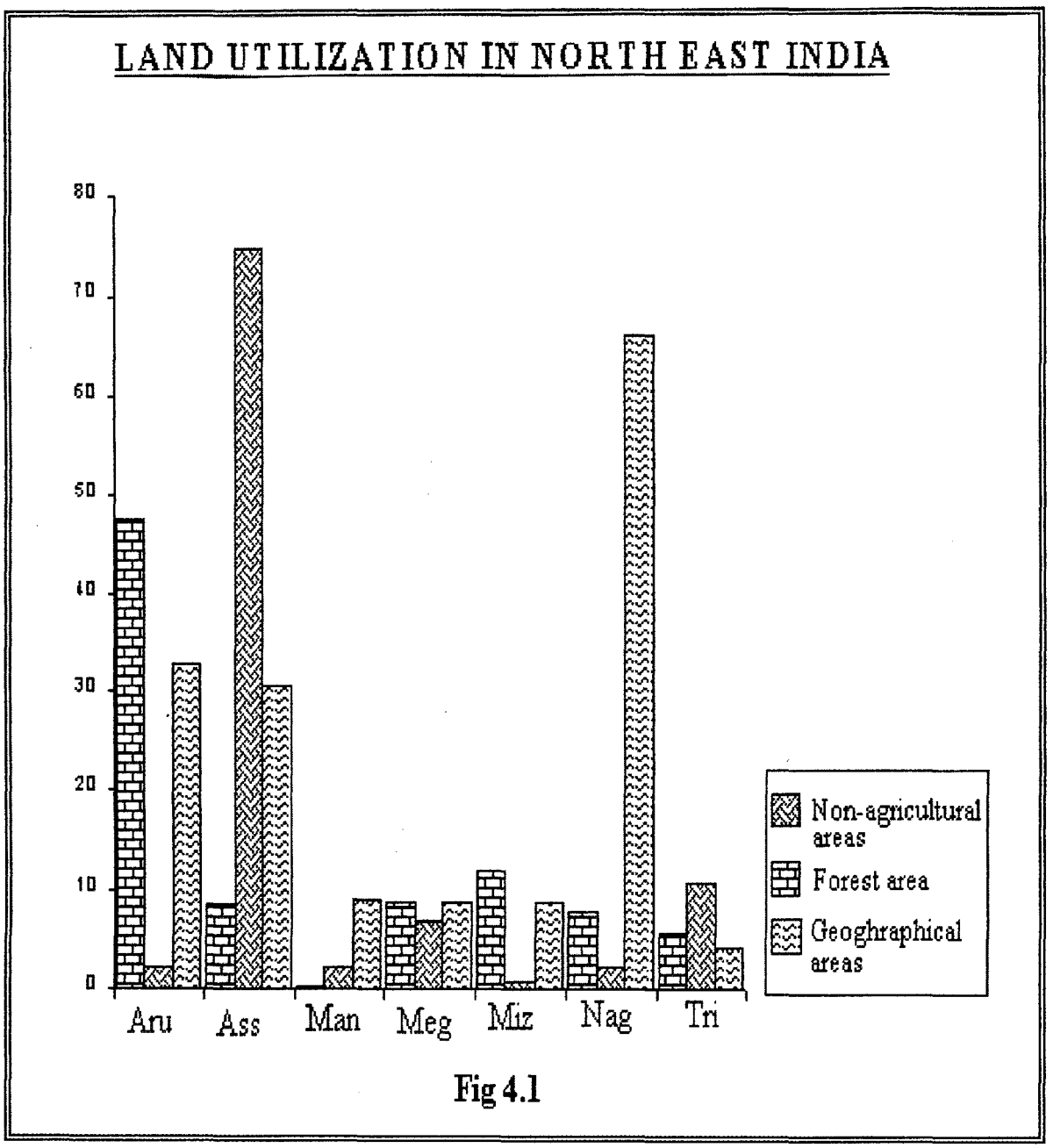
LAND UTILIZATION IN NORTH EAST INDIA
80
70
60
50
40
30
20
10
0
Aru
Ass
Man
Meg
Miz
Nag
Tri
Non-agricultural areas
Forest area
Geoghraphical areas

Fig 4.1

Role of Bamboo in the jhum cultivation : Jhum cultivation is a type of agro forest in which forest products of various type constitute an important proportion of the resource basket of the cultivators. Of all, bamboos various type are the most significant in the region. When the jhumlands are depleted of nutrients with consequent poor harvest the field is left fallow for a period ranging between 2-3 years. Such abandoned jhumlands are colonised by certain weed species. When looked at the geographical area of the region under bamboo (table 4:3 appx) it can be seen that the total geographical area is approximately 25.23 million sq. km. Tripura has 27.13 percent area under bamboo and the lowest is Arunachal (9.50 per cent). It is also interesting to note that bamboos has potential availability as soil nutrients, bamboo drip irrigation system which is accountable for the nourishment of the soil.

Bamboos as secondary colonisers also contribute substantially in restoring the fertility of retarded jhum fallows.[2] The rapidity with which bamboos trap the solar energy and grow, causes good accumulation of assimilated energy on the ground surface through litter fallen. The increased organic matter modifies several physico-chemical properties of the soil, which is certainly a change for the better. Besides, the energy stored in litter fallen on the ground surface may sustain a large microbial population including the nitrifies of a bamboo species. With increased

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[2] Tokyo O.P. (1980) Studies on ecological impact of shifting agriculture (jhum) on forested ecosystem, Ph.D. thesis NEHU, Shillong, p.27.

population and activity of microbes the accumulated litter gets decomposed and incorporated in the soil rendered nutrient-deficient on account of cultivation without any fertilizer input. It has been shown that with increasing age of the fallow, nutrients of the soil are enhanced due to the presence of D. hamiltomi (Toky 1980). Thus the bamboos help in not only conserving the soil against erosion losses but also enrich the soil with nutrients then making it conducive for the growth of even such species whose nutrient requirements are more exacting.

The table 4:4 (appx.) clearly explain the nutrient contents in the soil developed by bamboos. In first 5 years the elements of nitrate has 5.817 Kg/ha of nutrient content Potash has 0.843 Kg/ha of nutrient content, and also with other elements. After 5 years time the nutrient content multiplies - say for nitrate in 10 years time the nutrient content is 82.406 kg/ha and in 20 yrs. time it is 196.070 kg/ha; this perhaps shows that bamboo plays an important role is enhancing nutrient contents in the soil after slash and burn agriculture.

Utility of Bamboo in the region : Apart from generating nutrient contents, Bamboos also offer other utilities. Besides poles and posts for building, construction, it is used for making of boats mats, ladders, animal cages, fishing rods, furniture, bamboo budges, decorative articles, cooking utensils etc. In Tripura bamboo is also used for making salt and

preparing washing soda. Bamboos are also used in making of traps in Mizoram.[3]

Land ownership system in hill areas

It was mentioned earlier that though agriculture is the main stay of the hill people in the region but due to conspicuous absence of cadastral survey an objective analyser of agriculture and particularly land resource in the region is one of the most difficult task before the planner and researches alike. However, it is one of the most vital issue for the development of the region, nevertheless, the availability of the system of land ownership in the region somehow paved an understanding on the different form of ownership in relation to land.

In the tribal society individual ownership of land had little meaning since the entire land area, belong to groups of tribal cultivating it jointly. The inception of settled cultivation in the tribal areas has ultimately brought about a concept of individual ownership since the pressure on land always increased with the passage of time. Traditionally, the chief of the tribe used to divide the land amongst the tribal cultivators which although had some boundary marks but did not have any written record. Thus, customary rights and legal rights had one and the same meaning. However, therefore, large intra-regional variation is the nature of these region. For example in Assam before the abolition of the Zamindaris there were 2 major land tenure system (a) the Zamindari and (b) the

[3] Ibid., p.29.

Rayatwari tenures and between these two a series of other tenures viz Lakhiraj (revenue free) nisf Khariaj (half revenue paying) fee simple[4] etc. existed with varying nature of relationship between them and the government from the point of view of revenue demand. In the hill areas of the state there were no proper land tenure and land holding system particularly in the jhum lands. There are variations in land tenure system in jhum areas, however, it can be said that as long as a family cultivates a particular patch of land it enjoys ownership right like possession over the plot.[5] In Manipur, the land distribution was regulated through the Section 60 to 64 of Manipur State Hill people Regulation 1947. It indicates the pattern of ownership of land and the right to cultivate crops is recognised in the Hill areas of Manipur. Generally the land tenure system in the hills is governed by the customary laws of the respective tribal population.

The state government extended the Manipur Land Revenue and Land Reforms Act of 1960[6] so that the rights of each person are duly recognised by law and property recorded. This aspect assumed greater importance as one of the safeguard against alienation of land. But in those cases where permanent terraced cultivation has been introduced

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[4] Under the rule of 1862 fee simple estates were created on the payment of a sum fixed at 20 times the land revenue of these estate. The owners of since estates were given permanent rights and exempted from payment of land revenue.

[5] N.C. Dutta: Land problems and land reforms in Assam. S. Chand and Co. N.Delhi, 1991, p.II.

[6] The act is applicable to the valley area only and extend security of land tenure and Prohibit transfer of tribal land to non-tribal except with previous permission of the District council.

the individual holdings are recognised through 'formal patta' as per the land laws of the state.[7]

In Meghalaya the unclassified forests of the Garos include a Khing land (a community land) owned by different lineage groups. The District Council possesses complete record of the boundaries of each of a Khing. According to the customary law, the land belongs to the wife of Nokma (headman) of each village. He however, is always considered to be the proprietor, a land may be sold by a Nokma but only with the permission of his wife and her mother. All the inhabitants of the village are entitled to cultivate whenever they choose within the village boundary. But as soon as the household abandons its claim the land goes to the joint possession of the community. The Nokma who had full control over the community land can allot or sell the fallow lands to the village.[8] It may be said without any fear of contradiction that among the Khasis, the land ultimately belong to the people. The land in the Khasi hills has been broadly divided into two main divisions a) public and b) private lands. Public lands are further classified into four heads viz.

(i) ri raj or ri syiem (King's land) (ii) ri lyngdoh (Priest's land) (iii) ri shnong (Village land) and (iv) ri law Kyntang (sacred forest).[9]

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[7] A study of the Integrated H. Area Development Project at Nungoai-West Manipur district, Manipur Agro Economic Research Centre for North East India, Gorhat, 1980, p.8.

[8] A play fair, The Garos, United Publishers, Gawhahi, 1980, p.73.

[9] R. Tokin Rymbai; Report of the land reforms commission for Khasi hills, 1992, Govt. Press Shillong, pp.20-23.

Private lands are subdivided into ri kur land (clar land) and ri kynti land (private land).

(a) **Public lands**: Ri raj or Ri Syiem lands are intended for the support of the system family and cannot be alienated. The syiems are precluded, however, by custom from levying a tax on persons cultivating such lands, as landlord-tenant relationship is unknown between them. Ri lyngdoh lands are the support of the lyngdoh or the priest. Ri Shnong are the property of the village for the supply of fuelwood, thatching, grass etc.

Ri law Kyntang lands are sacred groves situated near the summit of the hills. These are the property of the village and nobody is allowed to cut timber in the grove except for cremation purposes.

b) **Private lands**: Ri Kur lands are the property of the clan. All the members are however entitled to share the produce of any of the clan lands they may cultivate. No land can be alienated without the consent of a durbar (meeting) of the whole clan.

Ri Kynti are private lands which have either acquired by a man/woman individually. Ancestral landed property must be owned by women always.

In Jaintia hills, the cultivable land for jhum purposes falling within the village limits is distributed by the village authority to the different clans inhabiting the village. The clan then redistributes it amongst the members of the clan.

The pattern of individual possession of land where communal ownership is the rule also varies from tribe to tribe.

The Landownership therefore may be brought conveniently under three broad heads;

1. Community ownership
2. Clan ownership and
3. Individual ownership

In Mizoram, prior to the formation of District Council (whose recommendation the institutions of chieftainship was abolished by the Lushai hills (Acquisition of Chiefs Rights) Act of 1955), each village was practically a separate area ruled by a Lal or chief. The chief was the owner of the land within territory and he used to distribute land for cultivation to the heads of the families residing in the village. After the abolition of the chieftanship all rights and interest in the land vest absolutely in the Government and the administration of land was passed to the Lushai hills (Mizo) District Council and subsequently to Village Councils.

In Nagaland, there was no laws, and regulations governing ownership of land in the state except Dimapur. The ownership of land and the individual right to use it, is almost exclusively determined by traditions. Customary laws are unmodified and yet very effectively applied and in event of any dispute, these laws are interpreted by the

village council.[10] In Tripura, the land tenure system provides some protection to the interest of the tribals. The Tripura land revenue and land reforms Act 1960 also prohibits transfer of tribal land to the non-tribal without the permission of the collection. Transfer of land by a scheduled tribe is however permitted under the said Act (a) if it is to another member of scheduled tribe b) to a non tribal with the permission of the collection c) by way of mortgage to a cooperative society.

In Arunachal Pradesh, the Balipara/Tirap/Sadya frontier tract jhum land Regulation promulgated by govt. of Assam 1947 give customary rights to tribal population over their jhum land both village or community provided the village or community enjoying the right to cultivate or utilise such jhum land for not less team 5 years prior to the making of the regulation.

It is evident from the above that,there exists large scale intertribal variations in the nature of distribution of land resource in the region. This has in turn played a very important role in changing the nature of cropping pattern.

Cropping Pattern - It was mentioned earlier that there are at least two types of agricultural system practised in the hill region, the shifting cultivation characterised by mixed cropping on steeper slopes and

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[10] Alam Chuba AO, The need for compilation of Naga custimary laws and procedures. A paper presented in a seminar on naga customary laws, Kohima, Nov. 1975.

permanent upland and valley cultivation characterised by mono-cum-multiple cropping system.

As shifting cultivation is one of the most primitive form of cultivation, it is practised on a very steep slopes which normally should go for finest vegetation. Looking at it from the point of agricultural production it is one of the lowest productive system. Jhumming as a system of cultivation is primarily an eco-centric form of cultivation which involves greater harmony with local ecological condition. Variation in the altitude of the place is an important aspect of the ecology in the region. This has significantly affected the nature of crops grown in an area.

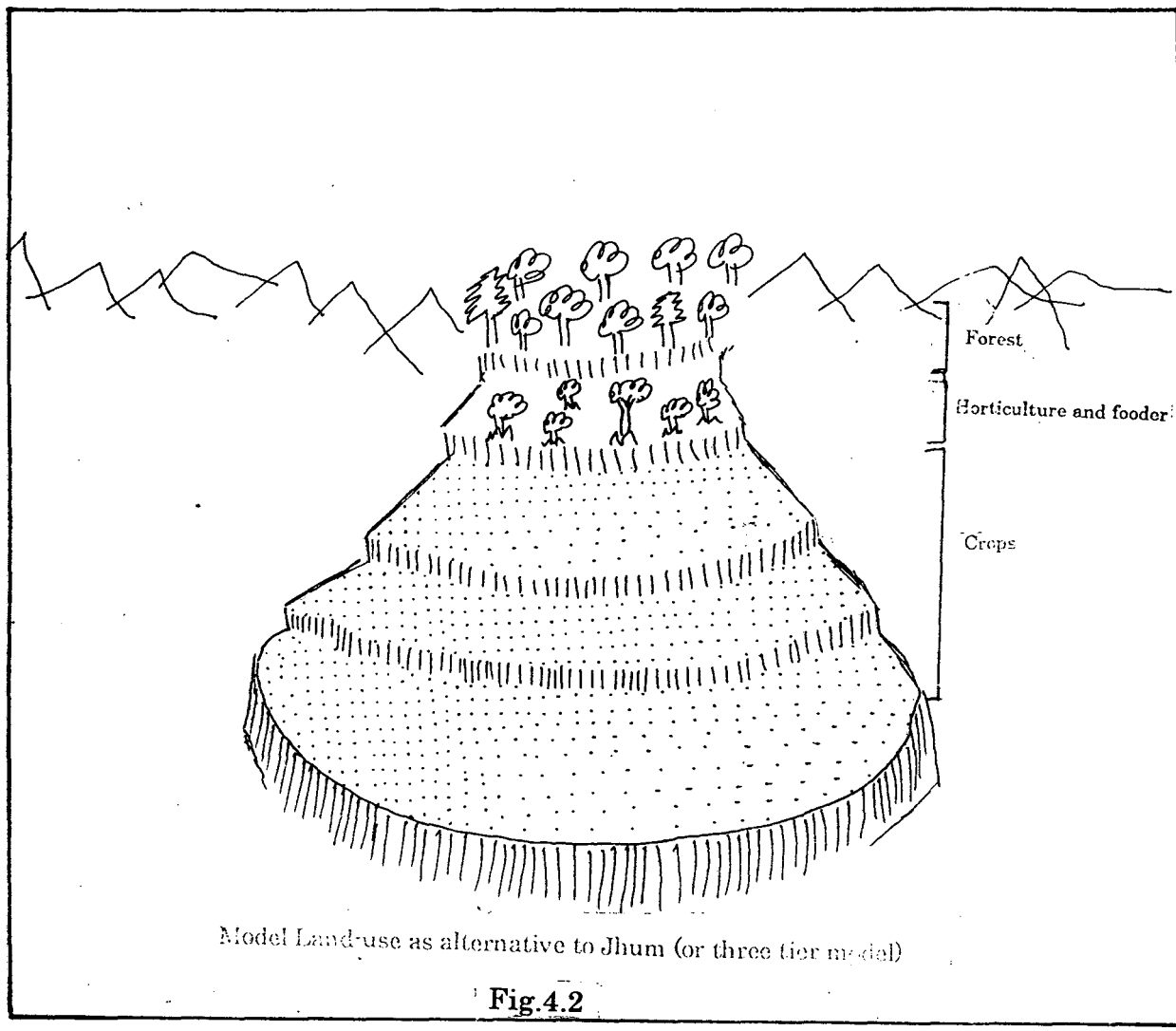
Table 4:5 - **Land use pattern as an alternative to Jhumming** (also refer to fig 4:2)

Location on hill slope	**Portion of total area (approximately)**	**Land use**	**Conservation Measures**
Lower	1/3rd	Agriculture	Bench terrace
Mid	1/3rd	Horticulture	Half Moor terrace & contour bonding
Top	1/3rd	Foresting/Silvi-pastoral	Contour bunds*

Source: Agricultural research in North Eastern hill, ICAR, 1993, pp.135-140.

* Contour bunds is used as barriers across the slope & may be either mechanical or vegetative.

It is also shown in the table & figure that the hill top, mid slope and lower attitude valley floor account for nearly one third of the total cultivated are of the region. But there are significant difference in the



Model Land-use as alternative to Jhum (or three tier model)

Fig.4.2

nature of crops grown and conservative methods adopted by the cultivators. Agriculture is important in the lower altitude zones while Horticulture is in the mid attitude zone. In order to substantiate this point, table 4:6 also shows that though paddy is the most common crop grown in most of the districts but it is grown with different combination.

In the table below it can be seen that apart from paddy, potato is also an important crop grown in the region. Thus to understand this the important crops of each district can be seen below according to the area under each crop.

Table: 4.6

District-Wise Cropping Pattern in the hill areas of N.E. (with reference to 90's)

District	Major Crops	Minor Crops
Karbi Anglong	Maize, summer paddy vegetables	Soyabeen, wheat, sunflower seeds
North Cachar hills	Maize, summer and winter paddy, vegetables	Wheat, small millets
Tawang	Barley, wheat, potato paddy, millet, maize	Soyabean, Buck Wheat, Ginger chillies
West Kameng	Maize, Buckwheat, millet, paddy, potato, pulses, wheat	Cabbage, soyabean, Barley, sweet potato, chillies, ginger, garlic, mustard, raddish, cauliflower.
East Kameng	Paddy, millet, maize, fruits, vegetables, pulses	Wheat, potato, ginger, sesamum, groundnut, chillies, sugarcane
Upper Subansari	Paddy, maize, millet	Barley, pulses, oilseeds, spices.
Lower Subansari	Paddy, maize, millet, pulses, potato.	Ginger, chillies, Turmeric.
West Siang	Paddy, Maize, Millet, potato, sugarcane	Vegetables, wheat, oilseeds, pulses, ginger, chillies, Turmeric
East Siang	Paddy, Maize, mustard, millet, Aram, wheat, potato	Ginger, Soyabean, Blackgram, chillies.
Dibang valley	Paddy maize, mustard, millet fruits, potato	Wheat, pulses, sugarcane, chillies, ginger

Lohit	Paddy, oilseeds, maize, fruits, groundnut, vegetables, pulses	Millet, wheat, potato, sugarcane, ginger, garlic, turmeric.
Changlang	Paddy, millet, maize	Chillies, ginger, potato
Tirap	Rice, millet, maize, tapioca	Wheat, Blackgram, sugarcane, chillies, ginger, garlic.
Senapati	Maize, sesamum, vegetables	Pulses, chillies, soyabean.
Tamenglong	Paddy, maize, millets	Turmeric, potato, soyabean.
Churachandpur	Wheat, paddy, barley	Rape, mustard, chillies
Chandal	Maize, pulses, vegetables	Fruits, Sesamum, mustard.
Thoubal	Paddy, wheat, maize, barley	Turmeric, chillies, mesta
Bishnupur	Paddy, maize, pulses	Potato, chillies, Blackgram, Garlic
Imphal	Paddy, millet, maize	Pulses, mustard, castor, soyabean
Ukhrul	Maize, turmeric, paddy	Chillies, ginger
Jaintia	Paddy, Garlic, Maize	Vegetables
E.K. hills	Paddy, maize, fruits, arecanut, potato, vegetable, ginger	Soyabean, garlic
W.K. hills	Paddy, maize, Arecanut	Tur, Soyabean, Tezpata
E.G. hills	Paddy, maize, vegetable	Tur, sesamum
W.G. hills	Paddy, wheat	Tur, pulses, soyabean.
Aizawl	Paddy, pulses, potato	Maize, fruits, wheat, Castor, sesamum, arecanut, wheat, Arecanut.
Lunglei	Paddy, millet, vegetables	Pulses
Chimituipui	Paddy, chillies	Garlic, Ginger, Sesamum
Kohima	Paddy, potato	Rape, mustard, wheat, castor
Phek	Paddy, maize	Sugarcane, chillies, turmeric
Zunhebeto	Maize, paddy, vegetables	Sweet, potato, ginger, garlic, Tapioca
Wokha	Wheat, paddy, potato	Oilseeds, chillies, ginger, species, groundnut.
Mokokchung	Paddy, millet	Wheat, turmeric, pulses
Tuensang	Paddy, barley, millet	Oilseeds, potato, gram, chillies
Mon	Paddy, pulse, wheat	Potato, sugarcane, sweet potato, Arecanut
West Tripura	Paddy, Wheat, Maize, Vegetables	Oilseeds, mesta, garlic, sesamum.
North Tripura	Paddy, wheat, maize, vegetables	Sweet, potato, Blackgram
South Tripura	Paddy, wheat, millet	Mustard, Tapioca, ginger, garlic, potato.

Source: Constructed from District statistical handbooks of all districts of the hill region 1990-1.

From the above table, it can be seen that Paddy is a major crops in the region particularly in the districts of Meghalaya, Mizoram, Manipur and Nagaland.

In the hill districts of Assam, Maize surpasses other major crops followed by paddy, this variation can be attributed to changing of terrain conditions.

In Arunachal Pradesh, the major crops are Barely, Paddy Maize, millet, Potato. In recent years the farmer have been encouraged to construct terraces over hill slopes and grow wet rice. According to one estimate the state as a whole produced 142.5 thousand tonnes of rice in the year 1990-91. Other minor crops are mostly vegetables which are grown on the slopes of the jhum fields.

In Manipur, the major crops are Maize, Paddy, and millet and vegetables are the minor crops. Maize is grown mainly in Senapati, Ukhrul, rice is grown mainly in the fertile Manipur basin although a small quantity of rice is also grown in the jhum fields. In 1990-91 it produced 274.2 thousand tonnes of rice.

In Meghalaya, as mentioned earlier Paddy is in important crop. Where it is grown both on the hill slopes and valley bottoms. In 1990-91 it produced 119.8 thousand tonnes of rice. Potato is also significant

among the food crop in the state. The noteworthy features of potato cultivation in the state is that three crops of potato are grown in a year.[11]

Apart from these two important crops vegetables like Cabbage, Cauliflower and Raddish etc are also grown similtaneously with potato as a second crop. Arecanut is also a significant crop which is commonly chewed by indigenous tribal people. Meghalaya alone produces 20,210 tonnes of arecanut in 19900-91.

In Mizoram too, Paddy is a major crop followed by millet, Maize, Potato etc. In Nagaland, Particularly the Ao and Lotha farmers have taken to cultivation of this crop in recent years. In 1990-91, the state produced 4950 tonnes of wheat. Other minor crops grown in the state are Soyabean, Mustard, Sesamum etc. however it is too early to expect any significant increase in the production of these crops.

Tripura which has relatively flat land in the southern part is rice in main crop. However, Paddy is also grown in the hills. The state accounted for 50.13 thousand tonnes of rice in 1990-91. Wheat too is an important crop in the state, it is grown mainly in west Tripura district; the state produces 6900 tonnes of wheat in the same year. It is significant to know that Tripura has the highest yield of wheat in the region.

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[11] D. Bora, 'Cultivation of Potato and its marketing problems in Meghalaya, Ganguly JB (ed.), marketing in North East India, Omsons Publications, New Delhi, 1985, pp.70-71.

Other minor crops like Oilseeds, sweet potato, Tapioca etc. are also produced in the state.

Apart from these, the region also produces different types of fruits and vegetables. Most of these are locally consumed, such fruits like apple from Arunachal Pradesh and Nagaland, Pine Apple from Mizoram, Meghalaya Tripura and Assam, Oranges from Meghalaya are important fruits exported from the region. Citrus fruits commonly found are acidless citron lemon, Khasi Mandarin in Meghalaya, in which these two are commercially important species covering 14,000 hec with annual production of about 86,000 tonnes of fruit in the region. Next to these are Pineapple, Banana and Apples to some extent. It was estimated that the total annual production of Pineapple was 1.67 lakh tonnes in 91-92 in which Meghalaya was on the lead. Cultivation of Pear, Peach, Plum is concentrated around Mao, Maram and Ukhrul areas of Manipur and in Shillong Plateau of Meghalaya.

As discussed earlier, vegetable form an important component among the agricultural produce in the region. The two important vegetable - Ginger and Turmeric are of species importance. These two species have a total coverage of 13,260 hectares, with annual production of 25,450 tonnes in 1990-91[12] mostly from Meghalaya Mizoram and Manipur.

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[12] G.L. Kaul: Horticulture in North Eastern Region, Resource Potentials of North East India, Vol.II, R.S. Tripathi (ed.) Meghalaya Science Society, Shillong, pp.51-60, 1992.

However, when looked at the total foodgrain output of the region (table 4:7 appx.) it can be seen that Assam has the highest production of total foodgrain with 3441.8 thousand tonnes followed by Manipur (285.2 thousand tonnes) which shows a large gap of 3156.6 thousand tonnes. The state with least production is Mizoram with only 76.6 thousand tonnes.

It is also evident from the above that mixed farming in the region is possible by an optimum balance between the aspects of ecological and socio-cultural. Use of livestock farm are essential part for the same.

Livestock : Animal husbandry in the hill region is an integral and inseparable part of agriculture as most of the people depend on animal for their economic support. Moreover, the tribal people of the hill areas are exclusively non-vegetarian in their dietary habit and meat and meat products are the first choice. Livestock for the people of the hill region are not only a means of earning livelihood but are attached with social systems in some areas. For e.g., Mithun a proud possession in Arunachal Pradesh, Nagaland, Manipur and Mizoram is used even today in barter trade, marriage etc. Almost every rural household in states like Nagaland Meghalya, Mizoram keeps a few pigs as a subsidiary source of income. Pig is the most important livestock species through out the hill region and nearly hundred percent of the tribal people are pork eaters. Beef is another important meat and is consumed on a large scale in the region. However there is neither any organised farm for beef production

nor slaughter house in the region. The meat of choice among the indigenous people are pork, beef and chicken and the choicest meat of the non-tribal people are goat meat (Chevan) mutton, chicken. Sheep and goat are also brought from outside the states. Sheep production both for mutton and wool is of great value in some of hill areas of the region. The areas of sheep production are mainly limited to Kameng district of the upper hills of the region, parts of the hill areas of Nagaland, Mizoram and Manipur. In some the upper hill areas of the north east region farmers migrate from foothills to alpine zone and vice versa with their sheep flock as per need of the seasons. Carpets produced from sheep wool in Arunachal Pradesh is largely valued.

The demand of milk is at present limited to state capitals and a few town ship as the indigenous rural population prefer meats over milk. This trend is however gradually changing. Milk in these specified areas are made available from cross breed cows (as in Shillong) and native cows and buffaloes as in Manipur and Assam.[13] Apart from these the native fowl germplasm of the region is known for their sturdiness and meat quality. There is therefore a need to incorporate this germplasm in the over all poultry development programme more particularly for broiler production development.[14]

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[13] Dr. K.M. Binyabaruah et.al., 'Status paper on Livestock production in NEH region of India, ICAR, Shillong, 1993, pp.1-3.

[14] D.J. Roy and S.K. Ghosh, 'Potentials of Livestock and Fish Production in NEI., R.S. Tripathi (ed.) op.cit., p.111.

Similarly the region has tremendous scope for developing duck industry as duck are also used in the region both for meat and egg purpose. There is a scope to introduce duck along with poultry in other states to consolidate and exploit the poultry industry.

From the view point of sheer number of various animals, as shown in table 4:8 (appx.) Assam is the most important among the north eastern states. In 1992-93 the state had about 6750 thousand cattes, 1729 thousand goats, 10,491 thousand poultry. The animals of the state has been taken up by extensive cattle development projects for hybriding next to Assam, Manipur is also rice in animal resources. The state has 747 thousand cattles, 138 thousand buffaloes, 2861 thousand poultry, 368 thousand pigs. The cows and buffaloes of Manipur are the best in North East, they are of bigger size and stronger, horses, are famous throughout India and South India, although smaller in size but swift and strange and they are often used in military and paramilitary forces.[15]

Tripura is the next in animal resources with 680 thousand cattles, only 16 thousand buffaloes 343 thousand goats and 103 thousand pigs. As its indigenous animals are not strong and productive efforts have been made to develop hybird varieties.

Meghalaya has 550 thousand cattle 29 thousand buffaloes, 186 thousand goats and 207 thousand pigs. The Meghalaya Govt. and

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[15] M. Taher and Ahmed, "op.cit", pp.141-146.

Indian Council of Agricultural Research has undertaken number of schemes in Upper Shillong to develop domestic animal resource. A model poultry farm has been started at Kyrdemkulai 25 kms away from Shillong.

The states of Arunachal, Nagaland, Mizoram are not very rich in domestic animal resources. Arunachal has 168 thousand cows, 12 thousand buffaloes, 20 thousand goats 76 thousand sheeps 213 thousand pigs. Nagaland with 151 thousand cows, 9 thousand buffaloes, 61 thousand goats and Miroram with 50 thousand cows, 43 thousand buffaloes. Domestic animal resource of the region can contribute to the economy of the region if it is properly developed. There are a large demand for milk, milk products meat and egg. If the projects taken up to develop cattle pig., goat, and poultry resources materialise the region's economy shall improve to a larger extent.[16]

Agricultural inputs

It is explicit from the above discussion that inspite of rich land and animal resources, the indigeneous people do not compromise with the changing world of applicability of agricultural inputs in order to enhance agricultural productivity. Moreover it is a common belief among the hill people that the use of chemical fertilisers in the agricultural land is likely to displease the gods of the soil. Thus according to the traditional beliefs using of chemical fertilisers is likely to hamper and destroy the growth of

[16] Ibid., pg.146.

crops. It is only the titled earth that is sufficient which is taken to be the pleasure gift of God. It was after 90's that various agricultural organisation succeeded in getting the consent of the traditional communities for using modern agricultural inputs. Thereafter, the consumption of fertilisers gradually increased over time. In 1991-92, the consumption of fertlisers in Arunachal Pradesh was 0.27 thousand tonnes, Nagaland with 0.87 thosuand tonnes, Mizoram with 0.90 thousand tonnes, Meghalaya with 2.71,000 tonnes Tripura with 8,43,000 tonnes, Manipur with 13,52,000 tonnes.[17]

Although fertilisers consumption increases, but since the region receives very high rainfall for a minimum of six months and another six months there is insufficient rainfall which resulted into down washing of soil cover including the fertilizer used. Thus it leaves very little of this costly input in the soil and in turn adversely affects agricultural operation. Moreover, due to hilly terrain the region also faces inadequacy of irrigational facilities, although the region receives heavy rainfall but it is unevenly distributed over the years. There is a pressing need for artificial irrigation which is rather difficult in the region.

Industries: By Indian standard, North eastern hills is industrially backward. Apart from a few agro-based and mineral based industries it has practically no manufacturing industry worth the name, although the hill region is very rich from the view point of natural resources. In the

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[17] Govt. of India; Fertilisers Statistics 1991-92, p.27-28.

hill region there are (i) vast reserves of such minerals as coal, limestone, clay, sillimanite, uranium etc. (ii) huge forest resources which provide cane, bamboo, soft wood, hard wood medicined and decorative plant etc. for various industrial and commercial purposes.

In spite of the available resource, the region still remained industrially backward due to the non-development of many of the resources to suit industrial growth. In addition to these, there are other causes for industrial backwardness which are somewhat inter-connected. Following are the main reasons:

1. The region is located at the north eastern most corner of India surrounded almost on all sides by foreign countries, except a narrow corridor which link it with the country. Because of cul-de-sac, few industrialists are interested to invest on industrial development in this region. Moreover, rugged montainous topography too has adversely effected the level of spatial interaction which is crucial in the development of non-primary section.
2. The poor development of transport and communication is another important problem in the development of this sector. Railways are poorly developed and most of the region is still out of its reach. Many district head quarters are yet to be linked and an all weather road links as well.

3. Although the north eastern hill region has enormous natural resources, proper resource exploration and assessment are a recent phenomena. Assessment of coal, limestone and sillimanite deposits of Meghalaya has only been done, but mineral resources of Arunachal Pradesh, Nagaland, hill areas of Manipur, Mizoram, Tripura hills are yet to be explored and assessed.

4. Lack of required capital locally available for starting an industry, capital formation among local people is apparently very low. Entrepreneur from outsides the region do not venture to invest large amounts to start industries because of uncertain socio-political situation.

5. The hill region also do not have sufficient number of skilled and semi-skilled persons. In order to start any industry, people with requisite technical know-how has to be brought from outside the region. This has also hindered the growth of industries in the region.

However, it will be improper to say that the industrial base in the region is weak. On the contrary, the traditional handicraft and cottage industry in the region is quite important and contribute significantly in the employment and income generation of each state.

Traditional background of industries in North Eastern hill region

Although the whole region is backward in modern factory based industries yet when we look into the history of the region's industrial

development it is incredible to see that the old Indian epic, the Mahabharata mentioned that a large number of local products of Kamrupa such as sandalwood, deer skin, gold nuggets, perfumes etc. were presented to the Pandavas at the time of their coronation.[18] In the seventh century AD Kumar Bhaskar Varman a King of Kamrupa presented many local products like jewel-studded books of Sanchi leaf, pictures drawn on mats, incenses, perfumes, cane baskets studded with gold and Silver to Harshavardhana. The Greek Geographer Ptolemy mentioned that in the 2nd century Kamrupa was famous for silk textiles.[19]

Apparently till today handloom and footloom weaving is still common in rural hill region. The region is also famous for handloom, wood, bamboo and cane products. All agricultural implements, hunting and fishing aids are made at home. Besides there are potters, blacksmiths, gold smiths, brass smiths, bell-metal smith, ivory artists etc. to produce their respective merchandise. However with the coming in of the cheap factory made merchandise, the cottage industries of the region have faced a decline. Now-a-days except handloom weaving of cotton, silk and knitting for traditional dress in the hills, all other crafts are almost dying out.

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[18] M. Taher and Ahmed, op.cit, p.189.
[19] Ibid., p.190.

Present status of Industrial development in the hill region

The hill region at present is coming up with large and small scale industries. It is shown in table 4:9 (appx) that all the districts at least has some registered factories. Among all the districts, Lower Subansari has 9.01 percent of registered factories followed by Karbi Anglong with 6.11 percent.

When looked at the different districts of different states, in the hill areas of Assam, Karbi Anglong has 6.11 percent and North Cachar hills has only 2.30 percent. Among the districts of Arunachal Pradesh, Lower Subansari has the highest percentage of registered factories with 9.01 percent followed by West Kameng with 6.29 per cent. In Manipur, Imphal has 4.07 percent of registered factories followed by Senapati (3.39 percent). In Meghalaya East Khasi hills has 6.52 per cent of registered factories till 1993 but after bifurcation of a new district - Ri Bhoi, East Khasi hill has only 4.7 percent whereas Ri Bhoi has 1.82 percent of registered factories. In Mizoram, Chimtuipui has 2.59 percent of registered factories followed by Aizawl with 0.40 percent. In Nagaland, Kohima surpasses other districts with 2.17 percent of registered factories. In Tripura, West Tripura has 0.61 percent of registered factories which is found in and around Agartala only.

It is surprising that though the resources are locally available and industrial skill is imparted from one generation to the next,yet industries continue to occupy only a smaller share in terms of employment and

income generation of the people of the region. Lack of markets and inability to compete with the manufactured commodities seem to have played a significant role in limiting the expansion of the industrial sector in the region. This has also affected the nature of industrial development in many ways.

But this is only half the story. The vast raw materials which will be produced through these efforts will have to be processed locally and then only the area can certainly look forward to an impressive beginning in industrial activities.[20] This approach can be prefered over the export oriented raw material approach, firstly, due to rough topographical condition and unpredictable climatic condition along with primitive transport and communication technique make it rather difficult to transport the voluminous raw material outside the region. Secondly, the establishment of processing unit within the region will open up new employment opportunities in the region. This can also contribute in certain growing discontentment due to unemployment particularly among the youths. Thirdly, gainfull employment will be able to channelize these locally available human resources and youth ever in construction purposes and then check the widening bases of social discontentment militancy.

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[20] Lalit K. Sen and Abdul L. Thana: Regional Planning for the hill area, National Institution of Community Development, Hyderabad, 1980, p.143.

However the potentialities of the area are indeed great and the virgin resources can be developed through agriculture, horticulutre forestry, sericulture, animal husbandry.

Thus the table 4:10 below shows the types of industries in the region and their production.

Table 4:10

Types of Industries and their production in 1991-92

Serial No.	Industry	Location (State)	Raw Material Obtained/units	Production
1.	Cottage			
	Sericulture pure silk	Assam,	Lakhimpur, Dhewaj, Dibrugarh, Sibsagar, Golaghat, Jorhat etc.	1.97 lakhs kgs. (silk cocoons)
		Manipur	Ukhrul, Imphal, Thoubal, Chandel	0.332 lakhs kgs (silk cocoons)
		Tripura	S. Tripura, W. Tripura	0.42 lakhs kgs. (silk cocoons)
		Meghalaya	West Khasi hills, East Khasi hills	0.11 lakhs kgs. (silk cocoons)
	Muga	Assam	Lakhimpur Jorhat, Golaghat, Dibrugarh	4.995 lakhs kgs. (muga cocoons)
		Manipur	Ukhrul, Imphal, Thoubal, Chandel	0.379 lakhs kgs. (M.C)
		Nagaland	Mokokchung, Wokha	-
		Meghalaya	E.K. hills, E.G. Hills, Ri Bhoi, Jaintia hills.	-
	Eri	Assam	Karbi Anglorg, North Cachar hills	0.379 lakh kgs (eri cocoon)
		Manipur	Ukhrul, Chandel	0.379 lakh kgs.

2.	Weaving	Assam Manipur Tripura Nagaland		45 million meters of cloth.
3.	Bell metal works	Assam, Manipur, Tripura	Kamrup, Imphal, Agartala, Belonia, Kamalpur, Dharmanagar.	-
4.	Brasswork (tradition handicraft)	Assam	Kamrup, Brahmaputra, Valley, Jorhat	300 tonnes
5.	Ivory Work	Assam	Barpeta	-
6.	Other traditional crafts			
	a) pottery	Assam	Goalpara, Darang	-
	b) Bamboo and cane	Assam, Manipur, Arunachal Pradesh, Meghalaya, Mizoram, Tripura, Nagaland		NA NA NA Rs. 48.97 lakhs NA NA NA NA
7.	Goldsmithy	Assam Meghalaya Manipur Tripura		Local Consumption
8.	Agro Based	Assam	Darang, Barpeta	5348 tonnes
	a) Jute textile	Tripura Meghayala	Agartala East Garohills West Garo hills	1.6 tonnes -
	b) Cotton textile	Assam Manipur Meghalaya	Cachar, E. Kameng Letang Khumi East Garo hills West Garo hills	- - -
	c) Sugar	Assam	Karbi Anglong Nagoan	4169 tonnes
		Nagaland	Dimapur	-
		Mizoram		-
		Manipur		-
	d) Vegetable oil (Tripti)	Assam	Amingaon	6000 tonnes
	e) Tea	Tripura Assam	Dharmenagar Upper Assam Tezpur, Sonitpur Barpeta	3000 tonnes 3000 tonnes 387866 tonnes

9.	Food Processing a) Biscuits, Soft drinks, snacks	Assam	Tezpur, Sonitpur, Barpeta	-
	Fruit processign	Assam	Gauhati, Phulartal, Debrugarh, North Cachar hills	-
		Meghalaya (Shillong, Baghmara), Tripura	Shillong, West Khasi hills, South Garo hills Nalkata	-
		Nagaland	Chang Ki (Mokokchung)	-
		Mizoram	Chemtuipui	-
		Arunachal	Nigmoy (West Siang)	-
10.	Forest based			
	a) Plywood	Assam	Upper Assam, Bara K. Valley, Gauhati	26216('000) Sg. Metres (Commercial plywood)
		Meghalaya	Byrnihat Shillong	-
		Nagaland	Kohima, Tizet (Mon.)	-
		Mizoram	Bhairabi	-
	b) paper	Assam	Jagiroad, Karbi, Anglong, North Cachar hills	80,000 tonnes
		Nagaland	Mokokchung	-
		Meghalaya	Kyrdemkulai	-
		Manipur	Jiribam, Karong	-
	c) Match	Assam	Dhubri, Karimganj, Jorhat	4698, grosses of boxes
11	Mineral based			
	a) oil	Assam	Digboi, upper Assam, Noonmati	4838 tonnes
	b) petroleum			
	c) Fertiliser	Assam, Tripura	Bongaigoan, Kamrup	326 tonnes
12.	Plastic	Assam Manipur Tripura Meghalaya Nagaland	 Imphal Agartala Shillong Kohima	6000 tonnes (raw plastics) - - - -
13	Chemical			

			Gauhati	
	b) Salt	Assam	Narengi, Hailakandi	10,000 tonnes
	c) Lime	Assam Meghalaya	North Cachar Lum Sanang	- -
	d) Coal Carbonisation	Assam	Tinsukia	-
14.	Engineering	Assam	Gauhati Dibrugarh Tinsukia	-
		Manipur Tripura	Imphal Agarlata	- -
15.	Leather	Assam Meghala Mizoram	Gauhati Shillong Aezanil	- - -
16.	Cement	Assam Meghalaya	Kammup Chenapingi	1788 tonnes 124 tonnes
17.	Miscelleneous a) Bee Keeping	 Manipur	Imphal Churachandpur	
		Meghalaya	Cherrapunji Shillong W. Khasi hills	
		Tripura	Agartala, Dharmanagai	1,4800 tonnes of honey
		Nagaland	Mokokchung Mon Zunhebeto	
		Arunachal	West Siang	
	b) Block making stone grinding	Assam Arunachal Pradesh Manipur Meghalaya Mizoram Nagaland Tripura		 Local consumption

Source: Pocket statistical handbook Assam 1991 Arunachal Pradesh, 1992. Manipur 1996, Meghalaya 1996, Mizoram 1995, Nagaland 1994, Tripura 1992.

Infrastructure

Infrastructure plays an important role in an economy. The region which is located along most sensitive strategic and far flung border of the country has presented a baffling challenges to the planners and administrators of the country. The bewildering varieties of racial and

lingiustic origins of its population coupled with the complexity of the socio-cultural problems have added new complexities to the stock of dreadly existing problem.[21] It is particularly significant when one talks of development through increase in production of goods and services for consumption and investment of its population. Therefore, one can hardly avoid but overstress the need of efficient and more infrastructure for the movement of men and material over space.

Infrastructure is most essential to promote economic development of the region. Rostow[22] while mentioning independent variables for development included the construction by government of social overhead capital as one of the pre conditions for an accelerated growth. In Asian drama, Myrdal[23] regarded the construction of infrastructure as necessary for development. Advocates of the theory of unbalanced growth for attach great importance to social overhead capital as the initiation of investment in the directly productive activities and then responding to these investment by further expansion of the overhead capital.

The positive contribution of physical infrastructure (transport, irrigation, telecommunication etc.) to economic growth and development comes through increase in investment, employment, output and income in a chain of cumulative causation. Thus better infrastructure can add

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[21] A.K. Agarwal, Economic Problems and Planning in NE India Sterling Publishers Pvt. Ltd., 1987, New Delhi, pp.88-89.

[22] W. Rostow, The stages of Economic Growth Cambridge, 1960, pp.96-97.

[23] G.Myrdal, Asia, Drama, An Enquiry into the Poverty of Nations, 1968, p.40.

extra economic advantages like further specialisation of economic activities in a particular location in the beginning and subsequently in the diffussion of the same,[24] so that the process of cumulative causation should ultimately lead to better allocation of existing and hitherto unutilised and under utilised resources of the region for the development of both place and people. Though infrastructure involve a lot of activity, but transport and communication have special importance among all.

Transport and Communication

Transport and communication is an important element of infrastructure based on which the progress of a region may take place unfortunately in the region the transport and communication system is poorly developed. Some of the physical and socio-economic which causes the backwardness of transport and communication of the region are summarised below:

1. The region has 2/3rd of its area (about 72 percent) under hills, mountains, plateau and only 28 percent is plain area of the 72 percent of hills and rugged terrain. Moreover, the region has steep slopes, deep gorge, and ravines where laying of roads and railways is very expensive and difficult proposition.
2. The region as a whole is isolated in its location surrounded by four foreign countries and is far from the main industrial centres of the

[24] This does not mean that deruralisation is the ultimate goal of economic progress. There is in fact no conflict in creating infrastructural facilities in rural areas even with developed agricultural practices such as is the case of Punjab.

country. The transport and communication linkages have not been developed to the desired extent.

3. Since the hill region has very high rainfall for more than six months in a year, the roads and railways suffer from surface and gully erosion, therefore the roads and railway lines have to be constantly repaired and maintained in serviceable conditions. It involves a huge running expenditure every year.

However, as mentioned earlier the strategically sensitive location of the region makes it impossible to maintain regular linkages of the region with the rest of the country.

Road ways - Road network development of the country was based on the Nagpur plan in 1943. The plan, in its totality envisaged that every inhabited settlement to be brought within a distance of 8 km from an all weather road in a predominantly agricultural area and 30 kms for every settlement in the non agricultural areas. The envisaged goal was more or less achieved by the country in 1961 in most part of the country. But in the North eastern region of India it could not be achieved. Various reason were listed for this inability. One of the important factors that came up, was the magnitude of investment, However, efforts were largely directed towards speeding up the process of integration through construction of roads and meter gauge railway connecting the region with the rest of the country as well as building up a base for inter regional linkages. Subsequently efforts were guided by the **Bombay Plan**

1961-81, that recommended construction of all the weather roads in the region.

The following table briefly summarized the recommendation.

Table 4:11: Planned Facilities of Transport Network

Regions	All Weathered Road	Seasoned Road
Developed area agricultural region	6.4 Km	2.3 Km
Semi developed region	12.8 Km	4.8 Km
Developing backward region	19.2 Km	8.0 Km

Sources: Report of the working group of transport sector upto 2000 AD NEC, Shillong 1991.

Accordingly, through the plan, the density of the road were increased to 32.5 Km per 100 Km and in northeast this was achieved by the state of Tripura only. Constraints noted earlier continued to retard the growth and development. Lack of technical manpower, machinery, and resources too hampered the maintenance of the existing transport network is the region. The North Eastern Council synchronizing its plans with those of the various states in the region, has (1990) projected an increase in the density of the road to 82 Km per 100 Km including location of the national highway at a distance of 50 Km to every settlement in the region.

The table 4:12 (appx) reflects the road length and density of road in the region. It can be seen that in the hill districts of Assam the total PWD road length is 2794 Kms in Karbi Anglong and 1314 Kms in North Cachar hills. These can be classified into three main categories viz

national highway, state highway and other P.W.D. roads, Karbi Anglong has 170 Kms of national highway whereas North Cachar has none and it has only state highway, of 213 Kms.[25] The state PWD roads link only the important places while, the district board and Panchayat roads link the large villages and rural market centres. A large number of PWD roads are graveled and pitched while the district board and Panchayat roads are mostly Kaccha and occasionally graveled.

Meghalaya has about 5624 Km of roads. The hilly nature of the state has impeded the growth of roads in this state. The state however, has an old road from Dawki at Bangladesh border, via Shillong to Gauhati. Before partition this road was upto Sylhet in East Bengal. New roads have been constructed after independence linking various important places. The Guwahati-Shillong-Dawki road has now been converted to national highway no. 40 also (refer fig. 4:3). Another national highway now links Agartala Karimganj and Badarpur with Shillong and Jowai. It is called national highway no.44. The western part of Meghalaya (Garo Hills) is linked with national highway no.37 in Goalpara district Assam.[26]

As it is seen in table 4:13 (appx.) that in the upper hill of the region, Arunachal Pradesh has a lower density of roads. It has very high hills, mountains, very deep valley and gorges. Besides this, Himalayan

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[25] Government of Assam Statistical handbook Assam 1992.

[26] M.Taher and Ahmed "op.cit". pp.226-227.

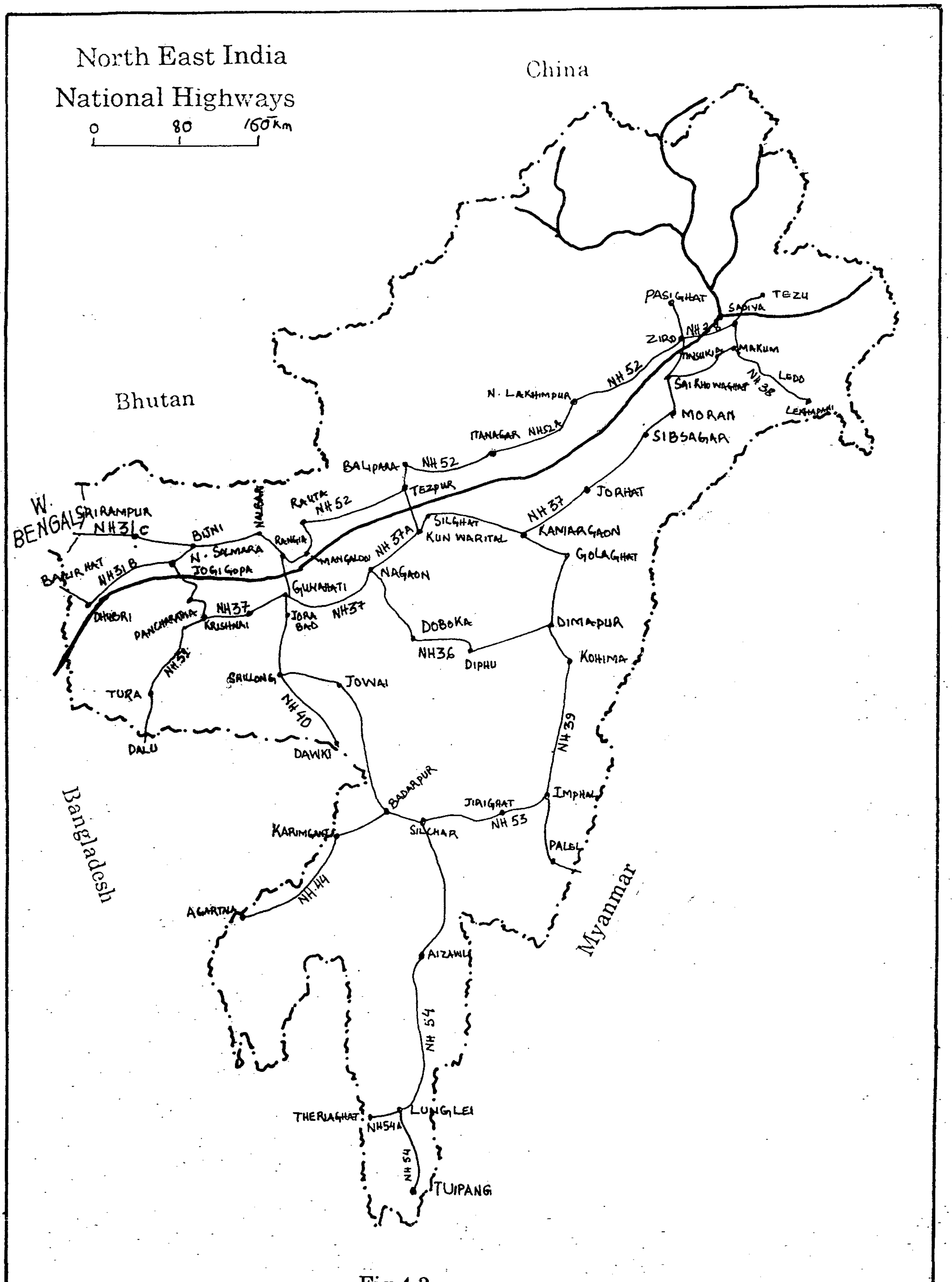
North East India
National Highways
0
80
160 Km
China
Bhutan
Bangladesh
Myanmar
W. BENGAL
SRIRAMPUR
NH31C
BIJNI
N. SALMARA
JOGI GOPA
NH31B
DHUBRI
PANCHARATNA
KRISHNAI
NH37
NH51
TURA
DALU
GUWAHATI
JORA BAD
SHILLONG
NH40
JOWAI
DAWKI
RANGIA
RAKTA
NH52
BALIPARA
TEZPUR
ITANAGAR
N. LAKHIMPUR
ZIRO
PASIGHAT
SADIYA
TEZU
MAKUM
LEDO
NH38
MORAN
SIBSAGAR
JORHAT
KANIARGAON
GOLAGHAT
SILGHAT
KUN WARITAL
NH37A
MANGALDOI
NAGAON
DOBOKA
NH36
DIPHU
DIMAPUR
KOHIMA
NH39
IMPHAL
PALEL
JIRIGHAT
NH53
SILCHAR
BADARPUR
KARIMGANJ
NH44
AGARTALA
AIZAWL
NH54
LUNGLEI
THERIAGHAT
NH54A
TUIPANG

Fig.4.3

ranges runs from the south-east to the north west direction and as a result. No road has for been constructed across the state from east to west. The various towns of the state have to be linked with the Brahmaputra Valley. Of such are (i) Tezpur –Bomdila-Tawang road, (ii) North Lakhimpur –Kimin-Ziro Dapariji Road (iii) Likabali-Along Road (iv) Pasighat –Along Road. (v) Mangherita Ledo-Changlang Road and (vi) Naharkatia Jarpin-Khonsa Road. Nagaland is also poorly developed in roadways. Its main road is National Highway no. 39 that runs from Numaligarh in Assam via Dimapur, Kohima and Mao to Manipur. Other important roads are Agni-Mokochung-Tuensang-Mon Road and Furkating-Wokha-Road. A new road has been constructed across Nagaland linking Mokochung with Kohima via Zunhebeto. New roads have also been constructed recently linking Wokha and Phek, with Kohima. Mizoram has many parallel hill ranges and deep valleys running in the north south direction. Therefore, it is difficult to construct roads across the state in east west direction. The national highway no.54, the main road of the state runs from Silchar via Aizawl, Lunglei and Saiha to Tuipang in the down south of the state. This road has extended from Lunglei to Theriaghat and Demagiri as National Highway 54A and from Venus Sedel to Saiha as NH54B. Tripura is very much isolated from the view point of transport and communication. It is surrounded on three sides by Bangladesh. The only all weather road linking the state with the

rest of north eastern region is national highway 44 that runs from Shillong via Badarpur, Karimganj, Dharmanagar to Agartala.

Within Tripura, however roads are somewhat developed in the relatively plain western part. The eastern hilly part of the state is poorly developed in road communication.

The following are national highways of the region. (also refer to fig no. 4:3).

National Highway No.	Running to and from
31	Siliguri in West Bengal East Ward and enters Assam near Bakirhat and goes via north Salmara, Byni, Nalbari and Rangia to Saraighat bridge. It is 322.8 Km long. There is a branch of it-north Salmara to Jogighopa (no31B) still another branch of it (31C) runs from Byni to Srirampur.
36	Nagoan town via Dabaka across Diphu sub division to Dimapur (170Km).
37	Pancharatna via Guwahati, Nagaon, Jorhat, Sibsagar Dibrugarh to Dangari. It is 680 Km long. Its branch 37 A runs from Kunwarital in Nagoan district to Tezpur (23Km) over Kaliabhomora.
38	Makum, via Digboi and Magherita to Lekhapani (154 Km)
39	Numaligarh via Dimapur, Kohima and Imphal to More in Myanmar (136 km)

40	Jorabat near Guwahati to Dawki on the Bangladesh border via Shillong.
44	Runs from Shillong via Jowai Badarpur, Karimganj, Dharmanagar to Agartala (495 Km)
51	Krishnai in Goalpara district to Dalu near Bangladesh border via Tura. It is 149 Km long.
52	Barihata-Chanali in Kamrup district and Mangaldai, Tezpur, N. Lakhimpur and Dhemaji to Jonai and beyond to Pasighat (580Km)
52A	Bandardia to Itanagar (25Km).
53	Badarpur via Silchar and Jirighat to Imphal (320 Km)
54	Silchar via Aizawl and Lunglei to Tuipang (560 Km). Its first branch (no.54A) runs from Lunglei to Theiriahat (9Km) and the second branch 54B runs from Venus sedel to Saiha (27km).
99	The construction work of this highway which with run from Patsala to Naulong (Bhutan) has been started.

The states as well as the NEC, the Nodal development agency of the region has given special attention to the development of roads in the hill area of the region. During the fifth and sixth NEC plans construction improvement of about 5872 Kms of road was approved. Of these about

2600 Kms had been completed by March 1985 and another 2600 Km was completed at the end of VII plan period.

The planning commission along with the NEC had approved and subsequently implemented the construction improvement of the following 9 roads during the VII NEC plan.

Name of Road	Length in Kms	State
Umshing-Jagirroad	83.70	Megh/Assam
Wokha-Bokaian	91.00	Assam/Nagaland
Anguri-Monkolemba	60.00	Nagaland
Thousem-Lausang	40.00	Mani/Assam
Maram-Peren	80.00	Mani/Nagaland
Serkawn-Bagabazan	110.00	Mizo/Assam
Jagun-Mao	35.00	Aru P/Assam
Bhodar Ali	110.00	Assam
Agartala Kumarghat - Mohanpur Chebri	54.00	Tripura

Source: Transport and Communication, NEC 1992.

Though roads are the important transport linkages in the region yet railways have special significance in development. As mentioned earlier, the nature of the region is very rugged so the construction of railway lines is also not easy, yet with modern technology in the hill section,

railway linkages can be linked from one railhead to another through tunnels.

Railway development - The railway development closely followed the development of the plantation and oil industry in the region particularly in the upper Brahmaputra Valley (Dibrugarh-Tinsukia-Jorhat section).

At present the whole region consisting of an area of 2551 thousand sq km. It has a railway network of only about 2500 km accounting for a density of 9 km of railway line per '000 km^2. Moreover out of the 2500 kms of the lines only about 961 kms are broad gange while the remaining traces are metre gauge.

Only three states of the region i.e. - Assam, Nagaland and Tripura- have this facility. The table below exhibits the distribution pattern of railway in the region.

Table 4:14

Railway Network in NER As on 1992-93

State	Broadguage	Metreguage (MG)	Narrow G. N9	TotalG
Arunachal Pradesh	-	1	-	1
Assam	266.41	2200.42	-	2466.83
Manipur	-	1	-	1
Meghalya	-	-	-	-
Mizoram		2	-	2

Nagaland		9	-	9
Tripura		45	-	45
Total	266.41	2258.42	-	2524.83
All India	36504	21997	3985	62486

Source: Basic Statistics of NER 1995.

From the above table it can be seen that only Assam has the share of broad gauge which is about 266.41 Km. Other states the Arunachal Pradesh, and Manipur has 1 Km meter gauge each, Tripura with 45 Km meter gauge, Nagaland with 91 Km, Mizoram with 2 Km one yet to take advantage of this faculty. Meghalaya is conspicuous by the absence of railway link.

Besides, these major means of transportation, water ways are also important mostly in the plains of the region, but these are used only to transport forest products down stream is the fields. The other important mode of transport in rope ways. These are most common in the hill areas and at the local level. But over the years these are gradually replaced by modern means of transport particularly road ways.

Airways

Compared to the surface transport, air transport is slightly more developed in the region. It is mainly due to its isolated and strategic location that quick inter-regional link has been considered necessary.

A few aerodromes were built since Word War-II. The Allied forces built up small aerodromes at Kahi Kuchi (near Gauhati) Mohanbari

(Dibrugarh) salanibari (Tezpur). After independence, some of these airfields were used by private companies like the Indian Airways Bharat Airways for commercial services. After the nationalization of commercial air transport in India, Indian Airlines Corporation took over the services and new air ports were opened at Dimapur, Agartala.[27]

Besides smaller airports were constructed at Ziro and Tezu in Arunachal, at Umroi (near Shillong), Tuinival (Aizawl) and Kailashar and Kamalpur- Tripura. However regular air transport still remain confined only to Dimapur, Imphal, Agartala hills areas apart from Tezpur, Gauhati, Jorhat a plain areas of Assam. The services to these airports are to and fro from Calcutta, and Delhi. The Borjhar (Lokapriya Gopinath Bordoloi) airport is the only large one in the region and it is going to be upgraded to an international airport. Another large size air port has been inaugurated at Lengpui 40 Km away from Izaiwl. It is the second largest air port is the region.

The Airport Authority of India has decided to construct an airport at Itanagar in Arunachal Pradesh.

URBANIZATION

During the colonial period large parts of this region were kept as "Excluded Areas" or "partially Excluded Area". Further more, under the Inner line regulation, outsiders were prohibited from entering into the

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[27] North Eastern Council, Transport and Communication in North Eastern Region, 1988, Shillong, pp.8-9.

tribal area. The British rulers through such measures, sought to protect the tribals from the so called exploitation by the non-tribal in which the tribals were largely left to themselves to pursue their traditional method of livelihood and manage their affairs in accordance with their ancestral customs. Consequently the levels of urbanisation in the hill region was very low which inturn influenced pace of change in the region. It is so because the process of economic development and urbanization are in many respects interrelated. It was noticed that when a region experience economic development it also provides greater access of modern amenities education, health employment etc. Since urban centres became the nodal point for initiating the process of modernisation, so process of development also depends upon the nature and process of urbanisation.

In the North-East Region the post independence urban scenario was dismal. The level of urbanization was extremely low. Moreover, the disparity in the level of urbanisation was distinctly high as it was practically non existent in the hill areas of the region except a few hill stations developed in the British. But, the redrawing of the reorganisation particularly after administrative map of the region particularly after state in different phases in the part few decade.[28] As a consequence new administrative centre came into existence. This

[28] Subrata Chakravarty, Urbanisation in North East India Unpublished Seminar Paper, 1994, Shillon, pp.1-3.

acceleration the process of rural to urban migration in the hill state along with flourishing of new service towns.

District level patterns:

However, when we look at table 4:15 (appx.) the percentage of urban population at district level is recommendable and the urbanisation scenario changes significantly. All the districts experiences a gradual influx of urban population which accounts for positive growth rates in the urban centres. Moreover the pattern at the state level gets substantially modified when analysis is extended to lower spatial units, i.e., the districts. It is clear from the following table that as many as seven districts confined to the hills of Manipur and Arunachal Pradesh that are yet to experience any urban development.

Table 4:16

North East: Frequency of Districts in size classes of urbanization (1991)

Class of Urban Population	Number of districts	Percentage
Above 40	3	5.0
30-40	5	8.3
20-30	3	5.0
15-20	8	13.3
10-15	10	16.7
5-10	21	35.0
0.1-5	3	5.0
Nil	7	11.7
Total	60	100.0

Source: Constructed from the census of India (1991) provisional totals, Rural Urbanization Population, Government of India.

Over one-third of the districts, most of which are located in the hill areas of Assam, Tripura plains, and Meghalaya plateau, the level of urban ranges between five and ten percent.

On the other hand, high level of urban is noticed in certain hilly tracts of the region. Over forty percent people live in urban areas in two northern districts of Mizoram and Imphal district in Manipur Valley. The share of urban population ranges between thirty and forty percent in two more district in Manipur Valleys and one district each in Meghalaya, Nagaland. Most of these have got state capital located in these districts.

Lower Subansari district and west Tripura district too record a relatively larger proportion of urban population. These two district too have capital townships of Itanagar and Agartala respectively. The urban population varies between 20 and 30 percent in these 2 districts. Significantly, the hilly tracts of the North Cachar hills record a similar urban population which is a sharp contrast from the adjoining plains.

Spatial variation in the level of urban population in the hilly tracts gets highly accentuated depending upon local differences in topography and altitude. This pattern is remarkably clear in Manipur hills wherein the plateau is virtually rural. Like wise the small river Valleys of Lohit, Dibang and Subansari in Arunachal Himalaya are being urbanized very fast while the neighbouring highlands continue to be entirely rural. The Mizoram hills provides another packet of high urbanization.

The 1971 census recorded only 95 towns of different sizes in the entire region but in 1991 the total number has risen to the astounding figure of 184. The table below reveals that there has been significant increase in the smaller order cities during the past 20 years. In 1981-91 there is a remarkable increase in the number of towns in the middle order i.e., class III and IV towns whereas the number of class II towns remain constant despite rise in the number of class I towns.

Table 4.17

NER: Number of Towns-1971-91

Size Class	1971	1981	1991
1	3	4	8
2	6	6	7
3	11	18	33
4	33	36	57
5	27	45	50
6	15	28	29
Total	95	137	184

Source: Census of India 1991.

A comparison of the number of towns in a district and its level of urbanization shows interesting patterns. The level of urbanization is positively and strongly associated with the proliferation of towns but there are significant deviation – a) areas with great proliferation of towns, but the level of urban remains low. b) areas having fewer urban centres but level of urbanization is higher.[29]

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[29] Ramachandran "Urbanization & Urban Systems" in India Oxford Press, 1989, p.122.

The former category includes the lower Brahmaputra Valley particularly on its north bank and Tripura plains. The second category includes most areas in the hilly tract. All the pockets of high urbanisation in Arunachal Pradesh, Nagaland Meghalaya, Manipur, Cachar hills of Assam, Lunglei area in Mizoram have a few urban centres but the level of urban achieved is far more impressive.

The sharp contrast in the hilly and valley patterns once again became clear. The hilly areas, by and large, have permitted fewer urban centres to grow which attracts great concentration of people.

Table 4:18

Frequency of Districts in size classes of number of towns.

No. of Towns	No. of Districts	% of Districts
Nil	7	11.7
1	18	30-0
2-3	17	28.3
4.5	8	13.3
6-9	7	11.7
10 & above	3	5.0

Source: Calculated from the census of India 1991.

Areas showing both proliferation in the number of towns and high level of urbanisation includes the Manipur Valley, Aizawl district in Mizoram hills, west Tripura district and the Karbi plateau. There are about eighteen districts which has only one town each, these are the districts of Manipur, Nagaland and some districts of Arunachal. Whereas only three districts has more than ten towns - Aizawl, West Tripura, East Khasi hills.

Most often economic development is assessed in terms of percapita GDP or percapita income etc. Sometime levels of consumption is also taken for the same. But these indicators acquire different meaning with the changing nature of the state. In a welfare state lower level of GNP etc. may show higher levels of development in which Indian state claim itself to be a welfare state. An objective criteria of it is to assess the level of amenities available at the household level. North East being a tribal region the availability of Household amenities have special significance from the point of view of economic development.

Household Amenities :- Housing for human welfare is an old as the human race itself. Although the primitive people had little idea of the manner of construction and nature of amenities needed at the household level, but over time these have become indispensable part of their household. In the North-East India,the concept of Household amenities is a recent origin but gradually there has been rapid increase in the same.

This present section aimed to examine the quality of housing in terms of types of houses as well as availability of basic amenities to the households.

The housing condition vary in accordance with the needs of the people since the general standard of housing condition differs from society to society. When looked at table 4:19 (appx) it can be seen that the district of Tawang has a total percentage of pucca houses of 30.03

Distribution of Household by type of Houses

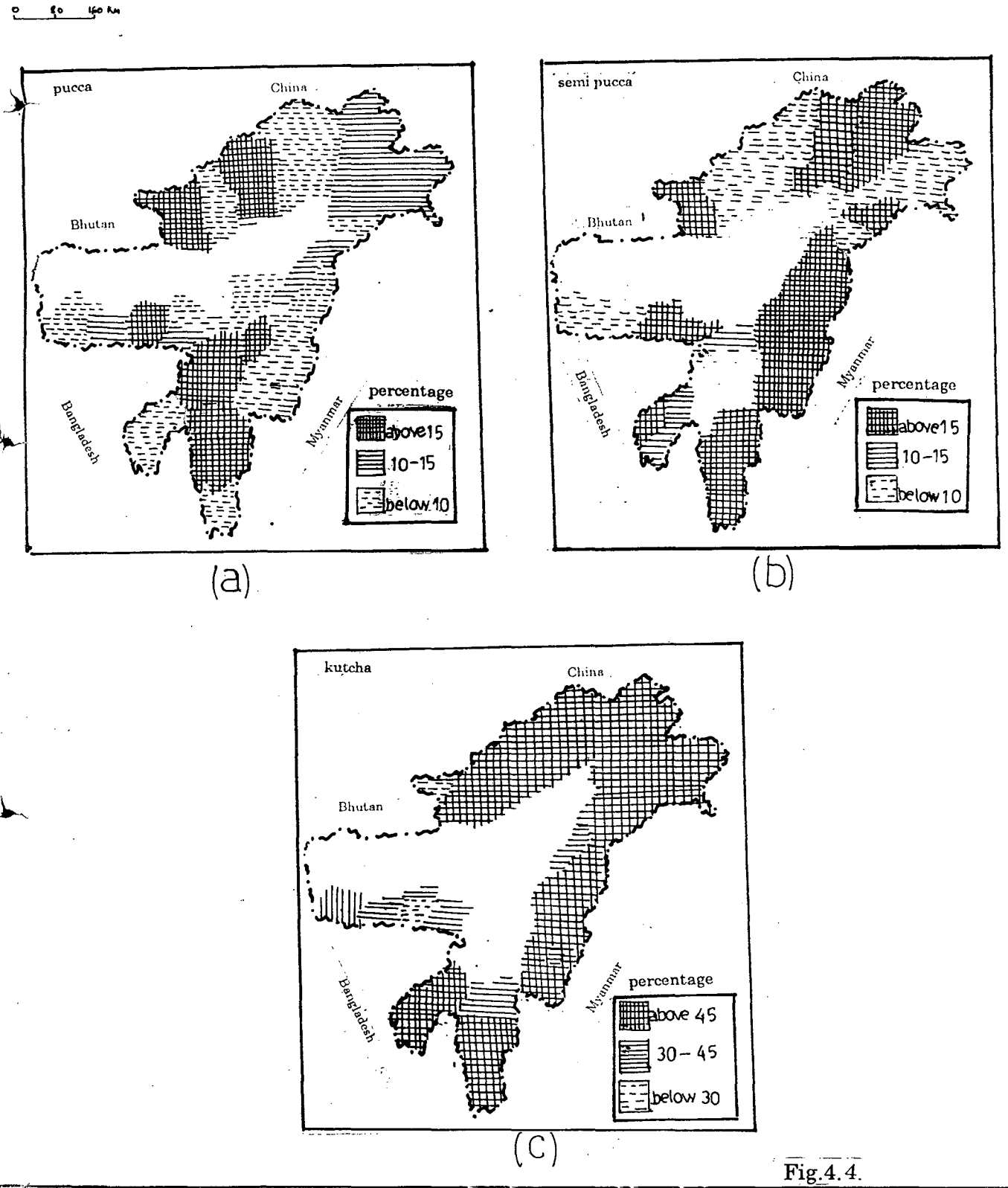


Fig.4.4.

percent which maybe due to its location at the foot of Himalayas, so to prevent themselves from extreme cold, the housing condition is of better quality. This is followed by Lower Subansari (23.06 percent) Kohima (23.12 .percent) and the least among the districts are Ukhrul (0.71 percent) Tamenglong (0.75 per cent).

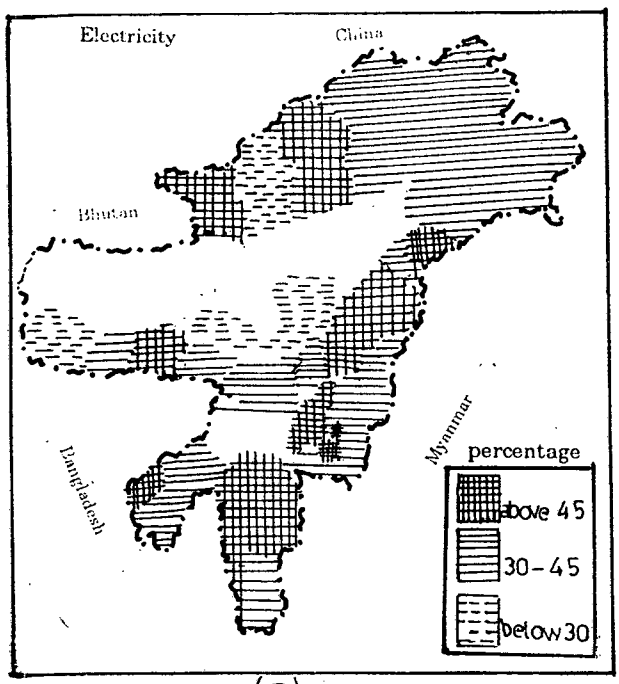
The districts having high percentages of Semi-pucca are Zunhebeto (65.28 percent) followed by Phek (57.76 percent) where the least among the districts are East Kameng (4.47 percent) East Garo hills (.561 per cent).

The distribution of Kutcha houses in every district seems to surpass all other type of houses where all districts have high percentages of Kutcha house except the districts of Tawang (17.31 percent) followed by East Khasi hills (27.79 percent), Zunhebeto (30.54 percent).

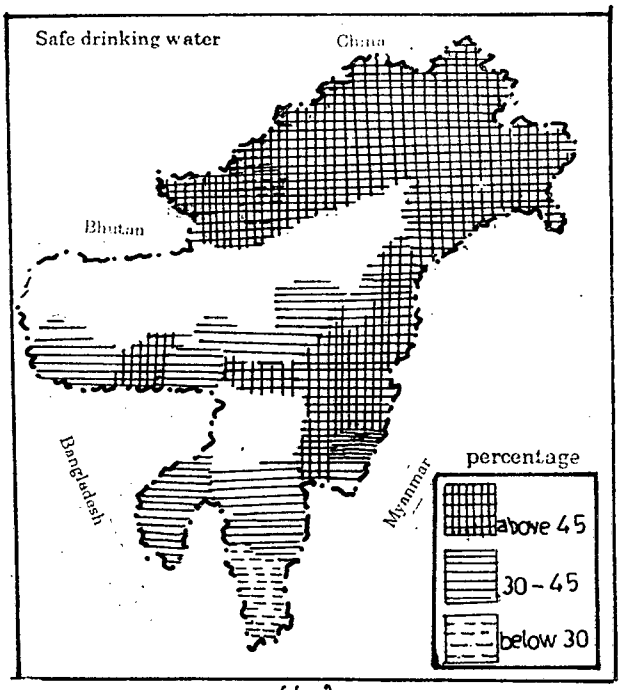
From the table 4:20 (appx) it is seen that the household having basic amenities is comparatively better. For instance; the district of Tawang has electricity (60.34 percent) safe drinking water (65.77 percent). Toilet (81.82 percent) and the total percentage of the three amenities is 21.44 percent. Tirap has 57.79 percent of electricity, 61.58 percent of safe drinking water, and 56.78 percent of toilet facilities. Only some districts has low percentage of basic amenities like East Garo hills has only 9.91 percent of electricity, Karbi Anglong has only 12.94 percent of electricity etc.

Distribution of Household having Amenities

0 80 160 Km.



(a)



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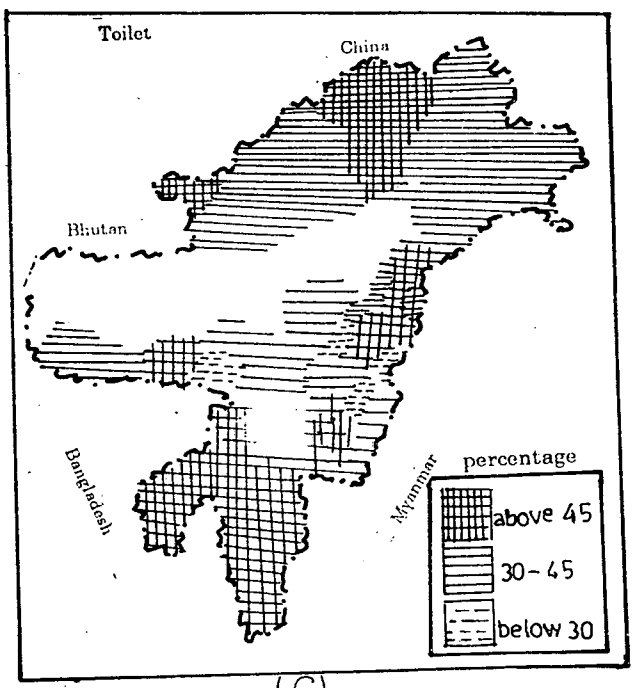
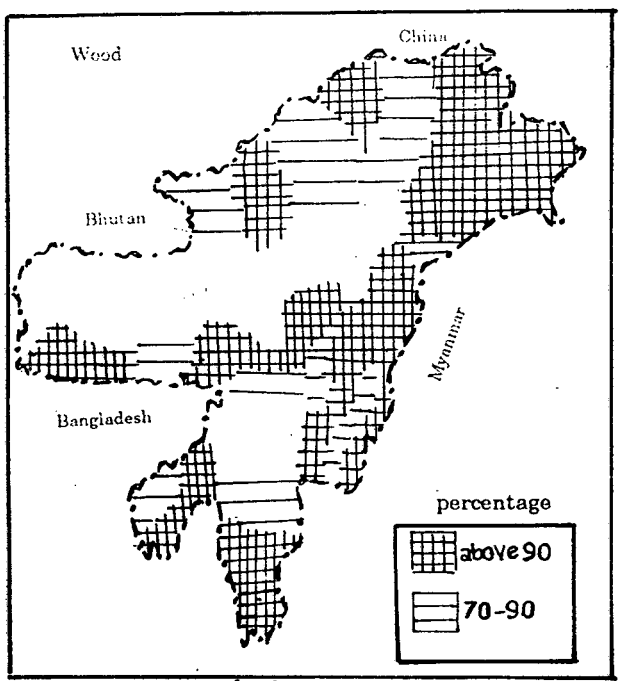


(C)

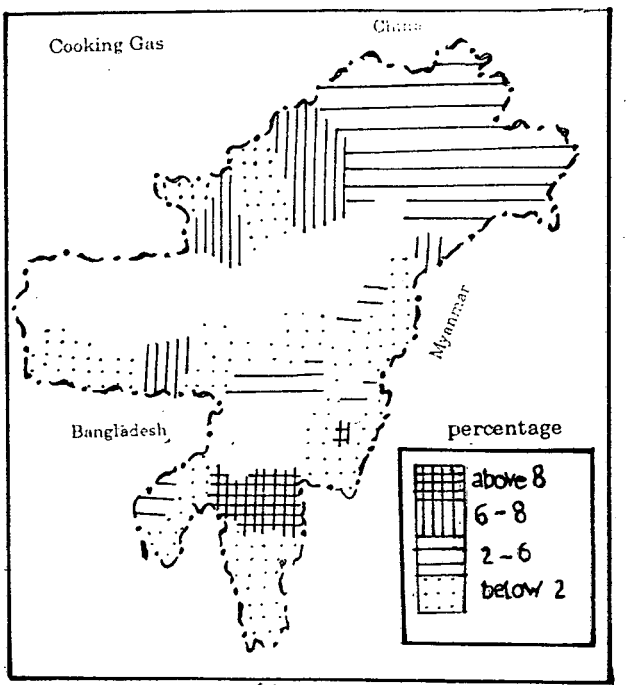
Fig.4.5

Distribution of Household by type of Fuel

0 80 160 km



(a)



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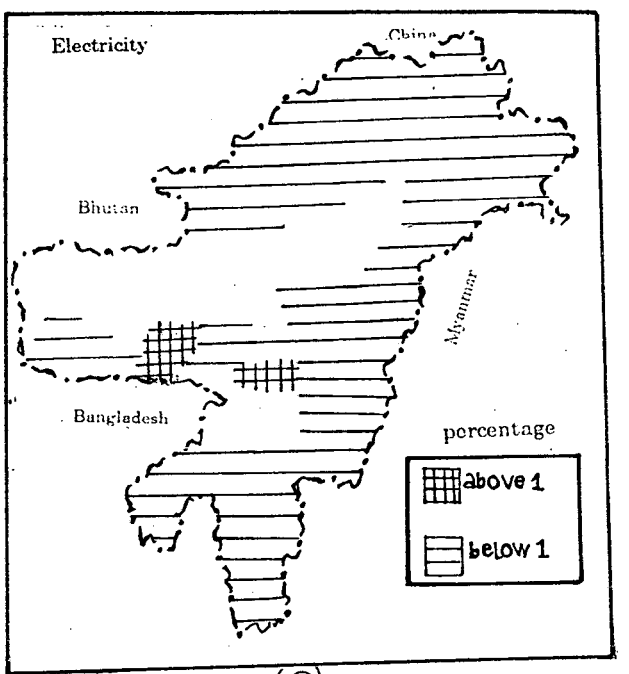
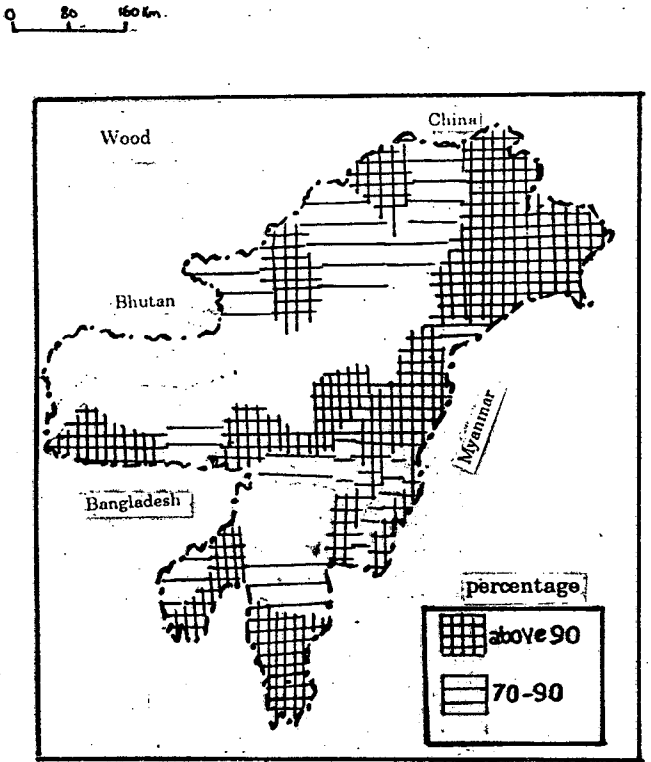


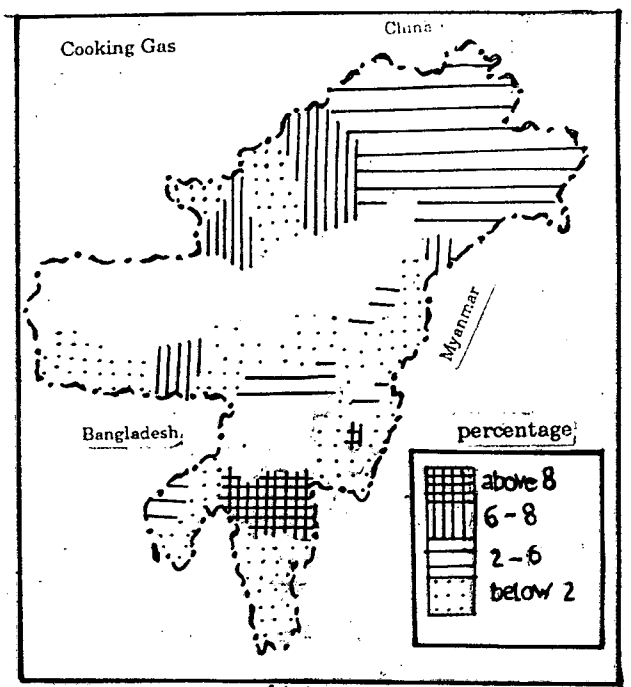
(C)

Fig.4.6

Distribution of Household by type of Fuel



(a)



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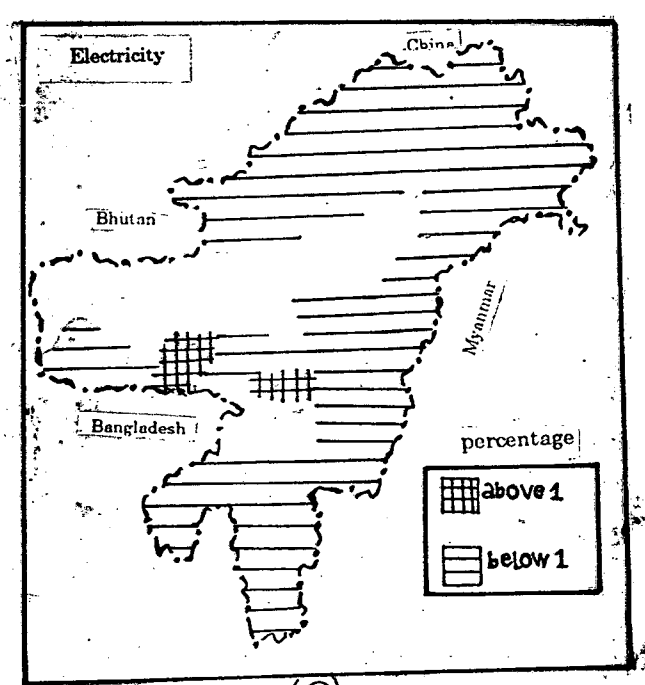

(c)

Fig.4.6

East Kameng has 83 percent of safe drinking water facilities followed by West Siang (82.42 percent) which are highest among districts in the hill region. The districts having least safe drinking water facilities are Chimtuipui (8.82 percent), Lunglei (13.22 percent) etc.

The household having proper toilet facilities have increased in 1991, the awareness of proper sanitation among the population has been recognised which is visible from the table. Upper Subansari has 91.22 percent proper toilet facilities followed by west Siang (86.19 percent), Tawang (81.82 percent). The district having proper toilet facilities are west Khasi hills (11.31 percent) Zunhebeto (12.13 percent).

Type of Fuel : In this regard; this section gives the distribution of households by type of fuel used for cooking. The types of fuel used for cooking are cowdung - cake, electricity, Charcoal, Cooking Gas, Wood, Kerosene etc.[30]

The distribution of the total household by type of fuel used for cooking in the hill region can be seen in the table 4:21 (appx).

From the table it can be seen that the total household by type of fuel in Arunachal Pradesh has high percentage of wood (87.78 percent) followed by Kerosene (6.35 percent) and cooking gas (4.41 percent). The total percentage of wood in the districts of the hill region can be seen from the table where districts like East Siang, Dibang, Lohit, Changlang, Karbi Anglong, Senapati, etc. has wood as their main fuel which

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[30] Census of India, Tables on House and Household amenities 1991, Series 16, p.25.

accounts for above 90 percent. Only two districts of the hill region - Aizawl (67 percent) and East Khasi hills (66 percent) has wood lower than 90 percent as their main fuel which is been substituted by other types of fuel.

Thus, it can be seen that the household amenities is also responsible for the socio-economic development since lower the household amenities lower the economic development of a region.

In conclusion, the development of all sector should be well-looked and considered since the physiographic of the region restrain the development to take its courses. Therefore the planners should not be short sighted but should implement development plans, keeping in mind the environmental hindrances.

Chapter - V

Spatial Processes in the Levels of Development

Development has been the key concept in the modern times. It gained unquestioned acceptance from one and all for realising their freedom and well being. But, unfortunately, development as a concept and as a practice have failed to match each other. Infact development of a few people and areas had become possible only at the cost of many. In other words, development has also brought in both social inequalities and regional imbalance. A fully developed world only reflects a disaster triumph of ever growing social disparities leading to tension and conflict in the society and increasing region imbalances. Most often it is seen that persistence of regional imbalance have become the breathing ground for the emergence of regional autonomy, moreover which at times, take the form of separation identity and self naturalist movements. These have in turn posed serious question before the North eastern state itself. Scholars have suggested various model to overcome such challenges. But most acceptable one is the path of regional development and planning.

Regional development is the result of interaction between various economic and socio-institutional factors. This was exhibited by the rapid recovery of Soviet Union after the two World War and India to have adopted the same approach after Independence. The task of regional planning is to prepare a comprehensive regional development plan and co-ordinate plans between physical, economic and social components so as to find out levels of development in the region.

This chapter deals with the measurement and analysis of levels of development at district level with a view to map the levels of intra-regional imbalances. Districts have been taken as the unit of study. It was mentioned in previous chapters that development is a complex and multi-dimensional phenomenon. It is not impossible but also improper to analyse it by selecting a few discrete indicator. On the contrary, it is imperative to analyse by selecting some most representative and interdependent indicator. However it is worth mentioning here that NE region is not only marginalised in the field of economic opportunities but also in terms of requisite information that are so essential for making an objective assessment and sound planning strategy. Lack of adequate and appropriate data and information continues to hinder in attempting such studies, yet efforts have been made to comprehend the reality by taking either surrogate indicator or indicator that has close resemblance with the aspect under investigation. Thus choice of indicator has special importance in this respect.

Choice of indicators

The choice of Indicators have greatly restricted by the nature of prevalent economy of the region along with the paucity of appropriate data. In case of the Hill Region of North East the indicators have been selected for the important sectors namely Resource base Agriculture, Industry, Socio-cultural, Services and infastructure, and Household amenities.

Although the region is very rich in natural resources particularly water and forest but ironically it lags far behind in terms of resource mobilisation. Moreover lack of data about resources too poses a major problem. Consequently the researcher cannot take most of these as indicators of development in this study on an objective basis. It would have been specifically appropriate to take forest as best indicator in resource base but due to the reason mentioned above, it compels one to take density of population and percentage of literates indicators for resource development which in fact means better opportunities to survival, sustenance and indicate better the condition of life and quality of life.

As far as indicator for the level of agricultural development is concerned, reciprocal values or percentage of agricultural workforce and percentage of agricultural output to value of output in rupees per hec were taken. The choice for this indicators have been made due to the fact that almost all of the tribal communities in the region are shifting cultivators (jhumias), and most of these live from hand to mouth. Low percentage of workforce will indicate diversification in the economy, where the higher agricultural productivity is self-explanatory as an indicator of development.

In industrial development the indicators taken were percentage of secondary workers to main workers and percentage of registered factories to total factories. As mentioned above the tribal economy is an agrarian

economy therefore it is important to select conventional indicator for measuring the levels of development in this sector. This is so because is a tribal economy, the traditional handicraft, and house hold industries are carried on over and above the defined nature of workers in the census classification. It was observed that the category of child labour needs modification in case of the region. It would be appropriate to identify these as child apprentice. Moreover, occupation age is hardly any bar in carry the traditional.

When analysing the indicator for the level of socio-cultural development, the percentage of literates female literacy and percentage of urban population to total population were taken. As far as indicator for the level of services and infrastructural development is concerned; length of road per 100 km^2, no. of post office per lakh population and percentage of tertiary workers to total workers were taken. It is well known fact that road and post offices are the two most important modes of transport and communication in rural India. Similarly the importance of literacy in the development of individual as well as on the community which is acknowledged to be one and all in which the NER is no exception to this.

An important aspect about development in the Tribal area like the NER is the nature of houses and household amenities, since most of the Tribal Communities in the region are shifting cultivators, (Jhumias) their settlement and houses used to be semi-permanent with conspicuous

absence of modern amenities. Therefore, pucca houses and availability of modern amenities have shown a decisive improvements in their quality of life.

After the selection of indicators the other important aspect was to process these indicators such that they can be used for analysis. An important step in this direction was to make the indicator scale free. There are various methods in use among geographer for the same. Subtracting the mean and divided by the standard deviation is quite common among geographers. The same method have been used in this research too. The simple formula for this is

$$\frac{x-\bar{x}}{\sigma}$$

Where x is the unit observation

$\bar{x}$ is the mean of each variable

σ is the standard deviation.

Once the indicator were made scale free these have been simply added together to find out the value for each sector: The aggregate score for each sector has been divided into four levels by using quartile method. Finally to find out the overall level of Development the final scoring all the sectors have been added together and by using quartile method levels have been calculated.

Analysis

Levels of Resource Development

The growth of population which means the increase in the size of population brings about a number of changes in a region. It not only stifles the social environment but also the economic development.

The density of population affects the quality of life, although in the tribal economy the density of population is mainly due to the location of the area and favourable climate for cultivation. More people per unit of area indicates better opportunities for survival and offer minimum threshold for the development of modern amenities like schools, hospitals, roads etc. So on this basis, the performance of various districts of the region have been shown in the table below (also refer to table and fig. 5:1).

Levels	Value	No of districts
High	Above 1.000	5
Medium	0.000 - 1.000	5
Low	(-) 1000 - (-) 0.000	10
Very Low	Below - 2.000	19

High level of resource development: The districts of Imphal, Thoubal, Kohima, North and West Tripura falls under this category which indicates that high density of population in these districts means better opportunities to survival sustenance and better condition of life. Most of these districts also have state capitals thus it is obvious that they are better in terms of resource.

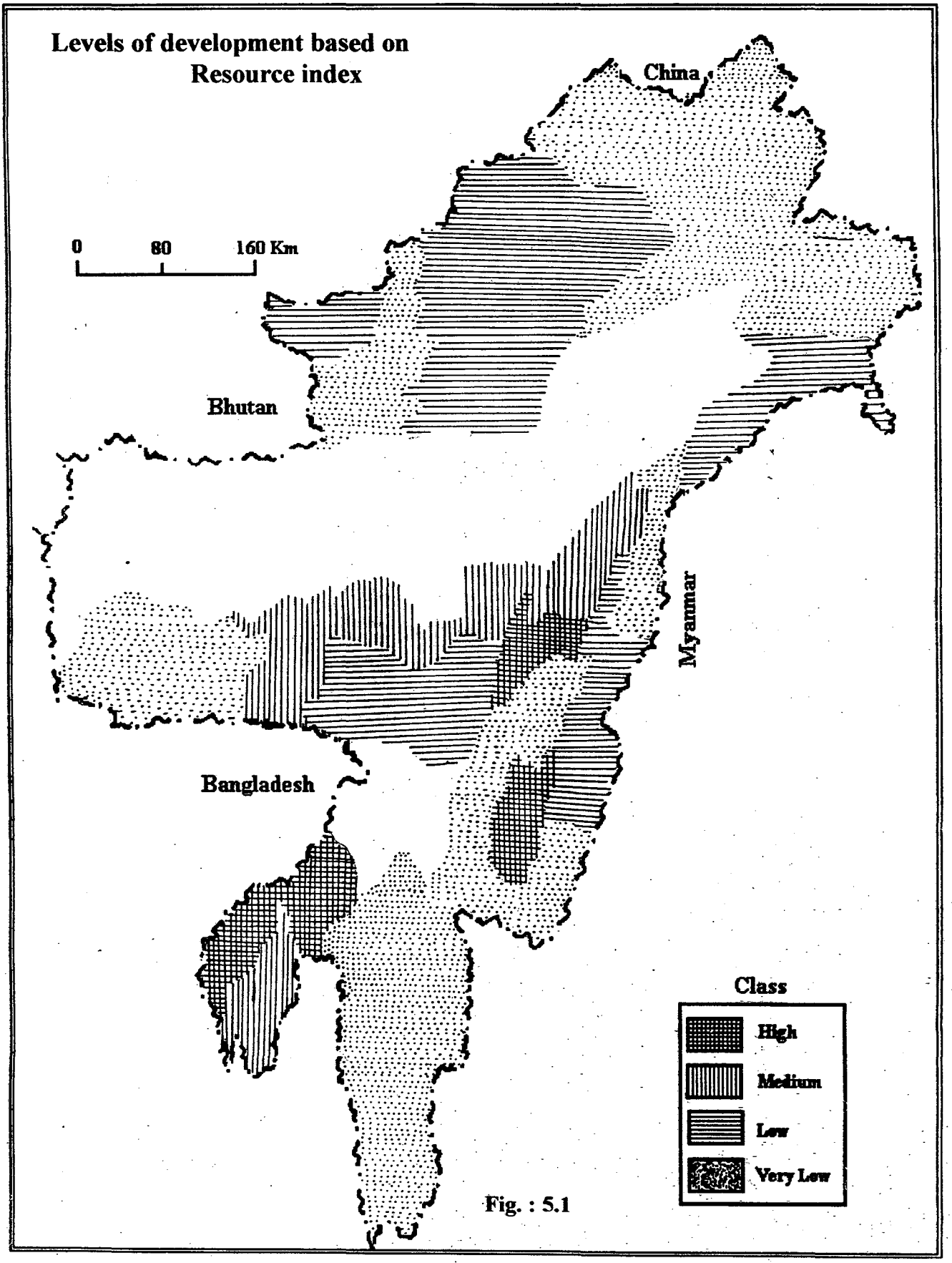
Levels of development based on
Resource index
China
0
80
160 Km
Bhutan
Myanmar
Bangladesh
Class
High
Medium
Low
Very Low

Fig. : 5.1

Medium level of resource development : The districts of East Khasi hills, Karbi Anglong, Wokha, Mokokchung, South Tripura. The reason for high density of population are availability of better socio-economic opportunities owing to rapid urbanisation. It is important to know that some of the important urbanised centres of the region are also in these districts but due to large size of the district the density of population in relation are less than those having shown high level of development. It is also to mention that better opportunities for social existence which include health care, education continues to draw a large number of people in these town.

Low level of resource development: The districts of North Cachar hills, Tawang, Lower Subansari, Upper Subansari, West Siang, East Siang, Dibang, Senapati, Jaintia hills, Phek, falls in this category. The low level of human resource development emanates partly from lack of opportunities and partly from an unplanned and traditional relatively stagnant economy. These in turn have been important in out migration of people resulting low level of development.

Very low level of resource development : This level of development comprises the districts of East Kameng, Lohit, Mon, Tuensang, districts of Mizoram, Western districts of Manipur. Changlang, East and West Garo hills.

An important reason for this is comparatively higher concentration of rural population in small villages spreading over large areas. Most of

these districts have few new urban centres inadequate in basic amenities resulting into lack of momentum for proper development.

Levels of agricultural development: Agriculture is a primary determinant of economic development of the region. Agriculture is important not only to meet the ever growing and ever pressing demand for food and fibres for human consumption but also for providing forage for animals and raw-materials for non-agricultural sector. Thus an attempt is made to study disparities in agricultural development in the following table and discussion

Level	Value	No. of districts
High	Above 2.000	25
Medium	0.00-2.00	1
Low	(-) 2.00 (-) 0.00	1
Very low	Below - 3.00	12

High level of Agricultural Development : This level comprises Tawang, East Kameng, Upper subansari Dibang, Lohit, Changlang, Tirap, districts of Nagaland, Imphal, Aizawl, Lunglei, West Tripura, East and West Garo hills, East Khasi hills, North Cachar hills, Karbi Anglong. It is evident from table and figure 5:2 that the economy particularly these districts is predominantly agricultural. It is interesting to know that these districts are shifting toward commercial agriculture.. Vegetables, fruits and nuts are important commercial crops grown in these districts.

Medium level of agricultural development : There is only one district falling under this category i.e., South Tripura. This district experiences

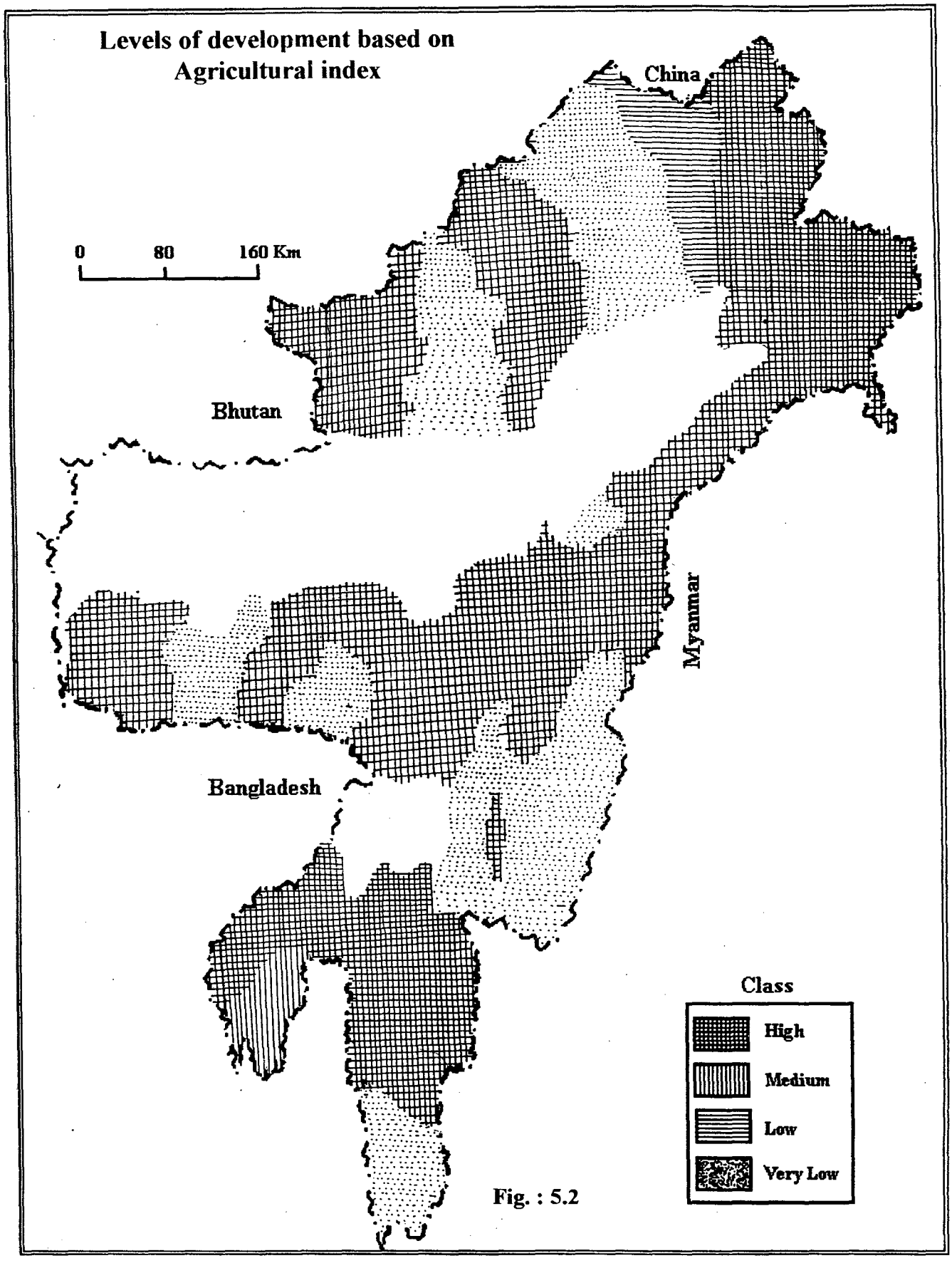
Levels of development based on
Agricultural index
China
0
80
160 Km
Bhutan
Myanmar
Bangladesh
Class
High
Medium
Low
Very Low

Fig. : 5.2

an encouraging growth in agricultural output but owing to introduction of wet paddy cultivation in the plains of this district.[1]

Low level of agricultural development : This category include East Siang only. The reason is mainly due to the ruggedness of the terrain which poses problem in agricultural development.

Very low level of agriculture development: The districts of East Kameng, West Siang, West Khasi hills, Jaintia hills, districts of Manipur, Chimtuipui. It is evident from the map that most of these districts are from the mountainous part of the region. Stringent environmental conditions have adversely affected agricultural development in these area. Moreover it is also found that despite of several promises of developing settled agriculture, jhumming continues to be the major agriculture activity which is characterised by low level of agricultural production.[2]

Level of Industrial Development

The North Eastern hill region as an agrarian economy unveils the region as backward in industrial development. However in the recent past the region launched an ambitious programmes of planned economic development with the industrial structure. But unfortunately the region as of today continues to have a weak industrial base. Despite sincere effort on the part of the state and central government regional

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[1] Shri Prakash & Tarujyoti, sources of Agricultural growth in North East India (ed.), R.K. Rai et.al, Hill Area Development, 1990, Shillong, p.94.
[2] B. Datta Ray, "op.cit", p.199.

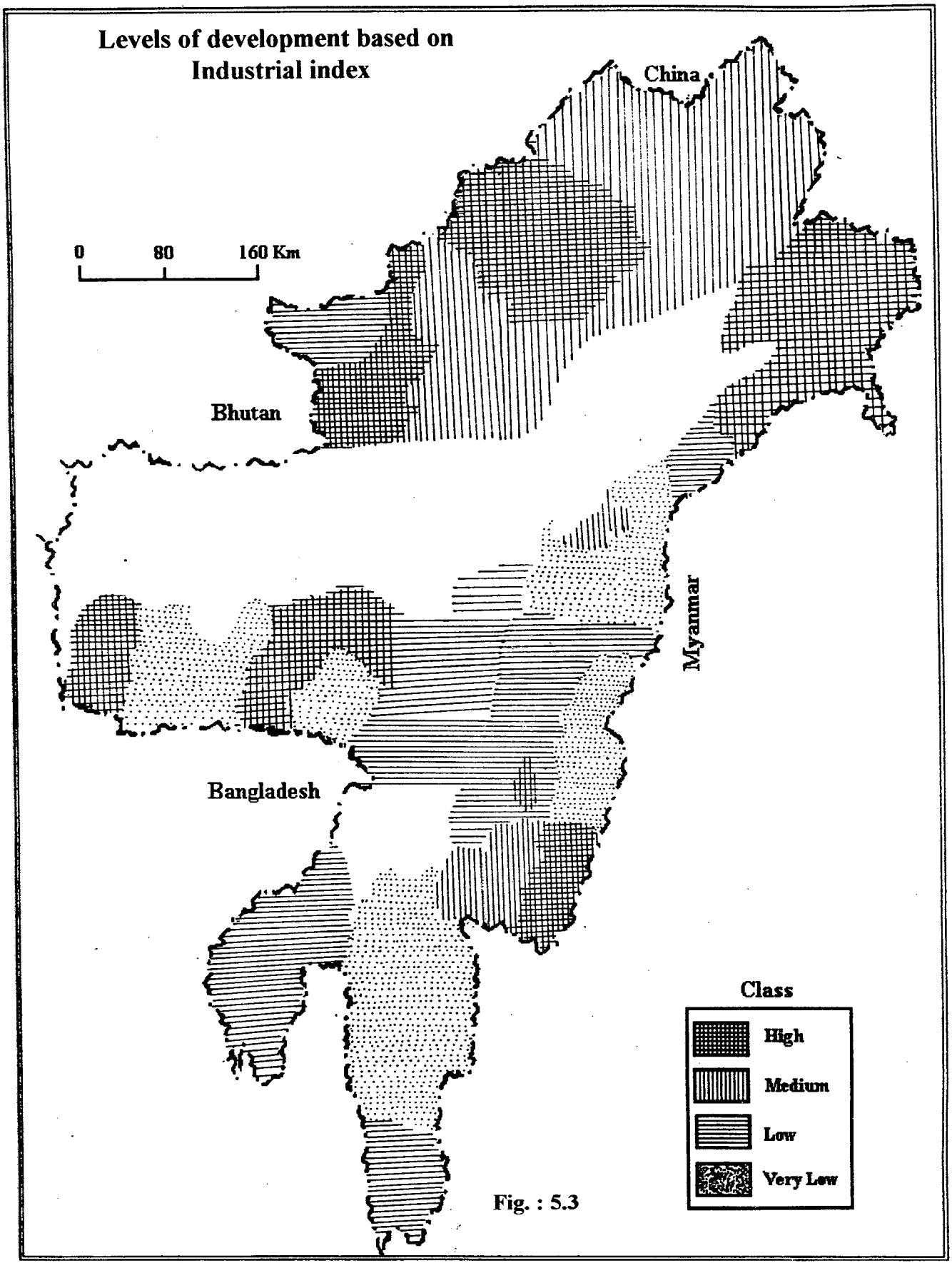
Levels of development based on
Industrial index
China
0
80
160 Km
Bhutan
Myanmar
Bangladesh
Class
High
Medium
Low
Very Low

Fig. : 5.3

imbalances dominate the region's weak industrial scenario. This can be better understood from the following paragraphs and the related table and figures 5:3.

Levels	Values	No. of districts
High	Above 1.00	9
Medium	0.00 - 1.00	19
Low	(-) 3.00 (-) 0.00	15
Very Low	Below - 3.00	6

High level of industrial development : These level comprises the districts of West Kameng, Lower Subansari, West Siang, Changlang, West Garo hills, East Khasi hills, Karbi Anglong, Imphal and Chandel. The participation of secondary workers is high, perhaps; due to the availability of incentives and handicraft and cottage industries. These districts are also the of traditional handicraft and cottage industries in the region.

Medium level of industrial development This comprises the districts of East Kameng, upper Subansari East Siang, Dibang, Lohit, Mokokchung, Churachandpur, Bishnupur, Thoubal. Cottage and Medium scale industries continued to be located in these districts. Given the geographical area of the region and nature of their distribution, it is evident that they are, however, less favourable. These are also marked by strong traditional handicrafts industries. However; unlike the high developed districts these have failed to attract modern secondary sector activities. Consequently they are accounted for medium level of development.

Low level of industrial development : This level comprises the districts of North Chachar hills, Tawang Tirap Chimtuipui, eastern districts of Nagaland and Manipur, North, South and West Tripura. Situated in the remote part of the region, these districts have serious handicrafts for the development of industrial sector. Lack of raw material in infrastructure including market are some of the serious limitation in the development of this sector. It was noticed that most of these districts remain cut off from the rest of the country for most of the time for want of proper transport routes.

Very low level of industrial development: The districts West Garo hills, West Khasi hills, Jaintia hills, Aizawl, Lunglei, Tuesang. It is paradoxical to find Jaintia hills and West Khasi hills in this category despite developed mining activities. It is due to definition problem that mining is included in primary sector. Otherwise these are fairly wide developed districts. In other districts lack of infrastructure and remoteness in industrial sector is very poor.

Level of Socio-cultural development

Like any part of India, almost half of the population; 6 years and above of this region are not literate. However hills of the region are better placed if compared with others part of the country. Mizoram has the distinction of being the second most literate state in the country. State like Nagaland and Meghalaya are not far behind. However, it should be noted that education is important for socio-cultural development but not

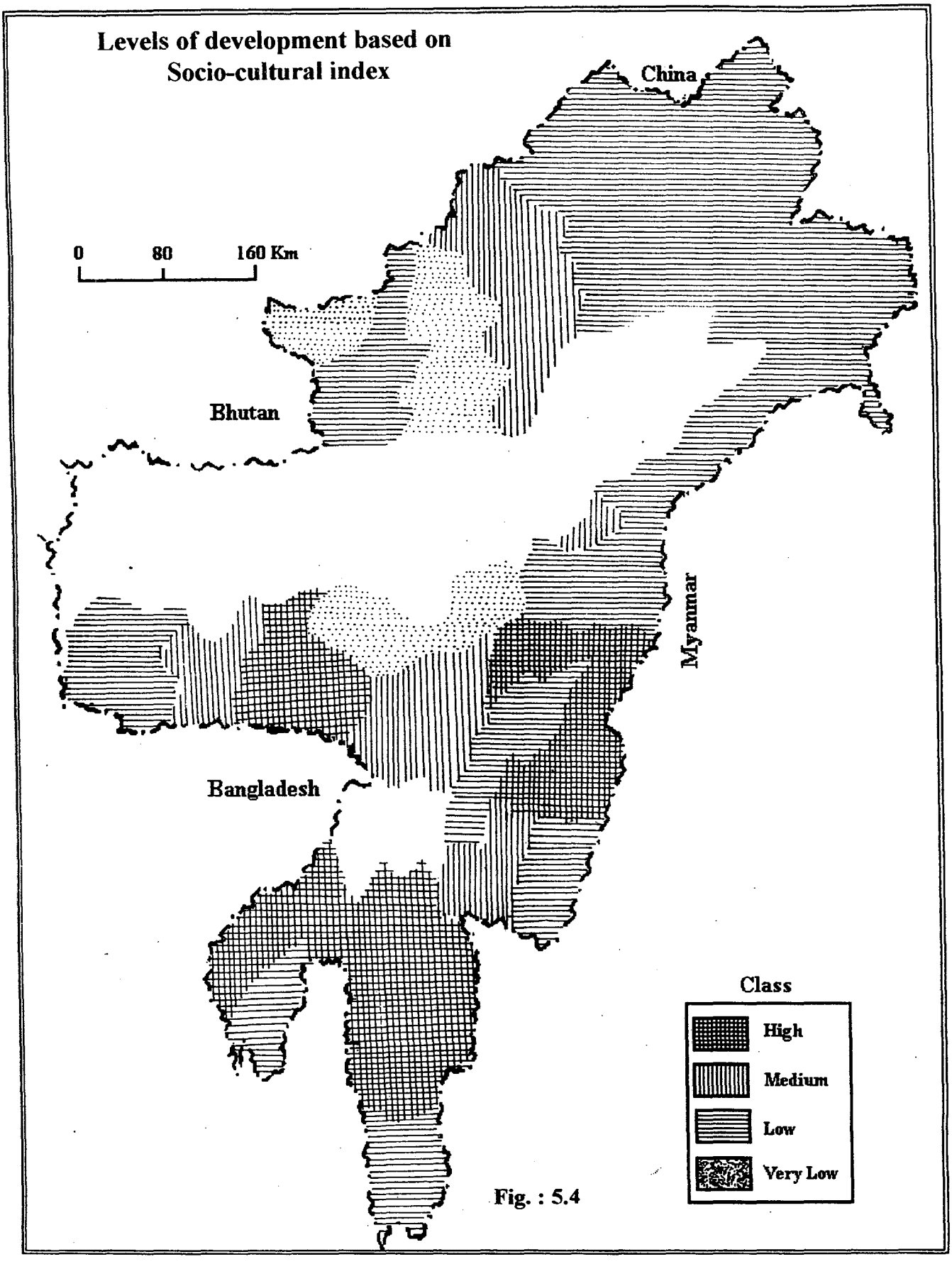
Levels of development based on
Socio-cultural index
China
0
80
160 Km
Bhutan
Myanmar
Bangladesh
Class
High
Medium
Low
Very Low

Fig. : 5.4

sufficient. The following table and analysis shows the pattern of socio-cultural development in the region.

Levels	Value	No. of districts
High	Above 3.00	8
Medium	0.00 (-) 3.00	6
Low	(-) 3.00 (-) 0.00	22
Very low	Below -8.00	3

High levels of Socio-cultural development : The districts of Aizawl, East Khasi hills, Jaintia hills, Lunglei, Imphal, Kohima, North and West Tripura falls under this category. The literacy rate outshines in these districts, in this respect the role of mission activities is laudable. An important aspect of this level of development is higher female literacy. It has been widely acknowledged that with improvement in female literacy occurs a secular development in the society including socio-cultural development.

Medium level of Socio-cultural development

This level comprises the districts of upper Subansari, Mokokchung, West Khasi hills, North Cachar hills, Churachandpur, Ukhrul. Although the over-all level of socio-cultural development is noticeable but the female literacy rates is quite low against total literacy rate. It points towards the neglect of the female literacy particularly in the rural areas. Perhaps; it is due to fear of the percents that after

attending school their daughter may put them in trouble at the time of bridegroom selection and also in fixation of bride price.[3]

Low level of socio-cultural development

This level comprises 22 districts. These are West Kameng, East and West Siang Upper-Subansari, Dibang Lohit, Changlang, Tirap East and West Garo hills, districts of Nagaland except Mokokchung, Chimtuipui, South Tripura, western and south eastern districts of Manipur. It can be observed from the related map that the low level exist on the periphery of the entire region. The reason is that perhaps, due to the stamp of physical constraints on educational development. The developmental process be it educational or economic has not been able to make any substantial headway because of the inhospitable and rugged terrain.

Very low level of social-cultural development. This level comprises 3 districts of Tawang, East Kameng, Karbi Anglong. This region exhibit low development in literacy rate, female literacy rate and rate or urbanisation. It is apparent that this region consists of a high percentage of agricultural workers which shows that the importance of formal education in neglected by many which the accelerating pace of economic development as a whole.

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[3] Agarwal. A.K. Changing pattern of Demography in Arunachal: An Analysis (ed.), Ray. B. Datta, The Pattern and Problems of Population in NEI, p.349.

Thus the above analysis shows that the socio-cultural index of the region should be looked upon, although some districts excel in literacy rate yet the over all development of economic development is not satisfactory.

Level of services and infrastructural development

Roads and Post office are the life line and arteries of an economic region. These vital channels promote regional development and form an integral part of the area that a Central place series. Transport network are the physical expressions of integration within and between economies. The availability of these facilities will have positive effect upon the development process in which growth is a direct result of the provision of improved infrastructural facilities. It is interesting to note that in this category, participation of workers in tertiary activities also plays an important role in determining the levels of development. Thus the region has been categorised into the following category which is also shown in table 5.6 (appx) and fig 5.6

Levels	Values	No. of districts
High	Above 3.000	4
Medium	0.000-3.000	10
Low	2000(-)0.000	15
Very Low	(-)2.000 (-) 1.000	10

High level of service and infrastructural development: There are 4 districts qualifying the high level. These are Dibang East Khasi hills, Kohima and Aizawl. The topography of these districts although hilly forbidding easy development of railway yet the road system is somewhat

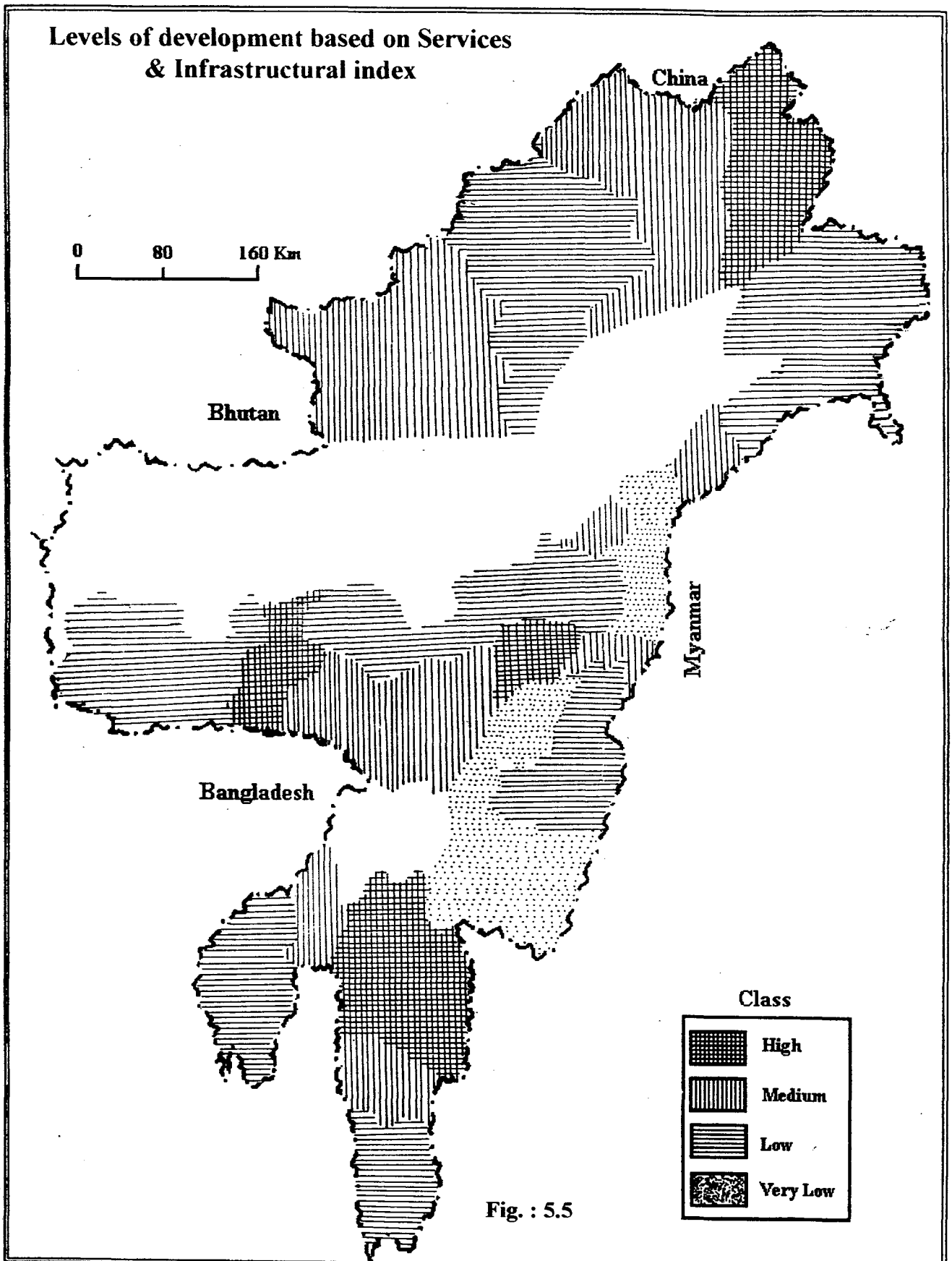
Levels of development based on Services & Infrastructural index
China
0
80
160 Km
Bhutan
Myanmar
Bangladesh
Class
High
Medium
Low
Very Low

Fig. : 5.5

better. Apart from the mainroads, many roads have now come up connecting the villages with the administrative headquarters particularly in East Khasi hills district. The coverage of post office is also remarkable which serves the entire population. These districts also enjoys a high level of development of participation of works in tertiary which is a result of the availability of employment opportunities.

Medium - level of service and infrastructural development: There are 10 districts falling in this level. These are Tawang East and West Kameng East and West Siang, Phek, Mokokchung, Jaintia hills, North Cachar, Lunglei. Although the transport communication is not so developed nevertheless expansion and construction of roads have been going on by leaps and bounds despite the inhopsitable and rugged topography.

Low levels of service and infrastructural development: - This level of development comprises 15 districts. These are upper and Lower Subansari, Changlang, Tirap, Karbi Anglong, East and West Garo Hills West Khasi hills West and South Tripura Chimtuipui. Wokha, and eastern districts of Manipur. The availability of infrastructure is low particularly roads. Infact part of this low level region have only few links connecting with other districts which clearly indicates the pattern on which infrastructure as a whole has to be developed in this region. In the recent past, this region of low level experiences a poor economic development in regard to tertiary sector therefore there was limited

employment opportunities that compelled the working force to go for agricultural activities.

Very low level of services and infrastructural developments: The districts falling on the western part of Manipur, and eastern part of Nagaland falls this category. The spatial distribution of infrastructure shows imbalances, although a district may have well connectivity in transportation but it lacked in the availability of post office and other means in which is the case in these districts. The low concentration of working population in this very low level region is due to excessive reliance on agriculture and points to the fact that least attention has been directed towards development of non-agricultural sector.

Thus the above discussion shows that the high disparities existing in the spatial distribution of infrastructure. It reveals that infrastructure need to be extended also to remote areas of the region.

Index of Household amenities: As discussed earlier houses and its amenities is the important factor in determining the levels of development of micro level since it gives detailed account on household by type of houses, availability of amenities such as electricity, safe drinking water, and toilet and household by type of fuel. However this can be well depicted from the map (refer to table 5:6 appx. and fig 5:6) which shows that districts have been categorised in four levels.

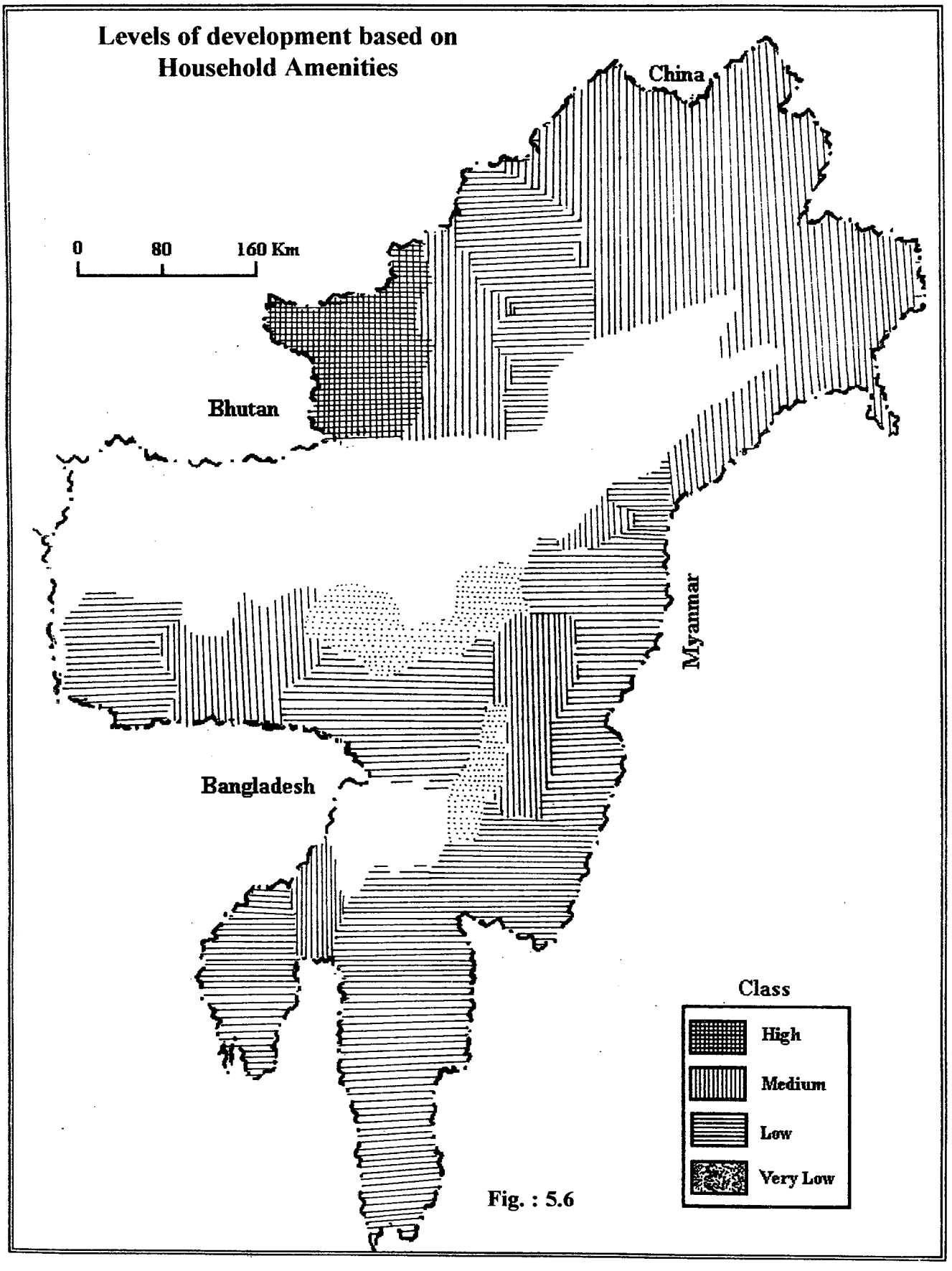
Levels of development based on
Household Amenities
China
0
80
160 Km
Bhutan
Myanmar
Bangladesh
Class
High
Medium
Low
Very Low

Fig. : 5.6

Level	Values	No. of districts
High	Above 3.00	2
Medium	0.00 - 3.00	14
Low	(-) 2.00 (-) 0.00	21
Very low	(-) 2.00 (-) 3.00	2

High level of Household amenities : This category comprises the districts of Tawang and West Kameng: Since these districts is situated in the foo-hills of Himalayas which is inaccessible due to show covered so perhaps; the high percentage of household amenities and housetype is may be to prevent from the cold climate. Tawang district is also an important centre for the Buddhist hence it is very well looked after the state government for religion and tourist attraction.

Medium level of Household amenities : This category comprises the districts of East Kameng, Upper subansari, West and East Siang Dibang, Lohit, Changlang, Tirap, Mokokchung, East and West Khas hills, North Tripura, Imphal, Senapati, Kohima. The availability of household amenities is remarkable with proper toilet, safe drinking water and electricity in particular. Imphal and East Khasi hills districts experiences the impact of modernisation of household amenities which is responsible for the medium levels of development.

Low level of Household amenities:- The districts of Lower Subansari, East and West Garo hills, North Cachar hills, districts of Mizoram, West and South Tripura, the entire eastern districts of Nagaland and Manipur. Most of these districts is typically rural. The

most important factor that pre occupied the concern and psyche was probably the strategic importance of the sites and their environs which infact retards the growth of pucca houses and modern household amenities.

Very low level of Household amenities - The districts of Karbi Anglong, Tamenglong recorded the very low level in household amenities development. The traditional houses which are of primitive architecture characterised by direct use of materials from immediate environment are still seen in these districts the household amenities is still a far cry in these districts.

Thus the above analysis shows that the availability of proper household amenities is not balanced which indicate the need for spatial planning to provide amenities on a equitable bases.

Over all levels of development

As mentioned earlier the simple relative index for all the indices combined is obtained by aggregating (simple summation) the component indicators. These indicators of all indices are simply added, the levels of development has thus been calculated on the basis of the value of each indicators of each district. The level of development have been categorised in five category viz High, medium, low, very low (also refer table 5:9 appx. and to fig. 5:9).

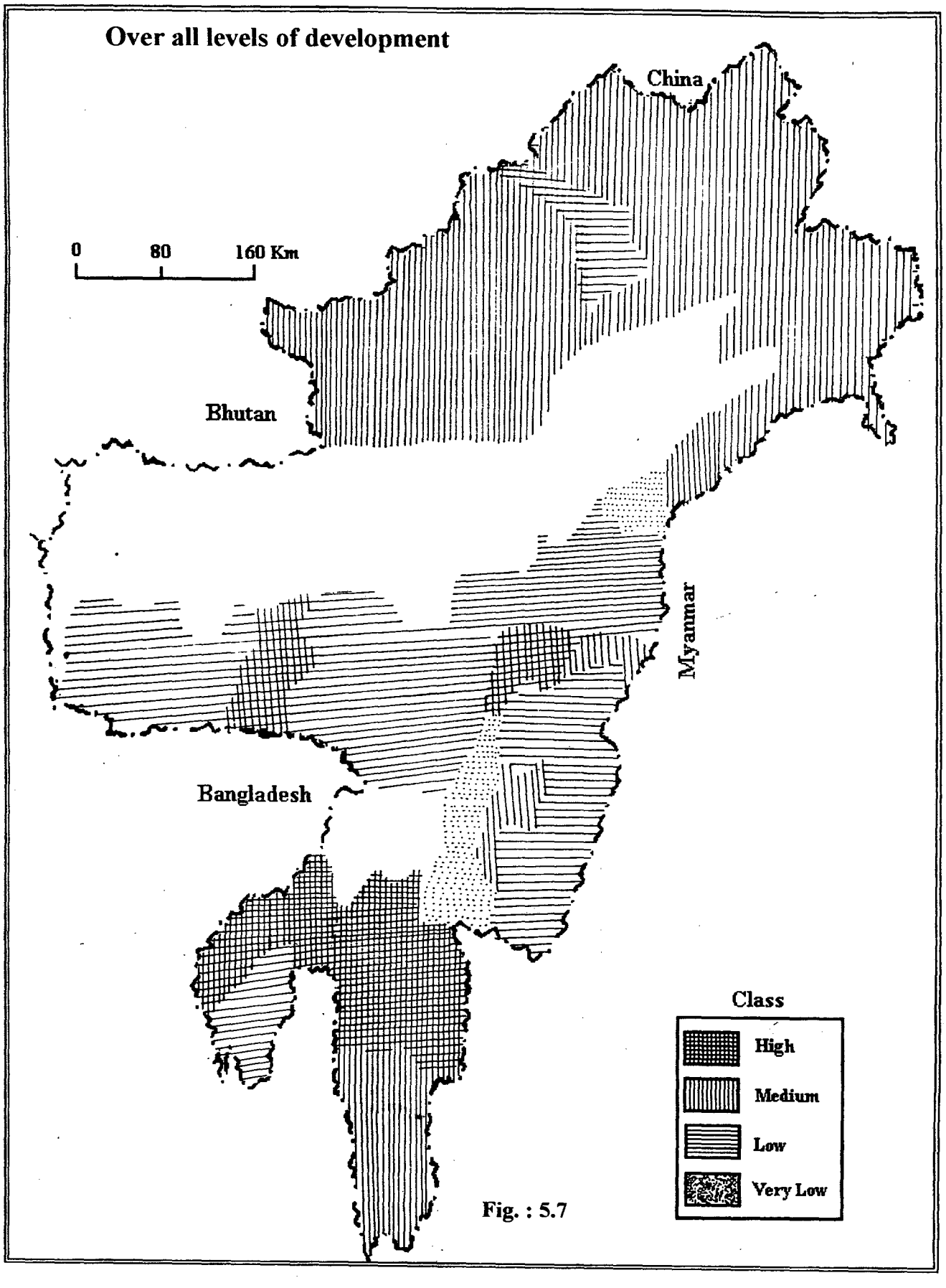
Over all levels of development
China
0
80
160 Km
Bhutan
Myanmar
Bangladesh
Class
High
Medium
Low
Very Low

Fig. : 5.7

Levels	Values	No. of districts
High	Above 10.00	5
Medium	0.00-10.00	15
Low	(-) 5.00 - (-) 0.00	16
Very low	(-) 5.00 - (-) 10.00	3

High level of over all development : It is observed that districts of East Khasi hills, Kohima, Azaiwl, North and West Tripura falls in this category. It is also noted that these districts stands a better position in indicators such as socio-cultural, infrastructure, household amenities etc., which ultimately pulled the over all level of development. The reason is mainly due to their exposure to the modern civilization and their coming in contact with the outsiders, there is a tremendous change in the socio-economic life.

Medium level of over all development

This level comprises the districts of Tawang, East and West Kameng, Lower Subansari, West and East Siang, Dibang, Lohit, Changlang, Tirap, Thoubal, Imphal, Chimtuipui, Phek, Lunglei. Inspite of the physical conditions yet these districts have excelled in the recent past in the over all development which is the result of the wearing off of their conservative way of live and in broadening their perspective towards their inter tribal relationship and the outside world.

Low level of over all development

This category comprises the districts of Upper Subansari, North Cachar hills, Karbi Anglong, Senapati, Chandel, Bishnupur, Ukhrul,

Jaintia hills, West Khasi hills, West and East Garo hills, Zunhebeto, Wokha, Mokokchung, Tuensang, South Tripura. Since these districts are semi rural and the physical condition do not permit them to have a better houses and household amenities.

Very low level of over all development The districts of Tamenglong, Churachandpur and Mon falls in this category. These districts were virtually in zero degree of social interaction. Not only with others, but even among themselves the degree of social contacts was very low n the recent past. However since then the society as a whole has come a long way exposing itself to the influence of modern civilization. It is but natural that these semi-urban centres which are supposed to be the foci of trade and also the seat of administrative network are infact the points where the rendezvous and the intermingling of people with different backgrounds or cultures are minimum which relatively pulled down the over all levels of development.

Thus in conclusion it can be said that the hill region has experienced significant economic growth particularly after 1947. Some have viewed the changes as an effort to break away from the traditional limitations. To others, this interpretation of the region's development inadequacy addressed perpetuation and continuation of disparities and imbalances within and between the various sub-regions, population subgroups and between the perspectives, thereby resulting in

fundamental contradictions in the political, social and economic relations in the region.

However the development situation in the region is a multidimensional process involving social, economic, and political considerations. It also called for creation and strengthening of infrastructural and institutional requirements besides according prior for sustained productivity.

Chapter - VI

Summary of Main Findings and Recommendations

To summarise the discussion it is imperative to recapitulate the principal findings of this study. In this chapter attempts have been made to summarise the discussion on the dimensions and manifestation of development in different sectors of the reason. Efforts have also been made to assess the role of different governmental organisation (North Eastern Council (NEC), District Council (DC), Indian Council of Agricultural Research (ICAR) in bringing about development in the region.

I:1 Compared to other states of India, development in North Eastern hill is low as well as slow.

I:2 It has a very high concentration of tribal population living from hand to mouth.

I:3 The indigenous people of the region are jhum cultivators using traditional equipments for carrying agricultural operations resulting in low production as well as productivity in agricultural sector.

I:4 Over all, the region is backward in all sectors. The indigenous sectors of the tribals of the region continued to remain impoverish and stagnant and did not benefit from technological innovation.

I:5 Although the region is rich is fresh water, land and minerals resource yet its development is slow which is mainly due to the region's rugged topography.

2:1 The physical setting of an area plays a vital role in development, one should understand the topography, structure of the rocks, types and

composition in order to set up developmental plans since these dictates to the emergence and development of human settlement and human activities.

2:2 The relief structure comprises high mountain range steep slopes, perennial rivers etc. plays very significant role in the processes of development. The ruggedness, height etc. corresponds to development in the reverse direction.

2.:3 Climate is another important in physical factor in the development a particularly in the NEH region. Mild summers and cool winter enhance tourism development as a Meghalaya. Moderate climatic condition of Barak Valley are suitable for human habitation and great heights and snow falls in Arunachal attracts many adventures and winter sports but these offer very less opportunity for development of human settlement.

2:4 Soil is another important resource vital for the sustenance of tribal economy. Depending on soil, agriculture too takes its course according to the rhythm of the soil. If soil is not fertile it acts as a constraint in agricultural development. With the increase of altitude soil too decreases in its thickness and fertility thus brings down levels of development. Torrential rains for over six months in a year causes huge looses of fertile soil cover due to erosion. This has detrimental impact in the subsistence agro-forest based economy of the region.

2:5 There are many rivers and waterfalls in the region which have large economic potentialities particularly in developing hydro electric power generation.

2:6 Forest is an important resource of the region particularly from the point of view of commercial value. The region as a whole is very rich in forest resources which attracts many entrepreneurs as well as outsiders, unfortunately, this only leads to reckless large scale felling of trees which proves to be detrimental to environment and development as well.

2:7 Continuation of Jhum cultivation, reckless mining and construction of roads have accelerated the process of depletion of forest resource development. Minerals in the region too play significant role in the region particularly its industrial sector. No doubt, the region has rich mineral resources but due to the ruggedness and hilly terrain, lack of proper mode of transport and communication and low capital and investment do not attract outside entrepreneurs, thereby leaving the development in this area with a big question mark.

2:8 Demographic and social background of the region are also very important in developmental processes. The Tripura plain, Barak Valley, Brahmaputra Plain have made favourable opportunities of earning a livelihood consequently, the density of population and proportion of urbanised inhabitants are relatively higher.

2:9 The land locked location of the region, its rich resource base and lack of opportunities in the neighbouring countries have attracted large

number of people proper to this region. Immigrant from Bangladesh as refugees and Nepal have brought in significant demographic ancmalies in the region. This is also the factor for most of the political turmoil in Nagaland, Manipur, Assam, Tripura,Aru. Pradesh,and Meghalaya.

2:10 Literacy is the main criteria for development. Fortunately, the region particularly Mizoram, Manipur, Nagaland and Meghalaya have high literacy rate; Since it influences educational centres, hospitals, markets etc. which finally has a tendency for urbanisation to take place.

3:1 The concept of development cannot be viewed in isolation but within the framework of spatial orgnisation of a society which reflects regional development.

3:2 Different theories have come up in order to define regional development, some defined regional development in terms of the occupational structure, other defined it is terms of different activities revolving around human habitation and still some other defined it is terms of cultural influences and a centre of economic activities.

3:3 In a system of democratic governance, every citizen has certain rights and opportunities of participating in public affairs, whereby responsibility is entrusted in looking for the common welfare of the people and balancing central and local governments in achieving efficiency.

3:4 Therefore, the personality of regional development is such that it enfolds the process of integration with its national economic development.

4:1 As mentioned earlier, agriculture depends on the quality of soil, high quality of soil dictates high production in turn influence employment opportunities particularly to rural population.

4:2 Since the region practices jhumming cultivation with the highest in Nagaland (38:18 percent to total area under jhum) has large numbers of families practising shifting cultivation. About 1,16046 thousand families are engaged in shifting cultivation in Nagaland and with the least in Tripura (43,000 families). This signifies that higher the proportion of working population in agriculture, lower the levels of development.

4:3 The traditional land tenure system among the tribes of the hills of the region is based on village - community ownership. In areas of shifting cultivation, the authority of distribution of land for farming to the individual families is vested on the head man or village council. Thus individual farmers can hardly have their interest on development of land. Hence agricultural development in the hills, including any change of in land tenure system, must be done after an-in-depth study and with an integrated development planning so as to raise the tribal social and economic life and also to bring high levels of development.

4:3 Crop intensity also plays its role in development. If the area is sown more than once then it raises much output over a time period, with

the availability of fertilisers, manure and short growing varieties of crops dictates the region to progress in agriculture therefore raising the levels of development.

4:4 Cropping pattern is also significant in agricultural development. Given the yield rate per acre of land, addition to a particular crop area through a change introduced in the cropping pattern will raise production of crops.

4:5 The region is industrially backward. Although rich in natural resource yet due to geographical isolation and because of the fact that the region is surrounded by foreign countries, few industrialists like to invest.

4:6 The poor development of transport and communication particularly the roads and railways, lack of required capital, insufficient number of skilled and semi-skilled persons to man different industries and absence of a large local market contributed largely to industrial backwardness.

4:7 Topography of a region possess difficulties in laying of roads and railways since it becomes expensive particularly along hill section which is possible only through tunnels, thus with the environmental constraint it also corresponds to development in the same direction.

4:8 Urbanisation in a region have a tendency to grow particularly in urban centre with education centres, service centres as in Shillong, Aizawl, Imphal. Therefore higher the rate of urbanisation, higher the processes of development.

4:9 Household amenities plays a vital role in development particular with a strong base in traditional handicraft industry Areas inhabited by tribal with rich base in household industry too exhibit higher quality of houses and household which inturn contribute in development.

4:10 The availability of household amenities within the premises of human habitation plays a significant role in the process of development.

5:1 The level of development cannot be generalised when look at a glance, therefore, there is a need to analyse and understand them by selecting relevant indicators.

5:2 The indicators are

a) resources in which density of population and percentage of literacy rate were taken.

b) Agricultural index where percentage of agricultural workers and value of agricultural output is taken.

c) Industrial index where percentage of secondary workers and percentage of registered factories to total were taken.

d) Socio-cultural index where percentage of general literacy female literacy, and urbanisation is taken

e) Infrastructural index where length of road per km^2 and number of post office per lakh population.

f) household amenities index where percentage of pucca houses, percentage of amenities like safe drinking water,

toilet and electricity, and percentage of fuel used for cooking - cooking gas.

5:3 Thirty nine hill districts of the region are taken into account since these exhibit important physical division, resources, human activities etc.

5:4 The hills of North East were taken because it exhibit the difference between ethnic and non-ethnic, culture, religion etc. and since most of the tribal communities were colonial administered therefore the relation of the colonial centres and the remote rugged terrain of the tribal communities can be shown.

5:5 The method been used in composing the value of these indicators was by finding the mean ($\bar{x}$) standard deviation (σ) and that the value obtained is been divided by standard deviation.

5:6 In doing so; classes are categorised in order to get the total picture of the levels of development. The four levels are high; medium, low and very low.

5:7 Agriculture plays an important role in socio-economic development. Development of agriculture in the hill areas is difficult partly due to the physiographical constraints and partly due to sociological and economic reasons. Nevertheless, development of agriculture, within the constraints, can help to accelerate the over all social and economic growth in these area.

5:8 An underdeveloped society like north eastern region is confronted with the important problem of surplus labour both in modernised and the traditional sectors. The region characterise on the other hand,the imbalance density of population and on the other the literacy rate also shows imbalances. Although huge density of population means better quality of life as it meet the threshold requirement for the development of some modern amenities like schools, hospitals etc.

5:9 The region as of today continues to have a weak industrial base. In the initial phase after independence, the region experienced politico-administrative consolidation and assessment of its socio-economic content. Despite of the respective state's effort, regional imbalances dominate the region's industrial scenario. The availability incentives have proved to be inadequate and communication shortcomings.

5:10 The development of infrastructural scenario of the hill area is still a far cry where much should be done. The centre developed by the colonial power in the East Khasi hills district has a better services and infrastructural development which points out that the influence of the quality of life on the socio-economic development.

5:11 The socio-cultural development in the hill areas is much better than other indicators of the levels of development. This is so in most of the districts particularly Aizawl, Kohima, East Khasi hills which has its root since the time of missionaries and the role of the Church.

5:12 When looked at the over all levels of development, the district having state capital towns and centres developed during colonial days are relatively well discovered.

Recommendation

The regional development of a region can be partially or fully observed when the central Government became interested in providing for an organisation that could look after the aspects of socio-economic development of the region.

The North Eastern Council (NEC), District Council (DC), Indian Council of Agricultural Research (ICAR) are some of the governmental organisation that look into the different aspects of development.

The NEC takes up matters of common interest of the states of the region particularly interstate transport and communication, power and flood control projects etc. Though NEC in its initial period could not do much due to paucity of funds, it was under the NEC that a few mini cement plants were established in Manipur, Nagaland and Arunachal Pradesh. The attempt of the NEC to develop cottage industries and weaving and sericulture firms on the region is really praise worthy. The NEC helped the North East Handloom and Handicraft Development Corporation to set up a number of weaving, sericulture and cottage industries with locally available raw materials and man power.

The council sponsored and helped in the construction of 1500 km of interstate roads during the fifth plan. Within the seventh plan itself,

the NEC got completed 1124 km length of road and 1.66 km length of bridge over Brahmaputra. Almost all the roads in the north eastern region have been financed by the NEC.[1]

The NEC also sponsored North Eastern Electric Power Corporation (NEEPCO). The Kapili Hydro Electric Project of NEEPCO with an installed capacity of 150 MW is the largest power system in the region.

The District Council under sixth schedule para 6 had established and managed primary schools, dispensaries, market, prescribed the roads and water ways. It has prevented areas with mineral resources particularly the Cherrapunji, Jowai Coal field etc. by introducing license for prospecting or for the extraction.[2]

The District Council functions differently in all the seven states. For instance, in Nagaland, the District Council protects religious or social. Practices, Naga Customary laws etc. whereas in Manipur it offers no constitutional protection to the tribal people living in the Hill district Thereby meaning that in order to develop the tribal society, one has to understand the entire tribal self management based on the harmonious relationship between nature and human society.[3]

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[1] Lekhi and Choudhury: Economy of India including Assam and North East, Kalyan Publishers 1993, New Delhi, pp.218-224.

[2] Niru Hazarika : The Working of the autonomous District Council : S.M. Dube (ed.) North East India Associological Study, Konark Publications, 1992, pp.290-2.

[3] J.B. Ganguli, The Sixth schedule of the constitution of India and the North East India; Bhupinder Singh (ed.), Antiguity to Modernity in Tribal India, Vol.II, Inter-Publications, New Delhi, 1998, pp.172-3.

The ICAR proved to be successful in the regional in enhancing regional development in terms of agriculture by introducing short term varieties of seed so as to improve agriculture, horticulture by introducing hybird seeds, animal health, animal production, fishery etc.

This governmental body even provides training to farmers in rise and application of improved technologies for enhancing agricultural productivity.

Thus in conclusion, different organisation has attempt to bring regional balances in the region. Regional disparities are however, bound to remain even in the most affluent country but the extent of such disparities should be brought down by increasing the level of development of the backward district and not by bringing down the levels of developed districts.

Thus the proper balanced regional development strategy should aim at increasing the rate of growth of all the regions so that the state averages keep on moving towards higher and higher levels of development and each individual region also keeps moving towards higher level.[4]

[4] Raj, K.N., "Planning from below with reference to District Development and State Planning", EPW, pp.630-672, special no. July 1997.

Appendix

TABLE – 2:1

LAND USE CLASSIFICATION IN NORTH EASTERN REGION (1990-91).

State	*Geographical AREA*	*Reporting area for land utilization*	*Forest Area*	*Not Available Cultivation*		*Other uncultivated land including fallow land*			*Fallow land*		
				Area put to non agricultural uses	*Barren uncultivated land*	Permanent pastures	*Cultivable waste land*	*Others*	*Current fallows*	*Fallow land than*	*Net area*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*
Arunachal Pradesh	8374 (32.84)	5544 (25.0)	5200 (47.5)	29 (2.3)	48 (1.43)	.....	.....	44 (6.92)	25 (5.27)	49 (7.31)	149 (4.0)
Assam (c)	7844 (30.7)	7852 (34.8)	1984 (8.6)	914 (74.7)	1541 (46.0)	184 (98)	104 (13.3)	247 (38.8)	88 (18.3)	84 (12.5)	2706 (72.1)
Manipur (j)	2233 (8.93)	2211 (9.81)	32 (0.29)	26 (2.1)	1419 (42.3)	(n)	(n)	24 (3.77)	(a) (a)	.....	140 (3.76)
Meghalaya	2108 (8.79)	2239 (j) (9.9)	939 (8.9)	84 (6.87)	142 (4.23)	....	493 (63.4)	153 (0.24)	59 (12.4)	167 (25.0)	202 (5.42)
Mizoram	2108 (8.79)	2102 (9.33)	1303 (12.0)	10 (0.81)	201 (5.9)	4 (2.1)	74 (9.52)	3 (0.47)	183 (38.6)	259	65 (1.74)
Nagaland	1658 (66)	1532 (6.8)	862 (7.8)	28 (2.2)	.....	.....	99 (12.1)	125 (9.6)	118 (24.8)	110 (39.0)	190 (5.10)
Tripura	1040 (4.19)	1049 (465)	606 (5.54)	131 (10.7)	(L) (L)	(n)	1 (0.12)	39 (6.14)	1 (0.21)	1 (0.14)	270 (7.25)

Note : Figures in the parenthesis indicate percentages.

(a) Below 500 ha.

(c) Relates to the year 1981-82.

(f) Include area under the municipality of town committee.

(j) Ad-hoc estimates (L) not available separately, included.

(n) Included under the land under Misc. tree crops and groves etc.

Source : Basic Statistics of NER, 1994 North Eastern Council Shillong, p. 40.

TABLE - 4 : 1

TOTAL AND ANNUAL AREA UNDER JHUMMING AND AREA IN '000 HECTARES

State / Area	*Area Under Jhum*		*Jhum Cycle*	*No. of families practicing shifting cultivation*
	Total Area	*Annual Area*		
Arunachal Pradesh	200.0 (25.1)	70.0	3 - 10	54,000
Assam Hills	139.2 (9.14)	69.6	2 - 10	58,000
Manipur Hills	360.0 (17.92)	40.0	4 - 7	70,000
Meghalaya	265.0 (11.81)	53.0	5 - 7	52,290
Mizoram	189.0 (8.91)	63.0	3 - 4	50,000
Nagaland	633.0 (38.18)	101.4	5 - 8	1,16,046
Tripura	111.5 (10.63)	22.3	5 - 9	43,000
All India	146.60	38.69		44,336

Note : Bracketed figure are percentages to geographical area except for Assam and Manipur where percentage is to hill area.

Source : Basic Statistics of North East 1995, North Eastern Council.

TABLE - 4 : 2

NUMBER AND AREA OF OPERATIONAL HOLDINGS FOR THE HILLS OF NORTH EAST (1989 – 90).

State	*No. of holding ('000)*	*Area operated ('000 hec.)*	*Area Size (hec.)*
Arunachal Pradesh	81 (95.29)	336 (9769)	4.16
Assam	315 (13.02)	443 (14.01)	1.41
Manipur	56 (4000)	76 (43.68)	1.35
Meghalaya	171 (100.00)	302 (100.00)	1.76
Mizoram	52 (100.00)	82 (100.00)	1.57
Nagaland	125 (100.00)	933 (100.00)	7.46
Tripura	120 (38.46)	143 (44.91)	1.19
All India	7637 (7.81)	11205 (10.50)	2.25

Note : Figures in bracket are percentages to total including tribal and non-tribal holdings and area.

Source : Govt. of India Indian Agriculture in brief 1990, 24th edition.

TABLE - 4 : 3

GEOGRAPHICAL AREA OF NORTH EAST REGION UNDER BAMBOO AND POTENTIAL AVAILABILITY (BASED ON PRE-INVESTMENT SURVEY REPORTS).

State	*Total geographical area. (sq. km.)*	*Actual area under bamboo (sq. km.)*	*Percentage area under bamboo*	*Potential availability (lakhs tonnes)*
Arunachal Pradesh	81,773	7,770	9.50	2.23
Assam	78,561	10,000	12.73	1.35
Manipur	22,347	3,268	14.62	14.48
Meghalaya	22,549	5,863	26.00	825 mt. tonnes
Mizoram	21,090	NA	NA	634 mt. tonnes
Nagaland	16,000	NA	NA	NA
Tripura	10,500	2,849	27.13	5.5

Source : O.P. (1980) studies of ecological impact of shifting agriculture or forested ecosystem.

TABLE - 4 : 4

NUTRIENT CONTENTS (Kg./ha) IN SOIL UNDER BAMBOO DEVELOPED AFTER SLASH AND BURN AGRICULTURE.

Elements	*Successional Age (yrs.)*			
	5	*10*	*15*	*20*
N	5.817	82.406	153.153	196.070
P	0.843	12.121	21.884	28.524
K	23.042	323.727	589.061	753.708
Ca	2.188	31.686	56.161	73.971
Mg	2.368	33.366	61.258	78.342

Source : O.p. (1980) studies of ecological impact of shifting agriculture on forested ecosystem.

TABLE - 4 : 7

TOTAL FOOD GRAIN OUTPUT IN NORTH EAST INDIA (1990 – 91).

State	*Area Cropped ('000 ha.)*	*Production ('000 tons)*	*Yield (Kg./ha.)*
Arunachal Pradesh	182.7	214.3	1173
Assam	2718.5	3441.8	1266
Manipur	162.0	285.2	1763
Meghalaya	133.0	152.6	1147
Mizoram	59.1	76.6	1296
Nagaland	170.0	197.4	1161
Tripura	288.6	514.5	1783

Source : Basic Statistics 1992 North Eastern Council.

TABLE - 4 : 8

LIVESTOCK AND POULTRY POPULATION OF THE REGION.

State	*Cattle*	*Buffalo*	*Sheep*	*Goat*	*Pig*	*Poultry*
Assam	6750 (73)	558 (72.4)	46 (25.7)	1729 (3.16)	578 (3.16)	10,491 (56.84)
Arunachal Pradesh	168 (181)	12 (1.55)	76 (42.5)	20 (0.79)	213 (11.67)	764 (4.14)
Manipur	747 (8.06)	138 (17..9)	14 (7.84)	42 (1.67)	368 (20.17)	2861 (15.50)
Meghalaya	550 (5.93)	29 (3.76)	26 (14.56)	186 (7.42)	207 (11.34)	1419 (7.68)
Mizoram	49 (0.52)	0.4 (0.51)	0.1 (0.56)	28 (1.11)	77 (4.22)	611 (3.31)
Nagaland	151 (1.62)	0.9 (1.16)	0.5 (0.28)	62 (2.47)	248 (13.59)	928 (5.29)
Tripura	680 (7.33)	16 (2.07)	0.5 (2.80)	343 (13.68)	103 (5.64)	1070 (5.84)

Note : The figures in the brackets are the percentages of the parenthesis.
Source : Indian Council of Agricultural Research : Status population on livestock production in North Eastern Hill region of India.

TABLE - 4 : 9

NUMBER OF REGISTERED FACTORIES IN THE HILLS DISTRICTS REGION.

District	*Units*	*Percentage*
Karbi Anglong	45	6.11
North Cachar Hills	17	2.30
Tawang	9	1.22
East Kameng	17	2.30
West Kameng	51	6.29
Lower Subansari	243	9.01
Upper Subansari	10	1.35
West Siang	13	1.75
East Siang	21	2.85
Dibang Valley	17	2.30
Lohit	14	1.90
Changlang	8	1.08
Tirap	24	3.26
Senapati	25	3.39
Tamenglang	15	2.03
Churachandpur	19	2.58
Chandel	8	1.08
Thoubal	18	2.11
Bishnupur	16	2.17
Imphal	30	4.07
Ukhrul	10	1.35
Jaintia Hills	1	0.13
East Khasi Hills	48	6.52
West Khasi Hills	....	3.00
East Garo Hills	3	0.40
West Garo Hills	6	0.81
Aizawl	3	0.40
Lunglei	1	0.13
Chimtuipui	....	2.59
Kohima	16	2.17
Phek	.....	1.09
Zunhebeto	2	0.27
Wokha	8	1.08
Mokokchung	9	1.22
Tuensang	1	0.13
Mon	3	0.40
West Tripura	.....	0.61
North Tripura	4	0.54
South Tripura	1	0.13

Source : a) Statistical Handbook of Assam 1991
b) Arunachal Pradesh 1992
c) Manipur 1995
d) Meghalaya 1994
e) Mizoram 1993
f) Nagaland 1992
g) Tripura 1992.

TABLE - 4 : 12

ROAD LENGTH AND DENSITY OF ROAD IN NORTH EAST - 1992.

State	*Total Length*	*Surfaced*	*Un-surfaced*	*Rd./100 Km^2*	*Rd./1000 population*	*Percentage of surfaced to total road length*
Arunachal Pradesh	7520	2496	5024	8.9	8.74	33.19
Assam	68913	10841	58072	87.8	3.09	15.73
Manipur	6765	2741	4024	30.3	3.7	40.52
Meghalaya	7832	2931	4901	34.9	4.45	37.42
Mizoram	3708	1268	240	17.6	5.37	34.19
Nagaland	8805	6842	1963	53.1	7.21	77.7
Tripura	13008	4448	8560	124.1	4.74	34.19
Total	116551	31567	84984	45.69	3.73	27.08

Source : Planning Commission, transport Division June 1994.

TABLE - 4 : 13

DISTRICT-WISE ROAD PER 100 KM² 1992.

District	*Road Length per 100 Km²*
Tawang	19.67
West Kameng	22.24
East Kameng	6.57
Lower Subansiri	12.76
Upper Subansiri	8.22
West Siang	8.67
East Siang	6.1
Dibang	4.38
Lolut	12.29
Changlang	3.18
Tirap	5.93
Karbi Anglong	15.61
North Cachar Hills	31.84
Senapati	10.42
Tamenglong	11.49
Cheurachandpur	9.68
Chandel	8.46
Thoubal	12.68
Bishnupur	10.08
Imphal	14.08
Ukhrul	10.04
Jaintia Hills	27.92
East Khasi Hills	34.85
West Khasi Hills	13.87
East Garo Hills	21.41
West Garo Hills	22.22
Aizawl	27.51
Lunglei	19.01
Chimtuipui	15.45
Kohima	12.62
Phek	9.6
Zunhebeto	5.93
Wokha	5.7
Mokokchung	7.6
Tuensang	6.1
Mon	4.38
West Tripura	12.4
North Tripura	11.9
South Tripura	14.04

Source : Centre of Monitoring Indian Economy 1993.

TABLE - 4 : 15

DISTRIBUTION OF POPULATION IN RURAL – URBAN AREAS OF THE HILL REGION.

District	*Population 1991 (persons)*			*Percentage of urban population to total population*		*Percentage growth rate 81–91*		
	Total	Rural	Urban	81	91	Total	Rural	Urban
W. Kameng	56,421	50,766	5,655	9.29	10.02	-10.87	-14.60	46.50
Tawang	28,287	28,287		.....	.....	.....	.....	.....
East Kameng	50,395	50,295	.....	.....	.....	17.92	17.92	.....
L. Subansari	155,978	116,202	39,776	23.53	25.50	38.46	17.93	181.78
U. Subansari	50,086	50,086	.....	.....	.....	27.08	27.09	.....
West Siang	89,936	76,697	13,239	11.82	14.72	41.44	38.64	60.18
East Siang	99,936	85,004	14,639	11.98	14.69	41.44	38.64	60.18
Dibang	43,068	36,094	16,976	.....	16.20	39.03	16.51	.....
Lohit	109,706	86,460	23,246	8.98	21.19	57.83	36.68	272.59
Changlang	95,530	95,530	.....	.....	.....	.....	.....	.....
Tirap	85,508	78,417	7,097	.....	8.30	-33.53	39.05	.....
K. Anglong	662,723	592,257	70,466	2.69	10.63	72.79	58.52	589.08
N. Cachar H.	150,801	116,315	34,486	6.83	22.37	96.39	62.51	588.19
Senapati	208,406	208,406	.....	6.29	.....	*34.09	*34.09	.....
Tamenglong	86,278	86,257	.....	6.87	.....	*38.51	*38.51	.....
Churachanpur	176,184	142,518	33,660	18.71	19.11	*30.72	*30.01	*33.81
Chandel	71,014	61,341	9,673	13.60	13.62	*25.81	*25.79	*25.98
Thoubal	293,958	186,504	107,454	31.60	36.55	*28.72	*18.35	*44.59
Bishnupur	180,773	117,603	63,170	33.07	34.94	*28.37	25.53	34.04
Imphal	711,261	419,579	291,682	36.33	41.01	*27.88	18.64	44.55
Ukhrul	109,257	109,275	.....	7.02	.....	*31.74	31.74	.....
Jaintia Hills	220,473	199,872	20,601	8.26	18.60	40.97	39.30	59.41
E. K. Hills	665,218	434,075	231,143	35.35	9.34	30.07	31.29	27.84
W. K.Hills	220,157	205,818	14,339	2.40	34.75	36.26	30.52	269.56
E. Garo Hills	188,830	176,826	12,004	3.14	6.51	38.29	33.70	179.81
W. Garo Hills	480,100	428,140	51,960	10.66	6.36	29.80	29.57	31.74
Aizawl	478,465	218,749	259,721	28.63	10.82	40.38	-10.07	166.13
Lunglei	111,415	66,859	44,556	19.89	54.28	28.79	-3.53	158.97
Chimtuipui	99,876	86,207	13,669	10.57	40.00	50.37	45.12	94.77
Kohima	387,581	270,185	117,36	28.15	13.69	54.97	47.73	74.65
Phek	102,156	93,790	8,366	.....	30.29	44.66	32.81	.....
Zunhebeto	96,218	84,745	11,473	10.59	8.19	57.32	58.45	49.43
Wokha	82,612	68,235	14,377	14.09	11.92	43.47	38.12	75.76
Mokokchung	158,374	133,571	24,803	17.41	17.40	52.00	55.08	37.34
Tuensang	232,906	211,888	21,018	8.90	15.66	52.89	51.21	72.28
Mon	149,699	138,909	10,790	7.33	9.02	89.64	92.8	56.42
W. Tripura	1,293,861	277,957	315,904	15.29	7.21	32.53	19.12	111.61
N. Tripura	697,330	636,326	61,004	7.02	8.75	28.84	26.3	62.97
S. Tripura	766,014	721,201	44,813	7.15	5.85	43.03	45.2	15.35

Source : Basic Statistics of North Easter Region 1995. p. 10 – 11.

*figures have been worked out in the North Eastern Council Secretariat based on population figures from Census publication source : Census of India 1991, Series I paper 2 of 1992.

TABLE – 4 : 19

PERCENTAGE OF DISTRIBUTION OF HOUSEHOLD BY TYPE OF HOUSES (1991).

District	*Pucca*	*Semi Pucca*	*Kutcha*
Tawang	30.03	52.66	17.31
West Kameng	26.51	27.56	45.94
East Kameng	10.10	4.47	85.43
Lower Subansari	23.06	8.34	68.59
Upper Subansari	9.27	2.67	88.06
West Siang	4.71	12.35	82.94
East Siang	12.94	7.46	79.59
Dibang	15.62	9.99	74.39
Lohit	13.38	8.52	78.10
Changlang	6.33	18.15	75.52
Tirap	13.00	5.55	81.45
Karbi Anglong	5.84	4.25	89.92
North Cachar Hills	15.30	11.78	72.92
Senapati	2.09	41.72	56.19
Tamenglong	0.75	14.17	84.54
Churachanpur	5.29	30.44	64.27
Chandel	0.97	21.61	77.41
Thoubal	2.43	33.03	64.53
Bishnupur	2.75	35.44	61.80
Imphal	10.35	50.79	38.86
Ukhrul	0.71	53.48	45.82
Jaintia Hills	10.35	55.23	34.42
East Khasi Hills	22.91	49.30	27.79
West Khasi Hills	13.35	48.34	38.31
East Garo Hills	3.55	5.61	90.89
West Garo Hills	4.97	8.45	86.53
Aizawl	21.80	47.55	30.65
Lunglei	18.33	35.34	46.33
Chimtuipui	6.87	25.70	67.43
Kohima	23.12	30.65	46.24
Phek	8.42	57.76	33.82
Zunhebeto	4.18	65.28	30.54
Wokha	12.57	43.61	43.82
Mokokchung	13.18	43.95	42.87
Tuensang	1.76	33.36	64.34
Mon	5.23	7.02	87.75
West Tripura	8.02	29.88	62.10
North Tripura	4.88	10.88	84.24
South Tripura	2.05	14.75	83.20

Source : Census of India, Houses and Household amenities 1991. p. 11 – 12.

TABLE – 4 : 20

PERCENTAGE OF HOUSEHOLD HAVING AMENITIES (1991).

State / District	*Electricity*	*Safe drinking water*	*Toilet*	*All the free facilities*
Aru. Pradesh	**40.85**	**70.02**	**47.47**	25.69
Tawang	60.34	65.77	81.82	41.44
West Kameng	50.32	75.91	31.39	25.16
East Kameng	14.54	83.00	23.02	7.39
Lower Subansari	52.22	69.71	40.59	32.36
Upper Subansiri	24.52	71.59	91.22	21.43
West Siang	43.97	82.42	86.19	36.05
East Siang	37.36	77.97	30.19	19.98
Dibang	35.74	76.62	38.14	24.26
Lohit	26.96	63.80	41.74	21.03
Changlang	35.74	51.06	37.78	20.04
Tirap	57.70	61.58	56.78	30.36
Assam	**18.74**	**45.86**	**37.43**	9.25
Karbi Anglong	12.94	33.88	24.94	5.31
North Cachar Hills	22.90	45.54	34.61	15.15
Manipur	50.92	38.72	43.13	15.40
Senapati	32.33	48.27	11.33	4.20
Tamenglong	16.33	41.83	24.19	4.19
Churachandpur	38.98	48.29	32.26	14.78
Chandel	23.68	31.66	24.01	4.46
Thoubal	56.11	25.96	57.38	13.30
Bishnupur	47.61	30..34	46.16	9.33
Imphal	69.26	40.27	59.34	26.56
Ukhrul	32.55	45.28	14.01	2.83
Meghalaya	**29.16**	**36.16**	**31.11**	**46.23**
Jaintia Hills	26.26	15.44	13.78	3.22
East Khasi Hills	51.55	55.81	43.55	30.78
West Khasi Hills	18.89	23.51	11.31	4.99
East Garo Hills	9.91	29.76	46.94	4.32
West Garo Hills	11.12	25.35	23.17	5.74
Mizoram	**59.20**	**16.21**	**70.73**	**10.78**
Aizawl	66.20	18.40	76.63	12.40
Lunglei	60.73	13.22	65.96	10.26
Chimtuipui	22.92	8.82	47.27	3.42
Nagaland	**53.42**	**53.37**	**37.49**	**15.01**
Kohima	59.05	42.26	45.76	18.51
Phek	48.13	73.81	13.13	9.27
Zunhebeto	52.46	56.59	12.31	6.21
Wokha	51.19	29.65	20.13	8.05
Mokokchung	71.17	54.66	50.21	39.10
Tuensang	44.49	63.55	32.40	11.17
Mon	34.15	68.8	54.68	15.57
Tripura	**36.93**	**37.18**	**67.93**	**19.63**
West Tripura	48.33	45.66	70.55	28.16
North Tripura	29.45	23.14	66.63	12.55
South Tripura	25.35	35.95	64.90	12.28

Source : Census of India; Houses and Housing amenities 1991. p. 14 – 15.

TABLE – 4 : 21

PERCENTAGE DISTRIBUTION OF HOUSEHOLD BY TYPE OF FUEL USED FOR COOKING.

State / District	*Cow dung*	*Electricity*	*Charcoal*	*Cooking gas*	*Wood*	*Kerosene*
Aru. Pradesh	**0.07**	**0.22**	**0.08**	**4.41**	**87.78**	**6.35**
Tawang	0.00	0.06	0.00	1.15	89.38	8.87
West Kameng	0.04	0.76	0.01	7.35	83.46	7.54
East Kameng	0.05	0.05	0.01	0.66	97.85	0.62
Lower Subansari	0.10	0.58	0.17	7.16	77.09	13.63
Upper Subansiri	0.13	0.02	0.00	0.19	92.40	5.36
West Siang	0.07	0.01	0.16	2.32	88.97	7.41
East Siang	0.05	0.06	0.03	4.34	90.71	3.80
Dibang	0.00	0.06	0.02	4.60	91.69	2.65
Lohit	0.06	0.02	0.00	3.87	91.78	3.0
Changlang	0.06	0.09	0.20	3.69	91.68	3.62
Tirap	0.06	0.21	0.04	6.19	87.58	4.61
Assam	**1.45**	**0.19**	**0.47**	**4.46**	**87.96**	**.65**
Karbi Anglong	4.81	0.23	0.51	1.78	93.87	0.99
North Cachar H.	0.11	3.58	0.11	2.41	87.46	5.63
Manipur	**0.28**	**0.18**	**6.44**	**6.66**	**85.50**	**3.26**
Senapati	0.01	0.02	0.53	0.19	97.52	0.44
Tamenglong	0.06	0.01	0.02	0.16	97.94	0.97
Churachandpur	6.15	1.26	2.29	6.64	86.48	1.97
Chandel	6.04	0.04	0.72	0.78	96.50	0.73
Thoubal	0.64	0.01	0.04	1.43	88.08	1.30
Bishnupur	0.53	0.14	0.22	4.11	86.50	2.83
Imphal	0.29	0.10	0.24	14.24	74.90	6.54
Ukhrul	0.02	0.05	0.08	0.66	98.20	0.40
Meghalaya	**0.11**	**0.80**	**2.31**	**3.54**	**85.35**	**6.87**
Jaintia Hills	0.01	0.53	2.56	2.42	90.46	3.39
East Khasi Hills	0.10	1.80	4.86	7.91	67.61	16.16
West Khasi Hills	0.36	0.14	1.15	0.01	96.85	0.46
East Garo Hills	0.04	0.05	0.03	0.04	98.86	0.25
West Garo Hills	0.09	0.10	0.04	0.71	97.70	0.73
Mizoram	**0.03**	**0.22**	**0.18**	**8.75**	**74.83**	**14.35**
Aizawl	0.03	0.30	0.23	12.22	66.52	18.69
Lunglei	0.02	0.02	0.13	1.59	90.35	6.77
Chimtuipui	0.03	0.04	0.00	0.02	97.66	2.05
Nagaland	**0.18**	**0.07**	**0.03**	**2.67**	**93.11**	**3.16**
Kohima	0.16	0.10	0.05	5.47	86.41	7.07
Phek	0.01	0.01	0.03	0.02	98.60	1.08
Zunhebeto	0.41	0.06	0.04	0.57	97.22	1.09
Wokha	0.26	0.05	0.05	1.07	94.16	1.55
Mokokchung	0.06	0.07	0.02	3.49	93.95	1.36
Tuensang	0.32	0.11	0.02	0.44	98.10	0.64
Mon	0.04	0.01	0.00	0.90	97.82	0.85
Tripura	**0.46**	**0.07**	**1.54**	**3.35**	**91.52**	**1.92**
West Tripura	0.34	0.12	2.20	5.48	87.70	3.26
North Tripura	0.66	0.04	1.43	1.94	93.07	1.07
South Tripura	0.48	0.00	0.59	1.22	96.24	0.52

Source : Census of India, tables and houses and household amenities – 1991, P. 25.

TABLE – 5:1

LEVELS OF DEVELOPMENT BASED ON RESOURCES

Districts	*Density of population per Km²* *(X)*	*Percentage of literacy to total literacy* *(Y)*	*C.S.* *(X+Y)*
Karbi Anglong	63	45.57	-0.33
N.Cachar Hills	31	57.76	0.9
Tawang	13.74	29.8	-1.94
East Kameng	8	26.2	-2.21
West Kameng	12	46.31	-0.88
L. Sunbansiri	11.99	41.57	-1.18
U. Subansiri	7.12	38.31	-1.43
West Siang	7.49	45.64	-0.95
East Siang	15	44.3	-0.99
Dibang	3	46.88	-0.90
Lohit	10	49.12	-0.70
Changlang	20.49	43.2	-1.02
Tirap	36	32.06	-1.63
Senapati	64	46.04	-0.52
Tamenglong	20	50.16	-0.57
Churachandpur	39	58.17	-0.87
Chandel	21	46.68	-0.78
Thoubal	572	52.47	3.48
Bishnupur	364	54.94	2.16
Imphal	579	70.74	4.76
Ukhrul	29	62.54	1.23
Jaintia Hills	57	35.32	-1.27
E. Khasi Hills	126	60.04	0.82
W. Khasi Hills	41	50.52	-0.91
E. Garo Hills	73	48.32	-0.31
W. Garo Hills	86	39.32	-0.80
Aizawl	38	90.4	-0.65
Lunglei	25	77.73	2.24
Chimtuipui	25	59.11	1.03
Kohima	98	69.16	1.21
Phek	50	62.59	0.79
Zunhebeto	76	52.26	-0.22
Wokha	51	42.11	-0.87
Mokokchung	97	65.21	0.94
Tuensang	55	48.39	-0.43
Mon	84	40.05	-0.77
West Tripura	364	65.83	2.90
East Tripura	228	60.37	1.57
South Tripura	196	51.38	0.76
Σ	3696.83	1982.57	

Source : Calculated from Centre of Monitoring Indian Economy (C.M.I.E.)

TABLE – 5:2

INDEX OF AGRICULTURAL DEVELOPMENT

Districts	*Percentage of agricultural workers* (X)	*Percentage of literacy to total literacy* (Y)	*C.S.* (X+Y)
Karbi Anglong	59.26	4.73	5.72
N.Cachar Hills	79.15	3.77	-4.67
Tawang	50.18	1.73	3.35
East Kameng	65.75	2.18	2.65
West Kameng	69.26	1.89	-2.05
L. Sunbansiri	67.5	2.17	-2.35
U. Subansiri	69.64	1.72	-1.86
West Siang	59.42	3.98	4.90
East Siang	60.21	2.92	3.75
Dibang	75.23	3.86	4.48
Lohit	75.07	1.71	2.14
Changlang	84.86	2.58	3.68
Tirap	62.8	2.08	2.55
Senapati	90.65	1.52	2.53
Tamenglong	86.21	1.7	-2.72
Churachandpur	80.51	1.48	-2.18
Chandel	79.96	1.58	-2.00
Thoubal	77.77	1.98	2.44
Bishnupur	72.02	2.24	-3.01
Imphal	46.62	2.31	-4.56
Ukhrul	77.14	1.52	-2.23
Jaintia Hills	77.75	1.38	-2.08
E. Khasi Hills	56.05	2.77	3.89
W. Khasi Hills	89.02	2.12	-3.18
E. Garo Hills	59.04	4.7	5.68
W. Garo Hills	83.34	2.12	3.18
Aizawl	61.15	2.63	3.43
Lunglei	72.62	2.54	-3.05
Chimtuipui	78.98	2.47	3.26
Kohima	60.32	3.27	4.13
Phek	77.29	2.24	3.01
Zunhebeto	74.3	2.00	2.46
Wokha	78.5	2.60	3.40
Mokokchung	73.5	2.49	-5.60
Tuensang	85.7	1.98	2.35
Mon	88.3	2.55	3.65
North Tripura	67.13	3.47	4.65
West Tripura	54.63	4.50	6.06
South Tripura	76.32	4.32	1.52
Σ			

Source : Calculated from Centre of Monitoring Indian Economy (C.M.I.E.).

TABLE – 5:3

INDEX OF INDUSTRIAL DEVELOPMENT

Districts	*Percentage of Secondary workers to Total workers (X)*	*Percentage of Registered factories (Y)*	*C.S. (X+Y)*
Karbi Anglong	3.5	6.11	2.43
N.Cachar Hills	6.25	2.30	-0.053
Tawang	2.79	1.22	-1.26
East Kameng	7.99	2.30	0.415
West Kameng	14.02	6.29	3.60
L. Sunbansiri	7.82	9.01	3.71
U. Subansiri	6.57	1.35	0.60
West Siang	8.51	1.75	0.79
East Siang	7.52	2.85	0.52
Dibang	11.73	2.30	1.18
Lohit	11.87	1.90	1.42
Changlang	8.56	1.08	1.15
Tirap	8.02	3.26	0.83
Senapati	1	3.39	1.56
Tamenglong	13.78	2.03	1.74
Churachandpur	2.8	2.58	0.78
Chandel	19.8	1.08	3.46
Thoubal	1.91	2.11	0.99
Bishnupur	8.65	2.17	0.64
Imphal	19.28	4.07	3.56
Ukhrul	1.68	1.35	-1.42
Jaintia Hills	2.76	0.13	-1.82
E. Khasi Hills	6.52	6.52	2.18
W. Khasi Hills	1.43	3.00	-1.30
E. Garo Hills	1.13	0.40	-2.02
W. Garo Hills	2.71	0.81	1.49
Aizawl	6.24	0.40	-1.02
Lunglei	3.26	0.13	-1.72
Chimtuipui	1.83	2.59	-0.90
Kohima	5.71	2.17	-0.10
Phek	2.87	1.09	-0.87
Zunhebeto	3.46	0.27	-2.78
Wokha	2.29	1.08	-1.63
Mokokchung	5.04	1.22	-0.89
Tuensang	1.04	0.13	-2.17
Mon	1	0.40	-3.01
North Tripura	8.06	0.61	1.28
West Tripura	6.35	0.54	1.73
South Tripura	3.62	0.13	-1.64
Σ			

Source : Calculated from Centre of Monitoring Indian Economy (C.M.I.E.)

TABLE – 5:4

INDEX OF SOCIO-CULTURAL DEVELOPMENT.

Districts	*Percentage of literacy to total literacy (X)*	*Percentage of female literacy (Y)*	*Percentage of Urbanization (Z)*	*C. S. (X+Y+Z)*
Karbi Anglong	45.57	34.35	10.63	-5.27
N.Cachar Hills	57.76	47.34	22.87	1.28
Tawang	29.8	16.83	13.01	-3.48
East Kameng	26.2	14.02	10.02	-4.16
West Kameng	46.31	35.22	10.02	-1.39
L. Subansiri	41.57	30.7	25.5	1.57
U. Subansiri	38.31	27.24	14.72	-2.06
West Siang	45.64	35.85	14.72	-0.98
East Siang	44.3	34.43	14.69	-1.17
Dibang	46.88	33.27	16.2	-0.95
Lohit	49.12	36.21	21.19	-0.75
Changlang	43.2	29.61	5.94	-2.33
Tirap	32.06	18.52	8.3	-3.62
Senapati	46.04	36.13	9.04	-1.42
Tamenglong	50.16	39.68	7.49	-1.05
Churachandpur	58.17	49.3	19.11	1.12
Chandel	46.68	34.8	13.62	-1.08
Thoubal	52.47	36.31	36.55	2.04
Bishnupur	54.94	41.13	34.94	1.73
Imphal	70.74	58.32	41.1	4.47
Ukhrul	62.54	51.57	10.42	2.09
Jaintia Hills	35.32	36.31	9.34	2.09
E. Khasi Hills	60.04	57.04	34.75	3.14
W. Khasi Hills	50.52	47.94	16.51	1.08
E. Garo Hills	48.32	41.7	6.36	-1.16
W. Garo Hills	39.32	31.32	10.82	-2.04
Aizawl	90.4	85.51	54.28	6.46
Lunglei	77.73	72.58	39.99	5.82
Chimtuipui	59.11	51.24	13.69	-1.55
Kohima	69.16	61.41	30.29	3.65
Phek	62.59	51.34	8.19	2.27
Zunhebeto	52.26	39.21	7.21	-1.15
Wokha	42.11	29.42	6.35	-2.38
Mokokchung	65.21	58.24	11.01	2.67
Tuensang	48.39	41.96	8.02	-1.03
Mon	40.05	29.4	7.21	-2.45
W. Tripura	65.83	55.15	24.42	2.50
N. Tripura	60.37	50.31	8.75	2.01
S. Tripura	51.38	39.75	5.85	-1.18
Σ	2006.63	1620.7	663.12	

Source : Calculated from Centre of Monitoring Indian Economy (C.M.I.E.)

TABLE – 5:5

INDEX OF SERVICES AND INFRASTRUCTURAL DEVELOPMENT

Districts	*Road length per 100 Km²* *(X)*	*No. of post office per lakh population* *(Y)*	*Percentage of Tertiary Workers to Total Population* *(Z)*	*C. S.* *(X+Y+Z)*
Karbi Anglong	19.67	18.46	11.5	-1.61
N.Cachar Hills	22.24	13.4	29.42	0.05
Tawang	6.57	38.89	37.96	2.84
East Kameng	12.76	27.78	25.22	0.49
West Kameng	8.22	31.9	35.79	1.7[illegible]
L. Sunbansiri	8.67	24.36	26.44	-0.42
U. Subansiri	6.1	23.96	24.17	-1.08
West Siang	4.38	34.47	21.86	0.01
East Siang	12.29	28.1	24.96	0.44
Dibang	3.18	51.08	28.84	3.17
Lohit	5.93	19.2	27.92	-1.39
Changlang	15.61	23.03	14.7	-1.08
Tirap	31.84	31.58	16.78	2.57
Senapati	10.42	20.62	8.34	-2.87
Tamenglong	11.49	14.16	9.85	-3.53
Churachandpur	9.68	12.92	16.67	-3.15
Chandel	8.46	15.61	18.32	-2.72
Thoubal	12.68	11.63	13.56	-3.32
Bishnupur	10.08	20.45	14.14	-2.26
Imphal	14.08	19.2	33.99	0.39
Ukhrul	10.04	20.16	21.16	-1.49
Jaintia Hills	27.92	31.75	18.5	2.29
E. Khasi Hills	34.85	24.05	36.4	4.12
W. Khasi Hills	13.87	35.88	9.42	0.01
E. Garo Hills	21.41	24.89	9.82	-0.61
W. Garo Hills	22.22	20.2	13.67	-0.76
Aizawl	27.51	47.44	32.3	6.21
Lunglei	19.01	38.62	24.09	2.81
Chimtuipui	15.45	32.46	19.19	0.84
Kohima	12.62	40.09	33.81	3.33
Phek	9.6	38.14	19.91	1.02
Zunhebeto	5.93	27.48	13.98	-1.76
Wokha	5.7	29	16.01	-1.33
Mokokchung	7.6	40.61	24.92	1.71
Tuensang	6.1	19.62	13.25	-3.01
Mon	4.38	19.28	11.02	-3.55
W. Tripura	12.4	12.76	36.83	-0.47
N. Tripura	11.9	40.87	26.31	2.48
S. Tripura	14.04	27.02	20.02	-0.07
Σ	516.9	1051.12	841.04	

Source : Calculated from Centre of Monitoring Indian Economy (C.M.I.E.)

TABLE – 5:6

INDEX OF HOUSEHOLD AMENITIES DEVELOPMENT.

Districts	*Percentage of household having pucca houses*	*Percentage of household having toilet, safe drinking water and electricity*	*Percentage of household having cooking gas*	*D. I. (x + y + z)*
Karbi Anglong	3.29	5.31	1.78	-2.08
N.Cachar Hills	11.23	15.15	2.41	-0.20
Tawang	30.03	41.44	1.15	3.73
West Kameng	20.6	25.16	7.35	5.25
East Kameng	10.1	7.39	0.66	1.33
L. Subansiri	9.96	32.36	0.19	-0.42
U. Subansiri	9.27	21.43	0.19	1.83
West Siang	5.26	36.05	2.32	0.33
East Siang	7.54	19.98	4.34	2.29
Dibang	6.47	24.26	4.6	0.61
Lohit	7.41	21.03	3.87	1.10
Changlang	6.33	20.04	3.69	0.60
Tirap	8.01	30.36	6.19	1.02
Senapati	2.09	4.2	0.19	0.45
Tamenglong	0.75	4.19	0.16	-2.26
Churachandpur	2.13	14.78	6.64	-1.41
Chandel	0.35	4.46	0.78	-1.26
Thoubal	1.74	13.3	1.43	-1.95
Bishnupur	2.22	9.33	4.11	-0.77
Imphal	4.93	26.56	14.24	0.26
Ukhrul	0.71	2.83	0.66	-0.09
Jaintia Hills	6.77	3.22	2.42	-1.17
E. Khasi Hills	18.17	30.78	7.97	1.28
W. Khasi Hills	11.94	4.99	0.01	2.11
E. Garo Hills	2.69	4.32	0.04	-1.87
W. Garo Hills	3.21	5.74	0.71	-1.78
Aizawl	2.55	12.4	12.22	-0.67
Lunglei	2.44	10.26	1.59	-1.06
Chimtuipui	3.63	3.42	0.02	-1.22
Kohima	12.35	18.51	5.47	0.10
Phek	5.6	9.27	0.02	-0.11
Zunhebeto	2.15	6.21	0.57	-1.50
Wokha	6.56	8.05	1.07	-1.02
Mokokchung	10.47	23.64	3.49	0.04
Tuensang	0.52	11.17	0.44	-0.42
Mon	4.03	15.57	0.9	-0.98
W. Tripura	2.14	28.16	5.48	-0.44
N. Tripura	2.55	12.55	1.99	0.49
S. Tripura	1.11	12.28	1.22	-1.30
	249.3	600.15	112.58	

Source : Calculated from Centre of Monitoring Indian Economy (C.M.I.E.).

TABLE – 5:7

OVER ALL LEVELS OF DEVELOPMENT.

Districts	*Resource development (X_1)*	*Agricultural development (X_2)*	*Industrial development (X_3)*	*Socio-cultural development (X_4)*	*Services & infrastructural development (X_5)*	*Household amenities development (X_6)*	*Composite Overall Score*
Karbi Anglong	0.33	5.72	2.43	-5.27	-1.61	-2.08	-0.48
N.Cachar Hills	-0.9	-4.67	-0.05	1.28	0.05	-0.20	-4.49
Tawang	-1.94	3.35	-1.26	-3.48	2.84	3.73	3.24
East Kameng	-2.21	2.65	0.41	-4.16	0.49	5.25	2.43
West Kameng	-0.88	-2.05	3.60	-1.39	1.75	1.33	2.36
L. Sunbansiri	-1.18	-2.35	3.71	1.57	-0.42	-0.42	0.91
U. Subansiri	-1.43	-1.86	0.60	-2.06	-1.08	1.83	-4
West Siang	-0.95	4.90	0.79	-0.98	0.01	0.33	4.1
East Siang	-0.99	3.75	0.52	-1.17	0.44	2.29	4.84
Dibang	-0.90	4.48	1.18	-0.95	3.17	0.61	7.59
Lohit	-0.70	2.14	1.42	-0.75	-1.39	1.10	1.82
Changlang	-1.02	3.68	1.15	-2.33	-1.08	0.60	1
Tirap	-1.63	2.55	0.83	-3.62	2.57	1.02	1.72
Senapati	-0.52	2.53	1.56	-1.42	-2.87	0.45	-0.27
Tamenglong	-0.57	-2.72	1.74	-1.05	-3.53	-2.26	-8.39
Churachandpur	-0.87	-2.18	0.78	1.12	-3.15	-1.41	-5.71
Chandel	-0.78	-2.00	3.46	-1.08	-2.72	-1.26	-4.38
Thoubal	3.48	2.44	0.99	2.04	-3.32	-1.95	3.68
Bishnupur	2.16	-3.01	0.64	1.73	-2.26	-0.77	-1.51
Imphal	4.76	-4.56	3.56	4.47	0.39	0.26	8.88
Ukhrul	1.23	-2.23	-1.42	2.09	-1.49	-0.09	-1.91
Jaintia Hills	-1.27	-2.08	-1.82	2.09	2.29	-1.17	-1.96
E. Khasi Hills	0.82	3.89	2.18	3.14	4.12	1.28	15.43
W. Khasi Hills	-0.91	-3.18	-1.30	1.08	0.01	2.11	-2.19
E. Garo Hills	-0.31	5.68	-2.02	-1.16	-0.61	-1.87	-0.29
W. Garo Hills	-0.80	3.18	1.49	-2.04	-0.76	-1.78	-0.71
Aizawl	-0.65	3.43	-1.02	6.46	6.21	-0.67	13.76
Lunglei	2.24	-3.05	-1.72	5.82	2.81	-1.06	5.04
Chimtuipui	1.03	3.26	-0.90	-1.55	0.84	-1.22	1.46
Kohima	1.21	4.13	-0.10	3.65	3.33	0.10	12.32
Phek	-0.79	3.01	-0.87	2.27	1.02	-0.11	4.53
Zunhebeto	-0.22	2.46	-2.78	-1.15	-1.76	-1.50	-4.95
Wokha	0.87	3.40	-1.63	-2.38	-1.33	-1.02	-2.09
Mokokchung	0.94	-5.60	-0.89	2.67	1.71	0.04	-1.13
Tuensang	-0.43	2.35	-2.17	-1.03	-3.01	-0.42	-4.71
Mon	-0.77	3.65	-3.01	-2.45	-3.55	-0.98	-7.11
West Tripura	2.90	4.65	1.28	2.50	-0.47	-0.44	10.42
East Tripura	1.57	6.06	1.73	2.01	2.48	0.49	14.34
South Tripura	0.76	1.52	-1.64	-1.18	-0.07	-1.30	-1.91

Note : Data computed from all the above indicators so as to find the over all composite score.

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