DEVELOPMENTAL ISSUES OF
NORTH EAST INDIA

. KONAR

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Introduction

— *Dhirendra Nath Konar*
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One cannot deny the influence of the given status of any region on its development process. Northeast India, with its extreme natural beauty, cultural and ecological diversities is not an exception in that sense. Different issues on the development aspects of this region can be discussed from different angles. It is really a Himalayan task to write anything about the development experience of this Eastern Himalayan Zone in a concise manner by a single effort. However, any work becomes incomplete or complete only after it is done. And that is exactly done by the authors of this book. Chapter 2 of this book reveals the demographic status of all northeastern states except Sikkim. Chapter 3 and 9 examine the relevance of so-called fundamental theories on structural change of any economy in the light of development experience of northeast India as well as Sikkim and Manipur. Chapter 4 is an effort to find out the implication of development policies in the presence of some primitive social systems. We may get some answers of the question why the tea markets in northeast India have been jeopardized from the Chapter 5. This chapter also brings the conclusion that present agricultural practice goes against sustainable development in the long run. Chapter 6 explains how poverty, environmental degradation and sustainable development have become interdependent on each other in the Char areas of Assam. Based on primary data Chapter 7

namely Manipur, Meghalaya and Nagaland have almost same density of population though the position of Nagaland is a bit better.

Let us now make a very brief description of the above-named states of India. This has been done in the following section.

A BRIEF DESCRIPTION OF THE NORTH-EASTERN STATES OF INDIA

Arunachal Pradesh

The words 'Arunachal Pradesh' literally mean the 'Land of the Rising Sun'. This is situated on the North-Eastern part of India stretching from the foothills of the Eastern Himalayas to a height of about 3000 metres. This state is known as Arunachal Pradesh because it is here that the sun appears first in India. The sun has a special place in the tradition of the people of Arunachal Pradesh.

Of all the North-East States of India, the state of Arunachal Pradesh is the most peaceful. Besides, the people of this state have neither been influenced by any force, inimical to India, nor witnessed the formation of hostile groups seeking and getting support from some of the hostile neighbours. This state has the geographical area of 83,743 sq km and it comprises of a rich tribal population which includes more than 20 Scheduled Tribes together with many other sub-tribes. The principal among these tribes are: Adi, Nishi, Apatani, Tagin, Mishami, Khampati, Nocte, Wancho, Tangsha, Singpho etc. The people of this state speak a host of tribal dialects.

This is a sparsely populated mountainous area. Formerly, the NEFA, it became the Union Territory of Arunachal Pradesh in 1972 and attained the status of statehood of India in 1987.

Assam

Assam is the gateway to the North-East India. This state is very much known for its breath-taking scenic beauty, rarest flora and fauna, lofty green hills, vast rolling plain, mighty water ways and a land of fairs and festivals. The name 'Assam' is, however, a recent origin. It came into use after the conquest of Assam by the Ahoms. It is also known that the name 'Assam'

has been derived from the word 'Asama' which means peerless. Judging by the place's exquisite natural beauty, cultural richness and human wealth Assam has a rich legacy of culture and civilization behind her. It is the home to different races of men, namely Austric, Mongolian, Dravidian and Aryan who came to dwell in these hills at different points of time. Assam has developed a composite culture of variegated colour.

An ideal meeting ground for diverse races, Assam has given shelter to streams of human waves carrying with them distinct cultures and trends of civilization. Austro-Asiatics, Negritos, Dravidians, Alpines, Indo-Mongoloids, Tibeto-Burmese and Aryans had entered into Assam through different routes and contributed in their own way towards the unique fusion of a new community which came to be known in later history as the Assamese. In spite of such intruders Assam had remained primarily a land of the Tibeto-Burmese.

The inhabitants of Assam can be divided into three categories, namely (1) the tribal population, (2) the non-tribal population, and (3) the scheduled castes. The tribals consist of different ethno-cultural groups : Kacharis (Bodos), the Meris, the Deosis, the Rabhas, the Nagas, the Garos, the Khasis etc. The non-tribals include Ahoms, the Kayasthas, the Kalikas, the Maranas, the Muttas, the Chutias etc. The Scheduled Castes include Basfors, Baniyas, the Dhobis, the Hiras, the Kaibartas and the Namasudras etc.

In Assam the immigration was mostly from Bengal, Bangladesh, Bihar, Uttar Pradesh, Nepal and Rajasthan. Another group, known as *'Baganias'*, was brought from Bengal, Bihar, Orissa and Madhya Pradesh by the British tea-planters during the British regime for the sake of employment.

Manipur

Manipur literally means "the land of the gems". There are a number of mythical stories about the origin of the name "Manipuri". Some local people explain its link with the *Mahabharata*, the great ancient epic. They say that the name has been derived from 'Mani,' a jewel which was formerly in the possession of the Rajas (kings) of the country many a

years ago. This area was at one time named Mohindrapore but, Bubra Baha, the Raja, changed the name to Manipur.

This North-Eastern state is surrounded by Nagaland, Assam and Mizoram. It has an international border with Myanmar in the east. This state formally became a part of the Indian Union in 1949 and ultimately, it got the statehood of India in 1972. Nearly 68% of the state's geographical area is covered by forests which are of poor quality and it is very difficult to get access there. Pundit Jawaharlal Nehru, our late Prime Minister, described Manipur as the 'jewel of India'. By virtue of its geographical situation Manipur has become a shining pearl in the Himalayan system. Manipuris call it "Meithei Leipak".

The population of Manipur comprises of different social groups, namely, Meiteis, Nagas, Kukis and miscellaneous groups. The whole population of this state has been distributed into two regions: 1. the hill population and 2. the valley population. The people of the valley region are assumed to be the descendants of the four old tribes called (a) Khuman, (b) Luang, (c) Moirang and (d) Maithai. The people of the hill region can, broadly, be divided into (a) Naga and (b) Kuki Tribes.

Meghalaya

The word 'Meghalaya' means 'abode of the clouds'. This hilly state, one of the wettest places in the world, truly carries the significance of the meaning attached to it. After protracted battles and bloodshed, it was created as an autonomous state within the state of Assam on 2nd April, 1970. It was declared as a state of the Indian Union on 21st Januarary, 1972. It is situated in the North-Eastern region of India between the Brahmaputra valley in the North and the Bangladesh in the South. Geographically, the state of Meghalaya is known as the 'Meghalaya plateau' or the 'Shillong plateau'.

Meghalaya is the home of the tribals the prominent of whom are the Khasis, Jaintias, Mikirs and Cacharis who are said to have inhabited this region before the Christian era.

The calm and passive exterior of the land of flowers, valleys, flowing rivers and snow-peaked mountains hides a history of

hard-fought battles and territorial skirmishes between tribes This state is being dominated by three principal groups or people: 1. the Garo in the East and West of Garo hills, 2. the Khasi-Pnar in the East and West of Khasi hills and 3. the Jaintia. These people follow, primarily, a matrilineal system. The Khasi-group belong to the Mon-Khmer sub-family of the Austro-Group of people. The Garo-Group is a part of the greater Bodo Kacheri family both by the ethnic group and language. Their present location enabled them to maintain many of their traits and characteristics.

Mizoram

The word 'Mizoram', in local language, means 'the land of the Mizos' while the word 'Mizo' itself means highlander. Under the British administration Mizoram was known as Lushai Hills district. In 1954 by an act of the Parliament the name was changed to Mizo Hills District. In 1972 the moment it was made into a Union Territory, it was named Mizoram. This became the 23rd State of the Indian Union on 20th February, 1987.

This state is situated between 21° 58' to 24° 29' north latitude and 92° 29' to 93° 22' east longitude. It may be mentioned that the tropic of cancer has passed through the Capital of the state, Aizawl. This state occupies the North-East corner of India. Its shape is rather like a narrow and inverted triangle. It is bounded on the North by the district of Cachar (Assam) and the state of Manipur, on the East and South by Chin Hills and Arakan (Myanmar) on the West by the Chittagong Hills Tracts of Bangladesh and the state of Tripura. This borders three states of India, namely Assam, Manipur and Tripura. Its geographical borders with Assam, Manipur and Tripura are extended over 123 km, 95 km and 66 km respectively.

Mizoram is a land of hills which run in ridges from North to South. They have an average size of 900 metres, the highest point being in the Blue Mountain (2165 metres). There are a number of rivers in this state.

Nagaland

Nagaland is the 16th state of Indian Union and was established on 1st December, 1963. It may be mentioned that gradual contacts with the Ahoms of the present-day Assam was established in the 12th and 13th centuries. However, it had little impact on the traditional Naga way of life. In the 19th century the British appeared on the scene and ultimately the area was brought under the British-administration. After Independence this was temporarily made a centrally administrated area in 1957 when it was administered by the Governor of Assam. At that time it was known as the 'Naga Hills Tuensong Area'. This failed to quell popular aspirations and naturally, unrest started developing. Subsequently, this was renamed as Nagaland in 1961 and was given the status of statehood of the Indian Union and was formally inaugurated on 1st December, 1963.

The name 'Naga' has been derived from the Burmese word 'Naka' which means people with 'perforated ears'. The Nagas who pierced their ears to accommodate big wooden plugs and other ornaments, had been given this name while they were passing through the Burmese territories during migratory stages thousands of years ago from the Southern China to Naga hills. They are from a distinct Mongoloid stock and they speak languages that belong to the Tibeto-Burman linguistic group.

The Nagas are, primarily, a handsome and friendly people. High cheek bones, almond eyes, sparkling teeth and brovized skin set the Nagas apart. The people of Nagaland are entirely tribal. Among the Nagas there are 14 tribes: Angami, Ao, Chakhesang, Chang, Khemungan, Konyak, Lotha, Phom, Pochury, Rengma, Sangtam, Sema, Yimchunger and Zeliang.

Nagaland is, principally, a rural state. More than 80 per cent of its population lives in small and isolated villages. Built on the most prominent points along the ridges of the hills, these villages are once stockade with massive wooden gates approached by narrow, sunken paths. The villages are normally divided into *khels* or quarters, each with its own headmen and

administration. In Nagaland there are only four urban centres, namely Dimapur, Kohima, Mokokchung and Thensang with more than 20000 people.

Tripura

The second smallest state in India is Tripura. On 1st November, 1957 it was formally declared as a Union Territory. On 21st January, 1972 it was elevated to the status of a full-fledged state. With a history shrouded in legends and traditions this state represents a land ruled by Rajas (Kings). It is also said to have played a crucial role in the famous battle of Kurukshetra in Haryana. A line of 74 Rajas ruled over Tripura after which the Rajas were called by the title of 'Manikya'.

TREND OF POPULATION GROWTH IN THE NORTH-EASTERN STATES OF INDIA

According to the census of 2001, total population, living in the seven states of the North-East India, is 38,445,000 and this constitutes only 3.54 per cent of the total population of India. Again, the geographical area, covered by these states, is 254,000 sq. km which is just 8.02 per cent of the whole area of India. Besides, the average density of population living in these states is 152 per sq. km. The population in these states is not evenly distributed. This can best be understood if we probe into the percentage distribution of area and that of population in these seven states, this is reflected in Table 1.

It is quite evident from Table 1 that more than 69 per cent of the population of the North-Eastern states of India live in Assam alone, which has only about 31 per cent of the geographical area of the region. On the other hand, Arunachal Pradesh sharing more than 33 per cent of the geographical area has been nourishing only about 3 per cent of total population of the region. Again, Tripura, possessing about 4 per cent of the geographical area of the region, has been sustaining about 8 per cent of population of the region. Moreover, about 6 per cent of the population of the region has been living in Meghalaya which shares about 9 per cent of the geographical area that falls in this region. Thus the percentage distribution of population in the states of the region

Table 1
Percentage Distribution of Area and Population in the North-East States of India in 2001

States	Geographical Area	%age of Geographical Area	Population (in '000)	%age of population
Arunachal Pradesh	84000	33.07	1098	2.86
Assam	78000	30.71	26656	69.34
Manipur	22000	8.66	2294	5.97
Meghalaya	22000	8.66	2319	6.03
Mizoram	21000	8.27	889	2.30
Nagaland	17000	6.69	1990	5.18
Tripura	10000	3.94	3199	8.32
Total	254000	100.00	38445	100.00

Source: Computed from census reports of relevant years.

is not commensurate with the percentage distribution of the geographical area. On the whole, it can, thus, be inferred that most of these states are sparsely populated. The basic reasons behind this are that these are mountainous and hilly regions and are full of forest and many areas have not yet been made for human habitation. In Arunachal Pradesh 82.2 per cent of the geographical area is covered with forests, in Manipur this is 77.9 and in Assam this is 30.2 per cent.

In the light of the above let us now took at the trend of the growth of population in the North-Eastern states of India since Independence. Table 2(a) has displayed the actual population of these states in each of the six censuses that had been undertaken in our country since independence. It is apparent from this table that in each state population has, gradually, been increasing over time, though there is variation in the magnitude of the increment. To know the exact magnitude of the rate of growth of population of each of these states we have fitted the exponential curves having the form where 't' is time, P is the estimated population, a and b are

two parameters whose values can be obtained, in the usual way, by solving two normal equations. This curve has been fitted to the data supplied in Table 2(a). We have done this for each state over three different periods, namely (1) between 1951 and 2001, (2) between 1971 and 2001 and (3) between the last two consecutive censuses that is, between 1991 and 2001. For each state we have computed the annual trend growth rate over each and every period mentioned above. All these informations have been put in Table 2(b) from which we notice that in the second half of the 20th century (that is, between 1951 and 2001) population of India increased at the rate of 2.36 per cent compounded annually. Each of the seven North-Eastern states of India has experienced a growth rate of population higher than the all-India figures just mentioned.

Of the seven such growth rates the least with the magnitude of 2.73 per cent per annum was attained by Assam whereas the highest having the magnitude of 5.41 per cent per annum was experienced by Nagaland. The growth rates attained by the remaining states were, more or less, of similar magnitude. The compound annual growth rate (CAG) of population in the second period between 1971 and 2001 had, generally, declined. The magnitude of decline is marked in Tripura (from 3.68 per cent per annum to 2.78 per annum) and in Assam (from 2.73 per cent per annum to 2.23 per cent per annum). This rate had, however, increased in Nagaland (from 5.41 per cent per annum to 5.67 per cent per annum), in Mizoram (from 3.62 per cent per annum to 3.90 per cent per annum) and in Meghalaya (from 3.12 per cent per annum to 3.17 per cent per annum). We get perplexed by noting that the CAG of population in each and every state dealt with here has been reduced to a great extent in the third period between 1991 and 2001. This is particularly true to Mizoram from 3.90 per cent per annum to 2.57 per cent per annum and in Arunachal Pradesh from 3.30 per cent per annum to 2.41 per cent per annum. It may be mentioned here that on all-India basis the CAG of population in the decade 1991-2001 was reduced to 1.97 per cent from 2.34 per cent attained between 1971 and 2001. It is a great relief to state that at long last

Table 2(a)
Population of North-eastern States of India in the Last Six Censuses (in thousand)

State	1951	1961	1971	1981	1991	2001	Density per sq km in 2001
A.P.	-	337	468	632	865	1098	13
Assam	8029	10837	14625	18041	22414	26656	340
Manipur	578	780	1073	1421	1837	2294	107
Meghalaya	606	769	1012	1336	1775	2319	103
Mizoram	196	266	332	494	690	889	42
Nagaland	213	369	516	775	1210	1990	120
Tripura	639	1142	1556	2053	2757	3199	304
INDIA	361088	439235	548160	683329	846421	1028737	324 *

*excluding Jammu & Kashmir.
Source: *Economic Survey*, 2005-06, Government of India.

we have been able to reduce the population growth rate not only of our country but also of the majority of the states of our country.

Table 2(b)
Trend in Annual Growth Rate of Population in the North-East States of India in Different Periods after Independence (in percentage)

State	Between 1951 and 2001	Between 1971 and 2001	Between 1991 and 2001
A.P.	3.47*	3.30	2.41
Assam	2.73	2.23	1.75
Manipur	3.21	3.04	2.25
Meghalaya	3.12	3.17	2.71
Mizoram	3.62	3.90	2.57
Nagaland	5.41	5.67	5.10
Tripura	3.68	2.78	1.50
India	2.36	2.34	1.97

* Between 1961 and 2001.

Source: Computed from Information Supplied in Table 1(a) by Fitting the Exponential Curve $P^t = Ab^t$. The Annual Growth Rate, $R = (1-b) \times 100\%$.

Let us now turn to the projected population that these states will have when the next census will take place in February, 2011. In doing so we shall adhere to the CAG that these states attained earlier. We have noted in Table 2(b) that there are three are CAG's attained by each state. However, we have fitted the population growth curve of each state on the basis of the CAG attained by the respective state between 1971 and 2001. Since the census years 1951 and 1961 are too back from the current year we have, while projecting population in 2011 not considered the CAG experienced by the states in the first period between 1951 and 2001. We have rather estimated population that these states will likely have in 2011 on the basis of CAG experienced between 1971 and 2001 and also between 1991 and 2001. Hence, for each state there are

Table-2(c)

Population Growth Curves of North-eastern States of India, Assuming Constant Annual Trend Growth Rate of Population During 1971 and 2001

State	Population Growth Curves	Projected population in 2011 as revealed through the fitted curve (in thousand)	Projected population in 2011 on the basis of CAG between 1991 and 2001 (in thousand)
Arunachal Pradesh	$P_t=473.81(1.33015)^{T-1971}$	1483.21	1393.24
Assam	$P_t=14724.01(1.2233)^{T-1971}$	32972.96	31705.83
Manipur	$P_t=1079.508(1.3045)^{T-1971}$	3126.10	2997.23
Meghalaya	$P_t=1014.61(1.3172)^{T-1971}$	3054.25	3029.90
Mizoram	$P_t=343.72(1.3904)^{T-1971}$	1284.58	1145.79
Nagaland	$P_t=504.81(1.5673)^{T-1971}$	3046.05	3272.50
Tripura	$P_t=1594.51(1.2775)^{T-1971}$	4246.89	3712.57
All-India	$P_t=552889.06(1.23399)^{T-1971}$	1281989.77	1250341.23

Source: Computed from Information Supplied in Table 1(a), Assuming CAG Obtained From the Second Column of Table 2(b).

two estimates of population in 2011. Of late, there is a declining trend in the CAG of population and we expect that the projected population calculated on the basis of CAG of population attained between 1991 and 2001 will be more realistic. To verify this we have to wait for a few more years.

The population growth curves of each of the seven states of our concern and also of India have been obtained by fitting the exponential curve on the actual census population of the respective states and India between 1971 and 2001.All this information have been placed in different columns of Table 2(c).

URBANIZATION IN THE NORTH-EASTERN STATES OF INDIA

One of the most significant of all post-war demographic phenomena is the rapid growth of cities in the developing countries. Demographically, urbanization means an increase in the population of the urban population in the total population of a country over a period of time. In India there has been a rapid growth of urbanization. This is especially true since 1961 when the percentage of people living in urban areas was about 18. In 1971 this percentage increased to about 20. In the subsequent three censuses this percentage moved to 23.28, 25.71 and 27.79 respectively. Among the major states of India the highest rate of urbanization in 2001 (that is 49.9%) has been seen in Tamil Nadu. In this respect all states of the North-East zone barring Mizoram have cut a poor figure. Table 3 will display the nature of urbanization among the states of the North-East Area.

It appears from Table 3 that among the North-East States of India the least urbanized state is Assam where about 13 per cent of the population lives in the urban areas. On the other hand, Mizoram is the highest urbanized state as it is here where 50 per cent of the state's population lives in the urban areas. Manipur with about 24 per cent of the urban people has occupied the second place in the race for urbanization among the North-Eastern states of India. The nature of urbanization in both Arunachal Pradesh and Meghalaya is almost identical in the sense that about one-

fifth of the population of both these states lives in urban areas. Again, Nagaland and Tripura have experienced almost similar type of urbanization as about 17 per cent of the people of both these states reside in urban areas.

Table 3
Nature of Urbanization in the North-east States of India

State	%age of rural people	%age of urban people
Arunachal Pradesh	79.74	20.26
Assam	87.28	12.72
Manipur	76.12	23.88
Meghalaya	80.37	19.63
Mizoram	50.50	49.50
Nagaland	82.26	17.74
Tripura	82.98	17.02
All India	72.30	27.7

Source: Census of India, 2001.

On the whole, it may be said that the pattern of urbanization that the states of North-Eastern Area have been experiencing is not at all bright. Many steps are required to be taken in order to awaken a sense of urbanization among the people of these states.

THE TREND OF SEX RATIO IN THE NORTH-EASTERN STATES OF INDIA

An important demographic feature of any country in the world is the female-male ratio also called the sex ratio, defined as the number of females per one thousand of males. In India this ratio has overtime become unfavourable to women, though in the early part of the last century it was, to some extent, favourable to the women. Among the states and Union Territories of India only in Kerala and in Pondicherry this ratio has gone highly favourable to women. In the light of this general trend prevalent in India let us see the nature of sex ratio that the states of the North-East India have been experiencing since independence. Table 4 will portray the trend of sex ratio prevailing in the North-Eastern states of India.

Table 4
Pattern of Sex Ratio among the North-eastern States of India

States	1951	1961	1971	1981	1991	2001
Arunachal Pradesh		894 (6)	861 (7)	862 (7)	859 (7)	901 (7)
Assam	868 (6)	869 (7)	896 (5)	910 (5)	923 (4)	932 (5)
Manipur	1036 (2)	1015 (1)	980 (1)	971 (1)	958 (1)	978 (1)
Meghalaya	949 (4)	937 (3)	942 (4)	954 (2)	955 (2)	975 (2)
Mizoram	1041 (1)	1009 (2)	946 (2)	919 (4)	921 (5)	938 (4)
Nagaland	999 (3)	933 (4)	871 (6)	863 (6)	886 (6)	909 (6)
Tripura	904 (5)	932 (5)	943 (3)	946 (3)	945 (3)	950 (3)
All-India	946	941	930	934	927	933

Source: *Census of India* (relevant years).
Note: Figures within parentheses indicate ranks in decreasing order attained by the states.

The information on the sex ratio contained in Table 4 divulges that in each census year the sex ratio is either three or four states of the North-East region has been higher than the all-India figure. In earlier censuses (that is, in 1951 and 1961) this ratio was highly favourable to women in both Manipur and Mizoram. In the subsequent censuses, however, there has been a reduction in this ratio in both the states, though this ratio is the highest in Manipur among the North-Eastern states in each census year since 1961. In Meghalaya this ratio has, gradually, been turning favourable to women. Since 1951 this ratio had fluctuated very greatly in Mizoram. Both Arunachal Pradesh and Nagaland have experienced the worst sex ratio. In Assam this ratio has, overtime, been turning favourable to the women. In Tripura also this ratio has been turning in favour of the women. It is also seen from Table 4 that the ranks attained by the North-Eastern states of India in the sphere of sex ratio since independence have more or less been of the same pattern. One basic reason behind higher sex ratio in both Manipur and Meghalaya in 2001 is the relatively higher percentage of female population in these two states. This picture has been presented in Table 5.

Table 5
Percentage of Female Population in Total Population in the North-east States

States	Percentage of female population in the total population in 2001
Arunachal Pradesh	47.40 (7)
Assam	48.24 (5)
Manipur	49.46 (2)
Meghalaya	50.64 (1)
Mizoram	48.40 (4)
Nagaland	47.62 (6)
Tripura	48.73 (3)
All-India	48.27

Source: *Economic Survey*, 2001-02, Government of India.
Note: Figures within parentheses indicate ranks in decreasing order attained by the states.

Table 5 demonstrates that on all-India basis the female population accounts for 48.27 percentage of the total population in 2001. Three states of the North-Eastern region, namely Arunachal Pradesh, Nagaland and Assam have percentage of female population lower than the all-India figure. It is interesting to note that the ranks attained by the states concerned in sex ratio in 2001 revealed in Table 4 and also those in the percentage of female population in total population revealed in Table 5 have been identical (in case of Manipur and Meghalaya, however, the ranks have just been inter-changed).

We now bring out the trend of sex ratio among the children in the age group of 0-6 years in the North-Eastern states of India. This has been expressed in Table 6.

Table 6

Sex Ratio among Children in the Age Group of 0-6 Years in the North-Eastern States

State	1981	1991	2001
Arunachal Pradesh	984	982	961
Assam		975	964
Manipur	991	974	961
Meghalaya	995	986	975
Mizoram	994	969	971
Nagaland	991	993	975
Tripura	983	967	975
All-India	979	945	927

Source: *Census of India*, Relevant Issues.

An alarming situation that has come out from the census 2001 is a marked decline in the gender ratio in the age group of 0-6 years. On all-India perspective this ratio declined from 979 in 1981 to 945 in 1991 and further to 927 in 2001. This is the general trend of this ratio in most of the major states and Union Territories of India. In case of the North-Eastern states of India we notice that this decline is prominent in Arunachal Pradesh where it got reduced to 961 in 2001 from

982 attained in 1991. Similar is the situation in Assam, Manipur, Meghalaya and Nagaland. Only in Tripura this ratio improved to 975 in 2001 from 967 that it attained in 1991. In Mizoram there was a marginal improvement in this ratio in 2001. The sharp fall in the child sex ratio in the majority of states and Union Territories in India will have a serious impact on general sex ratio which will be counted in our forthcoming census of 2011.

We may rightly state here that not much has changed since the 1980's when the Nobel Laureate Professor Amartya Sen had coined the term 'missing women' just to describe those literally not alive because of negligence and discrimination.

Let us now bring out the trend of literacy rate among the states of the North-East India.

TREND OF LITERACY RATE IN THE NORTH-EASTERN STATES OF INDIA

It is a fact that since Independence there has been a good dissemination of education in the far and wide of our country. Still there is much to be attained. According to the census of 2001 about 65 per cent of the people of India are literate. In Bihar this ratio is very dismal, only 47 per cent. Besides, in many states literacy rate among women is highly miserable. In the light of this perspective we may dwell on the progress of education among the North-Eastern states of India. Table 7 will give a focus on this direction.

Table 7 displays that among the North-Eastern states Arunachal Pradesh is very backward in the field of education. It is here that there are 44 per cent literate males. In this respect Mizoram is very advanced. In this state the literacy rate is more than 88 per cent; among the females this rate is more than 86 per cent and in case of males this rate is more than 91 per cent. It may be mentioned here that among the States and Union Territories of India the place of Mizoram in the sphere of education is second, the first place being occupied by Kerala where the literacy rate is about 91 percent and among the female this rate is as high as 88 per cent and among the male people this is more than 94 per cent. Education in the form of reading and writing was first introduced in

Mizoram by the British. The initiative in disseminating education there was taken by the Christian Missionaries. The first school in Mizoram was started by the Missionaries in Aizawl in 1897. Besides, three Government primary schools were opened in Aizawl in 1898.

The literacy rate in Tripura is also satisfactory and the position of this state in the field of education among the States of the North-Eastern region is just below Mizoram. Manipur has attained the third rank and Nagaland has got the fourth rank. A highly favourable literacy rate among both males and females in Mizoram cannot, however, explain a relatively low sex ratio in this state. For the prevalence of a low sex ratio in this state there may be other reasons for which a deep probe into the subject is badly needed.

TREND OF INFANT MORTALITY RATE ACROSS STATES OF NORTH-EASTERN REGION

An excellent index of the general healthiness of a community is the Infant Mortality Rate (IMR), which is defined as the probability of dying before the attainment of the first birth day:

$$IMR = q = 1000 \times D/B,$$

where D is the number of deaths among children of age 0 last birth day (lbd) and B is the number of live births during a year. For obvious reasons, a low value of IMR will imply that the general health of the community has improved. Besides, such a value has a direct impact upon the reduction of the birth rate of the community. This is especially suggestive in our country that is badly in need of reducing the birth rate so as to lower the growth rate of population of our country.

It is fact that in IMR the position of India when compared with that of the developed countries is not at all satisfactory. In 2002 the IMR in India was 64. Kerala with an IMR of 10 topped the list of major states and Union Territories of India. In this sphere the performance of Tamil Nadu (44), Maharashtra (45) and West Bengal (49) is relatively good. Under this background we may describe the performance of the North-Eastern states in the sphere of IMR. Table 8 will portray this picture.

Table 7
Literacy Rates of the North-eastern States of India (In Percentage)

States	1951	1961	1971	1981	1991	2001		Total
						M	F	
Arunachal Pradesh	-	7.13	11.29	25.55	41.59	64.07	44.24	54.74
Assam	18.53	32.95	33.94	-	52.89	71.93	56.03	64.28
Manipur	12.57	36.04	38.47	49.66	59.89	77.87	59.70	68.87
Meghalaya	-	26.92	29.49	42.05	49.10	66.14	60.41	63.31
Mizoram	31.14	44.01	53.80	59.88	82.26	90.69	86.13	88.49
Nagaland	10.52	21.95	33.78	50.28	61.65	71.77	61.92	67.11
Tripura	-	20.24	30.98	50.10	60.44	81.47	65.41	73.66
All-India	18.33	28.30	34.45	43.57	52.21	75.85	54.16	65.38

Source: *Economic Survey*, 2001-02 and 2005-06, Government of India, and Census of India, Relevant Issues.

Table 8
Infant Mortality Rates in North-east States (Per 1000 Live Births)

State	1961			2002			2003		
	M	F	P	M	F	P	M	F	P
Arunachal Pradesh	141	111	126	64	60	62	59	59	59
Assam	Na	Na	Na	70	71	70	69	65	67
Manipur	31	33	32	13	07	10	18	13	16
Meghalaya	81	76	79	64	69	66	56	59	57
Mizoram	73	65	69	09	02	05	16	17	16
Nagaland	76	58	68	-	43	20	Na	Na	Na
Tripura	106	116	111	35	31	33	36	27	35
All-India	122	108	115	62	65	63	57	64	60

Table 8 exposes that in the sphere of the IMR Mizoram has revealed a superb performance in 2002. It is unimaginable that in this state the IMR is only 5. It is worthy to mention that for females the IMR is just 2 while for males this is 9. Again, another state of this region, Manipur, has shown an IMR of 7 for females and 10 for all persons in 2002. However, these two states failed to keep up their performance in the following year. The IMRs are relatively poor in Assam, Arunachal Pradesh and Meghalaya. The performance of Tripura in IMR is quite satisfactory. On the whole, it can be said that Mizoram, Manipur and Tripura have made a great contribution towards reducing IMR, especially of the females. The remaining states should emulate the performances of these states and try to reduce the IMRs of their states.

SUMMARY AND CONCLUSION

In the previous sections we have discussed various aspects of the demographic features of the North-Eastern States of India. We have seen that these states are sparsely populated. The density of population is extremely low. This is especially true in Arunachal Pradesh and Mizoram. Urbanization in the states of this region other than Mizoram, Manipur, Arunachal Pradesh and Meghalaya is not worth mentioning. The sex ratio in States other than Manipur, Meghalaya and Tripura is unfavourable to women. Females in states other than Meghalaya and Manipur have a relatively lower share in total population. The literacy rate, especially among females, is very poor in Arunachal Pradesh, Assam, Manipur and Meghalaya. However, one field in which some states of the region have excelled well is the infant mortality rate. In this respect the contributions of Mizoram and Manipur are really enviable. The annual growth rate of population in each and every state of this region between 1991 and 2001 has significantly come down. The per capita income of most of the states, especially Arunachal Pradesh, Meghalaya, Manipur and Tripura is quite satisfactory. In spite of this, poverty has been prevailing there. A symptom of this will appear in Table 9.

Table 9 explains that more than one-third of the above-named states of the North-East India are in the grip of poverty.

The inevitable consequence of poverty is so many tensions and many unwanted happenings. We are to try heart and soul to eliminate poverty not only from the North-Eastern states of India but also from the far and wide of our country.

Table 9
Population Below Poverty Line in 1999-2000 in Some States of North-east India

State	Total No. of Persons (million)	Percentage Share
Assam	9.5	36.1
Manipur	0.7	28.5
Nagaland	0.5	32.7
Tripura	1.3	34.4
All India	260.3	26.1

Source: *Statistical Outline of India, 2002-03*, Tata Services Ltd. p. 152.

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3

Structural Changes of the Economies of India's North-Eastern States Since 1980 with a Special Case Study on Sikkim

— *Dr. Kanak Kanti Bagchi**
— *Subhabrata Chakrabarti***

SECTION A

North-East of India constitutes the eight "sister states" of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. These states cover an area of 2.62 lakh sq. km which is 7.9% of the total area of the country. As per census report 2001 the eight states together constitute 3.8 per cent of the total population of the country with literacy rate 68.7 per cent, higher than national average 65.3 per cent. The north-east India's economy is generally identified by low per capita income, low capital formation, inadequate infrastructure facilities, geographical isolation and communication bottleneck, inadequate exploitation of natural resources like mineral resources, hydropower potential, forests etc., lack of industrial base and investment opportunities. Per capita income in the NE region is on the average Rs. 12,918

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against the national average of Rs. 17,947 at current prices 2001-2002.

FUNDAMENTAL THEORIES ON STRUCTURAL CHANGE

Structural change can give us idea about the key factors, which determine the speed and direction of development of any country (Johnson and Kilby, 1975). Since the inception of industrial revolution, it is observed that as time goes on, the trend of absolute levels of GNP, total consumption, investment, overall employment, are characterized by permanent changes in the long run. Short run changes are reversible and in the long run temporary deviations cancel each other. The genuine structural changes are permanent and irreversible (Passinetty, 1993). To get a genuine structural change an economy has to pass through a number of transitional phases. These transitional phases may be of typical 'U' type. The relevant question in this context is under the conception of genuine structural change can negative growth of any parameter be allowed? Apparently with a continuous adjustment between rising aggregate demand and supply the question of negative growth does not arise. If not, then the existence of genuine structural change becomes jeopardized. Developed economy, along with almost consumption saturation and low growth potential is experiencing this problem now-a-days. General models applicable to all countries can be derived from the following assumptions (Meier, 1995)—"(a) Similar variations in the composition of consumer demand with rising per capita income, dominated by a decline in the share of food-stuffs and a rise in the share of manufactured goods, (b) Accumulation of capital—both physical and human- at a rate exceeding the growth of the labour force, (c) Access of all countries to similar technology, and (d) Access to international trade and capital in-flows. All these assumptions are hidden in the conceptual theories provided by a number of economists e.g. Smith (1776), Ricardo (1917), Harrod-Domar (1930), Schumpeter (1934), Myrdal (1957), Hoffman, Hircshman (1958), Baumol (1967), Kaldor (1968), Gershuny (1987). On these theories a number of economists again have provided their comments e.g. Hicks (1965), Nurkse

(1953), Rosenstine-Rodan (1943), Flores and Santos (1995). With a close observation we can say that the same facts of structural changes have been explained from different angles in all these theories. For our present purpose we are considering some of the conceptual theories mentioned below.

Fisher and Clark (1940) concept—Any country is assumed to experience gradual expansion of primary, secondary and tertiary sector. Income elasticity of demand for agricultural goods is lowest and that of service sector is highest. Thus, with the growth of the economy, as income grows people will satisfy their basic needs from primary sector and gradually start consumption of industrial products and services more and more. The strength of service sector in a developed economy generally becomes high, because its average consumption level of industrial goods gradually becomes closer to the saturation point. For some less developed countries it is possible to have a large contribution of tertiary sector without having a developed manufacturing sector.

Lewis (1954) concept—Lewis suggested that the modern industrial sector would attract workers from the rural areas. The wage level offered by the industrial firms would guarantee a higher quality of life. Furthermore, as the level of labour productivity is so low in traditional agriculture sector, people leaving the rural area would have virtually no impact on output. Indeed the amount of food available to the remaining villagers would increase as the same amount of food could be shared amongst fewer people. This may generate a cash economy through selling surplus crops. Those people who moved away from the villages to the town would earn increased incomes and generate savings. Urban migration from the poor rural areas to the relatively richer industrial areas gave workers the opportunities to earn higher incomes and save more providing funds for entrepreneurs to invest. It is expected that income generated by the industrial sector may trickle down throughout the economy. The analysis has to face an obstacle if the capital formation is labour saving (Renolds, 1956). Through the entire process one time may come when all the surplus labour from agriculture sector are absorbed. This is a time of commercialization of this sector (Ranis and

Fei, 1961). The assumption of unlimited supplies is the most important assumption of the classical system on the theory of development (Jorgensen, 1966)

Rostow (1960) concept—The transition from underdeveloped to developed status of an economy can be explained in terms of a series of stages which all countries must follow. As for American historian *W.W. Rostow* - "It is possible to identify all societies, in their economic dimensions as living within one of five categories: the traditional society. the preconditions for take-off into self sustaining growth, the drive to maturity, and the age of high mass consumption. . . . These stages are not merely descriptive." In the early stages of development the inspiration for industrialization must come from the agricultural sector which creates the demand for industrial good. The path of economic development is characterized by a change in the composition of aggregate output, with a decline in the share of agriculture and the rise of industry to begin with, and then a boost in the share of services at the cost of industry, further on.

Kuznet (1965) concept—Throughout the transition from primary to secondary sector agricultural employment and output will have a trend of decline in terms of share of total labour force and GDP. Decline in agricultural progress may hamper this process unless the economy is in a situation to export manufactures for imports of foodstuffs and raw materials. A growing urban labour force must be supported by growing supply of foodstuffs. Kazushi Okhawa (1956) suggests the formula $D = P + ng$; where D is annual growth rate of demand, P and g are growth rates of population and per capita income respectively and 'n' is the income elasticity of demand for agricultural product. In general, the income elasticity of demand for agricultural product is high for LDCs along with high value of 'P' (Johnston and Mellor 1961). The contribution of agricultural sector to non-agriculture sector can not be denied in view of agricultural saving and demand for industrial product through selling marketable agricultural surplus. This sector is equally important as a major source of foreign exchange. Although history suggests that an urban bias can exploit agriculture through over-employment in this field (Lipton 1968).

Chennery (1960, 1975, 1979)—Chennery in his study, taking development experiences of countries has got some results representing structural changes of those countries. The results are: (1) As per capita income rises there is a shift from agricultural production to industrial production, (2) The share of secondary sector in GDP is gradually rising at the cost of decline in the share of primary sector, (3) Increase in school enrollment and investment with rising per capita income, 4) Decline in food consumption and increase in non-food consumption and government consumption, 5) Urbanization caused by concentrated industrialization, migration of people associated with worsening income distribution, (6) Reduction of both mortality and fertility rates as national income rises, and (7) Relative rise in the share of industrial goods in total export and a relative decline in total import.

EXPERIENCE OF NORTH-EAST INDIA

In all states of north-east India a continuous fall in the share of NSDP of primary sector has not brought a significant rise in the share of secondary sector. On the other hand, in terms of statistical figure, service sector has been flourished at the cost of decline in the share of primary sector, not of industry. But the fact of bypassing secondary sector may be explained by the disappointing performance of manufacturing sector. During 1990-2000 the growth rate of manufacturing sector in Arunachal Pradesh is negative (−4.18%). For Assam the share of manufacturing sector in total NSDP has declined from 6.53% to 4.97% during 1980-98. This figure in Meghalaya lies in between 2% to 4.2%, for Mizoram it is only 1.22% (1999-2000), for Tripura the range is 0.94% to 3.8% (1980-2000) and that of for Sikkim is 4.4% to 6.3% (1980-2000). Construction has taken a dominant role in the secondary sector in all north-eastern states.

Disappointing role of secondary sector raises the question of resource-industry linkages in the perspective of north-eastern economy. It is commonly said that an economy is poor because it is poor. But in case of north-eastern economy this is not true. In every corner of north-east region we can observe the

4

Rural Development Process and Changes in Tribal Inter-relationship Pattern in West Kameng District of Arunachal Pradesh

— *M. A. Salams*[*]

Once the development process is scaled on the material acquisition and if the tribal character of a community construed as a stage of development, then the history of evolution of homoeconomicus can be studied through the development process of material acquisition, for homosociologious has always valued: a longer life, and a comfortable life when alive, across the history. For a member of community, the level of development forms the precondition which provides working conditions for him/her to appropriate the material requisites of well-being. Given the capabilities of produce and flows of produce as effected by affordable capacities of various sections of population, the material acquisition confers the range of choices and thereby the level of freedom to enhance the well-being of an individual. The agency factor individuated in being ensures the material flow over the period of time. In this way the system reproduces itself ad infinitum. This holds true in the case of quasi-monetized and quasi-secluded tribal societies of Arunachal Pradesh. Inadequate liquidity, fragmented and

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small size of market put a limit to the material acquisition. The state of affairs could be broken only by a determined effort of government agency to accelerate the development process in the region. The infusion of liquidity through a series of developmental works and integration of local markets through the development of tertiary sector has brought spectacular change in the material acquisition of the province. With this advancement of produce, not only structural change has occurred but also Institutional and Attitudinal changes have become obvious. The effort through the paper is endeavoured to capture the continuity of change in the relationship pattern on some logistic factor with a check on excessive reductionism.

The paper has been divided into four sections. The first section quite succinctly analyses the various issues that development economics has confronted. So it is conceptual analysis. Second section deals with the under-equlibrium position of the tribal economy in Arunachal Pradesh. It basically situates the arguments on historical specificity. Since sufficient inducements are not generated within because of some in-built institutional mechanism, some externally created incentives are required which are carried out under government aegis. The third section discusses the evolutionary effort of government agency to accelerate the development process. Due to this incessant pursuance, the operational configuration of rural economy has changed significantly. The last section explains the material flow in the changed situation i.e. a contextual description.

<div align="center">I</div>

THE DEVELOPMENT PROCESS – A CONCEPTUAL ANALYSIS

The paper moves with the basic postulate that nearly all of us value two things: (i) a longer life and (ii) a comfortable living when we are alive. We presume that this valuation holds well across the history of homosapiens. Further we take the life as precondition but we make the life comfortable through the material acquisition. In other words, the agency of being gets re-oriented for enhancement of well-being. This dialectical process of interactions between agency of being and

well-being of an individual operates *ad infinitum*. A society then is simple summation of such interactions and its inevitability lies in providing the working conditions of agency factor of individual member. Through learning process, stock of knowledge is accumulated which economizes the effort of agency factor in material acquisition. This forms the general cognitive level of society. Material acquisition enhances the range of choices of individual member towards the pursuit of well-being. In other words, it confers freedom for the members. Freedom, therefore, is construed as central essence of development process for two reasons : (i) the evaluative reason, i.e. the development requires the removal of major sources of unfreedom in the form of hunger, malnutrition, inadequate clothing and sheltering (economic entitlements to the people as protective security), lack of opportunities in regard to education and health facilities (emancipation from ignorance and miseries), socio-cultural-political tyranny in the governance of civil society and therefore framing the two-layers expectations (first order expectation as well as second order expectation). Hence the liquidation of these unfreedom enhances the self-esteem factor of well-being, and (ii) the effectiveness reason, i.e. the range of choices provide the space to operate the agency factor. Hence it effectuates and reinforces the development process over the period. Thus there is close association between the material acquisition and the range of choices.

For the operational purpose the conceptual entity of the development process is reduced to the sustained increase in real per capita income of the society, for the real per capita income commands over the material requisites of well-being of the people at large. And this increase is appreciated when two conditions are met namely number of the people below poverty line must not increase; and inequality of income and wealth among the people must not be widened. Since the incidence of poverty in rural area generally is high, special effort is given in the form of anti-poverty measures to elevate poverty. This is dealt in the relevant portion of the paper.

Theoretically, in classical tradition growth is linked with trade (size of market) when mercantile capital got converted

into industrial capital. Hence, the development of industries is the necessary outcome of growth. Level of specialization and increase in dexterity of labour power through mechanization are concomitant of industrialization process. Such industrialization was possible largely because of basic support from agriculture through transferring the surplus in the form of food, raw material, and labour force. In this way industrialization generated demand for agricultural produce and thereby income in rural sector was generated which was partly spent in the consumption of industrial consumer goods partly invested in mechanizing and modernizing the agricultural production process. This was the phase when industrialized nations were professing the protectionism. Smith's *laissez faire* system and Ricardian comparative advantage principle were argued in the justifiable lines of production and trade. Thus the historical experiences of advance nations conform that development of industries and transformation of agriculture were taking place simultaneously. Since diminishing return factor was operating in agriculture, which was attributed mainly to the land factor, share of industrial produce in GNP increased and since technological advancements in industries were taking place which suited to their situations for expanding and diversifying the industries, here employments were generated; labours from rural sectors were recruited. Labour productivity differential between industrial sector and agricultural sector was minimum. In other words there was symmetry in the decline in the shares of both namely share of agricultural output in GNP and share of agricultural work force in total work force. This caused an emergence of the middle class. Flow of commodities was relatively uniform to the distribution of population on the basis of income because inequality has been modest. Hence, material acquisition was increasing due to industrial revolution and this increase was distributed among the people relatively uniformly. Thus several ranges of choices and thereby several levels of freedom have been enjoyed by the people of industrialized nations from the beginning of their development process. The nature and content of freedom evolves as per the development of material acquisition.

Whether the developing nations receive any benefit from the experiences of the advanced industrialized nations in passing through various stages of development process: the traditional stage, prerequisites stage, take-off stage, self-sustained growth stage as drive to maturity, and age of high mass consumption: or the pre-capitalist phase, capitalist phase, and post-capitalist phase. Theoretically, we hate the answers highlighting both sides: positive and negative. In positive side, we have (a) advantage of backwardness hypothesis of Gerschenkron and (b) dual economy model of Lewis (1945, 1955). In Gerschenkron (1952) analysis we receive the idea that the existence of the experiences of advanced nations in the form of stock of knowledge and techniques can be fruitfully used by the third world nations. Hence the third world nations have the advantage of their backwardness; while Lewis saw a perennial potency of development of the populous third world nations through industrialization process. His argument moved in a typical Smithian framework of development through converting the unemployed labour force into productive purposes. In negative side, we have (a) demonstration effect hypothesis and (b) false paradigm hypothesis. The demonstration effect hypothesis asserts that the trapping of modernity of the pioneers by the late comers functions as an instrument of the pioneers through transmitting the demonstration effect on the taste of the late comers: foreign consumption pattern and style of living became the status symbol. The false paradigm hypothesis contends that it is an imperialist design to get hegemony and domination of the advanced nations perpetuated over the third world backward nations. Therefore the advanced nations through their agencies in the form of World Bank, IMF, experts etc. provide the sophisticated concepts and elegant theoretical models for the development of the third world nations, which hardly suit to the varying and non-homogeneous situations of the third world nations.

Nevertheless the multi-dimensional process of development can be reduced to two important components, namely saving and investment. Thus, the key variables of development are the size of the savings and level of investment. But most of

the third world nations suffer from (i) low investible fund due to the small size of institutional savings and (ii) lack of incentive to invest due to small size of market. Hence, effort is to develop strategy for development. In this connection two strategies have been put forth: (i) the balanced growth strategy as advocated by Nurkse and (ii) unbalanced growth strategy of Hirschman. Both strategies invariably express the desirability of state intervention to regulate the operation of the economic variables for the failure of market forces in producing the desirable result. Market remains imperfect as well as incomplete. Further, it is of small size and fragmented. The balanced growth strategy expresses the desirability of exploiting complementarities through an agency of Central co-ordination. Since price mechanism cannot do job efficiently, it is believed that indicative planning would provide the required information and through various measures, e.g. tax concession, cheap credit etc. additional incentive would be generated. The unbalanced growth favours the state intervention through developing some key areas, which would create imbalance in the form of providing the employment and thereby generating income and demand. This imbalance created shortage, which has an impact on prices, and thereby profit incentive would attract the market forces to function and private investment to come forward.

Since third world nations in general are the countries of villages the over emphasis of industrialization would not bring the development of all sectors. The studies of the Organization of Production School led by Chayanov in Russia highlighted the persistent character of peasants in the rural sectors on the basis of drudgery of self-exploitation. In the same period Karl Kautsky (1988) made it clear that rural economic organization cannot be transformed through capital penetration as much as manufacturing activities. It is because of (i) the character of land, and (ii) paramount importance of land in production process. Further Kautsky (1988) argued wage labourers create more demand than peasants who produce goods for self-consumption. Hence, attainment of proper balance between industrial growth and agricultural expansion is persistently troublesome problem for developing nations.

6

Environmental Degradation and Poverty: The Intricate Linkage in the River Islands (*Char* Areas) of Assam

— *Gorky Chakraborty**
— *Pranjal Protim Buragohain***

INTRODUCTION

There have been a large number of debates concerning the inter-relationship between poverty and environmental degradation. One point of view relates environmental degradation as a byproduct of the contemporary models of development while there are others, who suggest that the existence of large-scale poverty itself happens to be the biggest source of environmental pollution. Without adding fuel to this ongoing discourse, we can certainly assume that ushering development and maintaining environmental standards are inter-related, where both the aspects are to be synchronized in such a way that it fosters an era of sustainable development.

If an economic model solely emphasizes upon statistical targets of GDP growth without addressing poverty reduction or proposes development without inequality reduction or strives to raise productivity without maintaining environmental

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safeguards, it is but very natural that the future of such a socio-economic order will be unsustainable. This in the long run will not only be self-defeating but self-destructive too.

In the light of the above framework, this paper tries to understand the intricate linkage between poverty and environmental degradation. It deals with a population group, which was patronized by the British during the early part of the 20th century to migrate from their ancestral homes in East Bengal (presently Bangladesh) to settle and cultivate the uncultured wastes in Assam for augmenting the revenue generating capacity of the colonial state. As the peasants settled in the wastelands for cultivation, these natural habitats including the river islands of Brahmaputra (locally and henceforth referred as *char*) were transformed into areas of human habitation. Simultaneously, they were also transformed into revenue generating fields for colonial India as these peasants from East Bengal by dint of hard work and traditional expertise in agriculture, produced crops in these erstwhile barren lands. This process, which started during the initial years of the last century continued unabatedly over the years.

Today, after over a century of the transformation of the *chars* into areas of human habitation there are strong indications that the level of 'environmental tolerance' has reached its flashpoints in these areas and until and unless wholesome measures are undertaken to deal with the prevailing adverse situation, it might have adverse consequence for the entire region as a whole. This paper seeks to analyze the process of environmental degradation in the *char* areas of Assam and identify the causes related with the process. It deals with environmental details along with the process of human habitation and existential reality in these areas. Simultaneously, the paper tries to understand the linkage between environmental degradation and existence of large-scale poverty in these flood plains of the state and lastly, suggests measures for sustainable livelihood of the *char* dwellers and preservation of bio diversity in these areas.

ENVIRONMENT IN THE CHAR AREAS

The Brahmaputra valley of Assam represents a tectonic-sedimentary province that is 720 km. long and 80-90 km. wide.

The elevation varies widely from 120 m at Kobo in the extreme east to 28.45 m at Dhubri in the extreme west.[1] The channel of the river occupies about one-tenth of the valley and it is the home to more than 15 million people of Assam. The river Brahmaputra flows through the state in a highly braided channel characterized by numerous mid-channel bars and islands known as *chars*. The entire Brahmaputra valley has a unique geo-environment and biodiversity of its own. In this section of the paper an attempt has been made to understand the geomorphology and biodiversity of these areas.

Geomorphology

The river Brahmaputra originates in a glacier called Tamchuk Khambab in China located in the Kailash range of the Himalayas at an elevation of about 5250 metre, between latitude 30°31' N and longitude 82°10' E. It traverses through a long route of 2,880 km covering four different countries, namely China, Bhutan, India and Bangladesh before reaching the Bay of Bengal (See Table 1).

Table 1
Area of the Brahmaputra Basin

Region	Area (mha)
China	29.30
Bhutan	5.30
India	18.70
Arunachal Pradesh	8.14
Assam	7.06
Meghalaya	1.17
Nagaland	1.08
West Bengal	1.26
Bangladesh	4.7
Total	58.00

Source: *Floods, Flood Plains and Environmental Myths* (New Delhi: Centre for Science and Environment, 1996 reprint).

Brahmaputra is the fourth largest river in terms of average discharge at the mouth, with a flow of 19,839 m^3s^{-1} (the other rivers being Amazon, Congo and Yangtze) and second in terms of sediment transport per unit drainage area (1128 metric tons/km^2) (the other being Hwang Ho)[2]. During its journey through Assam it is joined by a number of big and small tributaries, which influences the flow pattern, sediment discharge and bed load of the river in many ways. Moreover, migration of the Brahmaputra channel towards the south has been a characteristic feature of this river. There are number of major rivers in the sub-continent such as Hwang Ho, Yangtze Kiang, Irrawadi, Ganges and Brahmaputra that have various common features, which encourages the process of *char* formation in them. However, in our discussion we will restrict ourselves to the river Brahmaputra flowing across the Indian state of Assam and various aspects related with *chars* in them.

Various factors such as the nature of flow pattern, amount of discharge, bed load and sediment load of the river along with the topography of the river basin act together in augmenting the process of *char* formation. Among them four major factors which influences the process of *char* formation are:

- the existence of braided channels[3] in the Brahmaputra;
- the gradient[4] of the river;
- generation of the large quantities of suspended particles along with bed load[5]; and
- the geology of the region particularly the presence of friable and shallow, as well as sand mixed with cobbles, boulders and rocks along with the seismic instability of the area works together, which help in the process of *char* formation.

The extremely braided channels of the river along with its suspended particles and bed load combine together during floods giving rise to 'almond' shaped alluvial formations, locally known as *chars*. These *chars* thereafter become an integral part of the fluvial system of the Brahmaputra. Since these formations are built under flood environment, the height of

the *char* is never greater than the height of the highest flood. They are extremely unstable and can be wiped out by erosion during the next flood. Above all, these *chars* follow a peculiar pattern of migration. They are subjected to erosion on their upstream and deposition on the downstream, due to which they migrate downstream. This affects the geometry and location of the *chars* almost during every year.

Due to this unstable nature it is very difficult to classify these alluvial formations. However, the National Productivity Council[6] have attempted to classify *chars* in three categories— *chars* which have existed for more than 10 years are categorized as permanent, while those *chars* that are in existence for less than 10 years are regarded as semi-permanent, and those in existence for less than 5 years, are regarded as temporary *chars*. On the other hand, according to the Directorate of *Char* Areas, Assam, 88 per cent of the *chars* in Assam are permanent, 7 per cent are semi-permanent and only 5% are temporary in nature.[7]

Biodiversity[8]

The *chars* of the entire Brahmaputra valley have a distinctive biodiversity of their own. This tract happens to be the base line from which variations in the biotic environment gradually occur towards the Himalayas on the North and the Meghalaya and Karbi-Anglong plateau on the South. This is the region through which a branch of the Southwest monsoon moves eastward to cause heavy rain in the foothills of the Himalayan and Barail range. This helps in creating a microenvironment for the entire stretch of land where the *chars* exist. Moreover, the water bodies distributed in the tract along with their very rich aquatic resources attract a large number of animals and birds, particularly during winter, which adds to the biotic diversity of these areas.

The *chars,* especially the spacious and permanent ones favour luxurious growth of a variety of grasses, bushes, riverine trees and wide varieties of aquatic plants and animals which collectively form habitats, not only for resident birds, mammals, reptiles and amphibians, but also attract a large number of migratory birds too.

7

Tourist's Willingness to Pay for Biodiversity Conservation: A Case Study of Sikkim*

— *Amit Kumar Bhandari***

ABSTRACT

Nature-based tourism is the fastest growing tourism in Sikkim. A case study conducted in Sikkim on the willingness to pay higher fees for the conservation of natural resources. Data of the study were obtained from a survey conducted in different places of Sikkim. The result suggests that the current entry fee is much lower than what the majority of the tourists are willing to pay. Majority of the tourists are satisfied with the present condition of conservation. However, the percentage of tourists who are willing to pay is higher among those who are concerned with the present state of conservation. This indicates that either more resources could be generated for the conservation of biodiversity which could have been much higher if there is an adequate conservation practice.

INTRODUCTION

Tourism is an important activity all over the world. The receipts of international tourism are a valuable source of earnings for both developed and developing countries. Over the past 50

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years, in Asia pacific region there has been a dramatic growth in tourism activities, faster than anywhere else in the world. In India tourism has shown at a modest growth in recent years. As per World Tourism Organisation estimates the number of tourist arrival in India has risen from 1.68 million in 1991 to 3.92 million in 2005. However, when compared against the expansion of tourism at the global scale, India's share in tourism has fallen (Tribe, 1999). In the year 2005 India's share in world tourism arrival is pegged at 0.49 per cent. Tourism is among the major foreign exchange earner in the country. India's share in international tourist receipt recorded a sharp acceleration, raised from Rs. 4,318 crore in 1991 to Rs. 25,172 crore in 2005.

There is no proper definition of ecotourism and nature based tourism. The term ecotourism and nature-based tourism is used interchangeably. Popular tourism literature and marketing material offer many other terms that are used interchangeably with ecotourism and nature-based tourism, such as green tourism, sustainable tourism, ethical tourism, responsible tourism, conservation tourism, alternative tourism and others (McCool and Moisey, 2001). Ceballos-Lascurain (1991) define ecotourism as 'traveling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring and enjoying the scenery and its wild plants and animals as well as any existing cultural manifestations (both present and past) found in these areas'. The nature, environment and wildlife play an important role in contemporary tourism. Nature-based tourism has become the fastest growing tourism in the last decades or so[1]. The goals of ecotourism are to provide ecologically sound travel experiences that contribute to the nature, economic, social and cultural environments (Wearing and Neil, 2001). There are national and global environmental benefits of preserving areas of natural beauty, which include the benefits of biodiversity conservation, preservation of places of scenic beauty etc.

The development in tourism generates wealth, creates employment, conservation of historical and natural sites, but we can not ignore the negative impact on environment. Since natural environment is the source of livelihood for this industry,

caution must be employed from a marketing perspective for the simple reason that preservation of ecosystems and just social and economic practices may be compromised in an all-out assault on profit (Fennell, 2003). The increase in tourist inflow can put pressure on the environment. Many in this industry recognized the importance of protecting the environment from damage. However, a supervisor condition of the environment might give the destination's industry a competitive edge. In this regard, government may step into regulate tourism activities that have environment impacts which may lead to profitability among some tourism business. Government regulation is the key of any environmental management. Nevertheless, voluntary environment protection activities may pay a vital role.

Despite the imposed nature of environmental regulations, they are beneficial for tourism industry. Nowadays nature based tourism has emerged as development tool. Environment protection can offer opportunities for certain businesses because stimulation in demand can counteract compliance costs. In contrast to most other industries, the tourism industry is defined from a demand side perspective where final consumption of the product results from the activity of the visitor. On the other hand, the burden of conservation is borne largely by local and central governments. Since tourism being the most important source of revenue of the Government of Sikkim, it has got the potential to ease the financial burden of the state in conserving places of tourist attraction in Sikkim. Nature based tourism was initiated in Sikkim during the 'Biodiversity and Ecotourism Project' in the year 1995-98 and Yuksome in West Sikkim was the project site. The project has positive impact on environment. However, ecotourism in Sikkim has great threat as the number of tourists to Sikkim has increased manifold in the past two decades (Bhattacharya and Kumari, 2004).

Sikkim is one of the least industrially developed states in India. Tourism forms the backbone of the Sikkim's economy. There is very little scope for setting up medium and heavy industries in the State which could also be detrimental to the ecological balance of the State known for its rich flora and

fauna and biodiversity. Tourism is one of the sustainable industries in the state creating revenue and tremendous employment opportunities. In 2000, the Ministry of Tourism, Government of India recognized Sikkim with the National Award for the best tourist performing state in the North-East. The total number of tourist inflow in Sikkim was about 2.5 lakh in the year 2004-05. Domestic tourist is the basis of Sikkim tourism. The composition of domestic and foreigner were 94 per cent and 6 per cent respectively during 1990-2005. As far as growth in tourist arrival is concerned, domestic tourist growth recorded a growth of 10 per cent per annum, while foreign tourist grown at 9.7 per cent per annum during 1990-2005.

Figure 1: Tourist arrival in Sikkim (Domestic)

Figure 2: Tourist arrival in Sikkim (Foreign)

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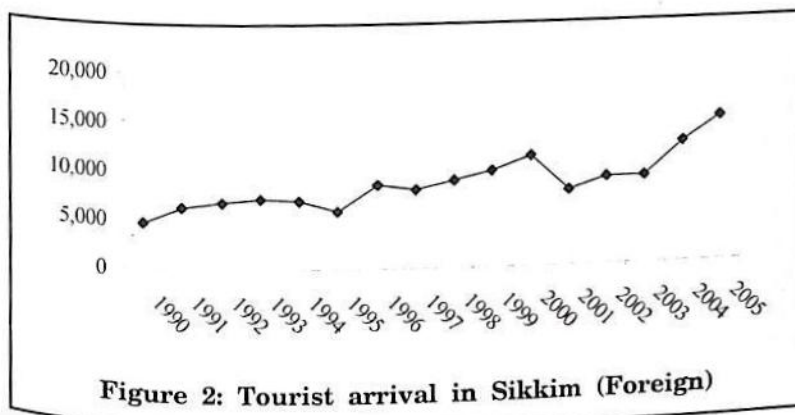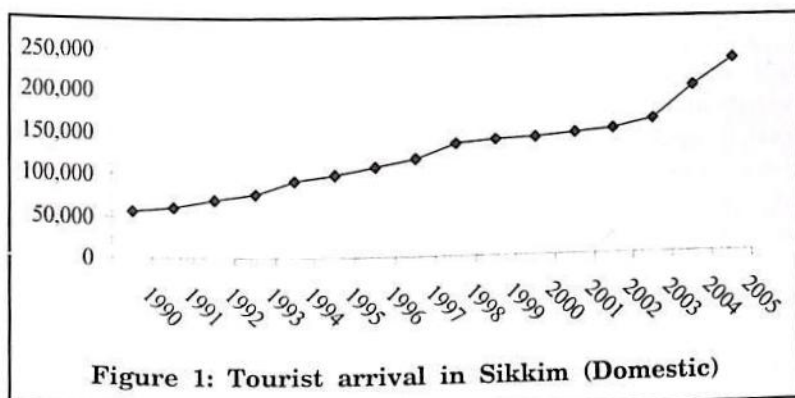
What is DONER?

— Dr. Amlan Das*

The Department of Development of North-East Region (DONER) is established on 2001 under the initiative of Government of India. Initially the venture was started with a budget of Rs. 13390.29 crore for socio-economic development in NE region and improving security scenario under the programmes on the power sector, border trade, horticulture, rural infrastructure, roads and air links, medical education and health services, industrial training institutes, information technology, border fencing and upgrading police infrastructure.

Main areas of operation of DONER are –

(i) North-East Council (NEC)

(ii) Organizations (PSU's) under administrative control of DONER

(iii) Non-Lapsable central pool of resources, and

(iv) Other activities.

NORTH-EAST COUNCIL

As an advisory body the NEC was established in 1972 for securing balanced development in NE region. The Council prepares Five-Year Plans under the guidance of State Governments and send these to Planning Commission for

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approval. Below the amount of funds approved by successive plans are given:

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Table 1

Funds Released During Plan Periods by Centre Through North-East Council

</div>

Plan	Amount (Rs. in crore)
5th Plan	54
Rolling Plan (1978-80)	65
6th Plan	385
7th Plan	779
Annual Plan (1990-91)	197
8th Plan	1800
9th Plan (1st 4 years)	1512

Source: *Annual Report, 2001-02*, Department of Development of NE Region.

<div align="center">

Table 2

North-East Council's 10th Plan Agreed Outlay

(Rs. in crore)

</div>

Sector	Amount
Agriculture & Allied Activities	198.30
Irrigation & Flood Control	132.67
Energy	563.25
Industry & Minerals	163.00
Transport	1447.32
Science, Technology & Environment	172.00
General Economic Services	10.00
Medical & Public Health	542.05
Information & Publicity	6.57
Social Welfare	148.33
TOTAL	3500.00

Source: *Annual Report 2004-05*, Department of Development of NE Region.

The specific development projects under NEC may be mentioned briefly-

a) *Roads and Bridges Construction and Maintenance.* Total amount of liability for on-going road projects was Rs. 879 crore during the period 5th Plan to 9th Plan.

b) *Airport construction* at Jorhat, Tezpur, Imphal, Lilabari, Guwahati, Agartala, Dibrugarh, Dimapur, Umroi.

c) *Inter-state Bus terminus construction* at Guwahati, Silchar, and Aizwal.

d) *Assistance to industrial sectors* such as Dry Fish Fermentation project at Imphal (Manipur), Fruit processing unit at Imphal, poultry feed production unit at Imphal, Mansion Fruit products (Meghalaya), Grace stone Crusher at Tuensang (Nagaland), Atlanta Modular Ltd (Assam).

e) *Upgradation of Science and Technology Sector.* Some of the recent programmes are: (1) Establishment of North Eastern Space Application Centre at Meghalaya, (2) Computer education in schools, and (3) Research and Development programmes on the technology for Degumming Rammie Fibre, Earthquake awareness programme, setting up mobile planetarium etc.

f) *Upgradation of Medical and Health Facility.* The names of the major Institutes funded by NEC are: (i) Regional Institute of Medical Sciences (Imphal), (ii) Regional Institute of Paramedical and Nursing (Aizwal, Mizoram), and (iii) Dr. B. Barooah Cancer Institute, Guwahati.

g) *Irrigation, Flood Control and Water Resources Development Programme.* NEC has successfully completed three flood control and anti-erosion schemes at Dimapur, Chunpura (Arunachal Pradesh) and Jaidhol river (Assam). Three projects are supposed to be started in 10th Plan period, viz. Jiri Irrigation project (Manipur and Assam), Dzuza irrigation project (Nagaland and Assam) and controlling of Jiadhol river (Assam and Arunachal Pradesh). In this connection to

strengthen the development process NERIWALM (North-East Regional Institute of Water and Land Management) has been established at Tezpur.

h) *Agricultural and Allied Activities.* Under this item NEC has financed many schemes for the development of primary sector. For example: plantation of cardamom, turmeric, mushroom, potato breeding farm at Mao (Manipur), veterinary hospital at Naharlagun (Arunachal Pradesh), vocational training centre in Kydemuklai, Meghalaya, poultry farming at Rangpo (Sikkim), fisheries development project in Mizoram, and Dimapur (Nagaland), promotion of prawn culture in Tripura.

i) *Development of Power Sector*, in Tripura, Assam and Mizoram. Five power generation stations and seven others schemes have been sanctioned during 10th Plan.

j) *Environmental Protection* is one of the main activities of NEC. To improve the management of resources in a sustainable way NERCRMP (North East Regional Community Resource Management Project) is established. Recent projects of NERCRMP to protect the environment are located in Karbi Anglong and North Cachar Hill district of Assam, Ukhrul and Senapati districts of Manipur, West Garo and Khasi Hills of Meghalaya.

k) *Manpower Development.* To develop human resource following steps are taken recently: training programme, financial support for professional course, development and promotion of youth and sports, construction of co-operative management institution (Imphal, Manipur), construction of science college at Soreng (Sikkim) and upgradation of infrastructure of Sikkim Government College at Gangtok (Sikkim).

NON-LAPSABLE CENTRAL POOL OF RESOURCES (NLCPR)

The Government of India has formed a Central pool of resources in 1997 for the North-East out of the balance amounts from 10 per cent of the budgets of various Union Ministries/

9

Empirical Investigation of Structural Change in Manipur

— *Avijit Biswas*[*]

The scenario of Manipur is totally different from the Kuznets transformation. The facts of Kuznets transformation are, *inter alia*, the increasing importance of the shifts from home to employee status. But our study deals with the empirical investigation of the "Percentage Distribution of Net State Domestic Product at Constant Prices" which is available from "Directorate of Economics and Statistics, Manipur". The investigation is based on the continuity in the availability of data from the given source, as they are all secondary data.

To investigate we have used certain methodologies. The methodologies and steps are as follows:

a) Fitting of Trend and Simple Regression Analysis (wherever necessary),

b) F-test and t-test to verify the significance,

c) Growth rate of every sector,

d) Causal relationship of the given data for different sectors,

e) Correlation analysis (parametric and non-parametric).

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Table 1
Percentage Distribution of Net State Domestic Product at Constant Prices (1980-2001)

Year	Primary Sector (Y_1)	Secondary Sector (Y_2)	Tertiary Sector (Y_3)	Time (t)
1980-81	49.10	7.65	43.25	-10
1981-82	47.70	8.34	43.96	-9
1982-83	45.86	8.42	45.72	-8
1983-84	45.79	8.45	45.76	-7
1984-85	44.96	8.80	46.24	-6
1985-86	43.78	9.04	47.18	-5
1986-87	41.85	8.80	49.35	-4
1987-88	40.85	8.72	50.43	-3
1988-89	38.79	9.76	51.45	-2
1989-90	38.26	9.48	52.26	-1
1990-91	38.02	10.20	51.78	0
1991-92	37.84	9.98	52.18	1
1992-93	35.64	10.28	54.08	2
1993-94	37.87	15.73	46.40	3
1994-95	36.92	15.43	47.65	4
1995-96	35.68	16.56	47.76	5
1996-97	32.76	18.66	48.58	6
1997-98	33.45	19.96	46.59	7
1998-99	32.36	24.99	42.65	8
1999-00	32.10	26.29	41.61	9
2000-01	31.35	26.82	41.83	10

To realize the trend of the different sectors we have to fit a simple trend equation in the form of $Y = a + bt$. Here Y is a variable and we have to find the trend (increasing or decreasing) of this variable. The time which is also a variable is denoted by "t".

Now we shall discuss the trend in the changes of primary, secondary and tertiary sectors from the year 1980-81 to 2000-01. For this we have find a trend equation.

The trend equation for the primary sector is given by:-

$$Y_1 = 39.0919 - 0.85891 \, t$$

Validating the equation we can say that there is a decrease in net state domestic products at constant prices in the primary sector. The value of R^2 is 0.96 and the value of 'F' statistic is given by $F_{(1, 19)} = 456$ which is statistically significant at 5% and 1% probability levels. Here the growth rate for the given interval (1980-2000) is -2.19% which is also statistically significant at 1% and 5% probability levels. From the Pearson and Spearman's two tailed correlation test we got Pearson correlation coefficient $= -0.980$ and Spearman's correlation coefficient $= -0.988$ and is significant at both the probability levels (1% and 5%). So they are negatively correlated which validates the trend equation. From the given one sample 't' test we got $t = 32.94$ which is significant at 1% and 5% probability levels which again satisfies the equation.

Similarly the trend equation for the secondary sector is $Y_2 = 13.44571 + 0.924974t$. Value of R^2 is 0.801202 and the value of 'F' statistic is given by $F_{(1, 19)} = 76$ which is statistically significant at 1% and 5% probability levels. The growth rate is 6.879 % which is statistically significant at 1% and 5% probability levels. From Pearson and Spearman's two tailed correlation test we got Pearson correlation coefficient $= + 0.896$ and Spearman's correlation coefficient $= +0.985$. The value of $t = 9.610$ which is statistically significant at both the probability levels.

Trend equation for the tertiary sector is $Y_3 = 47.46238 - 0.06606t$. Value of R^2 is 0.0126 and the value of 'F' statistic is given by $F_{(1, 19)} = 0.24$ which is statistically insignificant at 1% and 5% probability levels. The growth rate is 0.14% which is statistically insignificant at the same probability levels. From Pearson and Spearman's two tailed correlation test we got Pearson correlation coefficient $= -0.112$ and Spearman's correlation coefficient $= -0.051$. The value of $t = 59.651$ which is statistically significant.

So if do the one sample t test it is significant. That is there is no significant difference in the data from the mean. That means there is negligible variance in the tertiary sector as

a whole. Visualizing the analysis of the different sectors we can say that the decrease in the net state domestic products in the primary sector leads to the increase in secondary sector. The growth rate of secondary sector (6.789%) validates the real phenomenon (declining in primary sector leads to increase in secondary sector). So we can positively say there is an impact of secondary sector in Manipur though there is a declining effect in primary sector. But the tertiary sector has a negligible insignificant growth with respect to time and it cannot negate the declining trend of the primary sector neither it could stabilize the economy. This is a kind of cause effect relationship. It was well established by Grenger and is known as Grenger test.

If we analyze the correlation between the primary sector and the secondary sector we can conclude the cause effect relationship in right order. From Pearson and Spearman's two tailed correlation test we got Pearson correlation coefficient between primary and secondary sector as= −0.823 and Spearman's correlation coefficient = −0.972 which is significant at both 1% and 5% probability levels.

Negative sign conventionally tells about the inverse relationship between the two variables. As if there is a decreasing trend in primary sector and increasing trend in secondary sector.

The next part of our study deals with the data, taken from the year 1993-2001. The data are continuous one, so there is no need of adjustment.

Trend equation for:

a) Primary Sector

b) Secondary Sector and

c) Tertiary sector are as follows:-

$$J_1 = 34.06125 - 0.4703t \text{ (Primary Sector)} \tag{1}$$

$$J_2 = 20.555 + 0.943571t \text{ (Secondary Sector)} \tag{2}$$

$$J_3 = 45.38375 - 0.47327t \text{ (Tertiary Sector)} \tag{3}$$

Table 2
Percentage Distribution of Net State Domestic Product at Constant Prices

Year	Primary Sector (J_1)	Secondary Sector (J_2)	Tertiary Sector (J_3)	Time (t)
1993-94	37.87	15.73	46.40	-7
1994-95	36.92	15.43	47.65	-5
1995-96	35.68	16.56	47.76	-3
1996-97	32.76	18.66	48.58	-1
1997-98	33.45	19.96	46.59	1
1998-99	32.36	24.99	42.65	3
1999-00	32.10	26.29	41.61	5
2000-01	31.35	26.82	41.83	7

From the Eq. (1) we can analyze that there is a decrease in the net state domestic product in the primary sector. The value of R^2 is 0.8963 and the value of 'F' statistic is given by $F_{(1, 6)} = 51.86$ which is statistically significant at 1% and 5% probability level. The growth rate is given by -1.381% and it is significant in both the levels. From Pearson and Spearman's two tailed correlation test we got Pearson correlation coefficient $= -0.947$ and Spearman's correlation coefficient $= -0.976$. The value of t = 39.587 which is statistically significant.

Equation (2) states that there is an increase in net state domestic product in the secondary sector which is the effect of negativity in the primary sector. Value of R^2 is 0.9275 and the value of 'F' statistic is given by $F_{(1, 6)} = 76.758$ which is statistically significant at 1% and 5% probability level. The growth rate is given by 4.6% (statistically significant at 1% and 5%). From Pearson and Spearman's two tailed correlation test we got Pearson correlation coefficient $= 0.963$ and Spearman's correlation coefficient $= -0.976$. The value of t = 12.113 which is statistically significant.

Equation (3) states that there is a decrease in net state domestic product in the tertiary sector which does not follow

10

The Financial Inter-relationships and the Role of Centre to Promote Development in North Eastern States of India

— *Subhabrata Chakrabarti**

Eight states in the NE region are considered as "special category states". The "Gadgil Formula" during Fourth Five Year Plan has made the division of the states into special and general category states. The common identities of SC states are preponderance of hilly and difficult terrain, a low population density strategic location, economic and infrastructure backwardness. Under the Gadgil Formula the SC states get 90% of the central assistance as grants and 10% as loans.

Why the question of "assistance" is much more relevant in NE states may be clear if we observe the development experiences of these states. Due to ecological constraints both agriculture and manufacturing sector have not flourished properly. "Jump" of the economy from primary to tertiary sector is the common phenomenon of almost all NE states. At the end of March 2004, the credit-deposit ratio for NE region was only 29.82 against national average 58.71. In one sense the chronological order of the stages of development has not been maintained in the NE states. Average values of government

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expenditure multiplier are generally low due to high import intensity of expenditure. This is why NE states are generally highly dependent on external world. Import substitution is not possible due to low profile industrial base and lack of investment opportunities. As a result state money does not generate income and employment within the state and the development experience of NE states may be defined as jobless growth process. The continuous leakage of money to import goods and services may bring macro economic instability in the long run. During 1987-2000 not even one state has shown a continuous trend of fiscal surplus as percentage of Gross State Domestic Product. In comparison with the general category states the performances of special category states are highly insignificant.

Some states like Arunachal Pradesh, Mizoram and Nagaland have shown improvements in pre-devolution non-plan revenue deficit (Table 1). But for all the NE states the figure is much higher than other general category states. Even for some low income states, such as Bihar, the pre-devolution NPRD as per cent of GSDP fluctuates in between 3.92% to 12.25% during 1987-2000. Among other low income states this range is (1.95-6.09%) for Madhya Pradesh. For Orissa (5.08-10.47%), and for Uttar Pradesh (3.66-8.92%). Performance of states regarding own tax effort is an important indicator of financial efficiency. Taking two period averages 1993-96 and 2000-03, overall increase of own tax revenue-GSDP ratio was 0.69% for general category states and it was 0.66% for special category states.

Broadly, financial assistance from Centre for development and other purposes in North East States takes place under the titles given below:

Devolution of Taxes, Excise Duties, Grants in lieu of Railway passengers fares, Calamity Relief, upgradation grants and social problems, Grants for local bodies, and assistance through Ministry of Development of North-Eastern Region (DONER).

To determine the aggregative share of the states in all Union taxes, most special category states like Sikkim,

Table 1
Pre-Devolution Non-Plan Revenue Deficit and Fiscal Deficit (as % of GSDP)

	1987-88	1990-91	1993-94	1996-97	1999-2000
ASSAM					
Pre-devolution NPRD	-8.04	-6.76	-8.21	-8.17	-13.90
Fiscal Deficit	-6.00	-5.29	0.12	-0.37	-7.88
ARUNACHAL PRADESH					
Pre-devolution NPRD	-51.19	14.97	-20.80	-24.41	-20.48
Fiscal Deficit	-11.88	36.28	11.33	-5.50	-11.52
MANIPUR					
Pre-devolution NPRD	-22.19	-28.48	-22.37	-25.06	-23.22
Fiscal Deficit	-2.81	-9.25	0.72	-8.68	-9.00
MEGHALAYA					
Pre-devolution NPRD	-18.92	-19.08	-21.08	-16.10	-18.48
Fiscal Deficit	-0.07	-4.63	-6.63	-1.14	-11.73

MIZORAM

Pre-devolution NPRD	-59.81	-22.08	-39.25	-38.91	-29.45
Fiscal Deficit	-50.95 -34.73 -2.85 -13.75 -10.53				

NAGALAND

Pre-devolution NPRD	-54.87	-40.77	-32.71	-31.81	-24.28
Fiscal Deficit	-10.52	-14.89	-4.84	-7.16	-5.23

SIKKIM

Pre-devolution NPRD	-21.00	-21.05	-25.99	-24.76	-27.99
Fiscal Deficit -5.70	-8.64	-8.49	-9.70	-11.95	

TRIPURA

Pre-devolution NPRD	-25.12	-28.60	-28.64	-27.71	-39.93
Fiscal Deficit	-9.41	-8.30	-7.86	-6.30	-18.76

Source: *Eleventh Finance Commission Report.*
Note: NPRD = Non-Plan Revenue Deficit.

Meghalaya, Mizoram and Tripura are in favour of distribution of 30% of the shareable pool for distribution among the SC states. In the *"inter se"* distribution of the aggregate share of the Central tax revenues, population and assessment were the only two criteria up to Seventh Finance Commission. After that Distance, Inverse to income, Poverty Ratio, Index of Backwardness and Tax effort, have been included as determinant factors of *Inter se* distribution. Distance and inverse income formulae utilize population and per capita income status. Compared to the distance formula, in the inverse income formula, the middle income states have to bear a relatively higher burden due to implicit convexity in it. The index of infrastructure gives economic and social infrastructure of any state. It includes agriculture, banking, electricity, transport, education and health facility provided to the citizens of the respective states. The basic purpose for determining *"inter se"* shares are equity and efficiency. The principle of equity is to wipe out resource deficiencies and the principle of efficiency is to strengthen resource base through providing services at minimum cost. Before making recommendations each Finance Commission has taken into consideration the suggestions given by different NE states. In the memoranda submitted before tenth Commission report Nagaland was in favour to give 50% weightage to the population factor. Inclusion of composite index of backwardness, distance of per capita income of state from the highest per capita income and inverse of per capita income weighted by population, have been supported by Assam, Manipur, Meghalaya and Nagaland. Some states like Arunachal Pradesh, Assam, Meghalaya have suggested to reserve certain percentage of divisible proceeds for distribution among revenue deficit states. On the other hand Manipur, Mizoram and Nagaland have preferred an exclusive distribution among special category states. Most of the north-eastern states are small with hilly terrain. But the costs to establish the framework of government machinery may be higher due to nature of the terrain. So the "area" factor behind interse distribution of union tax revenues has been taken into consideration for NE states. Different finance commission reports have given different weightages to the

determinant factors of *inter se* distribution. As per Twelfth Finance Commission report the weights of the factors are- population(25%), Income distance(50%), Area (10%), Tax effort(7.5%), and Fiscal Discipline (7.5%). Depending on these parameters following amounts have been recommended by various Finance Commissions during 1990-2010.

Table 2
Total Amount of Union Tax Transfer During 1990-2010 For North-east States *(Rs. in crore)*

States	1990-95	1995-2000	2000-2005	2005-2010
Arunachal Pradesh	524.59	1360.03	918.22	1767.34
Assam	2969.57	7064.14	12362.05	19850.69
Manipur	710.07	1689.63	1377.32	2221.44
Meghalaya	558.21	1534.58	1287.01	2276.61
Mizoram	637.47	1398.37	745.11	1466.52
Nagaland	781.88	2197.38	827.90	1631.67
Sikkim	156.25	562.07	692.43	1392.94
Tripura	956.66	2325.81	1832.67	2626.09
TOTAL	7294.70	18132.01	20042.71	33233.30

Source : *9th, 10th, 11th, 12th, Finance Commission Report.*

Article 269 of the Constitution ensures the Government of India to levy and collect taxes on railway fare and freights but the net proceeds will be distributed among the states. As per recommendation of 8th Finance Commission the states were supported to be paid 10.75% of the non-suburban passengers earnings. An amount of Rs 95 crore per annum was recommended for the period 1984-89. In the report of 9th Finance Commission the amount was raised to Rs 150 crore annually. This amount was Rs 380 crore per annum in the 10th Finance Commission report. The shares of the states were determined in the same proportion as "the average of the non-suburban passenger earnings in each state during 1984-85 to 1987-88 and 1988-89 to 1992-93 bears to the average

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Meghalaya and Bangladesh Trade: Linking Across Border

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INTRODUCTION

Meghalaya, one of the eight sister states of Northeast India, lying between 25° and 26.15° north latitude and 89.45° and 92.47° east longitude came into existence as an autonomous state on 2nd April 1970 comprising of Khasi, Jaintia and Gargo Hills districts. Later, in the year 1972, it was accorded full-fledged statehood. The boundaries of the state are demarcated by the Goalpara and Kamrup districts of Assam in the north, the south-western part of the district of Goalpara and a part of Rangpur district of Bangladesh in the west, the Mymensingh and Sylhet districts of Bangladesh in the south and the north Cachar and Karbi Anglong districts of Assam in the east. The total geographical area of Meghalaya is approximately 22,429 sq. km and consists of primarily steep hills and deep gorges with a limited coverage of valleys and plains. The 2001 Census keeps its population at 23,06,069. The region is bountifully endowed with natural resources and heavy monsoon sustains

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intensive and varied flora. Of about 17,000 species of orchids in the world, around 300 verities are found in this state. Forests cover a land surface of 9,500 sq. km or 42.35 per cent of total area of the state (1998-99). The total coal reserves have been estimated at 563 million tonnes as against the limestone reserves of 4147 million tonnes. Considerably quantities of these minerals have already been exploited over the years with significant impact on the economy. The deposits of clay are about 80.97 million tonnes. Other commercially exploitable mineral deposits are Kaolin, feldspar and glass sand. The state has rich deposits of uranium too.

Meghalaya occupies a significant part in India as far as the bilateral trade is concerned. Owing to its richness in forest and mineral resources, handicraft and handlooms, flora and fauna, the state has unique natural trading advantages. In fact, trade existed with Bangladesh even before India's independence but came to a halt when union government withdrew the commercial link across border. Discontentment among the border people led to an emergence of unofficial deal, which was subsequently opened up when its importance was acknowledged. Today, trade is carried out with Bangladesh at certain hats under the B.S.F. supervision. The foreign trade issue in Meghalaya is now a preconceived priority due to the fact that the people residing on border sides certainly find their lives much easier through commercial deal with Bangladesh since marketability available in their own country. Hence, the emerging trends of sub-regional cooperation including Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka and Thialand Economic Cooperation (BBIMNSTEC) and South Asia Growth Quadrangle (SAGQ) have in them cross-border policy intervention with a view to harness the comparative advantages of all the eight north-eastern states of India. Due to greater importance of trade in north-eastern part and more specifically Meghalaya, it is imperative to analyze its export performance and the factors affecting it. There is concern about the impact of trade liberalization measures in export potentials. Still deeper is the concern as to how the 'Look East Policy' of the central government will have an impact on economic development of the state. This paper makes an attempt at micro level to discuss some issues

in this direction. To be more focused, it examines (i) the composition of exports from Meghalaya, (ii) comparative advantages of the state products in cross border market and (iii) recent policy reforms in export sector and their potential implications.

INDIA'S TRADE AGREEMENT WITH BANGLADESH

Bangladesh, amongst all nations having land border with India, is one of the most important trading partners in the country. It may be noted that besides USA, Hong Kong, Russia and the Netherlands, Bangladesh is a key destination of India's exports where it is having surplus trade balance all along the period starting from 1991-92 to 2005-06. The political relationship between India and Bangladesh may not be very encouraging, but the economic tie-up has recently been improved. In spite of being one of the least developed nations in the world, Bangladesh occupies a vital position as far as India's export is concerned. The geographic proximity factor has made Bangladesh a largest trading hub for India. The principal items that India's exports to Bangladesh consist of cotton yarn fabrics, glass/glassware/ceramics, primary and semi-finished iron and steel, drugs and pharmaceuticals, electronic goods, dyes and intermediates, paper, wood products, plastic and linoleum and chemicals.

The first Indo-Bangladesh Trade Agreement was signed on 28th March, 1972 and subsequently renewed in July-1973, December-1974 and October-1990 with amendments intended for enlarging the areas of mutual cooperation and strengthening the economic relation between the two countries. The bilateral trade between India and Bangladesh is carried out as per Indo-Bangladesh Trade Agreement, which provides for the "Most Favoured Nation" treatment accorded to goods and services of both the countries. Government of India has also taken steps to develop commercial linkage with Bangladesh. Significance of the agreement can be outlined as below:

- Both India and Bangladesh are the members of South Asian Association for Regional Cooperation (SAARC).

- Preferential trade concessions are being extended by India to Bangladesh as a least developing country

(LDC). Bangladesh's exports of certain item such as *Hilsa* fish and *Jamdani sarees* has been given free access to India.

- Recent development and steps taken towards introduction of South Asian Preferential Tariff Arrangement (SAPTA) have been identified for preferential tariff to enhance trade between the two countries. Recently, India has provided *unilateral* concession on several tariff lines to the member countries of SAARC.

- The Male Summit of SAARC has brightened the possibility of establishment if South Asian Free Trade Area (SAFTA), which further liberalize the regime of export/import.

- The trade is conducted in accordance with the laws, regulations and procedures in force in both the countries.

- Trade between the two countries take place in freely convertible currencies in accordance with the respective foreign exchange regulations.

- Advantage and preference have been granted to frontier trade.

India's border with Bangladesh is 4096.70 km out of which 443 km is shared by Meghalaya. In order to facilitate cross-border trade with Bangladesh and movement of passengers of both the countries, custom department has set up 32 number of Land Custom Stations (LCSs) along North-east India-Bangladesh border. Out of the total LCSs, 9 LCSs exist in Meghalaya-Bangladesh border as been detailed in Table 1.

TRADE COMPOSITION

The exports from Meghalaya to Bangladesh and imports to Meghalaya from Bangladesh in terms of value during the period 1996-99 to 2005-06 are presented in tabular format in Table 2. The export has exhibited a fluctuating trend in the past ten years. In value terms, the same has declined from Rs.86.08 crores in 1996-97 to Rs. 80.77 crores in 1997-98 and then rose to Rs.188.51 crores in 2003-04 and again dipped to Rs.163.79 crores in 2004-05 and further increased to Rs.179.51

crores in 2005-06. At the same time, Meghalaya's imports from Bangladesh also shows a fluctuating trend. It was Rs.0.38 crores in 1997-98 and for subsequent two years there was no import. It again resumed in the year 2000-01 which increased to Rs.2.61crores in 2005-06. From 1996-97 to 2005-06 Meghalaya's imports from Bangladesh have increased at a lower rate than exports.

Table 1

Land Custom Stations along Meghalaya-Bangladesh Border

Sl. No.	Meghalaya LCSs	Status	Bangladesh LCSs
1	Dawki	Functioning	Tamabil
2	Bholaganj	Functioning	Chattak
3	Borsora	Functioning	Borsara
4	Shella Bazaar	Functioning	Chattak
5	Rynku	Non-Functioning	
6	Baghmara	Functioning	Bijoypur
7	Dalu	Functioning	Nakugoan
8	Ghasuapara	Functioning	Karaituli, Gobrakura
9	Mahendraganj	Functioning	Dhanua, Kamalpur

Source: Office of the Commissioner of Customs, Shillong, Meghalaya

The commodity composition of Meghalaya's exports to Bangladesh is shown in Table 3 which depicts that the Meghalaya's export to Bangladesh consists of diversified products and varies from primary commodities to manufacturing items. The bulk of items exported from Meghalaya is grouped under mineral, agricultural, and allied products, building materials and others. Minerals mainly consist of coal and limestone. Other minerals are boulder stone, crushed stone, sand stone and blast stone which are exported without any value addition. Agriculture and allied products mainly consist of tea, fruits and some horticultural items such as ginger, oranges, citrus fruits, garlic, pears etc. Building materials include cement and marble tiles and low value manufacturing products come under other items. The export

mainly comprises of mineral and horticultural products. Mineral products' contribution on Meghalaya's total export value ranges from 96.14% to 99.88%. They consist of two minerals – coal and limestone. Both are mined in southern belt of Meghalaya and directly exported to Bangladesh via custom check posts along the border. Again, agricultural and allied products contribution ranges from 0.12% to 3.68%. The share of building materials and other items in terms of total exports seems to be negligible. The state's abundant mineral resources coupled with congenial climatic condition for large-scale horticultural products and traditional trade linkage with production and consumption centres across the border is a treasure house for Bangladesh.

Table 2
Meghalaya's Trade with Bangladesh
(Value in Rupees Crores)

Year	Export	Import	Trade Balance
1966-1977	86.08		86.08
1997-1998	80.77	0.38	80.39
1998-1999	85.24	-	85.24
1999-2000	129.99	-	129.99
2000-2001	129.83	0.0039	129.83
2001-2002	166.93	0.03	166.90
2002-2003	171.99	0.06	171.93
2003-2004	188.51	0.26	188.25
2004-2005	163.79	0.34	163.45
2005-2006	179.51	2.61	176.90

Source: Office of the Commissioner of Customs, Shillong, Meghalaya.

Meghalaya is becoming increasingly important amongst eight sister states with regard to the volume of trade with Bangladesh. The cement plant at Chattak in Bangladesh, the only major public sector cement manufacturer, depends solely on the limestone brought from Shella and Nongtrai areas of Meghalaya. Lafarge, the international cement giant, has reiterated its commitment to implement its $25 million dollar

Rs. 600

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