

IMPACTS OF POPULATION, URBANISATION AND GLOBALISATION ON ENVIRONMENT IN NORTH EAST REGION OF INDIA

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ABSTRACT

The North-Eastern Region (NER) comprises the states of **Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura**. Geographically, the region is covering an area of 2,55,037 sq. km. and contains 4.04 percent of country's population, of which 70 percent is occupied by the forest, hills and mountains which virtually surrounds the region on all sides, and this is nearly 8 percent of total geographical area of the country. The primary object of development is to satisfy the essential material needs of the society, but not at the cost of local environment. When people change, the society to which belong also change, and the country moves with them too. But North-Eastern Region (NER) is an exception. Interestingly, this region is endowed with rich resources of land, water forests, and minerals. One would have thought that such a typical region would have been the cherished pride of the country; instead it is the most backward and most undeveloped one.

The region's growth rate of population is much higher than the national average. It is evident that there is uneven spatial distribution of population among the constituent states. One of the important problems, which creates the hindrance on the way of economic development is the problem of population explosion in the region. The population explosion caused by immigration pose serious threat on the natural resources of the region and hence on the economic development. Due to urbanisation, million hectares of forest were lost each year. The deterioration of the environmental quality is regarded as the inevitable consequence of urbanisation. The pattern and level of urbanization along with the growth of urban population in the entire region of North Eastern States creates an excessive pressure on the deforestation and thereby on the environment.

In the era of globalization, rapid socio-economic transformation has been taking place in the economy at international level. Globalization has brought good effect in every step of socio-economic life of people of North East but side by side it has bad effect also. It creates a vast economic disparity among the people. With improving the quality of the hill people, the quality of environment of the region is not possible.

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Introduction: The North-Eastern Region (NER) comprises the states of **Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura**. Geographically, the region is covering an area of 2,55,037 sq. km. and contains 4.04 percent of country's population, of which 70 percent is occupied by the hills and mountains which virtually surrounds the region on all sides, and this is nearly 8 percent of total geographical area of the country. The topography of NER is not uniform. Moreover, rivers and barren hilly terrains remain as problems rather than prospect for development. The region has long international borders with China, Myanmar, Bangladesh, Tibet and Bhutan and is connected with the rest of the country through a narrow corridor in the North-East Bengal with a width of about 30 Km (**called chicken neck**). This has greatly enhanced its strategic importance with respect to the demographic study. One must realize that north-east is a mini-India. There are more than 75 major population groups and sub groups, speaking approximately 400 languages and dialects, of which there are about 168 in Arunachal Pradesh, 95 in Nagaland, 87 in Manipur, 100 in Tripura and 200 in Assam, Meghalaya and Mizoram (**Madhab, J, 1999**). Thus, the whole north-eastern India is a place with people of diverse races, cultures, languages and various dialects with different traditions. Besides the heterogeneity of geographical and socio-cultural factors, the more striking view of the North-Eastern scenario is the co-existence of the extreme forms of both tradition and modernity.

The concept of change and developed is a dynamic one apprehending each and every aspect of human existence. The primary object of development is to satisfy the essential material needs of the society, but not at the cost of local environment and people's culture. When people change, the society to which belong also change, and the country moves with them too. But North-Eastern Region (NER) is an exception. Interestingly, this region is endowed with rich resources of land, water forests, and minerals. One would have thought that such a typical region would have been the cherished pride of the country; instead it is the most backward and most undeveloped one.

In the era of globalization, rapid socio-economic transformation has been taking place in the economy at international level. The planners and policy makers in India are trying to cope with it. Economic welfare does not merely depend upon the level of development but also on its distributive aspects. As development takes place, side by side, the force—growth promoting and those distributing the benefits of growth come in conflict. Consequently, the gap between the development level of resourceful and less resourceful regions goes on widening. **Privatisation, liberalization and globalisation** are going to be introduced in Indian Economy in order to bring socio-economic progress of the country. However, these dreams of our planners and policy makers cannot be fulfilled until and unless the regional disparities are minimized in India. In the pluralistic nature of the country, differences in natural resources, climate, topography, vegetation and density of population can be identified easily and the North Eastern Region of India (NER) is no exception to it. Unequal distribution of wealth and resources caused regional disparity in the country as a result of which the states of NER are lagging behind.

Objectives: The objective of the study is to examine how do urbanisation and population growth create the hazardous situation in socio-economic aspects and affect over-all environment of the region. The study has been concluded with some valuable suggestions.

Conceptual Framework: Poverty is the worst form of environmental degradation because it forces an extremely sub-standard quality of life upon a large segment of society and causes deprivation from such basic needs of human existence as shelter, nutrition, hygiene and health service, education, safe drinking water, sanitation and other physical infrastructure. The rapid growth of urbanisation and of population have led to a number of socio-economic problems like crime, alcoholism, drug abuse, over crowding, housing shortage, unemployment and poverty, slums, traffic control and pollution. At the same time they are also centres of civilisation and culture by helping a lot in the process of modernization.

Ehrlich and Holdren (1971) in a typical formulation have conceived the interrelationship between population and environment which is as follows:

$I = (P) (A) (T)$, where I = a measure of environment impact, P = population, A = Affluence (measured by per capita GNP), T = Technological efficiency (use of energy in the production of per unit of GNP).

This conceptual model identifies consumption and production pattern as proximate factors of environmental deterioration. This has been criticized by Researchers on the ground that the nature of intersections between the variables is not clear (**Mackellar et. al., 1995**). Further, the model is not explicit about the role of poverty in environmental degradation. The poverty has been recognized as one of the most important aspects of environmental degradation in a conceptual model recently proposed by **UNICEF (1994)**. It has been called as **PPE model (Population-Poverty-Environment model)** by UNICEF. Recently, the environment issues are also looked upon from gender perspective, known as ‘**Ecofeminism**’ in the writings of environmental issues particularly in the developed countries (**Cutter, 1994**).

It has been admitted that “because ultimate cause are so resistant to change, and to modify population growth may be the most expedient means of preventing further environmental degradation” (**Asian Development Bank Document quoted in Hossain, 1993**). Thus, the other areas of action excepting population control are left with ease under a perceived resistance by the rich. Globalization has brought good effect in every step of socio-economic life of people of North East but side by side it has bad effect also. It creates a vast economic disparity among the people.

Data and Methodology: The study is based on secondary sources of data relating to socio-economic and demographic variables for the North-Eastern Region of India covering a period of 50 years (1951-2001). Different Census Reports published by the Govt. of India are used in the present study. Various statistical methods have been used. Cartographic technique is used to highlight the relationship among Population-Environment and Population-Poverty-Environment.

Analysis: The analysis of the study has been completed under different sections.

Population growth and demographic characteristics: The **total population** of the region is about 31.54 million according to 1991 census, representing 3.72 p.c. of India’s total population. It is evident that there is uneven spatial distribution of population among the constituent states. One of the important problems, which creates the hindrance on the way of economic development is the problem of population explosion in the region. The total population of the region is about 38.5 million representing 3.75 p.c. of India’s total population in 2001. The **region’s growth rate of population is much higher than the national average**. It is striking to note that India’s total population increased by 51.80 p.c. in the period 1951-71, 54.39 p.c. in 1971-91 and 21.35 p.c. in 1991-2001, where as for the NER, respective growth rates are 90.86 p.c., 62.11 p.c. and 22.02 p.c.

(table-1). Decadal growth Rates for NER and India are 41.34 and 21.64 in 1961, 35.04 and 24.80 in 1971, 26.40 and 24.66 in 1981, 27.45 and 23.85 in 1991 and 22.02 and 21.35 in 2001 respectively as shown in Table-1 and Fig. 1.

At the same time share of population of NER, in comparison to all-India, increased from 2.84 p.c. in 1951 to 3.75 p.c. in 2001 (**Table – 1 and Fig.-2**). **The total number of tribal population is 81.42 lakh** which is approximately 25.71 p.c. of the total population of NER. The percentage of Schedule Tribes varies from 13 p.c. (Assam) to 91 p.c. (Mizoram) in the region.

Table – 1: Population Trend in North East Region (in'000)

Year→ Region ↓	1951	1961	1971	1981	1991	2001
Arunachal Pradesh	---	337	468	632	865	1091
Assam	8029	10837	14625	18041	22414	26638
Manipur	578	780	1073	1421	1837	2389
Meghalaya	606	769	1012	1336	1775	2306
Mizoram	196	266	332	494	690	891
Nagaland	213	369	516	775	1210	1989
Tripura	639	1142	1556	2053	2757	3191
N E R	10260	14501	19582	24752	31547	38495
India	361088	439235	548160	683329	846303	1027015
Decadal growth rate of NER	---	41.34	35.04	26.40	27.45	22.02
Decadal growth rate of India		21.64	24.80	24.66	23.85	21.35
P.C. of Population of NER with respect to India	2.84	3.30	3.57	3.62	3.70	3.75

Source: Census Reports, (ii) Decadal growth rates and P.C. of NER with respect to India are calculated

Fig.-1: Decadal growth Rate of India and NER

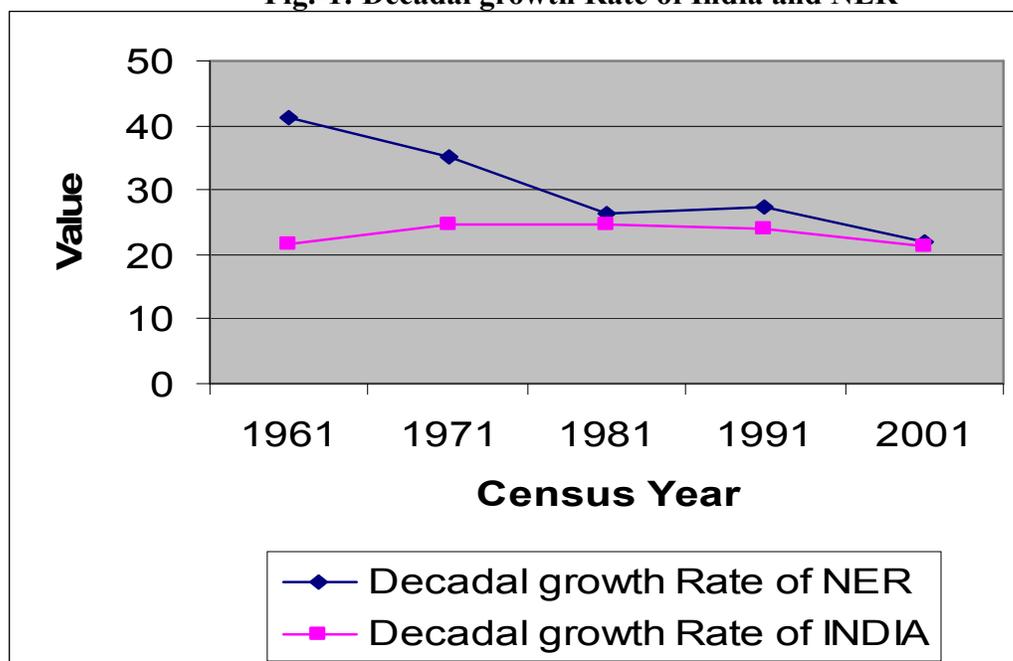
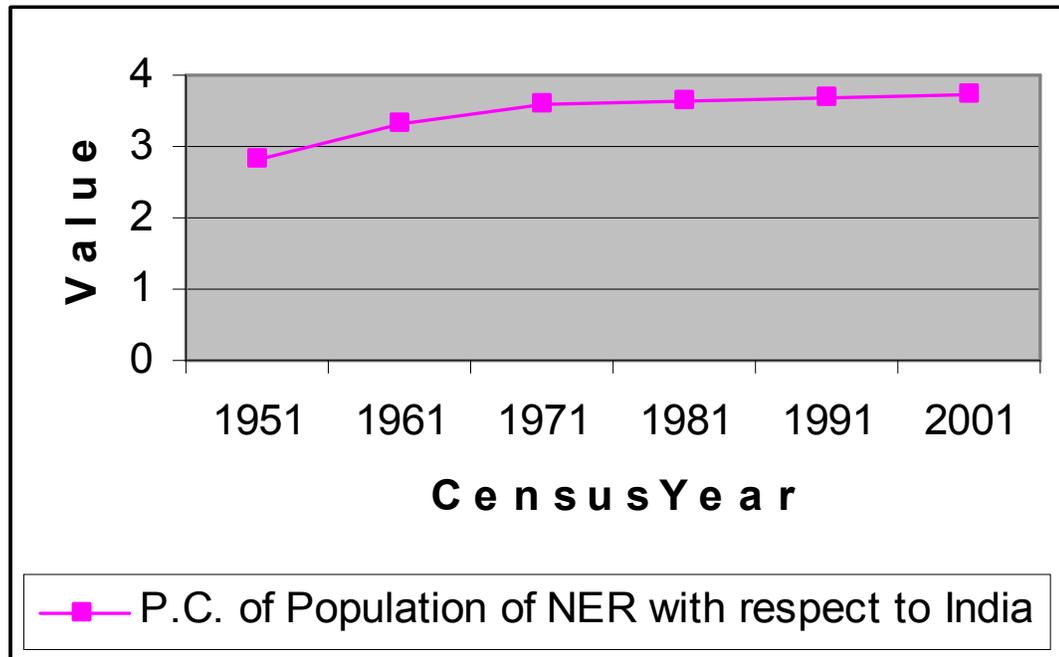


Table-2: P.C. of Population of NER with respect to India



Decadal growth Rate for NER lies above than that of India shown in Fig.-1. The curve showing percentage of population of NER with respect to India is rising always upward as shown in Fig.-2. Increased population at an alarming rate in the region is due to **immigration** from outside the country as well as from within the country. The population explosion caused by immigration pose serious threat on the **natural resources** of the region and hence on the economic development.

Urbanization and Growth of Urban Population: Urbanization, in demographic sense, is an increase in the proportion of the urban population to the total population over a period of time. Rapid urbanization has been a worldwide phenomenon in the 21st century. In developing countries like India, the challenge of urbanization becomes more serious in the context of unplanned urbanization and growing urban poverty, which is largely an extension of rural poverty. Urbanization generally indicates technological, institutional, educational, communicational, industrial and organizational development from time to time and is being brought about by development, modernization, and migration. It is also closely related with economic development and social transformation of a state or a region and stimulates each other with structural changes on a large scale. Economic development in this regard is generally associated and follows in the company of the growth of urbanization. The trend and pattern of urban growth and pattern of state level migration in the context of growing spatial and economic inequality have also been analyzed in the proceeding sections explaining the increasing pace of mobility of population across the region and from rural to urban areas leading to the emergence of a new urban culture. The general reasons for urbanization thus can be attributed to: (1) the natural increase of the urban population over a period of time. (2) The large scale migration of population from the rural areas of the state itself and immigration from other region to its urban areas (the administrative headquarters). Thus, both the push and pull factors have played their role in the migration of population from the rural to urban areas or from other states to this region on a large scale in the post liberalization period due to educational and employment opportunities as well as expansion of service sectors.

Urbanization in this regard may also be defined as a process that is characterized by transition or take off in which a region/nation can jump out of the transition from total agrarian base to industrial society (Rao et. al, 2004). In other words, it is delimited as a process of massive shifts of labour and capital from predominantly rural to urban areas. Due to urbanisation, million hectares of forest were lost each year. The shortage of housing is an ever-growing problem. Over one-fifth of the urban population lives in slums. The mounting problems of pollution consequent upon unimaginative interference of human beings with nature have been adversely affecting the quality of life. Forests provide several products of daily use such as food, timber, fire wood, wood pulp etc. apart from different medicinal plants which are yet to be explored. The greatest significance of forests, however, lies in their critical role in maintaining ecological processes and life supporting systems (**Singh and Sudarshan, 1996**). Various studies on Indian urbanisation reveals that, Indian cities are expanding on the one hand and losing green field areas on the other, with disastrous ecological crisis in our towns and cities. The deterioration of the environmental quality is regarded as the inevitable consequence of urbanisation.

Urbanisation is a process of population concentration. We have conceded the **Kingsley Davisian** view in the 19th Century that **“it is not possible to have industrialisation without urbanisation”**. It is fact that the urbanisation is the most essential for all round development of the developing nations, as it has increased employment, income and standard of living in these countries. But it has simultaneously created number of socio economic and environmental problems. Urbanisation has disturbed the ecological balance by creating air, water and noise pollution through industrialisation. Haphazard growth of urban centres and their ill-planned urbanisation aggravated the pollution problems and deteriorated the environment. Therefore, **environmentalist aptly says that urbanisation-environment relationship is not complementary but contradictory with each other (Patil, 1998)**.

The increasing urbanisation has led to a number of socio-economic problems like crime, suicides, drug abuse, unemployment and poverty, alcoholism, overcrowding, housing shortage, slums, traffic control and pollution etc. At the same time they are also centres of civilisation and culture by helping a lot in the process of modernisation (**Dutta & Pradhan, 1998**). The very pattern of economic development in the third world countries has resulted increasing imbalance in the distribution of per capita national income and large number of people are being relegated to below poverty line. The poor occupy the environmentally vulnerable areas liable to water logging or flooding, other natural hazard, epidemics, fire and chemical pollution.

The pattern and level of urbanization along with the growth of urban population in the entire region of North Eastern States is shown in table-2 below. The annual exponential growth rate of entire region as shown in Fig.-3 compared to all India scenarios is quite misleading. This can be attributed to fast growth of small towns in the region due to influx of internal and international migrants especially in the states of Arunachal, Assam, Mizoram, Meghalaya, Nagaland and Sikkim.

Table-2: Pattern and Level of Urbanization and Growth of Urban Population across N.E. States

State	Percentage of Urban Population					Annual Exponential Growth Rate	71-81	81-91	91-01
	1971	1981	1991	2001	RANK				
Year →	1971	1981	1991	2001	RANK	71-81	81-91	91-01	
Arunachal	3.70	6.32	12.21	20.41	3	8.32	9.28	7.00	
Assam	8.82	9.88	11.09	12.72	7	3.29	3.29	3.09	
Manipur	13.19	26.44	27.69	23.88	2	9.70	2.98	1.21	
Meghalaya	14.55	18.03	18.69	19.63	4	4.87	3.10	3.16	
Mizoram	11.36	25.17	46.20	49.50	1	11.79	9.57	3.27	
Nagaland	9.95	15.54	17.28	17.74	5	8.49	5.58	5.27	
Sikkim	9.37	16.23	9.12	11.11	8	9.55	-3.23	4.83	
Tripura	10.43	10.98	15.26	17.02	6	3.26	6.19	2.53	
All India	20.22	23.73	25.72	27.78		3.79	3.09	2.73	

Source: Calculation on the basis of Population Censuses, 1971, 1981, 1991 and 2001

The census wise increase in percentage of urban population since 1971 is shown below in Figure-3 and Annual Exponential Growth Rate is shown in Fig.-4.

Figure-3: Percentage of Urban Population since 1971

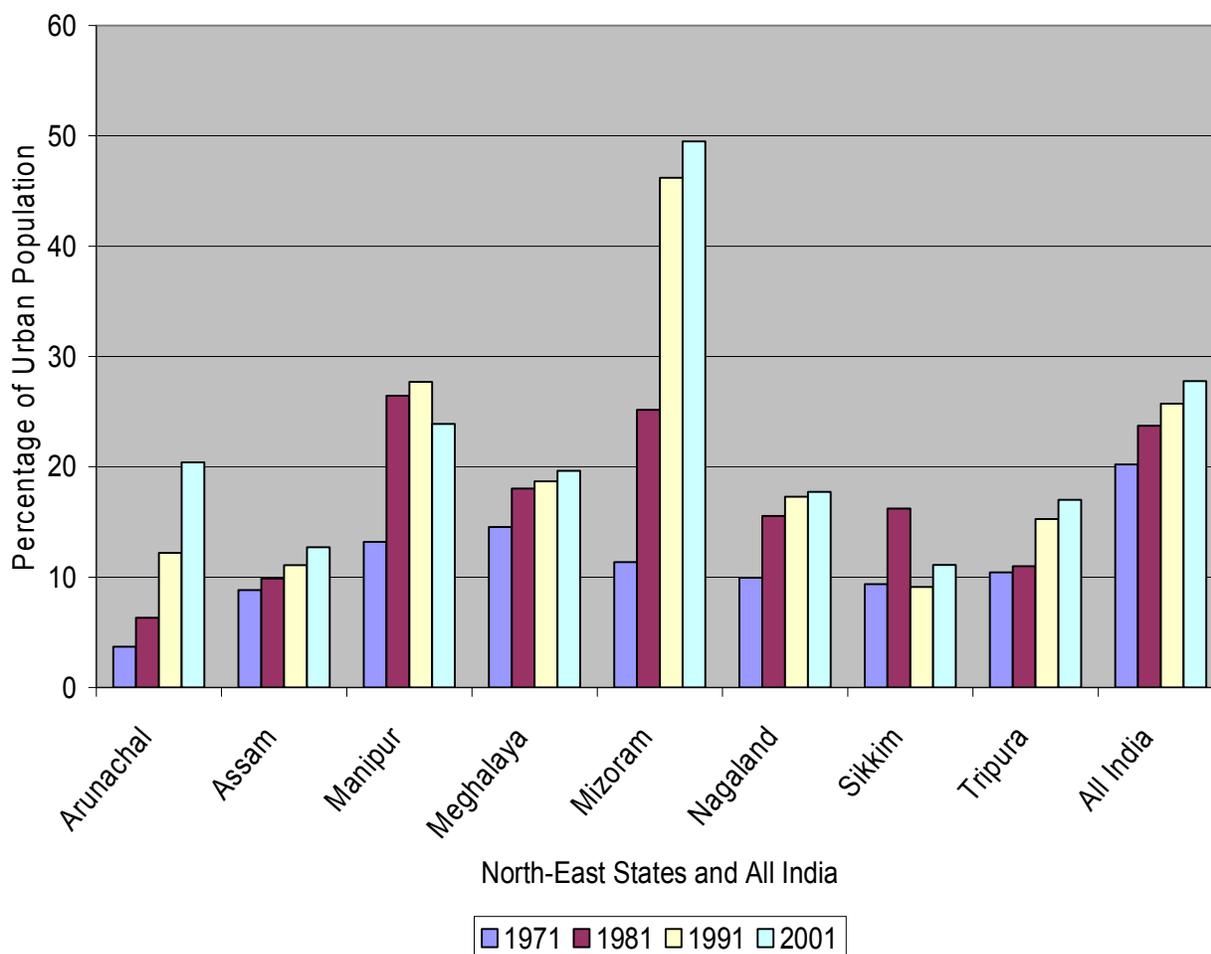
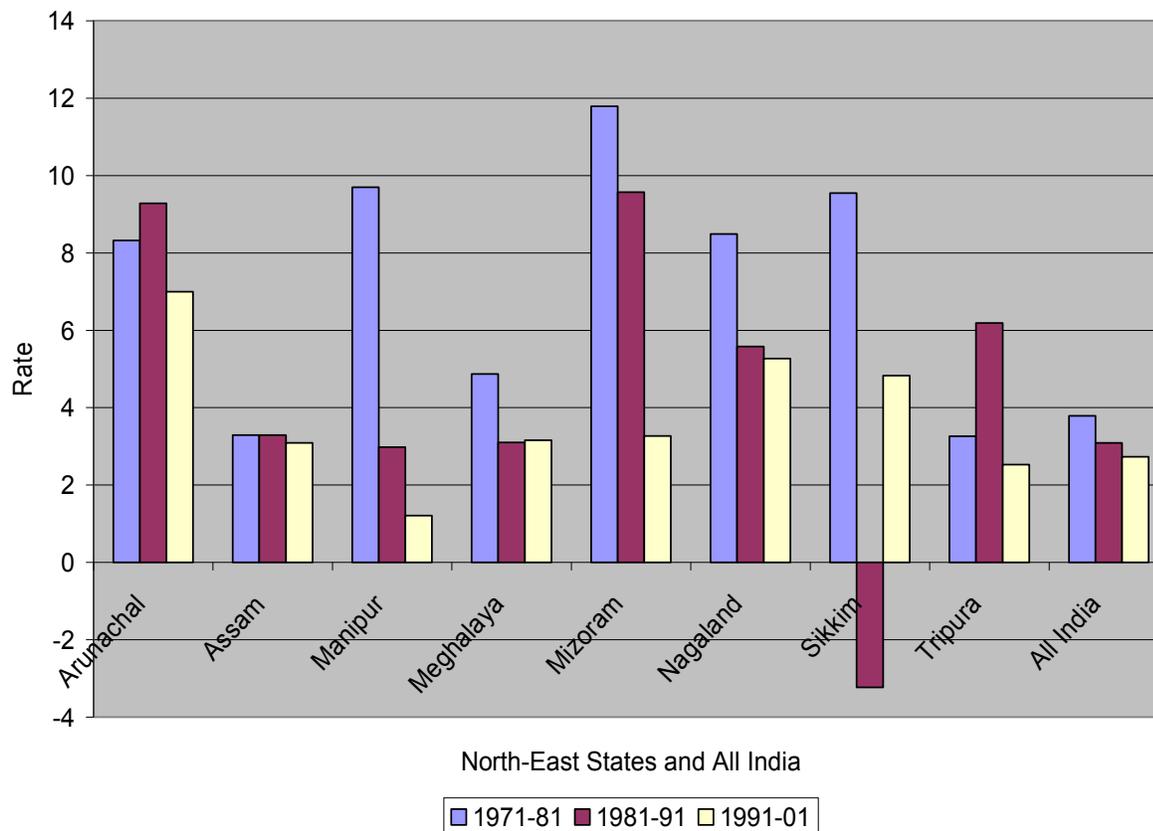


Figure-4: Annual Exponential Growth Rate Population for 1971-81, 1981-91 and 1991-2001



Globalization: The impact of globalization on socio-economic life of the people of NER cannot be ruled out. If a part of change occurs, evolution and revolution on the totality of life are likely to take place. The impact on traditional lifestyle of tribals is unavoidable but there is need to prevent loss of indigenous knowledge systems besides ethnicity. When we think of the social problems faced by women, it is true that the women of North East are deprived of several privileges as enjoyed by their counterparts in advanced states. Education may be one of the major factors for the women of North East not making much progress in life, especially to fight for the legitimate rights. But much more important is the grip the man exercises over the society through the age old social taboos, forcing the women to play a subdued role in the development process. The women are subjugated to various myths and beliefs and the lack of ignorance about their rights have made their life restricted to doing household duties and raising their family. The workshops is an attempt to focus as the equal participation of women in political, economic, social and cultural life at the national, regional and international awareness among the people which calls for involvement of women in every sphere of social activities. This would encourage the women to have a larger role to play in decision making and making them economically self-reliant. Unless there is a collective wisdom brought about in framing policies suitable for the society in general, the socio-economic status of women will receive a set back.

The important segment of the tribal society in the North East region has not been seen quantitatively and qualitatively in proper direction which has resulted in the economic and social backwardness, in spite of many social constitutional guarantees etc. Of course, with the spread of education and training in states like Assam, Meghalaya, mobility skill and developmental awareness has been seen. So to see the impact of globalization on the tribal women has to be considered keeping

in view the area, topography, isolation, communication, infrastructure and introduction of new developmental activities tradition, skill, education, need etc. Globalization is a new concept so far tribal women are concerned. The tribal women in some of the states and society are so much tradition bound closed, and with difficult natural barriers that they could not think of crossing the village boundary, though they are capable of extending their great help to the society and nation as whole. Women, in general, take vital part in forest management.

During the age of Globalization, the rich has become very poor and the poor has become very poor. The relative economical condition of people of town areas has changed drastically but that of people of village areas remains as it is. That is, the good fruits of globalization have not entered so much in the village people. The condition of village people especially in hill areas of this region is very measurable, the facilities of social amenities are very poor there. From the time immemorial, they depend on CPRs, but, the rate of exploitation from CPRs is more than the rate of renewal of CPRs. Hence, the condition of CPRs is also very measurable, which affect directly and adversely on environment.

Forests: Forests play a crucial rule in maintaining the ecological balance on the earth. Forests are being cut ruthlessly to make towns, roads, dams, administrating centres, industries which are creating ecological imbalance. Apart from the atmospheric effects, the destruction of forests endangers the several species of plants and animals to their virtual extinction. The entire north-eastern hill region has a prestigious place in the world map of orchid flora. But the continuous exploitation of the orchid has resulted almost extinction of many valuable species causing a great concern of the region. In the same period, out of the total destruction of forest in NER, highest percentage occur in Assam (40 p.c.) followed by Mizoram (25 p.c.) while forest cover gained in the states of Nagaland and Tripura. However, during this period, total loss in the states of NER due to shifting cultivation is 387 sq. km. of which highest in Mizoram (40 p.c.) followed by Meghalaya (27 p.c.). As a result of the reduction in the "jhum cycle", economic yield has been adversely affected with gradual decline in yield over a period of time when short cycles are imposed. The Table-3 compares the monetary output/input analysis of the jhum under different cycles in the north eastern region.

Table-3: Change in Forest Cover in NER on the Basis of 1991 and 1993 Assessment

State	1991 assessment			1993 assessment			total change in 1993 assessment
	D.F.	O.F.	Total	D.F.	O.F.	Total	
Arunachal Pradesh	54542	14215	68757	54510	14151	68662	-96
Assam	15842	8908	24751	15998	8510	24508	-243
Manipur	5309	12376	17685	5307	12314	17621	-64
Meghalaya	3305	12570	15875	3305	12464	15769	-106
Mizoram	4279	14574	18853	4238	14459	18697	-156
Nagaland	3351	10790	14321	3487	10861	14348	+27
Tripura	1825	3710	5535	1819	3719	5538	+3
Total	88633	77144	165777	88664	76478	165142	-635

Source: Basic Statistics of N.E. Region, 1995, North Eastern Council.

Note: D.F.= Dense Forest, O.F= Open Forest

The reduction in overall economic return is very obvious, when cost is calculated on the basis of prevailing market rates. The decrease in economic return under short cycle of jhum is related to reduce soil fertility and increased weed potential of the site. Another most important effect of the shifting cultivation is that it leads to environmental degradation and disturbs the fragile ecosystems in the north eastern region. This occurs as a result of the destruction caused to the surrounding natural vegetation. The environmental imbalance has resulted uneven spread of monsoon rainfall leading to the problem of draught and excessive rainfall resulting flood in the region. In Meghalaya, unabated jhuming has turned the once thick evergreen forest belt of Cherrapunji, a place which used to record the highest rainfall in the world into a dry brown scar. The jhuming practice has caused extensive climatic changes in the state and destroyed rare flora and fauna (Dhar, 1995). The Cherrapunji ecosystem that now stands decertified due to deforestation inflicted sometime in the distant past no refused to recover its original state. Linked with this drastic loss in biological diversity is the human suffering which now is immense. Water is a scarce commodity during the dry months in this high rainfall spot of the world, a contender for being the driest spot on earth along with the near by Mousengram in the Khasi hill of Meghalaya. The tribal who is traditionally bound to the forests has been forced to seek other avenues for survival. A relative scenario of change in forest cover in the N.E. Region is depicted in Table-4.

The Table-3 depicts a detailed picture of forest coverage in the NER. From table-3, (it is found that the total loss of forest area in the NER between 1991 and 1993 was 635 sq. km. from the loss and gain accounts. It indicates that loss due to shifting cultivation accounted to 702 sq. km., while the total loss becomes 983 sq. km. Due to regeneration and other reasons gains amounted to 348 sq. km., totalling a net loss of 635 sq. km. The principal reason for loss of forest area seems to be the practice of shifting cultivation.

This practice is not only done in Arunachal Pradesh but also in all north-eastern states due to lack of sufficient plain land. The area under shifting cultivation and number of families are engaged are shown in Table-4 in context of North-East States.

Table-4: Shifting Cultivation in the North-East Region

State	Annual Area under Shifting cultivation (Sq.Kms)	Fallow Period (in years)	Minimum Area under Shifting cultivation one time or other (Sq.Kms)	No. of families practicing shifting cultivation
Arunachal Pradesh	700	3 -10	2,100	54,000
Assam	696	2 – 10	1,392	58,000
Manipur	900	4 – 7	3,600	70,000
Meghalaya	530	5 – 7	2,650	52,290
Mizoram	630	3 – 4	1,890	50,000
Nagaland	190	5 – 8	1,913	1,16,046
Tripura	223	5 – 9	1,115	43,000
Total	3869		14,660	4,43,336

Sources: *The Task Force Report on Shifting Cultivation, Ministry of Agriculture, 1983.*

Not also are the jhumias facing serious economic problem because the forests in their traditional economic role are unable to sustain them, but society as a whole also has to pay a price for the extensive deforestation in the state in the form of soil erosion, floods and droughts.

Impact of Shifting Cultivation on Bio-diversity: The extent of deforestation of tropical forest has caused world wide alarm as tropical forests provide more than 50% of modern medicine. Tropical forests are living museums and laboratories that have yielded only a tiny fraction of their treasures to scientific study. The NER is, as if, a natural garden of more than 20,000 identified species of medicinal plants and so many still remain unidentified. In course of shifting cultivation remarkable varieties of flora and fauna are disappearing, which need immediate attention for extensive and intensive studies. The type of vegetations destroyed depends upon the length of jhum cycle. A dense forest of long cycle has more tree species than grasses, whereas a forest of short cycle has more number of grasses. About 300 plant species out of native flora in NER are used for edible purpose. Of these, over 25 provide tubers/rhizomes etc., which are eaten raw or boiled. Over 50 are consumed as green with their leaves/tender shoots cooked as vegetable; about 170 ripe fruits, which are pulpy and sweet/sub-sweet are eaten raw and many of these are used for pickles/vegetables, when unripe; about 15 have edible seeds are eaten raw or roasted.

Wildlife in the natural situation constitutes the most important component of the ecosystem, which participates affectively in the energy flow and bio-geo-chemical cycling. Animal-plant, plant--plant and animal-animal interactions are the basic milestone of the success of an ecosystem and its productivity. As such, the richness of the ecosystem means the capacity of hold high species diversity but deforestation has threatened the very fabric of the survival of wildlife and the ecosystem in the region. This area is the habitat of as many as 55 major mammalian species of which 17 are rare or extremely rare. 21 rare species of extremely rare birds are found in this region and there are innumerable species of insects. As such, there are different species of wild lives found in this region. Almost all of them are dared as protected species under the protection Act of 1972. Like flora, other forest resources are also disappearing and become rare.

Population Dynamics and Environment

Many analysts blame the environmental crisis on poverty- population growth linkages. They maintain that explosive population growth is responsible for environmental degradation. A high growth of population puts a pressure on the availability of resources, which in turn affects the per capita availability of Gross State Domestic Product. As such poverty abetted by ever growing population is the worst pollutant in developing world. Without denying the linkage between poverty-population and pollution, it is essential to point out that this formulation does not capture the entire complexity of the economy-ecology inter-connection.

Rao (1995) argued that the Indian State has followed largely a capitalist path of development, which is evident from the policy choices that have been taken in the sources of irrigation, energy and forestry. These policy decisions have contributed heavily to environmental contamination and are clearly indicative of an uneven pattern of development.

Climate change will undermine international efforts to combat poverty. Political leaders around the world gathered to set targets for accelerated progress in human development. The Millennium Development Goals (MDGs) defined a new ambition for 2015. How the world deals with climate change today will have a direct bearing on the human development prospects of a large section of humanity. Failure will consign the poorest 40 percent of the world's population—some 2.6 billion people—to a future of diminished opportunity.

Population-Poverty-Environment relationship: The Figure-5 reveals the complex relationships among population growth, poverty, health and environmental hazards. Population explosion has led to food shortage, unemployment, health hazard as well as poverty which ultimately

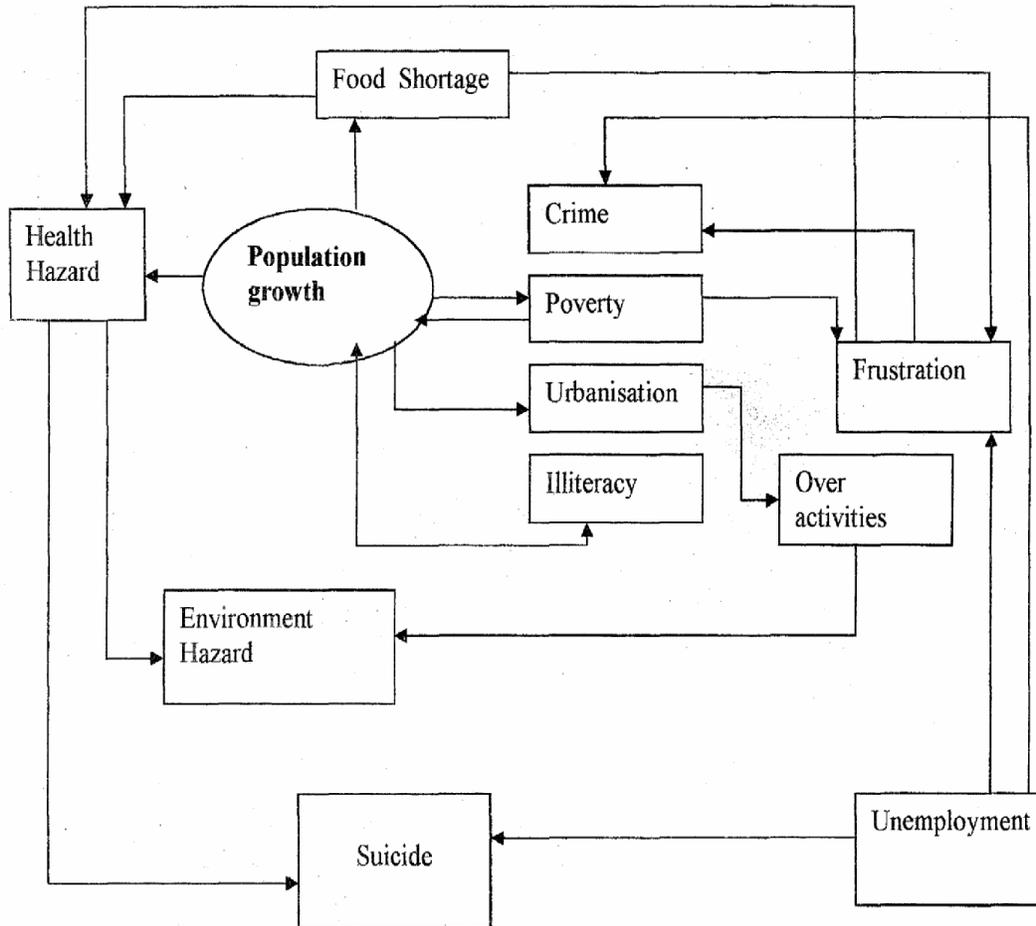
create the environmental imbalance. The root cause of human health hazard is the improper disposal of sewage and wastes. However, poverty is an important factor for health hazard which results in the development of frustration which is the consequence of unemployment and food shortage.

Now-a-days drug abuse is a burning problem in the north-eastern states of India which is the result of frustration. Environmental imbalance may also be resulted from urbanisation, food shortage and poverty. Urbanisation is affecting the present environmental scenario through the over-activities of the people. However, urban environment is not a natural environment but a man-made environment. Hence solution lies pertinent to human beings. It is necessary to recast the whole urbanization process and adopt the environment policy in such a way that urbanisation would urge to create environmental balance. Over population affects the nature of bio-sphere and creates ecological imbalance due to over activities of the people (occur by depleting the nature resources like forest land, agricultural land, water etc. and misusing the energy sources.) . A major factor contributing to environmental degradation in most Indian cities and towns is the inadequate provision of safe drinking water and Sanitation. The consumption of fossil fuel is a source of greenhouse gases and the industrial production process is closely associated with environmental deterioration. Thus, the direct threats to human life style are the most obvious aspect of environmental degradation which is due to over population and modern industrialisation.

Figure-6 tries to show the impact of population growth on society as well as on environment. It is observed that multi-dimensional relationship exist between the population, environment and development which is a complex issue Mathematical relationship among the various indicators can not empirically proved due to lack of data. It is obvious that standard of living rises, when more people own cars, two wheelers etc. and which ultimately creates air pollution, sound pollution etc. However, from the figure it is observed that population explosion creates food shortage, unemployment, poverty, crime, illiteracy. Again, frustration comes due to poverty and unemployment and as a result of which suicide takes place. Over population affects the nature of bio-sphere and creates ecological imbalance due to over activities of the people. Due to excessive population growth, there will be housing shortage, number of unemployment goes up which creates frustration among the younger generation and ultimately affects the society with creation of civil disorder, crime, drug abuse, health hazards etc. Further, due to illiteracy and poverty, population increases rapidly.

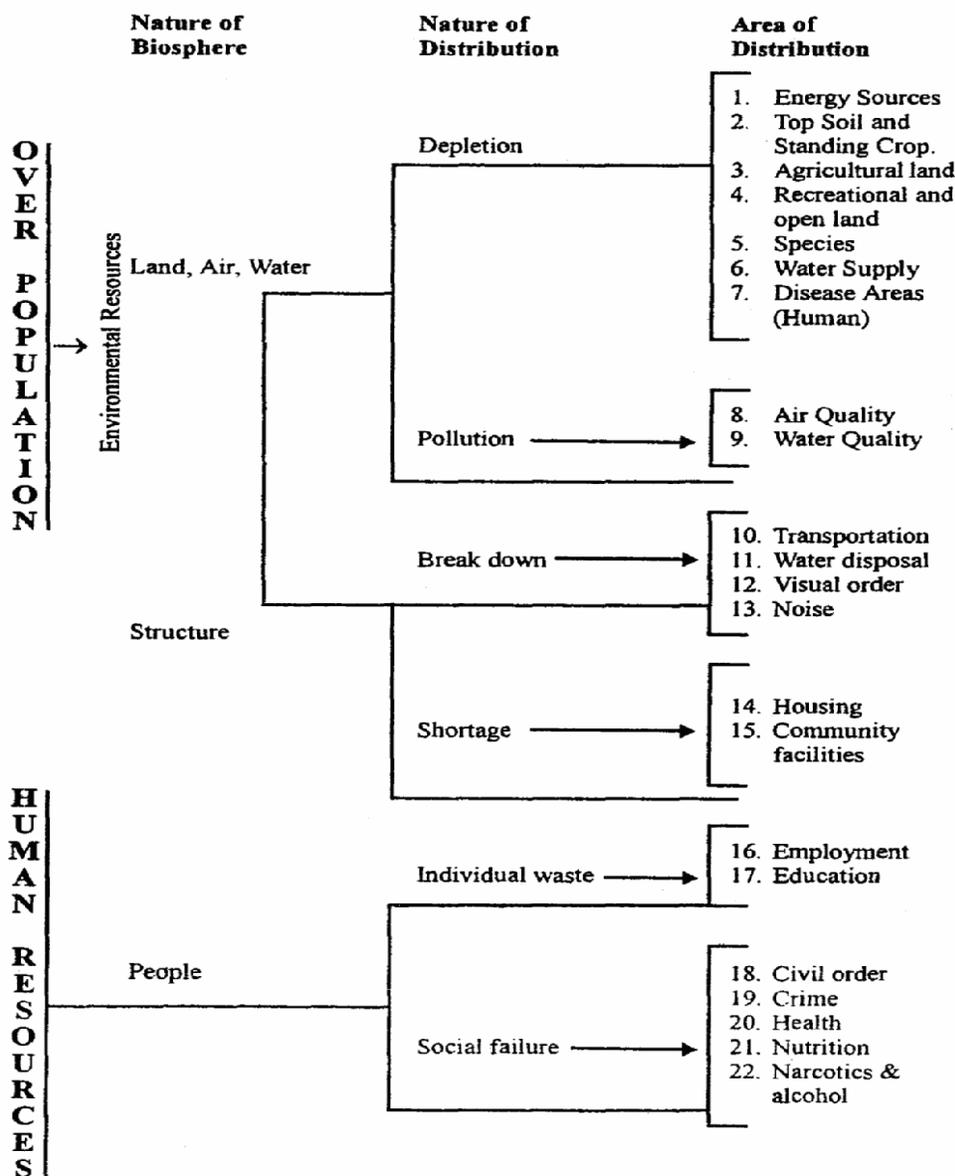
Over activities of people, due to population growth, occur by depleting the nature resources like forest land, agricultural land, water etc. and misusing the energy sources. These also create different types of pollution due to modernization which is the effect of industrialization. Direct threats to human life style are the most obvious aspect of environmental deterioration and of these direct threats, the phenomenon commonly lumped under the term pollution has been contributed by over population and modern industrialisation. A major factor contributing to environmental degradation in most Indian cities and towns is the inadequate provision of safe drinking water and Sanitation. The consumption of fossil fuel is a source of greenhouse gases and the industrial production process is closely associated with environmental deterioration.

Fig.-5: Impact of Population Growth



The population and economic variables include density and growth of population, growth of labour force, percentage of urban population, percentage share of industries in gross domestic product. Thus the environmental crisis is the result of host of factors like population growth, level of urbanization, technology, industrialisation, level of income, pattern of consumption etc. The process of urbanisation can be harnessed to achieve mankind's goal of just peaceful and lasting progress. But if this is to happen, urbanisation must take place under planned and orderly conditions. Though rapid urbanization is a part of development process, it accelerates to many severe socio-economic problems and disturb the overall environment and quality of life of people. Therefore, one must accept the synthesis that urbanization is saviour up to a certain limit and detrimental after without check to it.

Fig.-6: Impact of over population on environment



Conclusion and Suggestions

It is required to look into the gaps in important sectors of infrastructure development in the region. In their report titled “**Transforming the North East**” submitted to the Prime Minister of India in March, 1997, the commission finished a detailed assessment of the funds required to tackle the backlogs in “Basic Minimum services” and Infrastructural Need and made specific recommendations in different important sectors concerning the development of the region. The total requirement of the funds for providing Basic Minimum services was assessed at Rs.9395.54 crores. The indicative requirement of funds for development of infrastructure was put at Rs 93,619 crores of which Rs.17,795 crores was assessed to be requirement of the **Ninth Five Year Plan period (1997-2002)**. But the requirement of the region could not be accommodated to the plan proposals; it was decided to provide additional fund for the purpose through the mechanism of a central pool created out of the likely savings from the fund year marked for the NER in the central budget.

Man naturally endeavours to improve quality of life but this can be done only if quality of environment and need of development go together. The immediate need is that environmental management must undertake the task of regulating man's activities in such a manner that the same environment should be able to sustain the need of development unimpaired. Man's developmental quest should be accompanied by environment assessment methods and environmental management concept, skills and strategies so that a balanced and dynamic equilibrium is maintained. With improving the quality of the hill people, the quality of environment of the region is not possible

If the extreme inequalities are to be reduced, the adequate amount of employment opportunities will have to be created. Programmes and projects of employment expansion are a better way of redistributing incomes. The women play a vital role to maintain a perfect balance between human activity and environment. Their participation in both rural and urban development will help to maintain a sustainable eco-system as the women are continuously and closely in contact with the forest for fuel and other activities. Thus, to check the population growth and to save the forest from degradation, the employment of women by proper training is necessary.

Development is the process by which we affect the environment; environment is what is left after development. **Environmental awareness programmes** at all levels should be sponsored by governmental and non-governmental agencies engaged in environment development. Environmental awareness should be strengthened through **formal and non formal education**. Urban authorities should encourage to city dwellers for effective tree plantation nearby their residence. The best agricultural lands with ideal moisture conditions are to be utilised for agricultural purpose only. Industrial and urban activities should not be allowed in such areas. **Environmental improvement schemes** should be incorporated into the integrated urban development plan.

To achieve sustainable development and a higher quality of life for all people, governments should reduce and eliminate unsustainable pattern of production and consumption and promote appropriate demographic policies. Government should establish the requisite institutional mechanisms and enabling environment, at all levels of society, to ensure that population factors are appropriately addressed within the decision making and administrative process of all government agencies responsible for economic, environmental and social policies and programmes.

While there is an improvement on the understanding of interrelationship between population and environment, more research is still needed on the interaction between population and environmental development for effective planning and action. However, no policy in the region will be successful unless the people of the region are well conscious about their own health, food, sanitation etc. to upgrade the quality of life in the age of modernization. Hence, people's participation, particularly women, is urgently needed in any development programme of the region.

Last but not the least is that government should establish the requisite institutional mechanism and enabling environment at all level of society to ensure that population factors are appropriately addressed within the decision making and administrative process of all governmental agencies responsible for economic, environment, and social policies and programmes.

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