

EDUCATION AND TECHNOLOGY FOR THE TOTAL DEVELOPMENT OF THE RURAL NORTH EAST

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Context :

Following the political independence from the imperial rule at the close of second World War (1939-45), most of the nations of Asia, Africa and Latin America came to realize that poverty is the threat to their progress and development is the only way to build their nations on the model of advanced countries. All the poor nations of the world today are, therefore, development minded, as they believe that the development of their nations only can solve the problems of their poverty, backwardness and sufferings.

But what is development after all? Does it mean material advancement? What are its indicators? Is it limited to a certain sector and certain sections of the society? What are those factors, which causes the development to occur? The present paper is an attempt to explore the answers of some of these questions with reference to the role of education and technology to bring about development in the Rural North East.

Concept of Total Development :

The concept of development has acquired different meanings as different scholars have emphasized its different dimensions at different times in different countries. Initially, economists equated development with the level of economic growth at national level and thus they believed in the process of industrialization and capital investment. With this thought, increase in Gross National Product or Income (GNP/GNI) became the main focus of measuring development and per capita income began to be taken as its indicator. The assumption was that once the national economy becomes strong enough, its benefits will automatically 'trickle down' from top to bottom level. As a result, huge capital investment was made in various projects of heavy industries in the third world countries. Development did occur, but it did not result into the development of large scale as expected. Moreover its benefits remained concentrated at the top level only. Not only this, instead it translated in more poverty, and inequality.

The lesson was that a country might become rich in terms of GNP but it may still remain under developed if the poverty, backwardness and human suffering of the masses are not reduced and reasonable level of the standard of living for all sections of the society is not achieved. It implies that there is no meaning in the increase of GNP if it does not result in over all human welfare and prosperity. GNP can grow rapidly without any improvement in human conditions as mentioned above. This led us to believe that Gross National Prosperity is more important than Gross National Product. It is now argued that development is not purely an economic phenomenon and therefore it cannot be measured in terms of economic indicators alone. While economic growth is an essential component of development, it is not the sufficient one.

Social scientists now believe that social and political dimensions of development are equally important along with economic dimensions. While social dimension of development emphasizes the general well being of the masses as the main indicator of development, political dimension stresses the level of freedom and people's participation in decision making as the indicator of development. It is apt to quote Amartya Sen (1987) here, according to whom; development should be to achieve a more equitable distribution of the benefits of growth in the whole economy so that there is reduction in poverty, unemployment and inequality, which, in turn, may help in improving the quality of life of the masses. Seeing from this perspective, development include not only the growth of GNP but also an increase in the facilities for the satisfaction of basic needs like food, cloth & housing, an equitable distribution of goods and services, reduction in the level of poverty, unemployment, inequality & injustice, provision of minimum level of social services like education, health care & security, change in attitudes and values, preservation of cultural identity, opportunity for participation in decision making, greater freedom to express & choose, provision for recreation & entertainment, reduction in development disparity with respect to region, caste and urban-rural locality. Thus we find that development is a process, which ultimately results into an over all human welfare and prosperity of the masses.

There is another dimension of development, called moral dimension of human life which has not been given due recognition in the earlier thoughts of development. The culture of the developed countries seems to be dominated more by the logic of economic rationality than of

human morality. The social, political and economic life of most of the developing nations is presently so eroded by corrupt and unethical practices that any sincere effort to development generally remains defeated. For the development to be effective, we need people with the quality of honesty & integrity, sense of duty & responsibility, devotion and commitment. The need of the hour is to provide a moral framework to the total process of development.

If we analyze the process of development from the above point of view, we find that it has economic, social, political and moral dimensions. These different variables become crucial for development at different stages of development at different times in different countries. Thus, what constitutes an important variable in one country at one time might not necessarily constitute the same significance in another country. Thus, development is a multidimensional process which embraces all dimensions of human life (viz: economic, social, political and moral) and ensures a balanced all round development of all sectors (viz: agriculture, industry & trade, transport & communication, science & technology, education & health and social welfare) and sections of the society (viz: rural & urban, tribal & non-tribal, male & female, poor & weaker sections) thus making the concept of development more broad and comprehensive. This may be called 'Total Development'. If peace and happiness is the ultimate goal of life then it is this total development, which is the only way to reach that end.

This kind of development cannot be achieved in piece wise and isolated way because different aspects of development are so interlinked with each other that one cannot occur without the other. Therefore, one has to look into the whole problem of development in an integrated way. Only then the development will be meaningful and authentic. Thus concept of total development is a more integrated view of development which covers all dimensions of improvements in the life of individuals, families and communities. To make the point clear the process of total development may be compared with the turning of a wheel in which each segment pushes the ahead of it and is, in turn, pushed by the one behind. However it is yet not clear which segment should be manipulated first to put the wheel in motion.

The status of development in North East India :

After independence India has made significant progress in various sectors

viz: agriculture, industry, trade & commerce, transport & communication and so on. But there has been wide disparity in the level of development between and within its various regions. North East region of India is one such example, which has low level of development as compared to the other regions of the country. This is more true with respect to its rural areas.

The North East India comprises of the seven sister states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura. According to the 2001 census, their combined population is 3.85 crores which represent 3.85% of the total population of India. Large parts of this region are hilly and inhabited by different tribal groups. The region is endowed with rich natural resources. It is, however economically backward with intra-regional disparities in the level of development. The majority of the workers are engaged in agriculture and the process of industrialization is very slow (except in Assam). Problem of unemployment is getting worse day by day. The region has low per capita income and low consumer expenditure levels. Currently, the north east India is going through a process of transition involving a quantum jump over many intermediate stages of its evolution and development.

In spite of the rich natural sources and huge capita investment in the north east, the level of overall development of the north eastern states fall far below as compared to the other states of the country. In one of the study (Pathak, 2003), to measure the level of prosperity, the economy of 25 states (excluding the union territories) have been divided into four major sectors viz: agriculture, industry, infrastructure & social and over all composite index for each state has been prepared by taking into account the progress in the above four sectors. On the basis of their performance, the states are divided into four categories – high, medium, low, and very low. All the north eastern states have been found to fall in the very low category (except Manipur which lie in low category due to some progress in agricultural sector) in the overall composite index of development. In the absence of any technological progress the productivity of land as well as man continues to be more or less stagnant or is declining further. Low agricultural productivity leads to low income, this results in poverty which in turn keeps productivity further low.

Development Scenario of Rural North East :

Around 80% of the north east (as against 72% of the whole India) belong to rural areas. People in the rural north east live in a region which is virtually cut off from the rest of India. When we look upon the development level of the rural people we find that the region is characterized by low agricultural productivity, industrial backwardness, poor infrastructure and lack of facilities in social sector. This is being reflected in wide spread poverty, unemployment, poor housing, shortage of safe drinking water, poor means of transportation & communication and inadequate support for education and health care.

The incidence of rural poverty is far more greater in this region. As per 1987-88 expert group data, more than 39% of the population of rural north east (as against 27% at national level) lie below poverty line while this figure is 10% for urban areas (East India Human Development Report, 2004). Monthly per capita consumption expenditure (MPCE) is a good measure of the standard of living of people. The following table shows the variation in MPCE across north eastern states in rural and urban areas.

Monthly per capita consumption expenditure (1993-94) :

State	MPCE (in rupees)		
	Urban	Rural	Difference
Arunachal Pradesh	240.38	203.72	36.66
Assam	169.93	153.60	15.33
Manipur	200.31	190.65	9.66
Meghalaya	331.29	174.11	157.18
Mizoram	324.17	245.40	78.27
Nagaland	367.00	—	—
Tripura	271.00	193.66	77.34

Source : East India Human Development Report (2004)

The above table reveals that MPCE is higher for urban areas as compared to rural areas for all the north eastern states. This indicates that rural people are at a low level of their standard of living as compared to urban people. Further, higher urban-rural differences in

MPCE with respect to Meghalaya (157.18) shows that rural poverty is more severe in Meghalaya as compared to other north eastern states.

In spite of the above dismal scenario, the majority of the people of north east do not seem to have much dissatisfaction and grievances in general simply because they have evolved their own value system and social safety net which provide them immediate security and satisfaction in whatever situation they are. This may be, in a sense, a positive attitude to live on. However, it is this level of satisfaction which acts as a hurdle in the way of their own future development.

Education & Development for Rural North East :

Development does not start with goods; it starts with people. They are the one who bring about development in all dimensions of the society. They are both the beneficiaries as well as the contributors. Therefore in the final analysis, development means the development of the people and from this sense, education can be seen as a key factor in the process of development. Earlier the economists believed that natural resources and physical capital are the two main variables which determine economic growth but now it has come to be known that though the natural resources and physical capital play a vital role in bringing about development, these two alone do not determine it. To bring about development, optimum utilization of physical capital and maximum exploitation of natural resources is very necessary and this is possible when the labour force, which operates the production system, is trained and educated. Education thus becomes necessary condition, as it is the education, which trains and equips the labour with the productive capacity and turns it into human capital.

It is now agreed that education contributes to development by increasing the productivity of the labour force and converting it into human capital, which in turn increases the GNP or per capita income of the country. Education does so by increasing the knowledge, training the mind, developing the required skills, inculcating the right kind of value & attitudes and raising the level of motivation and commitment. The importance of human capital in the process of development is very well supported by a recent World Bank Study () of 192 countries which reveals that 16% of growth is explained by physical capital, 20% by natural resources and 64% by human capital. The study by Harbison and Meyers (1964) has also concluded that there is a positive correlation

between the composite index of Human Resource Development (HRD) and GNP per capita income. Following these findings, investment in education of human resources is now considered to be an important source of economic development.

It is now observed that in spite of rich natural resources and huge capital investment through various state and central government funded schemes; the rural north east is still marked at a low of development. Reason is clear. The rural north east lacks the human capital. There is, therefore, a need to develop human resources in the rural areas by providing appropriate education and training so that they operate as human capital to bring about rural development. In view of the above facts, the following educational strategy needs to be adopted for the speedy development of the rural north east.

1. **Farmers Education :**

North east economy is mainly based on agriculture. But, agricultural productivity of the rural people who are the main agent of the agricultural produce is generally found low because of the lack of proper education and training in the improved methods and techniques of farming. And therefore farmers education is of vital importance as the majority of the people are involved in agriculture. In the past agricultural research has played a greater role in improving the agricultural productivity by way of developing modern methods and techniques of farming, new varieties of seeds, use of various kinds of fertilizers and pesticides and so on. But in spite of this, the observation reveals that agricultural productivity differs from region to region within a country. For example, agricultural production is very high in some areas of north India (like Punjab, Harayana, plains of Uttaranchal and western Uttar Pradesh) but it is not so in some other parts of the country (like North Eastern states). Though there may be many reasons for this differences, farmers' education is one that seems to be quite significant.

Since 1960's, a large number of studies have analyzed the effect of formal education on agricultural productivity. In one of the research study, Griliches (1924) and Welch (1970) found that 10% increase in farmers' education raises the productivity by 3 to 5 % compared to only to 2 % increase to be gained from 10%

increase in either land, fertilizers or machinery. A survey of studies on farmers' productivity by Lockheed et.al (1980) concludes that four years of primary education of farmers' increased their productivity by 7.4%. In a recent study, Jamison and Lau (1982) have shown that investment in improved seeds, irrigation and fertilizers is more productive in terms of increased crop yields when farmers' have four years of primary education than none. The research literature further reveals that the investment in farmers' education can boost technical efficiency by increasing farmers' ability to correctly apply agricultural inputs and techniques so as to enhance agricultural productivity.

The above research studies led us to conclude that farmers' education has a positive effect on agricultural productivity and therefore systematic efforts should be made to introduce farmers' education in the field through non-formal system of education and in the schools through formal system of education.

Functional Literacy Drive :

Research studies have shown that there is positive correlation between the literacy rate and economic development. When we compare the literacy figures of north eastern states with All India Average, we find that most of the states (except Arunachal & Assam) have higher literacy rate than the national average of 65%, but the overall development of the north eastern states fall far below as compared to the other states of the country as stated earlier. Questions arise why north eastern states are not doing well in spite of the increasing trends in literacy level. It seems that it is not the literacy that is important but it is ability to function in accordance with the literacy achieved which is of more significance. People need to be functionally literate. They should be capable to function in the task involved. Besides the three R's programme, people must be given the functional knowledge about the task in which they are engaged. For example, a farmer at the adult literacy centers must be told about new varieties of seeds and fertilizers and new methods & techniques of farming that are available. Besides being literate in a usual sense, a farmer of Punjab and Harayana is more productive than others because he is functionally literate. Therefore there is an urgent need to launch

a 'Functional Literacy Drive' in our villages to provide functional knowledge to the youths, adults and farmers. This can be done through the help of Adult Education centers at village level.

3. **Inclusion of Rural Content in Primary education Curriculum :**

The research literature reveals that the returns to primary education (whether social or private) are higher among all educational levels and this is more true for developing areas. Therefore all efforts should be made to educate every child of the village at least up to the elementary level (i.e. class VIII). Further, the curriculum of primary education should have rural content also which may be of their immediate use when they join farming and other related jobs for their livelihood at a later date. It is suggested here that 'Krishi Vigyan' (agriculture science) should become a compulsory component of general science subject in primary education curriculum.

4. **Rural vocational schools at +2 levels :**

Education, which does not develop vocational skills in pupils, may not be of much practical use when they come out of schools. Research has revealed that it is the vocational education, which contributes more to the economical development than general education. We do have industrial training institutes (ITI's) in our country for this purpose but they are unable to attract the masses, as they do not provide +2 type of certification. Therefore, there is a need to establish rural vocational schools either at a village level or block level which provide technological and management education in different vocations like; agriculture science and technology, food science & technology, biotechnology, electronics & instrumentation, computer science & Information technology, rural marketing & management, rural construction & technology and so on.

If possible & feasible, to implement this +2 vocational education, ITI's may be converted into vocational schools and affiliated to the mainstream higher secondary education of the state boards. To begin with, agriculture as a separate stream should be introduced at 10+2 level as is already there in some states like

Uttar Pradesh and Uttaranchal.

5. **Rejuvenating the Balwadi's & Anganwadi's in villages :**

The centers of the Balwadi's and Anganwadi's were established to promote pre-school education at village level. The observation reveals that their performance is not impressive. There may be many reasons for that. Research studies have revealed that pre-school education helps in reducing wastage & stagnation in primary schools. Therefore, there is a need to have a fresh look at the functioning of the Balwadi's and Anganwadi's to rejuvenate them.

Technology and development for Rural North East :

Nobody would dispute the fact that it is the science and technology which has always played a vital role in the growth and development of human civilization. Modern history has also shown that only those countries which could acquire capability to develop and apply science & technology have achieved great success in growing their wealth and improve the living conditions of their people. Break through in high variety of crop production with better yield, expansion of high quality of medical services, radio and television network for spreading information about family planning and early warnings of monsoons and floods, distance education network spreading education at the door step are the result of systematic efforts made by scientists working in various universities and research laboratories. These achievements and many others of science and technology, therefore, can be used in an effective way for the social and economic development of rural areas in north east also.

Besides having large number of scientific & technical manpower, in the last five decades, we have developed a vast foundation for scientific and technological activities in the form of Council of Scientific and Industrial Research (CSIR) and Indian Council of Agricultural Research (ICAR), which have several regional research laboratories and complexes. Besides this we have science and technological departments in almost every university of the state.

These centers have technical manpower, technical know-how and technical infrastructure in the form of sophisticated laboratories and instruments. These should be used for the development of rural areas

by way of transfer of technology from these research laboratories and university to the ground level in three ways – transfer of technical manpower, transfer of technical know-how and transfer of infrastructure. This transfer of technology can be used in the following areas like : low cost housing and sanitation, water harvesting, agricultural productivity, rural electrification, rural road construction, rural irrigation, biogas, information technology and so on.

Science and technology can also be used in setting up small scale industries in villages. These research laboratories and university science departments may be encouraged to evolve what Schumacher (1973) call 'alternative technology' suited to the needs of the local rural people. These small scale industries may be in the area of food processing, wood craft, packaging software and so on. If we are able to utilize the already available technology in a proper way in the development of rural areas, the quality of life of the rural people will be raised to a great extent.

Conclusion :

Total development, as stated earlier, embraces the development of all aspects of human life and ensures a balanced all-round development of all the sectors and sections of the society, but the past experiences reveals that the development is not balanced in all respect and the benefits of development are not reaching to rural areas and weaker sections of the society. Development cannot be limited just for one section of the society but must encompass the entire society. We cannot realize the goal of development for the north east if its rural areas are not developed because the rural areas are the backbone of any society. For the north east to be a developed region, it is essential that there is a massive scheme for the development of rural areas as majority of its population live in village. Peace and stability cannot prevail if the total development ensuring over all welfare and prosperity is missing.

There are many factors, which contribute to the development, but the education and technology are the most instrumental to the process of total development. We have to, therefore, make enough investment in the area of education and technology for the speedy development of rural areas because poor countries are those who have made low investment in education and technology. It is education which equips the people with the right kind of information & knowledge, training &

skills, values & attitudes, motivation & commitment; and it is the technology which acts as an instrument in the hands of these educated people for moving the process of development ahead. Agriculture is one such significantly potential area where both education and technology can make substantial difference in developing the rural areas of the north east.

It has come to be realized that the fundamental problem in development is not the creation of wealth but the creation of the capacity to create wealth – a capacity which resides in the people of the country. Our educational system should, therefore, make all out efforts to develop this capacity to create wealth in our school going children and college youths. It is to be noted here that rural development strategies that have over rated land and physical capital and under rated the capacity of human beings have not succeeded in the past. Before we conclude, a word of caution is necessary here. No scheme for the upliftment of any section the society will be successful if it does not have a moral commitment behind it. Honesty and integrity is the pre condition for any kind of development and this is more true for a society which is at its primary stage of evolution and development.

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