

Economic Development and Environmental Issues in Darjeeling Himalaya of West Bengal, India: A Theoretical Perspective

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ABSTRACT : *Economic development and environmental issues must go hand in hand. The natural environment is central to economic activity and growth, providing the resources we need to produce goods and services, and absorbing and processing unwanted by-products in the form of pollution and waste. Natural resources are, therefore, vital for securing economic growth and development, not just today but for future generations. This paper aims to explore the relationship between the economic growth and the pressure on nature from the environmental sustainability perspective. The area chosen for the present study is one of the least economically developed regions of West Bengal. The physical environment influences the type of economic activities especially so in backward areas of Darjeeling Himalaya. Its economy is largely based on tea, agriculture & tourism, where the former has played a significant role in the development of the region since the beginning. The Darjeeling Himalaya constitute a fragile and unique ecological system. The region is frequently plagued by environmental catastrophes. It reveals from the study that the area under study proves to be a complicated region requiring considerable care & attention in the matter of intensive development.*

KEY WORDS : *Economic Development, environmental problems, resources, economy.*

I. INTRODUCTION

Economic development and environment are interrelated to each other. Improper or uncontrolled development is likely to cause adverse impacts on the environment, and environmental pollution or degradation may become a major obstacle for social and economic development. The economic viability and environmental feasibility do not welcome the industrialists. The environmental problems will be addressed more or less automatically in the process of economic growth. All the countries are developing at different rates & from differing historical levels of achievement. Such development with a view to meeting the socio-economic needs implies that man must use nature in the process of development. It is not that the life-style has changed altogether; the economy in the remote areas is still the same as it has been since the settlements started, but the areas enjoying accessibility to urban centres have already adopted a different character, as profoundly manifest in their day-to-day life. The development of an economy is the consequence of certain economic and technological processes, but development itself brings about a chain of changes in the socio-economic structure of a society. The nature, magnitude and direction of these changes depend upon the nature and pattern of development itself. It is true that one has to make room for the growing population and in this pursuit he has to utilize every piece of land available. But the precautions that have to be adopted should not be neglected.

II. SIGNIFICANCE OF THE STUDY

The backwardness of the area in terms of socioeconomic, politics and infrastructural facilities and their variations within the area has called for a distinct study of the different social, economic and political progress that the area has achieved. Secondly, its geo-strategic location is a reason in itself to evoke concern for the region. Darjeeling Himalaya's vulnerable position has made it pass through different events in history, each having a marked effect in the region. Its backwardness can be attributed to environmental/physical constraints like rugged topography, harsh climate, varying altitude with steep slopes, unfavourable valleys; ethnic clashes; and political instability which makes the life painstaking and hazardous. Environmental conditions play a major role in conditioning the livelihood and economy of the people in Darjeeling Himalaya. The topography, climatic variations, soil condition have all influenced human occupation. Subsistence agriculture, livestock, forestry, plantations and allied activities are the major activity of the rural folks.

Darjeeling Himalaya has only over 13% cultivable land in proportion to its total geographical area. No effort has been made by the government to maximize the utilization of the land.

III. STUDY AREA

The Darjeeling Himalaya covers an area of 2476 Sq. Km. spanning three revenue Sub-Divisions of Kalimpong, Kurseong and Darjeeling. Broadly speaking, the Darjeeling Himalaya falls under subtropical perhumid climate with an average rainfall of 3104.5mm per annum, with an air temperature of maximum 26° C and minimum 4° C. The Darjeeling Himalaya consist of eight Community Development Blocks or C.D. Blocks which include 112 Gram Panchayat, 311 inhabited villages and 31 uninhabited villages as per 2011 census. The total population of the study area during 2011 is 875,703 persons, of which 440,257 are male and 435,446 are female. This Himalayan region is formed of comparatively recent rock structure that has a direct bearing on landslides. However, heavy monsoon precipitation is however a very common cause of the landslides. Soils of this magnificent hill area are extremely varied, depending on elevation, degree of slope, vegetative cover and geolithology. The Himalayas serve as the source of natural resources for the population residing in the hills.

IV. OBJECTIVE OF THE STUDY

The main objectives of this paper are:

- (i) to discuss the source of economic development in the study area.
- (ii) to examine the empirical relationship between economic growth and the environment.
- (iii) to discuss the ecological impacts arising from the economic development.
- (iv) to explore how economic growth might be decoupled from environmental pressures.
- (v) to suggest some recommendation for environmental friendly economic development.

V. ECONOMIC DEVELOPMENT

Economic development seeks increase, in the rate of increase of national income and achieving an equitable distribution of income. Increase in national income would result only from increased production of goods and services. The process of increase in output would involve greater consumption of resources such as land, forest, fuels etc, whose supply is essentially limited. The productivity of an economy thus depends considerably on the supply, quality and consumption of such natural resources. Thus reckless and thoughtless use of these resources would cause their exhaustion and degradation, thereby reduce productivity and impede economic growth. Also due to such depletion and degradation our future generations will not get enough of these resources for their use thus adversely affecting their output, income and living standards. So environmental degradation not only affects us but will also have repercussions on our future generations.

Agriculture: Agriculture in this region is grossly rain dependent and distributed between pre-kharif and kharif seasons. Almost all upper ridges of the region are forest areas; tea plantations and native agriculture occupy mid-hill section. Cultivation of well paddies extends down the mid-hill section up to the bottom valley in some cases. Soil in general is shallow, medium to light textured, surface drainage is rapid, highly susceptible to erosion by water, internally well drained, reasonably high in organic matter, poor in bases and phosphate and distinctly acidic in reaction. Cultivation in drier months is limited to small patches where residual moisture/limited irrigation from nearby rivulets are available. Almost all arable lands have a slope of more than 8%. In some extreme cases poor farmers are seen cultivating very steep slopes that have gradients of 40% or even more. The annual rainfall is very unevenly distributed over the year. Four fifth of the precipitation is witnessed from June- September. So the hill farmers face surplus water during these months and there is acute scarcity of water from February to May. These conditions necessitate aggressive intervention in conserving the precious topsoil during monsoon as well as harvesting life saving irrigation water for the dry months. This could only be done successfully by covering the arable and non-arable lands with perennial plants, disrupting the slope of terraces with vegetable hedges planted along the contour and encouraging cultivation in leveled to inward terraces for checking erosion and by harvesting water in durable structures on stable marginal lands.

Animal Husbandry: Livestock plays an important role to uplift the rural economy in our country and more so in the hills. Its contribution in the Gross National Income is about 25%. Several important technological developments in branches of Animal science has established that Animal Resources Development is one of the most important sectors for economic growth of rural poor, marginal destitute farmers and unemployed youth of the country with special reference to Darjeeling hills, where land holdings among these groups are significantly

low and returns from agriculture are diminishing. As such, successful implementation of the animal resources development schemes has been given priority by the State govt. for eco-friendly sustainable income generation among the local people in Darjeeling Himalaya.

Horticulture: Most of the farmers in these regions are still practicing the traditional method of cultivating traditional crops like ginger millet, local varieties of paddy, maize and vegetables. It has been observed that the traditional method of crop cultivation with local traditional crop varieties is not economically viable these days due to low productivity and high cost of cultivation. It is, therefore imperative that the emphasis and development initiatives vis-à-vis agriculture be shifted to floriculture-horticulture crops in the hill areas of Darjeeling District. The main fruit crops of the area are temperate fruits like orange, plum, pears and peach. Beside these, there are substantial areas growing banana, pineapple and guava. There is also scope for cultivation of passion fruit and its juice has great demand at present especially for the export purposes.

Tourism: Tourism is an important economic activity of hill areas of Darjeeling District generating incomes and employment for the local population. Darjeeling receives around 3.5 lakhs domestic tourists and 50,000 foreign tourists per year that generates near 30% of total tourism business of the region worth around Rs 350 crore per annum. Everybody right from a chaiwala upto the hotel owner benefits from the tourism. Apart from an increase in the income and the demand for local products, tourism also results in a multiplier effect. This refers to the way in which tourist expenditures filter through the economy and generate other economic activities. The multiplier effect is based on the concept of interdependency of different sectors of the economy the result of which is that any change in the host economy's level of output, income, employment, government revenue and foreign exchange flows will be greater than the value of the initial change. The multiplier is expressed as a ratio of change in one of the above variables to the change in tourist spending that brought it about. In addition to its contribution to economic growth in the host economy, the labour intensive nature of tourism and tourism related industries results in a significant impact upon the level of employment in this sector. Income and employment generation are the most obvious positive impacts of tourism.

The facilities and services deteriorate sharply during the peak season as the amenities available cannot cope up with the huge rush. There are shortage of drinking water, electricity cut, deterioration of municipal services, congestion in public transport and lack of accommodation all these leading to a chaotic condition. Not only the visitors are inconvenienced and put to unnecessary tensions, even the local inhabitants get exasperated. Though most people look upon tourist as a means of making a living, it is seen that the assets of tourism do not belong to the people. When it comes to running hotels it is the people from the plains who run these hotels or lease them. And in the rural areas there is very little or no people who are involved in tourism, so the question of them benefiting does not even arise. The only ones who benefit are the travel agencies.

Tea: Darjeeling Hills has been producing finest quality tea in the world fetching the highest price. Starting on a commercial scale in 1856 the present area under Tea Gardens is 19239 hectares producing 11-12 million Kgs. of tea per year. Cinchona was introduced between 1861 and 1869 on trial; large-scale production started from 1887. The best of Indian quality mulberry silk is being produced in Darjeeling hills. Forestry is an important occupation of the people of Darjeeling. Darjeeling has about 38.91 % of its area under forest. Many forest-based industries have come up and there is huge potential for further development. Commercial tea production has been the mainstay of livelihoods and economy in the Darjeeling hills for over 150 years. Situated in the Himalayan front ranges in West Bengal, the Darjeeling hills were transformed in the mid-19th century from a sparsely populated, forested landscape to one dominated by extensive tea estates, linked roads, railway, a major town and many estate-based villages populated by workers. The area, with an elevation range of 800 to 2600 m/asl, copious and reliable precipitation (3000mm/annum), steep slopes and a diversity of micro-environments proved suitable for the cultivation of tea on plantation basis.

Since its beginning, the tea industry has played a pivotal role in the socio-economic lives of people of the region by providing direct employment to thousands of households and ancillary jobs to many more thousands in chest-tea, plywood, tea packaging and other tea-related trades. In the last three-four decades, however, the livelihood of the large, dependent population has been threatened. The gradual decline of the Darjeeling tea industry from strong international competition, increasing production and labor costs, and declining productivity, and other factors, have affected the sustainable livelihoods of plantation workers. Tea is the main crop in the region and is grown over a vast area of hilly land, covering 17 542 hectares divided into 87 tea estates. After the first 3 commercial tea estates were established at Tukvar in 1852, the area under tea expanded gradually to 39 estates in 1866, 56 in 1870 and 113 in 1874. Today there are 87 tea plantations in

Darjeeling Himalaya, producing superfine Darjeeling tea. Darjeeling tea makes up for 3 per cent of India's total production.

The Darjeeling tea industry at present employs over 52 thousand people on a permanent basis, while a further 15,000 persons are engaged during the plucking season which lasts from March to November. More than 60 percent are women and the employment is on a family basis.

VI. ENVIRONMENTAL ISSUES

All economic activities either affect or are affected by the natural environment. Thus development based on reckless use of the natural resources is bound to result in reduced productivity of our economic system affecting the quality of life of the future inhabitants of this planet. Sustainable development therefore attempts to strike a balance between the demands of economic development and the need for protection of our natural environment. It is basically concerned with economic development in an environmentally responsible manner, keeping in mind the needs of the future generations. *Soil erosion* in the Darjeeling Himalaya is taking place rapidly by the removal of topsoil which is rich in silt and humus; so it is one of the major problems, which is disturbing the ecological balance and agricultural development over the region. The rate of soil erosion depends upon the amount of seasonal distribution of rainfall, steepness of the slope and length, vegetation cover and nature of soil and the velocity of water. The process of soil formation is very slow, rather impossible on the bare slope. So, soil erosion should be encouraged by afforestation, slope terrace cultivation, practices and provision of proper drainage system. *Landslide* is one of most rampant environmental hazards in Darjeeling and surrounding hill areas. Landslides are not new in Darjeeling hills and every year in the monsoons landslides destroy properties and claim lives. Although landslide is a natural phenomenon, landslides in the hills are mostly triggered by man-made structures and practices. Improper drainage systems, improper waste management and unscientific cultivation are the factors which augment the landslides in Darjeeling. Sanitation is almost non-existent in the hills although Darjeeling during the British period is renowned for its effective planning and efficiency.

Rapid *depletion of forests* is environmentally the most destructive force in Darjeeling hilly areas. The main reason for this is the random clearance of forests for a short-term commercial profit, dependence on forests for fuel and fodder, uncontrolled grazing and pilferage of trees, extension of cultivation and encroachment due to population pressure. A very large-scale deforestation over the fragile hill slopes has brought about an abrupt change in the ecosystem in many areas and this has been aggravated by the failure to replace the felled trees in the same form. The rate at which the forests are being wiped out in the region without heed to massive soil-erosion and other concomitant hazards has spelt potential socio-economic danger for the people in more than one way. The *tea plantation* has also contributed its share, in bringing about ecological imbalance due to population growth in the region. In this case, soil erosion is the main menace. Nearly 80% of the total bushes are over 50 years old. Young bushes covers only 4% of the area. The bushes after 50 years are generally characterized by diminishing return and greater soil erosion. Pest control is an important cultural practice in tea plantations. Malathine, aldrine, sulphur, lindane, perenox, cuprokyt, blitox, bordeaux mixture, aretan, cerasan, prowex etc. are extensively used in tea gardens. In spite of the fact that these chemicals ensure better yield of tea, yet the washed out residues of these pesticides contaminate water to various extent. People living nearby tea gardens, therefore, run a risk of health hazard. During the *tourist* seasons in particular it has been observed that the region became virtual garbage dumps. This is perhaps due to the lack of civic sense both in the local people and the tourists. The pollution not only causes the health problems for the inhabitants but also has deleterious effect on the wildlife resources. In Darjeeling, the *pollution* can be easily viewed when one takes look at the traffic that is prevalent these days. The registration in the number of vehicles is on the rise mainly because of tourism. So without proper pollution control agencies to check the pollution, the vehicular pollution in the Darjeeling hill areas especially in the urban centres are on the rise. And according to the 'Reproductive and Child Health Project for Darjeeling Municipal Town, April 1998', around 20.3% of the population suffer from Arterial Respiratory Infection.

VII. FINDINGS & CONCLUSION

As one may do in many parts of the country, the economic structure cannot be analyzed in the Queen of the Hills merely by observing the towns and roadside developments. A house-to-house survey in the rural villages will reveal the real picture as to how people are struggling for their livelihood. The economy of Darjeeling hills is mainly dependent on tea and tourism. Earlier timber had a major contribution but with stricter rules its importance has waned. Tourism in the hills generates an average of Rs 450 crore revenue annually, equal to that of tea industry in the region.

Cinchona and other medicinal plants have its base here. Sericulture is another section, which has been spreading with time. Some of the major issues such as pressure of human population and cattle grazing on the hill areas and indiscriminate felling of trees for commercial purposes have led to rapid depletion of forest cover and reduction in the productivity of land, impairing the economic condition of the hill regions. Traditional agriculture practices like shifting cultivation have been responsible for exposure of the thin soil-cover leading to accelerated erosion of both soil and forest cover. Other activities like construction of roads, dams, and unplanned buildings have further aggravated the situation. With the depletion of forests in hill areas, flooding has increased during the rainy season and extended periods of drought have become a recurring feature in the plains, particularly in North Bengal. Availability of water in hill areas has also suffered due to lower water retention capacity caused by the loss of forest cover. This has led to the problems of sand-casting of fertile plains and silting of harbors, reservoirs and river beds, besides additional hardship for hill people. The major challenge, therefore, is to devise a solution to the problem that will avert ecological disaster while meeting the requirements of the growing population. The long-run needs both for the nation and of the community will be served only by maintaining an ecological equilibrium.

An analysis of the development programmes carried out so far to conserve and develop natural resources shows that there is a lack of participation of people in planning and monitoring and sustainability of the activities created. This is mainly due to three factors viz., top down planning, inadequate mechanism at lower level for awareness creation, and systematic co-ordination. This could be corrected only by the active involvement of local NGOs and local community who are directly associated with such activities. They are the local level organizations with intimate association with the villagers and can understand better the problems of the people and guide/enthuse them in the implementation of Government schemes/programmes and ensure that these are implemented well. The main role of the NGOs will be to create awareness among the people of the special areas and the need to protect them and educate them about the various developmental programmes being implemented by different heads of departments. It is necessary to adopt a strategy of development, keeping in view the special features and problems of these areas and formulate area programmes for the socio- economic development, as also for conservation, protection and preservation of these areas. Preserving the bio-diversity of ecologically vulnerable hill zone is an important aspect of Darjeeling Himalaya. The need to conserve the natural resources and their environment particularly to prevent further damage to the eco-system is therefore the need of the hour here.

VIII. SUGGESTIONS AND RECOMMENDATIONS

- Public participation directly and through voluntary organizations and non-government organizations is essential for utilizing the natural resources for economic development
- Arrangements should be made to monitor and evaluate the effects of any major development.
- The necessity and importance of soil conservation measured in agricultural and other lands is very important.
- Tea garden area and production are both to be enhanced but these should not be at the cost of forests.
- Deforestation is to be checked; otherwise the rainfall of the area will be disturbed.
- Attention also needs to be devoted to improving the productivity of local human resources so that these can effectively serve the new human resource demands created by development.
- Planning of infrastructure will have to be reoriented around the functional hierarchy of towns and other settlements, with due regard to the economic roles played by these settlements vis-a-vis their feeder areas.
- Efforts should be taken to educate the people about eco-consciousness and integrate education on eco-conservation.
- Setting up agro-based industry around available natural resources and link support through agricultural and agro-based industrial loans, supply of improved tools, and other such incentives.
- Creation of awareness among the people and educating them on the far-reaching implications of ecological degradation and securing their active participation for the eco-development schemes.
- Biodiversity has also been preserved to a large extent through the reduction in applications of chemical fertilizer and pesticide on conventional tea estates in accordance with good agricultural practices, while a significantly greater contribution has been made by the conversion of estates from conventional to organic production.

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