

NEPAL HIMALAYA  
Aspects of Environmental Conservation

by  
Dr. Dibya Dev Bhatta

UIAA Symposium  
on  
CONSERVATION OF HIMALAYAN ENVIRONMENT  
Kathmandu  
13th October 1982

## Nepal Himalaya: Aspects of Environmental Conservation

Dr. Dibya Dev Bhatt\*

Not being a mountaineer, I have some difficulty in addressing an august gathering of this nature. But I feel greatly honoured to speak here before people who are deeply interested in the preservation of the greatest heritage of the mankind - the Himalaya. I am very grateful to the Organizers of the Symposium on the Conservation of the Himalayan Environment for providing me with this opportunity to reflect upon some aspects of the environmental conservation of Nepal Himalaya.

### Physical Aspects:

The Himalaya is the greatest mountain chain in the world, covering some 1 million km<sup>2</sup> of surface area. Of a total length of 3500 km, stretching between Afganistan and South China, Nepal Himalaya occupies a central and significant place. Nearly a third of the Himalaya falls within the territory of Nepal. In an area of 145,000 sq.km., Nepal offers a wide spectrum of elevation from 80 metres in the Terai to the highest spot in the world, Mount Sagarmatha (Everest) with an altitude of 8848 m. Due to sharp altitudinal differences, there is great diversity in flora and fauna, as well as in agricultural patterns, human settlements and socio-economy. Nepal has been described as an "ethnic turntable", a transtion zone between to Indo-Aryan and the northern Mongoloid racial groups, which have been blended into what one might call a unique culture characteristic of her physical environment.

The Himalaya has since aeons, shaped the thoughts, culture and way of life of the Nepalese people. These ranges which were lifted out of the bed of the Tethys sea have at once awed us, inspired us and sustained us. In a way the Himalaya is the greatest benefactor of nearly a billion people of this planet earth. It is therefore in the fitness of things that we have assembled here to discuss the problem of the mankind which is closely linked with the conservation of the Himalaya.

\* Dr. Bhatta, formerly prefersor of Botany, Tribhuvan University is presently secretary in the Prime Minister's Office. The views expressed are author's own and does not official thinking.

Nepal has a comparatively short history of mountaineering, spreading over three decades. The first ascent of a Himalayan peak was by a French team - that of Annapurna in 1950. Since then, there has been a steady stream of mountaineering expeditions. Between 1950 and 1960, more than hundred expeditions were mounted. Harka Gurung has aptly called it the "Golden Age of Himalayan mountaineering."<sup>1</sup>

In Nepal, there are more than two hundred peaks over 20,000 feet, each unique and providing a challenge to the best and the bravest of the mankind. No less than 8 peaks are eight thousander. Naturally, the Nepal Himalaya continues to hold attraction to the climbers of the world. Mount Sagarmatha has now been scaled many times over by many expeditions. One's thought wander back to the time when it was considered in impossibility.

Much has been written about mountaineering in Nepal Himalaya; these document the sheer courage, the drama in the icy wilderness, the rendezvous with death and the success reaching atop, but not all depict changes which have overtaken people living in the Kingdom of Nepal.

Mountaineering expeditions are meticulously planned these days, perhaps with the same precision as is done for mounting a war. Their size continues to grow. For example, in the autumn and spring of 1981, there was a total of 59 expeditions were involving a total of 660 mountaineers. These expeditions had the support of 271 high altitude porters and 7566 local porters. A large party creates pressures on the local resource base; it leads to scarcity of fuel, food and drinking water. The garbage along the trail, pollution of drinking water, as has been seen in Khumbu, where samples of water showed presence of E. coli.<sup>2</sup> In fact, a suggestion has been made that "villages like Namche, Kunde, Khumjung and others, as well as the main trails to the

---

1. Harka Gurung. Annapurna to Dhaulagiri. Department of Information. HMG, 1968.

2. Ram Khadka et al. The Environment of Khumbu. Kirtipur(mimeo).

base camp, Gokyo, should be outside the National Park "as the density of human traffic is quite high. Growth of tourism has altered the life style of the people inhabiting in these fragile mountain ecosystems. Pastoralism is now on decline; as a result food scarcity prevails over large areas. Mass tourism does have an adverse impact upon mountain environment as Bhutan seems to have recognised at an early stage of development of tourism.

#### Growth of Tourism:

There has been a steady growth of tourism in Nepal ever since the yoke of feudal society was thrown off in 1950. In 1981, the number of visitors was 161,669. Of this, 21,668 expressly came for trekking and mountaineering. In the high mountain areas, tourism (trekking) and mountaineering creates increased demand upon forests. In the Khumbu region, an estimated 491,3016 kg. of wood is utilized. "This is simply an estimation without written records, even then this gives a general hint indicating excessive use of wood, which has already exceeded the carrying capacity of the forests."<sup>3</sup>

There has been a steady growth of tourists in the Everest region during the period 1964 to 1976, from 1000 to 4254. And as the tourist season is during the winter months, there is increased demand for wood. Hotel consumption is also quite high. For example, in the solu Khumbu region 298,800 kg of wood was used during 1976 season alone.<sup>4</sup> The problem assumes serious dimension on account of the fact that in the high Himalayas, regeneration is slow and hence a change in the environment is often of an irreversible nature. This point has been emphasized by Sarin and Singh: "The present is an era of organized recreation with hundreds of mountaineers, trekkers and tourists visiting the Himalaya region each year. Their presence makes heavy demand on scarce resources such as fuel, water and space in these limited areas. The destruction of vegetation here is almost irreversible since at elevations above 2500 meters regeneration is difficult. This influx has now unfortunately spread to Ladhakh, which for centuries had maintained a delicate ecological balance between limited number of human beings and very limited natural resources."<sup>5</sup>

3. Khadga et al: op cit

4. ibid

5. H.C. Sarin and Gyan Singh. Mountaineering in the Himalaya. In The Himalaya: Aspects of Change. Ed. Jolly and Maddipati. C.S.

Cultural Preservation:

There is inadequate appreciation of composite culture of the Nepalese people. Each ethnic group in Nepal has developed its own unique response to its surrounding (environment). In the past because of isolation, each community developed its own micro-culture which was one of harmony with nature. The advent of a super power in the South could but lead to changes in the political and socio-economic lives of the people. If large scale migration to India and efforts to settle in the malaria infested Terai were two new phenomena, the process of unification of the country also brought changes in the physical and cultural environment of Nepal. With increasing population the demand for more land naturally ensured. This process of alternation in the land/ man ratio was the beginning of environmental problems which have now threatened the very basis of human existence in Nepal. In the past, this problem found its solution, though in a limited scale, through outmigration, over the past three decades with a steady growth rate of population (2.7 per cent now), the limits to human carrying capacity have been reached. In this process, profound demographic changes have occurred; an uninterrupted flow of migrants into the Terai region is leading to cultural homogenization. The growth rate of the Terai has reached 4.1 per cent during the past decennial period. How long this would continue, for after all there are limits to growth even in the Terai.

Another factor with regard to the growth of tourism in Nepal which until few years back had shown a steady rate of 15 to 20 per cent is its impact upon cultural environment. Kathmandu, the prime destination, the Shangri La of the past is now changing into a metropolis without any coherent process of planning. Pollution, noise, drug abuse and ubiquitous filth is turning this once beautiful city into an urban jungle. It is high time that we should turn our thoughts from rural environment to that of urban, for solution to many of our environmental problems can be found through adoption of rational policies in the field of urbanization.

Environmental Degradation:

For people living in the hilly areas which constitutes about 56 per cent of Nepal's total population of 15 million, life is one of constant struggle to eke out a subsistence. This is reflected in one of the lowest per capita income of US\$ 140. The combined effect of high fertility rate and declining mortality as result of improved health facilities has led to increase in population from 9.4 million in 1961 to 11.6 million in 1971 and further to 15 million in 1981. " At the present rate, the population will reach 25.4 million by 2000."<sup>6</sup> The mid-hills of Nepal have undergone profound changes-physical, cultural and socio-economic. Environmental changes lie at the root of these changes. Human pressures in the hilly and mountain regions have intensified in the past decades. The forest area has declined by 40 per cent over the past three decades. Deforestation is accompanied by extension of cultivation to marginal lands. Slopes over 40 degrees are also brought under crop. Terracing upto eight to nine thousands feet is quite common. This leads to serious soil erosion. Soil degradation and desertification affects demographic trends, modes of production, forms of technology and patterns of consumption and earnings, including prevalence of poverty and income disparities. Poor people are often subjected to worst environmental degradation due to undernutrition and bad health conditions. This point is emphasized in a report: "Unless social structures that generate poverty are altered, attempts at direct action to help peasants end up with the dilemma that essential needs for survival of society may conflict with those essential for the survival of the individual. Efforts to protect the environment under conditions of strong inequality often runs up against strong resistance from the people. Poverty may encourage environmental destruction but amid conditions of blatant inequality it may be impossible to establish a resource management policy based on controls such as protection or limited utilization."<sup>7</sup>

---

6. Nepal: Population and Development. National Commission on Population 1982.

7. Population, Resources, Environment and Development: A broadened View.

The World Environment 1972-1982. UNEP. Ed. Holdgate, Kassas and White.

Land/Man Ratio:

Nepal is one of the most densely populated mountain countries of the world. By 1986, the density is expected to be 110 persons/sq. km. However, density in terms of cultivated land would reach to an alarming level - 525/ sq. km. by 1985.

The land/man ration has become adverse in the middle altitudes. For example, population density/km<sup>2</sup> of cultivated land in the Terai (Sungari District) and Sankhuwa Sabha (hills) is 390 and 1270 respectively. This sort of situation naturally creates more demand upon the local resource base for food, fuel, fodder and pasturage. Over two-thirds of the country either suffers food shortage or marginally surplus; any small change in the weather (drought) creates famine conditions, as has been demonstrated very recently when due to failure of monsoon, a shortfall of 100,00 metric tons was anticipated.<sup>8</sup>

It has to be appreciated that the problem of conservation of the Himalaya environment is a complex one. While on one hand the land/man ratio is becoming increasingly unfavourable, agricultural productivity has declined. Naturally, without raising both production and productivity, human environment problems will continue to defy solution.

The mountain ecosystems -whether in the Andes or the Himalaya, are regions of marginal habitation. Of recent, this man - environment nexus has undergone a change on account of land use pattern, large scale out-migration, changes in the economies due to alternative land use practices, introduction of tourism, which creates new linkages with other sectors of economy. This is brought out very succinctly in one of the MAB Reports:

" The mountain ecosystems are characterised by a third dimension of the land surface. This dimension produces a major ecological contrast within a short linear distance and special biological adaptations to meet the conditions of low temperatures, high radiation and strong wind characterizing these areas. These regions show particularly the existence of an altitudinal gradient in the distribution of barometric pressure, radiation, temperature and precipitation. This gradient results in vertical zonation of

---

8. According to one source (H. Gurung, New Era): "the quantity of total food grains distributed by the Nepal Food Corporation in 1980 was 51,935 metric tons or an increase of 83.5 per cent over that of 1976. The increase was 76.5 percent for the mountains, 61 percent for the Hills and 91.4 percent for

soils, flora, fauna and ecosystem type. Accordingly, man's way of life, his habitat and land use and exploitation patterns, are differentiated vertically. Furthermore in mountain areas, man is specially confronted by problems of isolation and special difficulties in communication."<sup>9</sup>

One of the problems which comes to the fore in any serious attempt of inter vention in the mountain environment through introduction of new plant species is that of its adaptability to local environment. Much care and thought should therefore be given to such activities. There are obviously constraints in regard to agricultural development of hilly and mountain areas. For one thing, development should encompass entire catchment areas so that an integrated approach can be undertaken. Development of human resource is a necessary pre-requisite for natural resource development. In this regard the role of education becomes pivotal. Development of new skills leads to creation of new job opportunities outside the farm sector, raised income levels and brings about a reduction in disparity. Further, it needs emphasizing that if development often creates adverse impact upon environment, it also leads to enhancement of resources. This has been called the "Harmonization Game". Improvement in health services and educational facilities creates conditions favourable for lowering growth rate, which itself leads to greater awareness of environment. The fulfilment of the basic needs, one of the objectives of Nepal's current Sixth Five Year Plan (1980/85), hinges upon restoration of the balance between available resources and population growth. An integrated population - development approach can indeed have a beneficial effect upon conservation of resources. This point was strongly emphasized at the recently concluded Third Asian and Pacific Population Conference held in Colombo between September 20 to 29, 1982. This course of action also leads to increased people's participation which is essential for the success of any programme of development. Panchayat planning based upon decentralization to the village level in the formulation, evaluation and maintainance of local development projects is a key element in Nepal's development strategy. Seven integrated development projects covering a many as 22 districts in different parts of the Kingdom now in the process

---

9. MAB Report. Kathmandu. Regional Meeting on integrated ecological mountain research and training needs in the Southern Asian Mountain Systems, particularly the Hindukush Himalaya 1975.



of implementation are expected to provide practical expression to the concept of balanced regional development. A regional development approach calls for reordering or deployment of resources. It specifically calls for comprehensive scientific survey of natural resources, their identification and use in potential growth areas. Such a planning framework helps in mobilizing resources at the local level without which there can not be sustained development.<sup>10</sup>

Integrated Development:

In Nepal in the past decade major effort has been made in the field of environment conservation. This includes establishment of national parks and wild life reserves, soil and water conservation schemes and launching of such projects as RCUP (Resource Conservation and Utilization Project). These are essentially conservation activities designed to restore, develop and enhance natural resources. The proposed Regional Institute for Integrated Mountain Development can indeed play an useful role in the formulation of policies and programmes which would take into account "the relationship between socio-economic development, national demographic trends, natural resources use and environmental impact." There is a strong linkage between integrated ecological research and integrated mountain development. The theme of this Symposium strongly underscores such an approach. Nepal has to vigorously pursue a policy of effective resource management, including land use planning. This can only be accomplished within the framework of an adequate research base. This is not a simple task, for "conditions are changing so rapidly that there is little or no hope of basing such planning on long-term in depth research."<sup>11</sup> Be it so, there is no escape from bying greatest

---

10. Rural Development. Sector Policy Paper. World Bank. 1975.

11. Working Group on Project 6: Impact of human activities on mountain and Tundra Ecosystems. Lillehammer. November 20-23, 1973.

stress upon research and development activities which would provide sound prescription for management of natural resources on a scientific basis. That Nepal has been able to create some basic infrastructural facilities is a matter of satisfaction. What is required is a more coordinated approach in regard to activities in agriculture, forestry, soil conservation, wildlife preservation, tourism and rural development. There is thus a clear need to adopt policies which would take full cognizance of constraints and potential of integrating environmental development into the overall socio-economic development plans of the country.

-----