PANDIT GOVIND BALLABH PANT MEMORIAL LECTURE: V

Some Major Socio-Economic and Environmental Issues of the Himalayan Regions

Dr. S.Z. Qasim
MEMBER PLANNING COMMISSION
Yojana Bhavan, New Delhi

14 September 1995, Shimla, H.P.

About Dr. S.Z. Qasim

Dr. Syed Zahoor Qasim had his education in Allahabad, Aligarh and United Kingdom. He has had a distinguished career and has excelled in diverse fields as a teacher, researcher, administrator, leader, policy maker, planner, etc.

He got his Ph.D. and D.Sc. degrees in Marine Biology from the University of Wales, U.K. As Oceanographer, he has contributed in many areas and institutions, and held responsible positions as Director, National Institute of Oceanography, Goa and First Secretary, Department of Environment and Development of the Ocean Development. He also initiated the Indian Antarctic Programme, and was leader of the first Antarctic Expedition.

Besides being the author of more than 200 scientific papers, published in international and national journals, he is a Fellow of all the National Academies of India and Honorary Professor in six Indian Universities including IIT, Madras. He was the Vice-Chancellor of Central University Jamia Millia, and is at present Member Science of the Planning Commission. He was elected General President of the Indian Science Congress for the year 1992-93. His illustrious contributions and outstanding services were well recognized and beside many national awards to his credit, he was awarded **Padma Shri** in 1974 and **Padma Bhushan** in 1982.

Pandit Govind Ballabh Pant Memorial Lecture

S.Z. Qasim
Member, Planning Commission
Yojana Bhavan, New Delhi – 110 001

INTRODUCTION

It is indeed an honour to be asked by Shri N.R. Krishnan, Secretary, Ministry of Environment and Forests to deliver the fifth Govind Ballabh Pant Memorial Lecture for the year 1995-96. To begin with, I would like to pay my homage to Shri Govind Ballabh Pant who was, in his own right, a rank freedom fighter, an organizer, a statesman, an able administrator and one of the chief architects of free India. He held some of the most important positions in the country including those of the Chief Ministership of Uttar Pradesh and Home Ministership of the country. He hailed from the Himalayan region and the Government of India has very rightly established an institution, in his cherished memory, on the occasion of his birth centenary year (1987-88), called the Govind Ballabh Pant Institute of Himalayan Environment and Development at Almora.

The topic of this lecture has been carefully selected because improving the prosperity of the Himalayan region without disturbing its unique environment, was very dear to Shri G.B. Pant. It is in the memory of such a distinguished son of the India that this lecture is dedicated.

The world Himalaya produced a magical effect in the minds of people all over the world. The chain of mountains known as the Himalayas constitute an unique and complex system of the youngest, the highest and a class of their own, containing most of the world's "eight thousand plus" peaks. These also depict special geographical and geological features. Sages and philosophers have sought refuge in their abode to meditate; poets and artists have been inspired to make magnificent contributions. In many ways, the Himalayas have influenced the life, culture and history of this subcontinent. The slopes of the mountains are covered with immense forests, grasslands and other vegetation, including some of the most beautiful flowering plants of the world. The vast complexes of hills and valleys nourish not only agriculture, horticulture, forestry and animal husbandry, but these are also rich in minerals and other resources.

However, it is not the sublime beauty of the Himalayas that we are primarily concerned in this lecture. It is indeed paradoxical that in a region of such remarkable beauty and natural richness, its people should continue to remain among the poorest in the country. What we are concerned today is to emphasis that because of the lop-sided economic development, the precious environment, which influences not only Himalayan region, but also the plains below, should not be damaged. On the contrary, we should preserve it in a suitable manner for the generations yet to come.

One of the greatest gifts of nature given to India is the monsoon. But for the monsoons, our country would not have been able to support such a large human population as it exists today. Our support such a large human population as it exists

today. Our agriculture, our fresh water supply, our power production and many other human needs and dependent on human needs are dependent on the monsoons. In fact, the other human needs are dependent on the monsoons. In fact, the livelihood and even survival of millions of people in India and elsewhere is linked with the monsoon. The great wall of the Himalayas plays a crucial role in generating the cycle of monsoon. It acts as a barrier for the passage of moisture-laden winds coming from the Arabian Sea and controls their northward limit resulting into widespread precipitation during the season in the plains of the country.

SOCIO-ECONOMIC ISSUES

(1) Poverty and Unemployment

Lack of opportunities for gainful economic activities leads to poverty in a general sense in most of the Third World Countries. This is because the mountain areas are characterized by some specific features, which shape the pattern of activities leading to a poor quality of life. These conditions are created by special characteristics such a inaccessibility, fragility, marginality, diversity and susceptibility which affect a proper utilization of mountain resources.

(a) *Inaccessibility:* It is major constraint because there are a number of logistic problems in reaching the areas. Thus, the utilization of resources and their effective economic use become difficult.
(b) *Fragility:* Because of the vertical nature of the environment and steep slopes, any large scale activity leading towards economic development has a disturbing effect on the mountains. This prevents large scale land use.
(c) *Marginality:* It is a typical mountain characteristic. It leads to high cost of utilization of resources and low pay-off. Options for doing certain things are limited.
(d) *Diversity:* In the mountain region, one finds heterogeneity in physical and biological features over short distances. Therefore, the resource picture can never remain uniform. On the contrary, one would find large differences in a given area to meet the developmental needs.
(e) *Susceptibility:* This feature reflects special situation in mountain areas where one activity affects the other substantially. Any activity such as irrigation, hydropower projects, timber utilization or tourism, mineral exploitation or cultivation of medicinal plants, will have far-reaching influence among themselves and on others.

These features provide limitation in harnessing the natural resources in the mountain ecosystem and lead to diversity in the approach of the people. Employment opportunities are very restricted and hence from many families, young persons join the defence services. Early retirement from the military service accentuates the problems. Their return to home-land with limited income from pensions and gratuities makes their life style seriously

handicapped. In addition, urbanization has created serious problems of ecological imbalances in the Himalayas. Increasing pressure of human and animal need, rapid denudation, biotic interference in the natural regeneration process, have contributed to increasing influx of humanity to urban areas or migration from the hills to the plains for jobs. The result is that remaining rural inhabitants have to face the problems of accelerated soil erosion, flash floods, droughts, avalanches, typhoons, storms etc.

The remedial measures lie in an integrated approach which involves a full understanding of the mountain problems and their solution. Many programmes can be developed with sufficient innovation and creativity which would help in improving the quality of life of the people, and eradicating poverty.

(2) Economy:

The economy in most of the hill states has been showing signs of retarded growth and not simply "under development" in the conventional sense. Stagnation both in the primary and secondary sectors, as well as technological and institutional changes, which can initiate growth momentum, and augmentation of the capital and investment from outside the region, have been lacking. These, coupled with the mounting population growth have given rise to a crisis situation which requires immediate remedial measures if the major problem of poverty is to be arrested.

(3) Human Settlement:

In the hill region, human settlement pattern shows that settlements generally are confined to the mid ridges with forest on top and agricultural land below. Due to inconveniently located and fragmented land holdings, the land is often abandoned. This coupled with the lure of outside employment, bring about migration from the rural areas resulting in land abandonment and loss of its productivity.

(4) Rural Development :

The organization for implementing the progress in the rural areas of the micro-level is weak, as the bulk of staff is located in the state capitals or in the district/sub district towns. There is an urgent need for shifting and deploying the technical and managerial staff to the field region from the headquarters rather than expanding the staff further exclusively for the field work. There is also a weak and half-hearted approach in the implementation of the projects related to socio-economic development for the weaker sections.

(5) Family Welfare:

Although the Himalayan region is sparsely populated, as compared to the rest of the country, rapid population growth in these areas has its own repercussions. Table 1 shows the 1991 census figures of population, rate of growth and population density.

TABLE 1

Population, Expected Growth Rate (Exp. G.R.) and Density in Himalayan States

	Population '000'	Exp. G.R.	Density	
			1991	1981
Himachal Pradesh	**5171**	**1.89**	**93**	**77**
Jammu & Kashmir	**7719**	**_**	**76**	**59**
Manipur	**1837**	**2.57**	**82**	**64**
Meghalaya	**1775**	**2.84**	**79**	**60**
Mizoram	**690**	**3.34**	**33**	**23**
Nagaland	**1209**	**4.45**	**73**	**47**
Sikkim	**406**	**2.51**	**57**	**45**
Tripura	**2757**	**2.95**	**263**	**196**
Assam	**22414**	**2.17**	**286**	**230**
Arunachal Pradesh	**865**	**3.14**	**10**	**8**
India	**846303**	**2.14**	**274**	**216**

As can be seen form the table, the population density in most of the Himalayan states (except Assam and Tripura) is well below the national (all India) figure. However, its rate of increase, except in the Himalchal Pradesh, is well above the national average. This will lead to a greater pressure on land for human habitation and decline in the forest cover:

(6) Health:

Because of special geophysical and geoclimatic factors in the Himalayan region, there is a prevalence of the diseases of certain types. Problem gets aggravated with the inaccessibility of health services due to inadequate infrastructure, non availability of health personnel in sufficient numbers and poor communication. The diseases which require special attention are goiter, malaria, respiratory disorders, parasitic infestation like hookworm and sexually transmitted diseases. Malnutrition is a chronic and widespread phenomenon, particularly among the children and female population.

(7) Agriculture:

Unlike any other region of the county, there are small land holdings in the Himalayan region. This makes an extremely low land-man ratio. About 90% of the land holdings are below one hectare in size. Such small farms are scattered and fragmented. The main crop in the kharif season are paddy, ragi, soyabean, urad etc. The main crop in the kharif season are paddy, ragi, soyabean, urad, etc., while the rabi crops are wheat, barley, lahi, rapeseed, mustard, lentil, potato etc.

The way, in which the land being utilized can be seen from Table2, which refers to the hill districts of Uttar Pradesh.

TABLE 2
Land use patterns in the Hill Districts of U.P.

Category	Ownership	Percentage
Forests	**Forest Department**	**35%**
Civil Soyam Forests	**Community**	**10%**
Panchayat Forests	**“**	**4%**
Private, cantonment and Municipal Forests	**Forest & Local Bodies**	**12%**
Usar	**Community & Private**	**10%**
Agriculture wasteland	**Private**	**5%**
Pasture and other grazing	**Community Land**	**4%**
Other tree-shrubs	**Community & Private**	**4%**
Non-agricultural use	**Private**	**2%**
Fallow	**“**	**2%**
Area actually sown	**“**	**12%**

The economy in the Himalayas largely depends on the agriculture sector. This is beset with the problems of a poor and deteriorating and resource base, fragmented land holdings, lack of irrigation facilities, improper land use pattern, lack of appropriate technology and inadequate credit and marketing facilities. Besides these, poor and inadequate infrastructure and lack of arrangements for the supply of new inputs like the high yielding variety (HYV) seeds, fertilizers, pesticides etc. are the other constraints in increasing the agricultural production. Credit agencies such as commercial banks for cooperative credit societies, which are supposed to overcome this deficiency, have gradually disappeared. Marketing facilities for seasonal, perishable crops such as tomatoes, potatoes, beans, capsicum, chillies etc. are also not adequate. Similarly, the role of village level workers, agricultural development officers, veterinarians etc. has not been properly recognized. These crucial functionaries also did not have an adequate rapport with the farmers to tackle their problems.

Therefore, lack of proper inputs plays a big role in the backwardness of the agricultural practices in the Himalayas. The problem of “off farm sources of income being an important element in the farmers income” has been identified as the major

one. The irrigated lands are the well-terraced land and even in the rain-fed areas, terracing of the cultivated land is common. But due to population pressure, lands upto 65% slope and above have been brought under cultivation without adopting adequate conservation measures.

The main objective of agricultural planning and development in the hills should not be just self-sufficiency in food, but a proper conservation of land and water resources so that the land is available for a long-term productive use. Water being plenty in the hills, the only problem is its collection, management and harvesting. Thus all land-based activities should be planned on the "watershed' concept for sustainable development of natural resources.

(8) Horticultre:

In Himachal Pradesh, one single horticultural produce the "apple" has created a revolution in the well being and prosperity of the State. It has a large surplus production of apples to meet the needs of almost the entire country. It is also converting the low-grade apples into value-added products such as juices mixed with aerated soft drinks and jams, jellies etc., which could be bottled and canned.

Several types of fresh fruits, dry fruits, vegetables, flowers, vegetable seeds, tubers, mushrooms etc. have a great potential for horticulture. Beside apple, peaches, cherries, leechies, strawberries, apricots, pears, spices, ginger, chillies, turmeric and a variety of vegetables can be grown remarkably will in the Himalayas. The low volume, high value crops such as the walnut, hazelnut, peanut also have large potential in the region. Beside these, animal husbandry and bee-keeping can also play an important role in the economic uplifting of the people. Sericulture is another industry to become widespread in the Himalayan regions.

Another plant which has created a lot of impact on the life of hill people is the "tea". In Assam, West Bengal and several other states, tea industry has been flourishing since a long time and the product has been in demand both for domestic consumption and export. However, the impact of tea industry on the prosperity of the local people has not been as much as apple has done in Himachal Pradesh in a short time.

(9) Jhum or Shifting Cultivation

The age old practice of shifting cultivation or jhuming, which is a widespread activity in many Himalayan States must be controlled or preferably abolished as early as possible. It has destroyed forests and has changed the most fertile land into unproductive, wasteland. There are various alternatives or pacakages developed by the ICAR as substitutes for jhuming to suit local conditions. They should be adopted as early as possible.

(10) Forests:

The most important resources in the Himalayan region are the forests. These are being used at a much faster rate than their regeneration. The main focus on the forestry

activities has been on timer harvesting and policing on illegal feelings, without the least concern on yield regulation and regeneration of forests. The exploitation of forests is not merely for fuel, fodder and other domestic need of the hill people but also to meet the demand of wood in the plains, which is so great that clandestine selling of wood has become the most lucrative business. With an increasing demand for agriculture, human habitation and industrialization, the forest cover has been shrinking progressively.

Afforestation programme, which began more than 15 years ago in most of the Himalayan states, involving ex-serviceman and unemployed youth, have yielded results in enlarging the forest cover. However, these man-made forest should be close as possible to the natural forests. The productivity of the man-made forests has been very limited, as standardized pine or eucalyptus, hardly seem to fulfil the requirements of the local people. The reserved forests, administered by the State Forest Departments, as per the satellite imageries, has been shrinking and only 50% of the original density is left now.

(11) Roads and Transport:

Communication forms the most important need for development, as without proper accessibility to village and far off places, no economic activity is possible. However, it must be noted that the need is not always for motorable roads. A footpath through which trolleys could reach can serve the purpose. This type of communication becomes most important during winter months or when the weather conditions become severe due to heavy snowfall for prolonged periods and food become scarce. However, for road construction several precautions are necessary. These include least geological disturbances, no degradation of adjoining land, no major loss of forest cover, no such activity which may lead to flash flood or leaching of soil nutrients.

(12) Energy:

Perhaps the most controversial issue, which has been debated from time to time, is the decision to build large hydroelectric power plants in the Himalayan region. The question often asked is even if a site is ideal for locating a hydroelectric project, will the fragility of the mountains be able to withstand the pressure of the power plant on a long term basis? Various committees which have gone into the environmental problems such as improving the hill communities and providing alternative sites for their resettlement, have recommended that a great deal of caution should be exercised in implementing such projects and the social cost-benefit must be carefully examined in all such projects in the future. Hydel power potential is immense in the Himalayas & the need for preferring the mini & micro hydel project of the size of 500 KW and 10 MW cannot be overemphasized. There is also an urgent need to give priority to the use of non-conventional sources of energy (solar, wind, biogas etc.) in isolated and far off places in the hills.

(13) Earthquakes:

Reliable records indicate that the Himalayan region is seismically active. During the past 90-100 years, more than a dozen earthquakes equal to or exceeding the magnitude of 7.5 on the Richter scale have occurred in this region. On October 20, 1991, a demanding earthquake took place in Uttarkashi and Bhatwari claiming several hundred human lives and causing widespread destruction to property. Adoption of certain building code for the earthquake-prone zones is necessary. There are inexpensive methods developed by Japan and other countries which have proved to be effective.

(14) Floods:

Greatest damage is caused in the Indo-gangetic plains because of floods resulting from torrential rains occurring frequently in the Himalayan region. The causes for this are increased run-off in the catchment area and the reduction in the carrying capacity of the channels because of silting and accumulation of sediments and obstruction to carry excess water. In the north-eastern part of the Indo- gangetic plain, most of the rivers have been changing their course, resulting in considerable damage year after year. Flood management basically requires moderating and controlling the excess run-off by increasing its infiltration through vegetation and channeling the remaining flow into the low-lying areas and reservoirs. Measures like flood embankments, water spreading schemes for excess water are required to control the floods.

(15) Land- Slides

Land-Slides are caused by the instability of hills. In the vulnerable belts of the Darjeeling region, more than 20,000 landslides have been recorded in one day. The well known factors causing landslides are cloud bursts heavy and prolonged rainfall, deep excavation on the slopes for building roads and mild tremous caused by heavy traffic. Deforestation and population pressures have aggravated the situation. Intensive studies by such institutions as the Central Road Research Institute (CRRI), Border Road Organization and the State Public Works Departments are required on the problem of safe road construction, particularly in the high hills so that the land-slides are prevented.

(16) Industries

Like the other regions, the Himalayan belt has also attracted fast-growing industries. Rich raw materials, natural resources, cheap human labour, availability of energy, roads etc, have contributed largely to the industrial growth. However, the choice of industries and technology in many regions has been extremely faulty. Many of them have increased the demand of water as a raw material, and have led to pollution noise, untreated industrial wastes, particulate matter in the air from cement factories and have affected the environment adversely. Many industries have contributed very little to the employment of local crafts, handicrafts, which were contemplated most enthusiastically at one time, have been very slow in implementation.

The hill regions being endowed with cool, dust-free climate, are ideally suited for setting up agro-based, forest-based, food processing beverages and electronic industries to speed up the process of development with the changing needs of the time.

(17) Tourism:

Tourism has been declared as an industry, and the Himalayan region has been considered extremely suitable to promote this industry. During the past four decades, the number of Indian and foreign tourists has been increasingly 4-6 times every five years. Normally, people go to the hills during summer, to escape the heat of the plains, for rest and for enjoying a holiday in good weather. Even in winter, some hill stations are popular for skiing and winter sports with the foreigners. The impact of tourism on the prosperity of a hill station has been tremendous. Nevertheless, the tourist activity has not remained in consonance with the environmental needs. Unplanned urban development in the Himalayas is causing irreparable damage. Local ethics, culture and ethos of conservation are facing an onslaught as a result of transitory tourist population. The problems of litter, noise, erosion, destruction of fauna and flora have become acute. More and more incoming vehicles pollute the atmosphere with the emission of carbon monoxide, sulpher di oxide etc. Garbage disposed is another gigantic task to solve. Outbreak of diseases such as cholera, typhoid, dysentery have become common features due to overcrowding and contamination of water supply and waste discharge into the rivers and streams. Dal lake in Kashmir is a typical example of losing its aesthetic value.

Environmental Issues

Many of the environmental issues are closely linked with the socio-economic issues related to the developmental needs of the Himalayan regions and these have been dealt with each sector of activity noted above. However, it is important to take the environmental issues collectively.

Segmented and partial approach, each dealing with one aspect of economic life of this region to the exclusion of others, has led to ecological disequilibrium. An integrated view, therefore, of people, resources and environment must be made as prerequisite for a balanced regional development. Consideration must be given to the links between different factors, the most important of which are the land, water and other physical resources, infrastructural development institutional arrangements and the availability of sources such as marketing, credit, extension, research and adequate communication.

Integration of environment in the development process aims at enhancing the goals of development and of anticipating the effects of developmental activities on the natural resources and environmental processes. Through preventive planning based on research, monitoring and analysis of data, most of the adverse environmental consequences can be avoided. This process is peculiar to the hilly areas which are different from the plains. Therefore, a coordinated action in all

branches of social and human activity is required so that the overall development meets the needs, hopes and aspirations of the people. For such an approach the following measures become necessary:

(1) Role of Government;

As emphasized above, conservation of the fragile Himalayan environment is vital not only to those who live in the hills but also to the millions, who live in the river valleys that the Himalayas have created. The existing administration of the states, as also the guiding plans of the Centre, have not stood up ot challenges of the Himalayan region. Administrative reforms, therefore, become necessary for executing the integrated development. Some of these could be summarized as follows:

(a) Large administrative agencies have developed in the hill areas very similar to those found in the plains without taking into consideration the special features of the hill areas.

(b) The Himalayan characteristics of specialized regional topography, provides an opportunity to redraw the administrative units around natural resource(s) areas namely the watershed and the existence of common land which could be used for the good of the people. These have not been taken fully into account in drawing up the schemes for implementation.

(c) The concept of planning must take into consideration the societal imperatives. It must have public participation, or local level participation so that the wishes and aspirations of the public are taken into account and the Government is able to play the right and proper role.

(d) The concept of ecology must be integrated in all the developmental projects. Through preventive planning based on research and monitoring, most of the adverse environmental consequence can be avoided. Development of the hill community must be seen as a web of linkages between technology and development at various levels.

(e) Modern science and technology have always found solutions to most difficult situations. The fragility of the Himalayan region requires a far greater scientific input in evolving environmentally sustainable development which will meet the aspirations of the people.

(2) Role of the Institutions:

There are a host of institutions in the country where the work undertaken would be relevant to both developmental process and environmental conservation. The Government of India has established the G.B. Pant Himalayan Institute of Environment and Development (GBPIHED) as a nodal agency. It is, therefore, necessary that under the leadership of this Institute, an effective networking with the various other scientific institution is systematically established so that the pooled

resources and efforts of all these institution should be able to evolve sustainable portfolio of developmental projects to be implemented by the Government.

(3) Role of NGOs:

An extremely important development in the Himalayan region has been the active involvement of several non-governmental agencies especially the voluntary organizations, which have strengthed the developmental activities, based on local knowledge and wisdom. Mention may be made of the Sasholi Gram Swarajya Mandal, the Society for Himalayan Environment Rehabilitation and People's Action (SHERPA), the Silyara Ashram etc, which are doing excellent work for the protection of Himalayan ecology. In different regions of the Himalayan states, the local people have adopted technologies which have enabled them to meet their needs without adverse implications ensure that the local ecology does not get impaired. What appears to be critical need is to integrate the indigenous technologies, which have stood the test of time, with the process of generation of appropriate technologies for rapid development.

(4) Role of Women

In the Himalayan region, women have done a great service in creating environmental awareness. Their role in the "Chipko Movement" is all too important and known among the people of India and abroad. Weather it is the collection of firewood or bringing water from far away places, or in any other activity connected with agriculture, animal husbandry or dairying, women have been in the forefront. In handicrafts, such as wood carving, bamboo carving and crafts, cane crafts, horn products, metal casting, filigree works, painting works, lepcha wearing are some of the promising cottage industries in the hill regions, in which women play a predominant role. Organizational support among the women play a predominant role. Organizational support among the women folk is however, either too weak or non-existent. There are middlemen who give advances to them and after the material is produced, purchase them at a very low price. Therefore, there is an urgent need for scheme like

(a) construction of artisans sheds

(b) training centers for women

(c) financial assistance to cooperative societies

(d) opening of marketing centers and

(e) Modernization of design and work of women.

CONCLUDING REMARKS

There is a Sanskrit proverb which says that a hundred divine epochs would not suffice to describe all the marvels of the Himalayas. It is only in the modern age that man has begun to look at the abode of gods for the exploitation of its material resources. There is no denying the fact that in the Himalayan region, the socio-economic development has not been harmonious with the ecology of the mountains. There is also a general agreement that the development process in the region has not adequately met the felt need for the local population. It has been accepted by one and all that the unique influence on the life of our people, needs to be preserved, conserved and qualitatively upgraded.

To implement a policy in which the cost-benefit calculations influence resource management, decisions would have to be broadened to include the cost of environmental degradation. It is admitted that these costs are not easy to quantify or to be stated with any degree of precision. But it is equally true that sufficient knowledge exists today to arrive at a workable solution. Even a qualitative appreciation of the problems involved would suffice to arrive at a happy compromise between development and environment.

* * *