

Symposium Opening Address

Fatteh Singh Tharu,
Honourable Minister of State for Education and Culture

Your Excellencies, Members of the Board of Governors, Distinguished Participants, Ladies and Gentlemen,

I take it as a matter of personal gratification and, of course, great privilege and honour to be asked to open this symposium, "Mountain Development 2000: Challenges and Opportunities", on the eve of the inauguration of the International Centre for Integrated Mountain Development.

Allow me to greet the distinguished and learned participants from all over the world, including the Hindu Kush-Himalaya region.

The symposium which opens today is significant in that we are here to speak with and listen attentively to each other in an atmosphere of creative input towards building a unified and common platform for enhancing our own development and prosperity and for the proper conservation of resources for our generations to come.

We have, in fact, realised the need for such a common platform and we are here assembled with sincere gesture and dedication to achieve the objectives we have outlined. To our great fortune, experts from other mountainous countries—and international agencies, as well—are here to stimulate, guide, and help us in a realistic manner. As such, this is an historic occasion for all the countries and peoples of the Hindu Kush-Himalaya region.

This region—the source of the Indus, the Ganga, the Brahmaputra, the Irrawaddy, and the Hwang Ho-Yangtze River systems—is not only the repository of natural resources of various kinds and magnitude, but it has been identified, in view of the majestic mountain chains, eternal snows, and varied vegetation, as the source of inspiration for dynamic manifestations and creative activities.

The great civilizations of the Indus and the Hwang Ho thrived here. Ancient and medieval history records a great many developments of lasting character in this region. Historical records reveal that these civilizations and their traditions cared for a balanced relationship between life and nature and for the management of resources. Thus, partnership with Nature was the practice of the ancient past as well as the message of the saints who meditated in the mountain caves and thick forests.

According to scientists, the Hindu Kush-Himalaya is geologically young. The extensive glaciers and the snow-fed rivers are the resources in dynamic expression. Under the prevailing circumstances, the magnitude of rock decay, erosion, and destructive mechanisms are notably high. In view of this, we learn that periodic adaptability and change in continuity are the rules of Nature.

Developments in science and technology have brought their own repercussions. The consequent growth of human populations and the notable increase in magnitude of the exploitation of resources have brought forth serious disturbances in the balance which Nature restores periodically in a given geological epoch. Such frequent imbalances could not be corrected and the impact of human activities has begun to increase tremendously—so much so that in the mountain lands, which are marginal in character, pressures on land have begun to grow significantly. Resources are being depleted and degraded and the human population is on the verge of starvation. Actual physical survivability is being threatened.

These problems are evident in frequent landslides, erosion, flood, and drought resulting in malnutrition or starvation. In such times, countries of the region feel that whatever developmental activities and projects there are, in the long run, are not enough. These activities must be supplemented and coordinated by measures taken in keeping with objectives developed on the regional level. Accordingly, it is a matter of great pleasure for me to open this first regional level symposium.

I do hope that deliberations on the major themes and discussions connected thereto shall proceed smoothly in an atmosphere of cooperative input and realized foresight. These deliberations shall be helpful in identifying the major problems and in finalizing the work programme of ICIMOD. If this is achieved in these four days, ICIMOD will be able to have the clear sight and adopt the work plan recommended by this symposium.

This could be an appropriate base towards finding a lasting solution to the problems of the region by developing and gradually enlarging the activities of ICIMOD. I, therefore, hope that the countries of the region will respond to ICIMOD's call with a sincere attitude and a sense of cooperation and interdependence.

I wish the proceedings of the symposium and the subsequent results all success, and hope that the distinguished participants from outside shall have a safe, sound, and profitable stay in Kathmandu.

Allow me to repeat my words of welcome to the distinguished participants.

Let us remember that it is through these united efforts of scientists from both within the region and outside that ways and means will be explored to raise the quality of life of the people in general.

Thank you.

Mountain Development Towards 2000: Challenges and Opportunities

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I am very grateful for the privilege of making a presentation on "Mountain Development Towards 2000: Challenges and Opportunities" before this distinguished gathering. Everyone here will perhaps agree with me that this topic can be approached from various perspectives. I propose to centre my discussions on some principal issues rather than present you with a catalogue of facts and figures.

The first issue that I wish to dwell on relates directly to the topic itself—the mountains. They have been worshipped, climbed, settled on, photographed, mined, or, to put it briefly, they have been put to different uses by mankind to satisfy its changing needs and greeds since time immemorial. Why, then, should we be concerned about them when we have so many other important things to worry about?

Firstly, the mountains, striking in their stark immutability and their massive grandeur, are, in fact, among the most fragile eco-systems on earth. Lately, we have been finding that they have been over-exploited and over-used.

We have become concerned because the disruption we have been causing in the mountain environment has been far more serious than is voiced by the cries of dismay by trekkers who find some beer cans in our mountains. What we have to understand is that the mountain eco-systems in the tropics are fragile and, thus, unusually sensitive, even to small disturbances. When environmental disruption occurs in the mountains, it accelerates rapidly. Then the costs and efforts of reclaiming nature's work of millenia are immense and formidable. Often, the consequences may be irreversible. Can we allow this to continue?

Secondly, what happens in the mountains has profound effects on the plains below. Changes in mountain vegetation and soils influence the water regimes in the lowlands. Droughts, floods, and siltation in the plains are not isolated from the watersheds in the mountains. If there was a time when we thought that the well-being of the plains or lowland areas was based on what went on within their own borders, our understanding has now changed. Today, their well-being may be threatened from far away places—the mountains. Hence, it is up to all of us to be aware of the importance of the highland-lowland interactions and to be able to identify them. At stake is the fate of not only those who live in the mountains, but also of those who, in many ways, depend upon these areas for their well-being.

Thirdly, socio-economic development projects, particularly involving large scale engineering works, do not always produce a positive impact on mountain environments. Development history is replete with examples of well-meaning projects leading to negative impacts on the environment. Water resource development, mining, road construction, and even tourism and recreation projects in mountain areas may produce adverse environmental consequences. Our concern, therefore, is to prevent the

undesirable environmental impact of development projects before, rather than after, their implementation.

We have yet another, far more important reason to be concerned about the mountains. They contain significant numbers of the world's poor. Perhaps they are not only poor but getting poorer all the time.

What are the reasons behind this? Is it because mountains include areas of high altitude and accidental relief which are very difficult for human occupation? Rugged hill terrain also inhibits transport and communication required for the development of markets and the provision of services in these areas. These are only some of the reasons, however, as there are quite a few mountain areas with pockets of comparative prosperity.

Altitude is only one aspect of the impact of mountains upon population. The volume of mountains, their type and ruggedness, their impact upon climates, the presence of valleys and passes, the direction of the slopes, and the relationships of mountains to other neighbouring areas all affect the degree and nature of human occupation.

Mountain populations, much more than lowland populations, have evolved economically, socially and biologically in close relationship with their physical environments. Many achieved a degree of equilibrium or balance through adaptation to difficult conditions over a long period of time. Now, that balance of a "genre de vie" has been threatened.

Rapid population growth in mountain regions has meant increased competition for limited resources. The forests have been cut down; the slopes almost stripped of vegetation. They have been used as fuel for individual homes and for new construction, heating, and lighting. The people are poor and can afford no other energy source. This nature's gift is also the cheapest, as well as traditionally understood. As a result, deforestation goes on. The precious soil of the mountain slopes is washed away by the rains towards the lowlands, silting up rivers and causing floods. Halting the destruction of the forests is not easy task, but we must do it in order to prevent the further deterioration of mountain environment.

The problems of population pressures in the hills have been underlined by many writers. Population continues to increase, so the woods are stripped even more quickly as time passes. Farmers are forced to build terraces, even on precarious mountain slopes, so that they may plant a few more rows of potatoes or maize; erosion follows in the wake. A visitor is bound to marvel at the labour that has gone into it but may not realize that there is a clear limit to the areas that can be safely terraced.

With the expansion of population and farming areas, the number of animals also increases. The result is overgrazing, putting additional pressures on the high mountain slopes. All

these factors combine to increase soil erosion and, consequently, reduce the productive capacity of the mountain areas. This is happening at a time when we desire just the opposite.

I would like to point out that mountain population pressure is not necessarily a recent phenomenon. It has certainly been accentuated in our part of the world, however, by the upsurge of population growth, largely through rapid decline in mortality and sustained high fertility. One may be tempted to put all the blame for the present state of mountain environment on the increasing population. I would like to submit that this has been an important but, not by itself, the only factor. I will return to this point at a later stage.

The extension of cultivation, pastoralism, lumbering, and collection of firewood has led to deterioration of the mountain environment. Consequently, the people have looked to other areas for their livelihood. While a net export of labour to the lowland areas, as in my own country, has continued as a form of balance of payment between the mountain and plain areas for a long time, mountain populations are now experiencing permanent out-migration, not only to lowland agricultural areas but also to cities. Migration is not always freely available as a solution to population pressure in mountain areas, however. We must work out alternative solutions while we still have time.

Traditionally, of course, migration within the mountain areas from low to high slopes in different seasons, known as transhumance, has been common. Lately, the migration from mountains has been quite different in direction and magnitude. If this is allowed to continue, we might sentence the mountains to a future of chaos. In this case, our concern should be to preserve our own interests while preventing the deterioration of the mountain environment.

It might be said that the issues raised—environmental degradation, energy, population, development—are the same the world over. To answer those who may ask why we should be discussing such common issues, let me say that the mountain environments are so fragile that any upset of their delicate balance has immediate consequences. Indeed, in some places the environmental balance may have been already disrupted beyond any hope of restoration.

Certainly, the mountains are not homogeneous entities. There is a great deal of diversity amongst them. Most mountains present great diversity in topography, climatic conditions, and in flora and fauna. Besides, the terrain and elevation are variously perceived by peoples in different mountain areas and the use of mountain lands is influenced by these perceptions. Even though a large number of highly differentiated environments may occur within a small geographic area, every valley and hillside may not be a unique case. Despite the diversities, there are a number of common problems. The difference may be only in scope and the urgency with which they have to be dealt.

Our concern becomes particularly relevant when we consider the Hindu Kush-Himalaya—the highest and largest mountain system in the world. Great relief and steep slopes in these mountains combine with huge contrasts in climate, soil, and vegetative cover, according to altitude and terrain. For these very reasons, when environmental deterioration begins, it accelerates rapidly, aggravating the process of site destruction, such as erosion and landslides.

There is also another obvious reason for our concern: the interrelation of the Hindu Kush-Himalaya with the adjacent plains, which are some of the most densely populated areas in the world.

The Hindu Kush-Himalaya are relatively young mountains in

geological time. Human cultures in these mountains, on the other hand, include some of the most ancient civilizations, one or two of which are virtually extinct, while others have survived, changed, and developed. The flora, fauna, the high mountain peaks, glaciers, and mighty river systems present a wide array of ecological conditions and habitats, parts of which are still unexplored. Over the last century, civilization has gradually spread into this region. Population increase and imprudent exploitation, as everywhere else, have had their effects on the environment.

The task of all concerned, therefore, is not to try to put the clock back, but to provide the catalyst for sustained economic and social development leading to a new environmental balance. The challenge is to find solutions to these problems—development within a fragile ecological and resource base, modernization among unevenly disseminated peoples, and integration of socially and culturally diverse elements.

The problems facing the people of this mountain region are not entirely of their own making. Mankind today has become more conscious of environmental degradation and ecological damage, as well as the potentials of alternative ways for improving their own well-being. The challenge here is to evolve patterns of development which are not only economically feasible but environmentally sound. The ultimate problems of development are not only the socio-economic, logistical, or administrative barriers in this region, but the cultural barriers presented by the centuries-old traditions of the mountain people.

As I have mentioned, the problems of environmental deterioration in these mountains appear urgent enough to warrant immediate attention. Against the background of the population growth in these areas, the problems appear even more acute and the need for intervention quite urgent.

In order to appreciate this we do not need to look ahead very far and speculate about the consequences of population growth in these mountains. Let us just consider the year 2000 and ask, "What are the resource and environmental implications of population growth at the turn of the next century?"

The impact of population growth, as well as that of other variables, may be viewed from at least two perspectives. Firstly, we may compare how things are today with how they are likely to be in 2000 A.D. Secondly, we may compare two possible situations that may arise in the future.

With regard to the first perspective, I think that differences in reasonable population projections appear relatively small. I might hazard a guess that between now and the year 2000, population may increase roughly between 25 and 40 per cent.

From this vantage point, the important question is how to cope with an increase within this general range. On the other hand, if we are in the year 2000, the difference between the two estimates is likely to appear much more significant.

Population growth affects resource needs and the environment largely through the economy. Our starting point, then, may have been the development of a picture on a sector-by-sector basis of what the economy might look like in the year 2000. Accordingly, we could have developed different scenarios, further assuming, say, high population and economic growth, low population and economic growth, and the two intermediate cases. Of course, common to all those scenarios, we would also need to assume many other variables, such as changes in productivity and consumption patterns, aggregate savings rate, and so on. Results from all of these exercises, I tend to think, would be rather academic, however interesting, with one unflinching conclusion:

increase in population which will obviously close off options. There will be less land per person, less choice, less room for diversity, and less room for error. Apart from these few comments, I doubt if we can usefully speculate further.

While a reduction in population would be a blessing, it would hardly be a panacea, at least not by the year 2000. During that time period, more direct attacks on problems of poverty and environmental degradation in the mountain areas will be needed, in any case.

I hope that by now I have been able to establish the legitimacy of our concern for mountain environments. If so, the next logical issue I wish to raise is this: Where do we go from here? What can we do to safeguard the mountain environment so that the people here can enjoy better living conditions? I believe we can take several steps now that will make a difference.

Firstly, we must recognize that poverty, which strains the supporting capacity of the local environment, and lack of technology and development itself are at the root of the environmental deterioration in mountain areas. Thus, our approach should not be guided by a soft-headed desire to repeal technology and reinvent the Garden of Eden. Rather, we must utilize the enormous potential of the mountain areas in responsible conservation-oriented ways. Without slowing down the pace of economic programmes, we can and should avoid or mitigate some of the environmental damage that economic projects can cause. We should understand that there is no such thing as complete or absolute check or control. If we are to make use of the environment, there is also a price to be paid. This is the trade-off about which we should be careful. Many may like this choice; for those who do not, there will be fewer alternatives left.

Secondly, economic development that is ecologically sound should go hand-in-hand with cultural change. The full participation of local people in their own development must be a principle of our method of work. Often planners from outside will learn a great deal about sound, time-honoured conservation practices from local people. Planners may need to adjust to suit cultural norms or adapt to logistical and energy constraints. Although all cultures are in the process of change, in the last analysis, our focus should be to learn from the local people and train them to manage their own environment and adopt better living standards.

Thirdly, the interdependence of the hills and the valleys in almost all sectors of development and at all levels of administrative units calls for new forms of mutual aid and co-operation. It is the erosion of the mountains which leads to excess run-off of water and floods in the valleys. It is the lack of food in the hills which forces people to migrate seasonally to the plains to trade and earn a livelihood. Here, also, we have a challenge and an opportunity to manifest this interdependence: Present the problems to the people and the participating national scholars and administrators of the mountain areas and mutually seek solutions.

And, finally, there is a clear-cut need for an integrated approach to mountain development. Integration, of course, is a hackneyed term, perhaps more honoured in principle than in practice. The modern world, in its quest for knowledge, has evolved a vast spectrum of specializations and scientific disciplines. As recently as 15 years ago, people trying to work out environmental balance had no conceptional framework to direct their efforts. Now, environmental science has emerged and there are a number of universities which offer academic programmes in these fields. Mountains, studied as discrete systems, can

benefit from these developments. If oceans have oceanography, why cannot mountains have a field of study that is uniquely theirs? Here again is a challenge and an opportunity to integrate or bring together all relevant specialities or approaches to bear upon the problem of mountain development.

Although the problems of mountain environments may be viewed from different perspectives, we can all agree on some common elements: land degradation, out-migration of mountain peoples, deforestation, siltation, and flooding downstream, and so on. Likewise, the measures required to deal with them appear differently to various groups involved. The technicians in compartmentalized government departments may deal only with that part of the problem which involves their professional expertise. For instance, a forester may only be concerned with planting more trees and protecting the existing forests. An irrigation engineer may be concerned primarily with proper sites for constructing dams and digging canals. Likewise, an agriculturist will pursue his own narrow course, while a park ranger will be concerned with preserving his own territory. But our experience so far has shown that going it alone with such approaches is not likely to solve the problems of mountain environment and development.

If we are to look at the approaches taken by other groups we find similar disjointed efforts. Bilateral and multi-lateral aid agencies may only seek narrow technical solutions and may overlook their social and economic implications. Social science researchers and scientists may be so wrapped up in their theoretically tidy dissection of a local phenomenon in their specialization that they may appear to ignore the rest of the world. For any scientist who is an outsider, discovery of the relations of his discipline may, of necessity, have to be through the eyes, ears, and the language and perceptual screens of the local people. Of course, this may seem to be less true of the natural and physical sciences than the social sciences. But, like the Eskimos who have perhaps twenty distinctive words for snow, the Himalayans may have twenty fine distinctions for yaks. In short, not only the discovery but also the development of this mountain region may not be possible without the full participation of the mountain people.

The local leaders may be concerned with current economic and political power and about strengthening their own positions. The government, as everywhere else, may find itself busy working from what may be called "crisis and squeaking wheel" principles. In the short term, this may be understandable, but our kind of problems demand long-term consideration. This may be inherently political in nature. First and foremost, we must convince leaders at all levels that solutions to problems of mountain environment and development are feasible and to their advantage.

And, finally, let us look at the mountain dwellers themselves. Most of them are subsistence farmers and herders. The fulfillment of their need for food, fuel, and shelter from the existing resource base has already strained the supporting capacity of the local environment. Overgrazing leads to deterioration of the food base; lack of water or misuse of it to desertification; terracing for additional cropland to soil erosion and landslides; and satisfying the need for fuelwood to deforestation, erosion, siltation, and floods. Even though the mountain dwellers may not be able to express these things in our terminology, I think they perceive the changing situation around them. They certainly are not ignorant of what is happening but what options do they have when they are trapped in the vicious circle of poverty? What can they do, other than continue what

they have been doing for generations and to move out to other areas if they cannot make a living?

For individuals or families, the main concern is to meet the immediate basic needs. For the majority of them, the rising tide of expectations has perhaps been no more than a mere struggle for survival. Naturally, they will emphasize the short-term solutions to improve their everyday situation. If they do not consider the long-term situation, it is precisely because they have no protective cushion between the short and the long term. That is a fact of life which we must face. Besides, is it not true that in all walks of human life, short-term considerations tend to win over long-term benefits? In mountain development, I think it should be the other way around. For this we must first stabilize the immediate conditions of want by building on traditional skills and ability and convince the mountain dwellers of what is in their best interests for the short as well as the longer term.

We can all agree that, by and large, there exist technical solutions for many specific development problems in the mountains. We may be far behind, however, in our socio-economic understanding of what is required to fit these technical packages into local patterns of life, as well as to foresee unintended consequences of new programmes and new tech-

nologies. What is needed now is mutual co-operation to identify effectively what is known, what needs to be learned, and how this knowledge could be passed on to different interest groups to co-ordinate actions for solving the problems of mountain environment and development. This is yet another unique opportunity for us to pursue an integrated approach. Any progress made in this direction will, I would think, pay handsome dividends to overall mountain development.

I am aware that I have perhaps raised far too many issues and touched on them rather briefly. My purpose in raising them in this somewhat prefatory manner may be judged not only by the views expressed, which may appear differently to different individuals, but by the desire to stimulate discussion. If the present symposium finds it worthwhile to discuss any of these issues, I shall consider myself amply rewarded.

In closing, may I echo a sentiment as well as an appeal: Let integrated mountain development eradicate poverty, protect the environment, and, with forethought for the future, generate the will to manage wisely the resource base of the mountains mankind has neglected to its loss and peril.

Thank you