

Analysis of the Problem

Introduction

This study has attempted to provide a state-of-the-art review of tourism in the mountain regions of Nepal in light of the following major problems and issues as stated in the terms of reference: a) problem of exploitation and impingement on natural resources beyond sustainable limits; b) lack of linkages of tourism with local and regional production systems; c) lack of retention of benefits from tourism in tourist areas; d) high level of seasonality; and e) problem of policy and institutional development. The purpose of this chapter is to identify and analyse the major problems associated with mountain tourism in the context of the mountain environment and to suggest possible ways and means to internalise the value of the mountain environment. But first, a brief summary of the major issues that have emerged will be presented.

Major Issues

The mountain environment in Nepal, which is an important source for generating income and employment through tourism in the mountain areas, is in a poor state. There is an urgent need to define the role of tourism in the context of mountain development. Opening new areas and building rudimentary infrastructure have been the sole basis for tourism and mountain development. As a result, only small pockets have been able to benefit and, in newly opened areas, local people are not deriving benefits from tourism as only group tourists are encouraged to visit such areas.

It is essential to have a clear long-term policy on what is desired from tourism in the context of mountain development. The national objective of tourism is to increase revenue growth, but there are several ways to achieve this growth. For example, growth can be achieved by encouraging a) more tourists to visit the country, b) tourists to spend more nights, c) by encouraging more spending, and d) by the development of import substitution industries. For a small country like Nepal, therefore, tourism development must be defined in terms of the national goal and an appropriate growth path must be prioritised. This growth must complement environmental conservation if tourism development is to be sustainable, especially in the fragile environment of the

mountain areas. Tourism development cannot be viewed in isolation from conservation, natural resource management, and mountain development. Thus, in the first instance, a clear objective on mountain development and the role of tourism needs to be assessed in all mountain areas that already have tourism and in other areas that have tourism potential.

There is an urgent need to improve the information base of the tourism sector in terms of the quality and quantity of information. Tourism is a multi-disciplinary activity involving the conservation of the old order of things and the development of new infrastructure and facilities. The tourism industry is a broad-based industry that has direct and indirect linkages with many other sectors of the economy. Good quality information will provide the basis for good quality research through which essential planning for this sector can be conducted.

The lack of periodic surveys on tourism, with consistent definition and coverage, makes it difficult to determine the demand for and supply of tourism in the country. This is vital for guiding the planning and management of the tourism industry, promoting marketing, prioritising investments, and formulating policies for tourism promotion. On the demand side, proper knowledge of the level of tourist expenditure patterns is important to understand the tastes and preferences of tourists with regard to different domestic products. This information will not only be useful for pricing domestic products but will also provide important information for the promotion of domestic industries. No system has been developed so far to conduct a regular periodic survey of the different industries that are involved in tourism. Any form of policy action taken is thus *ad hoc* and is often likely to miss its target.

The lack of periodic data (preferably on an annual basis) on the different entities that provide goods and services to tourists (hotels, airlines, travel agencies, trekking agencies, handicraft shops, carpets and garment industries, etc) makes it difficult to assess the supply components of the industry. In sum, the information on the tourism industry is so inadequate and limited that it is surprising how any policies have ever been formulated. Estimates indicate that 37 per cent of the total tourist expenditure in Nepal is exchanged in the black market.

The only comprehensive studies that have attempted to link the tourism industry with the entire economy have been those conducted by the Nepal Rastra Bank (NRB) and Khadka (1993). One major conclusion emerging from these studies is that a great portion of the revenue generated by tourism in

Nepal actually flows out due to the capacity constraint in the domestic economy. Such studies should be conducted on a periodic basis to formulate new policies and fine-tune the old ones.

There has been no concerted effort on the part of the government to view the mountain areas as potentially rich in a variety of unique natural resources. Neither has mountain tourism been conceived as an integral part of overall mountain development. This lack of perspective in Nepal appears to have led to a demand-induced tourism growth pattern that has not resulted in a sustainable basis for the development of mountain areas and mountain tourism.

The unique mountain environment of Nepal is increasingly being degraded, thereby reducing the tourist amenity and the visual appeal of the area. The scattered evidence on the mountain protected areas in Nepal clearly points to this. Since the nature of the studies conducted vary considerably over time it is difficult to form a clear picture of the various impacts and to determine their trends, severely limiting policy analysis as well as formulation. Clearly, the need for generating systematic information on the various dimensions of mountain areas and mountain tourism is necessary for guiding, planning, and managing mountain and tourism development.

Government policies to encourage the private-mountain-tourism sector are totally lacking; the preference is towards tourism investment in urban areas. The linkages of mountain tourism with the mountain economy have yet to be addressed.

Although research work might have benefitted from tourism, such research has been conducted only in the self-interests of scholars. A well-planned research agenda has not been conducted to assess the environmental resource base, its value, and sociocultural and economic characteristics, together with the feasibility of an investment package, before opening up new areas for tourism. Neither has there been an agenda to address the different problems of mountain areas and mountain tourism.

There are many issues and challenges that need to be addressed in terms of policy, despite the new policy framework recently made public. Since the Master Plan, the major thrust of all succeeding policies has been the diversification of sightseeing and adventure tourism.

Of the four As (attraction, accessibility, accommodation, and activity) needed to make a tourist destination, accessibility and activity assume critical impor-

tance in the context of Nepal. Although the liberal sky policy has relieved the seat capacity constraints of air travel to remote mountain areas since 1992, problems related to landing sites and equipment continue. With the exception of rafting on the Trisuli (60%), other rivers with comparable potential for rafting development have been constrained by the four As.

There is no effective policy and programme to control firewood use yet. The operation of mountain tourism remain centralised, with the benefits accruing to a few operators in Kathmandu. Some of the traditional areas with several years of mountain tourism activity have provided a revenue to the government, but no resources have been ploughed back to set up essential infrastructure such as mini-hydros and to carry out other conservation and development work inside the protected areas.

The existing policies and institutional structures are grossly inadequate for linking mountain tourism and other mountain economic activities. Scarce resources are exploited by a few for small gain. There is as yet no institution to specifically look at mountain tourism in Nepal.

Nepal's mountaineering tourism is now suffering from self-glorifying *ad hoc* policy changes. The application procedures for mountaineering are cumbersome. The requirement of a cash deposit to ensure garbage disposal-despite a hike in royalties and the attachment of a government liaison officer-is negatively perceived as unnecessary trouble by mountaineers and trekkers. Despite periodic hikes in royalties, no additional facilities have been erected at important tourist areas in the mountains.

A systematic approach to information sharing and feedback between the ministries related to tourism lacking. The lack of coordination in the formulation and implementation of sectoral plans and programmes is yet another problem on the institutional front. What is disturbing is that after so many years of knowledge about environmental degradation, new areas are opened without addressing ways and means to curb it.

Main Problem: Lack of Assessment of the Value of Environmental Resources

It is necessary to consider the environmental resources that provide a flow of services to mankind. These environmental resource commodities or services at any time are uniquely determined by geological, hydrological, atmospheric, ecological, and other attributes of nature or the environment. Man modifies the

environmental attributes by his behaviour. For example, land use change from forest or agriculture to residential or commercial use, dumping waste in streams or rivers, building a dam, and so on, all these change the environmental attributes. Externalities - negative as well as positive - can be associated with these changes.

Mountain environmental resources are consumed directly or are used as primary inputs into the production of the environmental resource commodity or, simply, the environmental commodity. Presently, the users are local people and tourists who consume these commodities directly. There are other potential consumers as well, namely, all those who opt to consume the commodity at some future date and the future generation. Tourists purchase goods and services and consume then jointly with unpriced natural amenities such as natural beauty, scenery, climate, and so on. Local people use it to produce goods and services for their sustenance, or use it to produce goods and services for tourist consumption. Many other potential values of the flora, fauna, and nature functions remain unknown. Mountains are thus a store of unique environmental resources that have value and have no close substitutes. These environmental resources are regenerative but potentially exhaustible as the sustained flow of services can never exceed some finite rate.

Whenever an individual or a group of individuals derives satisfaction or fulfills a want from something, value is said to be generated. Economic value arises when satisfaction is derived from consuming the resources directly or indirectly. The economic value of an environmental resource consists of actual value, option value, existence value, and non-consumptive use value.¹

Actual value is derived from the present or future use of resources and includes the direct personal or group benefits generated as well as the benefits that accrue to others indirectly. The actual value of an environmental resource could have a consumptive use value as well as a productive use value. Consumptive use value refers to the value placed on environmental resources consumed directly without passing through the market-place, e.g., consumption of firewood by households in mountain areas, use of highland grazing pastures, and so on. Productive use value refers to resources that are harvested for commercial purposes, e.g., firewood harvested to sell to tourist lodges, medicinal herbs, collected for sale and musk deer poaching². When

1 For detailed elaboration of these concepts and their usefulness see McNeely (1988); Dixon et al. (1986); and Winpenny (1991).

2 Despite being an illegal activity, poaching takes place because the potential (market) reward, despite the possibility of being caught, is very high.

environmental resources are harvested for consumptive or production purpose, externalities are generally generated, e.g., the external cost of deforestation as a result of fuelwood harvest. Benefits that occur to other parties are known as external benefits (positive externalities) or external values. If the externalities generated benefit others who are not directly involved in the consumption or production, the benefits should be added to actual value. If the externalities harm others, these should be deducted from actual values. The production and consumption of resources will be optimum from an environmental point of view only when all these environmental costs and benefits are internalised in their prices.

Option value refers to the option of individuals to postpone consumption of the environmental resource. This is an expression of preference or willingness to pay for the preservation of an environment against the probability that an individual or group will use it some time in the future. Furthermore, since the future is uncertain, society should prepare for unpredictable events. Also, some environmental resources may be unique, that is, they may not be substitutable. If such a unique resource is harvested beyond a certain limit, it could become extinct, which results in a large 'option demand.' The best way to avoid all these dangers is for society to preserve as many environmental 'niche' (protected areas), gene pool, or important environmental resources as possible, e.g., the creation of strict nature preserves such as the Makalu-Barun National Park. The willingness to pay³ to preserve an environment for the benefit of our children and grandchildren is also a form of option value, which is better known as bequest value.

Existence value is concerned with the right and welfare of non-human beings. Many people value the existence of cultural sites, wildlife species, scenic places, and so on, although they may not be of actual use. If there was no value placed on the mere existence of non-human beings, tigers, red panda, musk deer, and rhinoceri (protected by law) found in Nepal would be extinct through poaching.

It is also important to take into account-in the case of environmental resources-the many functions and services provided to mankind by nature, i.e., non-consumptive use value of environmental resources. These are consumed by society without being traded in the market or valued in national accounts. The issues of irreversibility, uncertainty, and uniqueness are also important here.

3 It is the amount an individual is willing to pay for the consumption of the commodity now or at some later date.

The special attributes of ecosystems that provide refuges to unique biodiversity, watersheds, the waste assimilative capacity of the natural environment, and so on, are examples of such values. The relative importance of the above types of values operate at different levels. For example, consumptive use value is more relevant at the community level, productive use value at the national level, and option and existence value mostly at the international level.

There are serious problems encountered in the valuation of environmental resources. Although consumptive use value of environmental resources may be proxied by market prices, such market prices may not always reflect the true scarcity value of such resources to society. Livestock grazing on seasonal high altitude pastures, or the value of fodder consumed, and so on, are difficult to value since there are no appropriate market prices for them, even though the physical units consumed could be quantified. Productive use value might refer to resources harvested for commercial purposes-one would expect their market prices to reflect the value society assigns to them-but there are problems nevertheless. The general practice is to price such resources at the production point rather than at the retail point, the price at the latter generally being many times greater. An example here would be medicinal herbs, or the musk (poached), which are priced much lower at the harvest point than at the retail point.

The concept of option value poses an even greater problem. In the first place, it cannot be said whether option value is negative or positive. This is due to the uncertainty in future income and the nature of society's risk taking. If a society's future income is uncertain and the society is a risk averter, the willingness to pay to retain the option for future consumption cannot be high, and the preference to consume the resource immediately is likely to dominate. If the reverse were true, there would be a strong motivation to conserve the resource since the option value would be high. Even greater problems are encountered when it comes to existence and non-consumptive use values. The economic value of environmental resources is then the sum of all the different values described above, which is not easy or always possible to quantify.

Despite the complexities of valuation, these concepts can be useful in determining environmental policy in the mountain areas. If option, existence, and non-consumptive use values turn out to be large in relation to actual value, it would imply a strong policy bias towards conservation. If the beneficiaries (those who value the option, existence, and non-consumptive uses) are tourists, the losers mountain people (loss in terms of actual benefits foregone

by local mountain people), the conservation policy would require a transfer of income from tourists to the local people.

Problem Analysis

Government Intervention and Policy Weaknesses

The failure of the market to allocate the environmental resource commodity and the externalities that have occurred in the context of mountain tourism can be identified as the main problems demanding government intervention. Policy failure is defined as a government intervention that exacerbates an existing market failure or that distorts a well-functioning market. Governments intervene by introducing policies to correct the market failure. The mere fact of a market failure does not, however, justify government intervention, if such an intervention could lead to a worsening of the problem it was meant to correct. In developing countries, misguided interventions or inappropriate policies and market failures have been blamed for environmental deterioration. Chapter 5 discussed the various policies related to the tourism sector, with the condition that there are inadequate and inappropriate policies (e.g., conflicts in protected areas) and that, where interventions exist, their enforcement has been weak (e.g., kerosene).

There are many examples that can be cited here from previous chapters. In protected areas, there is continued use of firewood; lack of non-wood fuel and kerosene use; poaching; *ad hoc* changes in visa fees; absence of an appropriate pricing mechanism in the case of park entrance fees, trekking fees, and mountaineering fees; the opening of new areas (e.g., Manaslu, Kanchenjunga, etc.) without prior assessment of their potential value and investments; poor enforcement and the lack of economic incentive and disincentive measures at the community level in managing the resources; and so on. It should be stressed that, in certain cases, government interventions in the absence of rationality can lead to further distortions in the market (i.e., policy-induced market

distortion). Interventions require adequate knowledge of the value of the environment and of the market failure before they are carried out.

Market Failure

When the economic value of an environmental resource commodity is taken into account, it exhibits the characteristics of a public good. A public good has

two basic characteristics, namely, non-rivalry in consumption and non-exclusion. Non-rivalry in consumption means that consumption by one person need not diminish the quantity consumed by anyone else, e.g., joint consumption of the Himalayan scenery by tourists from all over the world year after year. It is not possible to specify the amount of Himalayan scenery a tourist can consume and say that there is not enough for the next generation, i.e., the resource commodity is non-excludable. Non-exclusion means that the benefits accruing from an environmental resource commodity are impossible to confine to selected individuals, or that it would be prohibitively costly to do so. As a result, whether anyone is willing to pay or not, everyone can derive benefit from it (e.g., individual or group trekkers).⁴

These properties of the public good imply difficulties for the market pricing mechanism. In the market, the pricing mechanism operates on a rationing basis since only those who can pay the price are able to enjoy the good, i.e., the market rations the good to those who value it the most. In the absence of non-excludability, sellers cannot exact a price since the consumer can consume it without paying the price. Hence, no voluntary price can be charged in the absence of non-excludability and whatever prices charged have to be coercive. This is the case of the free rider problem in the case of a pure public good.

When commodities exhibit the characteristic of a public good and externalities are involved, what arises is the fundamental problem of resource allocation. Resources are assumed to be allocated efficiently by markets or through government interventions when markets fail to allocate resources efficiently. In relation to mountain environmental resources, both these institutions have failed to allocate resources efficiently in the present context of Nepal. An allocation mechanism is said to be efficient in the context of environmental resources if the net present value (NPV) is maximised (Conrad and Clark 1981) not only for the present generation but for future generations. The NPV as a criterion for resource allocation is relevant to both private (markets) as well as public (government) management decisions, although how costs and benefits are measured will vary significantly in the two cases. The divergence of private and public interest is another cause of market failure leading to resource misallocation.

There is another complication involved when private and public managements are involved and NPV has to be maximised. The value of the supply of various

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In some cases it is possible to restrict consumption, e.g., restricting the number of tourists visiting an area so that only those paying can visit the area. But among those visiting the area, there can be no exclusion.

services provided by mountain environments has to be discounted to the present time by an appropriate discount rate, which, however, varies with the private and public sector. The private management decisions have a short-time horizon, meaning private parties are unwilling to wait long to capture benefits emanating from their investments. On the other hand, the public sector can wait for a much longer period and thus its discount rate is said to be low. There is a distinct problem in reaching an appropriate discount rate, and the problem is compounded if different discount rates have to apply to different services and parties.⁵

All these complications lead to inappropriate scarcity signals in the market, and the fundamental problem of resource allocation arises. Chapter 4 provided evidence to show that there is a serious allocation problem in terms of the resource commodity. The pollution, littering, and deforestation, as well as others identified, are examples of an allocation problem. Also, there have been externalities generated, some positive and others negative. If there was a scarcity and the markets reflected it, the high prices that resulted would lead to resource conservation. Such disassociation between scarcity and price, between benefits and costs, and between action and consequences exist because of market failure and policy distortions. But, in the absence of markets, there is over-consumption of the resource commodity, which in turn generates externalities.

Redistribution and Inequality

Besides the allocation problem discussed above, there are problems associated with the distribution of benefits accruing from the environmental resource commodities or services. The manner in which the development of the mountain environment and mountain tourism has taken place is partly responsible for this problem. The weak linkage between mountain development and tourism indicates that the development benefits of tourism have not spread equitably. The weak linkage of local areas with mountain tourism also resulted from the absence of any policy directives. Although alternative development in mountain areas may be limited, given the climate, accessibility, and resource

5 Private management is concerned with actual and internalised costs, whereas public management is often concerned with social and external costs. Private individuals cannot take risks and have a shorter time horizon relative to that of the society, implying that the private discount rate is higher than society's. This divergence between private and public interest has a direct bearing on resource allocation, and, under a higher discount rate, resources are extracted at a faster rate than under a lower discount rate.

base of these areas, there have been no initiatives to examine the possibilities of linking local economies with tourism. The generation of income and employment currently occurring in the mountain areas does not necessarily imply that mountain tourism is strongly linked with the local economy. The nature of the production system in the mountain areas is by and large subsistence-oriented and is unable to provide the types of products demanded by tourists. This problem is compounded by climatic conditions and difficult accessibility in these areas, and these too limit the scope for a wide variety of products (agricultural) and their easy flow.

Mountain tourism in newly opened areas has not benefitted the local people to the extent tourism has in the older areas of SNP, ACAP, and LNP. In newly opened areas, such as Manaslu, Kanchenjunga, and Dolpa, it is usually outsiders who get most of the jobs and benefits.

The development of mountain tourism in Nepal has followed a virtually demand-driven growth process. As tourists began to visit the areas, the local people have responded to tourist demands, resulting in the development of places like Namche Bazaar, Dhunche, and the Annapurna Area. There has been little effort through policy intervention to guide development. Perhaps in the initial stages of tourism-led development in such remote areas, where there were no viable alternative economic opportunities, this was the only course. Each sector was found to develop and to respond independently to increased tourist demand. In this process, the traditional farming community came under pressure from the needs of residential or commercial construction.

Tourism is popular in the hill and mountain regions that are generally economically deprived and characterised by subsistence households. Such households are unable to meet the food and shelter needs of the large numbers of tourists. Thus, tourists visiting such areas bring most of the essential items they need for their trip. What they leave behind is garbage and refuse. Moreover, most of the essential items they bring along are often imported goods, which poses the question whether even the country fully benefits from tourism.

As with the tourism industry all over the world, Nepal's too is fairly seasonal, its mountain tourism specifically so. This has been highlighted in an earlier chapter on tourist arrivals and tourism's seasonality. At least with regard to mountaineering, the seasonality is partly due to the regulations of HMG, which preclude climbing activities during June-August and the second half of November-February (Gurung 1990).

The seasonal nature of tourism has certain disadvantages as well as advantages in the context of mountain tourism. First, from the tourist point of view, seasonality leads to the possibility of crowding or congestion in an area. The crowding issue has not been adequately addressed in the context of mountain tourism. Some studies indicate that the symptoms of the problem are beginning to appear in places like Langtang and Sagarmatha (Banskota and Upadhyay 1989).

The second negative aspect of seasonality is in terms of the income and employment generation of tourism. Income and employment are generated by mountain tourism only during the seasons tourists visit these areas. In the rest of the year, the local industry has no potential to generate income and employment because these areas lack other alternatives.

However, despite the negative aspects of seasonal tourism, it appears to have some important advantages in the context of Nepal's mountain tourism. If large-scale tourism was to be conducted in the off-season, namely, June to September, as during the dry and winter seasons, it would coincide with the monsoon season. Travelling in the mountains during this season is arduous and risky. Small or temporary bridges are washed out by swift mountain rivers, trails are slippery, or washed out. Weather conditions, such as the regular overcast skies, make it extremely risky to evacuate people in case of emergencies. Also, most of the mountain areas are predominantly agricultural, and this season is the main agricultural season. If people were to find employment in tourism during this time, it is likely agriculture would suffer, which would only lead to greater food shortages in these areas. The resulting price rises for food would effect the poorer sections of mountain society. Food shortages in the subsistence economy of such mountain areas would be devastating to many for these reasons. The seasonal nature of tourism may be a blessing to the mountain economy.

Limits of the Mountain Environment

There is another important dimension to seasonality that has ramifications for the environment. The abundant growth in natural vegetation in the hills and mountains occurs at a time when the stress factor arising from tourism is absent. If seasonality were somehow to be spread out, in the absence of a fairly unmanaged mountain tourism, what would be the impact on the natural vegetation? After all, a lot of natural vegetation trampled by tourists during the peak seasons is revived during the monsoon period when the flow of tourists

is almost zero. Therefore, even for the revival of the natural vegetation in places close to the tree line where mountaineers pitch their base camps, where the natural vegetation is destroyed, where pastures have been trampled by thousands of tourists, and where rivers and water sources have been polluted by refuse and garbage, the monsoon is nature washing out all these negative factors to bring new life to the mountain environment. From this perspective, the seasonal nature of mountain tourism helps to conserve the mountain environment.

It is, however, important to realise that these mountain areas may have endemic species that may be endangered or rare. Although tourism slackens during the monsoon seasons and allows healthy vegetative growth, there is the danger that too much tourism during the winter season could harm or ruin these endangered or rare endemic species, resulting in irreversible loss.

The environment is endowed with attributes such as atmosphere, hydrology, ecology, geology, and so on. These attributes are linked in unique way to produce environmental goods and services. Man enters the production system as a modifier of the environmental attributes, a role he carries out directly or indirectly, bringing land use changes (conversion of agricultural land to lodges, creation of national parks), removing vegetation, or disturbing soil (e.g., construction of an airport or trail in the wilderness). The side effects can be expected or unexpected when direct effects are involved. For example, the opening of a national park can lead to greater encroachment in forests outside the park, or wildlife from forests outside may enter the park as parks provide greater protection. Since the full nature of the relationship between different attributes of nature is not known, caution needs to be exercised when man intervenes in the environment.

Internalising Mountain Environmental Values for Development

The major problem in the context of tourism in the mountains has been stated as *"the lack of appreciation of the value of environmental resources and the lack of a vision on mountain and tourism development."* The problem was then analysed in terms of the absence, weaknesses, or failure of policies and institutions, including markets, to allocate these resources efficiently to conserve the environment and achieve greater benefits. Without an appreciation of the value of the environmental resources and a vision of mountain development, tourism development alone cannot be considered a panacea to improve the livelihood of the large majority of mountain people.

A great deal of work remains to be done in this area, and it needs to be done urgently to conserve the environment. Some major steps that should be taken are given below.

- Assess the value of the environmental resources in terms of their contribution to local, regional, and national economy.
- Develop a vision of mountain development.
- Develop a vision of tourism development in Nepal, in general, and a vision of mountain tourism in particular.
- Identify areas that have potential for tourism development in the context of environmental resources.
- Assess the role of tourism in such areas in terms of whether tourism can play a leading or secondary role.
- Identify and assess the role of environmental resources for community development and this can be linked with tourism development.
- Develop appropriate institutional mechanisms at the national and local level with and other agencies, such as NGOs, to coordinate activities that affect the community and tourism development.
- Develop research programmes to identify problems, opportunities, mitigation methods, and so on.
- Enact and enforce law regulations.
- Develop economic incentive methods to encourage behaviour that conserves resources, link local community-based activities with tourism, promote investments in local areas, and so on.

In many places of the mountain areas of Nepal, conservation means modifying the traditional behaviour of local people and of tourists. To the tourist, a change in behaviour for the sake of conservation may not be as severe as in the case of local people who depend very much on the use of resources. In the case of Nepal, this has been witnessed in the case of most protected areas where conservation has brought about a conflict between local people and the management authority. This conflict is generally related to the modification of behaviour in the absence of alternative incentives to compensate for changes local people have been forced to make due to policy intervention (Kharel 1993; Steven et al. 1993b; Yonzon 1993). Similarly, such conservation has not resulted in the same negative effect on tourism (Robinson 1993).

The objective of economic incentives should be to motivate behaviour that is conducive to conservation, on the one hand, and to tourism development on

the other. The main objective of using incentives is to smooth the uneven distribution of social costs and benefits of conserving the mountain environment and to use these incentives as policy tools for correcting the problems stemming from market failure and misguided policies. An economic incentive is an inducement that is intended to motivate people to conserve environmental resources (e.g., concessions, compensation, secured land tenure, subsidies, etc). Likewise, an economic disincentive is an inducement or mechanism that discourages people from depleting mountain environmental resources (e.g., fines, taxes, and penalties administered through legislation). As has been discussed in the context of mountain environmental resources, the current process and form of development are depleting the mountain environment. The problem is already serious and warrants immediate government action, namely, the assessment of the value of mountain environmental resources and their contribution to the local, regional, and national as well as international economy. Economic incentives and disincentives at the national and community level can play an important role in conserving mountain environmental resources. Therefore, a realistic incentive package through appropriate government policies needs to be designed and developed at the national, regional, and community levels. But because the economic incentives at the community level depend substantially on proper policy support from the national level, it is essential for the government to determine conservation and development-related policies.

Government policies are needed to compensate for externalities and other market failures. Economic incentives in the form of taxes on activities that generate negative externalities (social cost) and subsidies on activities that generate positive externalities (social benefits) should be encouraged. The government should analyse the impact of all relevant policies on environmental resources on the determination of marginal opportunity cost. Based on the policy review, government should eliminate or reduce policy distortions such as subsidies and price control that favour environmentally unsound practices. Another important role of government is to establish a structure of responsibility for managing environmental resources. Incentives should be used to create institutional settings in which the property rights of a specific population are held by single decision-making units.

Finally, in order to operationalise conservation incentives, the concept of carrying capacity is suggested to be appropriate. The following section will briefly discuss the concept in relation to mountain and tourism development and environmental resources.

Carrying Capacity

This section attempts to highlight the bare bones of a framework to address the above problems in relation to mountain environment and mountain tourism. The environment is considered to consist of the natural, cultural, and the economic environments (Rau 1980). The natural environment is composed of natural resources such as water, forests, landscape, and so on. The cultural environment is composed of cultural institutions, monuments, customs, traditions, and so on. The economic environment is composed of production and consumption activities, technology, markets, and so on, (see Figure 6.1 where feedback loops are shown by the double line). These three environments interact to determine the quality of the overall environment. Each has an upper limit, beyond which negative effects occur, that affects the quality of the overall environment. Thus, the carrying capacity of the environment needs to be understood. To keep matters operationally tractable, it will be useful to consider the carrying capacity of a small area or region.⁶

Furthermore, it is operationally more tractable to focus on sustainable resource use in the context of the mountain environment. This applies to the renewable stock of natural resources and reflects the idea that the use of goods and services provided by such resources can be regulated to maintain an optimal stock level. Resources, or the resource base, means all renewable resources and their regenerative support system-resources that are critically important for regional welfare. Regional development can be assumed to fulfill the following:

- economic progress and/or potential of the area concerned,
- ecological values and/or constraints of the area concerned, and
- the economic and environmental interest of parties not directly involved (other regions; different generations).

In the present context, mountain development needs to be clarified. Simply stating that mountain tourism involves activities (trekking, hiking, mountaineering, sight-seeing, etc) of tourists in mountain areas is not sufficient. A concept of mountain tourism should involve the local people, their institutions, and their social and cultural values. Tourism should benefit these people, tourists should be able to enjoy goods and services for which they pay, and the mountain environment (including the different ecosystems, gene pools,

6 These concepts are highlighted in Nijkamp et al. (1990); Winpenny (1991); and McNeely (1988).

wildlife, plants, etc, it harbours) should never be put to stress. Furthermore, the complex nature of the mountain environment (of which very little is understood) and its vast geographical area suggests that it may be helpful to limit the area of enquiry within a defined geographical boundary.

In order to operationalise the carrying capacity concept, it needs to be further simplified. Although the concept of carrying capacity is difficult to operationalise, the approach taken should identify the critical resources that are involved directly or indirectly in the mountain environment and understand the stress on these critical resources (see Figure 6.1). Within the mountain environment, certain resources are more critical than others in that development (including tourism) can bring rapid negative changes in their densities due to stress. Minimum densities are necessary for the maintenance of a gene pool. Furthermore, some resources may be abundantly available in a relative sense; their use pattern could lead to a rapid depletion of stock.

Areas characterised by such critical resources are critical areas. Such areas may also be characterised by other fragile attributes of nature, e.g., slope, loose soil, etc. Critical areas thus need to be identified, and human interventions have to be minimised.

If human action, or behaviour was not present, the need for a carrying capacity analysis would not be necessary. However, development involves human behaviour, which is not neutral. Human actions retard or accelerate stress on the environment. Such behaviour is called critical behaviour. It brings changes in species' composition, leads to deforestation, littering, and so on, other types of negative or positive effects could also result. Inducing appropriate changes in human behaviour and the mode of development can, therefore, minimise stress on the environment.

There is no disagreement that development in the mountains is necessary. Poverty is chronic and rampant in the mountain areas. The mountain people live in areas that are rich in the sense of the environment, but they are poor and unable to use resources to conserve the environment. Often, when development takes place, it exacerbates resource depletion or deterioration (allocation problem). Benefits are thinly spread (distribution problem) and people are forced to further deplete resources. The environment is further ruined (scale problem). Therefore, the need for development that does not impinge on the resource base and that benefits a large number of people needs to be designed, i.e., critical development.

Three critical institutions appear to be important in mountain development. The local community has to become a participant in the development of its environment. Some external institution, such as an NGO, has to work with the local people to identify the critical issues and to plan. The agency should be able to bring in external resources and knowledge and act as a liaison between the local people and other external institutions, including government. Finally, there has to be a responsible agency in the public sector to monitor the mountain environment, set standards, and devise policies.