

## Role of Tourism in Sustainable Mountain Development

### Introduction

There are various factors that impinge on and constrain the development of the tourism industry and the ability to utilise it to develop other sectors and local communities through direct benefits and linkages, both forward and backward. The concern for sustainable development arises from the fragility of the mountain environment and the need to safeguard its sustainability and protect the natural biodiversity while pursuing the development of tourism.

The process of development is fraught with certain trade-offs, such as those between economic gains and social/cultural and environmental losses. These implications have to be clearly assessed and a policy towards loss minimisation evolved.

### Demographic Implications

#### *Population Growth*

The population of the NWFP was 4.6 million in 1951. It rose to 5.7 million in 1961, 8.4 million in 1972, and 11.1 million in 1981. The 1991 population census was postponed and a new census is yet to take place. However, the estimated population for 1991 is 14.9 million, and this is projected to rise to 16.9 million by 1995. This province accounts for 13 per cent of the total population of Pakistan. The annual compound growth rate, which was 2.34 per cent during the intercensal period from 1951-61, increased to 3.32 per cent from 1961-72 and maintained the tempo from 1972-81. However, the population is not evenly distributed over the province, with pockets of high concentration, in, for example, Peshawar, which has a density of 570 per sq. km. against the province's average of 148 per sq. km.

Table 3.1 provides a comparative statement of the population indices for the mountain areas. The male-female ratio for the mountain areas of the NWFP is

lower than the Province's average, which stands at 109-100. The population below 15 years ranges from 42 per cent (Chitral) to 48 per cent (Swat) of the total population. The infant mortality rate is also higher than that of the provincial average. These indices have negative implications for development.

In 1992, the total population of the Northern Areas was estimated at about 1.1 million, mostly living at altitudes below 3,500 metres. The population growth rate was estimated at 3.8 per cent annually and the density at about 12 persons per square kilometre. Gilgit, the largest urban centre in the Northern Areas, has a population of 32,000. Skardu, the main town in Baltistan, has a population of 13,000. Forty-five per cent of the population of the Northern Areas is under 15 years of age, and, despite the outmigration of males, there is a high male-female ratio. The female mortality rate is also high and the infant mortality rate is between 150 and 200 per thousand births. The concentration of population is, thus, visible in Swat where Resort tourism is prevalent.

### *Labour Force and Migration*

The percentage of the total population in the labour force and the percentage of the labour force in agriculture is shown in Table 3.2.

The bulk of the labour force is employed in a agriculture, apart from in the Galliat where agriculture does not offer scope for employment due to the nature of the terrain and the lack of development interventions. Such interventions are visible in the Northern Areas where the Aga Khan Rural Support Project (AKRSP) is very active and in Swat and Chitral where the Kalam Integrated Development Project (KIDP), the Chitral Area Development Project (CADP), and other development projects are engaged in development work. The Kaghan Valley shows a very high level of labour in agriculture. In most of the mountain areas (especially at higher altitudes), agriculture is only a seasonal activity and, despite the heavy involvement in this sector, there is a constant need to supplement it with non-and off-farm activity.

Seasonal migration, or transhumance, is a common feature of the mountain regions. Long-term migration within and outside the country is strongly visible in the NWFP as a whole. Table 3.3 shows inter-provincial migrants' settlement.

There were 1.79 million migrants across the country. Out of this the NWFP and the Federally Administered Tribal Areas (FATA) had the second highest

number of inter-provincial migrants(39%). Of those settled in Sindh, 35 per cent came from the NWFP. In the Punjab, 57 per cent of the migrants came from the NWFP, while, in Balochistan, 31 per cent came from the NWFP. Thus, between the provinces the highest rate of migration was among the people of the NWFP.

Out of the 1.7 million people residing abroad at the time of the census, 83 per cent were from the rural areas, with the share of the NWFP at 39 per cent. In terms of overall emigration, 35 per cent were from the NWFP, but in terms of the percentage of the total population of the province, NWFP has the highest of the total number of emigrants.

The trend of migration in the mountainous areas of the NWFP follows a similar pattern with some distinct characteristics. First, besides the migration to other provinces and within the province in search of permanent and temporary employment, there is a large outflow of the labour force that is seasonal in nature, occurring during the severe winters when life comes to a temporary standstill.

Secondly, the activities of the development projects have generated economic benefits and employment in some areas such as the Northern Areas and the Swat Valley. This has held back a fraction of the temporary migrants from these areas. Third, adventure tourism also creates employment opportunities during winter that help ease the income/employment problems of the area. The data on domestic and international migration are provided in Table 3.5.

These data, however, do not include those who migrate during winter or at harvest time to Peshawar and the Mardan Divisions.

Thus, the low level of the development indices, as reflected by the population indices and the high migration from mountain areas lacking regular employment opportunities, adversely affect the overall development of the region. As such, a pool of skilled human resources can be developed.

### *Land Settlement and Land Use*

The mountain ecosystem in the Northern Areas tends to be somewhat unstable, non-resilient, and with low productivity. In this scenario, there are many ecological sub-zones that people use for subsistence production. These include old river terraces and fans of valley floors where sparse inorganic soil may have accumulated; unstable scree slopes on valley sides; and high elevation forests and alpine meadows. Scarcity of flat land and water supplies

are the major constraints. Due to low inorganic matter, very free drainage, and very low clay content, the soil has low natural fertility.

The Agricultural Census for Gilgit District reveals that 20,400 ha were under cultivation in 1985, and 80 per cent of this was under annual crops. An additional 6,500 ha were cultivable but remained uncultivated mainly due to the lack of water and difficulty of access (see Table 3.6). In the Northern Areas, few villagers are landless, whereas, in Gilgit District, only about five per cent of the farms (about 6% of the cultivated area) have any form of tenancy. Farm holdings are relatively equitably distributed, with about 84 per cent of all holdings being less than two hectares (see Table 3.7). On average, farms are fragmented into five parcels.

Cultivated land is privately owned by households and irrigated by farmer-managed irrigation systems. Households have rights to water (irrigation channels are cooperatively built and managed by village members). They also have rights to Alpine meadows and forests that are common property.

The land use for the mountain regions of the NWFP shows a similar pattern where the ecosystem is similar to that of the Northern Areas. However, there are some areas in the Swat Valley that have fertile land, greater precipitation, and are conducive to agricultural production. Separate land utilisation data are not available for the mountain areas.

The data on land utilisation for the NWFP are provided in Table 3.8. They show the total cropped area to be 32 per cent of the reported area, while the uncultivated area is 69 per cent of the reported area. Forests cover about 23 per cent of the reported area.

Most of the forests are located in the mountains, whereas the major portion of the cultivated area is located in the plains, the fertile Peshawar and Hazara Valleys, and in the Mardan Division.

The farm sizes for the NWFP (including the mountain areas where resort tourism is prevalent) are shown in Table 3.9. It is seen that most farms in the NWFP are relatively small in size with the majority being up to five acres. This is a constraint to introducing mechanisation in agriculture and does not bode well for increasing productivity. Agriculture, as the only source of livelihood, is not feasible. Hence, the large outflow of people to other provinces and abroad in search of employment. The farm sizes in the mountaineering and trekking areas are also small. As such, agriculture cannot be the only means of livelihood.

## **Environmental Implications**

### *Geology, Natural Resources, and the Nature of the Terrain*

The mountain areas of the NWFP and the Northern Areas are bounded by three mountain ranges, namely, the Himalayas, the Hindu Kush, and the Karakoram. This region is characterised by rugged, hilly terrain, with heavily dissected slopes and very little level land. The irregular landscape is due to the secondary and tertiary incisions, landslides, and erosions. The geology is a mixture of igneous and metamorphic sedimentary rock, constituted of slate, mica rich gneiss, and crystalline schist. The soil is very low in clay and organic matter and mainly made up of stones and boulders (UN 1993b).

The mountains lie outside the monsoon zone. The inhabited areas up to 3,100 metres receive 100-500 mm of precipitation, mainly snow in winter, with an arid continental, mediterranean type of climate, and varying precipitation depending on altitude and topography.

Gilgit and Baltistan receive about 160 mm of rainfall, while the Swat, Kaghan, and Kalam valleys receive about 1,520-2,030 mm of precipitation. These valleys are fertile with a climate that is conducive to resort tourism.

Apart from some areas in the Swat Valley, most of the agricultural fields are small, fragmented fields on uneven lands. As a result, mechanisation of agriculture and use of an improved variety of inputs on a large scale are neither feasible nor possible. As a result, the agricultural yield of the main crops in the area is lower than average. With the increase in population growth, more areas need to be brought under agriculture; however, the land available is on mountain slopes. This is a cause of slope instability.

This entire area is deficit in food. Thus, tourist inflow leads to shortages and higher prices for foodstuff. During winter, parts of the Kalam Valley, the Northern Areas (some parts), the Kaghan Valley, and Chitral become snow-bound and inaccessible due to the closing of roads and other transport/communication problems. As a result, the population needs to save for winter months when food is scarce even for the locals. This effect is visible in all the mountain tourism areas, but its impact is less for trekkers and mountaineers (due to their smaller numbers) and more for resort tourists whose numbers are large.

The entire region (the study area ) used to be covered with forests. In fact, the NWFP possesses 44.5 per cent of the total forest area in the country.

The Northern Areas were also heavily forested. Blue pine, birch, deodar, poplar, and so on are all found here. However, with growth in the natural rate of population, need for agricultural land, and demand for housing and fuel, there has been an accelerating rate of deforestation, leading to serious environmental problems.

The demand for accommodation for tourists is another factor that negatively impacts on the fragile environment. In the Swat Valley and, even more so, the Kalam Valley, buildings have sprung up all along the main road on the mountain slopes. This not only harms the unstable mountainsides but is a hazard and an eyesore. There was no planning in the last decade since the increase in the tourist trade, nor is any planning visible presently.

The mountain regions are rich in wildlife, flowers, and plants with medicinal value. These include the snow leopard, *Ovis poli*, *Markhor* (a wild goat), *Bharal* (a species of goat), Ibex, and *Zhou* (a mountain goat), and beautiful pheasants like the *Murgh Zarin* and other birds. Alpine and other mountain plants, such as *Ranunculus brotherussii*, *Aquilegia*, Geranium, dwarf Asters, several *Primulaceae*, Iris, wild chicory, *Cichorium intybus*, *Arasaema wallachiana*, and Rhododendron shrubs are visible. Many of these are used as medicinal plants. At lower altitudes, another important plant is *Calitropis procera*, the bark of which is used to make gunpowder.

The Swat Valley is rich in fruits and vegetables, which are sold in the plains at high prices.

### ***Types of Environmental Impact and Contributory Factors***

As a result of the population increase, inflow of a large number of tourists over a short time (due to the seasonal nature of tourism), and the fragility of the mountain terrain, the environmental impact is a serious concern. Tourism has been a contributory factor to environmental degradation of the mountains. There has been a rapid rise in the level of pollution.

The different environmental problems and their causes will be listed under different categories.

**Pollution:** This includes the following types of pollution in the mountains and in mountain resorts.

**Water/river**  
**Soil/glaciers**

## **Deforestation and impact on wildlife**

## **Noise and congestion**

### ***Water/Rivers***

#### **Resort Tourism Areas**

Degradation of water and rivers has reached alarming levels. In the upper parts of the Swat and Kalam valleys increased tourist activities have led to the construction of hotels and homes that discharge untreated solid and liquid wastes directly into the river, including human and animal wastes. Pollution is also caused by the discharge of municipal wastes from towns such as Mingora and Khawazakhela that are located on the river banks. In lower Swat, the quality of the water is also affected by agricultural drainage and commercial agriculture. The Kunhar River in the Kaghan Valley and the springs in the Galliat also show signs of contamination due to tourists' activities.

#### **Trekking Mountaineering Tourism Areas**

Groundwater is polluted on the trekking sites and campsites as a result of the discharge of wastes close to groundwater, which in turn contaminates water in the entire area.

### ***Soil/Glaciers/Mountains***

#### **Resort Tourism Areas**

In the resort areas, a major risk to the glaciers is from the heavy traffic that cross the glaciers. In the Kaghan Valley, especially in Naran and on the way to Lake Saif ul Maluk, this is all too obvious. The glaciers have shrunk in size. The situation is so critical that, at one time, all vehicular traffic was banned on the glacier lying en route to Lake Saif ul Maluk. The commercialisation of tourism has led to some unsafe activities such as digging holes in the glaciers to make a natural deep freezer for cold drinks and other foodstuffs at Naran.

In Nathiagali (in the Galliat), houses and hotels are being built on a similar pattern as those in the plains, subjecting the hills to pressure and damaging the soil. Furthermore, the tree plantation drive of the Forest Department has led to littering the slopes with black plastic bags (which are used to show the planting of a sapling), for example, that have not been removed. This has an adverse effect on the environment, especially when thousands of them are scattered around.

## Trekking and Mountaineering Tourism Areas

The pollution of the soil and glaciers arises due to the irresponsible disposal of degradable and non-biodegradable rubbish at campsites, too much traffic crossing the glaciers over a concentrated span of time, and the misuse of glaciers.

The former situation is relevant to mountaineering and trekking groups. In terms of environmental impact, the most significant pattern was in the peaks and routes most frequented. Ecological disturbances with greater degradation in the future cannot be ruled out, due to the large number of people frequenting these routes, and the trends show no change in the selection of these peaks and treks. As the President of Pakistan Alpine Club put it, "*Most of the climbers prefer to go to higher and well-known peaks for obvious reasons. They prefer the well-trodden routes than to reach base camps over strange virgin routes to lesser known peaks which may be no less challenging*" (Mirza 1992/93).

The garbage encountered on the trails can be divided into the following categories.

Non-degradable: This mainly includes tins that are left at various camping sites and on the way up (thick plastics, glass, aluminium, and tin.)

Bio-degradable: These include paper cartons, biscuit packets, and cigarette packets; human and animal wastes; and used clothes, shoes, etc.

Semi-degradable: This category includes wrappings of biscuits, chocolate, and sweets made from thin plastic and wax paper; polythene bags and rubber; iron-based tins/cans; and tin boxes and dry batteries.

These occur in spite of written instructions issued by the Government of Pakistan on the proper disposal of garbage: "*its need is emphasised at the time of briefing before the onset of the journey, each expedition leader is required to render a certificate that necessary instructions have been complied with, and liaison officers with each expedition also certify to this effect*" (Mirza, op. cit.)

Another serious problem on the glaciers in the Northern Areas is the introduction of mules, donkeys, and horses as beasts of burden by the army. Between March-August 1993, the mortality rate here was 33 per cent for mules. Their bodies were thrown into the crevasses of glaciers.

Besides spreading dirt and filth, pollution is depleting the natural screen that protects the glacier from the sunlight; hence, the glaciers are melting. Moreover, the trails carved by horse shoes have created water channels, leading to erosion and affecting the ecology of the region.

According to the Environmental Impact Report (1993), there was a very high level of pollution in Gasherbrum I, with the degradation on the North Ridge Route, of which there were the following types:

- i) deforestation due to cutting and destruction of vegetation,
- ii) human waste and animal litter,
- iii) leftover gear, and
- iv) discarded containers, packing and plastic items.

The two routes of the Broad Peak scored the second highest in terms of pollution. The West Ridge suffered from cutting and destroying of vegetation and forests.

The four routes of K-2 were placed third in terms of overall pollution but showed very high pollution on the South Face Route, followed by the Abruzzi Route.

Pollution was caused by:

- i) leftover mountaineering gear,
- ii) discarded containers, packing, etc.,
- iii) congestion, and
- iv) human waste and animal litter.

The three routes on Gasherbrum II showed a high rate of pollution, whereas the East Ridge showed a very high rate of pollution. Pollution was due to:

- i) discarded containers and packing; and
- ii) stone-cutting, rockfalls, landslides, etc.

The two routes on Trango Tower peak showed a moderate level of pollution, mainly from:

- i) human waste and animal litter, and
- ii) damage to the forest environment.

Diran in the Karakoram range had fairly low levels of pollution, most of it due to discarded containers, packing and plastics.

According to the same report, there is a complex relationship between the number of tourists and the level of pollution in the mountains. In the Karakoram range that had the largest traffic in international mountaineers and porters, a relationship between large numbers of tourists and a high level of pollution was established. However, this was not the case for the very high levels of pollution on four of the peaks and routes. The Himalayan Range had the second largest number of mountaineers who were active on three peaks and routes with high and very high levels of pollution. However, fewer mountaineers and porters were active on a peak with a very high level of pollution. Finally, in the Hindu Kush Range, of the two peaks and routes, the one with the larger number of mountaineers and porters showed lower levels of pollution. Thus, although an increase in number leads to higher levels of pollution, absolute numbers are not the only reason for pollution. Practices, attitudes, habits, and the way resources are used also play a major role.

### ***Deforestation and Wildlife***

#### **Mountaineering/Trekking Tourism Areas**

Deforestation is a major cause of environmental degradation. Some of the reasons for degradation are population pressures and the need for land for cultivation( especially in the mountain areas of the NWFP) and construction, the need for fuel and grazing for animals, and there are other reasons that are nothing to do with man's intervention. In the Northern Areas, there is a shortage of fuel and forage. Thus, there is a significant increase in the quantity of wood fuel, forage, and minor forest products drawn from forests and alpine pastures. At an elevation of above 2,300 metres, only one crop a year is possible due to the shorter growing season. Here, livestock are important in the farming system, and they create a heavy demand for forage from trees, shrubs, and grasses that are highly seasonal in nature.

This pressure on forests is felt at an increasing rate both at the upper and lower tree lines rate as the mountains become more accessible and farming more intensive, with crops planted on the steep slopes too. There are also extensive erosive forces at work in the mountains due to natural reasons (as a result of rock- falls, mudslides, etc).

As a result of these pressures, the local communities need to travel far for fuel and forage and to spend time for building soils and infrastructure. The

practice of terrace farming and planting alfalfa on unstable slopes help to hold the soil, but the silt load from the mountains is harmful downstream, especially to the irrigation system in the plains. Damage normally happens during spring when the melting snow and ice at higher altitudes fill streams and rivers with water carrying sediments, silt, and large boulders. Thus, mass wasting occurs due to avalanches, mudslides, and rockfalls that sweep away sections of roads, irrigation channels, and fields. They also cause temporary damming of rivers, and this is exacerbated where pastures and forests have been degraded and steep slopes are used for cultivating food crops. Erosion in the alpine forests has been accelerated by grazing of a large number of sheep, goats, and large-hooved cattle. Besides the deforestation at higher elevations, loss in forest cover is also visible at lower altitudes in the mountains of the NWFP for similar reasons.

The populations of Ibex, Marco Polo sheep, and the Tibetan Wild Ass, or *Kulan*, are all rare and endangered. The numbers of snow leopards, *bharal* (blue sheep), wolf, bear species, and exotic pheasants have been falling until they too have become endangered species.

### Resort Tourism Areas

The Miranjani Ridge in Nathiagali (the Galliat) used to be thickly forested with conifers and other broad-leaved trees, but the increasing pressure of livestock grazing and felling for firewood by neighbouring settlements have depleted the forest wealth. In Hazara Division, 30 million cubic feet of forests have been cut illegally.

The permits provided by the Government of Pakistan for the cutting of timber are often misused. The number of trees cut far exceed the number permitted. The activities of *Shikari* (hunters) also destroy precious wildlife. Thus, hunting, forestry-based activities, and extension of agriculture have adversely affected the numbers of wildlife and their habitat.

### Congestion/Noise

#### Resort Tourism Areas

Noise is a pollution factor in the small towns and hill resorts and in the Northern Areas where, because of the availability of accommodation and other facilities, there is a concentration of tourists. As a result, the infrastructure is overburdened leading to congestion, noise, and pollution.

## ***Groups that Affect the Environment***

The groups of people that impact on the mountain environment and the Northern Areas include, first, the permanent population living below 3,500 metres and some nomadic groups living at higher elevations. These settled people, through their daily activities of collecting fuelwood, cutting trees to build houses, grazing cattle in the forests, and clearing forests for the cultivation of crops, have an adverse effect on the forest resources. With an increase in population, the trees at higher altitudes are felled and mountainous slopes brought under cultivation. Population pressure thus leads to a reduction of natural mountain areas and instability in the soil.

The second group includes resort tourists, mountaineers, trekkers, liaison officers, and porters whose activities contribute to the increasing pollution.

The third group that contributes to this environmental degradation is the army.

The above three groups affect the mountaineering and trekking tourism areas.

Finally, entrepreneurs contribute to degradation when they increase their activities to benefit from tourism in the fields of accommodation, transport, etc, and there is a direct impact on the resort tourism areas.

## **Development Implications**

### ***Local Level Economic Activities***

Economic activities in the mountain areas of the NWFP and the Northern Areas revolve around agriculture, livestock, agro-and social forestry. Forest-related resources are a significant source of income. The area controlled by the forest department is shown in Table 3.10.

The forests are categorised into Reserved Forests and Protected Forests. The community has the right to use the forest for grazing, collection of firewood, and also to benefit from the exploitation of forest wealth according to given ratios vis a vis the government. In 1988/89, the production of timber stood at 0.18 million cubic metres, valued at Rs 881.86 million; production of firewood was 0.04 million cubic metres, valued at Rs 14.83 million; and resin production was 0.002 million metric tons, valued at Rs 15.72 million. The Forest Department also provides employment to the local community in the protection, planting, and harvesting of plants.

There is an insignificant number of industries in these areas-not counting the urban areas of Swat where there are 62 units out of which 53 units produce silk. There are a large number of small-sized household industries producing local handicrafts and embroidery. Kaghan and the Galliat do not have any industries. Similarly, Chitral and the Northern Areas are lacking in such sources of local economic activity.

The accommodation and food sector generates economic activity during the tourist season as do the transport, communication, and retail trade sectors.

Local level economic activities are insignificant in the mountaineering and trekking areas. In the resort tourism areas, some activities are visible in the Swat region in the agricultural and industrial sectors. In the Galliat and Karakoram Highway Region, they are again insignificant.

The development projects initiated in the region, mainly through donor funds, also provide significant economic activities. They create employment and private community participation in development.

#### ***Impact of Development Projects, the Khunjerab National Park and the Environmental Protection Agency***

Development projects located in these mountain areas have had a major impact on the development of the region and its people. They contribute to human resource development (HRD), the development of infrastructure and of local-level economic activities; they also promote community participation, the preservation of resources, and help to involve women in development activities.

In a way, these projects have created awareness and toleration in the area towards foreigners, as almost all of these projects are donor-funded and involve the expatriate community. The development of infrastructure is also one of their contributions. Some of the major projects with significant impact are shown in boxes in the succeeding pages.

The Khunjerab National Park will contribute to the development of the mountain areas, conservation and protection of resources used for tourism and development, and the involvement of local communities in their development (see Box 3.1). The park falls in the mountaineering and trekking tourism area.

The Environmental Protection Agency (EPA), which has the responsibility for ensuring that the environmental aspects of the development process are not overlooked, is not yet fully operational. The EPA, however, does not have any presence at the community level (see Box 3.5).

#### BOX 3.1

##### **The Khunjerab National Park (KNP)**

The Khunjerab National Park is located in the extreme north of Pakistan in Hunza and consists of three valleys, namely, the Khunjerab, Ghujerab, and Shimshal. The Park was set up in 1976 with the passage of an Ordinance. The World Wide Fund for Nature introduced a new management plan in June 1994, recommending major administrative and structural changes in the management of the park.

The park covers an area of 2,270 sq. km. and lies between 2,439 metres at Passu to 4,878 metres at the Khunjerab Pass.

Four types of vegetation are found here, namely,

- i) dry zone alpine scrub and species;
- ii) moist alpine pastures;
- iii) dry alpine plateau pastures; and
- iv) sub-alpine scrub and birch forest.

A number of species have also been recorded here. These include, Marco Polo sheep, Himalayan ibex, Blue sheep, Snow Leopard, Tibetan Wild Ass, brown bear, Wolf, Golden Marmot and others such as the lynx, Alpine Weasel, wild dog, etc.

The Khunjerab National Park has a long history of allowing grazing by domestic livestock. It was recommended that a 12-km portion of the park be closed to grazing to protect the Marco Polo sheep against disturbance and possible food competition. This was the core zone of the park.

The KNP was established for a specific purpose-- the conservation of endangered species in particular and other park resources in general.

The park is in crisis in that the local people insist on grazing their cattle on the park's pasturelands despite the laws prohibiting them. The situation was critical in the Shimshal Valley where the local people were not even aware that the area was prohibited for grazing of cattle and they refused to recognise the park. The second critical situation arose from the actions of the Khunjerab Security Force personnel who hunt the endangered species with the very weapons with which they are supposed to protect them.

The new management plan recognises the conflicting interests of the locals and park management and considers options of how the local people can survive if grazing is restricted. One of the main goals of the plan is to devise conservation and management policies "with sufficient flexibility to accommodate existing human uses until alternatives are available for local subsistence." The plan further suggests that integrating the people's needs with park management would go a long way to overcoming the crisis.

The plan recommends initiating rehabilitation projects in the park area, allocating more development funds to the area, and reserving a major portion of the jobs created for the local people. Those who give up their grazing rights when requested will be given preference.

Eco-tourism is a powerful tool for environmental preservation and protection. However, the national parks in Pakistan, and the KNP in particular, are exceptions. The KNP has been in existence for over a decade but, rather than creating general interest for nature conservation and enhancing the local economy, it has created opposition to its existence from the local community. A major reason is its inability to exploit the potential for eco-tourism. Efforts will be needed to involve the community and to secure their cooperation for the success of KNP. There is little choice but to use resources sustainably to balance human needs and biological and species' renewal.

### BOX 3.2

#### The Agha Khan Rural Support Programme (AKRSP)

This is an international NGO that implements a multi donor-funded project. This project is located in the Northern Areas and covers Gilgit and Baltistan in the Northern Areas and the Chitral district of the NWFP.

The area is backward with about 90 per cent of the population living from subsistence farming, with average farm sizes of about 1.1 hectare of land. The farm productivity of most sectors is lower than that of Pakistan as a whole. Income from farming is insufficient to sustain farm families. Moreover, lack of credit facilities, high transport costs and an inadequate distribution network constrain farmers from investing in technologies that would increase production. A relatively poor resource base, combined with rapid population growth and lack of employment, has resulted in severe poverty. The per capita income (at the commencement of the project) was \$ 150 per annum.

The objectives of the project were to complement and supplement the efforts of the government and other development agencies. The three principle objectives were:

- to raise the incomes and quality of life of about one million people in the remote, poor mountain areas;
- to develop institutional and technical models for equitable development; and
- to evolve sustainable, long-term strategies for productive management of natural resources in a dry and fragile mountain environment.

The approach is to use village organisations that include the residents of the village with common interests. There are also Women's Organisations to further the development of women through their efforts and their participation.

The infrastructure initiated by the Voluntary Organisations (VOs) include 584 irrigation channels with a length of 1,712 km, 228 link roads (706 Km), and 138 protective works (39,840m).

In the area of human resource development, they have trained 5,704 village-level specialists and 4,132 village-level managers.

In natural resource management, emphasis is on three main areas: agriculture, forestry, and livestock. In agriculture, 2.35 million fruit trees and 261,418 kg of improved seeds have been distributed and Rs 855,942 worth of pesticides/insecticides provided.

Under forestry, 1.37 million plants have been supplied, while 10.45 million plants have been planted by the VOs with the technical assistance of the AKRSP.

The afforestation task has three components: i) extension, ii) nursery development, and iii) village afforestation. Training is provided to local people to strengthen the forestry sector activities. Women are also involved in forestry activities by raising nurseries as income-earning activities. In order to sustain community forestry and the preservation of the fragile mountain ecosystem, the attitude of future generations must be changed. An environmental education programme is being launched for children.

In order to improve the income levels, the project has contributed to enterprise development through help in processing and marketing of local produce. In the credit area, the project has helped people to generate credit through savings. Short-term and medium-term loans along with group loans are available. Women have benefitted from improved skills in agricultural activities as well as in obtaining loans. This has led to income generation through group efforts. Community participation for all activities, as well as for decision-making (both for men and women), is an outstanding success of their development approach. This project has been functional since 1983 and has had a major impact on the lives of the people, the natural resources, and the overall area. It has opened up the area despite its remoteness.

### BOX 3.3

#### **Kalam Integrated Development Project (KIDP)**

This project is located in the Kalam *tehsil* and the Bahrain forest range. The long-term objective of the project is the improvement of the life of the population through utilisation and improvement of resources, forests, and agriculture. The development approach that is being followed aims at ecological, social, economic, and institutional sustainability.

The terrain is harsh with long winters and heavy snowfall that make some of the areas inaccessible. About 50 per cent of the population migrate during the winter, while in summer nomadic herdsmen use this area as pastures for their sheep and goats.

The sources of income and occupation are agriculture and animal husbandry and, to a lesser extent, tourism (since tourism does not benefit the locals directly where income from tourism benefits non-locals, who provide the services required by tourists). Royalties from forests are another source of income, hence the need to conserve forest resources. There are 471 sq. km. of forest in this area.

The four components of the project are:

1. the Forest Department;
2. the Forest Development Corporation;
3. agriculture; and
4. the Village Development Sector.

The major thrust is on the development and conservation of forest resources with emphasis on afforestation, forest harvesting and related training, and improvement of agriculture. Agriculture has a research and extension wing that deals with different aspects of agriculture, including seed multiplication plots, farmer training, fodder and livestock improvement trials, and disease control.

There is also a women's component of the project that includes provision of education facilities through home tuition schools, technical education (training as Traditional Birth Attendants, Lady Health Visitors, etc) and training in fruit preservation.

### BOX 3.4

#### **Project for Maintaining Biodiversity**

The UNDP, in collaboration with the Environment and Urban Affairs Division (GOP), is launching a project for maintaining biodiversity through rural community development. The aim is to enhance the conservation of biodiversity by providing the villages with the organisational capacities and technical skills to manage wild species and habitats for sustainable development. The focus on the poor rural areas is because these people have the greatest need to harvest wild species for subsistence and income, and the government agencies need support to protect these species. Moreover in the traditional conservation methods, the rural people have not been a part of the decision-making process.

Under this project, alternative options for eco-tourism, management of medicinal plants, and bird hunting, along with potential benefits, will be identified in each village with the cooperation of the villagers. In this manner, the communities are expected to develop a strong sense of ownership in the wildlife and flora and fauna of the area and to recognise the economic benefits of the sustainable utilisation of resources. The area to be covered includes Chitral, Dir, Kohat, Buner, Gilgit, and Baltistan.

### BOX 3.5

#### **The Environmental Protection Agency (EPA)**

The EPA is a part of the government mechanism at the provincial level. They are responsible for ensuring that the environmental aspects of the development process are not overlooked.

The NWFP EPA is still in the process of getting established and lacks trained manpower and equipment for monitoring environmental concerns and testing for environmental pollution.

The major problem in the functioning of the EPA has been the delay in the selection of a consultant who will provide advice in evolving the system.

The EPA does not have any presence at the community level. It, however, reviews projects submitted by NGOs to ensure that environmental concerns are integrated.

The EPA will refine the EIA (Environmental Impact Assessment) indicators that are used by the Asian Development Bank at a later stage. At this point, they are not able to undertake these activities.

## *Human Resource Development*

The mountain areas lack in human resource development and, hence, the transformation of labour is a slow process. The overall rate of literacy is about 14 per cent in Chitral and under 10 per cent in Swat, Kaghan, and the Galliat. The female literacy rate is 2.9 in Chitral, 1.7 in Swat, and under one per cent in Kaghan and the Galliat. The literacy rate for men is relatively higher at 24 per cent for Chitral, 15 per cent for Swat, 10 per cent for Kaghan, and nine per cent for the Galliat (1981 figures). Table 3.11 provides the number of schools in the area.

Besides these, there are a large number of mosque schools. In Chitral, there are 105 mosque schools, 327 in Swat, and an unidentified number in the Galliat and the Kaghan Valley. There are also three government Intermediate Colleges in Swat (2 for men and 1 for women) and four government Degree Colleges (3 for men and 1 for women). One of the men's colleges also offers post graduate classes. Chitral has one government Intermediate College and one government Degree College (both for men). There is a polytechnic institute to provide technical training and vocational training centres for men and women in urban Swat. Besides the government schools the, Agha Khan Education Service also runs 31 primary schools and nine middle schools for girls in Chitral.

The adult literacy rate for the Northern Areas is about 10 per cent overall but only two per cent for women. Around Gilgit it is about 30 per cent for men and 12 per cent for women (1990 figures). A significant change has been brought about by the AKRSP's activities in human resource development.

The number of schools is shown in Table 3.12 below.

The AKRSP has technical training programs for men and women in the Northern Areas. All these contribute to human resource development.

Compared to the rest of the province, the Kaghan Valley and the Galliat are backward in health and education facilities. The areas are remote, less populated, and tend to get overlooked in the allocation of resources for development.

Table 3.13 provides data on health facilities.

### *Seasonality of Tourists*

Tourist activities are highly seasonal, as indicated in Table 3.14.

The season for international tourists lasts from October to March. The season for adventure tourism is also limited to a few months (see Table 2.8). Similarly, domestic tourism that is resort based is limited to the summer months from June to September. As a result, locals who are dependent on tourists for their livelihood need to look for alternative sources of income in the off-season. Another major problem stemming from the concentration of tourism over a few months is that the capacities of the infrastructure and the environment are strained beyond their limits, while during the rest of the year there is no activity. It is crucial to spread out the tourist flow more evenly over the year by careful planning (a task now entrusted to the Sarhad Tourism Corporation).

### *Role of Community in Local Level Planning and Participation*

Sustainable development in the fragile mountain environment is only possible if the community is aware of the dimensions of this fragility and the need to preserve the environment even as it uses its resources. The donor-funded development projects realised this need earlier and had thus started their activities with the involvement of and participation by the local communities. Government departments implementing development in the area, however, did not involve the communities earlier, though, presently, with the introduction of social forestry, the community's involvement is visible. The Environmental Section of the Eighth Five-year Plan clearly recognises the need to involve the community in all the efforts for environmental protection.

The local tiers of the government which function through the local bodies, however, are not yet aware of the importance of involving the local community in local-level planning for development. This is one area that needs serious attention.

### *Effects on the Traditional Resource Base*

The traditional resource base of the mountain areas bears the maximum impact due to the autonomous growth of activities without plans, resulting in the erosion of this resource base. The scenic beauty is often lost or hidden. For instance, when the settlement pattern around tourist attractions changes, the attraction is gone (the Garam Chashma and Kalam valleys are examples). Specifically, this is visible in the over use of forest resources and

constructions on unstable mountain slopes being demand-driven does not account for mountain elevation which causes soil erosion. Thus, John Yost was led to say, "*Tourism in the province has increased because of the natural beauty of the area, which is beginning to show the impact of heavy use. The natural beauty of the area is now more in need of protective measures than of increased visitation*" (Yost 1992).

### Technology and Food Deficits

Most of the mountains are deficit in food due to low agricultural productivity, and the geographic terrain and farm size are unamenable to the introduction of mechanisation. Where productivity can be increased through the introduction of a technology package appropriate to the soil and terrain, it has not taken place. New varieties of crops introduced in the Northern Areas and the remote mountain areas of the NWFP have not spread far from the vicinity of small towns.

Agricultural extension and agricultural inputs and training are also located on the outskirts of these towns. Presently, 20 to 30 per cent of the wheat consumed in the Northern Areas is bought from down country.

Similarly, there is a food shortage in the Kaghan Valley, the Galliat, and some remote parts of the Swat Valley. The influx of a large number of tourists (especially domestic tourists for Resort Tourism) during the tourist season has caused severe deficits and spiralling prices.

### **Impact on Women**

Women in the mountain cultures were always better integrated into the economy than in other parts of Pakistan. Tourism as such has not had any significant impact on women except when it has increased the demand for local handicrafts (where the activity is undertaken by women). However, even here women's income has not increased significantly as the marketing is almost exclusively done by men.

In the Kalam Valley, women are visible in the fields as almost all the agricultural work is undertaken by them. According to local people, with the inflow of non-locals, the men have to be within close call of women working in the fields (even then, the men do not work in the fields).

Improvement in literacy rates and health facilities are visible especially for the urban and semi-urban women of the Swat and Kaghan valleys and for most

of the valleys of the Northern Areas where the Agha Khan Rural Support Programme is functional.

On the whole, women have not benefitted from the employment opportunities generated as a result of tourist activities.

### **Analysis of Issues**

1. Development Indices as reflected by high infant mortality rates, high male-female ratios, low participation ratios for females, low literacy levels, and out-migration of males in the working age group are factors that undermine the development of the mountain region and community. Human resources are not developed, and the trend is to look outside the local area for employment and income generation. Mountaineering, trekking, and resort tourism provide only limited employment opportunities and for short periods.
2. Transformation of the labour force is itself a long-term process and is normally accelerated by external development interventions. In the mountain regions, labour force transformation has not taken place as reflected by the literacy rates. There is an absence of development efforts to create and develop institutions for HRD, which would play a direct role in the development of the community.
3. Community development and the development of local areas require participation of the community in partnership with the authorities. There is an absence of active participation of the community in the development of the area in tourism-related activities, and in the planning, conservation, and utilisation of resources.
4. Awareness of environmental problems and steps to prevent these problems need to be inculcated in the local community through its active participation in the decision-making process for developing tourism. This is another gap in the structure.
5. Absence of linkages between the different sectors of the mountain economy and its integration with the provincial economy prevents even the trickle-down effect from reaching the mountain areas.
6. Seasonality in the tourist trade and, hence, in the employment generated is a major issue. Alternative income/employment sources have to be identified and used by the local community.

7. The need for off-farm employment due to limited income generation opportunities is severely felt in the mountain areas. This is compounded by low agricultural productivity, leading to deficits (certain times of the year) and high prices of essential food commodities. This is more severely felt in Gilgit, Chitral and other mountaineering and trekking tourism areas where roads are closed because of landslides and flash floods in summer and heavy snowfall in winter.
8. Leakages of income and benefits are common in economies that are at different levels of development and where there is little integration. This is applicable to the mountain areas where the benefits from tourism leak out to the more developed areas that provide the skills and services to engage in tourism-related activities. The economic benefits thus accrue to these relatively better developed regions.
9. There is a close relationship between infrastructural development and the development of tourism. In the mountain region, the two do not go hand in hand. Infrastructural development is being undertaken without plans and without even considering the impact of such development on the environment or its capacity to absorb such infrastructural development.
10. There is an absence of local-level economic activities in the mountaineering and trekking areas as well as in the resort areas, apart from in Swat. In the case of Swat, some local-level economic activities are visible in industry, handicrafts, agriculture, food-processing, and marketing.
11. Misuse and overuse of resources leads to economic degradation. Negative environmental impact occurs due to the fragile mountain environment and the absence of planning in the utilisation of resources. The major problems are seen in the contamination of water, soil/glaciers, deforestation, noise/congestion, and buildings on mountain slopes that are unstable.
12. The non-involvement of women in the tourism sector may lead to the marginalisation of this group in local-level programmes and plans for development of tourism in the area.

## Schematic View of Issues and Intensity of Impact

The major issues that emerge and their intensity in the different types/categories of tourism areas are provided in the table below.

Issues	Types/Categories of Tourism and Intensity Felt		
	Mountaineering	Trekking	Resort
Seasonality	Strong	Strong	Strong
Shift in population to areas of tourist concentration	None	None	Strong
Overuse of natural resources	Strong	Strong	Strong
Shortages in essential supplies during tourist season	Weak	Weak	Strong
Lack of planning for infrastructure and services	Strong	Strong	Strong
Linkages with tourism and infrastructural development	Weak	Weak	Weak
Provincial planning for tourism and related mountain area development	None	None	Weak
Leakages of income from tourism and away from the local community	Strong	Strong	Strong
Environmental degradation as a result of tourism-related activities	Strong	Strong	Strong
Economic benefits from tourism for the local community	Weak	Weak	Medium

**Table 3.1**  
**Population Indices**

Area	1981 (In '000) Census	1988 (In '000) Estimates	Density (Pop per sq. km.)
NWFP	11061	13831	148
Kaghan Valley	152	200	65
Swat	1233	1607	140
Galliat	310	392	70
Chitral	209	260	14

Source: Compiled from NWFP Development Statistics 1990; Population Data Sheet of National Institute of Population Studies 1990; and NWFP Rural Settlement Survey, 1988.

**Table 3.2**  
**Labour Force Ratio in Mountain Areas**

Areas	% of Pop. in Labour Force 10 years and more	% of L.F. in Agriculture
Swat	27.5	76.2
Chitral	30.2	78.4
Galliat	26.0	46.2
Kaghan Valley	30.0	80.0

Source: Compiled from Population Data Sheet NIPS, 1990; and NWFP Development Statistics, 1990.

**Table 3.3**  
**Inter-Provincial Migrants' Settlement by  
Province of Previous Residence, Pakistan 1981**

Present	Pakistan	NWFP	FATA	Punjab	Sindh	Balu.	Ibd.
Pakistan	1790637	613604	83362	849043	121942	113475	8211
NWFP	185893	-	67965	99058	16135	1780	955
Punjab	355971	196950	7759	-	92057	54298	4997
Sindh	1067397	369676	6998	631578	-	56988	2157
Balu.	97047	29490	452	56424	10579	-	102
Ibd.	84239	18588	188	61983	3161	409	-

Source: State of Population in Pakistan, 1988

Note: Balu = Baluchistan; Ibd = Islamabad

Schematic View of **Table 3.4** Intensity of Impact  
**Number and Per cent of Pakistanis Migrating Abroad by  
 Place of Residence during the Past 10 Years (1981)**

Area	Total	Urban	Rural
Pakistan	1708608 (100) (100.0)	294128 (17.2) (100.0)	1414480 (82.8) (100.0)
NWFP	591405 (34.6)	35768 (12.2)	555637 (39.3)
Punjab	735285 (43.0)	158763 (54.0)	576522 (40.7)
Sindhu	300354 (17.6)	87335 (29.6)	213019 (15.1)
Balchistan	77126 (4.5)	9280 (3.2)	67846 (4.8)
Islamabad	4438 (0.3)	2982 (1.0)	1456 (0.1)

Source: The State of the Population in Pakistan, 1988.

**Table 3.5**  
**External and Internal Migration 1988**  
**(In Numbers)**

Areas	External	Internal
Kaghan Valley	2208	24558
Swat Valley	12700	41734
Galliat	4259	65134
Chital	Not available	

Source: Bureau of Statistics NWFP

**Table 3.6**  
**Land Use Pattern: Gilgit District 1985**

Items	Aggregate for Individual and Communal Land	
	Area (Ha)	% of Total
Cultivated Area	<u>20392</u>	<u>43</u>
Orchards	3874	8
Annual Crops	16518	35
Uncultivated Area	<u>26612</u>	<u>57</u>
Cultivable Waste	6474	14
Uncultivable Forest	3672	8
Uncultivable Others	16466	35
<b>Total Areas</b>	<b>47004</b>	<b>100</b>

Source: Second Interim Evaluation of the AKRSP, 1990.

**Table 3.7**  
**Size and Distribution of Land Holdings:**  
**Gilgit District, 1980 and 1983**

Size of Holdings (ha) 1980	% Farms	% Area	Average Area
Less than 0.50	11	2	0.23
0.50 - 0.99	43	22	0.64
1.0 - 1.99	31	33	1.32
2.0 and above	16	43	3.33
<b>Size of Holdings (Ha) 1983</b>			
Less than 0.5		24	
0.5 - 0.99		33	
1.0 - 1.99		<b>31</b>	
2.0 and above		12	

Source: Second Interim Evaluation of the AKRSP, 1990.

Note: Northern Area Census of Agriculture 1980; and AKRSP Cropcut Survey 1983.

**Table 3.8**  
**Land Use in the NWFP**  
**(in million ha)**

Items	Pakistan	NWFP (settled) 1988-89
Geographic area	79.61	7.45
Reported area	57.78	5.62
Cultivated area	20.92	1.73
Net sown area	16.06	1.37
Current fallow	4.86	0.36
Total cropped area	20.90	1.81
Area sown more than once	4.84	0.44
Uncultivated area	36.86	3.89
Forest area	2.92	1.30
Cultural waste	10.33	0.86
Not available for cultivated	23.61	1.73
Irrigated area	15.68	0.75

Source: The NWFP Development Statistics, 1990.

**Table 3.9**  
**Farm Size for the NWFP - 1980**

Farm Size (acres)	Number of Farms (in '000)
Private Farms under 1.0	99.09
1.0 to 2.5	216.56
2.5 under 5.0	168.19
5.0 to under 7.5	92.07
7.5 to under 12.5	74.34
12.5 to under 25	46.06
25.0 to under 50	19.95
50.0 to under 150	9.37
150 and above	1.54

Source: NWFP Development Statistics, 1990.

**Table 3.10**  
**Area Under Control of the Forest Department in the NWFP**

Name of Forest Division 1988-89	
Swat	163080
Alpuri Swat	44407
Chitral	40549
Galliat	54866
Kaghan	227252

Source: NWFP Development Statistics, 1990.

**Table 3.11**  
**Number of Schools by Type and by Sex 1988-89**  
(In Numbers)

Area	Primary		Middle		High	
	Boys	Girls	Boys	Girls	Boys	Girls
Swat District	638	542	77	8	85	8
Chitral District	176	63	30	3	25	3
Kaghan Valley			N/A			
Galliat			N/A			

Source: NWFP Development Statistics, 1990.

**Table 3.12**  
**Schools in the Northern Areas, 1989**  
**(In Numbers)**

Schools	Government		AKES		Total	
	M	F	M	F	M	F
Primary	543*	58	-	77	542	135
Middle	74	6	-	43	74	49
Secondary	33	5	-	2	33	7

AKES = Agha Khan Education Service; Gilgit only

\* Girls have access to 100 of these schools

Source: Second Interim Evaluation, 1990.

**Table 3.13**  
**Number of Health Institutions in the**  
**NWFP Mountain Areas 1988-89**  
**(In Numbers)**

Area	Hospital	Dispensary	RHC	MCH	BHU	TB clinic	Lepr osy clinic
Swat	19	39	1	7	59	-	7
Chitral	4	32	3	16	15	1	3

Source: NWFP Development Statistics.

**Table 3.14**  
**Seasonal Variation in International Tourist Flow 1986-92**  
**(In Numbers)**

Month	1986	1987	1988	1989	1990	1991	1992
January	37.4	33.3	42.2	44.4	43.9	25.0	36.7
February	35.0	30.6	43.2	41.9	35.3	24.9	41.0
March	36.9	35.0	43.0	45.8	40.9	32.5	35.6
April	39.5	37.9	37.3	39.7	34.8	29.0	33.3
May	35.0	25.4	26.3	33.9	31.7	28.1	23.4
June	30.0	30.4	36.5	45.0	29.2	28.6	25.5
July	40.0	40.0	40.9	39.5	31.8	38.6	23.1
August	37.0	35.8	38.9	40.6	33.7	44.8	29.1
September	30.7	33.1	33.8	36.5	30.6	37.2	23.4
October	32.8	41.7	35.0	40.0	39.2	40.2	20.5
November	40.0	38.4	36.4	40.9	29.1	56.2	27.4
December	37.8	43.3	466.6	46.4	43.6	52.9	33.1
Total	432.1	424.9	460.1	494.6	423.8	438.0	352.1

Source: Extracted from Table 2.3 of Tourism Growth in Pakistan, 1992.

### Seasonal Variation in International Tourist Flows 1986-92

