

Chapter 5

Analysis of Carrying Capacity

The Concept

The basis for tourism in Fairy Meadows is provided by its endowment of natural and cultural resources. These resources, referred to as Himalayan Environmental Resources (HER), have consumptive, productive, and amenity (non-consumptive) values. Sustainable use of HER requires both preservation and promotion of these values in a manner consistent with mountain community development (MCD) and through the instrumentality of mountain tourism development (MTD). The perceived challenge is to integrate tourism with community development in such a manner that socioeconomic, cultural, environmental, and visitor benefits can be maximised without adverse impact on the sociocultural, economic, and biophysical environments. In other words, MCD and MTD need to be achieved without putting pressure on, or destabilising, the 'carrying capacity' of the mountain environment.

Carrying capacity is best viewed as both a relative and dynamic concept. It serves primarily as a conceptual reference point for interventions that contribute to sustainable mountain development. It is governed by: a) mountain specificities (accessibility, fragility, diversity, and the extent to which population is marginalised); b) expectations, attitudes, and behaviour of both tourist and host populations; c) institutional capacity and management of tourism resources; d) extent to which mitigation investments are made; and e) national or regional policy objectives.

Extension of Analysis

Analysis of carrying capacity generally tends to be carried out in the context of tourism. The environmental, socioeconomic, and cultural impacts and linkages are viewed from a saturation perspective. The primary concern is with overloading, and remedial measures are proposed or attempts are made to deal with its negative and positive manifestations.

A variation of the analysis for Raikot Valley includes tourism and also extends beyond it. The reasons for this are two-fold: In the first place, tourism is a relatively recent

phenomenon. By and large, its interactions with the environment and the community have remained benign, conforming to the basic norms of MTD. Second, there are factors, older and more deeply entrenched, which generate instability and threaten to negate the salutary effects of tourism. A comprehensive analysis of carrying capacity must, therefore, include both the tourist and non-tourist universe. Only then will it be possible to devise appropriate interventions: policies, programmes, and projects, which can offer hope for sustainable mountain development.

Tourism and Non-tourism Impacts on Carrying Capacity

Size and Area Constraints

The main tourist season extends over six months, from the beginning of April to the end of September, with visitors dwindling considerably in pre or post-season. The main season more or less coincides with the seasonal migrations of the valley residents. The profile of tourists over the season can be represented as a gentle normal curve. Given the normally high rate of turnover (1-3-day stays), pressure on valley resources or accommodation has not presented a problem yet. Tourist inflows peaked at 1,600 in 1995. This translates into a daily turnover of 10 tourists, which is well within the carrying capacity of the area.

The sketch map provides an overview of the valley's spatial characteristics. Actual and potential tourist impacts are constrained because of the terrain and since access is only by road and trail. The combination of relative remoteness, extended areas, and small inflows of tourist are indicative of extensive rather than intensive use. On the other hand, environmentally harmful practices are being carried out by timber contractors and private developers. The community plays a partly active role and partly acquiesces in this process.

Summary Assessment

Table 5 presents a summary assessment of impacts and linkages, by type and sector, on carrying capacity. These have been identified in various parts of the study. The summary attempts to bring them together.

Carrying capacity is the ability of the resource base to support and provide for the needs of humans without being depleted. The notion is not only a measure of how many individuals a particular habitat can sustain at a given time, but also the measure of the maximum optimum impact that a particular habitat can absorb or retain. Thus, critical levels of resource degradation stand out as key elements in discussing carrying capacity. Our analysis gives a breakdown of the sources of degradation. It shows that the impacts and linkages with tourism have been benign and, if its present character is retained, will continue to remain so in the future as well. On the other hand, the activities of timber contractors and outside developers threaten to destabilise the valley in critical respects; environmentally, economically, and socially.

Table 5: Summary Analysis of Carrying Capacity

Impacts	Tourists		Timber Contractors/Private Developers		Community	
	Present Status	Future	Present Status	Future	Present Status	Future
Physical and Ecological Factors						
Slope destabilisation	No impact	No impact, provided existing parameters of MTD are not altered by private developers	Massive slope destabilisation caused by use of a) dynamite, resulting in erosion and landslides; b) extensive logging on slopes	Will continue in the absence of policy and programme interventions	No impact	No impact
Deforestation	No impact	No impact if with increased tourist inflow there is a switch to alternative fuels (kerosene, fongas etc)	Indiscriminate forestation, affecting regeneration, impairing overall state of forests, and reducing tourist appeal	Will continue in the absence of policy and programme interventions	Livestock grazing: Damage to young plants arrests regeneration	Will continue in the absence of interventions
Biodiversity (flora, fauna)	No impact	No impact, if present sustainable characteristics of tourism do not change	No impact	No impact	Extinction of indicator Species: markhor, ibex, 'ram chakor' Reduction of forest species: Juniper, Chlighosa pine	Will continue in the absence of interventions
Pollution: Sanitation and Sewerage	Small but visible impact	Problem will be exacerbated if management practices do not improve In particular, pollution of sinks could become a serious problem if outside developers make inroads into the valley.	No impact	No impact	No impact	No impact

Table 5: Summary Analysis of Carrying Capacity (Cont'd)

Impacts	Tourists		Timber Contractors/Private Developers		Community	
	Present Status	Future	Present Status	Future	Present Status	Future
Economic Benefits	Strong Impact-Community income substantially increased by tourism, and also generates jobs and employment and provides a market for local produce (meat, dairy, flour, vegetables, etc). Tourism, in its present form, results in maximum linkages and minimum leakages	Growth in tourist volume offers scope for substitution with harmful local land-use practices such as livestock grazing Inflation is going to affect local community to an increasing degree as traditional barter trade declines.	Road has provided benefits by increasing tourist inflow and improving local travel efficiency Logging has generated monetary benefits.	Benefits will continue If allowed, private developer intrusions into tourism will reduce income and employment linkages and promote leakages	No impact	No impact
Distribution of Benefits	Commercialisation of the local economy has fuelled inflation Distribution of benefits based on existing hierarchy of ownership of assets (camping facilities, jeeps, guides, and portages)	Distribution patterns will prevail	Equitable distribution of royalties	Will remain equitable	No impact Potential improvement through renegotiations of royalties	
Local Investment	Desirable investment impact. Camping facilities planned in Beyal and Tato	Trend will continue, but concern about inappropriate outside investment in accommodation	No impacts	No impact	No impact	
Gender Impacts	No impact	Subject to interventions	No impact	No impact	No impact	

Table 5: Summary Analysis of Carrying Capacity (Cont'd)

Impacts	Tourists		Timber Contractors/Private Developers		Community	
	Present Status	Future	Present Status	Future	Present Status	Future
Infrastructural Factors						
Camping facilities	Site appropriate but food and service wanting in quality and subject to overcharging Inadequate sanitation, garbage and solid waste disposal Poor quality of construction and overall camp management	Improvement through interventions	No impact	No impact	No impact	No impact
Transportation	Efficient (jeeps and porters) but tendency to overcharge Not applicable	Improved through interventions Not applicable	No impact Not applicable	Outside developers would provide own transport Not applicable	No impact Not done	No impact Can be involved with appropriate training
Impact monitoring						
Social and Cultural Factors						
Environmental Awareness	Promote community awareness through economic benefits, advocacy and personal interactions No impact	Likely to be intensified No impact	Promote material impulses, social discord and anti-environment sentiments Negative impact caused by environmentally unsound practices No impact	Will be exacerbated in the absence of interventions Negative impact No impact	A minority of activists within the community Lack of transparency in service rates and charges creates adverse perceptions about the Not applicable	Likely to increase community Negative impact Not applicable
Tourist Perceptions						
Cultural Sensitivities	Tourists tend to respect local culture	Likely to continue if tourist profile unchanged	No impact	No impact	No impact	No impact

Tourism is an expression for externality in the local economy (Shrestha 1990) and is expressed in different forms of interaction between the two groups, i.e., host (community) and guest (tourist) populations. The particular type of interaction applicable to Raikot Valley can best be described as 'mutualism'. However, the interdependence is one-sided, with the community relying more on tourists than vice versa. The ideal form of interaction is described as 'proto-cooperation', in which both the associating populations are benefited but relations are not obligatory. This can be achieved through various development interventions aimed at the economic and social empowerment of the community. These are described in the Action Plan in Chapter 6.

Table 5: Summary Analysis of Carrying Capacity (Cont'd)

Issue	Threat/Status	Factors	Impacts	Interventions	Policy
Economic Factors	Widespread Community Unemployment	<ul style="list-style-type: none"> Highly seasonal tourism Lack of diversified economic activities Low wages and benefits High unemployment Low productivity High dependence on tourism 	<ul style="list-style-type: none"> Loss of income Reduced living standards High unemployment Low productivity High dependence on tourism 	<ul style="list-style-type: none"> Develop alternative economic activities Improve wages and benefits Improve productivity Reduce dependence on tourism 	<ul style="list-style-type: none"> Employment Income Productivity Self-reliance
Social and Cultural Factors	High dependence on tourism	<ul style="list-style-type: none"> High dependence on tourism Loss of traditional values High unemployment Low productivity High dependence on tourism 	<ul style="list-style-type: none"> Loss of traditional values High unemployment Low productivity High dependence on tourism 	<ul style="list-style-type: none"> Develop alternative economic activities Improve wages and benefits Improve productivity Reduce dependence on tourism 	<ul style="list-style-type: none"> Employment Income Productivity Self-reliance
Physical Environment	High dependence on tourism	<ul style="list-style-type: none"> High dependence on tourism Loss of traditional values High unemployment Low productivity High dependence on tourism 	<ul style="list-style-type: none"> Loss of traditional values High unemployment Low productivity High dependence on tourism 	<ul style="list-style-type: none"> Develop alternative economic activities Improve wages and benefits Improve productivity Reduce dependence on tourism 	<ul style="list-style-type: none"> Employment Income Productivity Self-reliance

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