

## **Monitoring Framework for Carrying Capacity of Mountain Tourism**

### **Introduction**

Despite two decades of monitoring and evaluation (M&E) exercises in Nepal, a reliable monitoring framework has yet to evolve. The need for monitoring and evaluation in development work of any nature has been realised to be an important element of the development process itself. With growing concern over sustainable development, where the environment is an important focus, monitoring development has become even more necessary as well as complex. However, lessons learned from the community forestry project in Nepal suggest that the more monitoring and evaluation are integrated into the project and built on the existing information system, the more the real objective of improving project performance can be achieved (FAO 1983). Experience gained from this system also suggests the need for flexibility in the M&E system to ensure better performance of the project over time through corrective actions based on M&E findings.

A sound M&E system should not only rely on quarterly reports and ongoing evaluations, as has generally been the case, but also on participatory evaluation conducted by the beneficiaries of the project. Both monitoring and evaluation are tools used to better manage a project, and they are basically meant to ensure that a project is progressing according to plan and that the objectives (purposes) are being realised as scheduled and desired. Generally, development projects involve multiple components. These components are carried out by different institutions and during different time periods and require different inputs. Often activities of one institution become inputs to activities carried out by other institutions. For the successful execution of activities, it is important to pinpoint inadequacies in the ways activities are carried out. Such information becomes important subsequently when taking remedial action. Hence monitoring becomes important in checking mistakes and designing remedial actions. Furthermore, a sound monitoring system should also serve as a warning mechanism for project management. In summary, the basic purpose of a monitoring system is to "achieve efficient and effective project performance by keeping track of progress during project implementation, in relation to targets, and by corrective action as required" (Bhatta 1990).

It is clear from the preceding chapters that, for a healthy form of tourism development, one that can meaningfully contribute to mountain community development and also conserve HER, simply focussing on tourism alone is not going to be sufficient. The need to have a clear vision of what is desired from tourism, the assessment of the value of HER that will be made accessible to visitors, and ways and means to link the local community and enhance its productivity are some required elements of "tourism for local community development." In other words, the carrying capacity of the mountain environment needs to be understood and managed, and its productive capacity improved. In this way, carrying capacity can be enlarged; it need not be considered static.

Chapter 2 developed a framework that helped conceptualise complex issues on sustainable mountain community and tourism development. For sustainable development of the mountain environment, carrying capacity needs to be constantly monitored, for if the health of the mountain environment deteriorates, not only tourism but also local people, whose very existence depends on these resources, will suffer.

The focus of this study has been on "mountain tourism for local community development," and hence the need to simultaneously monitor selected attributes of HER, MCD, and MTD is apparent. At this stage in the study it is not possible to give "all" monitoring indicators for assessing the state of the carrying capacity of mountain environments. First, attempting to do so would be beyond the scope of the present study. Second, trying to monitor everything will never be possible, given the lack of resources as well as knowledge. Hence, there is a need to set priorities by monitoring selected attributes of the mountain environment. Given these limitations, therefore, the critical factor approach already discussed provides an important first step to developing monitoring indicators. It has already been defined that *critical factors are those which need to be changed from their current stage, conserved, or protected in their current state in order to enhance the carrying capacity of the environment, based on some predetermined standard.*

## **Management Objectives for Monitoring**

Although the study has constantly emphasised the need to consider community and tourism development simultaneously, the monitoring indicators identified below will concentrate on only tourism and those aspects of community development that have a link with tourism development, given the

focus of the study. With reference to Figure 5, therefore, the primary focus is on areas 2, 3, 4, 5, and 6.

Carrying capacity is a relative concept that varies according to management objectives and standards (or management parameters) among other things. It therefore becomes important to define management objectives and parameters before operationalising carrying capacity and conducting an effective monitoring of it. Different types of carrying capacity (biophysical or environmental; economic; and social or behavioural) are determined by their respective demand and supply conditions, the latter being influenced to a large extent by management. It is important to distinguish 'change' (actual impact) and acceptability of 'change' in order to prevent further degradation or erosion of areas and resources. Limits of acceptable change are often used to define how much and what type of change may occur, and what management action is required to control it. Determination of limits of acceptable change involves basically four steps.

1 Identify relationships between existing conditions and those judged acceptable:

- inventory of resources and socioeconomic conditions, and
- specification of standards for resource indicators and socioeconomic indicators.

2 Specify acceptable and achievable resource parameters:

- identification of critical factors.
- description of opportunities, and
- selection of indicators of resources and social conditions.

3. Identify management actions:

- identification of alternative opportunities,
- identification of management actions for selected alternatives, and
- selection of alternatives based on their evaluation.

4. Implement actions and monitor the environment and socioeconomic conditions.

The above paragraphs suggest the need for a management unit, which we refer to as the critical institution. '*Limits of acceptable change*' is therefore a

management concept calling for a combination of zoning, standards, and monitoring to prevent degradation. As an initial step, a detailed inventory study of environmental and socioeconomic conditions of the areas, including a number of special surveys related to different aspects of their general economy, wildlife, habitats, botany, and so on need to be conducted in order to establish baseline conditions. Such studies will not only provide the basis for defining the management zones and setting standards for environmental and socioeconomic conditions but also provide a benchmark for future monitoring and evaluation of programme intervention. Information on the number, stock, diversity, and distribution of the different rare, endemic and endangered animal and plant species, and their sensitivity to human interference, will make it possible to establish a number of biodiversity-related supply side indicators and standards for them. Similarly, the regenerative capacity of different types of accessible forests can be determined based on biomass inventory surveys and safe minimum standards established. In other words, a basic picture of Figure 5 and its various areas will emerge.

Establishing safe minimum standards for both environmental and socio-economic infrastructural facilities is essential for monitoring the changes and in order to be able to take timely management action. Minimum breeding stock to guarantee the survival of unique and endangered animal species, minimal residuals of viable plant for revival of valuable plant species, and maximum rate of erosion per year are some examples of safe minimum standards for natural resources. Similarly minimum standards should also be set for infrastructure and tourist facilities (sanitation and safety standards for lodges and campgrounds) as well as for tour operators and travel agencies. Such minimum standards imply the avoidance of physical conditions that would make it uneconomical to reverse depletion. All these standards need to be established based on expert opinion and after a detailed assessment of the environmental and socioeconomic conditions of an area. Such standards should also indicate the extent to which mountain tourism and community development are integrated into the natural and cultural environment.

Additionally, a number of feasibility studies of the development potential in different pockets needs to be conducted, based on the principle of comparative advantage of the area, and plans formulated from the feedback. Exploitation of such development potential or economic opportunities is essential for enhancing the economic carrying capacity of the area and promoting economic growth.



Developing a base standard against which to monitor various attributes will mark the beginning of the monitoring and evaluation process. Without a base standard it will not be possible to indicate the change. Both qualitative and quantitative standards can be used. However, developing qualitative standards may take a long time, and the initial monitoring process may have to rely on qualitative assessments. Therefore, initially, a baseline study that assesses the existing condition, identifies the 'critical factors', and develops the 'limits of acceptable change' should be carried out. The carrying capacity can then be assessed by analysing the demand and supply situation qualitatively. Both carrying capacity and limits of acceptable change are interdependent despite their respective merits and limitations. Both are useful as part of an ongoing process to monitor change in environmental and socioeconomic indicators.

It should be further pointed out that technical issues that require elaborate studies should be subject to periodic evaluation, for which the management should be sensitive. For example, the need to assess the conditions in habitats or biodiversity may not have to be part of regular monitoring exercises, since change in these parameters of environment are not likely to occur within short periods of time. An evaluation that is conducted once every five years or so may suffice. Similarly, establishing change in the socioeconomic conditions of the host population may also be part of a periodic evaluation conducted at similar intervals. It is the role of the management to identify and prioritise the necessary studies that have to be conducted at different periods of time. It should be said that identifying *critical opportunities* (factors) cannot be part of a monitoring exercise. Such opportunities should be identified through feasibility studies. Thus, in what follows below, only monitoring indicators that are subject to changes over shorter periods of time are discussed.

### **Monitoring Indicators**

Indicators that have been developed below for monitoring purposes encompass both quantitative and qualitative dimensions of MCD and MTD and their linkages. Periodic surveys of households, lodge owners, and visitors in different areas need to be conducted in order to monitor changes and impact. The management parameters or standards discussed earlier may also be important in this context. That is, several supply side indicators relating to environmental resources need to be developed by the management unit after inventory surveys, as stated above. Indicators developed below relate mostly to the demand side. Indicators generated from lodge owner surveys will also serve to monitor the supply side of tourism. Additional indicators have also

been developed to monitor the linkage of tourism with community development.

### *Mountain Community Development*

Firewood and fodder are the major natural resources demanded by households, and their excessive and unmanaged consumption is believed to be the prime cause of forest degradation. To decelerate or retard the process over time, various community-level programmes have been initiated in different parts of the country that encourage private tree plantation, protection of community forestry, changes in ownership rights from the government to community, and dissemination of fuel-efficient and alternative sources of energy. There have also been awareness generation programmes relating to forest conservation and the negative impact of forest and pasture degradation on soil erosion and other downstream effects.

At the community level, therefore, if the above programmes have been effective, there ought to be a decreasing reliance of households on community forest for firewood and fodder. This can happen only if more households have private trees from which they can meet their fuelwood and fodder requirements. Additionally, a greater supply of firewood from private sources implies less travel time to collect firewood. Similarly, fodder collection time is also reduced, and stall feeding practices will increase, thereby reducing open grazing to some extent.

In tourist areas there has been increasing awareness on the part of many lodges and tourists of the need to use kerosene.<sup>1</sup> Where electricity and kerosene are available, households are beginning to use these alternative energy sources. These factors along with the private tree plantations, therefore, may be assumed to reduce pressure on public forests and hence promote conservation. Conservation of forests enhances watershed conditions and habitats. Development, including tourism, it has been argued, erodes cultural values and religious traditions, and the need to protect these has received a great deal of attention.

Therefore, the indicators identified to monitor the effectiveness of the conservation programmes are as follow:

---

<sup>1</sup> In the national parks and ACAP area, kerosene use by group trekkers is mandatory.

- Per capita firewood consumed per annum
- Share of annual firewood requirement met from households' private sources
- Share of annual fodder requirement met from households' private sources
- Percentage of households using kerosene and electricity for cooking and lighting
- Percentage of households using improved stoves and other appliances
- Percentage of households reporting better forest conservation
- Percentage of households reporting more wildlife than before
- Percentage of households reporting better watershed protection
- Percentage of households reporting less open grazing practices
- Percentage of households reporting better protection of cultural sites
- Percentage of households reporting better protection of religious sites
- Percentage of households reporting more crime and theft in their community
- Percentage of households reporting more poaching

Another dimension of community development is the development of community infrastructure. In particular, drinking water, schools, health posts, trails, and bridges have received and continue to receive a great deal of priority in the mountain areas. Some of these types of infrastructure reduce travel time and travel risk, and others simply make such facilities relatively more accessible to households. For example, in the absence of a bridge, many children would have to travel long distances to school, so that the construction of bridges can greatly enhance accessibility. Drinking water projects have made water more easily available to households. Likewise, trail and bridge construction have also facilitated marketing and trade in different parts of the country. Hence, one of the benefits that accrues to households from such development infrastructure can be judged from the time saved.

Percentage of households indicating less time for:

- water collection,
- travelling to markets,
- travelling to schools,
- travelling to health posts,
- literacy rate by sex (6 yrs and above) and age, and
- percentage of household members that have received training through some project.

Development infrastructure, in addition to saving travel time, has boosted income by making markets accessible. Trail and bridge construction facilitate trade with households gaining access to modern agricultural inputs for increasing production and possibly marketable surplus. Households are also gradually cultivating cash crops where accessibility and markets have improved. This impact of community development is reflected in per capita incomes and income shares accruing from various sources, both farm and off-farm ones. Additionally, such infrastructure has also enhanced tourism potential in some areas, and tourism has in turn contributed to household income. Once tourism comes to mountain communities, households find employment, even if it be for short periods, and also have the opportunity to sell different products to the tourists and tourist-related markets.

It is important, however, to gauge households' perceptions of development impact. If households perceive development impact positively, this will provide a basis for its sustainability; otherwise households will be unwilling to participate in development. Often some forms of development, it has been argued, only increase the burden on women. Also, development has been blamed for inflation. Tourism has been thought to drive away labour from local areas, thus creating labour shortages in some places. Hence, some of the indicators identified for monitoring other aspects of community development are as follow:

- Per capita income and share distribution of income
- Ratio of cash crop area to total area
- Shares of income from farming, livestock, pensions, tourism, other off-farm activities etc.
- Share distribution of household expenditure
- Average days worked for tourism in the last season
- Percentage of households reporting sale of home-produced goods to tourist and other (non-tourist) markets
- Percentage of households reporting the tourism is good for the community
- Percentage of households reporting that tourism has helped increase local income
- Percentage of households reporting inflation
- Percentage of households reporting more off-farm employment opportunities (by gender)
- Percentage of households reporting labour shortages in their community



- Percentage of households reporting that women's work burden has decreased
- Percentage of households reporting that women's income has increased

In mountain communities, where poverty is rampant, relatively poor people become marginalised and are unable to benefit from development. Poverty mitigation has to be an important goal of sustainable development. The worst form of poverty in mountain areas may be considered to be the lack of food. Many households are unable to meet the annual food needs of their families. Such households need to be identified and special income-generating programmes directly targetted at such households. The indicators identified in this case are the following.

- Percentage of households reporting food deficits and
- Average number of food-deficit months

There have been other community programmes that have attempted to generate awareness of various aspects of community well-being having to do with cleanliness, hygiene, and sanitation. In many parts of the country, NGOs have been active in encouraging households to keep their villages clean and construct pit latrines. An important aspect of this dimension of community development is an increase in the visual appeal of an area. Such programmes are important in terms of both community well-being and tourism. Thus, the indicators identified for monitoring this dimension of community development are:

- percentage of households having pit latrines
- percentage of households reporting that their village was clean

### *Mountain Tourism Development*

Although mountain tourism has potential for development in many parts of the mountain areas of Nepal, it has currently developed in only a few pockets. The development of tourism will require an understanding of visitor perceptions of a variety of issues. This section discusses some important issues and identifies monitoring indicators.

It is first essential to monitor the number of visitors that visit the area monthly. Although the general practice has been to report visitor numbers on a monthly or annual basis, such information is useless for understanding different aspects

of tourism at the local level. Thus, information on visitor numbers by routes and destinations should be collected.

The number of lodges existing in a given area is not easily available. The number of lodges and their capacity (rooms and beds) are important to know in order to understand the supply side of tourism in an area. Despite almost three decades of tourism in Nepal, there is no published information on these supply components of mountain tourism. Tourists are also known to stay with local families as paying guests. Group trekkers enjoy camping, and determining the number who use camping grounds is important. This information is crucial for understanding occupancy rates and helps policy makers to regulate the flow of tourism and also the expansion rate of facilities in an area.

Some indicators developed for monitoring these aspects of mountain tourism are as follow.

- Number of visitors to major destinations by season
- Number of lodges along major circuits and at destinations
- Capacity (beds and rooms) of lodges along major circuits and at destinations
- Total visitor days and occupancy rates of lodges along major circuits and at destinations by season
- Percentage of visitors reporting number of days spent at major destinations
- Percentage of visitors reporting number of days spent in lodges, campgrounds, and private homes

Tourism has been unjustly blamed for accelerating deforestation in many parts of the mountain areas. It is the responsibility of the area management to define policies and provide incentives to local communities to use alternative energy sources or firewood-efficient technologies while catering to tourists. The management must be responsible for enforcing and monitoring energy use which has direct implications for conservation. For example, although kerosene use is mandatory for all group trekkers, its enforcement is not believed to be effective.

Therefore, in order to monitor those aspects of mountain tourism relating to conservation, the indicators identified are as follow.

- percentage of lodges using firewood, kerosene, and electricity for lighting and cooking by season,

- average daily consumption of firewood, kerosene, and electricity per lodge by season, and
- percentage of lodges reporting decreased use of firewood.

Tourism has been able to increase off-farm employment in areas where it has been developing. Women in these areas have proved to be good managers of lodges. Thus, off-farm employment has been generated. During peak seasons, lodge managers are known to hire labour and make up for deficits incurred by household members.

- Number of family members and hired employees per lodge by sex and season.

Prior to the ACAP project, there was considerable variation in prices of rooms, beds, and meals in the area, so much so that lodge owners were not realising normal profits from their lodges. Thus, a standard price-setting mechanism is an important aspect of a well-organised tourism community. It facilitates matters for tourists, who will not need to bargain, and also helps lodge owners to make normal profits from their investments. However, while prices may appear to be justifiable to lodge owners (sellers), visitors (buyers) may think otherwise. Such tensions in the mountain tourism market are undesirable and need to be monitored.

- Average price per room and bed by season
- Average price per meal by season
- Porter wages
- Entry fee
- Trekking permit fee
- Percentage of lodge owners reporting increased profit from tourism
- Percentage of lodge owners reporting having received training
- Percentage of lodge owners reporting that tourists are hospitable
- Percentage of lodge owners reporting that tourists obey the code of conduct

One major factor affecting tourism carrying capacity will be the quality of services provided by the lodges. Measuring the quality of services provided is not an easy task. The perceptive judgements of tourists have to be relied upon. There have been concerted efforts by NGOs as well as the government to provide training to local lodge managers on various aspects of services designed to improve the overall quality of tourism. Such efforts will be meaningless if tourists do not perceive the quality of services to be good. Such

information will be useful for management in identifying areas of tourism services that need improvement. Moreover, price-setting mechanisms of the services provided can be facilitated by such information.

The conservation awareness programme discussed above in the context of community development is also important in that of tourism. Aside from the economic linkages of tourism with community development, conservation programmes are important for tourism development, as conservation increases amenity values, which most tourists come to enjoy. Thus it is important to know the perceptions of tourists. The following list identifies a variety of indicators to monitor these aspects of mountain tourism development from the visitor's perspective.

Percentage of visitors reporting the following good, fair or bad.

- quality of meals,
- quality of accommodation,
- quality of service provided by lodges,
- quality of service provided by tour operators,
- quality of campgrounds,
- quality of trails, and
- quality of bridges.

Garbage, littering, and sanitation conditions in the following were either good (fair) or bad:

- lodges rooms,
- dining area,
- lodge area,
- trekking routes,
- scenic spots,
- villages, and
- campsites.

A percentage of visitors reported that there were too many tourists, by trail circuits and destination.

Tourist attitude towards lodges and local people:

- percentage of tourists reporting that the hospitality shown by lodges was good or bad,
- percentage of tourists reporting that the hospitality shown by local people was good or bad,

- percentage of tourists reporting that other tourists obeyed the code of conduct,
- percentage of tourists reporting that lodges obeyed the code of conduct,
- percentage of tourists reporting that tourist information provided was helpful,
- percentage of tourists reporting that tourist information provided was adequate,
- percentage of tourists reporting that the quality of the environment was good or bad, and
- percentage of tourists reporting that their trip was as enjoyable as expected.

### *Community and Tourism Linkages*

For mountain tourism to be sustainable, it will need to be strongly linked to community development. Tourism provides different opportunities to trade. In places like the Annapurna area, a large percentage of lodge purchases are made outside the region. Many items required to cater to tourists can be produced locally. Thus, knowing the different items which lodges purchase and where they purchase them can provide an idea of the strength of the linkage between mountain community and tourism. Leakages arise when items purchased by lodges are not locally produced but have the potential to be locally produced, and often relatively cost-effectively. For example, many food items imported from Pokhara by lodges in Ghandruk and Ghorepani can be locally produced, and thus leakages can be minimised. Household incomes will increase as new markets for produce become available and employment is generated.

Another factor that can develop a strong link between community and tourism development is tourism product diversification. When new products are developed, local people will find new opportunities to obtain income and employment, although this may also cause local shortages of labour (discussed above). Some indicators identified for understanding the linkage and leakage of mountain tourism with mountain communities are given below.

- Percentage of households reporting the sale of products to tourists and lodges - by type of products sold in the previous season
- Value of the products sold to tourists and lodges - by household and by type of product sold in the previous season
- Percentage of hired labour in lodges - by season and sex



- Percentage distribution of food and other supplies purchased by lodges - by source (local or imported) and season
- Ratio of the local food and other supplies purchased - by lodges to total lodge purchases by season
- Percentage of household members reporting occupational linkage with tourism
- Percentage of households reporting the sale of products to tourists - by type of products in the previous last season

### **Critical Institution**

Based on monitoring and periodic evaluation and other studies, the management should be able to identify the critical factors. Critical factors are meant to describe crucial variables whose presence (success factors) or absence (failure factors) are vital for the attainment of at least one element or object of sustainability without affecting the other aspects of sustainability. Critical areas, resources, infrastructure, behaviour, and development thus have to be identified by management to promote the success factors and discourage the factors that promote unsustainability. These dimensions also provide the basis for assessing the carrying capacity of the Himalayan environment.

Finally, it is important to emphasise the need for a critical institution responsible for carrying out the above tasks. Management objectives and strategies have to be clearly defined and coordination established with other agencies and local communities and other institutions. Studies have to be carried out, a baseline inventory is required, standards have to be set (rules and regulations, safe minimum standard and code of conduct, indicators have to be developed, etc), and an initial carrying capacity assessment has to be conducted. Only after all these activities are conducted by a critical institution (e.g., ACAP and GDP) can the monitoring process then begin.

However, over time this responsibility for development, monitoring, and evaluation has to be passed on to local communities. An additional role of this critical institution, therefore, lies in developing grass-roots' institutions and training the members of these institutions to carry out the monitoring process themselves. Finally, monitoring as an ongoing process is in itself a planned feedback system insofar as project management is responsive and flexible enough to modify the project management process based on the monitoring process and monitoring findings.