

## Chapter 11

# Environment and Conflict: A Review of Nepal's Experience

## Introduction

**H**uman history is rich with examples of conflict that have plundered the environment. Today the imprints of civilizations are not only the deserts from deforestation, soil erosion, and mining but also include sewers of rivers, eutrophied lakes, dumping sites of industrial waste and nuclear materials, and military test sites. Although in the past many quietly suffered the sad consequences of these environmental atrocities, today affected parties are beginning to raise their voices and go to court or even take up arms and stake their claims for righting past wrongs. Environment-related conflict is increasing and attracting attention as a development agenda item along with poverty and human rights. Research to better understand the dynamics of the environment-conflict relationship has increased. Some are trying to understand the linkages, while others are searching for ways to restore peace and cooperation.

At the local level, conflicts are closely related to lack of access to critical resources. With changing prices, markets, and breakdowns in traditional institutional mechanisms for mediation, conflicts have become more the rule than the exception in the use of forest, water, pasture, and other natural resources. While many of these local conflicts are not violent and are resolved peacefully, in other cases disagreements and tensions are very high and violence has erupted in some (Homer-Dixon 1999; Conca and Dableko 2002).

At the national level, mainstreaming the environmental agenda, adoption of livelihood-based approaches to poverty reduction, and the move towards greater democracy and human rights have strengthened efforts to overcome past environmental injustices. Development has not only displaced many groups of people in the past, but has also failed to provide adequate compensation. Today there is increasing discussion about who benefits from development, who loses, and the transparency of the underlying decisions. Development projects may

increasingly become subjects of court battles to safeguard the traditional environmental entitlements of people whose livelihoods have been closely linked with the diversity of environment (PANOS 2002).

At the global level, many international agreements such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 1973 and the Convention on Biological Diversity 1992 have tried to curb trade in endangered flora and fauna. With high stakes in some environmental products, conflicts are rampant in many areas with shared ecosystems and shared resources like water (IDRC 2005; APCSS 1999). Efforts to exploit resources have been a source of unending conflict in some parts of the world (Ehrlich et al. 2000). Problems related to the management of the global commons—air, climate, oceans—have also become a source of continuing conflict, fortunately not a violent one so far.

The issue of environment and conflict has become serious at all levels of society. While there is growing recognition of the problems, ways to deal with them are less clear and filled with controversy. This chapter will review the changing environment-conflict nexus generally and for Nepal in particular. Before discussing the Nepal scene, it is necessary to summarize recent discussions on this topic. The situation in Nepal clearly indicates that conflict conditions are abundant. However, while some are quick to identify the “green roots of the red rebellion” in Nepal (Bhurtel and Ali 2003), some caution is necessary in trying to establish a cause and effect relationship in this complex issue.

## Environment, Resource Scarcity, and Conflict

Webster's Dictionary defines “environment” as “the totality of the physical conditions of the earth or part of it, especially as affected by human activity”. It includes all ecosystems. “Ecosystems” are defined as “a dynamic complex of plants, animals, and

microorganism communities and the non-living environment interacting as a functional unit” (MEA 2003). Humans are an integral part of most ecosystems. Whenever changing socioeconomic conditions affect the continued access or use of ecosystems by some groups relative to others, there is the potential for conflict if the problems that ensue are not resolved in a satisfactory manner. Every society must have institutional mechanisms to deal with changes, or unresolved problems can easily turn into serious conflicts; and the mechanisms must be maintained as solving one problem does not mean that new ones will not emerge.

### **Renewable and Nonrenewable Resources**

Some authors consider that only exploitation of renewable resources should be considered in the case of an environmental conflict (Libiszewski 1995). Renewable resources are important because they are linked to life-supporting processes. Exploiting non renewable resources such as minerals depletes but does not necessarily degrade the environment, but the potential for environmental damage is certainly high. The violent movement to secede Bougainville island from Papua New Guinea began over environmental concerns at a large copper mine (MEG 1996).

### **Resource Scarcity**

Four types of resource scarcity have been identified (Libiszewski 1995). Physical scarcity is the most commonly experienced type; because of the limited nature of a physical material, its increasing use increases its relative scarcity. There tends to be intense struggle for control of all valuable resources, which can lead to conflict if negotiations fail.

Notions of physical limitations with respect to most resources, however, are relative. While some resources such as sunlight and ecosystem processes that support life cannot be substituted, based upon our present knowledge and capacity, and therefore must be taken as finite, other natural resources have been substituted for over time. Substitutability is an important dimension in the discussion of the scarcity of natural resources (Swanson 1996).

The next type of scarcity arises from prevailing socioeconomic conditions. It is referred to as distributional scarcity. Societies have distributed natural resources (such as land) in different ways, and some distributions are more equal than others. Where there is inequality in distribution, some groups face scarcity and have limited access and ownership of natural resources such as land, forest, and water.

Geopolitical scarcity is another dimension. Some countries have plenty of some resources while

others may lack them. The concept of “resource” is an economic one. There was a period when crude oil was seen as a nuisance because the knowledge and the technology to use it were lacking (Swanson 1996). Trade has alleviated scarcity of a resource in any one place. However, genuine instances of scarcity in particular countries need to be recognized.

The fourth type of scarcity is environmental scarcity. This is related to the environmental degradation that may take place. A resource that used to be plentiful is no longer so because of changing environmental conditions brought about by improper management of natural resources, over-harvesting, or institutional failure. For example, fresh water that used to be abundantly available in urban areas is becoming increasingly scarce because of pollution, poor management, and waste.

According to Libiszewski (1995) an environmental conflict is one caused by environmental scarcity, because of its roots in the environmental problem. Other types of scarcities have their roots in socioeconomic and political issues and not in environmental ones.

In real life it becomes very difficult to isolate environmentally rooted problems. Most problems are dynamic and quickly impact other areas. Shortages of diesel fuel generate shortages in other areas. Even if we agree that environmental conflict is rooted only in environmental scarcity, the solutions must often be found in other sectors and resources. We cannot avoid examining the entire spectrum of interrelated factors and processes.

### **Different Types of Conflicts**

As is evident from the above discussion, there may be some debate about what constitutes an environmental conflict as opposed to a civil strife. Conflicts are also of differing degrees. Some are very violent while others are almost routine disagreements related to day-to-day activities in communities. For the purpose of this discussion, conflict is interpreted in a very broad sense as any state of opposition or hostilities between parties over some aspect of the environment. In its broadest sense it is possible to distinguish a number of possibilities.

Conflict over environmental resources is probably the most common type of conflict today at the local, national, and regional levels. All conflicts between different parties regarding the use and ownership of land, water, minerals, and such like belong to this category.

The next type of environmental conflict is differences over understanding the problem and the measures to cope with it. An example of this would

be the differences in countries' positions regarding global warming.

The third type of conflict may occur when civil strife impacts environmental resources. Conflicting parties may initiate deforestation for their own reasons, or may want to control the use of certain environmental resources.

## Theories Behind Environmental Conflict

The world is experiencing changes in the prices of goods and services, technology, socioeconomic conditions, demand, and regional and international trade. Accordingly, the concept of "scarcity" cannot be viewed as an absolute. Economies are increasingly moving towards specialization in their areas of relative advantage, hoping to overcome the scarcity of any particular resource through international trade. Given this trend, how can we explain the scenario of increasing environmental conflict over natural resources? It is useful to review some of the theories that explain environmental conflict.

### Pressures Related to Population Growth

Rapid population growth has long been considered one of the most important factors behind deteriorating environments and ensuing conflicts. The world population is expected to stabilize around 2050 at approximately 8.9 billion; much of the increase will continue to be among the less developed countries where people depend on subsistence agriculture and the use of natural resources for their livelihoods (UN 2003). The use of marginal lands for agriculture, increasing soil erosion, deforestation, overgrazing, declining soil fertility, and decrease in land productivity are some of the major issues that derive from rapid population growth. The sheer increase in population is likely to outstrip available food supply and the capacity of natural systems to support human needs (Ehrlich et al. 1997)—a strong basis for much of the conflict.

However, some consider that human population growth made a turning point around 1962/63 when growth peaked at 2.2% per annum (UN 2003). Since then growth has continued to fall, and in 2001 it was only 1.2%. If this trend continues, human population will stabilize sooner than expected. However, this does not mean that all environmental pressures and conflict will disappear; if population is one factor behind increasing use of and competition for natural resources, the other is increasing demand through over consumption, including unequal distribution and access to resources.

Neo-Malthusian notions of scarcity maintain that population pressure is behind the growing scarcity of natural resources (Gleditsch 2004). High levels of consumption have led to overexploitation and depletion of resources, increasing competition for scarce resources, and eventually leading to conflict and at times even violent conflict. Thomas F. Homer-Dixon (1999), a prominent advocate of this position and one of the better-known figures in the analysis of environment and conflict, maintains that environmental scarcity is likely to promote internal conflict. Related to rapid population growth, there is also a youth bulge in some societies. As there are few outlets for the productive engagement of youth, they become vulnerable to depressing economic conditions and easier to recruit for violent activities than other age groups.

South Asian countries with large and poor populations impose a substantial demand on water, arable land, forests, and other resources. Already problems such as deforestation, soil erosion, and scarcity of fresh water are widespread and the area is being seen as a region of high environmental instability (Swain 2002).

### Policies, Markets, and Institutional Failures

Explanations about resource-related conflicts have focused on the issue of common property resources. Where institutional mechanisms for managing the resource are weak, such as the absence of well-defined property rights, it is inevitable that the "tragedy of the commons" will occur (Hardin 1968).

Put simply, the tragedy of the commons states that when all members of a group have equal and unlimited access to a resource held in common, that resource will inevitably be depleted. However, instances of collectively well-managed natural resources do exist; adherence to principles of equity and institutional variables have been important in such cases (Jodha 1986; Ostrom 2000). Economists have attributed the tragedy of the commons to a failure of markets—the price mechanism fails to signal the relative scarcity of a resource—and to the failure of institutional mechanisms (Mason 1996). If the price mechanism always worked, overexploited resources held in common would provide incentives for better management because of the increase in the value of these resources. This would be the opposite of conflict, but this does not occur because institutions are not able to function quickly in response to complex situations. Solutions are not easily apparent, or involve a price that some members of society may be unwilling to pay. There may be problems of high transaction costs. Certain policies may now favor some groups through

subsidies (Mason 1996). All these are different aspects of institutional failures which if not resolved in a timely fashion, can lead to conflicts over resources.

Human activities tend not to take into account the true costs to the environment. This may be due to government subsidies, lack of knowledge of impacts (especially if these are *ex situ*), the absence of laws and regulations to control environmental damage, undefined access rights to natural resources, conflict situations where both parties do not observe environmental safeguards, poorly developed markets for environmental goods and services, and a lopsided development that forces large numbers of people to depend on limited natural resources for their livelihood. Market failure occurs when resources are not used efficiently based upon market signals or because of externalities (Mason and Swanson 1996). In many instances, markets are unable to put a price on outputs or the impacts of activities. This situation pertains to many environmental problems such as disposal of waste in water bodies, dumping toxic substances, or polluting the atmosphere. This happens either because polluters think they can get away with it, or the costs of proper disposal are too high. The social costs in this case can be much higher than the costs to a private producer.

Solutions to the problem lie in making the price signal work more effectively by taxing the producer for the pollution. Permits provide permissible quotas of pollution beyond which fines can be imposed. In some cases, when pollution levels are lower than the permitted levels, the industry can also sell part of a permit to another polluter (EPA 2005).

Examples of policy distortions include subsidies and protections given to certain industries that damage the environment. Many public sector industries with high degrees of pollution continue to operate only because of the huge subsidy and protection provided by governments (UNEP 2002). Other distortions arise because of the huge administrative and transaction costs involved in getting government approvals, licenses, export and import permits, and so on.

Conflicts here may be more implicit than explicit. But as societies realize the long-term consequences of environmental damage, affected groups are playing a bigger and bigger role.

### **Other Theories Regarding Environmental Conflict**

Another explanation holds that the inequities of the world's economic systems and the process of globalization are responsible for the increasing

number of violent environmental conflicts (Matthew et al. 2004). The world's trade system has always been biased against natural resources export from the developing countries (Khor 1996). Timber exports have uprooted many indigenous communities from their traditional homes and damaged their livelihoods. Many have had to fight against these companies.

Having plentiful resources is a curse for some countries as it provides a favorable base for environmental conflicts (Gleditsch 2004). Where resources are abundant, there is a tendency to misuse them. Slow economic growth despite plentiful resources, skewed distribution of development benefits, and weak institutions provide a set of factors that encourages political instability and armed conflict for control over resources. These have also been referred to as the "greed and grievance" theories (Gleditsch 2004). The motivation for conflict in the grievance theory is the opportunity to right past wrongs, while in the greed theory the motivation is for seizing the resource through violent means. It is also necessary to distinguish different types of natural resources. The more valuable the resource, the more likely that it could become a source of conflict.

Efforts are being made to examine ways to resolve conflicts through promoting cooperation and peace building (Dabelko and Carius 2004; Conca and Dabelko 2002). There is little value in explaining conflicts if those explanations do not identify or lead to a peaceful resolution of the problem. So far most conflicts have affected rural areas, but there may also be conflicts that affect urban areas in the future, especially with the growing scarcity of fresh water and clean air (Matthew et al. 2004). Conflicts need not always be negative. They may provide valuable experience for innovative solutions to natural resources management.

As increasing competition for valuable environmental resources becomes the cause of conflict at a larger scale than at present, there is growing interest in "ecological security" (Conca and Dabelko 2002). Increasingly, developed countries are carefully tracking the availability of critical natural resources, assessing the chances for eco-violence, and urging their governments to develop ecological security guidelines and policies. Developing countries, on the other hand, see this as another hurdle being put before them by the developed countries in their efforts to promote sustainable development. Any limitations on harnessing available environmental resources could jeopardize their prospects for improving the wellbeing of their people (Conca and Dabelko 2002).

## Environmental Conflict in Nepal: The Overall Context

Judging from the paucity of published materials, it is clear that Nepalese scholars have not given much attention to the issue of environmental conflict. Attention to environmental conflict has been mainly limited to the conflict between people and protected areas, but recently some concerns have been raised about the impact of political conflict on the environment. The issue that has attracted the most attention is the poaching of endangered wildlife and trade in endangered wildlife species banned by various international agreements (American Embassy 2005; Hakahaki 2060 [2003 ]; Murphy et al. 2004).

The complex interrelationship between environment and conflict makes it difficult to bring together relevant facts, and the scope of the present exercise does not give the flexibility or the time to deeply analyze these critical multidimensional aspects of environment and conflict. In many respects, conflicts indicate that existing social relationships are beginning to change (Banskota and Chalise 2000; Pradhan et al. 2000). For an agrarian economy like Nepal, environmental relationships may be at the root of changing social, economic, and political interactions (Bhurtel and Ali 2003). Some forces may be on their way out, some may still be emerging, while others might have clearly established their foothold until new pressures begin demanding further changes.

The available evidence has been brought together in the following to describe the different dimensions of environment and conflict in Nepal, bearing in mind its limitations.

Nepal is and has been an agrarian economy with over 80% of the people still dependent on agriculture for their livelihood. Given that landholdings in Nepal have been distributed very inequitably (Yadav 1999; Aryal and Awasthi 2003), there is a huge land hunger in the country. The poor are squeezed onto small and marginal landholdings of less than one hectare that can barely support a family's needs for a few months of the year. There is intense and widespread competition for available natural resources, leading to conflicts for space, ownership, and control. The average size of landholdings has decreased despite bringing large tracts of forest land under cultivation. The skewed land distribution system has remained virtually intact despite numerous policies to bring about land reform. Acute problems of insecure tenancy have resulted in conversion of large numbers of tenant farmers into wage laborers. The large increases of

institutional credit to the agricultural sector have not helped the poor who are still unable to access it (Bhattarai and Pradhan 2004). All these factors have contributed to increasing pressure and conflicts regarding all the important natural resources of Nepal.

The rapidly increasing population has played an important role in this scenario because development efforts have not succeeded in diversifying the economic base of the country to the extent necessary for its rising population. Nepal's geography, with its very distinct ecological belts and the fragility of the Hill and Mountain areas, has also contributed to the increase in competition and conflicts. Prior to the eradication of malaria, which was endemic to large parts of the plains, the lowlands of Nepal were sparsely populated. Most of the population lived in the climatically more favorable and less disease-ridden Hills, where many struggled to eke out a survival often supplemented by seasonal migration to India. Malaria eradication during the 1950s opened the flood gates to migration from the Hills to the Terai, giving many an opportunity for a better life. However, for some it was an unending set of problems—sometimes with the Government and at other times with other migrants from the Hills and neighboring parts of India (Panday 1985).

This opening of the Terai plains after malaria eradication was a politically unstable period. Frequently changing governments, each wanting to take maximum advantage of the opportunity of new land available in the Terai, established commission after commission to look into the problems of land distribution and settlement. Groups of illegal settlers, landless groups, insecure tenants, and interestingly enough “political sufferers” actively pressed their claims to land ownership. Depending on who was in power, decisions favored one group and angered others, resulting in many demonstrations and clashes, some of which were violent (Ghimere 1992). A major land reform launched in 1964 had a few notable aspects, but many later reviews (IDS 1985; SEEPOR 2000) were quite critical of its approach. Land reform is still a hot issue and an important agenda item of all political parties, but as in the past, despite strong rhetoric, actual achievement has been minimal.

The latest case is that of the *Kamaiyas* or bonded laborers in southern parts of far western Nepal. In July 2000, the Government declared the *Kamaiya* system illegal and freed the laborers of the Tharus living in the Terai and inner Terai districts of far western Nepal (Global IDP 2004), an area that had been the scene of many forest and settlement related conflicts in the past. Freeing them, however,

addressed only part of the problem. Feeding, housing, providing new land for settlement, access to credit, and other inputs to begin their farming had not been given adequate attention. What has been offered in compensation has been woefully inadequate to resolve the day-to-day plight of these people. “The Kamaiyas have since grabbed more than 10,000 acres of government forest land against the state’s failure to rehabilitate them, more than four years after their release” (Global IDP 2004). Delays in providing land were caused by a conflict between the Ministry of Forest and Soil Conservation and the Ministry of Land Reform (Global IDP 2004). Initially there was no plan to allocate any forest area to them, but now this appears to be unavoidable.

One estimate (IDS 1985) puts the number of landless families in Nepal at one million, with most of these belonging to low caste and indigenous groups in the Terai, displaced people from the Hills, and even some labor migrants from India.

In terms of property rights and entitlements to productive assets and natural resources, the farmers of Nepal have limited access to such resources. Land and land based resources have served as the principal source of economic surplus generated by the ruling class. Concentration of land, and exploitation of the peasantry through excessive expropriation of labor and land revenue has increased the wretched condition of peasantry. (SEEPOR 2000)

Unless these problems are addressed comprehensively, green conflict in the form of land grabbing, illegal settlers, eviction of people occupying forest areas, and issues of resettlement and displacement could easily become an inseparable part of the violent movement going on in the country.

## Forest Resources and Conflicts

Forests cover over 30% of the country. Including shrub area, the share of forest goes up even more. Forests provide about 14% of the gross domestic product (GDP), 80% of the fuel, and 50% of livestock fodder (Uprety 2003). In the agrarian economy of Nepal, forests play an enormously important role. As forests of the Hills have been intensively used and are now more carefully managed, the attention for the past five decades has been on the forests of the Terai plains for settlement, agriculture, timber extraction, infrastructure development, establishment of protected areas, and many other purposes.

Nepal’s community- and state-based forest management practices have been protection

oriented. Managing a finite resource in the face of rapidly increasing demand will not be easy, and there will be gainers and losers. Where there are few losers their voices will be subdued, but once the number begins to increase, the flags of conflict will begin to wave far and wide. It has been argued (Grosen 2000) that if forest management moved towards an active production orientation, the current contribution of \$58 per hectare could go up to \$162 per hectare. With increased productivity, the forest sector could play a major role in poverty reduction and in dealing with the problems of illegal settlers, landless groups, and others by providing employment opportunities. On the other hand, if forests are managed as they are now, with low productivity and a protection orientation, they could become an even greater source of conflict in the future.

### Illegal Settlements in Forest Areas

Many of the problems of the agricultural sector are transferred to forest resources. People’s hunger for land during the past five decades has been met largely by bringing more forest area of the Terai under cultivation (IDS 1985). Many of the ongoing conflicts regarding tenants, landless groups, and illegal settlers have occurred in occupied forest areas (Ghimere 1992). Many of the new settlements in the Terai have also come from cleared forest areas. Ghimere (1992) discusses the experience of Nawalparasi district, pointing out that given the high demand for land and the relatively low cost of resettlement, the Terai provided an excellent option for people in the Hills as well as those across the border in India.

Many Nepalese from Assam and Myanmar were encouraged to return and settle in this area (Ghimere 1992). On the other hand many of the earlier residents were dispossessed of their lands through very unpleasant means, and illegal settlements were officially encouraged although the landless people were never a target for settlement.

The resulting chaos in land ownership, dealt with only cosmetically by numerous commissions set up to look into problems, has been the basis of longstanding tension between landowners and landless groups, richer landowners and marginal and small farmers, and local groups and immigrants (Ghimere 1992). Although these issues appear in many Terai districts, they are most prominent in the west, the far west, and around protected areas of the country.

### Forest and Other Legislation

Many contradictions between forest and other legislation are sources of problems and confusion.

Some of these have remained unresolved for decades (Grosen 2000), which only shows the extent to which governments have been unconcerned about removing conflicts. Research should clarify who benefits from these legal contradictions and their impact. There has been a rush to pass new laws, but few efforts to ensure that new laws do not conflict with earlier ones. Based on the many continuing contradictions, it is obvious that a new commission is urgently needed to look into this very serious matter.

Some of the more obvious conflicts related to the use of forest resources are listed below (Grosen 2000):

- (i) There are differences in the amount of land that can be owned under the Forest Act and the Land Act. It would be interesting to see how many cases have been recorded because of these conflicting provisions.
- (ii) The absence of a cadastral survey in many areas has made it very difficult to separate private and government land, and thus made it very difficult to identify encroached lands. Similar confusion has been noted among community forest groups.
- (iii) Provisions under the Forest Act and the Nepal Mines Act overlap. The Forest Act maintains that anything in a forest is governed by the Forest Act while the Mines Act maintains that all minerals are governed by the Mines Act.
- (iv) Provisions have been made for compensating landowners when property is acquired for development schemes, but as land demarcation is not clear compensation has often remained pending for a very long time.
- (v) Similarly, many overlapping provisions have been found between the Forest Acts and the Local Self Governance Act, which has greatly hampered decentralization. The central agencies responsible for the different Acts have not removed provisions regarding local resources, creating overlapping jurisdiction and confusion for the public.

### **Problems in Community Forestry**

Although community forestry has been a successful model for community-based management of forest resources in the Hills, it has not been completely free of problems. While it was a very innovative approach for rescuing parts of the hill forests from further degradation, which accelerated after the Government took over all the forests in the country, over time new challenges and difficulties have been identified (Britt 2002).

### *Problems within forest user groups*

Formation of forest user groups has been an important feature of the community forestry program. There has been an increasing tendency to form groups without adequate homework regarding group harmony based on traditional interactions within the community. Exclusion of community members who belong to low caste and disadvantaged groups, as well as those who may be part-time users, is leading to tension in forest user groups. Rules regarding sharing of benefits and costs have always been a major source of tension. Questions of personality clashes, differences between active and inactive members, and fund misuse and embezzlement are other problems noted in hastily formed user groups (Bhatia 1995; Springate-Baginski et al. 2003).

### *Problems between user groups*

One of the most common problems between user groups has been confusion with respect to the forest area. Without clearly identifiable boundaries, there is overlapping jurisdiction, and without good base survey maps the problems are arbitrarily put on hold to resurface again. Because of the lack of good maps, there have been instances of mistaken handover of forests that are temporarily resolved after intense negotiations involving cumbersome administrative and legal processes (Bhatia 1995; Springate-Baginski et al. 2003).

### *Problems Between Forest User Groups and the Forest Office*

The Forest Office has many discretionary powers, and without its active support, approval for a community forest group may never come. Many requirements need to be fulfilled before the Forest Office can provide approval, and each of these requirements can be a source of difficulties for the user groups. Over time a lot of experience has been gained by user groups, but if the Forest Office imposes difficulties, this experience may not be useful. Traditional mechanisms for resolving local conflicts have weakened for a number of reasons. Having access to the Government and getting timely decisions can be very difficult and costly for weaker groups without the right political linkages. A study of land disputes (New Era 1989) showed that tenants had to pay substantially more court expenses than landlords, and also encountered more delays.

### *Community Forestry in the Terai*

Attempts have been made to introduce community forestry in the Terai, which unlike the Hills has no

historical practice of community-managed forest resources. The objective of introducing this practice was to prevent further degradation of forests and to improve the quality of existing forests for the benefit of the local community. However, the experience so far has not been very encouraging. The Government maintains that the Terai lacks the ecological and social conditions needed to make community forestry work, while others argue that the government programs did not do enough to provide ownership and local institutional development, and failed to target those who would have benefited (Britt 2002). Community management of Terai forests

faces an uncertain future with significant difficulties for local communities to legally use forest resources in their areas.

### Customary Practices and Forest Acts

With the implementation of national Forest Acts, the fate of all customary practices is open to question. In some cases (Pant 2002), respect for customary rights was negotiated as part of a package recognizing the authority of the rulers in Kathmandu. However, the context has changed to such an extent that the current position of many customary rights is not clear. In some instances local communities still assert that their customary privileges are valid but the Government has a different understanding (Pant 2002). Some traditional practices are important because of the size of the group and area involved. The most obvious case is the traditional *kippat* system of land holding among the Rai and Limbu community in the far eastern Hill and Mountain areas. It is a system of communal land management where the community members have the usufruct right to use the pasture but no powers to sell it. This right was recognized by the Government in return for their submission to the authority in Kathmandu (Pant 2002). However, while the people have accepted community forestry, they are not abiding by its rules. Under community forestry rules, there are restrictions on non-forest uses of the community forest land, especially for cultivation of new crops, although this is also a subject of discussion. The forest areas are now being used for cultivation of cardamom. When locals are questioned they maintain that their *kippat* heritage gives them the freedom to use the forest in any way they decide, but the Government understands the situation differently. The existence of this dual system has perpetuated tensions and severely limited the opportunities for further development of forest resources (Upreti 2003).

Traditional practices of indigenous groups have been replaced by state laws. Sometimes these changes take a very heavy toll on the livelihood of the indigenous groups because the new laws have opened access to outside groups. The resources traditionally enjoyed by indigenous groups are then quickly depleted or controlled by more powerful outside groups. The plight of the *Rautes*—one of the last remaining groups of forest dwellers of Nepal—is a sad example. These people roamed the jungles in search of food, hunting and collecting edible products, and making wooden products which they exchanged for food grain in the villages. Today the forest they used cannot provide for their needs and they are often hungry—some children have died of starvation (The Rising Nepal 2004). In the case of



C. Richard



IUCN



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**Poaching of Endangered Species and Overharvesting are a Major Source of Local Conflict**

## Factors that Could Reduce Local Conflicts in Natural Resources Use



Community Participation



Harnessing Indigenous Knowledge



Mobilizing Community Participation



Working Together

another semi forest-dwelling group near the capital, the story is a little more positive. Leasehold forestry has successfully restored over 7,000 hectares (ha) of degraded patches of land, and 1,600 leasehold forestry groups are nurturing forests on otherwise hopeless slopes and ravines. The livelihoods of the poor have improved, and empowerment of women has advanced (IFAD 2004).

### Conflicts in Parks and Protected Areas

Nepal has had a long and successful history of establishing protected areas. The Royal Chitwan National Park was established in 1973 and the latest protected area—a buffer zone, for Sagarmatha National Park—was approved in 2002. Both are recognized as World Heritage Sites. To date Nepal has nine National Parks, three wildlife reserves, one hunting reserve, three conservation areas, and six buffer zones. A total of 26,970 km<sup>2</sup> (18% of the country) has been set aside, of which 38% is national parks, 4% wildlife reserves, 5% hunting reserve, 43% conservation area, and 10% buffer zone. Three wetland sites have also been recognized recently as Ramsar sites—Beeshayar and associated lakes, Ghodaghodi lake, and Jagadishpur Reservoir—in addition to Koshi Tappu. Protected areas contain at

least 80 of the country's 118 ecosystems, which helps preserve Nepal's biodiversity (CBS 2004). However, so far no comprehensive study has been carried out of the actual flora and fauna contained within these protected areas.

Shrestha (2001) points out that the Government has followed a number of distinct phases in the management of parks and protected areas. During the 1970s and 1980s the policy was to exclude people from these areas. In the 1980s, conservation areas for ecotourism were promoted. During the 1990s the focus shifted to resolving park-people conflicts through buffer zones and other programs to better integrate people in the conservation and sharing of benefits of protected areas.

Nepal and Weber (1993) have identified a number of major conflicts between parks and people. These include illegal extraction of park resources such as firewood, fodder, timber, livestock grazing, hunting and fishing; frequent crop raids by wild ungulates; and loss of human life and property. In the early years, the problems were few and infrequent. However, with rapid increases in population and settlements around protected areas, the conflicts have increased in number and severity—at times entire villages have had to be

moved or relocated. The fact that since 1996 buffer zones have been declared around six of the national parks is an important indicator of the extent of this conflict and the Government's response to the problem. However, many problems still remain. The open boundaries of parks have facilitated the entry of domestic animals into the National Parks in the absence of alternative sites for grazing. Wild animals in turn are attracted by the domestic livestock. The desperate situation of people around the park is indicated by one of the comments of the resident near a park: "Unless a suitable solution is made, we will continue our illegal activities regardless of the price or penalty we will have to pay" (Nepal and Weber 1993). A similar finding is made by another review (IUCN Nepal 2004) which points out that wildlife reserve-people conflicts are serious because people lack viable alternative livelihoods to compensate for the loss of access to natural resources inside the reserve, and the customary rights of the people have been ignored.

Because the bigger animals such as elephants and rhinos raid crops, and others such as tigers kill livestock, locals are only too eager to get rid of these animals, which often become easy prey to poachers who need local support. Elephants, although few in number in Nepal, have become a regular menace and a permanent source of tension in the eastern plains.

The true outcome will not be determined for sometime, though if the current trend continues, it seems most plausible that the elephant population will continue to diminish and the conflict will be resolved by its destruction (Bosley et al. 2000). With the break in the ecosystems, mega fauna that need larger spaces and have seasonal movements are coming into increasing contacts and conflicts with human settlements. (WWF 2003)

### *Conflicts in Trade in Non-timber Forest Products, Medicinal and Aromatic Plants, and Wildlife Products*

Nepal is home to many non-timber forest products, medicinal and aromatic plants, and wildlife species because of its rich biodiversity. NTFP and medicinal and aromatic plants products have been harvested since time immemorial and are important in many local rituals and healing practices. Traditionally, many of these have also been exported to India. Trade in wildlife products is more recent and because of its more lucrative markets is also more prone to violent conflicts. Trade in all of these products was generally free until recently. Some have been brought under government control to conserve

biodiversity, others have been regulated because of revenue considerations, and still others like wildlife products have been controlled because of bans imposed by international conventions on trade in endangered fauna. This control has created problems for people who have been dependent on harvesting these products for their livelihoods. There is confusion in policy regarding different aspects such as royalty payments for non-timber forest products, and medicinal and aromatic plants that are not cultivated (Tiwari et al. 2003).

There is no mechanism in place to certify origin, and in its absence, royalties are imposed on all products without a careful study of the different margins. This has made it very unattractive for the collector. In trying to avoid royalty payments, large parts of the trade have moved underground, resulting in constant tension in areas where these products are collected.

Trade in several wildlife products is completely illegal, but because of the huge premiums for some of the products this has not only increased the risks for some endangered animals but also for the people who live around the areas where these animals are found. Poaching around national parks is a full-time but risky activity for some people (Nepal and Weber 1993).

Nepal has also been identified as a safe passage for trade in wildlife products (Asia Rain Forest Conservation News and Information 2000). While authorities are making regular seizures of endangered wildlife parts (World Environmental Journalist Egroup 2002), there is increasing danger that this lucrative trade can get out of hand with heightened insecurity all over the country. Even if the local people are not involved, its escalation could also affect them.

## Water Resources and Conflict

Nepal has so far been seen as a country with abundant water resources, at least in terms of endowments. However, as the country harnesses more water resources, many different water-related conflicts are becoming evident. Irrigation area increased from 729,886 ha in 1994/95 to 943,860 ha in 2001/02 (CBS 2004). Public water supply from different sources increased from 62.2 million liters per day in 1994/95 to 228 million liters in 2001/02 (CBS 2004). This increasing demand and supply has not been smooth. Conflicts have been identified at the local level regarding water rights and sharing of water between different user groups. In urban areas, scarcity of water, water pollution, and rural-urban water linkages are sources of conflict. At the national level, mega water projects have created much

tension and conflict (Dixit 1994). Although India and Nepal share many common river basins, they have not succeeded in developing a mutually agreeable basis for harnessing water resources. Some of these aspects are discussed below.

### **Rural Water Issues**

Water rights in rural areas have closely followed land rights (Banskota and Chalise 2000; Pradhan et al. 2000). The distribution of water rights is almost a mirror image of the prevailing skewed distribution of landholdings. Within the landholding groups, however, water rights are not static and are changing due to various circumstances. Changes in landholdings, particularly their fragmentation, have increased complexities of water distribution. Similarly, one-crop systems are moving quickly to multiple-cropping systems that produce crops throughout the year, increasing water demand and placing maximum strains on limited supply, weak delivery channels, and informal management structures. In many instances disputes may remain largely implicit and dormant (Pradhan et al. 2000).

Conflicts among different groups are also quite common. Religious laws with their implied rules of cleanliness and untouchability regarding water, and resulting exclusion, have created much difficulty for lower caste people and untouchable groups (Pradhan et al. 2000). Differences over water use, regulation, its transport, and related activities are not uncommon between landed and landless, between rich and poor farmers, between upstream and downstream farmers, and sometimes also between the community and the state. Although local water user groups have been an important innovation for managing local water resources, they are not free of conflicts. There are important questions of equity between members who have different status and resources. While benefits from the use of water are proportional to landholdings, cost and other contributions are generally equal among members. Even when smaller holders object to this, these systems are not easily altered (Matrin and Yoder 1987). Another aspect of the conflict is between different water user groups when they share the same source (Pradhan 1990). During peak demand for water, there are inevitable tensions as supply is never adequate. Other sources of tension are changes in cropping patterns and cropping intensity. Political groups have always been very willing to emphasize water issues during elections.

Historically, water rights have rested with the community and local sharing rules, and have been modified by the community over time as a response to changing circumstances. The Water Resources Act of 1992, however, changes this by asserting that all

water resources belong to the state. Pradhan et al. (2000) argue that this is the opposite of what has happened in land rights, which over time have moved from the state to the individual. This legal assertion of state ownership is very significant in the context of agreements with the private sector regarding investment in water resource development.

### **Urban Water Problems**

A number of water-related conflicts have begun to emerge in the urban areas of Nepal. There are a number of acute problems relating to adequate and safe supply of water, pollution of existing water bodies, and finding ways to augment present supplies. Kathmandu's experience has been very mixed, and satisfactory solutions are still not in sight (MOPE 2000). The conflict here is more implicit—between rich and poor, present and future generations, urban and rural residents. Richer urban residents may be able to pay a higher price for water but may also succeed in making the nation pay for very costly projects.

First is the problem of adequate and safe supply. Although public supply is unable to meet rapidly escalating demands, some continue to access the highly subsidized public supply while others must pay to buy water from private agencies. Public drinking water supply has become so unreliable in both quantity and quality that many households have to purchase bottled water (whose quality is also often questioned) for drinking. Rural water sources are being leased to private companies who then sell the water in tankers. What conditions have been maintained for harvesting these water sources is not clear. In most cases, protection of water sources and priority access to local people have not even figured in the calculation except for payment of royalties. For all practical purposes, these public resources are being privatized. A highly unsatisfactory situation with respect to the urban water issue is becoming increasingly obvious. In the past the focus has only been on developing big projects like Melamchi without looking at all the numerous decentralized watershed-based water sources that are being exploited by the private sector.

The second major problem is the pollution of existing water bodies in urban areas. The historic ponds found in many parts of the older towns of Kathmandu Valley have become disgusting eyesores of the urban landscape. Most of the public stone waterspouts—very important traditional water sources—are either completely dry or bring water mixed with sewage (Paudel 1996). A significant aspect of water pollution has been the worsening conditions of the Bagmati River, which runs through

Kathmandu Valley and receives a large part of the waste from the two cities of Patan and Kathmandu, as discussed in Chapter 8 of this volume.

Paudel (1996) points out that the decline in river quality has resulted in increasing incidents of diarrhea, typhoid, jaundice, cholera, and skin diseases among users, who have few alternatives. Livestock is also affected, but the most serious effect has been the loss of almost all the aquatic life of the river.

The Melamchi Project has been undertaken to meet the long-term needs of Kathmandu Valley. The project has been under construction for the past few years and is already embroiled in many conflicts (Siwakoti-Chinton 2003). Local people complain that the project has adversely affected many areas of livelihood and food security. It does not address the dry-season water needs of the people, and there are outstanding issues of compensation and resettlement.

Groundwater mining has been an important source of supply in Kathmandu Valley and other urban areas in the plains. The long-term implications of pumping excessive groundwater in the Valley have not been studied. Harvesting this resource requires substantial investment, and clearly the poor cannot afford it. With decreasing levels of groundwater, the cost of accessing it has also increased. At different places it is rich in mineral contents that may be harmful to health. Using it with poor treatment is a health hazard for many. The fact that it is not properly regulated or its exploitation properly guided is a major gap that needs to be corrected before a serious problem occurs (Pradhan 1999; CBS 2004).

### **National Debate on Water Projects**

Water projects used to be considered simple and straightforward engineering decisions. Today water projects are being screened carefully for their economic, social, and environmental effects. Even those affected people who had been silent spectators in the past are taking leading roles in asserting their rights in project decision making and management, advocating for adequate compensation if affected adversely (Chintan undated).

Nepal is a country with substantial water resources and huge potential for developing them. While all agree about the untapped potential, there is increasing controversy about future development (Bandyopadhyay and Gyawali 1994; Dixit 1994; Pandey 1994). The position favored by the Government and private-sector developers is that large-scale projects offer multiple opportunities for flood control, irrigation development, and hydropower development. Many of these benefits accrue to downstream areas and urban centers,

along with possibilities for export. The benefit streams are projected to be fairly substantial, although the costs of such projects are also extremely large—quite often impossible to meet without outside funding.

Global experience on dams and development has concluded that past projects have not been as economically, socially, or environmentally sound as they were originally made out to be (Dixit et al. 2005). In the context of mountain areas such as Nepal, large-scale projects (i) have high unit costs (Pandey 1994), (ii) have directly and indirectly displaced huge numbers of people and failed to provide adequate compensation (Dixit 1994), (iii) dams have experienced high levels of sedimentation and large-scale dams in mountains may be risky because of high seismic activity, and (iv) these dams have very often neglected to help the people in the project area itself (Bandyopadhyay and Gyawali 1994).

In large projects, the entire exercise of planning and implementation is not transparent and once the project starts moving ahead, it appears to be unaccountable to anyone (Chintan undated). Downstream areas and even countries are not willing to pay for the increased water available in lean seasons because of reservoirs (Pandey 1994). Much time has been wasted over big dams with few results.

Paranjapye (1994) had this to say in the case of the Arun 3 project: “a juggernaut that will inevitably distort, undermine and prevent the process of planning and decision making”. He proposed the alternatives of going small, with a decentralized system, encouraging local entrepreneurs. There will be larger local benefit through lesser displacements and reduced construction periods and earlier flow of benefits (Pandey 1985). Even smaller systems can supply the electric grid.

Clearly the odds against large dams are increasing, but that model retains its advocates and on a case by case basis large dams may be warranted sometimes. The issues of scale are clearly relative based on what a country can afford and what is realistic in terms of socioeconomic and environmental conditions (Dixit et al. 2005). The most important implications of this development are that the debate has forced projects to be far more careful in considering many different parameters, including the voice of those who will be displaced. There is also an urgent need for greater transparency, and participation of all stakeholders.

### **Nepal-India Differences over Water Projects**

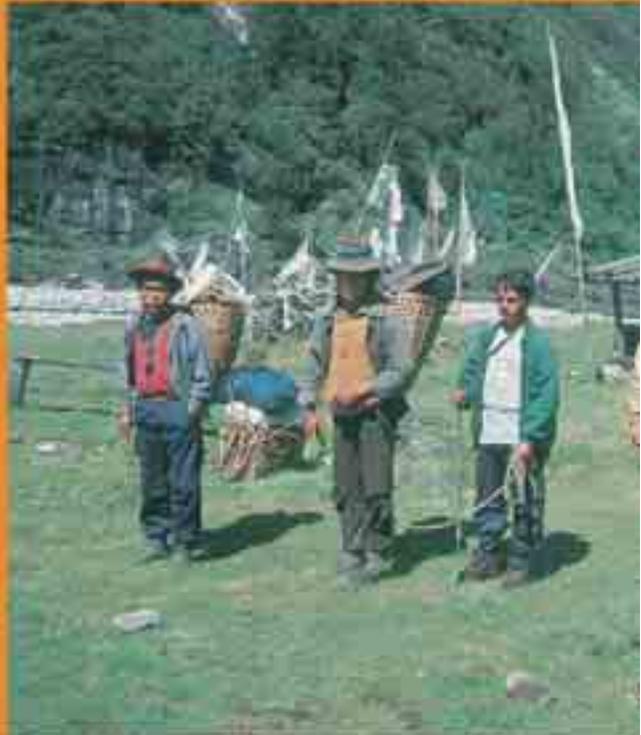
Although agreements on water projects were signed to develop the Kosi (1954) and the Gandak (1959), and both projects were completed, these bilateral

Lakhpā Norbu Sherpa



J. Gabriel Campbell

Min Bajracharya



Brian Peniston

**Sources and solutions of environmental conflict: clockwise from top left-collecting medicinal plants; community forest user group; poachers in Sagarmatha National Park; queuing for water**

cooperative ventures provided neither dependable nor adequate supply of water to Nepal or India and have been unable to improve agricultural productivity (Dixit 1994, Gyawali and Dixit 1994). Another author points out that trust and understanding have been eroded, creating a major impediment to cooperative development (Kumar et al. 1994).

The most recent example of a project that has run into problems is the Mahakali Project, which has become a hot political issue in Nepal. Although there have been several rounds of negotiations, there are still numerous outstanding issues that need to be resolved before the project can move ahead (Swain 2002). India's unilateral construction of dams in border areas to prevent summer floods and to store water during the dry season has created problems on the Nepalese side. Every year some dam is controversial; recent cases include the Mahalisagar dyke and the Khurdolotan dyke. During summer both of these have inundated large areas in Nepal (The Himalayan Times 2003).

## Urban Environment and Conflicts

Given the rapid increase in urban population, it is not difficult to imagine that intense competition for space and other resources will lead to conflicts. In cities around the world, conflicts over water, dumping sites, air quality, and noise levels are leading to litigation and outright violence (Matthew et al. 2004). In the early stages of urban development, there is a high tolerance for environmental problems, but with further growth a point is reached when awareness, and the ability to afford a cleaner environment, increases and urban renewal begins to take place.

Urbanization in Nepal is still among the lowest in the world, although it has been rising quite rapidly. In 2001, 12% of the population—roughly 3.2 million people (Sharma 2003)—were urban dwellers. However, the distribution is very skewed because five of the bigger centers with over 100,000 population had 39% of the total urban population and the remainder was distributed among 53 other centers. Increasing the size of an urban area gives it many advantages, but it also appears to bring many environmental problems and associated conflicts.

Kathmandu's notoriety as a polluted city has grown over the years and so have the conflicts. Because it is the capital city and the biggest urban center in the country, its experience provides a good idea of what can be expected overall if problems are not dealt with in their early stages. Some of the conflicts are related to certain types of industrial and development activities. Fortunately many of the

problems have not sought violent solutions and people have instead opted to go to court. Some of these court cases and decisions are presented below as examples of the environmental conflicts facing urban areas. These cases have been taken from the collection of environmental cases put together by Pro Public (Sharma et al. 2000).

One of the earliest recorded cases of urban environmental conflict was in 1968/69 when a concerned citizen filed a case against the city authority's plans to construct stalls for shops around a public park in the heart of Kathmandu City which had a historic significance (Sharma et al. 2000). The case was dismissed but was reopened when the persistent individual took his grievance to the Royal Palace and succeeded in getting a Royal directive to the court to reconsider his case. However, the plaintiff died before the second hearing and the court stated that accordingly there was no need for a decision and dismissed the case, although in its earlier decisions the court had ruled that the construction had no personal impact on the individual.

Another case appeared in 1972/73 when an individual complained against his neighbor's activities to destroy a public pond next to his property for construction on the site (Sharma et al. 2000, pp.13-18). Again the court went through several rounds of deliberations. Dissatisfied with the court's first ruling, the complainant filed a petition to the Royal Palace and succeeded in obtaining a directive for reconsidering the case. The city also had an interest in the case, had formed a committee to look into the public significance of the pond, and had earlier recommended that the pond was indeed a very holy site with significant religious value for the local people. In its second deliberation the court reiterated this aspect of religious significance and ordered that the pond be preserved.

The next case, in Bhaktapur, may be the first of its kind in Nepal on air and noise pollution control. In 1978/79 a person complained about a factory's exhaust fumes, pointing out that it had adversely affected the health of the people living around the factory and that this had increased after the owner had illegally expanded the factory's capacity (Sharma et al. 2000). He also pointed out that the city authority and the department responsible for giving the license to the industry had neglected their duties by not looking into the expansion proposal carefully. The court considered the facts and gave a surprising decision that there was no evidence of damage to the person or the property of the complaining individual and dismissed the case. Pollution was a new subject and empirical evidence of the health impacts of deteriorating air quality was probably not

available at that time. The Supreme Court did not see a conflict between the polluter and the public, although the complaining individual was clearly ahead of his times.

The Godavari Marble Factory, located on the outskirts of Kathmandu Valley, was charged with polluting the air and water of the area and with emitting dust that was destroying the biodiversity of the forest. The court took the position that the complaining individuals were not directly affected by the activities of the factory and dismissed the case. It was resubmitted in 1992/93 and again in 1995/96. It is interesting that the court was becoming pro environment during this time. The Rio Summit in 1992 received global attention, and environmental issues were hot in every society around the globe. This probably had some role in changing the later rulings, which pointed out that environment was a concern of every citizen and could not be dismissed as in the earlier cases. The court directed the factory to install proper safeguards (Sharma et al. 2000).

The case of the pollution in the Bagmati River is similar. Although in this case no single offender existed, the court did identify numerous organizations as responsible for correcting the pollution of the river (Sharma et al. 2000). The court also directed the organizations concerned to protect historic monuments, keep proper records of the property of these monuments, stop construction of an unplanned road, establish a sewage treatment plant, and improve cremation grounds. All of these interventions were also to ensure that the maternity hospital was not adversely affected.

The changing position of the courts has been a most welcome development. Future cases are likely to be even more complex, with additional issues of compensation and related measures to right past wrongs. A persisting anomaly and a major source of conflict in countries like Nepal is the readiness of the Government to introduce environmental legislation without ensuring adequate supervision, monitoring, and implementation—which permits offenders to continue polluting the environment.

## The Maoist Insurrection and the Environment

The Maoist insurrection is now close to nine years old and has affected all aspects of Nepali life including the environment. While only post-conflict evaluation can reveal the actual extent of changes caused by the conflict, there are scattered reports on different aspects of environmental changes that may be attributed to it. The conflict has directly damaged the environment in terms of destruction and damage

to environment-related personnel, resources, infrastructure, and conditions. Furthermore, the environment has impacts on the conflict.

First let us look at the direct impacts. Based on a field review commissioned by the World Conservation Union (IUCN), the Nepal Forum of Environmental Journalists did a selected review of some areas of the conflict's impact on the environment (IUCN 2004). The review identified several points of impact.

- (i) Deforestation is widespread and different sides blame each other. It should be noted that deforestation is not unique to the conflict. It has been an ongoing part of Nepali society. What part of the deforestation can be attributed to the conflict is difficult to ascertain.
- (ii) Setting forests on fire has many impacts on wildlife. Again, this is not unique to the conflict and it is difficult to know what type of wildlife has been affected and how.
- (iii) Poaching of wildlife has increased substantially. This is highly plausible with the reduction in security in the national parks. While the Maoists may not be poaching directly, they may be involving traditional poachers and benefiting from the trade, but there is no hard evidence.
- (iv) Impact on drinking water supply either because of increased demand or because of damage to water supply systems has been reported by the local newspapers in a number of areas.
- (v) There has been significant displacement of households from conflict-affected areas, primarily due to the difficulties of meeting the different demands of the Maoists.
- (vi) There is an inability to access forest products because of fear of the Maoists who camp in the forest areas.

Another recent study (Murphy et al. 2004) has also identified some of the impacts of the conflict based on reports from newspapers, publications, and discussions with concerned people. Some of the major impacts reported are listed below.

- (i) Destruction of park infrastructure in almost all the national parks, making these unusable. This has been reported by others (American Embassy 2005) when as many as 54 endangered one-horned rhinos were killed in two national parks but mostly in Chitwan National Park. The absence of protection in national parks is seen as the major reason behind this. In 2003, 50 people concerned with poaching were arrested and

further poaching has not been reported so far. During 2003 the officials also made a big catch of 32 tiger skins, 579 leopard skins, and 660 otter skins. Authorities have caught people with shatoosh skins. The origins of these materials are not yet established but it is widely speculated that Nepal has become a favorite spot for illegal trade in wildlife parts (Asia Rainforest Conservation News and Information 2000; World Environment Journalist Egroup 2002), and the reduced surveillance in this area could have motivated poachers and others to take advantage of the prevailing situation in Nepal.

- (ii) Organizations working in conservation have had their work adversely affected either because of direct threats or because of the prevailing insecurity in rural areas. Many organizations have relocated their staff to the district headquarters or to Kathmandu.
- (iii) Encroachment of park land has also been mentioned.

Some positive impacts have been reported. If timber smuggling has increased in some areas, it is reported to have been reduced in others. Similarly, in some areas people say that because they are afraid to go into the forests, the forest has recovered and some of the wildlife has returned. It is difficult to establish the precise nature of these changes as verification from the field is difficult.

Having reassigned security forces to conflict areas, the national parks are now more vulnerable to poachers, encroachers, and others who value the different resources of the parks. In some areas the security forces have reportedly cleared forests that were hiding grounds for Maoists (Hakahaki 2060 [2003]). At times of conflict, getting hard evidence is not easy, and causes and effects may be very complex. Only the future will provide a more firm basis for knowing the real impacts.

Many writers both from within and outside Nepal have identified the deteriorating physical environment as a major factor for the insurrection. Sharma argues that there is a strong ethnic dimension to this conflict and that ethnic groups are concentrated in relatively difficult environments (Sharma et al. 2000). Murshed and Gates (2003) point out that horizontal inequality across the regions of Nepal is a major factor behind the conflict. Bhurtel and Ali (2003) argue that the deteriorating environment with its combinations of factors such as fragile mountains, deforestation, soil erosion, decreasing land productivity, and high levels of population growth and poverty mixed with social

factors of exclusion, discrimination, marginalization, and disempowerment of ethnic minorities produced a violent eruption that has now lasted for almost a decade.

It may also be noted that there has been an increase in the militarization and politicization of ethnicity in the northeast of India. According to Barbora (2004) this is due to the state's failure to deal with the changes brought about by radically different land use regimes. The Hill areas may be experiencing the inevitable involution. Authorities and indeed society may have neglected, overlooked, or suppressed many smaller implosions in the past which today have boiled over in the form of a violent conflict. The environment in these societies is both an important cause as well as a victim of the escalating conflict.

## Conclusions

This review has provided an overview of the prevailing conflicts regarding natural resources utilization and some aspects of the rural and urban environment in Nepal. Conflicts appear to be fairly extensive regarding some natural resources like forests and water. In other areas such as the implications of urban development on natural resources and the environment, the future is worrying because of the weak nature of the institutional mechanisms available for resolving these problems.

What has been or can be the impact on ecosystems and the economy because of the unresolved conflicts? Some problems appear to have remained for so long that they look almost unsolvable. A major part of the problem is related strongly to the increasingly active role of the state in trying to regulate the harvesting of natural resources and taking on responsibilities for which it does not have adequate resources or capacity. The more surprising revelation is that the Government still has not recognized the continuing nature of conflicts in the use of natural resources and responds only in spurts when conflicts become too difficult to ignore. This is not to say that there has not been some positive action by the Government—the most significant has been the move to legitimize the role of user groups in the management of forest and water resources. However, there is still a long way to go because the Government is holding on to many areas of authority, which limits autonomy and initiative to resolve problems at the local level.

The next issue is related to the laws. A major cleanup is necessary here because the practice appears to be to simply carry on as in the past even as new laws are promulgated. This has not only

created confusion and hindered progress in many areas, it has served to retain the Government's monopoly, even when the spirit of the new laws indicates that this is not the intention.

Once environmental decisions are taken by the courts, the Government, and civil society, who should do the enforcement? Conflicts mean that one party is not going to change its position voluntarily unless under the threat of punitive action. This aspect has been most lacking in the history of natural resources management. The recommendations of one commission are simply reiterated by another, and the process has gone on ad infinitum in the case of resettlement, illegal settlers, and encroachment. A similar story is being enacted regarding the Supreme Court's decisions in environmental matters.

As a mountainous country with a beautiful but fragile environment, it is critical that Nepal manage its environment by using its natural resources in a sustainable manner. The prevalence of conflict in all the major natural resource areas suggests that governance has been ineffective and in some areas even harmful, especially when short-sighted policies and decisions promote wanton destruction of natural resources. Clearly the Government has a major responsibility to clean up its act regarding environment and conflict in Nepal.

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