

Nepal, the community is the better forester

Christian Kuchli

Forsting ETH, Journalist BR, Switzerland

1999

Keywords: Himalayas, Nepal, forests, community, environmental degradation, Panchamool, Sirubari, Gurung.

Abstract

Nepal became the focus of growing international concern in the 1970s, when it appeared that the Himalayan foothills were being rapidly eroded due to the increasing pressure of population growth. A large-scale, internationally financed reforestation project was subsequently launched in an attempt to halt the progress of degradation. The project achieved good results in the village of Panchamool, although reforestation efforts elsewhere met with less success. Nevertheless, this nation-wide campaign helped to clarify how the fate of trees is decided in the final analysis: it became obvious that the forests could only be preserved by the people who live in the hills. Upland populations, however, will be neither willing nor able to maintain forests unless they are granted clearly defined, incontestable rights of access to forest resources. The arduous task of establishing a system of clear and balanced rights will be the main challenge faced by the Nepalese Forest Service for decades to come.

"Before triggering the shutter, I check the viewfinder one last time: the village council appears on the right, the forest wardens are on the left, and the young tree is in the foreground. I am already hoping to take the same picture again in five years' time, when the sapling will have grown well above my head, and when forestland will have replaced the degraded grazing areas above Panchamool." Thus began a newspaper article I wrote following my first visit to Panchamool in January 1986. As it turned out, it was not five but seven years before I could return. At last, in May of 1993, I was once again on the way to "my" village in Nepal.

Panchamool is situated south-west of the town of Pokhara in the heart of Nepal. It lies in the foothills of the Himalayas at an altitude of about 2,000 m, in a setting similar to that surrounding the Indian village of Saklana. The nearby hills are some 80 km in breadth. To the north of this chain are the towering peaks of the Himalayas, which rise to 25,000 feet and higher, while the Terai - a portion of the Ganges Plain that lies within Nepal and whose lowest point is a mere 80 m above sea level - stretches out to the south.

On my previous visit, we had trekked for seven hours to get to Panchamool after leaving the asphalt Siddhartha Highway. This time our Toyota bumped

along the bed of the Arun Khola, carrying us as far as Chaupari. From there we set out on foot with the young forest ranger Girish Kumar Mishra as our guide. At first we proceeded along the river through a gorge, where we occasionally noticed a tree depicted on the face of a cliff or a boulder to symbolize the Nepalese Congress Party, which emerged as the country's dominant political force following a popular uprising in the spring of 1990 and democratic elections in 1991. Our path then led steeply uphill, later taking us over hundreds of carefully fashioned slate steps.

Buddhists and forest spirits

I remembered Panchamool itself, and particularly the hamlet of Sirubari, as extraordinarily tidy places. Most of the houses in Sirubari are built of stone and coated with whitewash. The streets, designed to allow rainwater and wastewater to flow beneath them, are paved with slabs of granite. This place is a paradise compared with the capital, Kathmandu, where smog hangs heavy in the air and reeking mounds of sludge must be shovelled out of ancient gutters after every rain.

The entire town of Panchamool lies in the midst of an ornately designed cultural landscape. Compact terraces surrounding hamlets and farmhouses are irrigated by five ("pancha") springs ("mool"). Carefully terraced stonier fields further downslope are watered by rain. Land use is much the same as in Saklana, for here, too, it is the non-timber forest products that are of primary importance. Leaves, either freshly lopped from trees or gathered as litter, play a key role in maintaining soil fertility; far more biomass is extracted from the forest in the form of leaves than in the form of firewood. No Artificial fertilisers are used. As Panchamool can only be reached on foot, everything needed must be carried up by porters - a very expensive method of transport.

I was particularly impressed by the protective forest on the steep slopes above Sirubari, which is regarded as sacred. It is said that at one time in the past when the forest was cleared to obtain timber, a raging thunderstorm broke out. Rocks tumbled down into the hamlet below, and large boulders came to a halt only a few meters short of the houses at the foot of the slope. Popular belief holds that lightning and boulders are a sign that the forest spirits have been angered. Accordingly, a new dwelling-place for these spirits was later consecrated under one of the boulders that had come crashing down from above, and the forest itself was enclosed by a wall and reserved as a sacred site.

While the population in the administrative district of Panchamool includes Hindus of various castes, most of the people in Sirubari are Buddhists who belong to the Gurung ethnic group. The Gurung are one of the mountain peoples from whom the British recruited the famous Gurkha Regiment more than 150 years ago. As early as 1857 the Gurkhas played a decisive role in

helping to suppress the Sepoy Uprising, the final revolt of Indian rajahs against British colonial rule. In more recent times, Gurkha troops fought in the Falklands War between Great Britain and Argentina, and they have also seen duty in the former Yugoslavia. Ninety percent of the Gurung men of Panchamool still leave home today to serve for a period of years in Kathmandu, Dehra Dun, Singapore or Hongkong.

The fear of erosion in the Himalayas

This year the arrival of the monsoon season had been heralded by early rainstorms. On the day of our trek the atmosphere was already sultry by mid-day. I was glad when we took a break at the first shady *chautara*, a small patch of land enclosed by low walls, which contained a sacred banyan tree and a pipal tree. .

I had originally visited Panchamool to examine the Community Forestry Development Project (hereafter referred to as "the Project"). This venture, which was launched in 1980 with substantial funding from international sources, had been quite successful in Panchamool. Trees from a village nursery financed by the Project were planted by the local population in several campaigns between 1982 and 1986, and eventually covered an area equivalent to 125 playing fields.

The history of the Project began around 1970, when the rest of the world, alarmed by reports from various sources, became increasingly concerned about environmental conditions in the mountains of Nepal. These reports were eventually fashioned into a hypothesis which subsequently became known as the Theory of Himalayan Environmental Degradation. According to the Theory, people in the Himalayas, where population had been growing rapidly since the 1950s, were thought to be gathering increasingly greater amounts of firewood, and they were held responsible for accelerating the pace of deforestation by clearing trees to obtain arable land. It was assumed that the concomitant increase in the number of cattle was imposing additional stress on the forests. A report published by the World Bank in 1979 asserted that half of the forests in Nepal had vanished since 1950. Extrapolating this rate of deforestation, the authors predicted that hardly any accessible forests would be left standing by the year 2000.

The Theory of Himalayan Environmental Degradation pointed to deforestation and agricultural land use, which caused rapid runoff and high rates of erosion, as the main factors responsible for flood catastrophes in the delta of the Ganges and the Brahmaputra rivers. The farmers in the mountains of Nepal and their neighbours - a total of some 33 million people altogether - readily became the scapegoats who were blamed for the flooding and climate change that had taken place on the vast floodplains of these rivers. The Theory even went so far as to suggest that destructive forms of land use practised by these upland

populations made virtual hostages of hundreds of millions of people on the plains, thereby constituting a permanent threat to their lives and property.

The Theory became a source of political tension between India and Bangladesh, as well as between India and Nepal. Nepalese forestry officials and their foreign partners in development projects were soon engaged in heated debate. The Theory of Himalyan Environmental Degradation also became one of the underlying forces which eventually produced the Community Forestry Development Project.

From policeman to consultant

Additional findings, which were later incorporated into the Project, came from the village of Thokarpa, which is located in the uplands north-east of Kathmandu. It was here that the Nepalese forester Tej Mahat began working as a district forest officer in 1973.

In a file on pending business which had been left behind by his predecessor, Mahat found a letter from the village of Thokarpa. It stated that the village was no longer willing to co-operate with the Forest Service since the Service had done nothing to help conserve the forests; on the contrary, it had contributed to forest destruction. Perplexed, Mahat set off for Thokarpa, where the village head explained the reason for the letter. It seemed that the Forest Service had granted a concession to outsiders, allowing them to extract timber in a forest just below the village, along the banks of the Sunkosi River. The contractors had cut trees and then transported the timber to Kathmandu. This particular forest, however, was of key importance to the village economy as a source of leaf fodder and firewood.

In the course of a long conversation in 1986, Tej Mahat explained to me that motivation to protect the forest had dwindled to the vanishing point after this particular incident, as the people of Thokarpa now felt that no-one could be certain when the state might once again appropriate the products of local effort for its own purposes. This story was reminiscent of similar episodes in the Alps and in the Himalayan regions of India, for it reflected the classic conflict between rural and urban interests, with the Forest Service as the representative of urban interests.

Although the demand for wood in urban areas did not have as great an impact on forests in the mountains of Nepal as it did in the Himalayas of India, a great deal of timber was nevertheless exported from the Terai to India. The revenues earned from this export trade accounted for almost half of Nepal's gross national product until the 1950s.

Like many others in his profession, Tej Mahat had been trained as a "timber forester" at the former Imperial Forest School in Dehra Dun, India. He recalls

that even in post-colonial times, students were indoctrinated with the idea that forestry officials were to keep a distance between themselves and local populations. He and his colleagues were taught "scientific forestry", a discipline which was destined to be practised in an ivory tower atmosphere. Young students were required to wear ties and dinner jackets in the dining hall, and much emphasis was placed on how forestry officials should behave.

Tej Mahat began his career in the Terai in the 1960s, where rich forests of sal had survived much longer than they did in the Himalayan foothills of India. Here he tried to apply his training in "scientific forestry". But wherever he permitted the felling of timber, emigrants from the hills who were seeking a new source of livelihood in the Terai encroached on cut-over areas, which they used as cropland. Mahat enlisted the assistance of police and army officers to drive these migrants away, and as he also had the power to act as a judge, he had hundreds of them incarcerated.

Upon being transferred to the uplands, however, Mahat found himself in an entirely different world. His district of jurisdiction, which was bordered only by the road between Kathmandu and Lhasa, was so vast it took ten days to hike through it from one end to the other. It soon became clear to him that the district was far too large to allow for effective enforcement of regulations which the local population refused to accept. "The forest can only be conserved by co-operating with the local people, not by forcing them to do things against their will" he declared, expressing the same conclusion that his Swiss counterpart Karl Kasthofer had reached in the Alps 150 years earlier. Moreover, Mahat had begun to comprehend the problems faced by people in the uplands, and he had decided that he wanted to help them.

The first step in this direction came in the form of a broadly based forest committee, established at the initiative of the village head in of Thokarpa. This committee was entrusted with the responsibility of safeguarding the forests. For his part, Mahat promised that he would grant no concessions to cut trees without the committee's approval. The committee would henceforth assume responsibility for the forest and its management, while Mahat would serve merely as a consultant.

This procedure was adhered to for the most part, with the result that carefully protected trees and shrubs began to flourish within a short time. In 1974 the inhabitants of Thokarpa established a nursery and undertook reforestation of areas degraded by overgrazing. Owing to their extraordinary motivation, afforestation in this project was carried out in Nepal for the first time without the erection of a protective fence. Tej Mahat believes that a heightened awareness of the forest and a desire to safeguard it became a part of life in Thokarpa during this period.

This new approach aroused interest within a number of international organisations. Both Australia and Switzerland, for example, subsequently modelled parts of their own development programmes on the experiences of Thokarpa.

The beginning of a revolution in forest policy

In 1975 a conference was held in Kathmandu with the aim of clarifying future forest policy in Nepal. Originally planned to last three days, it eventually ran for twenty-three days. A group of Tej Mahat's young colleagues, who had already had some practical experience, took this conference as an opportunity to air their views about fundamental problems with the existing system of forest management in the mountains of Nepal. They made it clear that forest policy was serving primarily to produce revenue for the state, while the interests of local populations were being grossly neglected.

The conference had a decisive influence on a new Forestry Act adopted by Nepal in 1978. Under the terms of this Act, the state granted each *panchayat* - an administrative unit usually composed of several villages - the right to 625 hectares of its own forestland. The state, however, retained the right to share the revenue obtained from timber. A year later Thokarpa became the first *panchayat* to reap the benefits of this Act.

International development specialists regarded this change in Nepal's forest policy as an important step forward, for control of the forest by local communities was then coming to be regarded as a prerequisite for sound forest management. Neighbouring India, for instance - which continued to experience the tensions between rural people and the Forest Service that had been reawakened by the Chipko Movement - was still years away from adopting such radically progressive steps.

In an effort to implement the new Forestry Act, the Community Forestry Development Project was created in a joint effort by the government of Nepal and the international donor community. Although the Project was only one of many undertakings with similar aims, it was by far the largest, with a budget of 25 million dollars for the first five years; the World Bank alone contributed 18 million dollars. The aim of the Project - rapid reforestation of the denuded hills - was to be achieved by a strategy of close collaboration between the Forest Service and the local population.

At the time of my first visit in 1986, the Project had already been in operation for five years and had been judged a success by most experts, although it was still too early to draw any firm conclusions. During this second visit, however, on our previous day's journey from Kathmandu to Pokhara, I had observed surprisingly few of the regular afforestation patterns which should have been

evident everywhere if the Project, now in its twelfth year, had really been such an outstanding success.

New houses in a new political landscape

As we left the shade of the *chautara*, I could feel a certain tension mounting within me. Had the trees in Panchamool really flourished? Would I find that they had grown enough by now to constitute a forest? Or had they fallen victim to browsing livestock? At least the natural forest opposite the *chautara*, which belongs to Panchamool, was as thick with lofty sal trees as it had been seven years ago.

At first glance Sirubari seemed unchanged. But then I noticed that the temple had a new tower. New structures made of stone had taken the place of the old, oval-shaped Gurung dwellings with their mud walls and thatched roofs. The nation-wide political changes that had taken place since 1990 had also had an influence here: the unpopular *panchayat* committee and its administrators had been abolished and replaced by a newly established Village Development Committee. The democratically elected president of this new Committee, Hark Bahadur Gurung, now received us and offered us refreshments in the comfortable living room of his stone house, while heavy rain started to pour down outside.

A new forest equal to 300 playing fields

The next morning the sky was as clear as if it had been freshly washed. People who had no urgent business gathered in front of Hark Bahadur's house, making it obvious that a considerable delegation would accompany us on our journey, just as on my last visit. Our route once again took us over carefully laid slabs of granite. It was not long before we entered the dominion of the forest spirits, a mysterious grove of mighty trees, clusters of bamboo, and fallen rocks, eventually making our way along the lower border of the sacred protective forest. Here the ban on use of forest resources was still respected, as I could verify from the remains of a fallen tree, which would have made good firewood but which was still lying undisturbed in the same place where I remembered having seen it on my previous visit.

The other side of the forest, however, where several dozen Kami families make their homes, appeared to be more vulnerable. The Kami belong to a low caste of blacksmiths. We could see a group of Kami women carrying baskets full of leaf litter across a small valley between the forest and their homes. They had obviously gathered the leaves despite the ban. Shrugging their shoulders, my companions explained that the relatively little land possessed by the Kami is not very fertile, so they are forced to compensate by fertilising it with large amounts of compost.

After a short while the first traces of the tree-planting campaign became evident in the form of individual specimens of *patle salla*, an exotic pine species from Mexico. This tree had also been planted within the walls of the sacred protective forest. There, it provided a remarkable contrast to natural stands which contained *chilauna*, a tree-like relative of the tea bush; *Katus*, a member of the chestnut family; and large rhododendrons, whose flowering time was just coming to an end.

Then, suddenly, I caught a glimpse of treetops at the site where planting had been done in the reforestation project. The trees themselves became gradually more visible as we continued to climb the granite steps. Reforestation had succeeded after all! The area originally covered by the Project had since more than doubled in size, to 300 hectares.

Too much money, too little time

The Community Forestry Development Project has unquestionably achieved its goal in Panchamool. Surprisingly, however, Panchamool is something of an exception in this regard. The high hopes aroused at the outset had been only partially fulfilled by the early 1990s, even though by that time the Project had been absorbing the lion's share of the funds and the labour committed to forestry in Nepal for a number of years. The Forestry Act of 1978 had earmarked 1.8 million hectares - roughly half of the national forestland in Nepal - for use by the *panchayats*, yet only four percent of this land had been officially transferred by 1992. As of 1990 a mere 35,000 hectares had been reforested, with Panchamool's portion constituting close to one percent of this total.

Why did the Project have such modest success? The answer to this question requires a closer look at the Forestry Act of 1978, which was influenced in part by the Theory of Himalayan Environmental Degradation. In accordance with the terms of the Act, the *panchayats* did not receive good forests; in most cases they were granted treeless or degraded forestland, on which trees were to be planted as thickly as possible in order to fulfil the aims of the Project.

Although tracts of forestland in this condition are considered degraded from the standpoint of classical forestry, they are not necessarily unproductive in the eyes of rural people, for whom the most important thing is that trees produce as many leaves as possible; it makes no difference if their stems are short and crooked. But if areas like this are to be afforested, much hard work and years of waiting will be required before anything can be harvested. Consequently, unless forest resources have been heavily exhausted, an investment of this magnitude will not be undertaken unless it is warranted by special circumstances.

Yet Project efforts were fruitless even in many places where people would have been glad to have more trees. The most likely explanation for this lies in the realm of policy-making and administration. Despite its announced aims, the Project rarely engaged people directly at the grass-roots level. Furthermore, it was far more generously endowed with money than with time - a fact which probably also made success mere difficult to achieve.

Time is a crucial factor in the nurturing of trees. It also takes time to build up mutual trust and co-operation between the Forest Service and people at the local level. Villagers needed time simply to adjust to the change with which they were confronted when forestry officials, who had previously behaved like policemen, suddenly seemed to turn into development agents bearing armfuls of saplings. Meanwhile, the international donor community believed that the situation required urgent action. Alarmed by visions of the Himalayan foothills eroding away, donors made heavy investments of capital and pressed for quick results, expecting appropriate returns on their investment in the form of newly afforested land.

As a result, pressure from above was felt throughout the ranks of the Forest Service. Obligated to meet goals set at the ministerial level, a district forest officer hardly had time to establish a sound working relationship with local people. Negotiations were invariably conducted with the *panchayat*, whose officials had no meaningful contacts with the grass-roots population and no contact at all with women, who are usually the direct users of forests in Nepal.

Circumstances such as these illustrate how the inappropriate allocation of funds can have a disastrous effect. In many bilateral projects, such as those in which Nepal and Switzerland are partners, the costs of afforestation are estimated at 1,500 rupees per hectare. The Project, however, spent 3,500 rupees per hectare. This sum is the equivalent of one month's pay for a forest officer - an amount which neither allows him to live in a style befitting his rank nor to cover the expenses of educating his children. Given this situation, it is not surprising that the Forest Service had to take action against the misuse of CFDP funds in cases where forest officers conspired with *Panchayat* functionaries to divert official funds into their own pockets.

The examples of Thokarpa and Panhamool notwithstanding, the Project was largely unsuccessful in involving the general population. Because they possess herds of goats and are masters of the sickle, local people are in a position to decide the ultimate fate of virtually every sapling. Consequently, most of the millions of trees planted on *panchayat* land - in many cases with a great deal of effort- did not survive.

Education and the autonomy of women

To determine the reasons for the Project's success in Panchamool, it is necessary to take a closer look at the social structure of the village. Panchamool has had a local school since 1929. In contrast to rural areas dominated by Hindus, it offers primary education not only to most of the boys in the village but also to the girls, who have been attending school here for decades. Furthermore, thanks to its mercenaries, the village has not only had a continual link to the outside world, but has also been confronted with issues of global concern, such as the growing threat posed by environmental problems. A local man returning home after decades of service abroad is relatively well-off and is also entitled to a pension. Many Gurung families can therefore afford solid stone houses, and they have no need to gather every last leaf from the forest to feed their cattle or fertilise their fields, as they have the means to purchase whatever they lack.

Religion and political history have had a great influence on life in Panchamool, and ultimately on afforestation as well. Pronounced differences exist between Hindus and Tibetan-Burmese peoples such as the Gurung. Gurung communities, for example, have enjoyed a great deal of local autonomy for centuries. Buddhists like the Gurung possess a strong sense of personal freedom, make conscious choices among various alternatives, and take individual initiative in seeking to alter the circumstances of their lives. Hindus, on the other hand, believe that human beings live out their lives as members of a particular caste, and that each individual must learn to endure the conditions of present existence. Hindu societies are therefore likely to be characterised by social hierarchy, fatalism and lethargy. Although social differences exist in Panchamool, within the Buddhist community as well as between Buddhists and Hindus, they appear to be much less significant there than in Kathmandu.

The women of Panchamool also enjoy greater autonomy and display more initiative than their Hindu sisters. Three years prior to my second visit the Women's Club of Panchamool had undertaken the daunting task of meticulously constructing a wall several metres high to protect the local cremation site. A sense of community and a spirit of collaboration are also quite important here in other ways. This is reflected in Panchamool's carefully erected infrastructure, and in the arboretum and tea shop my hosts showed me near the nursery above the village. Here, on clear days like the one on which I visited, old soldiers sit gazing out over the Anapurna massif and tracts of land covered with trees which they planted themselves.

Better to conserve one tree than plant ten saplings

After drinking a glass of hot buffalo milk, we set out in search of the tree around which we had gathered for the group photograph I took in the newly afforested patch seven years ago. The tree was white sandalwood, whose

leaves are used to produce the crimson paste with which devout Hindus anoint their foreheads. The fragrant sandalwood tree also plays an important role in Buddhist ceremonies, which is why mercenaries carried it back to the Gurkha region from its native habitat in southern India.

Eventually, we did indeed find "my" tree. Its development had not been too spectacular, perhaps because it had been transplanted to a cooler mountain climate. Compared with the Mexican pine, deciduous species have not done particularly well in this environment. Hark Bahadur summed up the situation by remarking that "Pines are a feast for the eyes, broad-leaved trees for the stomach".

Those who plant trees - whether in Nepal or in Europe - hope to have a "feast for the eyes" within a short time, and the pine is an ideal tree for meeting this goal. But direct reforestation of grazing areas with species that are a "feast for the stomach" is practically impossible on degraded land such as that found around Panchamool. Restoring hardened, compacted soil through the action of tree roots takes a long time, although the process can be accelerated by planting species such as pine or alder. Species which originally existed at the site, like those which are still found in the sacred forest, can then regenerate more easily. But a reforestation process of this sort will take many decades, even in this sub-tropical climate.

Thus every tree which dies in the mountains of Nepal and is not immediately replaced, either by nature or by human effort, represents a much greater loss than has commonly been supposed. Nevertheless, not every tree cut down at its base is condemned to die; most deciduous species coppice easily, producing new sprouts from their stumps which subsequently grow to become new trees.

Wherever indigenous species remain, and even if they are crippled, they can frequently be restored, provided that they are carefully protected. In Nepal, as elsewhere, there is much less risk in cultivating natural forests and indigenous species than in undertaking afforestation and planting exotics. Indigenous species may grow more slowly, but they are more resistant to pests. In many parts of Nepal, for instance, Mexican pines, whose rapid early growth was impressive, are now being attacked by fungi which destroy their top shoots.

A second look at the Theory of Environmental Degradation

Although the Community Forestry Development Project had only limited success, it would be wrong merely to write off the decade between 1980 and 1990 as a period of highly misguided and wasteful expenditures of time and money. On the contrary, the efforts made in these years are not only shedding considerable light on the question of communal use of resources, but also providing fresh insights that are now being used to modify the Theory of

Himalayan Environmental Degradation, which has been hanging over the Himalayas like the sword of Damocles for decades.

One aspect of this modification pertains to the development of forests. In recent years a great deal of evidence has been gathered to show that the distribution pattern of farmland and forestland in the mountains is virtually the same as it was in the 1950s. The only drastic reduction of forestland occurred in the Terai, which absorbed some 700,000 migrants from the hills in the 1970s alone.

While it now appears that loss of forestland in the Himalayan mountains was not as drastic as had previously been feared, there was a considerable decline in forest quality, exemplified by the fact that in the mid-1980s, approximately half of the forests in the mountains of Nepal had only 10-40% of their normal crown cover. Nevertheless, this is not an irreversible trend, and it is likely that forests in many places have now passed through the worst stages of decline. Many villages threatened by a shortage of forest products have mobilised for action. In the catchment of the Jhiku-Khola and its wider surroundings east of Kathmandu, Tej Mahat and his Australian colleagues reported that by the early 1980s numerous villages had made an organised effort to use their forests in accordance with very specific local rules.

Some of these rules had been established long before at village meetings. Local forest wardens known as *Chowkidars* ensure that the rules are observed. *Chowkidars* receive compensation, contributed by all households that have rights of use in the forest. Infringements of these communal rules sometimes carry severe penalties; stealing firewood, for instance, can result in the confiscation of cooking utensils. Punishment is sometimes administered in a very relaxed fashion, and may even be the occasion for a village festival. Yet despite this atmosphere, the consequences of violating local rules are far more serious than the consequences of breaking laws made in Kathmandu: those who repeatedly violate local rules run the risk of being exiled from the community.

New initiatives taken at the local level can also be seen in the patterns made by trees on the cultural landscape. For example, a comparison of aerial photographs made in 1972 and 1989 in the Jhiku-Khola catchment reveals that crown cover has increased on private land as well as on communally used agricultural land.

In any event, the simple formula according to which population growth is automatically linked with forest destruction cannot be universally verified. Moreover, the extent to which upland populations are responsible for the water balance and for erosion must also be re-examined in light of recent evidence (see box, "Siva versus Kali").

Empowering local communities to ensure a better future

Modifying the Theory of Himalayan Environmental Degradation is not the same as saying that there are no problems in the Himalayas. Perceiving these problems in relative terms can, however, have the effect of meliorating the seemingly harsh inevitability of degradation, while also leading to new problem-solving approaches and allowing time to implement them. In addition, positive findings in recent years have rehabilitated the reputation of the people living in the mountains of Nepal, and have demonstrated above all that they are capable of caring for their environment, so long as they encounter no obstacles in their efforts at self-organisation.

For a long time Nepal did not have social and political conditions that were conducive to local autonomy. Political conditions only started to become more favourable with the popular uprising of 1990. The new Constitution of the same year proclaimed democracy and decentralisation of political power, as well as an end to the exploitation of individuals and entire social classes, and promised equitable distribution of revenues obtained from the country's natural resources. And the five-year plan for the period 1992-1997 emphasises popular sovereignty and the right of the people to implement their decisions.

Decentralisation is also the guiding principle of the Forestry Act of 1993, which is considered one of the most innovative and progressive of its kind. This law stipulates that control of Nepal's mountain forests - and not merely of tracts with virtually no trees, as during the *Panchayat* era - be transferred to the local population, provided that they organise themselves into communities of users. These user groups would also receive all revenues from forest products.

A community of users in this context no longer refers to villages or even to entire *panchayats*, but to small user groups which have always managed more or less clearly defined tracts of local forestland. Though the forest will legally remain the property of the state, the new management plan, which the Forest Service must elaborate in co-operation with each user group, guarantees rights of use to local people over the long term. Decisions are to be made jointly by all individuals who enjoy rights of use - especially women - and revenues are to be shared equally.

Technically, the main focus of the new law is no longer on afforestation but on management of the surviving natural forests. New plantations will play an important role only on heavily degraded or eroded soil, in places where there are no trees, or where desirable species no longer grow naturally.

The underlying principles of the Forestry Act of 1993 stand in diametrical opposition to long-established gender roles, the hierarchical social structure in Nepal, and the country's traditionally highly centralised form of government. It will therefore come as no surprise if it takes at least as much perseverance and time - i.e. decades - to implement these principles as it once took to initiate a comparable process in the Swiss Alps.

The need for a new generation of foresters

Forestry officials will have to be committed to reform if the new law is to have a chance of success. Experience to the mid-1990s has been mixed. Forest wardens vary in their ability to commit themselves to new and creative partnerships with local people. Some have experienced the transfer of control over the forests as a loss of power and status, and perhaps even as a threat to their professional existence. This makes them more likely to prevent rather than promote the establishment of user groups. Yet if experience in the Alps is any guide, the Forest Service in Nepal will have more than enough to do for quite a long time to come.

The first stage alone - resolving internal conflicts over resource use - will take decades. The claims of different user groups overlap in the unsurveyed mountain forests, and disentangling them will be a complicated process requiring many steps. It will require foresters to deal primarily with people rather than with trees, to play the role of social workers, and to mediate in the difficult terrain of a caste society as they devise problem-solving approaches.

(In Panchamool, for instance, Girish Kumar Mishra will have to confront the problem of the lower-caste Kami, who need greater amounts of fertile compost from the forest, as well as large quantities of fuelwood in order to perform their work as blacksmiths. If their needs are not given adequate attention, which appears to be the case at present, they will be forced to continue their trespassing, posing a threat first of all to the sacred forest and eventually to newly afforested areas, thereby endangering social harmony as well.)

Eliminate only if absolutely necessary.

Only when different rights are clearly defined and respected by all sides can technical improvements become fully effective. There is undoubtedly great potential for improvement. At present, forest management is seldom optimal, even in places where community rules have always been in effect. Resource use is too heavily concentrated at the margins of the forest, and too many trees are too old and no longer productive. At the same time, grazing prevents adequate regeneration of the forest.

Management plans could work wonders in optimising both use and care of the forest; if formulated in a democratic process that involves all the members of a user group, they would enjoy general approval. Formal guidelines will be of no use in this regard. What will be needed is forestry practised as an art - the art of listening closely and patiently in order to avoid drawing hasty or inaccurate conclusions. This will allow foresters to support local people in their efforts to make improvements in their own way.

The rapid pace of social change

I shall never forget the day we left Panchamool. A large group of men and women appeared to bid us farewell by hanging freshly woven garlands of flowers round our necks. On our long descent to the valley, we felt the after-effects of the previous evening's feasting and dancing. Even Girish Kumar Mishra was tired, for he had maintained a strenuous pace for the entire week. As we proceeded, I recalled that Tej Mahat had once said, "Foresters in Nepal cannot use helicopters. If I can't hike for two days, and if I can't stand the smell of people, I will not be a good forester".

Mishra's tools are his legs, a rucksack and a sleeping bag. He must do without the perquisites that come with coveted positions here or in India, such as a car, or a bell on his desk to summon a servant who will bring him herbal tea. Furthermore, a forester's modest salary of 2,000 rupees per month is not enough to adequately support a family, and it gives him little status in the eyes of the community. Would it not be better to motivate forestry officials by increasing their pay - especially during the present delicate phase of transfer of power?

Still, not even dedicated foresters can ensure that tree cover in the mountains will become more dense unless overall economic development reaches a certain critical level. If one compares present-day conditions in Nepal with developments in the Alps at the time the railway was first introduced in Europe, certain similarities can be seen. The Nepalese road network, for instance, is constantly breaking up local patterns of commerce, spreading new social values, and increasing social mobility.

Today it is also striking how rapidly new trends are appearing alongside traditional ways of life. The president of the Youth Club in Panchamool, who likes to wear jeans, would rather study for a career than follow tradition by becoming a mercenary. Chandra Kumari, an elderly woman whose married daughter lives in Singapore, can be seen wearing a Singapore Airlines sari. Perhaps there is no better illustration of the clash between the traditional and the modern than the contrast between the Kami, who still need every leaf they can gather to make compost, and the young man who danced to a recording of rap music at our farewell party.

There are additional parallels to 19th century Alpine development. Nepal is now visited by over 300,000 tourists annually, and 250,000 people are currently employed in the carpet manufacturing industry.

Many changes have also occurred in agriculture over the past few decades: the potato, which yields a harvest ten times greater than barley or buckwheat, is now coming into its own as a food crop. More and more animals, above all

water buffaloes, are being kept in stalls. This allows more efficient use of dung, although nitrogen-rich animal urine still seeps into the ground.

These conditions are similar to those under which industrial development began in the Alps, offering a new life to many of the landless and thereby helping to reduce pressure on the forests. Comparable conditions can be found today in the Terai and in the Kathmandu Valley. Yet it is difficult to predict the pace and the ultimate extent of the new developments now taking place.

By contrast with 19th century changes that affected the Alps, events in Nepal are occurring on a much more condensed timescale. The most noticeable developments of the 1990s are the rapid growth of urban centres and the increase in jobs. Many rural people have pulled up roots in search of what they hope will be a better life, working at least on a seasonal basis in the Kathmandu Valley or emigrating to India. Above all it is the men from underprivileged rural households who seek jobs: no matter how much labour and compost they invest in their tiny holdings, productivity will not increase enough to make a noticeable difference in their lives.

Migration of this sort has an immediate effect on land use. In many places marginal agricultural soils lie fallow owing to the lack of an adequate household labour force during seed and harvest times. At the same time, the money earned by a family member with a job is now sometimes used to purchase food, as in well-off Panchamool. Trees are also being used differently nowadays. Whereas leaves and firewood were the main forest products for many centuries, today the demand for commercial timber is growing rapidly owing to the accelerated pace of urbanization.

A similar situation in the Alps during the last century ushered in a particularly difficult phase there. For it was at this time that the rural elite began to reassert their long-established rights and attempted to drive underprivileged classes out of the forest, thereby intensifying rural conflicts over resource use. The same danger looms in Nepal as the price of timber continues to rise.

Those with positions of political and economic leadership in user groups might be persuaded to focus production entirely on revenue-producing "trees for profit". But such an approach would run counter to the interests of people who still lead traditional lives, and for whom "trees for the stomach", the source of traditional forest products, still play an important economic role. This includes most of the women, as well as the lower castes and the elderly.

Nonetheless, the demand for wood represents a potential opportunity for well-organised user groups in which every man and woman is conscious of his or her rights, duties and options. After all, these user groups have a dual aim: to optimise use of the forests allotted to them, and to improve the well-being of their individual members. Selling commercial timber could enhance user group

revenues, while local processing operations would create jobs in rural areas, thereby diminishing rural exodus.

The rural population of Nepal has already been underestimated once before, when the Theory of Himalayan Environmental Degradation was formulated. Today, districts like Sindhupalchowk and Kavrepalanchok testify not only to the ability of the people of Nepal to comprehend change, but also to the ways in which they have already reacted dynamically to new situations. Some 30 million trees were cultivated or planted by people in these districts between 1965 and 1989, largely on unirrigated or fallow land. Grown individually and in groups, the trees now cover the equivalent of an afforested surface of 17,000 ha. From the outset they were intended less for local subsistence than for sale in the neighbouring Kathmandu Valley, where there is great demand for timber. People who can be certain of reaping benefits from trees will take care to ensure their continued growth.

Box

Siva versus Kali

Erosion of catastrophic proportions occurs frequently in the Himalayas, owing to their recent geological origin. Tectonic forces are still at work on the Himalayan massif, which is being thrust upward by about one centimeter a year. As a result, rivers are cutting deeper into their channels, and mountainsides are sliding downwards. Earthquakes, and landslides triggered by infiltration of water from the monsoon rains, both contribute a great deal of detritus to Himalayan rivers.

According to Hindu legend, these catastrophic events are the work of Black Kali, the destructive consort of the god Siva. Although farmers in Nepal are powerless against Kali's fury, they are experts at controlling erosion on man-made cultural landscapes. Their experience is reflected in the broad range of expressions they use to describe and forecast events involving movement of the earth, such as cracks in the ground which foretell an impending landslide.³⁰ The well-maintained terraces they construct reduce the rate of erosion, especially if they are irrigated. Small-scale damage is repaired quickly, but even a cultural landscape that has sustained major damage is usually restored within a generation.³¹

The Theory of Himalayan Environmental Degradation can be further modified at the points where it assigns blame to people living in the uplands for disasters which occur on the plains. Floods have been occurring since the time of the ancient Hindu Puranas, when even Siva's bountiful locks were incapable of calming Ganga's fury. (See the previous chapter on India).

Because he could not completely pacify either Ganga or Kali, Siva took consolation in transforming the catastrophes they wrought into something creative: disastrous landslides thus gave rise to fertile slopes on which agriculture could flourish once again, while floods that carried silt down from the hills produced the so-called "golden soil" on the plains from which Bangladesh later took its name. Flood events became catastrophic only when humans began to live in areas that are inundated during flooding. This first occurred in association with the colonial plantation system. As population continued to grow, more and more people came to inhabit the disaster-prone floodplains.

1. KÜchli 1988
 2. Cf. Mahat, Griffin and Shepherd 1987; Pandey 1982
 3. Banyan: *Ficus bengalensis*; pipal: *Ficus religiosa*
 4. Cf. Ives and Messerli 1989
 5. Cf. World Bank 1979
 6. Estimate for 1981; cf. Ives and Messerli 1989, p.35
 7. Cf. Högger 1993, p.192
 8. Cf. Gilmour and Fisher 1991, p. 26
 9. Cf. Manandhar 1982
 10. Cf. KÜchli 1988, p. 84
 11. *Pinus patula*
 12. Chilauna: *Schima wallichii*; Katus: *Castanopsis* Spp.
 13. Campbell and Denholm 1993, p.8
 14. Personal communication with Patrick Robinson, . May 22, 1993.
 15. English 1985, p. 69
 16. Bista 1991, p. 26
 17. *Santalum album*
 18. Cf. especially Ives and Messerli 1989
 19. Cf. H. Gurung 1989.
 20. Gilmour and Fisher, 1991, p. 23.
 21. Cf. Campbell, 1983; Cambell, Shrestha and Euphrat 1987; Mahat 1985
 22. Cf. Baral 1991.
 23. Cf. Gilmour and Nurse 1991.
 24. Talbott and Khadka 1994, p. 8,9.
 25. Bänziger 1990.
 26. Cf. Banskota 1989, p. 5.
 27. Cf. Malla 1992.
 28. Robinson and Joshi, 1993, p. 104.
 29. Cf. Carlson, 1985.
 30. S.M. Gurung 1989, p. 358.
 31. Kienholz, Hafner and Schneider, 1984
-

Notes to readers

© Christian K uchli, Forsting. ETH, Journalist BR, CH-2502 Biel, Switzerland