

## Chapter 5

# DISCUSSION

The introductory section made the case for considering the totality of the landscape encompassing both natural and cultural features. There is, however, immense difference in the pace of change between these two. Mass wasting of elevated land surface and valley deposition or bank-cutting are geomorphic processes with a longer time scale. On the other hand, effects of human intervention on the landscape become noticeable with immediacy. There is yet another difference. Natural processes that shape landforms have a cyclical nature while cultural forms exhibit linear and progressive development. These are evident from a reconstruction of sample events in the study area spanning eight decades (Annex B).

Geomorphic processes are very forceful in such an area of high relief and become evident from periodic trigger events. The chronology of natural events stamped in local memory were of three types: landslide, bridge collapse, and flood damage. The landslides affecting settlements occurred in 1934 (Tagaring), 1955 (Naiche, Taranche), 1988 (Tanklichok), 1989 (Naiche), and 2001 (Naiche). Bridge damage by river undercutting of their foundation occurred in 1964 (Bhulbhule) and 1975 (Khudi). The lowland fields of Taranche were destroyed by unusual floods of Ghatte and Sisneri streams in 1921 and 1978. Each time, the boulder-strewn lands were reclaimed as prime paddy fields. Similarly, part of the Bimire rice land was destroyed by the Chiyabari slide in 1988, but repaired soon after (Figure 28A).

A significant cultural process that impacted the landscape of the area was upgrading of transport infrastructure. It had three sequential stages: improved suspension bridges, introduction of mule transport, and extension of the vehicular road. In the past, Khudi and Bhulbhule were centres for winter trade of mountain products from Manang. The construction of a steel suspension bridge at Khudi in 1930 (Figure 31) established its central function with a Sanskrit school, Ayurvedic dispensary, and the brick rest-house (Annex B). In the 1950s, the place had a post office and health post added. Change in bridge site also had much influence on the location of commercial (bazaar) settlements. At Khudi and Bhulbhule, it led to the decline of old sites and development of new ones. Dobhanchaur emerged as a new settlement in 1987 and the of Ngadi bridge was shifted a kilometre downstream (Figure 32).

The second sequence in transport development was improvement of the track to Manang. In 1972, the Remote Area Development Board commenced upgrading the

A. October 1962



B. December 2001



Figure 31: Khudi Bazaar (859m): The suspension bridge with the 'Henderson of Aberdeen' trademark across Khudi Khola dates from 1930. The bazaar at the bridge-head had shops, a police post, post office, and Ayurvedic dispensary. There is a substantial house beside the field with three storeys and a slate roof (Figure 31A). The suspension bridge was damaged in 1975 and replaced by a new one in 1978 half a kilometre upstream. Since then, the latter bridge-site has more new settlers and the old bazaar has declined. The substantial house has now a corrugated tin roof (Figure 31B). The Gurung owner migrated to Chitwan after selling it to a Tamang ex-serviceman.

A. October 1962



B. January 2002



Figure 32: Ngadi Khola: Above Dobhanchaur. The suspension bridge supported by the boulder on the right was built with Swiss assistance in 1954 (Figure 32A). On the left is the east declivity of Nemané river terrace. The old bridge was dismantled in 1988 when a new one was sited at Dobhanchaur (Figure 8A). There is no vegetation degradation on Nemané terrace slope (Figure 32B).

trail through the Marsyangdi gorge as a mule track. By the late 1970s, the route became operative for mule transport. This mode of transport not only affected porter work but also discouraged cultivation of winter crops along the main trail.

The third stage of transport development was extension of the road from Bensishahar. A jeepable road reached Khudi in 1993, Bhulbhule in 1996, and opposite Taranche in 1999. Although operative only during the winter dry season, transport costs for consumer and construction materials were drastically reduced. The latter also influenced change in the house type, e.g. cement structure and corrugated tin roof. A malaria control programme initiated in the late 1960s and transport improvement thereafter encouraged new settlements in the lowlands. Ngadi-bazaar and Ustabensi had their first permanent settlement in 1976 while a chain of tea-houses and shops has sprung up along the road and mule track.

The earlier air photographs and later terrestrial photographs used for landscape appreciation span a period of 44 years. Based on the interpretation of this visual evidence and field observation, some conclusions regarding landscape change can be drawn. Such observations are related to aspects of geomorphology, land use, and transport infrastructure. Most landslides have become stabilised, including the major one at Tagaring. Some new ones of a minor scale are noted given the steep slopes in the area. All landslide sites around Taranche are now overgrown with vegetation. The most significant land-use change has been in the increase of forest land through overgrowth of shrub vegetation. Cultivated land increased only marginally while some away from settlements was found abandoned. Thus, the study area appears much greener now than in the past. Transport structures had varying impact on the landscape. Bridge siting has led to emergence of settlements at new locations. Mules have displaced human porters for long distance transport. Road construction opened gashes on hillsides through excavation and affected some forest and cultivated land. However, vehicular traffic has facilitated cheaper transport of goods such as foodgrains and kerosene. Food import has led to a decrease in dependence on local products, while cheap kerosene has provided an alternative to fuelwood.

Land-use change in the study area over the last four decades shows marginal increase in cropland while forest land gained significantly. This scenario is contrary to the prevailing notion of widespread deforestation in the Nepal hills. Therefore, it seems pertinent to enquire into the factors that induce such change in the landscape. Most discussions on land degradation attribute increasing population pressure on limited resources, e.g. forest depletion through cropland expansion (Macfarlane 1976). Population pressure is certainly an important factor in shaping the landscape. However, population growth at local or regional level has its own dynamics, being low or high, that determine the pace of temporal change in the landscape. Therefore, the valid question posed with regard to the erosion problem in the Nepal hills - crisis of environment or crisis of explanation (Blaikie & Brookfield 1987). This diagnostic question has been raised also on the wider perspective of the Himalaya (Ives and Messerli 1989).

The problem can be better understood only with more rigorous field investigations based on a temporal perspective. One might refer to some local studies that provide insights into landscape change. A ground truth verification of terrestrial photos with an interval of 24 years (1962-1984) of Khumbu area revealed that overall forest cover was not significantly altered nor were there any significant changes in geomorphic nature (Byers 1987a). A follow-up study indicated little change regarding forest removal and subsequent geomorphological damage that had occurred since the 1950s and contemporary surficial activity within most lower altitude shrub/grassland and forest areas were low.

*“Findings emphasize a landscape and surficial stability that directly counters the alarming statements of scientists, developers, tourists and management authorities” (Byers 1987b).*

Gorkha (neighbourhood of Potharithok) south of Lamjung, has a long history of human settlement. The place has environmental problems associated with overuse of natural resources. These are accentuated by inequality in land access due to social discrimination and the response of the small farmers has been to practice an extremely intensive form of land use (Muller-Boker 1992). There is acute shortage of farm labour despite increasing population. Yet, the traditional farming system that is suited to the environment continues and is optimally adapted to the natural resources and their potential (Pohle 1992).

Gulmi and Arghakhanchi districts lie in the sub-tropical hill zone far west of Lamjung. It has been demonstrated that deforestation in this area is not a recent phenomenon as a consequence of demographic growth. It had been going on for a long time and the situation seems to have reversed over the last three decades with increasing tree plantation in the fields. For a long time, peasants have cleared the trees, but have found new solutions to using land. Until now there has been a constant adjustment between collection and the replacement of resources. Hence, it is not environmental destruction but evolution which is a more appropriate concept; and there is nothing which proves that this evolution is catastrophic (Smadja 2000).

The case of Palpa is based on photo comparison such as the one done in the present study. The time lapse between the photo series is 65 to 75 years. The early photographs pre-date by over half a century the spectre of ‘losing ground’ (Ekholm 1976) or the film documentary ‘The Fragile Mountain’. In fact, there was no change in the overall structure of the Palpa landscape. The then forest was already residual and not very dense and there were abandoned fields as well. Since then, there has been no massive deforestation but rather a ‘nibbling’ on the fringe: some sloping fields have returned to heath land, grazing grounds have not been converted into cultivated fields, and erosion damage has been minor.

*“Taking into account population density and environmental constraints, the apparent stability of mountain sides rather than their degradation is surprising” (Smadja 1998-99).*

The report observes that there have been no major upheavals in the landscape of south Tansen since the beginning of the century.