



# The Four Main Transboundary Issues

The four most important transboundary issues currently affecting pastoralists and their environment in the Nepal-Tibet transboundary region are illegal poaching and trade in endangered species and wildlife products, cross-border spread of forest fire, cross-border spread of livestock diseases, and improvement of local livelihoods. These were the issues identified as most in need of cooperation during the official meeting of representatives of the protected areas concerned in 1995 and endorsed by the government representatives in 1996, and were also at the centre of the discussions in the joint participatory study carried out in the five border villages (see Chapter 1).

These issues are discussed in the following four sections of this paper. The information is based substantially on the results of the village survey. Some possible solutions are also presented.

## Illegal Poaching and Trade in Endangered Species

### *The problem*

Traditionally, local communities refrained from hunting and killing in Khumbu, Kyirong, and other valleys, because they were considered sacred. In fact, accounts of early explorers suggest that it was difficult to obtain wild meat in these areas, because the local people objected to hunting. These cultural norms, while still followed in areas such as Thame and Kyirong, have been eroded elsewhere by external cultural and economic influences.

Although local people do not hunt, they have never had the authority and means to prevent poaching by outsiders who invade their forests and pastures. Information collected from local villagers shows that musk is regularly traded between Nepal, Tibet, and India. Hence, it can be speculated that musk deer poaching was common in the past, because musk pods cannot be extracted without killing a mature male animal. The snares set by hunters also indiscriminately trap female and young animals (Mills 1999).

The primary function of a protected area is to conserve biodiversity and landscapes through local, national, and international laws. However, the protection of wildlife by enforcing national laws and regulations is relatively new; Nepal passed its first National Parks and



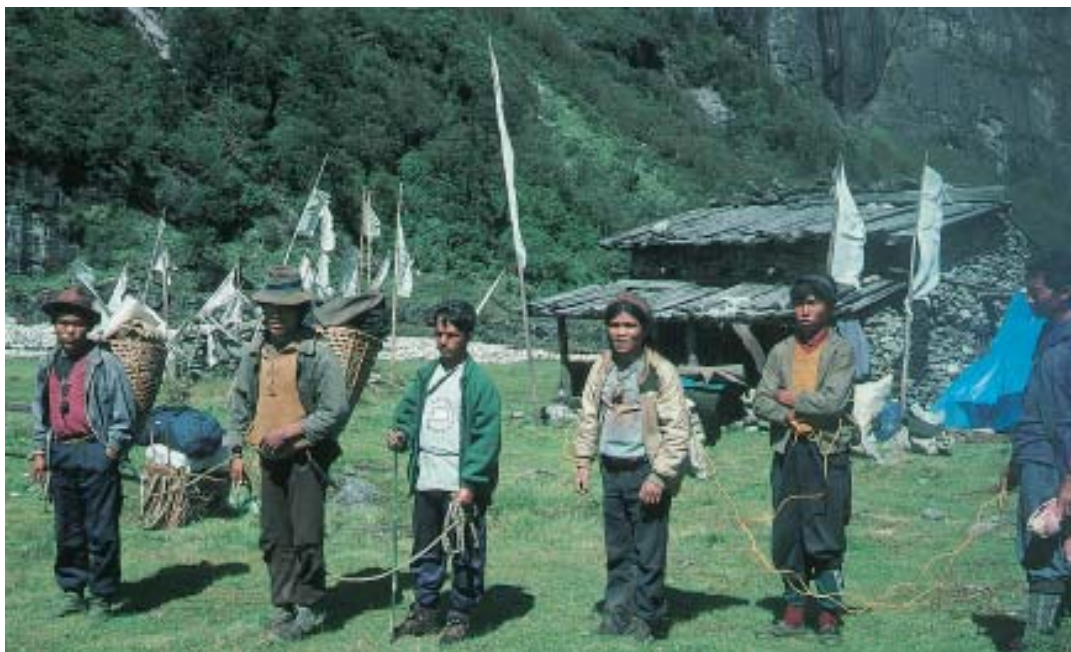
## **Nepali locals apprehend transboundary poachers**

Brian Peniston

In late September 1998, at Yangle Kharka (3570 m elevation) on the way to Makalu Base Camp in Nepal, a team of project-based National Park staff (including myself), local people, cook and assistants, and porters discovered and captured four musk deer poachers from TAR. The team was at Yangle to build a series of porter shelters along a dangerous portion of the Makalu Base Camp trail, where several poorly equipped porters had lost their lives as a result of exposure.

Ms. Tsering Sherpa, a local woman from the nearby Navagaun village, was overseeing the construction of the porter shelters and trail improvements as Chairperson of the Upper Barun Integrated Conservation Committee. She saw fires burning on the hillsides in areas where local herders rarely went, and told us that she suspected poachers were in the area. After setting up camp in the pastures of Yangle Kharka, the scouts and porters noticed smoke rising from a distant point on the ridge opposite the campsite. After running up the steep cliff-side, they found a smouldering fire in an overhanging cave, with several animal skins drying over the coals. Searching the area, they quickly uncovered two unknown men hiding in the bushes nearby. The scouts caught them, tied their hands, and brought them and their gear to the Yangle campsite. After several hours of intensive questioning by candle-light, the men admitted that they were poachers and planned to collect musk deer and wild edible plants for the long Tibetan winter when there is food scarcity. They admitted that there were two other poachers in their gang and that they all came from Lhungdup village, immediately across the border in TAR. From the quantity of wild edible plants they had, it was clear that they intended to stay for several months in the Yangle Kharka area, poaching wildlife and living off the land before returning to TAR.

At sunrise, the team of scouts and the cook and assistants noticed another smouldering fire on the distant hillside. They decided to investigate, and as they walked up the hill, the other poachers noticed them and fled, leaving their belongings



*Poachers tied en route to District HQ*

in the cave in which they had been staying. Our park team watched the chase from below, with the cook, Lhungdup, and his team in hot pursuit of the poachers. The poachers were quickly overtaken, caught, and escorted down to the campsite for further interrogation. They too admitted to being poachers and asked for mercy and to return to TAR. Their request was denied, and they were tied together and escorted on the four-day hike to Khandabari, the district centre, for processing and trial. The men were found guilty of poaching musk deer and endangered birds and sentenced to jail, where they spent the next ten months.

The National Park team learned two simple but important lessons from this incident. First, local people, when given the authority and responsibility and a mechanism for dealing with offenders (provided in this case by the presence of National Park staff and the knowledge that the poachers could be taken to a police station), can effectively monitor and control people coming and going within their areas. Second, with minimum incentives (no per diem or other monetary reward), partnerships of local people are willing to capture and bring to justice outsiders and poachers abusing National Park and Buffer Zone resources.







Wildlife Conservation Act only in the early 1970s. TAR, China has national, regional, and local laws protecting forests and wildlife (Annex 1).

Nepal and China are parties to international agreements governing the protection of nature and natural resources, such as CITES, which mandates signatories to enforce regulations to reduce illegal trade in endangered and threatened species. Historically, such national and international initiatives were rare, so it is difficult to determine the past conservation status of flora and fauna.

The five communities visited in the joint study are all within the boundaries of protected areas. Protected area status has greatly reduced wildlife hunting and poaching activities in these villages. However, consultations with local people and field evidence suggest that the future of endangered wildlife – such as musk deer, snow leopard, and red panda – is not fully secure even within the protected areas.

Effective protection and management of species requires scientific information, more trained manpower, and stronger legislation outside of and within protected areas. A committed and empowered national authority is needed to curb wildlife trade in each country. Nepal is in the process of introducing legislation to create an authority empowered to combat illegal trade in endangered species. Cooperation and support from an aware public is also essential for the further control of poaching and hunting in transboundary areas. Examples of illegal activities abound. In 1999, for example, several people from Chhentang were arrested in Makalu-Barun National Park for attempting to poach musk deer. Similarly, the local people in Chang village claimed that people from the adjacent Dhading district in Nepal had been found hunting in the Kyirong forest.

Understanding and being responsive to local concerns and issues is a critical step towards public cooperation. Snow leopard, grey wolf, and black bear have been known to destroy livestock and crops. During the study visits, residents of the Timure area in Langtang National Park complained about crop damage from wild boar. Thame residents were concerned about the uncontrolled growth of the Himalayan tahr population. In Chang, villagers mentioned that monkey and langur damage crops in their area. There are many situations in which local people feel compelled to resort to retaliatory killing of wildlife.

Protected area regulations forbid retaliatory killings, but there are no damage-reduction mechanisms or compensation schemes. Attempts are being made both in QNP and Nepal's mountain parks to deliver protected area benefits to affected communities through community projects. However, these projects are not clearly linked with conservation efforts, and benefits go to the entire community, whereas losses incur to individual families. Hence, local people do not always understand the benefits of wildlife conservation. Adequate emphasis must be placed on linking wildlife conservation with the local economy (tourism,



Langtang woman in blue

Ang Rita Sherpa

*"Government only loves wildlife and does not pay attention to the people. Boars are leaving people hungry." a villager from Timure in Nepal*

*"No animal is more destructive to crops and cultivated areas. It is impossible to make a plea for its protection."*

*Prater, 1977, on wild boar*

*"In the past, local people hunted boar. Locals knew all the habits of boar and limited its population by hunting. This skill has been lost due to the LNP regulations."*

*a local from the Timure area*



non-timber forest products (NTFPs), livestock, and agriculture) and ecology (predator-prey balance).

Local people in some areas depend on wildlife products for religious and cultural uses. Plant and animal parts are also sought after for traditional healing and medicinal uses. Such traditional uses cause minimal damage because the amount used is small and dead animal parts can often be utilised. However, there are no provisions in protected area regulations to allow for such uses. Also, in some areas, such as Chhentang, local people are still dependent on wildlife for meat.

Information from the field suggests that the poaching of endangered wildlife continues in the protected areas of both countries, despite recent protective measures. The most destructive activity is poaching for profit, which is decimating species such as snow leopard,

musk deer, and black bear. Bear gallbladders and musk still fetch high prices in the international smuggling arena. Local hunters receive only a very small portion of the profits for risking imprisonment and destroying local heritage. Poaching generally happens in April, May, October, and November. Local people are convinced that protected area regulations have reduced poaching activities considerably but not totally. Arrests and punishment given to even a few poachers have had a significant impact by raising awareness and discouraging potential poachers.

Border areas are also areas of international smuggling. Nepal's remote and unmonitored borders are used as easy routes to smuggle illegal wildlife contraband between India and China. However, the potential does exist to reduce poaching and smuggling activities in transboundary-protected areas through regular checks, information sharing, and signposting.

Figure 1 shows a graphical approximation of the villagers' perceptions of the relative amounts of wildlife hunting and poaching over time, and an indication of how they expect it to develop. The people of Chang, Kimathanka, Thame, and Timure believed that wildlife poaching and hunting had decreased in their areas due to protected area status. These people would like to see hunting and poaching reduced further in the future, particularly those in Chang and Timure. However, those in Chhenthang thought that hunting and poaching of wildlife will continue and increase in their area unless alternatives are provided.

Stronger efforts are needed to educate and provide alternative income sources. Community mobilisation and management can be effective tools in increasing local participation in wildlife conservation in transboundary regions. If cross-border smuggling and hunting of

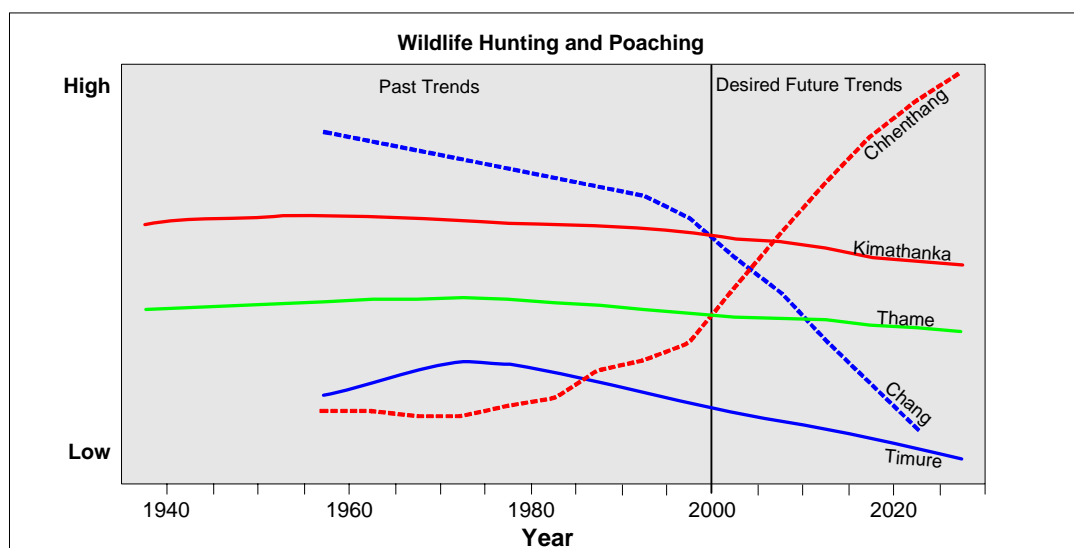


Figure 1: Villagers' perceptions of relative amounts of wildlife hunting and poaching over time







wildlife species is to be further reduced, there is a need for cross-border contact, agreements, and cooperation among local people; between local people and authorities and among authorities themselves.

### *Suggested activities to reduce transboundary wildlife poaching*

#### Build institutional capacity

- Plan habitat management to conserve biodiversity
- Train protected area staff and customs agents at borders

#### Improve legislation

- Implement stronger legislation to empower QNP staff to control hunting and poaching

#### Improve cross-border communication and exchange

- Establish a transboundary committee and a buffer zone committee
- Initiate joint research and information sharing to control wildlife poaching

#### Increase local awareness and support to reduce poaching

- Conduct joint information campaigns by publishing posters and brochures and by holding meetings in local languages on transboundary conservation and development issues
- Erect warning signs regarding illegal trade at major border crossings such as in the Zhangmu – Kodari area
- Conduct regular public meetings to discuss trade and conservation issues
- Organise transboundary exchange tours, especially for Chhentang people.
- Reduce wildlife-people conflict by providing direct and indirect compensation
- Promote wildlife-related economic activities, such as wildlife tours

## **Cross-border Spread of Forest Fires**

### *The problem*

Managers of the forests and protected areas in the TAR are extremely concerned about forest fire damage. The moist valleys of Kyirong, Tinkey, Nyalam, and Dingri in QNP are the main forested areas of Shigatse Prefecture which is otherwise mostly treeless cold desert. The demand for timber, firewood, and medicinal plants means that the lower forested valleys are not only biological ‘hot spots’ but also places of immense economic value to western Tibet. These isolated areas are also home to some of the last remaining old growth forests and have scientific, recreational, and educational value.

Forest fires are also discouraged in Nepal’s mountain protected areas, where local people depend on forests for organic manure, livestock fodder, water, wildlife, energy, medicine, wild food, and fibre. The legal restriction against forest burning is strong in the mountains



*Slash and burn – illegal burning for cultivation can get out of hand*

of Nepal, but education and information campaigns about forest fires are less vigorous than in TAR, where anti-fire messages can be seen carved or painted on houses, rocks, and tree trunks.

Although lightning and rock falls can ignite fires naturally during dry periods, these events are probably rare in the study area, because lightning generally comes with monsoon rains and high humidity. Thus the main strategy is prevention of deliberate and accidental fires set by people. On both sides of the border, the fire suppression strategies depend on law enforcement and education, because the physical capacities of authorities and villagers to put out a raging forest fire is limited by the topographic difficulties of the mountains, as well as by a lack of fire-fighting tools, manpower, training, and funding.

There is a basic Buddhist belief that burning forests and grasslands is sinful, because it destroys countless life forms. Nevertheless, fires started by people have been a dominant influence in the forests of the Himalayas for centuries. Farmers, hunters, and herders have deliberately used fire to clear old grass and promote new growth for their cattle, clear sites for new fields and slash-and-burn agriculture, and hunt or drive away wildlife. Fires that accidentally spread from camps are also common.



Lhakpa Norbu Sherpa

*Forest fire out of control*

Oral history and landscape patterns suggest that large and small fires have shaped forests throughout the study area. Large fires are less frequent but far more destructive, because under dry weather conditions and a dense forest canopy, they can jump across rivers and ridge tops. Generally, the international boundary between Nepal and TAR follows ridgelines and river gorges that act as natural firebreaks and reduce the chances of fires spreading across the border. Regular small fires prevent the excessive accumulation of forest biomass and dry matter on the forest floor, reducing the chances of large, destructive fires.

In practice it seems that cross-border spread of fires in this area is relatively uncommon. A Timure resident recalled the story of a large fire that started in Langtang and spread across the river to Kyirong about 60 years ago. Kimathanka and Chhentang people were not aware of fires crossing the border, and Thame and Dingri are separated by treeless alpine landscapes and high mountain ranges that make the spread of fires impossible.

Figure 2 shows a graphical approximation of the villagers' perceptions of the relative frequency of forest fire over time, and an indication of how they expect it to develop. Local informants from both sides of the border thought that the frequency of forest fires had decreased in recent years through the anti-fire regulations and the information campaigns of the government forest departments, which came into effect in the protected areas



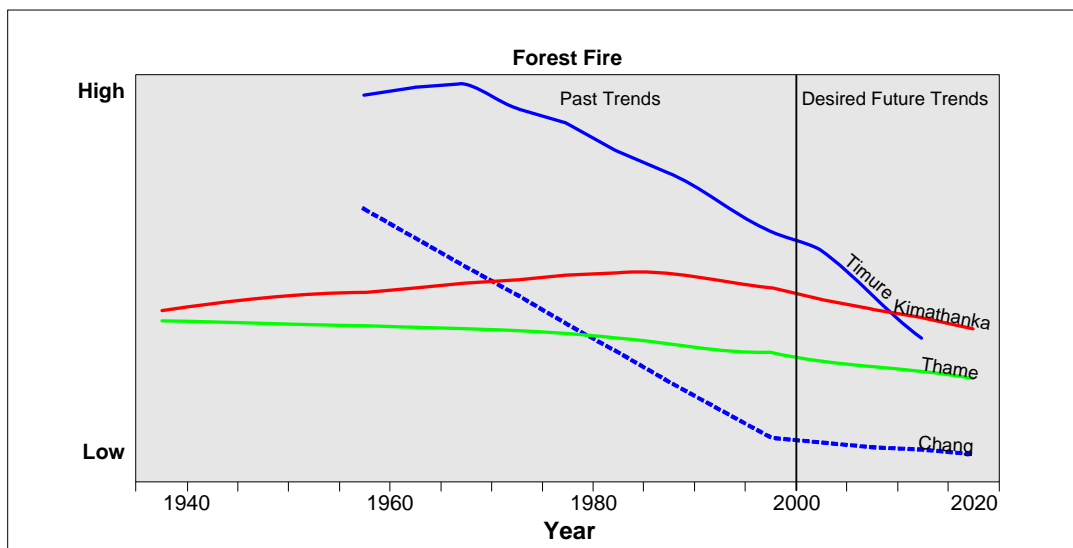


Figure 2: Villagers' perceptions of relative amounts of forest fire over time

between 1985 and 1995. All hope that there will be fewer fires in the future. Other factors cited as responsible for reducing accidental forest fires were wider availability of battery-operated flashlights instead of flammable organic material, availability of kerosene, less outdoor camping among travellers, and general awareness of forest rules among smokers.

As a result, the local people claim that many open meadows previously maintained through regular burning and grazing are reverting to forest cover. In some places, formerly cultivated areas are being taken over by forests, probably due to reduced dependency on local agriculture and livestock. Residents of Timure, Thame, and Kimathanka consistently stated that the forest cover has increased in these areas. Chhentang and Chang villagers expressed similar views. This contrasts with the popular belief that Nepal's forest cover has gone down slightly in recent years (9th Forest Sector Coordination Committee Meeting), and that there is a trend in the high hills of forest being converted to shrub. But the contrast may well reflect the difference between protected and unprotected areas. Local people would prefer to see the forest fires reduced further, because more forest means a greater availability of firewood, timber, and other benefits.

Despite these local opinions and the resource managers' desire to suppress fires, it is likely that fire will continue to be an agent of forest change in the study area. The most important factors determining the frequency, intensity, and spread of forest fires are weather and forest conditions. No amount of information and legislation can prevent forest fires in the study area under the present forest ownership, use, and management systems. Large and destructive fire events will also be unavoidable if small fires are suppressed for an extended period.

Fire ecologists and forest managers in western countries have developed a greater appreciation for the role of fires in ecosystems and now promote fire management and even prescribed burning instead of total exclusion. In some cases, such as protecting old growth forests and forest plantations, fire exclusion will remain an important management strategy requiring the creation of stand structures that are less susceptible to burning, and the construction of firebreaks and suppression facilities. However, when managing natural forests for a wide range of forest products and principles, it is necessary to recognise fire as an important ecological and cultural occurrence. It is important to realise that fire can be one tool to manage the mountain forests of the study area in order to conserve watersheds; provide habitat for biodiversity; produce timber, fodder, and non-timber products for local people; and protect recreational and cultural values.

Concerns about fires spreading across the border do not appear to be as serious as originally thought. Fire is indigenous to both sides of the border. The consultations with local people and the ecological understanding of forest fires support the view that the fire must be managed rather than suppressed. However, since transboundary grazers, collectors, and hunters may cause fires, there is still a need for cross-boundary cooperation to educate local users in order to minimise or manage cross-border fires.

### *Suggested activities to manage forest fires*

#### Integrate fire management into protected area planning

- Integrate fire protection – as a tool for forest management - into planning
- Delineate economic forests (areas like orchards that provide cash income from trees other than from timber) and construct and maintain firebreaks
- Manage forest stands to make them less susceptible to fires and to create habitat
- Alter forest stand structure through silviculture management

#### Increase local awareness and support

- Provide more information and education about the role of fire in natural ecosystems and about fire prevention, especially in Nepal
- Conduct regular public meetings for information sharing, facilitation of communication, and creation of joint complimentary programmes

## **Cross-border Spread of Livestock Disease**

### *The problem*

The spread of livestock disease across the border is a concern for authorities and local residents of both TAR and Nepal, because livestock herding is an important economic activity in the communities near the border. However, no one is certain of the problem's actual seriousness, because little accurate historical information exists from which to assess the magnitude of cross-border disease transfer.

In Nepal, foot-and-mouth disease (FMD) is apparently a recurring problem, with as many as 400 cases reported in one year. It causes major losses in livestock productivity and local economies because affected livestock are no longer productive. This disease is common among hybrids and causes death in young animals. The open border and free livestock movement between Nepal, India, and Bangladesh are the cause of FMD prevalence. However, FMD is not a major issue in high-elevation areas because of the extensive livestock movement (low concentrations of animals) and the lack of exotic hybrids.

According to livestock officials in the Sankhuwasabha and Rasuwa Districts of Nepal, FMD has not been detected in the border regions. The major livestock diseases reported in these areas are haemorrhagic septicaemia, black quarter, and scabies. It is believed that some of these are also communicable to wildlife and can affect wildlife populations in parks and preserves. The occurrence of livestock disease along the border regions within TAR is less clear. There are no recent accounts of livestock losses due to the trans-border spread of diseases. However, officials in the TAR express concern about the possible spread of livestock disease from across the border because of the obvious lack of livestock health services in the border regions of Nepal. Livestock disease could spread along environmental corridors, such as river valleys, that support similar kinds of livestock. Hence, the fear of disease spreading into Chhentang, Kyirong, and Nyalam from Nepal is justified.



Dan Miller

*Wild blue sheep in high altitude sheep pastures*





Lhakpa Norbu Sherpa

*Chauri herd in Kimathanka village in winter*

*"TAR authorities did not allow us to sell our dzo this year, claiming that our animals are diseased."*

*Kimathanka resident*



The movement of livestock or people, the transportation of contaminated materials, and the consumption of meat could transfer disease across the border. A sign posted at the border at Zhangmu exhorts livestock owners to get their animals vaccinated by saying, "There is bubonic plague in Nepal." On the Nepal side of the border, no one is aware of any current epidemics or outbreaks. A Nepali informed us that livestock traders in Tibet sometimes claim that livestock from Nepal are diseased in order to increase the demand for their own livestock.

Nepal's 20-year Agriculture Perspective Plan (APP) gives emphasis to the livestock sector through strengthening veterinary services and controlling livestock disease. The European Union supports a Livestock Health Services Strengthening Project to control livestock disease in the middle hills. These services do not reach the northern border villages; however, programmes to control disease in the lowlands naturally reduce their spread higher up.

Most districts of Nepal have a veterinary hospital, usually located at the district centre. However, even at these hospitals, the capability of the workers to identify diseases is limited by lack of laboratory facilities and training. Veterinary extension centres serve the outlying areas, but remote border villages are out of reach of even these services. The situation in border villages of TAR is similar; most villages have positions for government and village veterinary workers, but they are often vacant, and the staff are not well trained.

Herders in remote areas of TAR and Nepal have their own traditional practices to manage livestock diseases. In the summer, they move their livestock to higher elevations where grazing is better and they can avoid warm-weather diseases. Traditional animal doctors and healers are usually still active in these villages. The treatment techniques used range from medicinal herbs to bleeding and exorcism. Different natural remedies are used for specific diseases. For example, the people of Kimathanka administer musk to livestock suffering from 'aulo', a sickness associated with summer heat in the lowlands. Catastrophic losses of livestock to epidemics are often regarded as an act of local deities, so mystical remedies – such as the use of spirit mediums and fumigation – are used.

Figure 3 shows a graphical approximation of the villagers' perceptions of the relative prevalence of livestock disease over time, and an indication of how they expect it to develop.

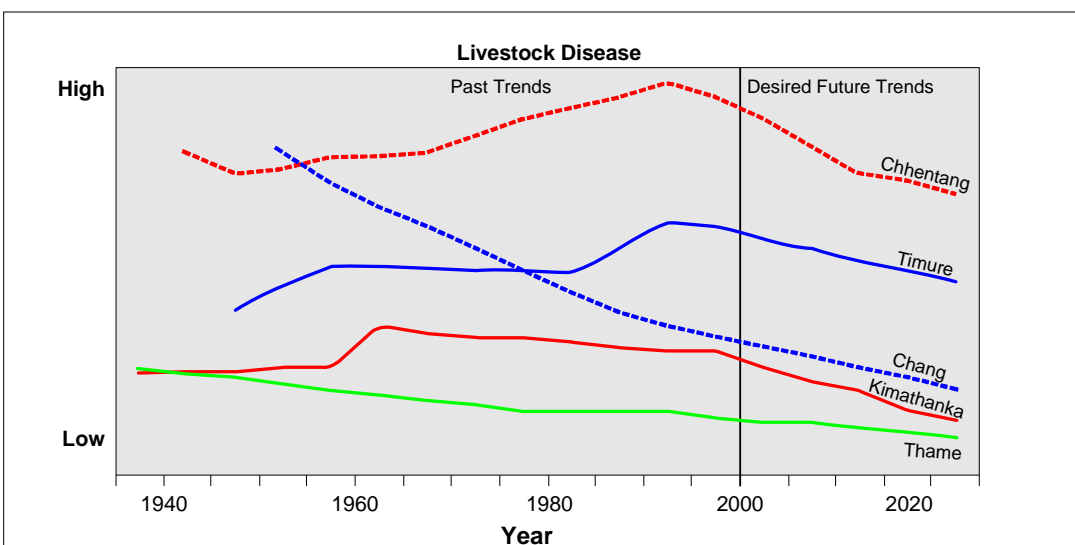


Figure 3: Trend line showing villagers' perceptions of relative amounts of livestock disease over time





There was no clear pattern among the different communities consulted. The people in Chang and Thame felt that livestock disease had declined over the last 50-60 years, those in Timure and Chhentang believed that it had increased. In Kimathanka people noted an increase some 40 years ago, followed by a steady drop. A veterinary officer from Sankhuwasabha district (where Kimathanka is situated) maintained that livestock disease along the northern border had not been a major problem in recent years. All of the villagers hope that disease prevalence will decrease.

In the past, there was far more movement of livestock across the border and no veterinary care, so cross-border spread of livestock diseases may have been higher. In recent years, the movement of livestock between Nepal and Tibet has declined significantly, due to the reduced demand for Tibetan salt in Nepalese markets and periodic closures of the border to transboundary grazing since 1960.

There may also have been a decrease in the livestock population in the high mountain region of Nepal. According to one estimate, there has been a 10% decline in yak farming in these high-elevation districts, most likely due to the shift towards tourism and other economic activities, out-migration, and the decrease in trans-border grazing. Sheep numbers have also declined significantly due to lack of labour, closure of forests to grazing, lack of breeding facilities, and introduction of chemical fertiliser to replace farm manure.

Despite this decline, keeping of large numbers of livestock is still central to the livelihoods of many farmers in the border regions of Nepal and Tibet and will continue to be so for quite some time. Livestock are the main sources of protein and cash income. Local people produce dairy products, such as butter and cheese, to sell for cash or trade for labour within their communities. People in the warmer valleys of Nepal and TAR still produce yak/cow crossbreeds for sale on the high plateau. The nomads from the high Tibetan plateau export thousands of sheep, goats, dri, and yaks to Nepal each year.

These exchanges are based on the climatic advantages of each locality. Cross-border livestock movement is essential for transboundary trade, transportation, and the genetic improvement of herds. For instance, Nepali yak farmers import new animals from TAR to replenish their herds, and yaks and crosses are the main form of transportation across Himalayan passes. The loss of valued animals to epidemics can deprive a farmer of his livelihood. Sickness or minor ailments can reduce livestock productivity and capacity to do work. Therefore, if livestock disease truly is a problem, the reduction of its spread across the border is a high priority. However, the economic loss from trans-border spread of disease is most likely insignificant compared to the even harder economic blows that local herders have already experienced due to the closure of the border and prevention of livestock exchange. Cross-border livestock movement is critical for the survival of border people and must be continued for viable livelihood security.

Improved veterinary services at border crossings will do much to facilitate more effective trans-border negotiations. Mechanisms to reduce the risk of disease transfer so that livestock exchange can continue freely include effective disease control programmes, quarantine check posts at key border crossings, livestock immunisation programmes, and regular training. Since diseases do not recognise international boundaries, cross-border cooperation is essential to control their spread. Local authorities and veterinary professionals from both sides must consult with each other.

There is a high level of support and enthusiasm for cross-border cooperation to control livestock disease. All villages would like to see a reduction in the spread of disease. The training of local herders in basic disease identification and sanitation can reduce the risk of rapid spread. Measures such as animal hygiene, isolation, and culling of affected animals should be practiced when necessary. However, it may be difficult to enforce the isolation of animals in unfenced communal pastures, and legal and cultural complications may prevent practising slaughter as a means of controlling the spread of disease. Traditional treatment methods have neither been studied nor documented, and the scientific value of these treatments is not well understood. Further research is recommended to determine the frequency and communicability of disease.

Prevention of livestock disease is better than a cure in the remote Nepal-TAR border region, and livestock health should be an important element of a comprehensive transboundary conservation programme.

### *Suggested activities to reduce livestock disease transfer*

#### Improve livestock services

- Organise joint training and exchanges between veterinary workers
- Strengthen the livestock health care systems in the border region
- Provide veterinary technicians
- Train local herders and local people in veterinary care

#### Provide basic training for herders

- Conduct herder training about basic disease identification and treatment and how to obtain livestock services

#### Exchange research and information

- Investigate the types and extent of diseases that are a potential threat to cross-border movement
- Study traditional livestock treatment systems
- Cooperate across the boundary to control livestock diseases by organising meetings among veterinary workers

## Improving Local Livelihoods

### *The problem*

People residing in the mountain regions along the Nepal-TAR border are economically and politically disadvantaged because they live at the limits of the habitable, where the soil is infertile and the slopes are steep. In the past, they may have been attracted to these areas, especially the Thame valley of Khumbu, to take advantage of the relatively open borders to barter salt, wool, meat, yak, and dri from Tibet for iron ore, medicinal plants, papers, forest products, and crossbreeds from Nepal.

In the past, the population of these mountain regions may have been lower, and the resources per capita more plentiful. In recent years, the population has increased, but cross-border trading opportunities have diminished. As well, employment opportunities are rare in these remote regions. Although tourism has brought economic benefits to many mountain areas, tourist travel is restricted in Kimathanka, Chhentang, Chang, Timure, and some of the area around Thame.

These remote communities receive little support from development agencies and the government. Health and education facilities are meagre, and many young people move elsewhere in search of educational and employment opportunities.

The study areas have been given protected area status in Nepal and TAR, which can generate long-term benefits for the local people by conserving forests, water, and biodiversity. Protected areas attract tourism and generate income through the sale of local products and services.

In the short term, however, protected area inhabitants are required to observe stringent conservation regulations, which may negatively affect their livelihoods. People who traditionally hunted wildlife may no longer be permitted to hunt. Increased populations of wildlife, such as Asiatic wild ass, langurs, Himalayan tahr, and wild boar, may destroy agricultural crops and deplete forage resources. Snow leopard, black bear, wolf, and other carnivores may predate on domestic cattle. Retaliatory killings were common in the past, but may no longer be permitted under protected area regulations, and protected area authorities have not yet devised equitable solutions to such losses.

Figure 4 shows a graphical approximation of the villagers' perceptions of the improvement in their economy and livelihood situation over time, and an indication of how they expect it to develop. In Chang, Timure and Thame, people had experienced a clear improvement and hoped that this would continue, in Kimathanka and Chenthang people perceived little change but hoped for a small improvement.



Lhakpa Norbu Sherpa





Brian Periston

"Shar Khumbu is the butter capital, but not a smear can be spared for father's funeral."  
- Tibetan saying

"Kimathanka is a food deficit area. During a visit by His Majesty the King, a local leader asked for a 'bhandar' (a food depot). The attendant of the King overheard 'bhansar' (customs post). A customs post was established the next year in Kimathanka."  
- Local informant

"Young people these days only talk about tourists. They do not pay any attention to old ways."  
- Elderly resident from the Timure area



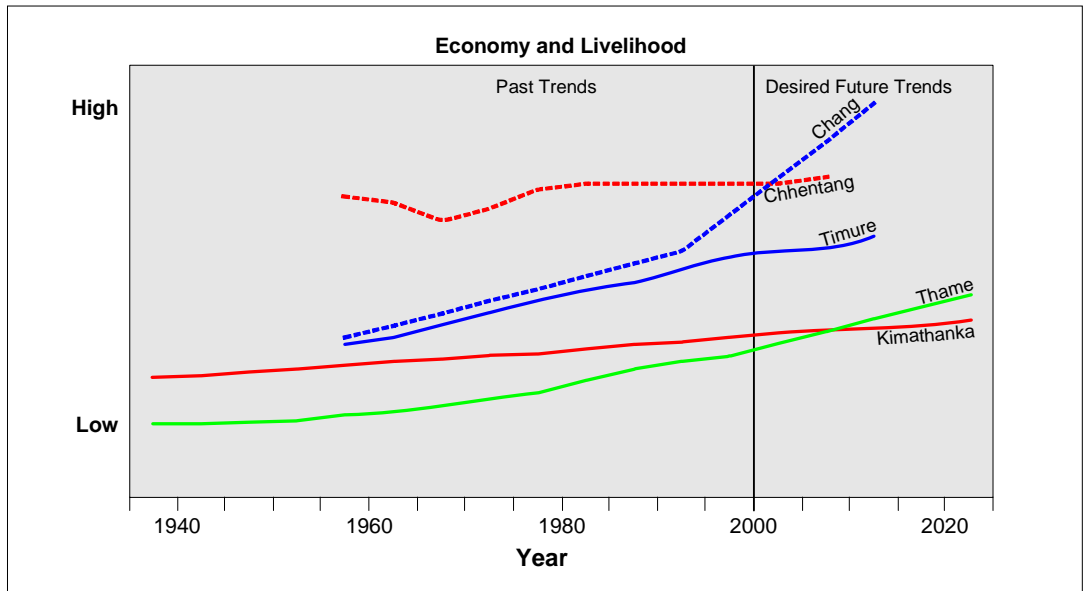


Figure 4: Villagers' perceptions of change in the relative quality of their economy and livelihoods over time

There is a growing realisation that conservation measures must include improvements to the livelihoods of the people living in and around protected areas. An integrated approach is expected to encourage people to manage resources in a manner that considers protected area ideals. Protected area authorities in Nepal and TAR are leading the way to integrating livelihood improvement into protected area management strategies. Nepal has introduced a protected area buffer zone concept, in which 30-50% of park revenue will be reinvested in the development of affected communities. The TAR government provides subsidies and village development programmes in QNP. Sustainable agro-pastoral development, research, and experimentation to reduce wildlife-people conflicts are essential to help improve local livelihoods.

Strengthening the local economic pillars - forestry, livestock, agriculture, and trade - will promote local self-sufficiency and sustainability, especially if the local people are asked what needs to be done. Furthermore, there exists tremendous untapped potential for skilled village people if parks can devise systems for controlled collection of raw materials (especially NTFPs) and sale of handicraft items. The dreams and priorities expressed by transboundary communities in the study are discussed in the village boxes in the previous chapter.

One of the unique features of highland livestock husbandry has been the tradition of migratory grazing, which is ecologically and economically sustainable, because it avoids overgrazing at any one place. Livestock are moved to the highlands to allow undisturbed crop growth in the lower valleys. The tightening of cross-border movements has affected





the pastoral economy by splitting traditional grazing grounds in many areas along the border. The two governments have periodically renewed agreements to allow cross-border grazing, but delays in the implementation of such agreements have been known to cause significant hardship. These difficulties are turning the younger generation away from taking up animal husbandry as an employment opportunity. Transboundary grazing agreements must be standardised and simplified to allow timely renewal.

Nepal and China recognise that traditional cross-border trade is a major economic activity for the border people and allow them free passage. However, trade across traditional passes and border crossings has declined in many areas, and there is a need to generate awareness among border authorities to recognise such trading as legitimate. Border areas offer both opportunities and challenges for trading. The flow of goods, materials, and information should be organised to maximise mutual benefits equitably and to take advantage of market access and the environment.

New opportunities are needed to sustain mountain economies, and cross-border ecotourism holds immense potential. The residents of Timure, Thame, and Kimathanka are aware of tourism's economic opportunities and demand that restricted area status be lifted from their areas. The people of Timure would prefer cross-border trekking tourism to road connections. Cross-border tourism across the Nagpa-la pass (north of the Tahmi valley and west of Namche Bazar on the Tibetan border) offers unparalleled opportunities to increase the attraction of the Everest area. The people of Chang and Chhentang, TAR appeared to be less familiar with the benefits of tourism and did not desire it to the same extent, but tourism still has the potential to economically benefit these communities. A UNDP-supported tourism development study for QNP strongly recommended the opening of the Kyirong-Rasuwa, Nagpa-Dingri, and Karta-Makalu border crossings to promote transboundary ecotourism.

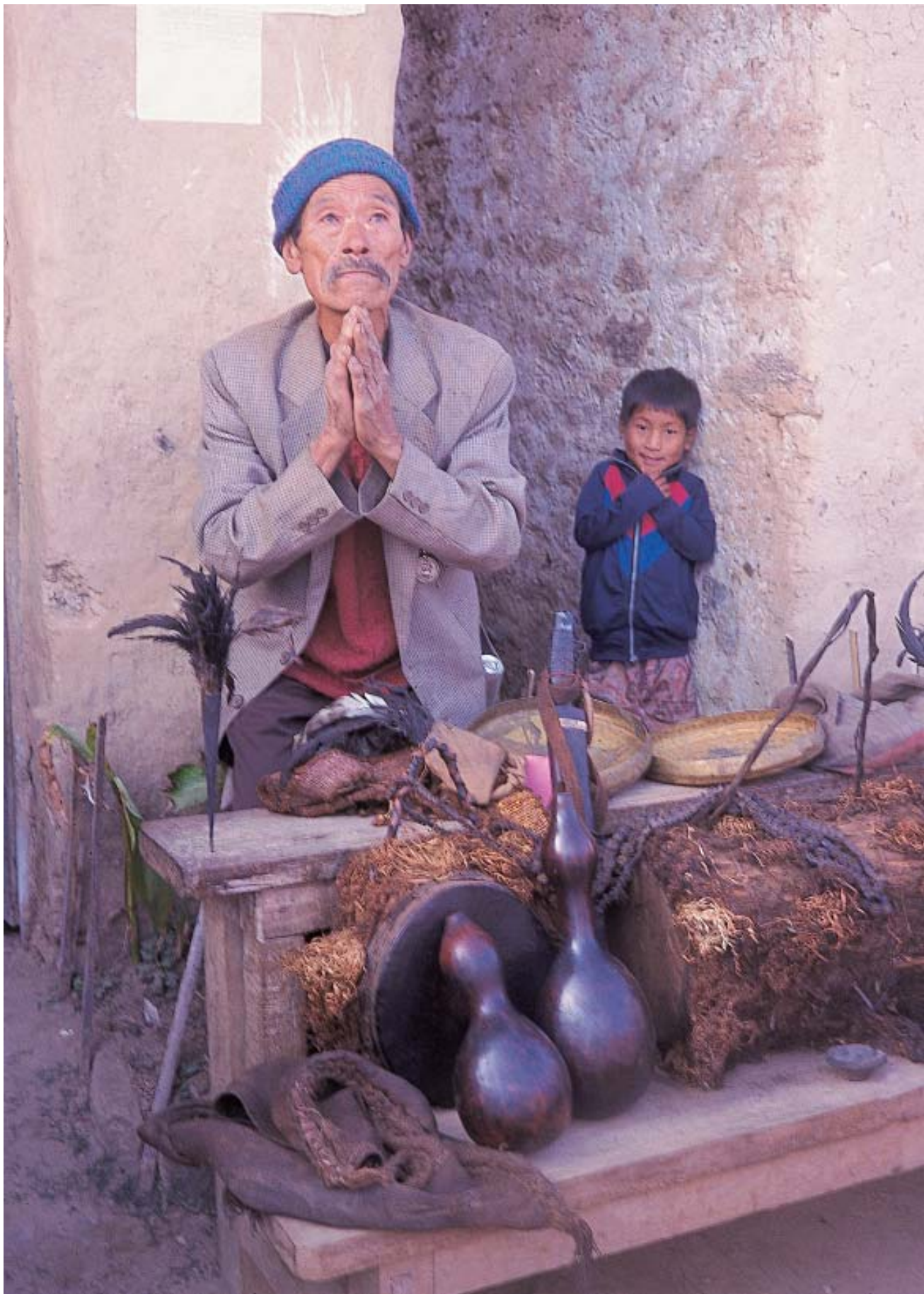
Countries around the world are signing pacts to promote cross-border exchanges that stimulate the flow of products between countries in organised ways. This is an opportunity for Nepal and TAR to consider greater transboundary exchanges that improve the local and national economies and conserve biodiversity. Livelihood-improvement programmes in the border areas must be developed through sensitive analyses of socio-ecological potential and the expressed needs of the beneficiaries themselves.

### *Suggested activities to improve local livelihoods*

- ❖ Develop tourism opportunities
  - Provide tourism service training for local residents in lodge management, tour guide and interpretation skills, basic spoken English, and cooking



- Provide special access to credit to enable local entrepreneurs to develop appropriate tourism facilities and services
  - Promote special activities and sites – such as the Chhentang hot springs; the Timure alpine lakes; the trekking peaks of the Thame Valley; the wildlife, flora, and culture of the upper Arun Valley; and the historic and religious sites of Kyirong Valley
  - Initiate programmes to raise awareness among local people of the importance of maintaining the village architecture, traditions, and way of life for long-term sustainable tourism
  - Generate wildlife-related economic activities, such as wildlife tours
  - Lift the restricted area status in villages near the border to allow tourism
  - Promote transboundary tourism across the Nagpa-la, Kyirong-Rasuwa, and Chhentang-Kimathanka crossings by establishing special permits and immigration posts
  - Support increased border-area interaction by increasing security
  - Coordinate visitor use, mountaineering, search and rescue, and transboundary trekking
- ❖ Stimulate cross-border trade
- Sensitise border police, customs, and local authorities about the legitimacy and the right of local border people to trade freely with each other
  - Promote balanced cross-border trade for mutual benefits
  - Define who has the right to trade, where they are allowed to trade, and items they are allowed to trade without taxation under traditional trading arrangements
- ❖ Encourage resource-based livelihoods for local people
- Develop potential forest-based products – such as bamboo products, medicinal plants, timber, herbs, and traditional paper – in Rasuwa-Kyirong (Timure-Chang) and Chhentang-Kimathanka to improve local livelihoods
  - Maintain strong local control over the resource base to benefit locals and to exclude exploitation by outsiders
  - Provide a legal framework and guidance from protected area authorities to ensure sustainable use and management of the resources
  - Formulate a comprehensive plan with a resource assessment, a feasibility study, a marketing plan, and provisions for technical support
  - Develop the capacity for local processing of quality products and improved marketing skills to ensure maximum benefit
- ❖ Support sustainable agro-pastoral livelihoods
- Implement long-term reciprocal grazing agreements for livestock
  - Research ways to improve livestock and control disease
  - Find ways of reducing wildlife-people conflicts, including direct and indirect compensation for livestock and crop losses



- Promote exchanges of information and techniques related to agriculture, animal husbandry, and resource management across the border
  - Explore and conduct a feasibility study for diversifying agriculture to include growing horticultural cash crops, such as vegetables and medicinal plants
- ❖ Develop village infrastructure
- Improve transportation by constructing roads and trails
  - Extend the road from Riwu to Chhentang
  - Promote the planned transboundary road link between Kyirong and Rasuwa (Chang-Timure) (LNP)
  - Upgrade Khandabari-Kimathanka horse trail
  - Improve trail over Nagpa-la
  - Develop communications
  - Establish telephone or radio communications for Timure, Kyirong (Chang), Kimathanka, and Chhentang
  - Provide educational opportunities for vocational studies and scholarships for local students, and encourage retention and use of local languages
  - Strengthen health care services, and train local workers



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