

## CHAPTER 7

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### CONSERVATION PROBLEMS OF RED PANDA

#### 7.1 Introduction

The red panda is currently threatened throughout its range by destruction, loss and fragmentation of its habitat and poaching. However, the severity, degree and nature of these threats would differ in different regions of its distribution. In Langtang National Park, the crux of the conservation problem lied in the presence of two cheese factories in the area. The factories required about 100,000 kg of fuel wood to process milk. The people maintained large herds of cattle, to supply milk to the factories. The presence of large number of cattle, herders, their dogs caused immense disturbance to the red panda and red panda habitat in the area (Yonzon and Hunter, 1993). In order to come in terms with the problem, Yonzon and Hunter (1991) suggested that the production of cheese and number of cattle should be reduced. As the cheese produced was mainly bought by the Western tourists, the hike in price would not effect the cheese market while at the same time increase the income of local people, without having to keep large herds of cattle. Similarly, it becomes important to identify specific problems in other areas too, for formulation of appropriate management strategies for the species. As for all other aspects of the red panda, detailed information on the conservation problems of the red panda is also scarce.

The primary objective of this chapter is to obtain a broad overview of the problems of the Singhalila National Park vis-à-vis the people in the settlements, in and around the National Park and their impact on the conservation of the red panda.

Information on the conservation problems were collected by conducting a socio-economic survey, casual discussion with all strata of people and personal observation during the course of the study.

## **7.2 Management history of the Singhalia National Park**

The Singhalila National Park was bought by the British Government from the Sikkim Darbar in 1882 and notified as a reserve forest. Systematic exploitation and management of the Singhalila forests was for the first time proposed in Tafford's Working plan of 1908-1918 (Anon, 1967). However, due to the remoteness and inaccessibility of the area, the prescription of the working plan could not be carried out until the Singhalila forest was incorporated in Grieve's working plan in 1912 (Anon, 1967). In 1914, it is known that there was large scale exploitation of bamboo (*Arundinaria* sp.) from Phalut for the pulp factory in the plains of Jalpaiguri (Dozey, 1989). A cyclic extraction of timber from the area was prescribed in these early working plans. Along with this, villages were established within the forests, residents of which did the regeneration, plantation, weeding and protection work. The villagers of the permanent forest villages were given a land holding of four acres, and allowed to keep two plough cows, two cows or buffaloes and four calves and two goats (Anon, 1967). The forest villagers in the Singhalila range were Namla, Linsebong, Gurdung, Sirikhola, Majua, Daragoan, Rammam, Samanden and

Gorkhey. These villages are now in the buffer zone. Roads were constructed to facilitate the transport of timber from the areas. The MR road constructed during the seventies was primarily an infrastructure to facilitate the transport of timber extracted from the area. It is difficult to trace the exact history of cattle grazing in the Singhalila. The earliest documented records of cattle, goats and sheep in these areas are of O'Malley (1907). It is known from the working plan of the Darjeeling Forest Division, that grazing was restricted to areas in Tonglu and the Singhalila ranges above 9000 ft (2727 m) and 9500 ft (2879 m) and in rest of the areas stall feeding was insisted upon. There were provisions for issuing grazing permits (Anon, 1967). A minimum of about 80-90 *goths* (cattle stations) were present inside the National Park area before 1993. As per the information gathered from the local people, each *goth* had a minimum average of 30-50 cattle heads. These *goths* were ultimately removed between 1991-1993. This removal of *goths* greatly reduced the anthropogenic pressures in the Singhalila.

Fire seem to have constantly posed danger to the forests of Tonglu and the Singhalila range causing damage to large tracts of forest. Some of the serious fires have been recorded in the early years of this century (Banerjee, 1964). Large patches of secondary growth of bamboo patches and skeletons of the charred trees can still be seen. A number of fire lines were created in affected areas as a protection measure. The first attempt to afforest the burnt patches in the Singhalila area was done in 1950-51. The recent fires which seriously damaged the forest and old plantations of Ramman (buffer zone) were in 1991, 1992 and 1993 (Ghosh, 1997).

Poaching and trapping of the red panda and other fauna of the area was a very common phenomena in the past. Live red pandas trapped from, both Nepal and Indian areas were brought to Rimbick and sold. From here the animals were supplied to different zoos in India or shipped abroad. It was a thriving and an unabated business until the enforcement of the Indian Wildlife Protection Act (1972). This business continued in a smaller scale till the late 70s. A trader in Rimbick had received as many as sixteen red pandas in a day. Among the animals received, there would also be pregnant females which gave birth to young ones in his cage. However, with stringent protection and proper legislation after the enactment of the Indian Wildlife Protection Act (1972), poaching and trapping were brought under control and to an end.

The wilderness, climate and the natural beauty of the place have always attracted people and tourist. Some of the early rest houses and bungalows were at Phalut, Sandakphu and Tonglu (O'Malley, 1907). Some of the rest houses and forest buildings in these areas were damaged and charred down during the Gorkha agitation in Darjeeling hills during the mid 80s. A number of trekker huts were again constructed in the early 90s. Thereafter, trekking and tourism in the Singhalia National Park is being promoted.

In its history of over 100 years, the forests of Singhalila have passed through different phases of Government policies. Some of the earlier ones were concerned with managing the forests for timber extraction and revenue. Implementation of policies pertaining to conservation and ecological concerns, set in, only after post

independence and that too not more than a decade earlier in the Singhalila. The area is still fraught with various conservation problems mainly arising from the surrounding settlements, dependence of the people on the forest and forest resources, the socio-economic condition of the people and the increasing popularity of the Singhalila National Park as a trekking destination.

### **7.3 Socio-economic profile**

**7.3.1 Settlements:** The Singhalila National Park is surrounded by several human settlements. On its eastern side, there are ten main settlements (Figure 2.2). These are Gorkhey, Samanden, Rammam, Daragoan, Sirikhola, Gurdung, Namla forest villages and others like the Sepi, Rajabhir, Rimbick. All these settlements except Gorkhey are in the buffer zone of the National Park. Gorkhey forest village lies within the core zone. Apart from the Gorkhey forest village, the core zone also has a number of Government quarters for the staffs serving in some of the departments of the Indian Government like- Forests, Tourism, Police, Public welfare and Darjeeling Improvement Fund. The government staffs comprise the non-resident population of the area and are mostly concentrated in Gairibans and the Sandakphu area. As seen in figure 2.2, a motorable road runs along the western border of the National Park. This road is regularly used by the tourists, locals and there is a regular movement of vehicles during the tourist seasons. This road is an international border between the two countries of Nepal and India. On the other side of the road, are several Nepalese settlements. A total of eight settlements are on the periphery of the Intensive Study Area. These settlements share the same name on the Indian and the Nepal areas and are- Phatak (population:6), Gairibans (population:30),

Kaiyakatta (population:11), Batase (population:7), Kalipokhari (population:44), Chaurichowk (population:11), Bikhe (population:22) and Sandakphu (population:25). There are also a number of permanent and migratory cattle stations on the Nepal territory especially from Sandakphu to Phalut. Apart from the patrolling and vigilance of the forest staffs, there is no actual buffering on the western side of the Singhalila National Park. All these villages on the eastern side of the Park would be referred to as 'buffer villages' and all the villages on the western side as the 'border settlements'.

**7.3.2. Occupation:** People in settlements surrounding the National Park are involved in various occupations such as cattle herding, agriculture, tourist related activities, liquor making, Government jobs, daily labourers and business.

**7.3.2.1 Cattle herding:** Cattle herding was an important occupation when people had large herds of cattle and yaks in permanent cattle stations within the Singhalila Forest before it was notified as a National Park. Keeping large herds of cattle or yaks was a profitable business. The demand of milk and milk products such as 'sergem' (cottage cheese), 'churpi' (protein extract of milk), butter, is very high in the towns and fetch fairly good price in the market. Yak meat is either eaten fresh or dried for future use. Dried meat also fetches fairly high market price. The hides of the yaks are used for their own purposes or sold. Even the tail of yaks have commercial value as it holds special significance in wedding and religious ceremonies. Sheep and yak fur are also used to weave mats, rugs which are used by the locals or sold. Hence, livestock is valued for milk, milk products, meat, hide, fur and resale value. In the

settlements practising agriculture, livestock is important for manure. Yaks and its breeds are important mode of transport in these remote high altitude areas.

It was noticed that some of the owners of *goths* with substantial number of livestock were wealthy and were able to start their independent business when the *goths* were removed from the area and grazing prohibited. People still keep livestock as a source to supplement their other source of income, as an important source of food and manure.

**7.3.2.2 Agriculture:** The people in the buffer zone settlements are mostly agriculturists. Potatoes, cabbage, peas, beans are the principal crops cultivated here which are taken to Rimbick bazaar. Bigger traders buy the crops in bulk and transport them to the towns. The villagers of the Nepalese settlements have agricultural land in their own villages lower down in the valleys. Cardamom and vegetable like potatoes, cabbage, peas, carrots are important cash crops. They also farm vegetables in the settlement areas in smaller scale.

**7.3.2.3 Tourists activities:** People both in the buffer and the border settlements are involved in tourist related activities, in way of providing food and boarding facilities in their own houses or in a separate lodge. Some people run small tea shops, or are guides or work as porters. People involved in this occupation would be earning seasonally only during the peak tourist seasons of March-May and September-November.

**7.3.2.4 Liquor making:** Liquor is brewed in almost every house, not only for their consumption but for selling and is a profitable occupation by the standards of the people.

**7.3.2.5 Catering to local travellers:** The people of the border as well as the buffer settlements also earn by catering the local travellers. Local travellers mostly consist of people from the Nepal villages lower down in the valleys of East Nepal who carry various vegetables like potatoes, peas, carrots, cabbages and milk products like butter, cheese to sell them at the nearest Nepal village Jaubari where traders buy the crops to be sold at higher prices at the next bigger village Manebhanjyang, from where the commodities are transported to other places in Darjeeling. These people from the villages, after selling their vegetables take back essential commodities like oil, salt, kerosene oil, flour etc. while returning. They rest and eat in the small tea shops and local lodges in the border settlements. The liquor which is brewed is mostly consumed by these local travellers. Similar trade route is in the northern side of the National Park through Phalut, Sabarkum, Molley, Siri to Rimbick from Nepal area or Sikkim and vice versa.

**7.3.2.6 Government jobs:** The maximum number of people holding government jobs are from Rimbick bazaar. In other, buffer and border settlements very few people have Government jobs. Jobs, that these people usually hold are that of teachers of primary schools, army recruits, caretakers and forest guards.

**7.3.2.7 Other:** Other jobs which the people of these areas are occupied in, off and on, are daily wage labourers in construction and maintenance of roads, houses, forest plantations and weeding.

None of these settlements, except for Rimbick bazaar has electricity. The primary source of fuel in all the settlements is still firewood. Rate of literacy is low and facilities for health and education are poor. The details of some of the civic amenities available to the people in the buffer settlements are presented in Appendix IV. The Panchayat head of the buffer settlements opined that the, population in these areas had increased along with it unemployment and people were still below poverty level. Some aspects of the socio-economic profile of the buffer settlements are presented in Table 7.1.

#### **7.4 Dependence of the people on the forest and its impact**

**7.4.1 Grazing:** People possessed and still possess livestock for income, food and transport. The usual system of grazing was to take the cattle to the higher altitudes, from above 3000 m to reaches above 3600 m in the Singhalila forests, Sikkim or Nepal area during the warmer seasons. The animals were brought down to the lower altitudes during winter. Temporary settlements were established in the forests where the animals grazed during this migration. In recent times, this pattern of livestock grazing is less prevalent due to National Park status of the Singhalila forest. However, migratory cattle grazers and their sheds can still to be found along the Indo-Nepal border from Bikhebhanyang to Phalut. Cattle were found to be stall fed or

Table 7.1 Some aspects of the socio-economic profile of the buffer settlements

Name of village	Total houses	Total population	Main occupation	Livestock	No. of lodges
Gorkhey	23	140	Agriculture	50	3
Samanden	18	76	Agriculture	40	0
Rammam	40	221	Agriculture	85	3
Gurdung	27	159	Agriculture	284	1
Manedara (Rimbick)	63	491	Agriculture	644	1
Jaulegaon (Rimbick)	65	330	Agriculture	767	0
Rimbick bazaar	103	657	Business & Govt. jobs	517	2
Namla	20	159	Agriculture	162	0

fed with fodder from their agricultural land in the Rimbick area. A few *goths* within the forest are still found in the buffer zone.

Cattle grazing and presence of human beings within the forest has had a number of impacts on the forest resource of the area. Impact of cattle grazing was discussed in Chapter 3. It was seen that cattle grazing have had considerable impact on the natural population of bamboo. While grazing or browsing on bamboo, yaks and cattle pulled down the bamboo culms or trampled upon while forcing their way through the bamboo thickets. The left over portion of the pulled down bamboo dry up and die. Grazing has had a tremendous impact on the bamboo, in the entire study area. Deep furrows are also made in areas where yaks have grazed intensively. These become waterlogged during the rainy season. Such bogs are found in and around cattle stations and found to hold no vegetation.

**7.4.2 Firewood use:** The only source of fuel is firewood in all the settlements. In the border settlements, firewood is collected from both the National Park and the Nepal forest. People here prefer the National Park because of better forest cover and shorter travelling distance. In the buffer settlements, firewood is collected from the National Park in Gorkhey and Rammam, whereas the other settlements get firewood from the Directorate forest/buffer forest. Apart from their daily activities like cooking meals, firewood is used and burnt in order to make the various milk products and liquor which requires substantial amount of firewood. Moreover, as this region has cool climate, fire has to be kept burning to keep oneself warm. Firewood consumption was noticed to increase during the tourist season- a time when more meals are cooked, more liquor is brewed, and more firewood burnt for warming. The

local lodges, tea shops also cater to the local travellers thus increasing the consumption of fuel wood.

**7.4.3 Extraction of minor forest products:** Some of the minor forest products like the Bamboo shoots, edible mushroom, ningro (edible fern), nakima (*Ophiopogon intermedius*), Shishnoo (*Urtica* sp.) make an important source of supplement food. Bamboo, *A. maling* is extensively used for various purposes like thatching, fencing and weaving baskets. An average of 1500 culms per family per two years are used for various repair work. Small trees of *Symplocos* sp., *Abies densa* and *Betula utilis* were used for construction of houses and cattle sheds. Fruits and berries of *Sorbus cuspidata*, *Actinidia strigosa*, *Fragaria* sp. and leaves of *Rhododendron arboreum* are collected during their period of production to add flavour to the local liquor that is brewed. Leaves of *Schefflera impressa* and *Litsaea elongata* are lopped and stored as fodder for the cattle during the winter season.

## **7.5 Tourism and its impact**

The entire biodiversity and the fragile ecosystem which the National Park is established to protect forms the resource base for tourism. Tourism is an important industry providing employment and augmenting the economy of Darjeeling. Hence, tourism is promoted and the Singhalila area is focussed as one of the important trekking destination.

**7.5.1 Singhalila as a trekking destination:** The Department of Tourism has constructed many trekker huts which provide good accommodation facilities at

strategic places like Gairibans, Sandakphu, Phalut, Molley, Gorkhey, Rammam and Rimbick. Since the construction of the Government huts, National Park has received a recorded number of 1498, 2165, 2171 and 2700 tourists in 1993, 1994, 1995 and 1996 respectively. (The number is not substantial as compared to the mountain areas, but the annual increase in the tourists is of concern). Maximum tourists visit the park during the premonsoon (March-May) and the postmonsoon season (September-November) which is can be seen in Figure 7.1.

There are two main trekking routes which pass through both Nepal and Indian areas and also gets into Sikkim via Phalut or Gorkhey. One of the routes start from Rimbick and passes through all the buffer settlements and then come to Sandakphu. The other starts at Manebhanjyang, and passes through all the Nepalese villages on the western border of the National Park.

Tourism can contribute to litter accumulation, trail erosion, landslides, habitat change, loss of endangered plants, resource depletion (Rai and Sundriyal, 1997) and can also have long-term negative effects on wildlife and local communities if not properly managed (Mathieson and Wall, 1982; Pleumarom, 1993; Norris, 1994; Kinnaird and O'Brien, 1996). The most apparent environmental impact of tourist inflow noticed in the Singhalila National Park was the increase in the use of firewood especially during the tourist seasons. Sandakphu is the trek summit and receives the maximum number of tourists. The place has three trekker huts and three local lodges. Moreover, the place being in the highest altitude of the National Park, is cold. The area had the highest density of cut stumps which is a clear indication of the

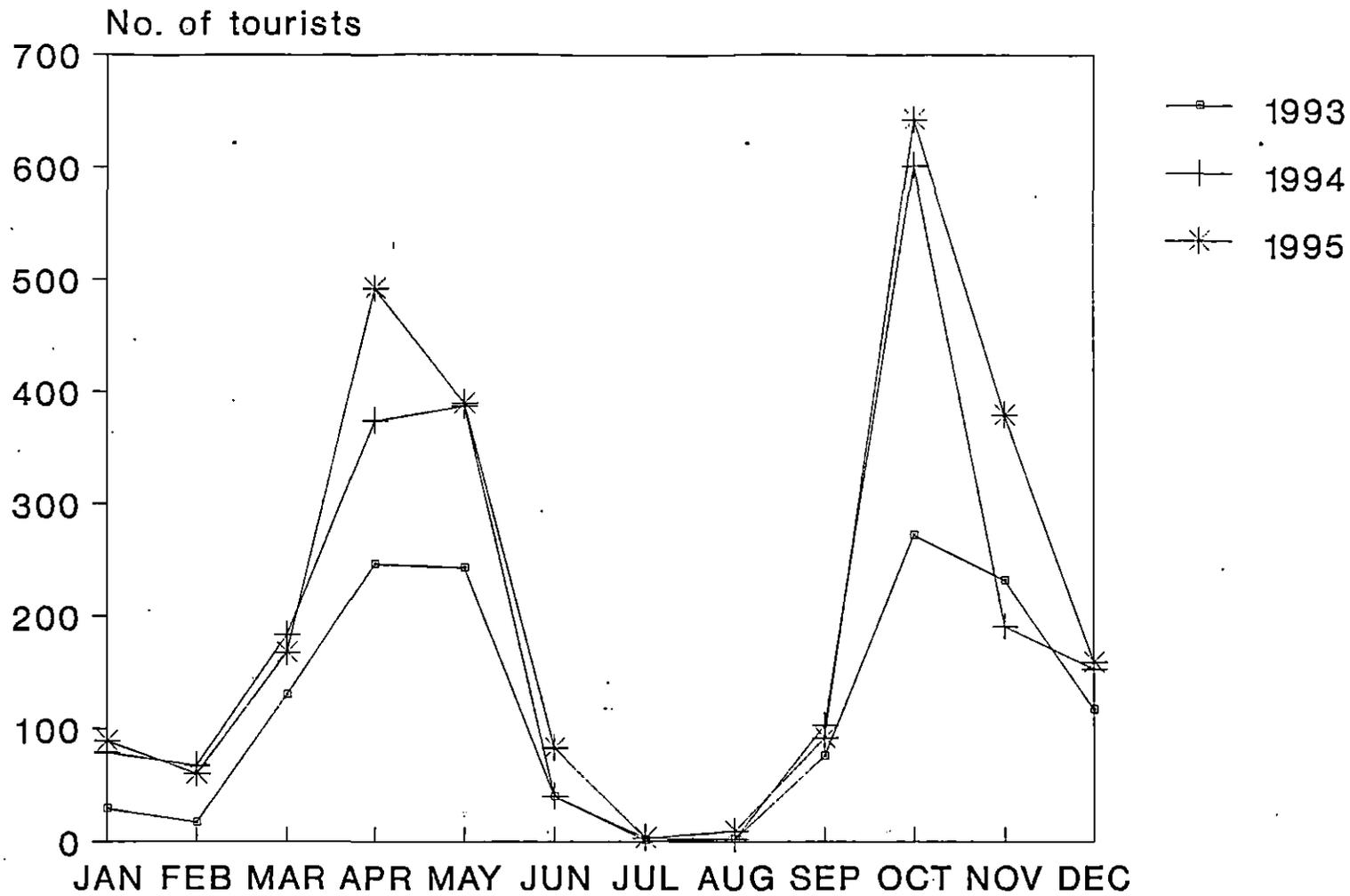


Fig.7.1 Increase in number of tourists visiting the Park

anthropogenic pressures on the forest (refer chapter 3). Similarly Phalut, Molley are also cold and comparatively more remote also.

A survey during this study in the buffer zone settlements and Rimbick revealed that agriculture system was showing signs of unsustainability. People were also of the opinion that the yield of the agricultural products as well as their markets had reduced. Human population has increased along with unemployment. Tourism held promise in being one of the best alternative source of livelihood in some of these settlements at present. There is already a number of local lodges and small shops coming up in these areas.

In the border settlements of the National Park too, there is an increase in the tourism activities. The closure of the National Park to cattle grazing has had an impact on their livelihood as grazers. Other sources of livelihood such as business of vegetables, forest products, milk products has also decreased substantially. Kalipokhari was once a very big and thriving centre for business where all agricultural products of the lower valleys in Nepal were brought and sold. These products had their market at Manebhanjyang. It is said that vehicles plied the road of the present National Park, regularly during this peak business period. The scale of this business at Kalipokhari however came down with the development of roads and other infrastructural facilities in the valleys of this part of Nepal.

Most of the residents of these settlements are also resorting to catering tourists which is evident from the increase in number of local lodges and small shops. Such

lodges are seen at places like Tumling, Jaubari, Kalipokhari, Kaiyakatta, Bikhebjhang, and Sandakphu.

It can be seen that the local people both in the buffer zone and the border settlements dependent on tourism. However, the local people that too only a select few of them are benefiting in ways of running tea stall or providing food and boarding facilities to the tourists, by working as guides and porters or as employees of the tourist department. Tourist related activities is moreover seasonal. Thus the economic gain of tourism for the locals is not much as compared to the major bulk of the revenue earned which goes to the Department of Tourism and the bigger tourist agencies.

The economic and environmental impacts of tourism has not been so far evaluated and a detailed study on these aspects should be taken up seriously as early as possible.

## **7.6 Distribution and abundance of the red panda in the Singhalila National Park**

It was found that the red panda are distributed and abundant in the areas above 2800 m. In the Gairibans and Kaiyakatta-Kalipokhari area the average upper altitudinal limit is 3000 m along which, the border settlements are situated. It was also seen that the red panda moved between both sides of the border habitat. Apart from the intensive study area, the surveys also revealed that the red panda are found in areas between Sandakphu and Phalut. A number of cattle stations are found along the

border of this strip. The area is comparatively remote with no check posts or permanent settlements and the area is extremely vulnerable to any type of exploitation of the red panda and other fauna of the region. The areas bordering the National Park and the Sikkim area were also found to have red panda. This makes, the protection of these border area and the habitats of both, Nepal and the Indian side (West Bengal and Sikkim), extremely important.

### **7.7 Present management practices**

The buffer zone is under the jurisdiction of the Directorate of Forest, Government of West Bengal which enforce their protection laws and development schemes in the villages. The conservation and protection of the forest is mainly done by involving the village people under a policy of the Government of West Bengal, known as the Joint Forest Management (JFM). Under this scheme, the Forest Protection Committees (FPCs) and Ecodevelopment Committees (ECDs) are formed in which the people of the villages fringing the forest, National Parks and Wildlife Sanctuaries are eligible to become members who would be responsible for the protection of the forest (Bist, 1998). For this act of theirs, the members of the Forest Protection Committees benefits by getting cash or kind obtainable from the forest, helped in establishing alternative support systems to reduce pressure on the forest resource, and also priorities in employment during forestry work (Bist, 1997; Dhaundyal, 1997). Under this Joint Forest Management programme, a nursery with a capacity of 0.75 lakh seedlings have been established in Rammam (Dhaundyal, 1997).

Implementing Joint Forest Management in other parts of the Singhalila National Park by the Wildlife division was met with a dilemma because most of the members of the Ecodevelopment Committees would be from across the border which would not be in accordance to the Government orders. The Wildlife Division also closes down the National Park for any tourists entrance from July to September. Plantations are carried out yearly, along with maintaining nurseries. The Division has also recently started charging an entrance fee for the tourists visiting the National Park. Realising the dependence of the people of the border settlements, the Wildlife Division recently started distribution of firewood, at minimal prices to discourage the people from entering the forest. The Department of Tourism has supplied kerosene heaters to all the trekker huts but because of remoteness of these area, easy availability of kerosene becomes a problem.

#### **7.8 Transboundary Conservation**

Thus it can be seen that the forests and the fauna of this region has suffered immensely from human need and avarice. Despite the notification of the areas as a National Park, removal of the cattle sheds and some of the other efforts made by the Department of Forests and Department of Tourism, to conserve the area, there are still a number of conservation problems which has to be tackled effectively at the earliest possible.

The National Park is surrounded by human settlements. Although the buffer settlements are distant from the core zone, the increasing human population, unemployment, their socio-economic condition and dependence on the forest

resources are a threat which should not be underestimated. Whereas, the border villages have a comparatively low population but poses immense threat to red panda and red panda habitat, by being on the very range of present distribution of red panda in the National Park. Moreover, tourism in the area is also expanding rapidly. This can have an adverse effect on the environment of the National Park and the adjoining areas. Therefore, the first few steps needed to correct this situation and conserve the red panda and its habitat is by- launching programs and policies to restore degraded habitats, expand the current protection within the National Park to include critical habitats either in the buffer zone or in the border area, decrease the dependence of the people on the forest resources by providing necessary facilities, by making people and tourists aware of the natural heritage the National Park is established to protect and involve the local communities in conservation and protection activities. It is also very important for all the departments in the national park- Tourism, Public welfare, Police now are working in isolation to co-operate and chalk out all their programs in conformity with the park's objectives. The revenue generated from charging entrance fees to the tourists could be used for implementing management in the National Park.

The department of tourism especially must realise the ecological importance of the region and chalk out plans and programs accordingly. If properly regulated and managed tourism has the potential of fostering sustainable management of resources (Jacobson, 1994). Planned and regulated tourism can also be used as an ideal solution for combining goals of development and conservation (Kinnaird and O'Brien, 1996). In the settlements surrounding the Singhalila National Park an

increasing dependence of the locals on tourism as an alternative source of income was noticed. However, the importance of it to the local economy has not been realised yet.

The conservation measures in the Singhalila National Park, therefore, would require to take into consideration the well being of the red panda as well as the local community dependent on the habitat of the species. As already mentioned above, *local community includes the border settlements as well as the buffer settlements* and red panda is found to be oblivious of the state and the international borders while using the habitats of Nepal, Sikkim and the Singhalila National Park. Therefore this calls for a situation where all the three regions (Country of Nepal, Sikkim and Darjeeling) should share the onus of conserving and protecting the red panda in this part of the Himalaya. In order to do so the responsibility of developing the local community must also be taken by the three regions.

Co-operation and understanding at a regional level with the Nepal Government and the State of Sikkim or a strategy for transboundary conservation should be worked out in order to overcome such problems. Transboundary co-operation is the key to *effective management and sustained conservation of areas that are along the international borders* (Pradhan, 1986; Yonzon, 1994; Sharma, 1995; Yonzon, 1996; Clark, 1997). The problem such as the one faced by the forest department of the Singhalila National Park, of *having to restrict their Joint Forest Management programs within the National Park and not extend beyond the border where it was needed most*, could be solved by negotiation between the two countries. The fact that

the people of settlements on either side of the border are depending on tourism but has not been productively used for development of the region could also need an understanding and planning at the regional level. The common goal should be protect and conserve the red panda and its historical habitat in this part of the Himalayas.