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PARK - PEOPLE CONFLICT IN
LANGTANG NATIONAL PARK, NEPAL

by

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A thesis
submitted in partial fulfilment
of the requirements for the degree
of
Master of Parks and Recreation Management
at
Lincoln University
Canterbury, New Zealand
1993
Abstract

Park-People Conflict in Langtang National Park, Nepal

This thesis examines the sources of conflict between Langtang National Park and its resource-dependent local population. The following issues of conflict have been addressed in this research: the local people's level of understanding of the purpose of Langtang National Park; crop and livestock depredation by Park wildlife; access of the local people to the Park's resources; tourism impacts in the Park and interactions between Park staff and the local people.

Out of 23 village units that are dependent on Park resources for wood and pasture, nine village units were randomly selected for detailed investigation. The investigation included structured questionnaire interviews of 212 randomly selected heads of households and 62 Park staff (who were currently working in different units within the Park administrative system). In addition, a self-administered questionnaire survey was done. This comprised 33 office-heads of Rasuwa administrative district headquarters at Dhunche located inside the Park boundary. Some in-depth interviews were carried out with selected people such as local leaders and wildlife biologists to get some additional qualitative information.

A comparative study is made of local people's understanding of the purpose of Langtang National Park with the other two groups (i.e., Park staff and office-heads). This study revealed a positive perception of each group on the issue and made it obvious that purposes of the Park do not appear to be an area of conflict between the park administration and the local population, but the degree of commitment to these purposes is less strongly held by local people. Wild-pig was found to be the principal crop raiding animal, followed by Himalayan black bear, monkey and deer species. This resulted in resentment of the local people towards the Park administration. Adoption of wild-pig farming by capturing young wild-pigs and selective culling of old ones has been proposed as a solution to the problem and also a source for income generation for the local people through meat trading.
Adoption of land-use zoning and the declaration of "buffer-zones" have been proposed as a solution to the problems of crop and livestock depredation by other park wildlife through implementation of community forest resource development activities in the buffer areas. Buffer zones can function as multiple-use management areas for the purposes of reducing the movement of park wildlife towards settlements, reducing encroachment of the park by the domestic stock of local people and providing the local people with access to additional Park resources in the future.

Tourism is seen as a source of national and local income in the Park area. Although no negative impacts of tourism have been reported from this study, the adoption of a proper tourism planning procedure is needed to reduce or prevent negative impacts in the future.

The majority of the local people and the park staff are familiar with each other. The local people have perceived that the park staff were helpful and friendly. These positive relations can facilitate the involvement of local people in decision making regarding Park-people related problems in the future.

**Keywords:** local people, park staff, office-heads, park-people, conflict, administration, Langtang, National Park, boundary, wildlife, wild-pigs, resource-dependents, concessions, conservation, tourism, impacts, problems, solutions, buffer zones and community forestry.
Acknowledgements

I would like to express my gratitude to His Majesty's Government of Nepal, for selecting me for this Master's programme. Particularly, I am grateful to Mr. Bishwa N. Upreti, who was the Director General (DG) of the Department of National Parks and Wildlife Conservation (DNPWC) when I was selected for this programme and who believed that my attainment of this degree would be supportive to the management of Nepal's natural resources in the future. My gratitude also goes to Mr. Bimal Koirala (my academic supervisor for the degree of Bachelors of Science in Forestry from Tribhuvan University of Nepal) and whose personal encouragement has always been substantial.

I received all necessary help for this research from Dr. T. M. Maskey (currently acting as a DG of DNPWC), Mr. S. R. Bhatta (acting chief conservation officer of the Langtang National Park) and his staff, particularly Park Ranger Mr. Uttam Dhungana and my field assistant Mr. Uttam Upreti. Thanks are due to them for their suggestions and help.

My thanks go to the residents of the following village units who deserve my special gratitude for their active participation and interest in the interviews during data collection: Syabru, Dhunche, Ramche, Ureni, Shikherbensi, Gaunkharka, Ichowk, Timbulghyangul and Kiyul.

In addition, I am thankful to Dr. Udaya R. Sharma, Dr. Prahlad Yonzon, Mr. Bal Ram Bhatta and Mr. Narayan Paudyal for their valuable advice. My special gratitude goes to Professor Suresh Raj Chalise who provided helpful ideas even in his busiest working time at ICIMOD. These became an integral part of the discussion in this thesis.

I am grateful to Dr. P. J. Devlin and Mr. Rick Mansell, Parks, Recreation and Tourism Department, Lincoln University for their supervision, guidance and encouragement throughout the course of this study. Their advice and suggestions played a large part in the development of this dissertation. In particular, I am grateful to my major supervisor Dr. Devlin, who provided inspiration and guidance throughout my time at Lincoln.
I am thankful to Mr. Ray Murray, Parks, Recreation and Tourism Department for correcting my English and the Department's staff for their help. I am also thankful to Mr. Bob Ryan, Parks, Recreation and Tourism Department for teaching me computer skills. Thanks are due to Nigel and Elizabeth Humphries and family for their support by providing a friendly family environment during my stay in New Zealand. I am indebted to my wife, Rukmini Kharel, for parenting two children almost single-handedly while I was writing this dissertation and attending University.
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"Protected areas by their very nature proscribe certain uses of the resources being protected, and such restrictions can often cause conflicts with the people who would like to use - and abuse - the protected resources" (Gorkhali, 1985: 37).

This thesis examines the issues and causes of conflict between the park administration and the local population in the Langtang National Park, Nepal.

While the existence of conflict has been widely recognised, research on park-people conflict in Nepal is relatively recent. A study of the park-people interactions in Royal Chitwan National Park, Nepal was completed by Udaya Raj Sharma in 1991. Sharma concluded that the park management should implement programmes to produce natural resources (such as fuelwood, fodder and construction timber for local consumption) on public and private properties outside the park by intensifying the land use. The researcher further contended that providing access to park resources can actually promote a dependence on the park that will inevitably grow beyond sustainability. He argued that strict control of park resources against exploitative pressure is essential in the long-run to solve the conflict between national park management and the local people. Effective law enforcement against the exploitation of the park resources motivates the people to intensify the management of their own lands rather than relying on the park resources.

It is not obvious whether or not this model is applicable to Langtang National Park. In looking for similarities, it is necessary to identify areas of conflict existing between local people and park administration in Langtang National Park. The conditions for managing the Royal Chitwan National Park as well as other protected areas in the Tarai (low land) and for managing the Langtang National Park and other parks in mountain regions are different. The parks and protected areas established in the Tarai region were historically uninhabited (it was sparsely populated by the indigenous Tharu tribe) and resource use conflict was virtually non-existent in the past.
Mountain parks are characterised by many generations of human settlement (Yonzon, 1989). The Langtang National Park encompasses several villages inside the park boundary with about 30,000 people living in or adjacent to the park who rely upon its resources mainly for pasture and wood. Unless the needs of these people are identified and appropriate alternatives for the consequences brought about by the establishment of the park are addressed, there will be aggravation of conflicts between the park administration and the local population. If these needs have not been identified, much of the effort applied by the park administration for the conservation of the Park and its resources will be futile. This research was planned to examine the consequences of the establishment of the Langtang National Park on the local people in the Central Himalayan region of Nepal and to examine the areas of conflicts between the park administration and the local population regarding the park resources.

The thesis is presented in five chapters. The first chapter begins with a review of the evolution of concepts of national parks and protected areas. This is followed by a discussion of emerging threats to the management of national parks and protected areas. The chapter ends with a discussion of rationale for the selection of the research topic and study area. Chapter Two is a literature review relevant to the specific study area and the topic of the research. This is followed by research objectives and hypotheses. The research area and methodology are discussed in Chapter Three. Research results and their analysis are in Chapter Four and discussed in Chapter Five. Conclusions from the results are drawn at the end of the Chapter.

1.1 Concepts of National Parks and Protected Areas

"National parks and nature reserves\(^1\) may be regarded as a generic term denoting any system of land tenure or zoning designed primarily to protect biogeographical or ecological resources of national or international importance and to preserve them in, or restore them to, a regime characterized by minimal human interference with natural processes" (Allin, 1990: 3).

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\(^1\) Protected areas and nature reserves are both used for denoting a system of land tenure to protect or preserve ecological resources of national and international importance, although the former is more frequently used by IUCN (Mackinnon, 1986).
Theoretical concepts for the establishment and management of national parks and protected areas originally emphasised that national parks should be free from all human exploitations and steps should be taken by the highest competent authority of the country to prevent such exploitation (IUCN², 1975). This definition follows the concepts of the United States national parks (West, 1991 cited in Sharma, 1991) from where the concept was initiated through the establishment of a national park at Yellowstone in a remote corner of the U.S.A. in 1872.

1.2 The Spread of Concepts of National Parks and Protected Areas

The establishment of Yellowstone National Park in the United States was a milestone in the evolution of the concept of national parks (Mackinnon, 1986). Since then, most countries have recognised the value of protected areas for their people. In the United States, public demand, most often by affluent residents seeking pristine recreational areas, provided impetus for the establishment and development of national parks (Allin, 1990). In less developed countries, the concept of preservation of natural resources came, most often, from foreign elites: colonial administrators, scientists, businessmen and affluent leisure seekers. During their period of hegemony, they were able to impose a variety of parks and reserves on indigenous peoples and cultures around the world (Allin, 1990). By the end of the colonial era (following World War II), many former colonies adopted these parks and reserves with a belief that reserve maintenance encourages science, tourism and the concomitant flows of hard currencies into these economically less developed countries (Allin, 1990). The potential of protected areas for resource generation in the form of tourism, as well as the need for soil and water conservation, promoted the creation of national parks in other developing countries. As a result, more than 2,600 protected areas were established by 124 countries covering nearly four million sq. km. of the world to the date of the Third National Parks Congress, held in Bali, Indonesia in 1982 (Mackinnon, 1986). By 1985, the number of protected areas in the world had increased to more than 3,000 (Allin, 1990).

² International Union for Conservation of Nature and Natural Resources (IUCN) has been renamed the World Conservation Union.
1.3 Emergence of Conflict in Managing the National Parks or Protected Areas Systems

The concepts of national parks and protected areas developed with a philosophy of preservation of living resources. In the United States, national parks were established for the protection of nature and natural resources. Frome et al. (1990) have stated that in the United States, philosophies of national parks were pioneered to protect the natural and cultural features by acknowledging that national parks reflect the common heritage of all people, where people were not permitted to harvest in any form from park resources, or to live within the park. The United States National Parks system enjoys a high level of protection against private exploitation while making them accessible in a natural condition (Frome, 1990).

The national park and protected areas system in other countries of the world followed the conservation philosophy of the United States. However, many protected area management authorities failed to adopt appropriate principles and guidelines to protect their areas against the threats of inevitable human pressure for traditional exploitation of natural resources (Sharma, 1991). The application of the United States philosophy in a "pure" form was clearly not suited to the different situations which existed in countries where ecologically important areas also had a long history of human occupation and traditional use.

In Nepal, many of the areas judged to be of national park quality in terms of their unique features and ecology had such a history of human habitation and often villages existed within the proposed boundaries. In Nepal, the United States system was tried at the beginning of the national parks movement. It was assumed that successful wildlife conservation hinged on the exclusion of those who grazed their cattle and were dependent on fuelwood and construction timber within the parks. As an experiment, two villages near Lake Rara in Nepal, which was to be encompassed by the Lake Rara National Park, were evacuated and destroyed. The inhabitants, who were used to the harsh climate of the mountains, were moved to the Tarai where many succumbed to malaria. The Government later decided that the North American model of national parks was not suitable for Nepal. People who had their lands appropriated were alienated by the very process of establishing
national parks. Hence a new concept developed with new ideas, but which has also brought its own set of management problems.

Many concerned planners and managers are striving to manage national parks or protected areas systems against human pressures but where the objectives of management for protection run counter to the needs of local people, park-people conflict can result. Given the formal requirement to protect an area's resources, antagonism between the national park administration and the local people is inevitable. Common issues involve the use of resources such as fodder, fibre and fuelwood and compensation for the loss of crops and stock through wildlife depredation. While management of national parks or protected area systems in developed countries has experienced various forms of human pressure, it is the latter types which are commonly found in many developing countries including Nepal.

1.4 Review of Causes of Conflict in Managing National Parks or Protected Areas Systems

As suggested above, it is not only developing countries which are under pressure from exploiters. In terms of developed countries, the natural environments of Australia's national parks and protected areas can be considered as a recent example of resource use conflicts. The national park and protected area systems in Australia enjoy a high level of protection similar to that in the United States, New Zealand and Canada. Mosley (1990) stated that there are two main threats to the future of the Australian parks. Firstly, mining, timber and grazing interests have posed serious obstacles to the expansion of the parks to their logical boundaries. Secondly, an aggressive mining sector continues its attempt to gain access to lands already within the park estate.

In New Zealand, three emerging issues of conflict have been identified which could pose a potential threat to national parks management.

"Firstly, advances in technology are continuously influencing attitudes and thinking toward land use and development."
Secondly, fast growing commercially-oriented industries interacting with a preservation policy insufficiently sensitive to people and uncomprehending of nature may create potentially destructive pressures on natural features.

Thirdly, substantially increasing numbers of park visitors call for more park development which in turn may increase park resource use and create damage" (paraphrased from Supriadi, 1984: 10).

There are other possible sources of conflict. In Canada, for example, poaching as an organised international venture has placed increasing threats on trophy species such as dall sheep, polar bears, peregrine and gyr falcons (Eidsvik, 1990). Other real threats to existing and proposed protected areas are logging, road construction and hydro-electric development. A major threat is placed by tourism on the values of large national parks such as Banff and Jasper (Eidsvik, 1990).

The causes of conflicts in these countries arise from the need to protect and maintain nature in a pristine state. Current conflicts, which have presented increasing threats to the preservation of natural resources for the future, arise from "clashes" with different interest groups such as mining, timber and grazing uses in the Australian national parks; advances of technology, the tourist industry and increasing park visitors in New Zealand; and poaching as an organised international venture in Canada.

The examples given above indicate that conflicts have two substantially different origins. In developed countries it is corporate interest groups seeking profits at the expense of conservation values, while in developing countries it is often individuals seeking to survive, or pushing for traditional rights. It is acknowledged that this is a simplification of a very complex set of problems but it will be argued that this may be the best starting point from which to understand the issues. For example, today, a question which many people of highly developed Europe, North America and Japan ask is "Shall we and our children survive another decade?", due to preoccupation with the issues of nuclear war and acid rain (Mishra, 1985). The conservation issues of these developed countries concern the future and the quality of life.
In contrast, for the poor of developing countries, the question is more immediate: "Shall we survive until tomorrow?" (Mishra, 1985). The people of developing countries like Nepal need animal fodder, fuel wood and water from the areas set aside as protected areas. The people are poor and what they are worried about is their next meal, not whether their grandchildren will enjoy nature and its resources. In many parts of developing countries, the success or failure of a national park will be determined solely in terms of whether its wildlife is flourishing or declining with little or no thought given to the fate of the people living next to the park (Pye-Smith, 1988).

In developing countries, conflicts with protected area management can be attributed to three basic problems: poverty, increasing need for land and processes of development (Malik, 1982 cited in Supriadi, 1984). As a result of poverty, local people are forced to encroach over national park territories for food, settlement and energy (Supriadi, 1984). The migration of the people from the Mid-hills to Tarai (low land) in search of cultivatable land reflects similar problems in Nepal. Pye-Smith (1988) stated his experiences of spending a few weeks in a hill village, where there were serious shortages of cultivatable land and he found that all the peasants talked of was leaving for Chitwan (where the population was already well over double what it was in 1970). Pye-Smith argued that the people migrating to Chitwan would undoubtedly exert extreme pressures on the Royal Chitwan National Park. These pressures will increase further as the next generation finds itself suffering from precisely the same scarcity of land which forced their parents out of the hills. Lack of land and natural resources such as pasture, wood and medicinal herbs is already a problem for the existing population in Chitwan (Sharma, 1991); a problem which is prominent everywhere in Nepal.

The process of development has severe effects, even more than that of poverty itself. In the past, the Nepalese Government has relied upon national development as a source of income at the expense of the existing forest resources. Almost 57 percent of the land covered by the forest in 1961 was reduced to approximately 30 percent during the last twenty-four years (Kharel, 1985). The loss of forest resources, largely limited to the Tarai region, was mostly the result of extensive clearing for agriculture and commercial timber operations aided by an increased...
fuelwood demand by the much larger population (Mahat, 1985). The removal of forest results in ecological imbalance which leads to accelerated erosion. An example is seen where the four major rivers with over 6,000 tributaries export 240 million cubic metres of Nepal's precious soil into the Bay of Bengal each year (Joshi, 1981). This example highlights the difficulty of economic development in the Himalayan Kingdom of Nepal, where two-thirds of the people dwell in climatically hostile and rugged mountainous terrain that produces only one-third of the food required (Mishra, 1985). Yet, these same mountains are the main reason why the country is known for its incomparable natural beauty (Mishra, 1985).

1.5 Conservation History

The approach taken by the Government in establishing an extensive network of national parks and wildlife reserves within a period of 20 years is a remarkable effort in alleviating the increasing trend towards ecological imbalance. This approach is recognition of the harsh socio-economic realities faced by the people of Nepal which could be improved through maintaining ecological balance in different zones ranging from the mountain watersheds to the flood plain of the Tarai (lowlands). It also reflects national and international concerns for the preservation of the incomparable natural beauty of landscape and wildlife.

The history of national parks and reserve management formally began in 1973, when a landmark in legislation, the National Parks and Wildlife Conservation Act 2029, was enacted by HM King Birendra. Under the provisions of the Act, eight national parks, three wildlife reserves, one hunting reserve and three other protected areas had been established by January, 1992. These protected areas cover 15,933 Sq.Kms., 10.83 percent of Nepal's total area of 147,181 Sq.Km. Table 1.1 presents a summary of protected areas in Nepal.

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3 The population growth rate of Nepal is an average of 2.66 percent per year. This was exacerbated by migration from the Hills to Tarai.
Table 1.1  Summary of Categories of Protected Areas in Nepal (Area in Km²)

<table>
<thead>
<tr>
<th>Categories:</th>
<th>Gazetted</th>
<th>Area</th>
<th>Locational Zones</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. National Parks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Royal Chitwan (World Heritage Site)</td>
<td>1973</td>
<td>932</td>
<td>Inner Tarai (Lowlands)</td>
</tr>
<tr>
<td>Langtang</td>
<td>1976</td>
<td>1710</td>
<td>Mountain to High Himal</td>
</tr>
<tr>
<td>Sagarmatha (World Heritage Site)</td>
<td>1976</td>
<td>1148</td>
<td>High Himal</td>
</tr>
<tr>
<td>Rara</td>
<td>1976</td>
<td>106</td>
<td>High Mountain</td>
</tr>
<tr>
<td>Shey-Phoksundo</td>
<td>1984</td>
<td>3555</td>
<td>High Himal</td>
</tr>
<tr>
<td>Khaptad</td>
<td>1984</td>
<td>225</td>
<td>High Mountain</td>
</tr>
<tr>
<td>Royal Bardia</td>
<td>1988</td>
<td>968</td>
<td>Tarai to Inner Tarai</td>
</tr>
<tr>
<td>Makalu-Barun</td>
<td>1992</td>
<td>1500</td>
<td>High Mountain to High Himal</td>
</tr>
<tr>
<td>2. Wildlife Reserves</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Royal Suklaphanta</td>
<td>1976</td>
<td>155</td>
<td>Tarai (Plain)</td>
</tr>
<tr>
<td>Koshi Tappu</td>
<td>1976</td>
<td>175</td>
<td>Tarai (Plain)</td>
</tr>
<tr>
<td>Parsa</td>
<td>1984</td>
<td>499</td>
<td>Tarai to Inner Tarai</td>
</tr>
<tr>
<td>3. Hunting Reserve</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dhorpatan</td>
<td>1987</td>
<td>1325</td>
<td>High Mountain</td>
</tr>
<tr>
<td>4. Protected Areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shivapuri Watershed and Wildlife Reserve⁴</td>
<td></td>
<td>145</td>
<td>Middle Mountain</td>
</tr>
<tr>
<td>Annapurna Conservation Area⁵</td>
<td></td>
<td>2660</td>
<td>High Mountain to High Himal</td>
</tr>
<tr>
<td>Makalu-Barun Conservation Area⁶</td>
<td>1992</td>
<td>830</td>
<td>Middle Mountain to High Himal</td>
</tr>
</tbody>
</table>


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⁴ Shivapuri Watershed and Wildlife Reserve is proposed to come under the management of Department of National Parks and Wildlife Conservation as reported by the MPFSP report (1988), but no action has yet been taken.

⁵ The Annapurna Conservation Area has been implemented by the King Mahendra Trust for Nature Conservation (KMTNC). The trust is still functioning as an autonomous non-governmental organization in Nepal.

Through creating the national parks, wildlife reserves and protected areas (Table 1), Nepal has attained the minimum target protected area figure of 10 percent of the total land as prescribed in the World Conservation Strategy. The Third World Congress on National Parks and Protected Areas held in Bali, Indonesia in October, 1982 addressed the problem: "for many countries 10 percent of the total area would seem a realistic target figure, but even this figure is regarded as too low to protect some habitats" (Mackinnon, 1986:2).

The Bali Congress emphasized that protected natural areas are essential for the conservation of a nation's living resources thus ensuring that:

- "representative samples of important natural regions are retained in perpetuity;
- biological and physical diversity is maintained;
- wild genetic materials are conserved" (Mackinnon et al., 1986:2).

The Bali Congress (1982) also emphasized that protected areas contribute to the conservation of living resources and to sustainable development by:

(1) "maintaining the environment stability of the surrounding region and thereby reducing the intensity of floods and droughts, protecting the soil from erosion and limiting the extremes of local climates;
(2) maintaining the productive capacity of ecosystems, thus ensuring the continuing availability of water and plant and animal products;
(3) providing opportunities for research and monitoring of wild species and ecosystems and their relationship to human development;
(4) providing opportunities for conservation education for the general public and for policy makers;
(5) providing opportunities for complementary rural development and rational use of marginal lands;
(6) providing a base for recreation and tourism" (Mackinnon, 1986:3).
1.6 Conflict Resolution Efforts

Nepalese conservationists have already experienced the negative effects of nature protection strategies developed in North America and Europe being imposed on developing countries like Nepal. Ignoring the dependence of local people on park resources for their subsistence needs and enforcing a law which limits local people's access to resources, aggravates conflicts between the local people and park administration (Sharma, 1991). Several categories of protected areas such as "Protected Landscapes", "Anthropological Reserves" and "Biosphere Reserves" proposed by IUCN (Mackinnon, 1986) allow direct human use and resource development. Despite these provisions, in many developing countries, "national park" is the most frequently used category (IUCN, 1985 cited in Sharma, 1991). Similarly, Nepal has also frequently used the "national park" category (see Table 1) rather than other categories. The traditional model of a national park does not address the dependence of local people on the park resources. Realising the strict definition of the traditional model of national parks and its inapplicability, many countries compromised and allowed various forms of exploitation of resources or even settlement within the park boundaries (Mishra, 1984; Western, 1984; Lehmkuhel, 1988; Upreti, 1989; Sharma, 1991). Nepal was in the forefront of this movement to achieve the twin goals of conservation and development (Lehmkuhel, 1988; Mishra, 1982 cited in Yonzon, 1991). His Majesty's Government of Nepal realised that without good relations and co-operation with the local people, no conservation measures could ever be successful. For the initiation of a people oriented approach in national park management, the HMGN passed the Himalayan National Parks Regulation 2036 which came into effect in 1979. This provided the local people with access to national park resources for subsistence living.

An unofficial "Wildlife Committee" was set up in 1973 and chaired by the HRH Prince Gyanendra B. B. Shah (the brother of the present King) who showed an active interest in wildlife conservation. The Committee consisted of the Forest Minister, the Secretary of the Forest Ministry, the Director General of the Department of National Parks and Wildlife Conservation, palace officials dealing with Wildlife matters and a few other high ranking officials of HMGN who met on a
regular basis and were instrumental in preparing several important policies including (Sharma, 1991):

- The creation of the network of national parks and protected areas in all major ecological regions of the country.

- The creation of a separate Department of National Parks and Wildlife Conservation (DNPWC)\(^7\) and a separate "Sub-Service Group" under the Forest Service.

- The initiation of a people oriented approach to protected areas management, such as the Annapurna Conservation Area Project which emphasized a "bottom-up" approach (cited in Sharma, 1991) and Makalu-Barun National Park in the Eastern Himalayas which maintains a buffer strip containing natural areas as well as settlements and has been designed in a manner where human needs will receive priority (Sherpa, 1990b and Shrestha, 1990b).

- The opening of a non-governmental organisation, The King Mahendra Trust for Nature Conservation, to solicit donations and support for wildlife conservation.

- The involvement of the Royal Nepalese Army in the protection of National Parks and Reserves.

Although most of these policies have set a high standard for conservation in Nepal, some of the policy decisions are controversial and even problematic for the future (Sharma, 1991). For example, the regular armed forces are being deployed in national parks and reserves for law enforcement and each battalion is assigned for

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\(^7\) A separate National Parks and Wildlife Conservation Section was created in 1972 within the Department of Forests headed by a Gazetted Officer (class I) in order to coordinate the management of protected areas. This officer represented the section on the "Wildlife Committee" to deal with wildlife matters. The existing Section split from the Department of Forests and formed a separate Department of National Parks and Wildlife Conservation in 1980 within the Ministry of Forest and Soil Conservation, then the Director General of the Department automatically became a part of the composition of the "Wildlife Committee" (MPFSP, 1988).
short periods of 2-3 years. Army personnel have not received special training about conservation of nature and natural resources and do not consider conservation in the same way as the park staff (Sharma, 1991). As a result, there always exists a lack of coordination between the army and the park manager because of differences of opinion about conservation. In practice, the battalion commander never works under the supervision of the park manager. Sharma (1991) cites a former Director General of the Department of National Park and Wildlife Conservation (DNPWC) of Nepal as describing the problem as one of "divided control".

Since the field research for this study was completed, a substantial amendment has been made to the National Parks and Wildlife Conservation Act 2029, in 2049 (1993). Some of the significant characteristics of the amendment (2049) are:

- declaring buffer zone areas to provide access to the local people for the collection of fuelwood, timber and pasture inside the park area;

- provision of user committees for the management of the buffer zones; and

- provision for the utilization of faunal resources inside the park in accordance with the park management policies.

These provisions in the recent amendment of law have provided substantial encouragement for the implementation of recommendations which emerge from the findings of this research.

1.7 Rationale for Selecting the Research Topic and Study Area

It would appear from the preceding discussions that conflict could prevail between park administration and the local population in managing protected areas in Nepal. It seems that conflict would arise partly due to the dependence of local people on park resources for the maintenance of their livelihood and partly due to the existence of controversial policy decisions which show failure to understand that conservation issues are inextricably linked to the social and economic needs of the
local people. Sharma (1990: 133) stated the following based on his research of park-people interactions in Royal Chitwan National Park:

"Long-term success of national parks and protected areas requires a shift in management philosophy that combines resource management with a sensitive understanding of the social and economic needs of the local people".

While some of the problems found in Royal Chitwan National Park will be true also for other areas, it is inappropriate that the planning of protected areas and management plans for mountains be based on general management principles without considering the idiosyncratic social and economic needs of the local people. Parks such as Sagarmatha and Langtang have encompassed several villages and many generations of human settlement. In these national parks, the collection of firewood for household consumption and the "traditional" grazing of the Yaks and Yak-hybrids have been allowed (Sharma, 1990) in a response to the socio-economic needs of the local people. It is expected that other aspects of conservation will be at cross-purposes with various socio-economic interests of the local people and thus likely to contribute to conflicts between the locals and the Park administrators. Successful management of the protected areas in the mountain regions of Nepal depends on reconciling the conflicting needs for nature protection with the needs of people. With these considerations in mind, Langtang National Park (which was the first established mountain park in Nepal) was chosen as the research area in which to investigate park-people conflicts.
Chapter Two
Review of Related Literature Concerning Langtang National Park and Research Objectives

This chapter provides background information concerning Langtang National Park and gives an overview of conflict issues between the park and local people. This additional information will lead to a statement of research objectives.

This chapter consists of two sections.

1. The first section provides a general description of Langtang National Park with reference to its physiographic make up, vegetation and wildlife; human settlement, socio-culture and economy; and conservation history.

2. Section two deals with an overview of conflict issues between the park and local people. The section ends with the research objectives and hypotheses.

2.1.0 General description

Langtang National Park is located in the Central Himalayas of Nepal (85° 15' - 86° 0' east and 28° 20' north). It is the nearest national park to the capital city Kathmandu. The Park covers 1710 sq. km. in area, and extends from 32.2 km. north of Kathmandu to the Nepal-China (Tibet) border in the north-east (Map 1) and the Bhote Koshi-Trisuli rivers to the west. The Park area encloses the catchment of two major river systems: one draining west into the Trisuli and the other east to the Sun Koshi. It is bisected east-west by the GosainKunda Lekh and Dorje Lhakpa range in the north. Langtang Lirung (7,245 m.) is the highest point in the park area. GosainKunda Lekh (4,988 m.) lies in the south-west and Dorje Lhakpa (6,988) lies in the east.
The lowest point in the park area is approximately 1000 m. on the banks of the Bhote Koshi-Trisuli river.

Langtang National Park was officially established in March, 1976. The park includes 56 percent of the land area of the administrative districts of Rasuwa, 38 percent of Sindhupalchowk and six percent of Nuwakot [Durham University Himalayan Expedition (DUHE), 1977]. Dhunche, where the Park headquarters is located is the district headquarters of the Rasuwa district. The 45 villages of seven village units⁸ (formerly called village panchayats) within the jurisdiction of Rasuwa district lie inside the park boundary.

The park includes the forested land areas of four village units within the jurisdiction of the Nuwakot district. The human settlement areas of these village units lie immediately outside the park boundaries. The twelve village units within the jurisdiction of Sindhupalchowk district are also partly included inside the park. Fifty percent of the settlement areas of these twelve village units lie within and 50 percent lie outside the park boundaries. In summary, 1243 households⁹ of several villages are within the park's boundaries.

2.1.1 Vegetation and Climate

The complex topography and geology are reflected in the wide spectrum of vegetation types which range from 1000 m. elevation to the alpine region (Upreti, 1985) within the Park area. Many plant species are endemic to Nepal such as *Rhododendron cowanianum*, *Rhododendron lowndesii* and *Picea smithiana*. Detailed descriptions and classification of the eight vegetation zones in the park area are provided in the management plan (DUHE, 1977).

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⁸ A section of a district having a definite area boundary. The total area of forested, non-forested and cultivated land of each village unit has been divided into nine wards, consisting of a group of villages or a portion of a large village depending loosely upon the population density.

⁹ A household unit is defined as a group of people who use one fireplace in the permanent settlement and form a functional living unit according to the local way of life.
Table 2.1  Representation of Approximate Area Encompassed by Different Vegetational Zones in the Langtang National Park.

<table>
<thead>
<tr>
<th>Vegetational Zone</th>
<th>Area (Km²)</th>
<th>% Park's Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tropical</td>
<td>2.8</td>
<td>0.2</td>
</tr>
<tr>
<td>Subtropical</td>
<td>34.4</td>
<td>2.0</td>
</tr>
<tr>
<td>Hill</td>
<td>82.9</td>
<td>4.8</td>
</tr>
<tr>
<td>Montane</td>
<td>168.6</td>
<td>9.9</td>
</tr>
<tr>
<td>Subalpine</td>
<td>368.6</td>
<td>21.5</td>
</tr>
<tr>
<td>Alpine</td>
<td>428.1</td>
<td>25.0</td>
</tr>
<tr>
<td>Snow and Ice</td>
<td>546.7</td>
<td>31.9</td>
</tr>
<tr>
<td>Cleared forest</td>
<td>9.1</td>
<td>0.5</td>
</tr>
<tr>
<td>Burnt vegetation</td>
<td>26.7</td>
<td>1.6</td>
</tr>
<tr>
<td>Cultivations</td>
<td>43.5</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Total:-</strong></td>
<td><strong>1711.4</strong></td>
<td><strong>99.9</strong></td>
</tr>
</tbody>
</table>

(Source: DUHE, 1977)

The notes on vegetation distribution which follow are paraphrased from the Park management plan (DUHE, 1977: 24-29):

I  The upper tropical zone [below 1,000 m.] in the lower belt at western border area is covered by hill sal (Shorea robusta) forest and is under heavy pressure from people for poles and construction timber.

II Subtropical zone [1,000-2,000 m. (hydrophyllic, mesophyllic and xerophyllic forests)]. Most of the mesophyllic types are often replaced by pasture through the actions of local people and livestock grazing pressure. Pastures represent the ultimate stage of degradation of natural forest, characterised by shrubs and small trees such as Berberis asiatica and Rubus ellipticus. A small number of species which have survived from overgrazing always dominate the heath and include Eupatorium adenophorum, Artemisia vulgaris and Berberis asiatica. This vegetational zone is under stress because of the demand for pasture and wood.
III Hill zone [2,000-2,600 m. (degraded hydrophylic and mesophyllic forests)]. This zone is heavily affected by the pressure on fuelwood and fodder, and consequently forest areas in close proximity to villages are converted into pastures where grazing-resistant species such as *Anaphalis*, *Anemone*, *Potentilla* and *Gentiana* are flourishing.

IV Montane zone [2,600-3,000 m. (oak and rhododendron forests)]. Most of the species prominent in this zone are common to the hill zone, therefore both are sometimes classified together as the 'Temperate zone'. Because of lower temperatures and relatively greater overall humidity, dominant species are *Tsuga dumosa* and *Quercus semecarpifolia*. The presence of livestock in Spring and Autumn have resulted in further degradation of the natural forest. Successive heath communities and *Rhododendron arboreum* have selective advantage where trees have been removed. *Pinus excelsa* is often found associated with the drier habitat of this zone (e.g., steep, rocky ridges south-facing slopes) and provides stability against soil erosion and landslides.

V Lower subalpine zone [3,000-3,600 m. (coniferous forest with bamboo understorey)]. Overgrazing by cattle, sheep and goats has probably taken place for many years in this zone (DUHE, 1977).

VI Upper subalpine zone [3,600-4,000 m. (birch-rhododendron)]. Seven vegetation types have been identified in this zone, *Betula utilis* being the characteristic tree species. The zone is mainly under the influence of alpine pastures which have often extended down to areas previously covered by forest. Wherever forest is absent, most often due to human activities, low heaths, characterised by clumps of *Rhododendron lepidotum*, are intermingled with pasture.

VII Lower alpine zone [4,000-4,500 m. (alpine scrub)].

VIII Upper alpine zone [4,500-5,500 m. (grasses and herbs)].

The climate varies with altitude and aspect. There is a 6°C drop in temperature for every 1,000 m. rise in elevation (DUHE, 1977). Average daily temperature
decreases between the months of December and February reaching a maximum between May and July. The seasonal climate is dominated by the southerly monsoon which occurs between June and September. The rainfall type is mainly related to aspect, altitude and the presence of a rainshadow effect. Average annual rainfall ranges from 804 mm. at Timure to 3336 mm. at Sarmathang (DUHE, 1977).

2.1.2 Wildlife

The variation in altitude and topography along with the existing forest cover provides habitats for a wide range of animals. Thirty-two mammal species are known to occur in the park (DUHE, 1977).

"This is a lower diversity than exists in the eastern and western Himalayas because after the origin of the Himalayas, the central Himalayas became a barrier between the east and west faunal gateways and radiation amphitheaters" (Mani, 1974 cited in Vonzon, 1989:21).

Vonzon (1989) claims that the low density of larger mammals is an indication of the extent of intrusions by human beings. The wild dog (Cuon alpinus), wolf (Canis lupus), red panda (Ailurus fulgens), clouded leopard (Neofelis lupus), snow leopard (Panthera uncia) and musk deer (Moschus chrysogaster) are some of the rare species found in the park. Among these animals, the red panda and the musk deer are on the world list of endangered species. The park also provides excellent habitats for various types of Spring and Autumn birds migrating from India and China.

The Langtang region is one of the best examples of diversity of habitats of plant and wildlife species in the Central Himalayas. The establishment of a national park was considered the most appropriate approach for the conservation of such diversity against modifications by human activities such as grazing and excessive cutting of trees for construction timber and fuelwood.
2.1.3 Human Settlement

In 1977, forty-five villages totalling 846 households were located within the park and other villages totalling 2341 households were located outside but close to the park boundaries. These villagers estimated at 16,250 were dependent on the park for wood and pasture (DUHE, 1977). The average number of people per household calculated by DUHE (1977) was 5.1 for these villages using the 1971 Nepal Census figures to express wood consumption and animal husbandry figures per household. The population in Nepal, based on 1971 and 1981 censuses, shows an annual growth rate of 2.66 percent (Gurung, 1984). Using this average population growth rate figure, the total number of the local population in 1992 would be about 23,887 comprised of 1243 households within the park and 3441 households immediately outside the park boundary. Including other immigrants (such as hoteliers and retailers) to Dhunche and other places within the park area, about 30,000 people are dependent on the park's resources for wood and pasture land.

2.1.3.1 Cultures

Culturally, the area is heterogeneous as it is the home of several ethnic groups. There is no written material about the history of the original settlement of these ethnic groups. The different ethnic groups have a special place in the attraction of visitors to the area.

The people who inhabit the high mountain regions are mostly Tamangs who practice the Tibetan Buddhist religion. Other people living in lower regions immediately outside the park boundary are mixed ethnic groups and include both Hindus and Buddhists.

The GosainKunda (Lake), located inside the Park area, is a religiously significant place for both religions. Thousands of people come to the lake yearly to worship Lord Shiva during the months of April and August.
2.1.3.2 Economy

The population of villages in the park area, like other rural parts of Nepal, have an economy based on the maintenance of traditional agricultural practices and farming systems.

Overall, the land in the Langtang valley produces only 25 percent of the annual per capita food requirement for the area (DUHE, 1977; Yonzon 1989). More or less, the same level of productivity applies in other villages at locations of similar altitudes. At lower altitudes (below 2,600 m.), two crops are harvested annually. This provides more food, but is still not enough to fulfill the annual food requirements of the population. The proportion of tillable landholding per household varies, ranging from less than 0.05 to 1.5 hectares. Wealthy and poor people exist in all villages. The wealthier provide food for the poor in return for work done (DUHE, 1977). Decreases in the annual yields of cultivated crop per unit area has resulted because of a decrease in soil fertility (Yonzon, 1989). All of these factors led to the people to rely heavily on livestock to provide cash income and to compensate for the annual food deficit. DUHE (1977) estimated that the 7,000 to 13,000 grazing livestock units (GLU) were dependent on park fodder resources. This equals the consumption of 686,100 to 1,314,700 tonnes of green fodder per year.

Livestock farming is a major economic activity of the people. Yak grazing occurs above the 2,000 m. elevation all over the park area. The Dairy Development Corporation (DDC) has operated two cheese factories at Kyangin (3840 m.) for Langtang village cattle and at Sing Gompa (3254 m.) for Syabru village within the present park area since 1953. These two cheese factories produce 14,000 kg. of processed cheese per year (Yonzon, 1991). Yak owners in Rasuwa district have benefited considerably. Farmers receive loans from the cheese factory and the Agricultural Development Bank also provides credit to the farmers on the cheese factory’s recommendation (Shrestha, 1988). More than six milk collection depots for each cheese factory keep on shifting according to the shifting of goths\(^\text{10}\) (i.e., due to shifting types of farming and cattle rearing systems adopted by the farmers for grazing in the mountain regions). Each depot collects milk from 50 sq. km. of

\(^{10}\) A goth is a shack where cow-herders stay and cattle are held
grazing area (Gurung, 1988 cited in Shrestha, 1988). All these facilities provided by the cheese factories have encouraged the local people to develop yak farming and improve their economic conditions.

Sheep and goats are grouped into several herds and allowed to graze. This livestock rearing is another source of income for the local people. Sheep and goats usually graze in meadows not accessible to Yaks and in areas where there is not enough fodder for larger livestock.

In addition to agriculture and livestock, other sources of employment are portering, operating teashops and lodges, bartering, making and selling handicrafts, collecting medicinal plants and even poaching (DUHE, 1977). These activities have led the people to be dependent upon the natural environment for pasture and forest products.

2.1.4 History of Planning and Development
The existing villages within and outside the park boundary have been inhabited by many generations of human settlement (Yonzon, 1991). In many locations, people hunted in the forest and practised subsistence farming (DUHE, 1977). The basic needs of these traditional inhabitants had in the past, received little planning priority from the Government (Chalise, pers. com., 1992).

The distribution of the human population and livestock is influenced by altitude, slope, ecology and availability of water. Shrestha (1988) states that the vertical stratification of the environment was the governing factor of land resources utilisation. The existence of a general pattern of such utilization is a high pasture zone (3,800 - 4,700 m.), forest (2,600 - 3,800 m.) and a cultivated zone (1,600 - 2,600 m.). These zones are common in the mountain regions of Nepal, and their utilisation posed a threat to the whole environment of the central Himalayan region. Problems such as siltation in the hydro-electricity dam outside the park at Trisuli river due to indiscriminate felling of trees for pasture extension and wood, extinction of endangered wildlife species, depletion of soil fertility as a result of top soil erosion and land-slides during the rainy seasons were consequences of an inappropriate human habitation and development.
2.1.5 Rationale for the Establishment of Langtang National Park and Its Development History

From 1949, widespread attention was given by scientists, climbers and trekkers to the interrelationship between conservation and development (DUHE, 1977). As part of the survey conducted by His Majesty's Government of Nepal, the Food and Agricultural Organisation of the United Nations, and the United Nations Development Programmes Trisuli Watershed Development project, proposed the establishment of an 'Alpine National Park' to include the areas surrounding the sacred lake of GosainKunda and the upper Langtang Valley (DUHE, 1977). This recommendation was endorsed and boundaries delineated in a further detailed proposal prepared by Blower and officers from the Department of Forests based on surveys carried out during 1970-71. The proposal for the establishment of the Langtang National Park was formally approved by HMG in 1971 but did not come into effect until 1976.

A landmark in legislation, the National Parks and Wildlife Conservation Act (2029), was enacted by HM King Birendra in 1973. Under the provisions of the Act, the Langtang National Park as the first national park in the mountain regions of Nepal, was formally established in March, 1976 with objectives to:

- "protect the park, its soils, vegetation, wildlife and water resources;"

- maintain the natural diversity of habitats within the park;

- conserve all indigenous flora and fauna and promote an increase in the jeopardised Musk deer and Red panda population;

- reduce the ecological impact of land use practices while simultaneously maintaining the locals' standard of living;

- preserve the natural tranquillity and scenic beauty of the park, by avoiding unsightly forms of exploitation; and
preserve the religious places and traditional local culture such as the area of the sacred lake GosainKunda and Monasteries" (DUHE, 1977).

The HMGN realised that without good relations and co-operation with the local people no measures mentioned above could ever be successful. For the initiation of a people-oriented approach in national park management, the HMGN passed the Himalayan National Parks Regulation 2036 which came into effect in 1979. This provided the local people with formal access to national park resources for subsistence living.

2.2.0 An Overview of Conflict Issues in Langtang National Park

Management of the national parks and wildlife reserves system in Nepal has grown substantially in the relatively short period of 20 years. The enactment of the Himalayan National Park Regulation (2036) in 1979 is one of the distinctively people-oriented approaches for managing the national parks in mountain regions of Nepal. The regulation provides access to the local people for the collection of forest resources and grazing of their animals in the park area through permits from the National Park authority. The inherently dependent nature of the economy of the local people on park resources requires easy access to the traditional resources utilised from the forests. Access required by the local people for their subsistence economy include:

- perpetual grazing right;

- independent operation of hotel/lodge/teashops in major tourist places inside the park area;

- access to the forests for fodder, firewood and wood for charcoal, edible fruits and vegetables, medicinal plants or their parts and hunting; and

- harvest of construction timber and bamboos.
Because of the establishment of the park management system, the local people are obliged to obtain permits from the park administration for access to these resources and pay fixed royalties according to the existing regulations. Conflicts with the people over resources are inevitable. Allowing the people to utilize these resources as provided by the act and at the discretion of the park administration to fulfill their subsistence needs, is only a partial answer. The whole issue of local requirements in terms of harmony with the park’s resource conservation mandate must be examined in a more holistic way.

2.2.0.1 Past Studies
A case study was carried out by Prahlad B. Yonzon (1989) at Syabru and Langtang villages associated with a study of “Ecology and Conservation of the Red panda”. This study demonstrated the inherent problem of damage from excessive grazing, trampling which crushed the vegetation, and compaction of the soil because of the movement of (Chauri) Yaks. Yonzon states that the wild herbivores have been largely replaced by domestic livestock. Leopard and wild dog prey on livestock in the absence of wild herbivores. Yonzon recorded four livestock killed by leopard in the Cholang-Dhokache area from June-July, 1986. All these activities have contributed to an increase in conflicting situations between the park administration and the local population.

Yonzon (1989) states that the red panda birth season is being overlapped by the cattle grazing period. The red panda fed higher on the bamboo than chauri, but chauri may reduce abundance overall, particularly by trampling (Yonzon, 1989). Yonzon questions the viability of the red panda population. He found that the majority of cubs died as a result of human disturbances. Consequently, Yonzon and Hunter (1991) have concluded that the Langtang pandas are in a precarious state.

Farmers in Rasuwa district were being encouraged to farm chauri by the establishment of the two cheese factories before the establishment of a national park management system. The need for fuel for the cheese factory has also contributed to accelerated deforestation. A recent study on the environmental impact of the Kyangin cheese factory indicated that it is using over 100 tonnes of
fuelwood every year. The factory is permitted by the park to use 46 tonnes of fuelwood per year (Timmerman and Platje, 1987 cited in Yonzon, 1989). In addition to the cheese factory, villagers use 169 tonnes of fuelwood, tourists and their porters 44 tonnes, yielding a total of 312 tonnes of fuelwood consumed annually (Yonzon, 1989). The annual growth increment of the upper Langtang valley forest was said to be 213 tonnes as estimated by Timmerman and Platje (cited in Yonzon, 1989).

Another study by Shrestha (1988) has stated that domestic sheep and goats displace wild ungulates. He argues that in order to manage wildlife, the park should be free of these animals.

Management of Langtang National Park is charged with the conservation of the ecology and protection of the threatened species such as red-panda and musk-deer, while the local community is more concerned with economic progress than ecological values. The situation created by this value conflict has led local people to regard exclusion zones (red panda protection areas) as a threat to their economic future. Yonzon (1989) has cited reports of herdsmen killing red panda. The tension thus created remains a significant dilemma for the national park managers.

Evidence shows that the pressure of the existing human population has affected the park's natural resources and generated conflicts for park management. Upreti (as the Director General of DNPWC) has expressed a theme, which is useful to reconcile the existing problem (Sharma, 1991:45):

"Where resources of the protected area are seen as prime targets for human survival, the needs of the community becomes a big problem. No amount of conservation education, consultation, nor communication effort... can alone overcome the problem. The entire forestry and other related sectors will have to organize in such a way that the basic need for forest products is satisfied without disregarding the need for having protected areas."

A critical need exists for a conceptual framework to guide park management policies suitable for Himalayan National Parks of Nepal.
2.2.0.2 Source of Conflicts and the "Downside" of Conservation Successes

The Master Plan for the Forestry Sector Project (MPFSP, Nepal) states that "the establishment of parks and reserves has caused resource-use conflicts in that the local people are deprived of the use of the resource for their needs" (1988:93). Presumably, this problem is more severe in those national parks where population settlements are included inside the park boundaries.

"An understanding of people, and skill in relating to them and in resolving conflicts, are of critical importance in meeting the growing pressure on protected areas that is coming from communities inside or around them" (MPFSP, 1988: 51).

Problems associated with the resolution of these conflicts stem largely from difficulties in identifying the precise causes of dissatisfaction in local communities.

The National Parks' policies/strategies need to be based on research findings. Policies/strategies formulated without research findings regarding the causes of dissatisfaction amongst the local people will prove to be largely cosmetic and will do little to offer real solutions to the problems.

Mountain Parks are characterised by many generations of human settlement and a complex, fragile physical environment. Planning and management of the national parks has to be considered within the broad framework of resource conservation and the developmental needs of the people. However, it is often seen in the body of literature that the human perspective is missing in the planning of the protected areas in the mountains. Management plans are often based on general principles and practices developed in countries where the proposed protected areas did not have people living within the proposed boundaries.

The establishment of a National Parks' management system in mountain regions of Nepal has led (since the very beginning) to conflicts between the park administration and the local population. This might be the result of (Upreti, 1985):
- lack of understanding about the value of national parks among the local population;
- resource use restraint imposed by the park administration on the local people;

- lack of compensation to local people for crop and livestock depredation by the wildlife; and

- lack of assessment of impacts of tourism growth in the region.

Among the general public, there is little understanding of the value of national parks and little awareness of the need for environmental conservation (Upreti, 1985). This ignorance could be a major source of conflict between the park administrations and the local resource users. Upreti (1985) realised that the success of a park management system as a whole largely depends upon the understanding of the people and their acceptance of the concept of conservation. Therefore, the assessment of the local population's understanding of the values of national parks is essential.

Traditionally, prior to the establishment of the Langtang National Park, the local people were free to collect fuelwood, timber, fodder and other forest products and to graze their cattle, goats and sheep throughout the area (Upreti, 1985). According to Upreti, many people have been legally restrained from exercising their traditional rights to the resources. Those people living outside the park boundaries have not been given legal compensation for the loss of these benefits.

Crops damaged by the wild animals on private lands, encounters between people and wildlife and poaching of wild animals by local people also contribute to the conflicts (Upreti, 1985). Crop depredation is a serious problem for many villages in the Langtang National Park area, particularly those that are uniquely situated, either as an enclave in the park or near a good-sized population of crop raiding wildlife. Since the park was established, the increasing number of some wildlife which raid crops, such as wild boar and deer species seems to be a growing source of resentment for local people towards the park. A special provision has been made for wild boar. Farmers in the park area can trap or shoot to kill wild boar on their property. Langtang farmers have not openly exercised such rights primarily
because many do not know about such provisions and others are fearful that they would aggravate the wild boar themselves.

The park laws which specify in great detail the prohibited activities (See Appendix C) are surprisingly silent regarding the granting of compensation for wildlife damage.

There is a lot of evidence of illegal hunting. "The musk deer population has been drastically reduced throughout Langtang National Park and poaching is still rife in remote areas" (Upreti, 1985: 21). National park administration and management authorities are trying to solve these problems. New directions could mean changes in access to park resources on the part of the local population. The removal of some of the grazing and farming activities from the park to outside the boundary through the provision of alternative means and economic incentives (Upreti, 1985) might address some of the problems but may create new problems. However, the people living inside and outside the park boundaries are getting some benefits through the rapid growth of tourism.

Tourism has both positive and negative impacts. On the positive side, tourism has increased income and employment opportunities in the national park and adjoining areas. The growth of tourism from the establishment of the national park has also contributed to socio-cultural development such as restoration of monasteries in the eastern part of the Langtang National Park. On the negative side, it is evident from past experiences that tourism depletes forests due to increased demand both for timber and firewood. Additional fuelwood for cooking and heating purposes is needed. A firewood consumption survey has estimated 350 metric tons per year of firewood is required for tourist operations in Sagarmatha National Park (Upreti, 1985). This problem is also prevalent in Langtang National Park. Secondary negative impacts include the disposal of garbage, vandalism, loss of socio-cultural values and inflation. The ultimate aim of managing for tourism should be to minimise or eliminate the negative impacts and optimise the positive ones. Planning should aim to produce better tourism for visitors, host communities and the environment rather than simply to make more tourism (Simmons, 1990). However, the growth of tourism in the mountain parks of Nepal has been largely criticised in the literature for environmental reasons. Tourism may be the cause of
alienation between those who gain benefits because of the camping and restaurant businesses and those who believe they are affected by the loss of public properties such as forest resources. This may be an important source of conflict between the Park administration and the local people.

2.3 Aims and Objectives

To reconcile the existing problems and make a significant contribution to the lives of future generations of park–people relationships, the identification of the causes of conflicts and of possible solutions is essential. This study aims to explore some of the local conflict situations and provide information for future management practices. The identification and description of the situations of conflict is expected to illustrate aspects of the interactions of legitimate local self-interest and the interests in preserving the biological diversity in Langtang National Park. This study will focus on issues that involve conflicts between Langtang National Park administration and the local people:

- by assessing the understanding of the value of the national park by the local people, park staff and local administrators;

- by assessing the beliefs of the people about loss of benefits after the establishment of the Langtang National Park;

- by assessing the people’s perceptions about permit guidelines for accessing the national park’s resources provided by the Himalayan National Parks Regulation 2036 (1979);

- by assessing the impacts of the growth of tourism in the Park; and

- by assessing the Park–people relationships.

The research objectives are:

(1) to identify the level of understanding of the purpose of Langtang National Park by the local people;
(2) to identify the causes of conflict between the park administration and the local population;

(3) to assess the perceived (park staff, office-heads\textsuperscript{11} and local people) tourism impacts on the park;

(4) to identify the level of interaction and communication between park staff and the local people; and

(5) to identify possible means to solve the conflicts.

2.4 Null Hypotheses

There is no significant difference between the perceptions of local people, park staff and local administrators on the following:

(1) Perception that Langtang National Park is necessary for:
    (a) the control of floods, landslides and soil erosion by protecting the watershed areas of the Indrawati, Bhote Koshi and Trisuli Rivers;
    (b) the conservation of plants and habitat of endangered wildlife such as musk deer and red panda;
    (c) the conservation of religious and cultural sites;
    (d) enhancing local and national income through tourism;
    (e) providing indirect benefit through tourism to the local people (e.g., by maintaining trails and controlling pollution); and
    (f) providing opportunities for educational and scientific studies.

(2) Perceptions of the following items (positive or negative):
- The establishment of the park has resulted in loss of benefits for the local people.

\textsuperscript{11} The local administrators and office-heads are both used in the dissertation to mean the same group.
The lodge, hotel and restaurant businesses have a positive or negative effect on the park's natural environment.

The local people living inside the park receive concessions from the park administration to utilize certain park resources such as wood, fodder and pasture land.

The local people living outside the park boundary also receive concessions to utilize the same park resources as utilized by those living inside the park.

The permit guidelines for concessions to utilize park resources by the local people are too restrictive or not restrictive (enough).

Perception of Tourism Impacts (positive or negative) on:

a. local and national income;
b. the local arts and crafts;
c. the markets for locally produced foods, such as milk, yoghurt, butter, cheese, meat etc.;
d. employment (e.g., tourist guides and porters);
e. social customs (e.g., clothing, behaviour etc.);
f. local inflation;
g. conservation of flora and fauna;
h. vandalism;
i. litter control and trail maintenance;
j. conservation of religious and cultural sites;
k. the survival of local religious values; and
l. the survival of local cultural values.
Chapter Three
Study Area and Research Methodologies

Langtang National Park falls within the jurisdiction of three administrative districts of Nepal: Rasuwa, Sindhupalchowk and Nuwakot. The people living in 23 village units (formerly called village panchayats) are dependent on park resources for wood and pasture of which approximately 1243 households occur within the park and a 3441 household population live outside but close to the park boundary (see page: 24). This study has included both of these populations.

According to the MPFSP report (1988), there are 86 staff positions at posts in different units within the park administrative system. Because of vacancies, there were 62 people working at the time of the study. Perceptions of these people of the conflicts and issues were sought for this study.

There are 33 offices for civil services in Dhunche, which is the administration area's district headquarters inside the Park boundary. The heads of all administrative district offices, who handle public business, were chosen to be surveyed.

The population for this study was thus based on three strata: the 1243 households inside, and 3441 households outside but close to park boundaries; heads of the different civil service offices in the district headquarters in Rasuwa Dhunche; and National Park personnel.

Out of 23 village units that are represented as dependent on park resources for woods and pasture in the Langtang National Park, three village units from Rasuwa district inside the park and six village units from Sindhupalchowk and Nuwakot districts outside but close to the park boundary (Map 2) were randomly selected using a lottery draw.
LANGTANG NATIONAL PARK (Study Village Units)

Map 2

KEY:
- International border
- National Park boundary
- District boundary
- Panchayat boundary
1. Rasuwa District
2. Nuwakot District
3. Sindhupalchok District

Sample Village Units:
1. Syabru 2. Dhunche
3. Ramche 4. Urleni
5. Sikharbensi 6. Gaunkharka
7. Ichowk 8. Timbu
9. Klyou

Source: DUHE (1977)
The rationale for choosing the heads of the civil service offices of Rasuwa district over Sindhupalchowk and Nuwakot is that Rasuwa is the most involved district in terms of park-people conflict since it is located inside the park area. A questionnaire survey of office heads who deal with public business in the park along with household interviews of the local population was expected to give insight into a number of issues from different perspectives.

3.1 Research Design
To obtain information in accordance with the objectives of the research topic a self-administered questionnaire was given to all heads of civil service offices and questionnaire interviews were carried out with all park staff and sampled households within the local population. The household interview method was employed because of the lower level of education and hence literacy among the local population. The structured interview process ensured the encouragement of greater responsiveness on sensitive issues and was used to probe ambiguous responses through clarification of the questions.

The research tools designed for this investigation took into account the ability of respondents to complete questionnaires and their level of literacy. It was important to consider whether the respondents were able to understand the meaning of each question and also able to give an exact answer. This decision was made by testing understanding of the questions by the park staff. Initially it was planned as a self-administered postal questionnaire survey to the park personnel but when the questionnaire was tested there was confusion as to the meaning of some of the words. As a result, the questionnaire was administered through personal interviews.

3.2 Research Methodologies
The research tools used in this investigation consist of:
The extended family structure in Nepal facilitates the task of the researcher. The family structure was defined for the purpose of the interview, as the number of family members who are fed in the same kitchen in a household. The head of the household was determined after asking a few questions about who controls the business in a house. Then, the household-head was asked to provide answers to the questions. Households were chosen randomly. The following methods were adopted to accomplish the random sampling:

(i) For each selected village unit, the total number of households list was obtained from the office of the district administration.

(ii) The total number of households in a village unit was divided by the required sample size to get the sample number. The 256 sample size had been selected for a 90 percent confidence level and a five percent margin of error in a 4684 total household population. This averages 24 households per village unit. For example, if there are 240 households in a village unit, that number was divided by 4684 and multiplied by 256 and sample number was 13. The interviewer went through the household list choosing every 18th household (240 divided by 13) until 13 respondents were reached. The interviews were started by picking the first respondent's name randomly from the list and then the 18th household and so forth. In this way, 212 household-heads were selected and interviewed. This represents 5.3 percent of the total households in the sample area.

The village official of a sampled village and the secretary of each village committee were informed by a written letter which discussed the process of interviews. Verbal consent was solicited from the secretary prior to accessing the household respondents and again verbal consent was solicited from the respondents prior to commencing the interview. The problem of non-responding households was met by the interviewer going to the house immediately to the left of the non-responding household.
(2) Questionnaire Interview of Park Personnel
A questionnaire interview of the 62 park personnel was carried out. This represents 100 percent of the total park staff who were working in the different units of the Langtang National Park administration during the study period.

(3) Questionnaire Survey of the Heads of Civil-service Offices
The meeting of office heads in the office of the Chief District Administration was held at the end of November, 1991. A special request was made to the Chief District Officer to introduce the Researcher. The purpose of the study was explained. The questionnaires were given to the head of each civil service office. The heads who did not attend that meeting were sent questionnaires. The completed questionnaires were collected 15 days after distribution. For the respondents who asked for clarification of the meaning of questions, meanings were made clear by the researcher. The majority of the respondents completed and returned the questionnaires. Twenty office-heads out of 33 returned the questionnaires, which accounts for a 60.61 percent return rate.

(4) Some In-depth Interviews
In addition to the self-administered questionnaire surveys, in-depth interviews with selected persons such as local leaders and wildlife biologists were carried out. The opinions of these people have provided some additional qualitative information regarding the issues under study.

3.3 Reliability and Validity
Reliability is concerned with whether the application of a particular technique repeatedly to the same purpose in a different period of time would yield the same result each time (Babbie, 1989). The matter of validity is concerned with whether "a specific measurement provides data that relate to commonly accepted meanings of a particular concept" (Babbie, 1989:127).
3.3.1 Reliability and Validity of Instruments

A number of questions were structured to obtain the essential information with respect to the research topic. These are presented in appendices A and B. To find out sources of conflicts between park administration and the local population, the questionnaire was divided into five major components:

(1) level of understanding the values of national park by the respondents;

(2) belief among the respondents about loss of benefits of the local people due to establishment of the national park;

(3) assessment of tourism impacts by the respondents;

(4) level of interaction between local people and park staff; and

(5) possible measures for solution of each problem as seen by the respondents.

In the questionnaire, some questions provided respondents with opportunities for optional responses which test the level of understanding of the values of Langtang National Park by the local population. Some open-ended questions were included to provide a wider range of information about sources of conflict between Park administration and the local population from the respondents. The closed-ended questions specifically focused the respondents' attention towards the topic of investigation.

A pilot test of questionnaires was conducted at Lincoln University to ensure their appropriateness in terms of the research topics and the clarity of questions. The questionnaires were then tested by the six post-graduate Nepalese students studying in the department of Parks Recreation and Tourism at Lincoln University for their comments. Changes were made to the questionnaires following these pilot tests.
3.3.2 Reliability and Validity of Interviews
The main concern with reliability in the interviews is with the maintenance of uniformity in asking the same questions of different respondents. A difference could occur because of differences in styles of asking the questions if different interviewers are involved.

To minimise this possibility, the researcher was personally involved with 75 percent of the interview work. Twenty-five percent of respondents were interviewed by research assistants, who were given training and initial supervision to ensure a high level of consistency.

A structured interview through preparation of the same sets of questions for the different respondents was employed to maintain consistency for obtaining information from the respondents. This allowed the researcher to quantify information.

The questionnaires, constructed using the English language were translated into Nepali. Necessary care was taken with wording of questions to elicit valid responses in a situation where respondents belong to different ethnic groups. The particular customs of the ethnic group involved were carefully considered in terms of rules of etiquette and politeness.

There are several beneficial aspects of an interview survey. Firstly, it permits gathering of information from those who cannot read the questionnaire or write the answers. Secondly, throughout the questionnaires some "hidden" aspects of respondents' knowledge or opinion may be elicited by the interviewer. The interviewer might be able "to explain or amplify a given question, he might probe for clarification of an ambiguous answer or elaboration of a cryptic report" (Hyman et al., 1954:99). The interviewer may persuade the respondent to answer a question that the respondent would otherwise skip. Therefore, the presence of an insightful and resourceful interviewer will minimise the chances of mistakes or missing information. Thirdly, the respondent's behaviour is normally observed in a relatively natural condition. Particular information regarding the ideas and attitudes on the subject of the research are obtained with minimum distortion. Lastly, questionnaire interviews normally have a higher completion rate.
The completion of the field work through the above procedures was effective in collecting the required information from the survey population. Use of these data collection techniques has ensured greater reliability than other available techniques in achieving the research objectives in the limited field time of 90 days.

3.4 Limitations of the Study
This research design approximated a one-shot Case Study. Although, normally one-shot case studies are influenced by history or maturation, they could be greatly influenced by specific events or incidents which occur during the data collection period and which influence the opinions of interviewees. The specific design for this study is not a "pure" one-shot case study as data was collected over a period of 90 days. Thus, events during this period could have influenced the data. Also, those interviewed earlier in the process could have discussed the survey questions with interviewees being surveyed later. This could lead to strategic responses and be a possible source of internal invalidity.

Another limitation was the disappointing return rate of 61 percent in terms of office-heads. Twenty office-heads out of the 33 returned the questionnaires. At least 29 questionnaires were required from this segment of informants to analyze the responses at 90 percent confidence level with a five percent margin of error.

3.5 Data Analyses
The data obtained from this investigation was analyzed using the statistical package for social sciences (SPSS).

The range of responses and percentage of responses for each response category and the total number of respondents by their categories have been calculated for all closed questions.

For open-ended questions, all answers were manually assigned to categories based on the similarity of answers to the question. The categories of responses were analyzed in aggregate form.
The rejection or acceptance of a null hypothesis has been decided based on the chi-square ($\chi^2$) Pearson significance tests by comparing means in different categories between different groups, where the issues are the same. Significance has been determined at the five percent level.
Chapter Four
Results

This chapter is devoted to the presentation of results. It consists of two sections:

1. The first section provides general characteristics of respondents with reference to their gender, age, education and occupation.

2. Section two provides results regarding the issues of park–people conflict as postulated in the objectives of this study.

4.1.0 Respondents
Respondents for the study were local people (n=212), park staff (n=62) and office heads (n=20).

4.1.1 Gender
Most of respondents in the local people group were males (only 3 females out of the 212) as males are the spokes-people for the household in Nepalese society. In the park staff group, all respondents were males as there were no female staff in Langtang National Park. Similarly, all office heads were males.

4.1.2 Age
No respondent reported being under eighteen years of age. The majority are in the 18 - 31 years age group. Table 4.1 presents the percentage distribution of respondents by their age.

Table 4.1 Percentage Distribution of Respondents by Age (absolute frequency in parenthesis).

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-30 Years</td>
<td>40.4(118)</td>
</tr>
<tr>
<td>31-40 Years</td>
<td>30.1(88)</td>
</tr>
<tr>
<td>41-50 Years</td>
<td>13.0(38)</td>
</tr>
<tr>
<td>51-60 Years</td>
<td>9.2(27)</td>
</tr>
<tr>
<td>61 plus</td>
<td>7.2(21)</td>
</tr>
<tr>
<td>Total Response</td>
<td>99.32(292)</td>
</tr>
</tbody>
</table>
4.1.3 Education
Slightly more than 56 percent of the respondents indicated that they had never attended school and are not able to read and write the Nepali alphabet. Nearly 30 percent mentioned that they learned to read and write the Nepali alphabet either by attending school or by getting their education at home, but did not hold the School Leaving Certificate (SLC\textsuperscript{12}). Nearly nine percent answered that they had completed primary and secondary school levels of education and held the qualification of SLC. Slightly more than three percent had completed a two year undergraduate course at University and held an intermediate certificate. Nearly four percent of respondents were University graduates and 2.04 percent were postgraduate.

4.1.4 Occupation
The majority of respondents (56.12 percent) were farmers. Less than one percent were retired and were not involved in any other occupations. Table 4.2 presents the percentage distribution of respondents by their occupation.

Table 4.2 Distribution of Respondents by Occupation.

<table>
<thead>
<tr>
<th>Occupation Categories</th>
<th>No. of Responses</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers</td>
<td>165</td>
<td>56.12</td>
</tr>
<tr>
<td>Hoteliers/Retailers</td>
<td>25</td>
<td>8.50</td>
</tr>
<tr>
<td>Political Workers</td>
<td>5</td>
<td>1.70</td>
</tr>
<tr>
<td>Government Service</td>
<td>86</td>
<td>29.25</td>
</tr>
<tr>
<td>School Teachers</td>
<td>7</td>
<td>2.38</td>
</tr>
<tr>
<td>Iron-tools Makers</td>
<td>4</td>
<td>1.36</td>
</tr>
<tr>
<td>Retired</td>
<td>2</td>
<td>0.68</td>
</tr>
<tr>
<td>Total:-</td>
<td>294</td>
<td>100.00</td>
</tr>
</tbody>
</table>

\textsuperscript{12} Earning a School Leaving Certificate (SLC) is graduation from High school, which is the basic qualification to enter University.
4.2.0 Results

All the respondents (local people, park staff and office-heads) answered the research questions regarding the issue of "Park-People Conflict in Langtang National Park". The "Don't Know" option was in each research question to prevent bias through forced answers. The number of respondents who answered "Don't Know" to the questions have been eliminated from the analysis, but have been included where appropriate in the discussion of results.

The purpose of the study was also to investigate the differences in the perceptions of local people, park staff and office-heads on the issues concerned with the park-people conflict in Langtang National Park. A series of hypotheses (Chapter two) were tested. The chi-square ($\chi^2$) test of significance was used to determine differences in perceptions between the three groups of respondents regarding the issues. Significance was determined at the five percent level of probability.

For the open-ended questions, response items were manually categorised based on the similarity of answers to the question. The categories of responses were then analysed in aggregate form. The results of each issue have been summarised in the tables and results have been interpreted wherever appropriate.

4.2.1 Identification of the Level of Understanding of the Purpose of Langtang National Park by Respondents

Information was collected from respondents to determine their level of understanding of the purposes of Langtang National Park. Mean scores between 1 and 1.50 indicate there is strong agreement with the statement and a score between 1.51 to 2.50 indicates there is agreement. No respondents scored an item beyond 2.50. Had they done so, this would have indicated a neutral stance, between 2.51 to 3.50, disagreement, between 3.51 to 4.50 and strong disagreement with a statement beyond the score of 4.51. Table 4.3 (a) shows the mean score response of local people/park staff/office heads to the statements regarding their understanding of the purposes of Langtang National Park and Table 4.3 (b) shows the chi-square ($\chi^2$) analyses of difference of responses between the groups.
Table 4.3 (a) Distribution of Mean Score Response for Understanding the Purpose of Langtang National Park by the Respondents.

<table>
<thead>
<tr>
<th>Langtang National Park is necessary for:</th>
<th>Respondents categories</th>
<th>Response (n)&lt;sup&gt;13&lt;/sup&gt;</th>
<th>μ&lt;sup&gt;14&lt;/sup&gt;</th>
<th>s.d&lt;sup&gt;15&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) the control of floods, landslides and soil erosion by protecting watershed in the origin area of Indrawati, Bhone Koshi and Trisuli Rivers.</td>
<td>local people</td>
<td>193</td>
<td>1.52</td>
<td>0.60</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>61</td>
<td>1.18</td>
<td>0.39</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>20</td>
<td>1.90</td>
<td>0.64</td>
</tr>
<tr>
<td>(b) the conservation of plants &amp; habitat of endangered wildlife such as musk deer and red panda.</td>
<td>local people</td>
<td>207</td>
<td>1.37</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
<td>1.19</td>
<td>0.40</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>20</td>
<td>1.75</td>
<td>0.64</td>
</tr>
<tr>
<td>(c) the conservation of religious and cultural sites.</td>
<td>local people</td>
<td>175</td>
<td>1.45</td>
<td>0.57</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
<td>1.63</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>18</td>
<td>2.28</td>
<td>1.02</td>
</tr>
<tr>
<td>(d) enhancing local &amp; national income through tourism.</td>
<td>local people</td>
<td>168</td>
<td>1.55</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
<td>1.32</td>
<td>0.47</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>20</td>
<td>1.55</td>
<td>0.51</td>
</tr>
<tr>
<td>(e) providing indirect benefit through tourism to the local people (by maintaining trails and controlling pollution).</td>
<td>local people</td>
<td>151</td>
<td>1.80</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
<td>1.65</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>20</td>
<td>2.00</td>
<td>0.73</td>
</tr>
<tr>
<td>(f) providing opportunities for educational and scientific studies.</td>
<td>local people</td>
<td>78</td>
<td>1.94</td>
<td>0.78</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>59</td>
<td>1.63</td>
<td>0.49</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>20</td>
<td>2.30</td>
<td>0.98</td>
</tr>
</tbody>
</table>

<sup>13</sup> Number in sample: local people (n) = 212, park staff (n) = 62 and office-heads (n) = 20.

<sup>14</sup> μ = Mean score response from the values distribution of response scale: 1 = strongly agree; 2 = agree; 3 = neutral; 4 = disagree; and 5 = strongly disagree.

<sup>15</sup> s.d = standard deviation
### Table 4.3 (b)  
Distribution of Results of Chi-square ($X^2$) Analyses of Understanding the Purposes of Langtang National Park by the Respondents.

<table>
<thead>
<tr>
<th>Purpose of Langtang National Park</th>
<th>Significance between:</th>
<th>$X^2$</th>
<th>df</th>
<th>Level of significance</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) the control of floods, landslides and soil erosion by protecting watershed in the origin area of Indrawati, Bhote Koshi and Trisuli Rivers.</td>
<td>local people &amp; park staff</td>
<td>17.28</td>
<td>3</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>local people &amp; office-heads</td>
<td>9.82</td>
<td>3</td>
<td>p&lt;.02 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>park staff &amp; office-heads</td>
<td>26.59</td>
<td>2</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>(b) the conservation of plants &amp; habitat of endangered wildlife such as musk deer and red panda.</td>
<td>local people &amp; park staff</td>
<td>6.01</td>
<td>2</td>
<td>p&lt;.05 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>local people &amp; office-heads</td>
<td>25.25</td>
<td>3</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>park staff &amp; office-heads</td>
<td>17.58</td>
<td>2</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>(c) the conservation of religious and cultural sites.</td>
<td>local people &amp; park staff</td>
<td>6.53</td>
<td>3</td>
<td>p&lt;.09 (Not Significant)</td>
<td>Accept Ho</td>
</tr>
<tr>
<td></td>
<td>local people &amp; office-heads</td>
<td>38.32</td>
<td>4</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>park staff &amp; office-heads</td>
<td>16.89</td>
<td>4</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>(d) enhancing local &amp; national income through tourism.</td>
<td>local people &amp; park staff</td>
<td>7.87</td>
<td>3</td>
<td>p&lt;.05 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>local people &amp; office-heads</td>
<td>0.77</td>
<td>3</td>
<td>p&lt;.86 (Not Significant)</td>
<td>Accept Ho</td>
</tr>
<tr>
<td></td>
<td>park staff &amp; office-heads</td>
<td>3.33</td>
<td>1</td>
<td>p&lt;.07 (Not Significant)</td>
<td>Accept Ho</td>
</tr>
<tr>
<td>(e) providing indirect benefit through tourism to the local people (by maintaining trails and controlling pollution).</td>
<td>local people &amp; park staff</td>
<td>7.15</td>
<td>3</td>
<td>p&lt;.07 (Not Significant)</td>
<td>Accept Ho</td>
</tr>
<tr>
<td></td>
<td>local people &amp; office-heads</td>
<td>1.62</td>
<td>3</td>
<td>p&lt;.65 (Not Significant)</td>
<td>Accept Ho</td>
</tr>
<tr>
<td></td>
<td>park staff &amp; office-heads</td>
<td>10.44</td>
<td>3</td>
<td>p&lt;.02 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>(f) providing opportunities for educational and scientific studies.</td>
<td>local people &amp; park staff</td>
<td>11.03</td>
<td>3</td>
<td>p&lt;.01 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>local people &amp; office-heads</td>
<td>3.74</td>
<td>3</td>
<td>p&lt;.29 (Not Significant)</td>
<td>Accept Ho</td>
</tr>
<tr>
<td></td>
<td>park staff &amp; office-heads</td>
<td>22.81</td>
<td>3</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
</tbody>
</table>

$X^2$ = chi-square  
$df$ = degrees of freedom
The mean score responses comparison between respondents and chi-square ($X^2$) analyses indicate the following:

(a) Although all three groups either "agreed" or "strongly agreed" that the purpose of Langtang National Park is for "the control of floods, landslides and soil erosion by protecting watershed in the origin area of Indrawati, Bhote Koshi and Trisull Rivers", there was a significant difference between the mean score of each group with every other group. The park staff had the strongest agreement followed by the local people and then by office-heads as to the purpose.

(b) Similar results applied for the purpose of Langtang National Park being "the conservation of plants & habitat of endangered wildlife such as musk deer and red panda".

(c) Local people "strongly agreed" and park staff as well as office-heads "agreed" that the purpose of Langtang National Park is for "the conservation of religious and cultural sites". The chi-square analysis indicates no significant difference between the mean score of local people and park staff; whereas the difference between the mean score for park staff and office-heads as well as local people and office-heads is significant.

(d) Park staff "strongly agreed" and local people as well as office-heads "agreed" that the purpose of Langtang National Park is for "enhancing local & national income through tourism". The chi-square analysis indicates no significant difference between the mean score of local people and office-heads as well as between park staff and office-heads. The difference between the mean score for park staff and local people is significant.

(e) All three groups "agreed" that the purpose of Langtang National Park is for "providing indirect benefit through tourism to the local people (by maintaining trails and controlling pollution)". The chi-square analysis indicates no significant difference between the mean score of local people and park staff as well as between local people and office-heads. The difference between the mean score for the park staff and office-heads is significant.

(f) All three groups "agreed" that the purpose of Langtang National Park is for "providing opportunities for educational and scientific studies". The chi-square analysis indicates no significant difference between the mean score of local people
and office-heads, whereas the difference between the mean score for park staff and other two groups is significant.

To summarise, results indicate that the majority of the park staff are "strongly agreed" as to the purposes of Langtang National Park being the control of floods, landslides and soil erosion; the conservation of plants and habitat of endangered wildlife such as musk deer and red panda and enhancing local and national income through tourism. The local people group is "strongly agreed" as to the purpose of Langtang National Park being the conservation of plants & habitat of endangered wildlife and the conservation of religious and cultural sites. Both the local people and park staff are "agreed" with all the rest of the stated purposes of Langtang National Park. The office-heads group "agreed" with all the stated purposes. These results clearly indicate that there is not the same degree of understanding about the values of Langtang National Park amongst all three groups. Within the areas of agreement about the purposes of the park, there are differences between the park staff and the local people. It should also be noted that the establishment of Langtang National Park does not appear to be an issue of conflict per se, because all groups are agreed as to its basic purposes.

4.2.2.0 Identification of the Causes of Conflicts

On the topic of identifying the causes of the conflicts, respondents were asked "do you believe the establishment of Langtang National Park has resulted in a loss of benefits or privileges for local people living inside and around the park boundary?". The responses of "Yes" and "No" were analysed. A mean score response between 1 and 1.50 indicates the group perception of a loss of benefits for the people living inside and around the park boundary due to the establishment of Langtang National Park and a score beyond 1.51 indicates group perception of no loss of benefits due to the establishment of the park. The results have been summarised in Table 4.4 (a) and (b).
Table 4.4 (a) Analysis of Responses for the Loss of Benefits of Local People due to the Establishment of Langtang National Park.

<table>
<thead>
<tr>
<th>Distribution of responses by:</th>
<th>Response (n)</th>
<th>$\bar{x}$ 18</th>
<th>s.d</th>
</tr>
</thead>
<tbody>
<tr>
<td>local people (n = 212)</td>
<td>202</td>
<td>1.43</td>
<td>0.50</td>
</tr>
<tr>
<td>park staff (n = 62)</td>
<td>61</td>
<td>1.61</td>
<td>0.50</td>
</tr>
<tr>
<td>office heads (n = 20)</td>
<td>13</td>
<td>1.23</td>
<td>0.44</td>
</tr>
</tbody>
</table>

Table 4.4 (b) The Chi-square Analysis of Responses for the Loss of Benefits of Local People due to the Establishment of Langtang National Park.

<table>
<thead>
<tr>
<th>Significance between:</th>
<th>$\chi^2$</th>
<th>df</th>
<th>Level of significance</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>local people &amp; park staff</td>
<td>6.15</td>
<td>1</td>
<td>$p&lt;.01$ (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>local people &amp; office-heads</td>
<td>1.91</td>
<td>1</td>
<td>$p&lt;.16$ (Not Significant)</td>
<td>Accept Ho</td>
</tr>
<tr>
<td>park staff &amp; office-heads</td>
<td>6.09</td>
<td>1</td>
<td>$p&lt;.01$ (Significant)</td>
<td>Reject Ho</td>
</tr>
</tbody>
</table>

The results [Table 4.4 (a) and (b)] indicate:

(i) That the majority of local people and office-heads have perceived a loss of benefits for the people living inside and around the park boundary due to the establishment of Langtang National Park, while the majority of park staff have not perceived a loss to the same degree as the other two groups.

(ii) There is no significant difference between the mean score of local people and office-heads, whereas the difference between mean scores for park staff and the other two groups is significant.

The differences in perceptions of park staff with the other two groups can contribute to a situation of conflict between the park administration and the local population.

---

18 $\bar{x}$= Mean score response from the values distribution of response scale: 1 = yes and 2 = no.
Respondents who answered 'Yes' to the question of a loss of benefits were asked to list benefits lost and rank them in order of importance. Fifty-two percent of local people, 45 percent of office-heads and 38.71 percent of park staff listed the problem of crops and livestock depredation by wildlife and ranked this in a first category of benefits lost due to the establishment of Langtang National Park.

Only a small (5.66 and 1.89) percentage of the local people perceived:

(i) a loss of freedom of the local people for the collection of fuelwood, leaflitter and grasses from the forest area; and

(ii) a loss of freedom for charcoal making opportunities for the local iron-tools makers in the forest.

No park staff or office-heads indicated other categories of benefits lost.

It is noted that the majority of the local people living inside and around the park boundaries indicated that they have suffered from the problem of "crops and livestock depredation by wildlife".

Respondents who listed the above "benefits lost", also were asked to suggest possible solutions to the problems. From the analysis of suggestions offered:

(a) more than 49 percent of local people, 45 percent of office-heads and 38.71 percent of park staff suggested that the problems of crops and livestock depredation from wildlife should be controlled by the park administration;

(b) slightly more than four percent of local people and five percent of office-heads suggested that shooting rights should be given to the locals to protect their crops and livestock against wildlife;

(c) only 6.13 percent of the local people suggested the exercise of rights to gather fuelwood, leaflitter, grass cutting and livestock grazing by the local people should not be restrained by the park administration; and

(d) just 2.36 percent of the local people suggested that charcoal making by local iron-tool makers in the forest should be permitted by the park administration.
4.2.2.1 Effects of Hoteliers on the Park’s Natural Environment

On the topic of identifying the causes of conflicts, it was necessary to assess the respondent’s perceptions about the effects of hoteliers on the park’s natural environment. Hoteliers also could contribute to conflicts if the lodges, restaurants and hotel businesses have negative impacts on the park’s natural environment. To determine people’s perceptions, respondents were asked to indicate the effect of lodge, hotel and restaurant businesses on the park’s natural environment. Mean scores between 2.51 to 3.50 indicate a neutral perception of the group regarding the effects of these businesses on the park’s natural environment. No group’s (mean) score was less than 2.5 or higher than 3.5. The results have been summarised in Table 4.5 (a) and (b).

Table 4.5 (a) Analysis of Responses for Effects of Lodge, Hotel and Restaurant Businesses in Park’s Natural Environment.

<table>
<thead>
<tr>
<th>Effects of: Restaurant, lodge &amp; hotel business on the Park’s natural environment.</th>
<th>Population Types:</th>
<th>Response (n)</th>
<th>( \bar{x}^{19} )</th>
<th>s.d.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>local people (n=212)</td>
<td>105</td>
<td>2.89</td>
<td>0.66</td>
</tr>
<tr>
<td></td>
<td>park staff (n=62)</td>
<td>62</td>
<td>3.42</td>
<td>0.92</td>
</tr>
<tr>
<td></td>
<td>office heads (n=20)</td>
<td>14</td>
<td>2.93</td>
<td>1.21</td>
</tr>
</tbody>
</table>

Table 4.5 (b) The Chi-square Analysis of Responses for Effects of Lodge, Hotel and Restaurant Businesses on the Park’s Natural Environment.

<table>
<thead>
<tr>
<th>Effects of: Restaurant, lodge and hotel businesses on the Park’s natural environment.</th>
<th>( X^2 )</th>
<th>df</th>
<th>Significance between:</th>
<th>Level of significance</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>49.26</td>
<td>4</td>
<td>local people &amp; park staff</td>
<td>( p&lt;.00 ) (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>17.08</td>
<td>4</td>
<td>local people &amp; office-heads</td>
<td>( p&lt;.00 ) (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>12.06</td>
<td>4</td>
<td>park staff &amp; office-heads</td>
<td>( p&lt;.02 ) (Significant)</td>
<td>Reject Ho</td>
</tr>
</tbody>
</table>

The results [Table 4.5 (a) and (b)] indicate:

\( \bar{x}^{19} \) = Mean score response from the values distribution of response scale: 1 = strongly positive; 2 = positive; 3 = neutral; 4 = negative and 5 = strongly negative.
The majority of all three groups showed a neutral stance to the effects of lodge, hotel and restaurant businesses on the Park's natural environment.

There was a significant difference between the mean score of each group with every other group. This means that although all were neutral the local people had a more positive attitude as to the effects of lodge, hotel and restaurant businesses on the Park's natural environment than did the office-heads and Park staff.

Although the mean scores indicate "neutral" attitudes to effects, the distribution of responses suggests that a number of respondents from the park staff group felt negative about the effects of lodge, hotel and restaurant businesses on the park's natural environment followed by the office-heads and then followed by the local people group.

To summarise, the results suggest that the groups do not perceive as either positive or negative the effects of the hoteliers on the Park's natural environment. However, it is noted from the overall results, that park management should be prepared to carefully monitor the activities of hotels and restaurants in terms of possible negative impacts.

4.2.2.2 Concessions to the Local People Living Inside the Park Boundary

The issue of traditional rights of resource use could contribute to conflicts if the people perceive a lack of concessions from the Park administration to utilise certain park resources. To determine people's perception, respondents were asked "do the local people living inside the park receive concessions from the park administration to utilise certain park resources?". Mean score responses between 1 to 1.50 indicate the group perception is "Yes" to the question and a score higher than 1.50 indicates the group perception is "No" to the question. The results have been summarised in Table 4.6 (a) and (b).
Table 4.6 (a) Analysis of Responses for Concessions to the Local People Living Inside the Park Boundary.

<table>
<thead>
<tr>
<th>Respondents categories:</th>
<th>Response (n)</th>
<th>$\bar{x}$</th>
<th>s.d</th>
</tr>
</thead>
<tbody>
<tr>
<td>local people (n=212)</td>
<td>130</td>
<td>1.04</td>
<td>0.19</td>
</tr>
<tr>
<td>park staff (n=62)</td>
<td>62</td>
<td>1.00</td>
<td>0.00</td>
</tr>
<tr>
<td>office heads (n=20)</td>
<td>18</td>
<td>1.06</td>
<td>0.24</td>
</tr>
</tbody>
</table>

Table 4.6 (b) The Chi-square Analysis of Responses for Concessions to the Local People Living Inside the Park Boundary.

<table>
<thead>
<tr>
<th>Significance between:</th>
<th>$X^2$</th>
<th>df</th>
<th>Level of significance</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>local people &amp; park staff</td>
<td>2.45</td>
<td>1</td>
<td>$p&lt;.12$ (Not Significant)</td>
<td>Accept Ho</td>
</tr>
<tr>
<td>local people &amp; office-heads</td>
<td>0.12</td>
<td>1</td>
<td>$p&lt;.73$ (Not Significant)</td>
<td>Accept Ho</td>
</tr>
<tr>
<td>park staff &amp; office-heads</td>
<td>3.49</td>
<td>1</td>
<td>$p&lt;.06$ (Not Significant)</td>
<td>Accept Ho</td>
</tr>
</tbody>
</table>

The above results [Table 4.6 (a) and (b)] indicate:

(i) All three groups' perceptions are that the local people living inside the park boundaries are receiving concessions from the park administration to utilise certain park resources.

(ii) No significant difference between the mean score of local people, park staff and office-heads.

Respondents were also asked to indicate the types of concessions which were granted to those living inside the park boundaries. Results have been summarised in Table 4.7.

\[\bar{x}=\text{Mean score response from the response scale values: } 1 = \text{yes} \& 2 = \text{no.}\]
### Table 4.7  Analysis of Responses Regarding Concessions for Those Who are Living Inside the Park Boundary.

<table>
<thead>
<tr>
<th>Areas of Concessions:</th>
<th>Responded by:</th>
<th>$\Sigma n$ $^21$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) to collect fuelwood without permit;</td>
<td>local people</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>17</td>
</tr>
<tr>
<td>(b) to cut timber for construction materials through permit;</td>
<td>local people</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>16</td>
</tr>
<tr>
<td>(c) to graze their cattle/sheep/goats without permit; and</td>
<td>local people</td>
<td>123</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>16</td>
</tr>
<tr>
<td>(d) to collect nigalo (bamboo) through permit and other forest products such as fodder and bedding materials for cattle without permit.</td>
<td>local people</td>
<td>121</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>16</td>
</tr>
</tbody>
</table>

### 4.2.2.3 Concessions to the Local people living Outside the Park boundary

The respondents' perceptions about whether the people living outside (close to) the park boundaries were getting the same concessions as those living inside the park were assessed. Besides the impacts of crop and livestock depredation by wildlife, the denial of traditional rights of resource use in the park areas could contribute to conflicts. Respondents were asked "do the villagers living immediately outside the park boundary also receive the same concessions as those received by the inside park inhabitants from the park administration?". Mean scores between 1 to 1.50 indicate the group perception of "yes" to the question and scores higher than 1.50 indicates group perception is "no" to the question. The results are summarised in the Table 4.8 (a) and (b).

---

$^21$ $\Sigma n =$ total number of respondents (n) from the Sample of: local people (n) = 212, park staff (n) = 62 and office-heads (n) = 20.
Table 4.8 (a) Analysis of Responses for Concessions to the People Living Immediately Outside the Park Boundary.

<table>
<thead>
<tr>
<th>Respondents categories:</th>
<th>Response (n)</th>
<th>$\overline{x}$</th>
<th>s.d</th>
</tr>
</thead>
<tbody>
<tr>
<td>local people (n=212)</td>
<td>178</td>
<td>1.19</td>
<td>0.39</td>
</tr>
<tr>
<td>park staff (n=62)</td>
<td>61</td>
<td>1.61</td>
<td>0.49</td>
</tr>
<tr>
<td>office-heads (n=20)</td>
<td>11</td>
<td>1.73</td>
<td>0.47</td>
</tr>
</tbody>
</table>

Table 4.8 (b) The Chi-square analysis of Responses for Concessions to the People Living Immediately Outside the Park Boundary.

<table>
<thead>
<tr>
<th>Significance between:</th>
<th>$X^2$</th>
<th>df</th>
<th>Level of significance</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>local people &amp; park staff</td>
<td>37.57</td>
<td>1</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>local people &amp; office-heads</td>
<td>17.24</td>
<td>1</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>park staff &amp; office-heads</td>
<td>0.58</td>
<td>1</td>
<td>p&lt;.45 (Not Significant)</td>
<td>Accept Ho</td>
</tr>
</tbody>
</table>

The above results [Table 4.8 (a) and (b)] indicate:

(i) The majority of the local people perceived that those living immediately outside the park have received the same concessions as those received by the inside park inhabitants from the park administration. The majority of the park staff and office-heads do not agree that those living immediately outside the park receive the same concessions as those living inside the park.

(ii) No significant difference between the mean score of park staff and office-heads, whereas the difference between the mean score for the local people and other two groups is significant.

Respondents who answered ‘Yes’ to the question of “do the villagers living immediately outside the park boundary also receive the same concessions as received by the inside park inhabitants from the park administration?” were also asked to indicate the types of concessions. Results have been summarised in Table 4.9.

$\overline{x} = $ Mean score response from the response scale values: 1 = yes and 2 = no.
Table 4.9 Analysis of Responses for Areas of Concessions to those who are Living Immediately Outside the Park Boundary.

<table>
<thead>
<tr>
<th>Areas of Concessions:</th>
<th>Responded by:</th>
<th>Σn 23</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) to collect fuelwood without a permit;</td>
<td>local people</td>
<td>142</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>3</td>
</tr>
<tr>
<td>(b) to cut timber for construction materials with a permit;</td>
<td>local people</td>
<td>143</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>2</td>
</tr>
<tr>
<td>(c) to graze their cattle/sheep/goats without a permit; &amp;</td>
<td>local people</td>
<td>143</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>2</td>
</tr>
<tr>
<td>(d) to collect nigalo (bamboo) with a permit and other forest products such as fodder and bedding materials for cattle without a permit.</td>
<td>local people</td>
<td>141</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>2</td>
</tr>
</tbody>
</table>

4.2.2.4 Opinion Concerning Permit Guidelines

In identifying the causes of conflicts, it was necessary to assess the respondents' perceptions about whether any of the existing permit guidelines for the concessions are too restrictive. To determine this perception, respondents were asked "do you think any of the permit guidelines are too restrictive?". Mean scores between 1 to 1.50 indicate the group perception of existing permit guidelines are restrictive and a score higher than 1.50 indicates the group perception as not restrictive. Results have been summarised in Table 4.10 (a) and (b).

23 Σn = total number of respondents (n) from the Sample of: local people (n) = 212, park staff (n) = 62 and office-heads (n) = 20.
Table 4.10 (a) Analysis of Responses for Restrictiveness of Concessions in Existing Permit Guidelines.

<table>
<thead>
<tr>
<th>Respondents' categories:</th>
<th>Response (n)</th>
<th>$X^2$</th>
<th>s.d</th>
</tr>
</thead>
<tbody>
<tr>
<td>local people (n=212)</td>
<td>110</td>
<td>1.62</td>
<td>0.49</td>
</tr>
<tr>
<td>park staff (n=62)</td>
<td>46</td>
<td>2.00</td>
<td>0.00</td>
</tr>
<tr>
<td>office-heads (n=20)</td>
<td>5</td>
<td>1.40</td>
<td>0.55</td>
</tr>
</tbody>
</table>

Table 4.10 (b) The Chi-square Analysis of Responses for Restrictiveness of Concessions in Existing Permit Guidelines.

<table>
<thead>
<tr>
<th>Significance between:</th>
<th>$X^2$</th>
<th>df</th>
<th>Level of significance</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>local people &amp; park staff</td>
<td>24.03</td>
<td>1</td>
<td>$p&lt;.00$ (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>local people &amp; office-heads</td>
<td>0.96</td>
<td>1</td>
<td>$p&lt;.33$ (Not Significant)</td>
<td>Accept Ho</td>
</tr>
<tr>
<td>park staff &amp; office-heads</td>
<td>29.33</td>
<td>1</td>
<td>$p&lt;.00$ (Significant)</td>
<td>Reject Ho</td>
</tr>
</tbody>
</table>

The above results (Table 4.10 (a) and (b) indicate:

(i) The park staff group (mean score = 2.0) and the local people group (mean score = 1.61) perceived that the existing permit guidelines for the concessions are not restrictive while the office-heads perceived them as restrictive (mean score = 1.40).

(ii) No significant difference between the mean score of local people and office-heads, whereas the difference between the mean score for the park staff and other two groups is significant.

Respondents who answered that the existing permit guidelines for concessions are too restrictive were asked to comment on "which concessions are they referring to and what changes do they want to recommend". Results for concessions referred to and changes recommended by the respondents are:

(a) More than nine percent of the local people and five percent of the office-heads stated that the present rate of royalty for construction timber should be reduced by

---

24 $X$ = Mean score from the response scale values: 1 = yes and 2 = no.
20 to 50 percent for the local poor so that they could construct or repair their houses;

(b) more than 13 percent of the local people and 10 percent of the office-heads stated that timber for the construction of agricultural tools (such as handles of shovels, sickles and digging tools) should be provided free of cost;

(c) more than five percent of the local people suggested that Nigalo (bamboo) for weaving bamboo-mats and baskets for domestic use should be provided free of cost from the park administration;

(d) nearly three percent of the local people recommended that the permit duration for bamboo collection should be extended to more than one month in a year (usually 7 to 15 days in Winter are permitted for collecting bamboo); and

(e) only 1.42 percent of the local people recommended that the requirements relating to issuing of permits for hotel businesses inside the Park area be consistent and explicit, in order that all interested local people might have equal opportunity to be a hotelier.

In addition to the above discussed concessions and changes recommended by the respondents, another open-ended question asked "what additional concessions should be granted to local people?". Opinions concerning additional concessions offered by the respondents are:

(a) Eight percent of both the local people and park staff and five percent of the office-heads offered their opinions that electric power should be provided to locals as an alternative for fuelwood;

(b) more than 16 percent of the local people, five percent of the office-heads and 4.84 percent of the park staff stated that construction timber should be provided to the locals on the basis of needs assessment;

(c) nearly 18 percent of the local people, 10 percent of the office-heads and 4.84 percent of the park staff suggested that fuelwood efficient stoves should be provided to locals at a nominal cost from the park administration and axes should be permitted in the forest for the preparation of firewood from dead and dying trees (this is restricted by the present park regulations);
(d) nearly 10 percent of the local people and 4.84 percent of the park staff offered the idea that wild-pig farming should be introduced in the local community as an alternative for income generation; and

(e) over 13 percent of the local people, five percent of the office-heads and eight percent of the park staff suggested the establishment of a community development fund through tourist contributions for hiring watchmen to drive wild animals from the croplands.

4.2.2.5 Awareness of Illegal Activities Inside the Park Area
As a last part of the topic of identifying the causes of conflict, respondents were asked about their awareness of offences being committed in the park. They were asked to tick the appropriate boxes to show whether they were aware of offenders being prosecuted, warned or unreported. Results have been summarised in Table 4.11.

<table>
<thead>
<tr>
<th>Awareness of:</th>
<th>Responded by:</th>
<th>Percentage responded on:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Prosecuted</td>
</tr>
<tr>
<td>a. poaching;</td>
<td>local people</td>
<td>11.32</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>38.71</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>5.00</td>
</tr>
<tr>
<td>b. timber cutting without a permit;</td>
<td>local people</td>
<td>13.68</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>29.03</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>5.00</td>
</tr>
<tr>
<td>c. lighting forest fires; and</td>
<td>local people</td>
<td>2.36</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>20.97</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>-</td>
</tr>
<tr>
<td>d. collecting minor forest products without a permit.</td>
<td>local people</td>
<td>4.25</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>22.58</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>-</td>
</tr>
</tbody>
</table>

The above (Table 4.11) results indicate the following:
a. about 39 percent of the park staff, 11.32 percent of the local people and five percent of the office-heads responded that they were aware of prosecutions for offenses related to "poaching" inside the park area. Just over 30 percent of the park staff, 10 percent of the office-heads and 1.42 percent of the local people reported that they were aware of warnings being given to offenders in lieu of prosecution. Five percent of the office-heads and 1.61 percent of park staff reported that they were aware of "poaching" inside the park area which was unreported to authorities.

This information indicates that park staff were much more aware of offences related to "poaching" inside the Park area than were local people or office-heads.

b. Slightly more than 29 percent of the park staff, 13.68 percent of the local people and five percent of the office-heads reported that they were aware of prosecutions for offences related to "timber cutting without a permit" inside the park area. About 21 percent of the park staff, five percent of the office-heads and 2.83 percent of the local people reported that they were aware of warnings being given to offenders in lieu of prosecution. About 21 percent of the park staff and 5 percent of the office-heads reported that they were aware of "timber cutting without a permit" being unreported to authorities.

This information indicates that park staff were much more aware of offences related to "timber cutting without a permit" inside the Park area than were local people or office-heads.

c. About 21 percent of the park staff and 2.36 percent of the local people were aware of prosecutions for offenses related to "lighting forest fires" inside the park area. More than 24 percent of the park staff, 10 percent of the office-heads and 1.41 percent of the local people reported that they were aware of warnings being given to offenders in lieu of prosecution. Nearly 42 percent of the park staff, 19.34 percent of local people and 10 percent of the office-heads reported that they were aware of "lighting forest fires" being unreported to authorities.

These results also indicate that park staff were much more aware of offenses related to "lighting forest fires" inside the Park area than were local people or office-heads.
d. More than 22 percent of the park staff and 4.25 percent of the local people were aware of prosecutions for offences related to "collecting minor forest products without a permit" inside the park area. Also, more than 22 percent of the park staff, 10 percent of the office-heads and 2.83 percent of the local people reported that they were aware of warnings being given to offenders in lieu of prosecution. Nearly 21 percent of the park staff and five percent of the office-heads reported that they were aware of "collecting minor forest products without a permit" being unreported to authorities.

Similarly, as with the results of preceding issues, these results also indicate that park staff were much more aware\textsuperscript{25} of offences related to "collecting minor forest products without a permit" inside the Park area than were local people or office-heads.

4.2.3 Tourism Impact

Twelve sets of statements were proposed to assess respondents' perceptions regarding tourism impacts in Langtang National Park. Mean scores between 1.0 to 1.50 indicates a very positive group evaluation of the statement, 1.51 to 2.50 indicates positive, and scores between 2.51 to 3.50 indicates a neutral stance regarding the assessment of tourism impacts. No statements scored higher than 3.50. Had they done so, these would have indicated a negative group perception between 3.51 to 4.50 and very negative higher than 4.50. Results of analysis of group responses to the statements and chi-square analysis of perceptions between the groups have been summarised in Table 4.12 (a) and (b) respectively.

\textsuperscript{25} It is, however, conceded that local people may strategically be less likely to admit to knowing about unreported offending.
### Table 4.12 (a) Analysis of Responses to Sets of Statements Regarding the Assessment of Tourism Impacts in Langtang National Park.

<table>
<thead>
<tr>
<th>Tourism Impacts on:</th>
<th>Responded by:</th>
<th>Σn 26</th>
<th>̅x 27</th>
<th>s.d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. local and national Income;</td>
<td>local people</td>
<td>159</td>
<td>1.77</td>
<td>0.52</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
<td>1.48</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>20</td>
<td>1.60</td>
<td>0.50</td>
</tr>
<tr>
<td>b. the local arts and crafts;</td>
<td>local people</td>
<td>137</td>
<td>1.94</td>
<td>0.65</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>60</td>
<td>2.17</td>
<td>0.78</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>19</td>
<td>2.21</td>
<td>0.42</td>
</tr>
<tr>
<td>c. the markets for locally produced foods such as milk, butter, meats etc;</td>
<td>local people</td>
<td>160</td>
<td>1.79</td>
<td>0.65</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>61</td>
<td>1.70</td>
<td>0.56</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>20</td>
<td>2.00</td>
<td>0.56</td>
</tr>
<tr>
<td>d. employment (e.g., tourist guides and porters);</td>
<td>local people</td>
<td>164</td>
<td>1.85</td>
<td>0.73</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
<td>1.61</td>
<td>0.55</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>20</td>
<td>1.75</td>
<td>0.44</td>
</tr>
<tr>
<td>e. social customs (e.g., clothing behaviour etc);</td>
<td>local people</td>
<td>174</td>
<td>2.98</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
<td>2.79</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>20</td>
<td>2.40</td>
<td>0.75</td>
</tr>
<tr>
<td>f. local inflation;</td>
<td>local people</td>
<td>187</td>
<td>3.20</td>
<td>0.43</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
<td>3.14</td>
<td>0.65</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>18</td>
<td>2.67</td>
<td>1.08</td>
</tr>
<tr>
<td>g. conservation of flora and fauna;</td>
<td>local people</td>
<td>179</td>
<td>2.99</td>
<td>0.11</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
<td>2.89</td>
<td>0.66</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>15</td>
<td>2.20</td>
<td>0.68</td>
</tr>
<tr>
<td>h. vandalism;</td>
<td>local people</td>
<td>179</td>
<td>3.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
<td>3.05</td>
<td>0.49</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>10</td>
<td>2.60</td>
<td>0.70</td>
</tr>
<tr>
<td>i. litter control and trail maintenance;</td>
<td>local people</td>
<td>183</td>
<td>2.92</td>
<td>0.52</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
<td>3.00</td>
<td>0.83</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>15</td>
<td>2.07</td>
<td>0.46</td>
</tr>
<tr>
<td>j. conservation of religious &amp; cultural sites;</td>
<td>local people</td>
<td>172</td>
<td>2.95</td>
<td>0.27</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
<td>2.74</td>
<td>0.57</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>17</td>
<td>2.24</td>
<td>0.66</td>
</tr>
<tr>
<td>k. the survival of local religious values; and</td>
<td>local people</td>
<td>173</td>
<td>2.95</td>
<td>0.26</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
<td>2.82</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>18</td>
<td>2.50</td>
<td>0.71</td>
</tr>
<tr>
<td>l. the survival of local cultural values.</td>
<td>local people</td>
<td>176</td>
<td>2.96</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td>park staff</td>
<td>62</td>
<td>2.95</td>
<td>0.42</td>
</tr>
<tr>
<td></td>
<td>office-heads</td>
<td>19</td>
<td>2.37</td>
<td>0.68</td>
</tr>
</tbody>
</table>

---

26 Σn = total number of respondents (n) from the samples of: local people (n) = 212, park staff (n) = 62 and Office Heads (n) = 20.

27 ̅x = mean score response from the values distribution of the response scale: 1 = Very Positive; 2 = Positive; 3 = No Impact; 4 = Negative; and 5 = Very Negative.
## Table 4.12 (b) Analysis of Chi-square Significance between the Three Different Groups of Respondents for the Statements of Tourism Impacts in Langtang National Park.

<table>
<thead>
<tr>
<th>Impacts on:</th>
<th>Significance between:</th>
<th>$X^2$</th>
<th>df</th>
<th>Level of significance</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. local and national income;</td>
<td>local people &amp; park staff</td>
<td>12.89</td>
<td>2</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>local people &amp; office-heads</td>
<td>1.98</td>
<td>2</td>
<td>p&lt;.37 (Not Significant)</td>
<td>Accept Ho</td>
</tr>
<tr>
<td></td>
<td>park staff &amp; office-heads</td>
<td>0.82</td>
<td>1</td>
<td>p&lt;.37 (Not Significant)</td>
<td>Accept Ho</td>
</tr>
<tr>
<td>b. the local arts and crafts;</td>
<td>local people &amp; park staff</td>
<td>11.54</td>
<td>2</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>local people &amp; office-heads</td>
<td>5.90</td>
<td>2</td>
<td>p&lt;.05 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>park staff &amp; office-heads</td>
<td>11.40</td>
<td>2</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>c. the markets for locally produced foods;</td>
<td>local people &amp; park staff</td>
<td>3.20</td>
<td>2</td>
<td>p&lt;.20 (Not Significant)</td>
<td>Accept Ho</td>
</tr>
<tr>
<td></td>
<td>local people &amp; office-heads</td>
<td>2.94</td>
<td>2</td>
<td>p&lt;.23 (Not Significant)</td>
<td>Accept Ho</td>
</tr>
<tr>
<td></td>
<td>park staff &amp; office-heads</td>
<td>4.19</td>
<td>2</td>
<td>p&lt;.12 (Not Significant)</td>
<td>Accept Ho</td>
</tr>
<tr>
<td>d. employment (e.g. tourist guides);</td>
<td>local people &amp; park staff</td>
<td>9.83</td>
<td>2</td>
<td>p&lt;.01 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>local people &amp; office-heads</td>
<td>8.05</td>
<td>2</td>
<td>p&lt;.02 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>park staff &amp; office-heads</td>
<td>2.82</td>
<td>2</td>
<td>p&lt;.24 (Not Significant)</td>
<td>Accept Ho</td>
</tr>
<tr>
<td>e. social customs;</td>
<td>local people &amp; park staff</td>
<td>33.94</td>
<td>3</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>local people &amp; office-heads</td>
<td>87.43</td>
<td>3</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>park staff &amp; office-heads</td>
<td>11.68</td>
<td>3</td>
<td>p&lt;.01 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>f. local inflation;</td>
<td>local people &amp; park staff</td>
<td>27.42</td>
<td>3</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>local people &amp; office-heads</td>
<td>119.96</td>
<td>4</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>park staff &amp; office-heads</td>
<td>21.17</td>
<td>4</td>
<td>p&lt;.00 (Significant)</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>Local People &amp; Park Staff</td>
<td>Local People &amp; Office-Heads</td>
<td>Park Staff &amp; Office-Heads</td>
<td>p-value</td>
<td>Significance</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------</td>
<td>-----------------------------</td>
<td>---------------------------</td>
<td>---------</td>
<td>--------------</td>
</tr>
<tr>
<td>g. conservation of flora &amp; fauna;</td>
<td>68.12</td>
<td>103.41</td>
<td>12.12</td>
<td>&lt;.00</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>p&lt;.00</td>
<td>p&lt;.00</td>
<td>p&lt;.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significant</td>
<td>Significant</td>
<td>Significant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. vandalism;</td>
<td>46.18</td>
<td>54.57</td>
<td>8.52</td>
<td>&lt;.04</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>p&lt;.00</td>
<td>p&lt;.00</td>
<td>p&lt;.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significant</td>
<td>Significant</td>
<td>Significant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. litter control &amp; trail maintenance;</td>
<td>43.96</td>
<td>48.22</td>
<td>16.18</td>
<td>&lt;.00</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>p&lt;.00</td>
<td>p&lt;.00</td>
<td>p&lt;.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significant</td>
<td>Significant</td>
<td>Significant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. conservation of religious &amp; cultural sites;</td>
<td>26.18</td>
<td>74.77</td>
<td>13.39</td>
<td>&lt;.00</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>p&lt;.00</td>
<td>p&lt;.00</td>
<td>p&lt;.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significant</td>
<td>Significant</td>
<td>Significant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>k. the survival of religious values; and</td>
<td>12.50</td>
<td>41.84</td>
<td>7.42</td>
<td>&lt;.01</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>p&lt;.01</td>
<td>p&lt;.00</td>
<td>p&lt;.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significant</td>
<td>Significant</td>
<td>(Not Significant)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>l. the survival of cultural values.</td>
<td>14.39</td>
<td>69.60</td>
<td>22.82</td>
<td>&lt;.00</td>
<td>Reject Ho</td>
</tr>
<tr>
<td></td>
<td>p&lt;.00</td>
<td>p&lt;.00</td>
<td>p&lt;.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significant</td>
<td>Significant</td>
<td>Significant</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The mean score comparisons between respondents and chi-square ($X^2$) analyses indicate the following:
(a) Park staff had very positive perception, while local people, as well as office-heads, had positive perceptions as to the tourism impacts on "local & national income". The chi-square analysis indicates no significant difference between the mean score of local people and office-heads as well as park staff and office-heads. The difference between the mean score for park staff and other groups is significant.

(b) All three groups had a positive perception of the tourism impacts on "the local arts and crafts". There was a significant difference between the mean score of each group with every other group. The local people had the most positive perception followed by park staff and then by office-heads.

(c) All three groups had a positive perception of the tourism impacts on "the markets for locally produced foods such as milk, butter, meats etc". The chi-square analysis indicates no significant difference between the mean score of each group with every other group.

(d) All three groups had a positive perception of the tourism impacts on "employment (e.g., tourist guides & porters)". The chi-square analysis indicates no significant difference between the mean score of park staff and office-heads. The difference between the mean score for local people and the other two groups is significant.

(e) Office-heads showed a positive perception and the other two groups indicated a neutral stance of the tourism impacts on "social customs (e.g., clothing behaviour etc)". The chi-square analysis indicates there was a significant difference between the mean score of each group with every other group. The office-heads had a positive perception and park staff revealed a neutral stance closer to the positive end of the scale then did the local people.

(f) All three groups revealed a neutral stance for the tourism impacts on "local inflation". There was a significant difference between the mean score of each group with every other group. The office-heads showed a neutral stance closer to the positive end of the scale followed by park staff and then followed by the local people.

(g) Office-heads showed a positive perception and the other two groups indicated a neutral stance of the tourism impacts on "conservation of flora and fauna". The chi-square analysis indicates there was a significant difference between the mean score
of each group with every other group. The office-heads had a positive perception and the park staff revealed a neutral stance followed by the local people.

(h) All three groups revealed a neutral stance for the tourism impacts on "vandalism". There was a significant difference between the mean score of each group with every other group. The office-heads showed a neutral stance closer to the positive end of the scale followed by local people and then followed by the park staff.

(i) Office-heads showed a positive perception and the other two groups indicated a neutral stance of the tourism impacts on "litter control & trail maintenance". The chi-square analysis indicates there was a significant difference between the mean score of each group with every other group. The office-heads had a positive perception whereas local people revealed a neutral stance followed by the park staff.

(j) Office-heads showed a positive perception and the other two groups revealed a neutral stance for the tourism impacts on "conservation of religious & cultural sites". The chi-square analysis indicates there was a significant difference between the mean score of each group with every other group. Office-heads had a positive perception and park staff a neutral stance followed by the local people.

(k) Office-heads were positive while park staff and local people were neutral for the tourism impacts on "the survival of local religious values". The chi-square analysis indicates no significant difference between the mean score of park staff and office-heads. The chi-square analysis also shows there is a significant difference between the mean score for local people and the other two groups. These differences indicate that the office-heads showed a positive perception, close to the neutral stance end of the scale, followed by park staff and then the local people.

(l) Office-heads showed a positive perception and the other two groups indicated a neutral stance regarding the tourism impacts on "the survival of local cultural values". The chi-square analysis indicates there was a significant difference between the mean score of each group with every other group. The office-heads had a positive perception and the park staff revealed a neutral stance followed by the local people.
The respondents who held a negative stance with any of the above discussed statements regarding the assessment of tourism impacts were asked to comment on measures for correcting the negative impacts. A small percentage of all three groups of respondents offered their opinions in the following areas:

(1) Thirteen percent of the local people, 24.2 percent of the park staff and 10 percent of the office-heads stated that the prices of basic needs items (such as kerosene, salt and cooking oil) for local people should be controlled by the local authorities; so that the local people could easily cope with existing market prices.

(2) More than five percent of the local people, 30.6 percent of the park staff and five percent of the office-heads suggested that emphasis should be given to keeping the environment clean.

(3) More than three percent of the local people, 16.1 percent of the park staff and five percent of the office-heads suggested that emphasis should be given to less use of fuelwood and greater use of alternative sources of energy.

(4) Nearly three percent of the local people, 6.5 percent of the park staff and five percent of the office-heads suggested that emphasis should be given to the employment of local people in tourism businesses.

(5) About two percent of the local people, 8.1 percent of the park staff and 10 percent of the office-heads suggested that there should be education for visitors on the importance of social customs.

4.2.4.0 Level of Interaction Between Park Staff and Local People

One of the objectives of this research was to collect information regarding the level of interaction between park staff and local people. Separate sets of questions were asked of the park staff (see appendix B, Q. No. 18 to 24) and of the local people and the office-heads (see appendix A, Q. No. 18 to 25). Responses to the questions by the park staff and by the other two groups have been analysed separately.
4.2.4.1 Analysis of Responses of Park Staff to determine the Level of Interaction between the Park Staff and the Local People

Information was collected from the park staff of their working experience in Langtang National Park. Results have been summarised in Table 4.13.

Table 4.13 Analysis of Working Experience of Park Staff in Langtang National Park (percentage in parenthesis)

<table>
<thead>
<tr>
<th>Experience of:</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 year</td>
<td>2 (3.2%)</td>
</tr>
<tr>
<td>1 - 2 years</td>
<td>12 (19.4%)</td>
</tr>
<tr>
<td>2 - 5 years</td>
<td>26 (41.9%)</td>
</tr>
<tr>
<td>More than 5 years</td>
<td>22 (35.5%)</td>
</tr>
<tr>
<td>Total Response:-</td>
<td>62 (100%)</td>
</tr>
</tbody>
</table>

More than 96 percent of the park staff answered yes to the question of "Do you come in contact with the local people?". The results of analysis of the frequency of contacts in a single year have been summarised in Table 4.14.

Table 4.14 Analysis of Responses of Park Staff for Contact with the Local People in a Single Year (percentage in parenthesis)

<table>
<thead>
<tr>
<th>Once a Year</th>
<th>2-5 times a Year</th>
<th>6-10 times a Year</th>
<th>More than 10 times a Year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (1.6%)</td>
<td>8 (12.9)</td>
<td>9 (14.5)</td>
<td>42 (67.74)</td>
<td>60 (96.7)</td>
</tr>
</tbody>
</table>

The park staff were asked to specify "in what circumstances did they come in contact with the local people?". Circumstances of contact with the local people were:

(1) slightly more than 58 percent of the park staff stated that contact was for executing and issuing permits for forest products;

(2) more than 45 percent of the park staff stated that contact was during park patrolling;

(3) slightly more than 37 percent of the park staff stated that contact was through participating in conservation education programmes; and

(4) nearly 34 percent of the park staff stated that contact was during shopping in the local villages.
The park staff were also asked to specify the status of the local people (e.g., local political leader, hotellers, retailers and farmers) with whom they come in contact. Results have been summarised in Table 4.15.

Table 4.15  Analysis of Responses of Park Staff for Status of Local People With Whom They Came in Contact (percentage in parenthesis)

<table>
<thead>
<tr>
<th>Status of Local People</th>
<th>Contacted by Park staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Local leader</td>
<td>21 (33.9%)</td>
</tr>
<tr>
<td>b. Hotellers/Retailers</td>
<td>1 ( 1.6%)</td>
</tr>
<tr>
<td>c. Farmers</td>
<td>4 ( 6.5%)</td>
</tr>
<tr>
<td>d. All of the above</td>
<td>36 (58.0%)</td>
</tr>
<tr>
<td>Total response:</td>
<td>62 (100%)</td>
</tr>
</tbody>
</table>

In response to a question asked of the park staff to list any difficulties they have encountered in their dealings with local people, 17.74 percent of the park staff stated that the local people do not co-operate with park staff by following the park regulations properly.

The question was asked of the park staff "Do you have suggestions as to how some of these difficulties might be overcome?". In response to the question, 25.81 percent of the park staff suggested conservation education for the local people and 9.68 percent of the park staff suggested regular visit to the local people by the park staff. The purpose of the visits would be to promote positive relationships between the park administration and the local population and then the local people could easily be persuaded to follow the park regulations.

4.2.4.2 Analysis of Responses of Office-Heads and Local People to determine the Level of Interaction between the Park Staff and the Local People

Of the 212 local people, 193 (91 percent) and 18 (90 percent) out of the 20 office-heads responded to the question asked of "Do you come in contact with park personnel?". The results of analysis of the frequency of contacts in a single year have been summarised in Table 4.16.
Table 4.16  Analysis of Responses of Local People and Office-heads for Contact with the Park Staff in a Single Year (percentage in parenthesis)

<table>
<thead>
<tr>
<th>Responded by:</th>
<th>Once (times)</th>
<th>2-5 times</th>
<th>6-10 times</th>
<th>More than 10 times</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>local people</td>
<td>21 (10.9)</td>
<td>61 (31.6)</td>
<td>15 (7.8)</td>
<td>77 (39.9)</td>
<td>174 (90.2)</td>
</tr>
<tr>
<td>office heads</td>
<td>2 (11.1)</td>
<td>4 (22.2)</td>
<td>-</td>
<td>8 (44.4)</td>
<td>14 (77.7)</td>
</tr>
</tbody>
</table>

Both the local people and office-heads groups were asked to specify the circumstances of contact with the park staff. The results were:

1. more than 44 percent of the local people stated for "getting permits for forest products";

2. more than 17 percent of the local people stated that they encountered park staff while the park staff were patrolling inside the park areas;

3. about 12 percent of the local people stated that they usually come in contact with park staff while park staff came to the village for shopping;

4. slightly more than two percent of the local people and 50 percent of the office-heads stated that there was contact with the park staff while they were participating in a conservation education conference organised by the park office;

5. a small (1.55) percentage of the local people stated that they usually come in contact with park staff while the park staff visit the villagers to distribute bamboo permits; and

6. more than 12 percent of the local people stated that there was contact with park staff in all the above mentioned circumstances.

The local people and office-heads were also asked to specify the status of park staff with whom they come in contact. Results have been summarised in Table 4.17.
Table 4.17  Analysis of Responses of Local People and Office-heads for Status of the Park Staff With Whom They Came In Contact (percentage in parenthesis)

<table>
<thead>
<tr>
<th>Status of Park Staff</th>
<th>Responded by:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local People</td>
<td>Office-heads</td>
</tr>
<tr>
<td>a. Game scouts/Senior Game scouts/Rangers</td>
<td>52 (26.9)</td>
<td>-</td>
</tr>
<tr>
<td>b. Rangers</td>
<td>27 (14.0)</td>
<td>-</td>
</tr>
<tr>
<td>c. Park Manager</td>
<td>2 (1.0)</td>
<td>11 (61.1)</td>
</tr>
<tr>
<td>d. Army Soldier</td>
<td>5 (2.6)</td>
<td>-</td>
</tr>
<tr>
<td>e. All of the above</td>
<td>58 (30.1)</td>
<td>2 (11.1)</td>
</tr>
<tr>
<td>f. Don't Know their status</td>
<td>30 (15.6)</td>
<td>-</td>
</tr>
<tr>
<td>Total response:-</td>
<td>174 (90.1)</td>
<td>13 (72.2)</td>
</tr>
</tbody>
</table>

In response to a question which asked the respondents to list any difficulties they have encountered in their dealings with park staff, 4.25 percent of the local people stated that the army soldiers behaviour was not respectful towards the local residents.

On the response to another question of "Do you have any suggestions as to how some of these difficulties might be overcome?", 2.8 percent of the local people stated that the army soldiers need to be instructed by their seniors on how to behave with local residents in an acceptable manner.

To determine the overall perception of local people and office-heads about park staff friendliness, the respondents were asked to rate the friendliness on the following scale:

<table>
<thead>
<tr>
<th>Very friendly</th>
<th>So-So</th>
<th>Very unfriendly</th>
</tr>
</thead>
<tbody>
<tr>
<td>/----------------------------------------------------------/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results have been summarised in Table 4.18.

Table 4.18 Analysis of Friendliness of Park Staff with the Local People

<table>
<thead>
<tr>
<th>Respondents:</th>
<th>Response</th>
<th>Mean</th>
<th>s.d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local people (212)</td>
<td>175</td>
<td>2.95</td>
<td>1.14</td>
</tr>
<tr>
<td>Office Heads (20)</td>
<td>15</td>
<td>2.20</td>
<td>1.66</td>
</tr>
</tbody>
</table>
The results (Table 4.18) indicate the majority of the local people perceived that the park staff were more friendly than unfriendly and the majority of the office-heads perceived the park staff were friendlier than was reported by the local people.

However, even though the mean scores indicate the park staff were more friendly than unfriendly to local people and were more friendly to office-heads than the local people group, the distribution of responses suggest a number of both of the groups felt that the park staff were to some extent unfriendly.

To determine the overall perception of the local people and office-heads about park staff helpfulness, the respondents were asked to rate helpfulness on the following scale:

<table>
<thead>
<tr>
<th>Very helpful</th>
<th>So-So</th>
<th>Very unhelpful</th>
</tr>
</thead>
<tbody>
<tr>
<td>/------------------------------/</td>
<td>/------------------------------/</td>
<td></td>
</tr>
<tr>
<td>1 2 3 4 5 6 7</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

The results have been summarised in Table 4.19.

**Table 4.19  Analysis of Helpfulness of Park Staff with the Local People**

<table>
<thead>
<tr>
<th>Respondents:</th>
<th>Response</th>
<th>Mean</th>
<th>s.d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local people (212)</td>
<td>175</td>
<td>2.85</td>
<td>1.06</td>
</tr>
<tr>
<td>Office Heads (20)</td>
<td>15</td>
<td>2.13</td>
<td>1.64</td>
</tr>
</tbody>
</table>

The results (Table 4.19) indicate the majority of the local people reported that the park staff were more helpful than unhelpful and the majority of the office-heads perceived the park staff to be more helpful than was perceived by the local people.

Similar results of friendliness of park staff with the other two groups applied for helpfulness in terms of the size of the standard deviations.
The sources of conflicts between Langtang National Park administration and the park's resource dependent people have been shown in the previous chapter. This chapter is devoted to the discussion of those results.

5.0 Level of Understanding of the Purpose of Langtang National Park by the Local People, Park Staff and the Office-heads

The main reason for the aggravation of conflicts between park administrators and the park's resource dependent human population in the mountain parks of Nepal could be a lack of understanding or agreement on the part of the local people about the purposes of the National Park. To test this assumption, this research proposed a series of statements for establishing the apparent level of understanding and agreement of local people, park staff and office-heads regarding these purposes. The majority of the sample of local people indicated that their area of strongest agreement was for "the conservation of plants and habitat of endangered wildlife such as musk deer and red panda" and "the conservation of religious and cultural sites", but 17 percent answered "don't know" to the second proposition. The results also indicate that local people are in agreement with the propositions: (a) the control of floods, landslides and soil erosion by protecting watershed in the origin area of the Indrawati, Bhote Koshi and Trisuli Rivers; (d) enhancing local and national income through tourism; (e) providing indirect benefit through tourism to the local people (by maintaining trails and controlling pollution) and (f) providing opportunities for educational and scientific studies. Nine (a), 21 (d), 29 (e) and 62 (f) percent of the group said "don't know" to the above purposes. These levels of understanding of the purpose of Langtang National Park by the local people suggest that the local inhabitants are well aware of the importance of conservation of the existing plant resources and the habitat of endangered wildlife species and watershed protection roles of the Park. However, the number of "Don't Knows", which ranges from nine to 62 percent for several of the propositions, suggests that there is considerable scope for programmes which could increase public awareness. The role of the Park in providing opportunities for "educational and scientific studies" has not been seen by local people as an important "purpose" and many locals are either not convinced about the roles of tourism, are not affected by it, or do not understand its ramifications.
Identical statements were put to the other two groups. The views of park staff and to a lesser extent office-heads were that they agreed with all propositions. The park staff group expressed "strong agreement" on propositions for (a) control of floods, soil erosion and protecting watersheds (b) the conservation of plants and wildlife habitat and (d) enhancing local and national income through tourism. A small percentage (1.61) of the group answered "Don't Know" to proposition (a). They expressed "agreement" on the other propositions: (c) the conservation of religious and cultural sites; (e) providing indirect local benefit through tourism and (f) providing opportunities for educational and scientific studies. Nearly five percent of the group answered "Don't Know" to proposition (f). The office-heads expressed "agreement" on all propositions and just five percent of the group had a "Don't Know" response to proposition (c).

The park staff, office-heads and local people to a greater or lesser extent agree with the park's purposes as stated. Therefore, the basic purposes of the Langtang National Park do not appear to be an issue per se. However, the fact is that the level of agreement is highest for park staff because they are directly involved with the park's promotion and management, then progressively lower for those groups who are affected by its restrictions. In terms of all the other issues, these results suggest that the actual commitment of local people to park values/purposes is less for purposes other than for the conservation of the existing plant resources and the habitat of endangered wildlife species. Notwithstanding the fact that there are certain levels of consensus over "purposes", this is not sufficient to say that conflict between the park administration and the local populations should therefore be minimal. The areas of the causes of conflicts need to be further examined.

5.1 Causes of Conflicts

Responses of local people and office-heads indicate that they have perceived a loss of benefits for the people living inside and around the park boundary since the park was established and formal rules to protect its resources were put in place.

Local people, as well as office-heads and to a lesser extent park staff, have perceived a loss of benefits [Table 4.4 (a)]. The chi-square analysis of responses [Table 4.4 (b)] indicates no significant difference in this perception between local people and office-heads. The difference in perception between park staff and the other two groups is significant. Park staff do not recognise the degree of "loss of benefits" to the same extent as do the local people and office-heads.
The differences in perceptions of park staff with the other two groups are potential sources of conflict between the park administration and the local population.

5.1.1 Park-People Conflicts Because of a Loss of Benefits of the Local People due to the Establishment of Langtang National Park

The sample of the study population who perceived a loss of benefits due to the establishment of Langtang National Park, listed benefits lost:

(1) Fifty-two percent of the local people living inside and around the park boundaries listed lost benefits as crop and livestock depredation by wildlife;

(2) Slightly more than five percent of the local people listed the loss of freedom to collect fuelwood, leaf litter and grasses from the forest as the second ranked loss; and

(3) Nearly two percent of the local people noted a loss of freedom for charcoal making for local iron-tool makers in the forest.

Using response scores for classifying the perceptions of office-heads and park staff about benefits lost by local people, 45 percent of the office-heads and nearly 39 percent of park staff were in agreement that a lost benefit was crop and livestock depredation by wildlife. No park staff or office-heads noted other benefits lost and the number of locals who reported these was not large, but when talking about conflict, the number does not need to be large. Therefore, every source of conflict should be clearly examined and measures for resolution should be sought.

During my field work, it became evident that because of crop and livestock depredation by wildlife such as wild-pigs, himalayan black-bear, monkeys and deer species, these animals which raid fields and consume crops are increasingly viewed as agricultural pests (local people and park staff, pers. comm. 1991).

Wild-pigs' preferred habitat is forest and thick scrubland with open meadows, fields and moist grasslands (Jackson, 1990). They are widespread in the Langtang National Park area. Wild-pigs are omnivorous and cause much damage by rooting for tubers as they turn soil over in large areas. They are often aggressive and are usually nocturnal, spending the daytime sleeping in wooded ravines or dense shrub thickets. Thus, crop-fields were almost always raided during the night or early morning (local people, pers. comm. 1991).
The Himalayan black-bear posed a potentially more serious threat to the safety of people attempting to defend their fields. The most severe problems occurred in areas with close proximity to extensive tracts of forests which are ideal habitat for wildlife (Vonzon, pers. comm. 1992).

It was also noted that in some areas around the Langtang National Park buckwheat, barley and fruits were repeatedly destroyed by wild-pigs, monkeys and deer.

Each of these examples are reasons why the local people could believe that in terms of National Park philosophy, they and their crops are less important than the wildlife within the park area. If crop and livestock depredation is not in some way clearly recognised as an issue by the park administration, the conflict is likely to remain.

5.1.2 Possible Solutions to the Problems of Park-People Conflicts Due to a Loss of Benefits of the Local People

The majority of respondents suggested that the problems of crop and livestock loss due to wildlife should be controlled by the park administration. Some respondents (4.25 percent of local people and five percent of office-heads) suggested that shooting rights should be given to the locals to protect their crops and livestock against wildlife. Nearly 10 percent of the local people and 4.84 percent of the park staff have suggested the introduction of wild-pig farming in the local community as an alternative for income generation. In an interview with Mr. Swongchhanam Lama (former national panchayat member), in response to a question regarding the solution of the wild-pig problem, he said:

"Villagers around Rasuwa district would be willing to tolerate some crop loss if allowed to hunt wild-pigs: the meat is far more valuable than the crops which are lost" (1991).

In an interview with Mr. Damal Singh Lama (former vice-chairman of the district panchayat of Sindhupalchowk administrative district), similar views were expressed.

Wild-pigs are clearly a major crop predator and a threat to the livelihood of the local people. A potential solution to this problem is for the park management to allow trapping of young wild-pigs for domestic farming by the interested local people and the hunting of old ones to control the wild-pig population as suggested by the respondents. This could have economic benefits from meat recovery as well as reducing the crop depredation problem of the local people.
Jackson (1990) recommended (for Makalu-Barun National Park and Conservation Area) that any animal control through hunting and trapping must be conducted by park authorities rather than being delegated to local farmers, at least until a proven administrative infrastructure and process exists to monitor the situation. This cautionary measure should also be considered for the Langtang National Park to control the wild-pig population.

The crop damage by the other wildlife species like the Himalayan Black Bear, monkeys and deer is very seasonal. For this problem, there appears to be no easy solution. In addressing the problem in Langtang National Park, use of wildlife barriers and trenches would be far too expensive and would entail too great a hazard in terms of soil erosion or slope instability. Solar-powered electric fences may prove effective in some situations (such as to protect isolated, yet compact fields surrounded by forest), but the costs for fencing and maintenance will be very high.

Controlled recreational hunting has at times been suggested. However, hunting privileges can be easily abused with detrimental impact on threatened wildlife species which have a high economic return when killed. The survival of rare species such as the endangered snow leopard, red panda and musk deer may be affected over time due to abuse of hunting privileges. Thus, other immediate measures such as improved land-use zoning should be considered as ecological barriers between the core wildlife habitat and settlement thereby reducing conflict. Such land-use techniques could be adopted in those affected areas in and around the park boundaries to reduce the friction between neighbouring incompatible land uses.

Jackson (1990) suggested the adoption of land-use zoning and agricultural practices as ecological solutions for the control of crop and livestock losses of the local people by the Park wildlife. Jackson cited an example at Royal Chitwan National Park where the park authorities selectively plant crops proven to be attractive to wildlife in a buffer-zone28 strip along the edge of the park itself. "Such a programme of scattered planting could help

Buffer-zones can be defined as areas adjacent to protected areas, on which land is partially restricted to give an added layer of protection to the protected area itself while providing valued benefits to neighbouring rural communities (Mackinnon et al. 1986:90).

For the purpose of the management of Langtang National Park, buffer-zones would not only add another layer of protection, but would also take unproductive land and make it productive (i.e., supplying resources which will take the place of those being taken from the Park)
attract park wildlife to food sources within the park rather than to croplands external to the park" (Milton and Binney 1980 cited in Jackson, 1990:10). This solution is unlikely to be effective in a park like Langtang, where the park area has villages inside its boundaries. Furthermore, land is too scarce and the people are too poor to accept that food be planted for the sole benefit of wildlife.

However, according to Mackinnon et al., (1986), the most suitable solution to the problem in Langtang National Park where land is limited and demand for forest products are pressing is consideration of alternative "buffer zone" management approaches. Delineating the "core protection areas" bounded by plantings of ecologically suitable species such as pine or alnus or bamboos in the buffer zones would be effective for keeping wildlife within their home range while at the same time providing additional forest resource for the local people for their future use. For example, Baluran National Park in Indonesia is bounded by a monoculture of an extensive teak plantation, which is rather sterile for wildlife and thus deterred the wildlife from wandering out of the reserve (Atmosoedarjo et al., 1984).

Therefore, the use of "buffer-zones" of various forms and species compositions may be an option as an additional measure to address the issues of crop and livestock depredation in Langtang National Park. Enrichment planting is necessary to meet the local needs for forest resources and may in addition provide an ecological barrier to wildlife. This could be a long-term solution to some of the existing problems of park-people conflict because it recognizes that prevention is cheaper and more effective than a "cure" that must be often repeated. Encircling the core area with species that are not very palatable to wildlife or domestic stock, but are useful to local people is one such possible buffer zone (Mackinnon, 1986).

The size and the extent of an adequate buffer zone depends upon the habits of the wildlife species that need to be contained or are likely to move out of the core area, and other protective functions such as landscape and watershed conservation and the reasonable needs of local people for land, forest products and grazing areas. Therefore, the buffer zones should be large enough to meet these varying requirements.

Mackinnon et al., (1986) have identified four main types of buffer zones: "traditional use zones inside protected areas", "physical buffers", "forest buffers" and "economic buffers". The principle is one of efficient resource use and in the meantime preserving bio-diversity through adoption of suitable land-use techniques in accordance with the management needs of a particular national park or protected area. Accordingly, many settlements which already lie inside the park boundaries in Langtang National Park area should be zoned into
enclaves in which the development of essential forest resources is carried out on public land around the enclaves by delineating areas as traditional use zones.

As discussed earlier, the concept of "physical buffers" such as the erection of fences and digging of trenches to protect the local people's stock and crop against wildlife damage are inappropriate because of their costs and subsequent likelihood of soil erosion in mountainous sites in the Langtang National Park area. The need for, and usefulness of the other two types of buffers in terms of land-use zoning for the development of forest resources and managing the over-increased numbers of wildlife species in their protected habitats will be discussed in more detail in a subsequent section.

5.2.0 Concessions to the Local People for Access to Certain Park Resources

People living within the Langtang National Park area and immediately outside the park boundaries were utilizing park resources (such as pasture land, fuelwood, fodder and grasses associated with livestock husbandry, construction timber and bamboo) for many years before the establishment of the park. Restrictions on traditional rights of resource use can contribute to conflicts if the historical privileges of local people are seen to be interfered with by the park administration.

The issue in Langtang National Park of access for the local people to specified Park resources is complex. Respondents [100 percent of the park staff, 90 percent of the office-heads and 61.32 percent of the local people (Table 4.6 (a))] indicated that the local people living inside the park boundary are receiving concessions (Table 4.7). More than 38 percent of the park staff, 67.92 percent of the local people and 15 percent of the office-heads (Table 4.8 (a)) indicated that the people living immediately outside the park boundaries have received the same concessions from the park administration as those living inside the park.

These results suggest that the majority of the park staff and office-heads (Table 4.8 (b)) do not agree that those living immediately outside the park boundaries receive the same concessions (Table 4.9) as those living inside the park. The existing park regulations do not provide access to the inhabitants living outside the park to resources as provided to those living inside the park. The park administration has, however, provided such access to those who are dependent on forest resources and are living immediately outside the
park boundaries where a forested part of the village unit has been included within the park boundary.

It is obvious from the above results that the park administration has provided access to the park resources as a privilege to those who were traditionally using such resources. However, such provision alone is not sufficient to say that there is no conflict between the park administration and the locals due to restrictions imposed by the park administration to the traditional resource users.

5.2.1 Opinions Concerning Permit Guidelines for Concessions to Utilise Park Resources

Slightly more than 74 percent of the park staff, 51.89 percent of the local people and 25 percent of the office-heads offered their opinions regarding the following concessions covered by existing permit guidelines:

- To collect fuelwood without permit.

- To cut timber for construction materials with a permit.

- To graze cattle/sheep/goats without permit.

- To collect nigalo (bamboo) with a permit and other forest products such as fodder and bedding materials for cattle without permit.

Park staff and to a lesser extent, local people, have answered that the existing permit guidelines for the concessions are not restrictive, while office-heads tend to see them as being too restrictive. Some of the respondents who perceived the existing permit guidelines for concessions as too restrictive have recommended changes as summarised in the following Table.
Table 5.1  Summary of Concessions Referred to and Changes Recommended by the Respondents.

<table>
<thead>
<tr>
<th>Concessions referred to and changes recommended for:</th>
<th>Recommended by:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local people</td>
</tr>
<tr>
<td></td>
<td>Office-heads</td>
</tr>
<tr>
<td>1. timber for the construction of agricultural tools should be provided free of cost;</td>
<td>13.68 %</td>
</tr>
<tr>
<td></td>
<td>10.00 %</td>
</tr>
<tr>
<td>2. the present rate of royalties for construction timber should be reduced by 20 to 50 percent to the local poor so that they could construct or repair their houses;</td>
<td>9.43 %</td>
</tr>
<tr>
<td></td>
<td>5.00 %</td>
</tr>
<tr>
<td>3. nigalo (bamboo) for weaving bamboo-mats and baskets for domestic use should be provided free of cost;</td>
<td>5.66 %</td>
</tr>
<tr>
<td>4. the length of permit duration for bamboo collection should be extended to more than one month in a year; and</td>
<td>2.83 %</td>
</tr>
<tr>
<td>5. the establishment of hotel businesses inside the park area should be permitted on the basis of open competition so that all interested local people might have equal opportunity to be a hotelier.</td>
<td>1.42 %</td>
</tr>
</tbody>
</table>

The fact that park staff did not recommend any changes may indicate another obstacle to good relationships between the park staff and some of the local people. It means that the park professionals do not see any justification for change and it may be inferred that they do not understand local problems to the same extent as do the other two groups.

In response to the open ended question of "what additional concessions should be granted to local people?" (Table 5.2), some of the respondents suggested additional concessions to Table 5.1 above.
Table 5.2 Summary of Respondents' Opinions for Additional Concessions.

<table>
<thead>
<tr>
<th>Opinions for additional concessions are:</th>
<th>Opinions offered by:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>local people</td>
<td>park staff</td>
</tr>
<tr>
<td>1. fuelwood efficient stoves should be provided to locals at a nominal cost;</td>
<td>17.92 %</td>
<td>4.84 %</td>
</tr>
<tr>
<td>2. axes should be permitted in the forest for the preparation of firewood from dead and dying trees which is restricted by the present park regulation;</td>
<td>17.92 %</td>
<td>4.84 %</td>
</tr>
<tr>
<td>3. construction timber should be provided to the locals on the basis of needs assessment;</td>
<td>16.51 %</td>
<td>4.84 %</td>
</tr>
<tr>
<td>4. the establishment of a community development fund through tourist generated income for hiring watchmen to drive wildlife from the cropland; and</td>
<td>13.68 %</td>
<td>8.06 %</td>
</tr>
<tr>
<td>5. electric power should be provided to locals as an alternative for fuelwood.</td>
<td>8.00 %</td>
<td>8.00 %</td>
</tr>
</tbody>
</table>

A small percentage of the respondents offered suggestions for (Table 5.1) and gave their opinions on additional desirable concessions (Table 5.2). The following conclusions have been drawn from these results:

1. Poverty is a chronic condition for the people in the Langtang National Park area. Some local poor are unable to cope with paying royalties for construction timber. Simply providing the timber free of cost for the construction and repair of agricultural tools and reducing royalties for timber to construct or repair their houses is unlikely to be a successful solution unless there is community effort to develop alternative sustainable livelihoods that are independent of the timber resources from the Park's forest area. The timber is currently vital for subsistence living. If poverty increases, desperate residents will exert more pressure on the park's forest to fight for their survival.

2. The people of Langtang areas cannot satisfy their future needs for firewood from the forests located close to villages. Arguments have been advanced for the
provision of fuelwood saving devices to the local residents and for the permission for use of axes in the forest for the preparation of firewood from solid logs. Allowing the local people to use axes for the preparation of firewood would encourage excessive use of firewood and thus increase the pressure on the existing resource.

3. Bamboo is the single most important non-timber forest resource. It may be used to make carrying baskets, mats, roofs, fences, bridges, rope, shoes, handicrafts or household implements, as well as for food, fuel and fodder (Mahat, 1987). Statements 3 and 4 (Table 5.1) demonstrate some concern for the provision of bamboo free of cost to local people, and the extension of the permitted collection period to more than one month in a year. Unless the park administration is willing to manage the supply of these resources on a sustained yield basis, the local people may over-exploit the easily obtainable existing resources rather than developing further resources for their future use.

4. While observation strongly suggests that grazing of domestic animals (cattle, goats, sheep, yaks and yak hybrids) within the Park area is an important issue, this was not mentioned in the survey by the local people. Animal husbandry is a vital part of the economy and tradition of the people of the Langtang areas. Free grazing facilities have always been utilised by the local people and are unrestrained by the park administration. It is assumed that since the matter was not mentioned, no problem is seen by the local people. The park staff group could have been expected to mention the matter as a problem because they are the ones who can visually see the problem and have knowledge about the effects of overgrazing. However, the park staff did not mention overgrazing as a problem in the park area. Senior park staff (i.e., Rangers to Conservation Officers) are aware that it is a problem but they do not see any easy solutions (pers. comm., 1991). However, it has been identified as a contributing factor to the death of red panda cubs due to the red panda birth season overlapping the cattle grazing period. It must therefore be considered a problem (Yonzon, 1989).

Overgrazing in the Langtang area has already resulted in increased soil erosion, landslides, cessation of plant succession (DUHE, 1977; Shrestha, 1988) and competitive exclusion of the park wildlife species (Shrestha, 1988; Yonzon 1989). To curb these problems, sustainable grazing management is essential in the park area.
To summarise the above discussion, poverty amongst the locals has accelerated the use of the park’s resources. If this continues, the increasing population in the Langtang National Park area may quickly put the situation beyond sustainability. The park resource-dependent human population was estimated to be 16,000 in 1977 (DUHE, 1977). That figure reached 30,000 by 1992 (see page 21). If numbers of people in the area continue to increase in the future, the gap between natural resources demand and supply will continue to widen. Unless additional measures are taken, the shortage of essential forest resources will inevitably increase conflict with local people to the extent that it may jeopardise the very existence of the park.

5.2.2 New Approaches to Understanding the Root Causes of Supply and Overuse Problems of Essential Forest Resources

Although use of fossil fuels would be an alternative to firewood, their use does not seem viable to the people of Langtang National Park areas because of high cost. The use of fossil fuels could be made mandatory for tourist business. They are already in use in Sagarmatha National Park to reduce the impacts of trekkers on scarce fuelwood species. The supply of electric-power in rural villages around Langtang National Park areas as an alternative for firewood is virtually impossible as the Department of Electricity is having difficulties meeting the demands of urban populations and industry.

The Food and Agriculture Organization of the United Nations categorised the Himalayan Region of Asia as an "acute scarcity zone" for firewood in 1980, where the demands could not even be met by over-cutting of resources (Sharma, 1991). In response to this crisis, the Forest Department and donor agencies have been involved in planting trees by co-ordinating community forestry programmes and other associated programmes in the region outside the Langtang National Park. There are a number of plantations and nurseries operated by government and donor agencies. Some examples of donor agencies are the Nepal/Australia Forestry Project and the Association of Family Planning and Maternal Care in the Sindhupalchowk district area; the Hill Community Forestry Project and Rasuwa-Nuwakot Integrated Development Project in the Nuwakot district area and also a Rasuwa-Nuwakot Integrated Development Project in the Rasuwa district area.

Among these projects, some visible results can be seen in terms of forest resource generation and management within the areas covered by the Nepal/Australia Forestry Project in the Sindhupalchowk district. This district is known as a leader for initiating and achieving results through community forest management programmes. For example, in the
Banskharka village unit (located at the eastern corner outside the Langtang National Park boundary), villagers have achieved tremendous success in increasing forest resources within the village area in a short period of 15 years. Before 1978, much of the forest area within the Banskharka village unit area had been reduced to poor, low and open shrubbery. Degeneration in forest quality had led to a shortage of fuelwood, fodder, and construction timber to meet the subsistence needs of the villagers. The Community Forestry Development Project provided technical and financial support to the villagers for establishing a forest nursery.

A forestry committee was formed in Banskharka for the conservation of the existing forest and the planting of more trees. The district forest office in turn agreed not to allow any harvesting of forest without the concurrence of the forest committee within the Banskharka village unit areas. As a consequence, the people of Banskharka carried out private planting in the marginal areas of privately owned land where cultivation of other food-crops were not productive. Tree planting was carried out by locals in the uplands as well as in the open lands in the vicinity of the village.

Moreover, the forestry committee introduced the idea of planting ten trees by parents of new born children and also the planting of ten trees around the grave area as part of the funeral procession (Dong, pers. comm., 1987). As a result, open-land for planting of forest trees was already covered within Banskharka village area by 1987. They felt they would be self-sufficient in forest products by the year 2000. The local forest ranger was assigned to advise the committee about maintenance and management of the existing forest resources.

The successful community forestry development activities achieved by the Banskharka village unit are a good example of a community forestry programme for the villagers living inside and immediately outside the Langtang National Park boundaries. These people are currently dependent on the park's resources for pasture, firewood, construction timber and other minor forest products to meet their subsistence needs. Of paramount importance, it illustrates that within a period of 15 years from initiation, villagers and park officials may reasonably expect to achieve a considerable degree of self-sufficiency.

As solutions to the problems discussed earlier in section 5.2.1 and also solutions to the problems of crop and livestock depredation by predators, the park administration should declare buffer-zones which separate core protection areas and act as transition zones towards human settlement and then should introduce community forest resources.
development programmes in the buffer zones by intensifying the land use practices both inside and outside the park boundaries. The buffer-zones can be used for multiple purposes such as deterring wildlife movement from core protection zones to human settlements. Most of the wild-mammalian species have a limited ecological range. They prefer not to travel beyond their established home-range by crossing buffer-zones towards human settlement. If the wildlife population increases and exceeds the carrying capacity of their home range, then they should be managed either through translocating them to other areas or employing selective hunting management policies within the areas of buffer-zones depending on the importance of the species. This concept of positive management of economic buffers has been described by Mackinnon et al. (1986) who suggest that controlled hunting of excess animals or agricultural pests should be permitted to the local people as a source of protein and recreation. This activity should be monitored by the management authority which will determine, if, which, and how many animals are killed. For example, to overcome the problem of livestock predation by jackal and jungle-cats (which are not listed as endangered species), management through selective hunting techniques could be utilised. If a recreational hunting policy is adopted as a tourism activity and interested tourists could hunt these species, there would be substantial pressure for keeping balanced numbers of animals on the one hand, and generating income, while alleviating the problem of livestock damage by the wildlife on the other.

Careful delineation of boundary lines to separate core from buffer for the two major land-use zones with different objectives (i.e., protection of natural biological diversity in the core zones and resources development areas for multiple use purposes for the benefit of the local people) should be carried out by the park experts in association with consultants available to the park service.

An entirely new community forestry programme should be designed for the buffer-zone. This programme should give priority to social issues (e.g., local poor), while forming a users' committee to steer the programme and implement appropriate development activities which can balance the local shortages of forest resources and maintain the conservation values of the park.

The primary objectives of buffer zones will be the enhancement of existing resources to enable sustained and equitable harvesting of park resources for local people.

The options discussed above can address the issue of long-term solutions, but "... in many cases, biology can wait but the surrounding community cannot" (Sharma, 1991: 127).
Therefore, the provisions of the existing concessions to the park's resources dependent people must be continued on a sustained yield basis as an immediate measure for responding to local problems. In the meantime, fuelwood saving devices such as improved fuelwood efficient stoves should be made available to interested local people.

5.2.3 Effects of Hotellers on the Park's Natural Environment

The operation of lodges, hotel and restaurant businesses by local people within the Langtang National Park area has become a source of economic benefits through the growing number of foreign tourists visiting the park (Table 5.3).

Table 5.3  Tourism in the Langtang National Park Area [absolute frequency of foreign visitors (except Indian Nationals29) from 1980 to 1988].

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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3,051</td>
<td>2,819</td>
<td>3,535</td>
<td>4,030</td>
<td>4,792</td>
<td>4,610</td>
<td>5,250</td>
<td>6,107</td>
<td>8,423</td>
</tr>
</tbody>
</table>

Source: Department of Tourism (1988).

One hundred percent of the park staff, 70 percent of the office-heads and 49.53 percent of the local people responded to the issue of the effects of lodge, hotel and restaurant businesses on the park's natural environment. The majority of all three groups indicated a neutral perception of the effects of lodges, hotels and restaurants on the environment, but local people tended to be more positive and park staff more negative.

Only 1.42 percent of the local people indicated there was discrimination against local people by the park administration in granting permission for hotel businesses inside the park (Table 5.1, statement 5). Other results summarised in Table 5.2 (statement 1 and 2) suggest there is a shortage of fuelwood for the local people. Solutions to both of these problems would be:

- Training of families in operating teahouses and small lodge and hotel businesses and then providing them with opportunities to conduct such businesses. This

Because Indian nationals are not required to meet Immigration criteria to visit any part of Nepal, they are not considered as tourists as are overseas foreign visitors. The park has shrines at Lake GosainKunda. These are important to Hindu pilgrims. Thousand of Hindus and Buddhists visit the park each year. This adds a significant additional pressure on its natural environment. The effect of this pressure on the park's natural environment has not been assessed in this study.
training should apply to people who are cultivating agricultural crops in areas especially prone to crop depredation by wildlife. This could be an alternative source of income for those who choose to change from dependence on agriculture to non-agricultural dependent activities.

- The use of fossil fuels such as kerosene should be made mandatory for hoteliers and tourist camp operators. This strategy is already practised in the Sagarmatha National Park area. Tourism is seen as a profit making business in the Langtang National Park area. The people who pursue tourism businesses should also be able to afford the purchase of alternatives to fuelwood.

5.2.4 People's Awareness of Illegal Activities Inside the Park Area
The establishment of Langtang National Park in the central Himalayan region in 1976, brought with it a situation in common with other parks in which the Royal Nepal Army was delegated responsibility for enforcement, and park professionals were appointed to manage the park. In terms of the long history of Nepal, this transfer of authority to such formal groups has been a sudden and a relatively recent change.

Mountain societies have a tradition of living without such formal institutions (Chalise, pers. comm., 1992). The breaking of laws by the local people may result because of the people's traditional behaviour of utilising the park's resources while the existing park law declares it illegal to do so.

Only a small percentage of the study population responded to the question regarding their awareness of offences being committed in the park (Table 4.11). For local people, it was less than 20 percent. This might be due to the sensitive nature of the question rather than a genuine lack of knowledge of offences committed.

The analysis of results indicate that park staff were more aware of offences than were local people or office-heads. This is not surprising as it is expected that the park staff would have the most contact with the entire range of activities in the park and are the most likely ones to contact the offenders or evidence of offending.

From the limited data available, it cannot be concluded that there is no conflict between the park administration and the locals as a result of breaking the park's laws and regulations. However, it appears that the local people can be motivated to follow the laws and
regulations and can therefore be encouraged to be involved in the management and the conservation of the park's resources.

In the future, if local people are encouraged to be involved in the planning and management of the national park through implementation of much needed community forest resources development programmes, it is expected that they will not break the laws which they themselves help enact. Without their active co-operation and participation at all levels of planning, implementation and monitoring, any management effort has only a poor chance of achieving its conservation objectives. Extensive education of local people regarding the legislative provisions for conservation, and the understanding of their difficulties and helping them to overcome these difficulties will be major steps in keeping people on the side of conservation in the Langtang National Park Area.

5.3.0 People's Perceptions of Tourism Impacts in Langtang National Park and Planning for Future Tourism

Langtang is the nearest national park to Kathmandu (capital city of Nepal, where an international airport is located). Langtang National Park is thus a convenient destination for those who with a minimum investment of time and money can enjoy natural beauty along with trekking.

In 1968, about 34,000 visitors stated that the specific objective of their visit to Nepal was for trekking and mountaineering (Jefferies, 1987). These totals have increased significantly since then, as have the number of tourists with alternative touristic destinations and objectives. Other data shows that international tourist arrivals in Nepal have risen from 6,179 in 1962 to 265,943 in 1988 (HMG Ministry of Tourism, 1988). The increment rate is 6.7 percent per annum (Banskota, 1990), a trend which suggests that the number of tourist arrivals is likely to continue to increase in the future.

Langtang National Park is most suitable for fulfilling various tourist trekking needs (short to long duration and low to high altitude elevation experiences) because of the large area and altitudinal range within the park. Since 1976, the local people have been affected in some ways as a result of the rapid growth of tourism which followed the establishment of the national park. Tourism has positive and negative impacts. On the positive side, tourism is an industry which can increase income and employment opportunities in the destination areas. However, the recreational visitor who leaves "nothing but footprints and takes nothing but photographs" is a rarely achieved ideal of minimum impacts. This ideal may be
fostered by maximising the positive impacts of tourism and minimising the negative ones. If there are negative impacts of tourism (such as excessive firewood consumption, disposal of garbage, vandalism, loss of socio-cultural values and inflation in the destination areas), tourism may be the cause of alienation between those relatively few who gain benefits and those many who suffer from the negative impacts.

Bearing these hypothetical outcomes in mind, twelve sets of statements were proposed to assess the respondents' perceptions regarding tourism impacts (i.e., positive to negative) in Langtang National Park. The majority of respondents provided answers to all twelve sets of statements [Table 4.12 (a), page: 63].

The analyses of results indicate (pages: 63 - 67):

(1) The majority of the park staff responded "very positive" to the statement of tourism impact on "local and national income" and the other two groups responded "positive" to the statement.

(2) The majority of all three groups answered "positive" to tourism impacts on:
- the local arts and crafts;
- the markets for locally produced foods such as milk, butter, meats etc.; and
- employment (e.g., tourist guides and porters).

(3) The majority of the office-heads had "positive" perceptions and the majority of the other two groups adopted a "neutral" stance to tourism impacts on:
- social customs (e.g., clothing, behaviour etc.);
- conservation of flora and fauna;
- litter control and trail maintenance;
- conservation of religious and cultural sites;
- the survival of local religious values; and
- the survival of local cultural values.

(4) The majority of all three groups indicated a "neutral" stance to tourism impacts on "local inflation" and "vandalism".

Although these results suggest relatively low perceptions of negative impacts of tourism on all twelve hypothetical statements, there were significant chi-square differences among the three groups of respondents for most of the statements [Table 4.12 (b), pages: 64 - 65].
These results suggest that tourism in the Langtang National Park areas is seen as a vital source of local and national income. Tourism impacts are generally regarded as positive by the respondents.

However, a small number of all three groups of respondents who answered in the negative for any of the twelve sets of statements made suggestions for correcting the negative impacts. These are summarised in the following Table 5.4.

<table>
<thead>
<tr>
<th>Suggestions for correcting the negative impacts of tourism are:</th>
<th>Suggested by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. the prices of basic needs items (e.g., kerosene, salts and cooking oil) for local people should be controlled by the local authority, so that the local people could afford the existing market price.</td>
<td>LP\textsuperscript{30}, PS\textsuperscript{31}, OH\textsuperscript{32}</td>
</tr>
<tr>
<td>2. emphasis should be given to keeping the environment clean.</td>
<td></td>
</tr>
<tr>
<td>3. emphasis should be given to less use of fuelwood and greater use of alternatives.</td>
<td></td>
</tr>
<tr>
<td>4. emphasis should be given to employment of locals in tourism businesses.</td>
<td></td>
</tr>
<tr>
<td>5. education for visitors on the importance of indigenous social customs.</td>
<td></td>
</tr>
</tbody>
</table>

The results (Table 5.4) suggest:

- Tourism as a service demanding industry tends to push up consumer prices in the local market which can create hardship in terms of basic needs such as kerosene, salt and cooking oil.

- Tourism can bring environmental pollution such as garbage and vandalism.

\textsuperscript{30} LP = local people,

\textsuperscript{31} PS = park staff

\textsuperscript{32} OH = office-heads
Tourism depletes forests due to increased demand for both timber and firewood if alternatives for these resources are not sought.

The potential of tourism for utilizing the unemployed labour in the Langtang region depends upon government tourism policies. Tourists require services such as guides, porters, retailers, food and accommodation. The involvement of locals in these businesses should be encouraged rather than accepting outsiders. This policy however, must be enforced in Kathmandu, and to this extent, is outside the control of the local area. It may be that the entire area could make it clear to all trekking groups that the use of local guides and certain local produce (food) is an expectation that all groups should endeavour to meet. Such expectations would become normative behaviour in quite a short time.

To summarise, tourism has been considered a favourable outcome of having Langtang National Park in the region. The number of visitors to the park has been steadily increasing from 3,051 during the early years of the Park to 8,423 in 1988 (see Table 5.3).

As a service industry, tourism is labour intensive. It creates jobs at the local level and provides national revenue through taxes and fees. For example, foreign visitors to the park area must pay an entrance fee at the rate of Rs. 650.00 per person (Nepal Gazette, 1991), which is national revenue.

The main issues of park-people conflicts in the Langtang National Park are related to economic problems of the local people on the one hand and preserving the natural biological diversity in the central Himalayan region of Nepal on the other. Managing the natural and cultural resources within the Langtang National park for tourism alone may be a better use of the region's resources rather than continuation of traditional farming and agricultural practices at the expense of scarce natural resources. The economic and social challenges in attempting this may be insurmountable. It is likely, however, that considerable progress could be made. Bearing this in mind, the Department of Tourism and the Department of National Parks and Wildlife Conservation should be involved in creative tourism planning and management in the Langtang National Park area.

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Tourism planning is a process of determining appropriate future actions based on the identification of tourism potential in an area (Gunn, 1988).
5.3.1 Tourism Development and Formulation of a Planning Strategy

The great landscape - the Himalayas, hills, valleys, snow, glaciers, rivers, lakes, forests, and wildlife - forms a class of natural resources that can attract a great number of tourists to the park. Sensitive exploitation of these tourism products is capable of providing a high level of satisfaction for visitors. Living cultures, artistic and architectural features, festivals, distinctive local features, fairs, exhibits and heterogeneous ethnic groups in the area are added attractions. These attractions provide an additional focus for tourism development in the area. The forest resources in the park area should protect and stabilise the land and therefore conserve the existing landscape. They should also support bio-diversity and enable natural processes to proceed without undue human interference. Given these circumstances, the sensitive utilisation of various types of cultural and natural based tourism should be encouraged.

There is a need in Langtang to quickly identify the most appropriate form of tourism for the area and planning strategies to enable this to develop. Tourism should be viewed as a possible means of solving people's socio-economic problems in the park area and planning strategies should be formulated to develop tourism resources which ensure the enhancement of Langtang National Park as a tourist destination.

5.3.2 Factors to be Considered for Planning

The majority of local people and park staff groups expressed "strongest agreement" about the purpose of the area for "the conservation of plants and habitat of endangered wildlife such as musk deer and red panda". The park staff had strong agreement about the area's purposes for "the control of floods and soil erosion by protecting watersheds" and "enhancing local and national income through tourism". The majority of all three groups of respondents including office-heads expressed "agreement" about the purposes of the area for "the conservation of religious and cultural sites", "providing indirect local benefit through tourism" and "providing opportunities for educational and scientific studies". Catchment protection has been identified as a major responsibility throughout the Langtang National Park as has the maintenance of the integrity of the mountain ecosystems.

My research has shown that 52 percent of the local people within the park area and its peripheral regions are suffering from the problems of crop and livestock depredation by wild animals such as wild-pigs, monkeys, black-bear and deer species. Because these wild animals are protected within the park, and their habitats are protected, numbers have
Increased. The population of wild-pigs could be controlled through adoption of wild-pig farming and selective culling procedures as discussed earlier. Compensation for the damage caused by wildlife, is important, but to continue in the long-term to practice traditional methods of farming and agriculture as well as conversion of forest land to farm land to meet the fuelwood and timber demands of an increasing population would be a disaster in terms of maintaining the integrity of these mountain ecosystems. Endangered wildlife species must be protected through applying appropriate conservation strategies.

The ultimate solution to these problems would be a gradual shift of the people's economic activities from total agriculture dependence to tourism integrated with agriculture.

5.4 Assessment of the Interaction of Park Staff and the Local People in Langtang National Park

Frequent interactions between park staff and the local people makes for easy communication and the informal transfer of knowledge. This provides a basis for good relationships and avoids conflict through creating an environment which helps the local people to understand the purposes of Langtang National Park. Lack of interaction between park staff and the local people creates the opportunity for conflict and bad relations, therefore disadvantaging park management.

Bearing these concerns in mind, the issue of interaction between park staff and the local people was included as a part of this study. The results suggest that there is contact between park staff and the other two groups. But it was also apparent from the number of "Don't knows" that local people are not well informed on some of the principles (purposes) which are important to the job responsibilities of park staff. The relatively large number of respondents who had clearly given little consideration to the economic implications of increased tourist numbers is a further area which could be addressed by appropriate policy development and good communication strategies.

Table 5.5 Summary of Responses for Frequency of Contact Between Park Staff and Other Two Groups in a Single Year (figures in percentage)

<table>
<thead>
<tr>
<th>Responded by:</th>
<th>Once 2-5</th>
<th>6-10</th>
<th>More than 10 times</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>local people</td>
<td>10.9</td>
<td>31.6</td>
<td>7.8</td>
<td>39.9</td>
</tr>
<tr>
<td>park staff</td>
<td>1.6</td>
<td>12.9</td>
<td>14.5</td>
<td>67.5</td>
</tr>
<tr>
<td>office-heads</td>
<td>11.1</td>
<td>22.2</td>
<td>-</td>
<td>44.4</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>90.2</td>
</tr>
</tbody>
</table>

95
Frequency of contacts between park staff and the other two groups (Table 5.5) show that there has been some level of interaction with local people. However, the results discussed in the previous chapter regarding the contact circumstances suggest that there is little evidence of meaningful interaction which might lead to solutions to the common problems of park management and the local people. Only a relatively small percentage of the local people or park staff had met to seek solutions to problems such as crop and livestock depredation despite the fact that 52 percent of the local people and 38.71 percent of the park staff had reported it as a problem in terms of benefits lost due to the establishment of the park.

Both park staff and local people reported minor contacts through circumstances such as executing or getting permits for forest products, patrolling and shopping.

Respondents' reports of interaction simply indicate that the majority of local people and park staff are familiar with each other. Issuing permits for forest products to local people and patrolling are regular duties of the park staff. Forty-five percent of park staff reported encountering local people during park patrolling. This result simply indicates that the park staff were not purposefully headed towards villages to talk to local people about park related problems. From the local people's point of view, limited contact is made associated with getting permits for forest products and retailing goods to the park staff.

However, 2.07 percent of the local people and 50 percent of the office-heads stated that contact with the park personnel occurred in a conservation education conference organised by the park office. Although only a small percentage of the local people indicated contact through conservation education conferences, such interaction could be expected to enable park staff to learn about the real problems faced by the local people. It also allows the local people to participate meaningfully in discussing problems presented from the park management point of view.

The results discussed in the previous chapter suggest that park administrators have a different level of understanding of the issues of local problems and have failed to establish appropriate strategies to encourage local involvement in the planning and management of the national park. Difficulties have been reported in dealings with local people by 17.74 percent of the park staff. They feel that local people do not cooperate with park staff by following the park regulations properly. To help overcome this, 25.81 percent of the park staff suggested conservation education for the local people in addition to the annual
conference, and 9.68 percent suggested a regular visit to the local people by the park staff to promote better relationships with the local people so that they could more easily be persuaded to follow the park regulations. However, conservation education and regular visits by the park staff may not be sufficient to motivate the local people towards effective involvement in park management. The facilitation of meaningful exchange of knowledge on particular issues or problems of management may be the best starting point to resolve the lack of cooperation and village-based discussion groups could be the most appropriate places for this to occur.

Some 4.25 percent of the local people stated that the behaviour of army soldiers was disrespectful and 2.8 percent suggested that soldiers need to be instructed by their seniors on how to behave with local residents in an acceptable manner. Soldiers' behaviour in other parks of Nepal has been called into question. For example, in Royal Chitwan National Park "... on several occasions, people expressed their concerns about soldiers trying to seduce the village women and males getting into squabbles with soldiers because of such behaviour" (Sharma, 1991: 85). The authority concerned (i.e., Army Headquarters) must take seriously the need to control the behaviour of soldiers if acceptable relationships are to be maintained. Continued unacceptable behaviour may result further in group prejudice and frustration.

The differences in perceptions between park staff and local people indicates that insufficient interaction takes place in terms of the management issues of Langtang National Park. However, the results overall indicate that the majority of the local people have stated that the park staff were more friendly than unfriendly and more helpful than unhelpful. Despite a few respondents giving very positive or very negative response to this item, this evidence of potentially positive relations between park staff and local people favours the likelihood of success in achieving conservation objectives through a systematic programme which involves local people in resource planning and problem solving.

5.5 General Conclusions

1. Local people, park staff and office-heads all agree to some extent as to the purposes of Langtang National Park. The purposes per se, do not appear to be an area of conflict between park administration and the local population. Rather, the source of conflict lies in the degree, or strength of conviction and beliefs about the purposes, and the extent to which individuals or groups are negatively impacted by the policies which are associated with these purposes.
This study has identified some of the consequential sources of "Park-People Conflict in Langtang National Park". Possible measures for their resolution are summarised as follows:

(a) Crop depredation by wild-pigs is a major source of conflict. This problem could be solved by the park administration introducing a procedure of domestic farming of wild-pigs by capturing the young, and massive culling of mature pigs. The adoption of this procedure would be helpful in providing economic benefits to the local people from meat recovery.

(b) In addition to wild-pigs, other crop and livestock predators such as deer species, monkey, Himalayan black bear and leopards are another source of resentment by the local people. These could be controlled through declaration and management of buffer-zones, which act as ecological barriers to restrict wildlife movement from core protection zones to cultivated lands. The buffer can be delineated by adopting appropriate land-use zoning procedures which consider utilising the existing open marginal and forested lands that are currently not managed for any particular purpose. The planting of fodder, firewood and fibre species should be carried out to enrich the remnant vegetation in these areas. This would give an added layer of protection to the protected area itself and act as a transition zone where resources could be managed for multiple use purposes by the park's resource dependent human population.

(c) Local people who are dependent on park resources have received concessions to harvest from the park forest areas. Continuation of these concessions in the future, can promote a dependence on the park's resources that will eventually grow beyond sustainability.

Notwithstanding these concessions, a small percentage of the local people argued that the "local poor" are unable to pay the royalty for construction timber and another small percentage of the local people claimed a shortage of essential forest resources such as fuelwood, construction timber and bamboo. Despite poverty being a chronic current situation amongst the local people in the Langtang National Park area, this has been traditionally balanced somewhat by their utilisation of forest resources available in close proximity to their settlements. When the shortage of essential forest resources increases simultaneously with poverty, desperate residents exert more pressure on the core protection areas of the park's forests to
fight for their survival. As a result, the tension between the park administration and the local population will increase in the future.

To overcome these problems, the park administration should implement programmes to produce and supplement forest resources in buffer-zones and other open land around the national park by intensifying land use. The local people's participation through planting trees should be encouraged through adopting community forestry management policies. The existing concessions should be continued on a short-term basis until long-term programmes begin to yield results. Problems such as resource distribution in the local community and the issue of "local poor" should be handled through the formation of user group committees at the local level.

(d) There is not much perceived conflict as a result of the breaking of park laws and regulations by the local people. However, positive conservation attitudes are best fostered among the local people by fulfilling their basic needs such as food and shelter. To achieve this objective, the park management should introduce techniques of sustainable resource use through adoption of a community forest management programme, exploitation of the benefit from slaughter of abundant wild-pigs as mentioned in conclusion no. 2, and the benefits from tourism development in the local community. These could combine to alleviate the existing "basic needs problems" of the local people. Thereafter, education of the local people regarding the need for park laws and regulations, and conservation values, is essential to enhance their positive attitudes towards the park management.

(3) Tourism is seen as a source of national and local income in the Langtang National Park area. No negative impacts of tourism have been perceived by the majority of the respondents. Not recognising the possibilities of negative impacts of tourism could be a problem in the future if further growth of unplanned tourism is accepted. Therefore, adoption of appropriate tourism planning and management practices is essential to minimise possible negative impacts and maximise positive ones.

(4) The majority of the local people and the park staff are recognised by each other. The majority of the local people also reported that the Park staff are helpful and friendly to them. In future, facilitating more purposeful interaction between park staff and the local people, e.g., village dialogues for more meaningful exchange of
knowledge, would be a substantial contribution to the solution of park/people related problems.

Langtang National Park is in a mountainous area. Where people live in mountain areas, an integrated approach to planning which takes into account the "people" perspective as well as the "mountain" perspective is essential for the successful implementation of management activities (Chalise, pers. comm., 1992). Chalise further argued that when people are included in the planning process and encouraged to be involved in the management of protected areas it is less likely that they will break the laws which they have helped enact.

5.6 Recommendations

1. Establish wild-pig farming by capturing young pigs. This should be accompanied by massive culling of mature pigs. Further study regarding the practical difficulties of this recommendation is desirable before implementation.

2. "Buffer-zones" in terms of land use zoning should be introduced as a potential solution to the following two problems:
   (a) crop and livestock depredation by wildlife due to their free movement from core habitat areas to human settlement areas; and
   
   (b) to provide access for the local people to forest resources in future by cultivating essential forest resources in the buffer areas through community forestry programmes.

   Although a study of successful trials in other mountain areas could reduce delays in the implementation of community forestry programmes, more practical studies should be carried out. In particular, there is a need to study the use of programmes for delineating buffer-zones in different ecological areas, where different types of land use practices are already employed.

3. Despite the facts that no negative impacts from tourism are perceived by the majority of the respondents in the Langtang National Park area, monitoring and research is needed to ensure that tourism planning takes full account of the potential negative impacts of developments in the future.
4. Studies be undertaken to determine the forms of desirable and/or essential interactions between park staff and the local people to ensure that decisions on park/people related problems will indeed be representative of all parties concerned.

5. The planning and execution of the research leading to this thesis has highlighted the need for further research, and policy development. The survey instruments designed for this study were not intended to elicit information which would lead to a detailed set of recommendations. Further information will therefore need to be gathered to enable the development and implementation of the proposals identified from the research.

In this study, a comprehensive review of recent literature has highlighted the growing concern for preserving ecological representativeness through the establishment of national parks and protected areas. In many countries, national park and protected area systems are established and supported by governments to meet national and international obligations in terms of bio-diversity. Conflicts arise due to economic costs and benefits of the parks and protected areas for different interest groups. The resultant conflicts in different countries are fuelled by the varied approaches taken by the managers and administrators in addressing the concerns of the different interest groups.

Despite the intent of national parks which exist primarily to preserve bio-diversity, Langtang National Park in Nepal has included many human settlements within its boundaries. Here, thousands of individuals are trying to survive by utilising the park's resources. However, the study of three different groups of key respondents has indicated their general agreement on the purposes of the park for preserving bio-diversity in the central Himalayan region. Nevertheless, some differences amongst groups about these purposes and consequential conflicts have been discovered through this research.

The sources of conflict between the park administration and its resource dependent local population, and possible measures identified for the resolution of these conflicts, have been explored in this study.

Where two opposite interests exist for an area; i.e., park administration who want to preserve the natural resources and desperate local people who need these resources for their survival, there will always remain the potential for conflict. Solutions to these conflicts would seem to rely on the development of alternative resources for the local people or compromising by diluting or reducing the preservation objectives of the park. To implement
plans, policies and procedures to enable these alternatives to be investigated the cooperation and involvement of local people must be deliberately and enthusiastically sought. In this way, the full potential of Langtang National Park to achieve its twin goals of maintaining viable and unique bio-diversity as well as meeting the needs of local people in the future may be seen as realistic and achievable.
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Appendix - A.
Sample of Questionnaire for Office-heads Survey and Structured Questionnaire Interview to the Local People of the Study Area

Department of Parks, Recreation and Tourism
Lincoln University, Canterbury, New Zealand.

Langtang National Park, Nepal

Dear Sir/Madam,

I am a student with the Department of Parks, Recreation and Tourism at Lincoln University preparing a Master's thesis. I am researching Langtang National Park, Nepal. As part of this project, I am conducting a survey of people who use the park for their domestic activities. I am interested in people who live within and immediately outside the park boundaries who are dependent on park resources.

You have been selected on the basis of a sampling along with other people. I would therefore appreciate your co-operation in filling out this questionnaire. The survey seeks your understanding of the purpose of the National Park and your views regarding the uses of the Park.

Your answers will be completely confidential. The data will be computer analyzed in aggregate form so that all replies will be anonymous. It is important that you give your own personal view and not that of others in the household.

Please post the questionnaire at your earliest convenience to the Langtang National Park address. I will be collecting the questionnaire from the given address by 20th of January, 1992 (i.e., before I return to New Zealand to resume my academic work at Lincoln University).

Your co-operation in assisting me with my study is much appreciated. If you have any enquiries about the survey, do not hesitate to contact me, or my supervisors, Dr. P. J. Devlin and Mr. Rick Mansell at the following address:

Fanindra Raj Kharel, Dr. P. J. Devlin/Mr. R. Mansell,
-/- Langtang National Park, Department of Parks, Recreation & Tourism,
Dhunche, Rasuwa. Lincoln University,
Date: 10/11/1991 P. O. Box 84,
Canterbury, New Zealand
1. I am interested in your personal reaction to the following set of statements. Please indicate your level of agreement or disagreement with each statement by ticking the appropriate box.

<table>
<thead>
<tr>
<th>Langtang National Park is necessary for:</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) the control of floods, landslides and soil erosion by protecting watershed in the origin area of Indrawati, Bhote Koshi and Trisuli Rivers.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>(b) the conservation of plants &amp; habitat of endangered wildlife such as musk deer and red panda.</td>
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<tr>
<td>(c) the conservation of religious and cultural sites.</td>
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<tr>
<td>(d) enhancing local &amp; national income through tourism.</td>
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<tr>
<td>(e) providing indirect benefit through tourism to the local people (e.g., by maintaining trails and controlling pollution).</td>
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<td></td>
</tr>
<tr>
<td>(f) providing opportunities for educational and scientific studies.</td>
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</tr>
</tbody>
</table>

2. Do you believe the establishment of Langtang National Park has resulted in a loss of benefits or privileges for local people living inside and around the park boundary? (Please tick one)

( ) Yes  ( ) No  ( ) Don't know

(If No/Don't know, go to Q.5)
3. If yes, please list benefits lost and rank them in order of importance (a = the most important benefit lost).

a. 

b. 

c. 

d. 

e. 

4. What could be possible solutions to these problems?

a. 

b. 

c. 

d. 

5. I am interested in your personal reaction to lodge, hotel and restaurant businesses. Please indicate the extent to which you believe these businesses have a positive or negative effect on the Park's natural environment (tick one box).

<table>
<thead>
<tr>
<th>Strongly Positive</th>
<th>Positive</th>
<th>Neutral</th>
<th>Negative</th>
<th>Strongly Negative</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>
6. Please, outline the reasons for your reaction in the above question:

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7. Do the local people living inside the park receive concessions from the park administration to utilize certain park resources? (Please tick one)
   ( ) Yes   ( ) No   ( ) Don't know
   (If No/Don't know, go to Q.10)

8. If yes, what are the concessions? (tick all appropriate answers)
   a. ( ) to collect fuelwood through permit;
   b. ( ) to cut timber for construction materials through permit;
   c. ( ) to graze their cattle/sheep/goats through permit;
   d. ( ) to collect other forest products such as nigalo (bamboo), fodder and bedding materials for cattle, etc.;
   e. ( ) others (please specify):---------------------------------------------------------

9. Do the villagers living outside the park boundary also receive concessions? (Please tick one)
   ( ) Yes   ( ) No   ( ) Don't know
   (If No/Don't know go to Q.13.)

10. If Yes, what are the concessions? (tick all appropriate answers)
   a. ( ) to collect fuelwood through permit;
   b. ( ) to cut timber for construction materials through permit;
   c. ( ) to graze their cattle/sheep/goats through permit;
   d. ( ) to collect other forest products such as nigalo (bamboo), fodder and bedding materials for cattle, etc.;
   e. ( ) other (please specify):---------------------------------------------------------
11. Do you think that any of the permit guidelines for the above concessions are too restrictive? (please tick one)

( ) Yes  ( ) No  ( ) Don't know

(If No/Don't know, go to Q.13)

12. Which concessions are you referring to and what changes do you want to recommend?

<table>
<thead>
<tr>
<th>Concession</th>
<th>Changes Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

13. From the table below, are you aware of any of the following offenses being committed in the Park?.

If Yes, tick the appropriate boxes on the right to show whether they were prosecuted, warned or unreported. Leave blank if you are not aware of an offence:

<table>
<thead>
<tr>
<th>Offence</th>
<th>Prosecuted</th>
<th>Warned</th>
<th>Unreported</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. poaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. timber cutting without permit;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. collecting firewood without permit;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. lighting forest fires;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. grazing cattle, sheep, goats without permit;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. collecting other minor forest products without permit;</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>g. other (please specify):</td>
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<td></td>
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</tr>
</tbody>
</table>

(If nothing ticked on above table, go to Q. 15.)
14. How often do you think the above mentioned offenses occur in a single year (tick one box for each offence):

<table>
<thead>
<tr>
<th>Offense</th>
<th>Never</th>
<th>Once</th>
<th>2 - 5</th>
<th>6 - 10</th>
<th>More than 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. poaching</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>b. timber cutting without permit</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>c. collecting firewood without permit</td>
<td></td>
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<td></td>
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<tr>
<td>d. lighting forest fires</td>
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<tr>
<td>e. grazing cattle, sheep, goats without permit</td>
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<tr>
<td>f. collecting other minor forest products without permit</td>
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<td>g. other (please specify offenses and frequency)</td>
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15. What additional concessions should be granted to local people?

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119
16. I am interested in your reaction to the impacts of tourism. Please indicate your level of agreement or disagreement with each statement by ticking the appropriate box.

<table>
<thead>
<tr>
<th>Tourism Impacts on:</th>
<th>Very Positive</th>
<th>Positive</th>
<th>No Impact</th>
<th>Negative</th>
<th>Very Negative</th>
<th>Don't Know</th>
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<tr>
<td>a. local and national income;</td>
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<td>b. the local arts and crafts;</td>
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<td>c. the markets for locally produced foods, such as milk, yoghurt, butter, cheese, meat etc.;</td>
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<td>d. employment (e.g., tourist guides and porters);</td>
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<td>e. social customs (e.g., clothing, behaviour etc.);</td>
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<td>f. local inflation;</td>
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<td>g. conservation of flora and fauna;</td>
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<td>h. vandalism;</td>
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<tr>
<td>i. litter control and trail maintenance;</td>
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<tr>
<td>j. conservation of religious and cultural sites;</td>
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<tr>
<td>k. the survival of local religious values;</td>
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<td>l. the survival of local cultural values.</td>
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</tbody>
</table>
17. If you have ticked a negative on any of the statements in the above table, please specify what you think should be done to control the negative impacts?

a. 

b. 

c. 

d. 

e. 

f. 

g. 

h. 

i. 

j. 

k. 

l. 

18. Do you come in contact with park personnel? (please tick one)

( ) Yes  ( ) No  ( ) Don't Know

(If No/Don't Know, go to Q. 24)

19. If yes, how often? (please tick one)

( ) once a year  ( ) 2 - 5 times a year

( ) 6 - 10 times a year  ( ) More than 10 times a year

20. In what circumstances do you (usually) come in contact with park personnel?

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-----------------------------------------------------------------------------------------------

21. With whom (park staff) did you talk to or come in contact? Please specify their designation:

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22. Please list any difficulties you have encountered in your dealing with park personnel.

(If none, go to Q. 24)

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23. Do you have any suggestions as to how some of these difficulties might be overcome?

24. Overall, how would you rate the friendliness of the park personnel you have encountered.

<table>
<thead>
<tr>
<th>Very friendly</th>
<th>So-So</th>
<th>Very unfriendly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>4</td>
<td>5</td>
<td>6</td>
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<td>7</td>
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</tbody>
</table>

25. How helpful would you rate the park personnel you have encountered?

<table>
<thead>
<tr>
<th>Very helpful</th>
<th>So-So</th>
<th>Very unhelpful</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>4</td>
<td>5</td>
<td>6</td>
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<td>7</td>
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</tbody>
</table>

26. (a) What is your occupation?

(b) Age?

(c) Education?

Thank you very much.

Mailing address:
Fanindra Raj Kharel,
/- Langtang National Park
Office, Dhunche, Rasuwa.
**Appendix - B.**
**Sample of Questionnaire for Structured Questionnaire Interview to the Park staff in Langtang National Park.**

DEPARTMENT OF PARKS, RECREATION AND TOURISM,
LINCOLN UNIVERSITY, CANTERBURY, NEW ZEALAND.

LANGTANG NATIONAL, NEPAL

1. I am interested in your personal reaction to the following set of statements. Please indicate your level of agreement or disagreement with each statement by ticking the appropriate box.

<table>
<thead>
<tr>
<th>Langtang National Park is necessary for:</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) the control of floods, landslides and soil erosion by protecting watershed in the origin area of Indrawati, Bhote Koshi and Trisuli Rivers.</td>
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<tr>
<td>(b) the conservation of plants &amp; habitat of endangered wildlife such as musk deer and red panda.</td>
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<tr>
<td>(c) the conservation of religious and cultural sites.</td>
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<tr>
<td>(d) enhancing local &amp; national income through tourism.</td>
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<tr>
<td>(e) providing indirect benefit through tourism to the local people (eg., by maintaining trails and controlling pollution).</td>
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<tr>
<td>(f) providing opportunities for educational and scientific studies.</td>
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</tbody>
</table>
2. Do you believe the establishment of Langtang National Park has resulted in a loss of benefits or privileges for local people living inside and around the park boundary? (Please tick one)
( ) Yes ( ) No ( ) Don't know
(If No/Don't know, go to Q.5)

3. If yes, please list benefits lost and rank them in order of importance (a = the most important benefit lost).

a. ........................................................................................................
b. ........................................................................................................
c. ........................................................................................................
d. ........................................................................................................
e. ........................................................................................................

4. What could be possible solutions to these problems?

a. ........................................................................................................
b. ........................................................................................................
c. ........................................................................................................
d. ........................................................................................................
5. I am interested in your personal reaction to lodge, hotel and restaurant businesses. Please indicate the extent to which you believe these businesses have a positive or negative effect on the Park's natural environment (tick one box).

<table>
<thead>
<tr>
<th>Strongly Positive</th>
<th>Positive</th>
<th>Neutral</th>
<th>Negative</th>
<th>Strongly Negative</th>
<th>Don't Know</th>
</tr>
</thead>
</table>

6. Please, outline the reasons for your reaction in the above question:

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7. Do the local people living inside the park receive concessions from the park administration to utilize certain park resources? (Please tick one)

( ) Yes ( ) No ( ) Don't know

(If No/Don't know, go to Q.10)

8. If yes, what are the concessions? (tick all appropriate answers)

a. ( ) to collect fuelwood through permit;

b. ( ) to cut timber for construction materials through permit;

c. ( ) to graze their cattle/sheep/goats through permit;

d. ( ) to collect other forest products such as nigalo (bamboo), fodder and bedding materials for cattle, etc.;

e. ( ) others (please specify):-----------------------------

------------------------------------------------------------------------------------------------------------------------------------

9. Do the villagers living outside the park boundary also receive concessions? (Please tick one)

( ) Yes ( ) No ( ) Don't know

(If No/Don't know go to Q.13.)
10. If Yes, what are the concessions? (tick all appropriate answers)
   a. ( ) to collect fuelwood through permit;
   b. ( ) to cut timber for construction materials through permit;
   c. ( ) to graze their cattle/sheep/goats through permit;
   d. ( ) to collect other forest products such as nigalo (bamboo), fodder and bedding materials for cattle, etc.;
   e. ( ) other (please specify):-----------------------------------------------

11. Do you think that any of the permit guidelines for the above concessions are too restrictive? (please tick one)
   ( ) Yes  ( ) No  ( ) Don’t know
   (If No/Don’t know, go to Q.13)

12. Which concessions are you referring to and what changes do you want to recommend?

<table>
<thead>
<tr>
<th>Concession</th>
<th>Changes Recommended</th>
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</table>
13. From the table below, are you aware of any of the following offenses being committed in the Park?

If Yes, tick the appropriate boxes on the right to show whether they were prosecuted, warned or unreported. Leave blank if you are not aware of an offence:

<table>
<thead>
<tr>
<th>Offence</th>
<th>Prosecuted</th>
<th>Warned</th>
<th>Unreported</th>
<th>Don’t Know</th>
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<tbody>
<tr>
<td>a. poaching;</td>
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<tr>
<td>b. timber cutting</td>
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<td>without permit;</td>
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<td>c. collecting firewood without permit;</td>
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<td>d. lighting forest fires;</td>
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<td>e. grazing cattle, sheep, goats without permit;</td>
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<td>f. collecting other minor forest products without permit;</td>
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<td>g. other (please specify):</td>
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</table>

(If nothing ticked on above table, go to Q. 15.)
14. How often do you think the above mentioned offenses occur in a single year (tick one box for each offence):

a. poaching: ( ) never ( ) once ( ) 2 - 5 ( ) 6 - 10 ( ) more than 10

b. timber cutting without permit: ( ) never ( ) once ( ) 2 - 5 ( ) 6 - 10 ( ) more than 10

c. collecting firewood without permit: ( ) never ( ) once ( ) 2 - 5 ( ) 6 - 10 ( ) more than 10

d. lighting forest fires: ( ) never ( ) once ( ) 2 - 5 ( ) 6 - 10 ( ) more than 10

e. grazing cattle, sheep, goats without permit: ( ) never ( ) once ( ) 2 - 5 ( ) 6 - 10 ( ) more than 10

f. collecting other minor forest products without permit: ( ) never ( ) once ( ) 2 - 5 ( ) 6 - 10 ( ) more than 10

g. other (please specify offenses and frequency):

15. What additional concessions should be granted to local people?


128
16. I am interested in your reaction to the impacts of tourism. Please indicate your level of agreement or disagreement with each statement by ticking the appropriate box.

<table>
<thead>
<tr>
<th>Tourism Impacts on:</th>
<th>Very Positive</th>
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<th>No Impact</th>
<th>Negative</th>
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<td>a. local and national income;</td>
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<td>d. employment (e.g., tourist guides and porters);</td>
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<tr>
<td>f. local inflation;</td>
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</table>
17. If you have ticked a negative on any of the statements in the above table, please specify what you think should be done to control the negative impacts?
   a. ------------------------------------------------------------------------------------------
   b. ------------------------------------------------------------------------------------------
   c. ------------------------------------------------------------------------------------------
   d. ------------------------------------------------------------------------------------------
   e. ------------------------------------------------------------------------------------------
   f. ------------------------------------------------------------------------------------------
   g. ------------------------------------------------------------------------------------------
   h. ------------------------------------------------------------------------------------------
   i. ------------------------------------------------------------------------------------------
   j. ------------------------------------------------------------------------------------------
   k. ------------------------------------------------------------------------------------------
   l. ------------------------------------------------------------------------------------------

18. Do you come in contact with the local people (Please tick one)?
   ( ) Yes ( ) No ( ) Don't Know
   (If No/Don't Know, go to Q. 24)

19. If yes, how often (please tick one)?
   ( ) once a year ( ) 2 - 5 times a year
   ( ) 5 - 10 times a year ( ) More than 10 times a year.

20. In what circumstances do/did you come in contact with the local people?
   ------------------------------------------------------------------------------------------
   ------------------------------------------------------------------------------------------

21. With whom (local people) do you come in contact?
   Please specify their status (e.g., local leader, local hotel/lodge owner, local farmer, etc.):
   ------------------------------------------------------------------------------------------
   ------------------------------------------------------------------------------------------
   ------------------------------------------------------------------------------------------
22. Please list any difficulties you have encountered in your dealings with local people: (If none, go to Q.24)

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23. Do you have suggestions as to how some of these difficulties might be overcome?

-----------------------------------------------------------------------------------------------------------------

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24. How long have you been working in Langtang National Park?

-----------------------------------------------------------------------------------------------------------------

25. (a) What is your occupation?

-----------------------------------------------------------------------------------------------------------------

-----------------------------------------------------------------------------------------------------------------

(b) Age?

-----------------------------------------------------------------------------------------------------------------

(c) Education?

-----------------------------------------------------------------------------------------------------------------
APPENDIX: C.

National Parks and Wildlife Conservation Act, 2029 (1973)
with Amendments Made in 2031 (1975) and 2039 (1983)

Preamble:
Whereas it is expedient to make provision for national parks, conservation of animals and birds and their habitats, control for hunting, protection, conservation, development, proper management and utilization of the sites of special importance, of natural beauties and for the maintenance of good conduct and comfort of the people in general.

Now, therefore, His Majesty King Birendra Bir Bikram Shah Dev made this Act on the advice and with the consent of the National Panchayat.

1. Short title, extent and commencement:
   (1) This act may be called the "National Parks and Wildlife Conservation Act, 2029".

   (2) It shall extend to the whole of the Kingdom of Nepal.

   (3) It shall come into force on such date as His Majesty’s Government may specify by notification in the Nepal Gazette.

2. Definitions:

   Unless the subject or context otherwise requires, in this Act.

   (a) "National Park" means an areas set aside for conservation, management and utilization of animals, birds, vegetation or landscape together with the natural environment.

   (b) "Strict Nature Reserve" means an area of ecological significance or other significance set aside for purposes of scientific study.

   (c) "Wildlife Reserve" means an area set aside for the conservation and management of animal and bird resources and their habitats.
(d) "Hunting Reserve" means an area set aside for the management of animal and bird resources for purposes of sport hunting.

(e) "Reserve" means Strict Nature Reserve, Wildlife Reserve and Hunting Reserve declared under Section 3.

(f) "Animal" means any animal species other than a domesticated animal i.e. mammals, birds, reptiles, fish, frogs (Amphibians) and insects and includes their eggs.

(g) "Weapons" means any type of gun, pistol, or similar other firearms, as well as bow and arrow, spear, trap, snare, booby trap, catapult, or any other weapon that causes injury.

(h) "Hunting" means any act of pursuing, capturing, molesting, killing of any animal or bird or attempting to do so or taking or destroying any part of its body or taking or destroying or disturbing its egg or nest.

(i) "Trophy" means any body of an animal or bird whether alive or dead or any part of its body which is in such form as to be recognizable.

(j) "Authorized Officer" means an officer specified by His Majesty's Government by notification in the Nepal Gazette.

(k) "Prescribed" or "As prescribed" means prescribed or as prescribed in the rules framed under this Act.

3. Declaration of National Parks or Reserve by His Majesty's Government:
   (1) His Majesty's Government may, as deemed necessary declare any area of land as a National Park or Reserve with detailed description of the boundaries thereof by notification in the Nepal Gazette.
(2) His Majesty's Government may alienate or transfer ownership or alter the boundaries of a National Park or Reserve declared under Sub-section (1) by notification in the Nepal Gazette.

4. Restriction on entry into a National Park:
   (1) No person shall enter a National Park unless in possession of an Entry Permit as prescribed or a written permission of an authorized officer.

   Provided that this Sub-section shall not apply to a Government official who is on duty or a person travelling on a recognized right of way through a National Park.

   (2) The form, kind and the fees and other conditions of Entry Permit under Sub-section (1) shall be as prescribed.

5. Prohibited Acts within a National Park or Reserve:
   No person unless in possession of a written permission of an authorized officer shall commit any of the following acts within a National Park or Reserve:

   (a) Hunt any animal or bird,

   (b) Build or occupy any house, hut, shelter or other structure of whatever materials,

   (c) Occupy, clear, cultivate or plant any part of land, grow or harvest any crops,

   (d) Pasture or water any domesticated animal or bird,

   (e) Cut, fell, remove, girdle, burn or otherwise damage any tree, plant, bush or any other forest produce,

   (f) Mine, quarry or remove any minerals, stone, gravel, earth or other such substances,
(g) Damage any forest produce, animal, bird or land,

(h) Use or carry any weapon, ammunition or poison,

(i) Introduce any domesticated or other animal or trophy other than by a Government official on duty or by a person travelling on a recognized right of way through a National Park,

(j) Obstruct or divert any river, stream or other source of water flowing in a National Park or introduce any harmful or explosive substances therein.

6. Operation of Services within a National Park or reserve:

(1) His Majesty's Government may in the best interests of a National Park or reserve either directly or by contract with any other person make provision for hotels, lodges, public transport or any other such services or amenities within a National Park.

(2) No person unless entering into a contract under Sub-section (1) shall operate any kind of services or amenities within a National Park or reserve.

7. Restriction on entry into Strict Nature Reserve:

No person shall enter a Strict Nature Reserve without the written permission of an authorized officer.

8. Prohibited Acts within a Reserve:

No person shall within a Reserve commit any of the acts prohibited under Section 5 without written permission of an authorized officer.

9. Entry Into National Park or Reserve at one's own risk:

(1) Entry into a National Park or Reserve shall be at one's own risk.
(2) His Majesty's Government shall not be held responsible to pay compensation for any death, loss, damage or injury suffered by any person within a National Park or Reserve.

10. Protected animals and birds:

The animals and birds listed under schedule 1 of this Act shall be regarded as protected animals and birds and their hunting is prohibited.

(a) A rogue wild elephant or a man eating tiger or animal suffered from chronic disease or wound may be hunted or caught by the order of the prescribed authority.

(b) Animals coming out of the forest and seriously injuring man, domesticated animals and birds may be hunted, caught or driven away by order of the prescribed authority.

11. No hunting without licence:

(1) No person unless in possession of a valid licence shall hunt any animal or bird. A hunting licence must be obtained to hunt the prescribed animals and birds.

(2) Any person intending to obtain a licence under Sub-section (1) shall apply to the prescribed authority in the prescribed format and on receipt of such application and payment of the fees as prescribed, the prescribed authority shall issue a licence in the prescribed form for hunting the animals or birds listed under schedule 2.

(3) Any person in possession of a valid licence under Sub-section (2) shall hunt subject to the conditions and methods as prescribed.

(4) The prescribed authority may refuse the issue of a licence under Sub-section (2) with or without showing any reason therefor.
12. Fixing of hunting annual quotas:
   Based on periodic population inventories of animals and birds, the prescribed authority shall fix annual quotas of the animals or birds which may be hunted within a Hunting Reserve during the year.

13. Cancellation of licence by His Majesty’s Government:
   His Majesty’s Government may as it deems necessary at any time cancel the licence issued under section 11 with or without showing any reason there for.

14. Closed Season:
   His Majesty's Government may, by notification in the Nepal gazette, declare a closed season in any area and for any period specified in the same notification.

15. Permits to collect specimens:
   (1) No person unless in possession of a permit shall collect specimens for purposes of scientific study within a National Park or Reserve.

   (2) Any person desirous of obtaining such a permit under Sub-section (1) shall apply to the prescribed authority in the prescribed form.

   (3) On receipt of such application under Sub-section (2) and on payment of the fees as prescribed, the prescribed authority may issue a permit for collecting specimens of any animal or bird other than those listed in schedule 1 or for the collection of any insect, fish or other natural produce subject to the prescribed conditions.

16. Management of National Parks or Reserves:
   The prescribed authority may, if he deems it necessary for the proper management of a National Park or Reserve, hunt any animal or bird, remove any natural produce or carry out such other necessary activities within a National Park or Reserve.
(a) Permission for forest produce or other service
Specified forest produce or other service may be taken from national parks and reserves on the payment of the fee specified and on obtaining an order from the prescribed authority.

17. Trophy to be presented before the officer issuing licence:
(1) Any person in possession of a trophy obtained under a valid licence shall present the same before the licence issuing authority or the authority specified by him within twenty-four hours, excluding the period of travel from the place where such trophy has been obtained.

(2) Where the licence issuing authority is of the opinion that the trophy presented before him under Sub-section (1) has been obtained in accordance with a valid licence, he shall, having recorded the particulars thereof, return the same to the person presenting it together with a certificate as prescribed.

Provided that in a case where the licence has been issued on condition that the whole or any part of the body of any animal or bird hunted shall remain the property of His Majesty's Government it shall be effected accordingly.

18. Possession of illegal trophy without certificate:
(1) Any person who has obtained a trophy prior to the commencement of this Act shall present the same before the prescribed authority within six months of the date of this Act coming into force and shall obtain a certificate as prescribed.

(2) His Majesty's Government may confiscate any trophy possessed without obtaining the certificate prescribed under Sub-section (1) above or Sub-section (2) of section 17.

19. Transfer of trophies:
(1) No person shall sell, barter or otherwise transfer the possession of any trophy to another person without having written document therefor.
(2) Any person buying a trophy from a person having the certificate of ownership in accordance to Sub-section (1) or after obtaining the transfer of legal ownership right of trophy, must present the trophy to the prescribed authority within a specified time and must obtain the certificate of legal ownership of the trophy from the prescribed authority.

20. Recommendation to be obtained for the import and export of trophies:
   Any person desirous of exporting or importing a trophy under the existing Nepal Law shall first obtain a recommendation from the Ministry of Forest and Soil Conservation of His Majesty's Government.

21. Necessary action may be taken for self defence:
   (1) Where necessary for self defence or for the defence of any other person or domestic animals against an actual or immediate attack by any animal, and where there is no possible alternative, the use of weapon or any other appropriate action may be resorted to, and as a result if any animal is killed or wounded it shall not be deemed as an offence under this Act.

   (2) If any animal is killed or wounded under Sub-section (1) it shall be notified to the prescribed authority within twenty four hours excluding the period of travel from the place where such action has been taken.

   (3) No such facilities under Sub-section (1) shall be available to a person committing an act in contravention of this Act or Rules framed thereunder.

22. Damage to boundary marks:
   No person shall destroy, damage, deface, remove or otherwise interfere with any boundary, fence, fence wall, signpost or notice of any National Park or Reserve.
23. Powers of inspection and search:

Where the prescribed authority has sufficient reason to believe that an offence has been committed in contravention of this Act, and where it is necessary for the purpose of collecting evidence or arresting an offender, he may after obtaining a warrant from the prescribed authority enter and search any house, premises, land and vehicle of any type at any time whatsoever.

Provided that where it appears that the offender is likely to abscond or destroy the evidence within the time taken for obtaining a warrant, the prescribed authority may after making a due record of such matter enter and search such house, premises, land or vehicle without warrant.

Explanation

No official below the rank prescribed in Section 30 shall enter and search under this Act. Where the evidence under this Act has not been obtained the official entitled to search under this Act without warrant shall provide a certificate thereof to the concerned person and also report it in writing to the prescribed authority showing the cause of the same within fifteen days of the date of such entry or search.

24. Power to arrest without warrant:

(1) Where the authorised officer has reason to believe that any suspect under this Act is likely to abscond, he may arrest such person. The person so arrested shall be presented before the authority empowered to hear the case for trial within twenty-four hours, excluding the period of travel from the place where such arrest has been made.

(2) Where in the course of arrest by an authorised officer under Sub-section (1) or at any time thereafter the offender or any person assisting him resists arrest and the situation thereby appears such that the offender is likely to escape or the life of the official himself is threatened, or where the use of a weapon is unavoidable, the official effecting such arrest may shoot, aiming at as far as possible below the knee. Under such circumstances the official concerned shall not be held responsible for any death or injury which may result.
25. Rewards to informer:

(1) Any person who furnishes information which leads to the conviction of any person for possession of rhinoceros horn or killing or wounding a rhinoceros, tiger or musk deer shall be entitled to a reward not exceeding five thousand rupees.

(2) Where a person furnishes information leading to the recovery of illegal trophies, he shall be paid a reward equivalent to fifty percent of the value of the same or if the trophy is not saleable in view of the animal being protected, then he shall be paid, considering the trophy’s size, condition and importance, a reward not exceeding ten thousand rupees.

(3) Any person who furnishes information which leads to the conviction of an offender under this Act except as mentioned in Sub-section (1) and (2) shall be entitled to a reward not exceeding one thousand rupees.

26. Penalties:

(a) Any person, with an intention of selling, found guilty of possessing, selling, buying or transferring the right of ownership, both persons involved, shall be punishable with a fine not exceeding twenty five thousand rupees or imprisonment not exceeding five years, subject to a minimum of one year or both such fine and imprisonment according to the quantity of rhino-horn or musk pod.

(b) Any person found guilty of killing or injuring protected animals except birds (by hunting) shall be punishable with a fine not exceeding fifteen thousand rupees, subject to a minimum of five thousand rupees or from one year to three years imprisonment or both such fine and imprisonment.

(c) Any person found guilty of killing or injuring animals except birds and fish in national parks, strict nature reserves or wildlife reserves without obtaining a hunting licence, shall be punishable with a fine not exceeding fifteen thousand rupees, subject to a minimum of one thousand rupees or imprisonment not exceeding two years, subject to a minimum of six months or both such fine and imprisonment.
(d) Any person found guilty of killing or injuring protected birds shall be punishable with a fine not exceeding ten thousand rupees, subject to a minimum of five hundred rupees or imprisonment not exceeding two years, subject to a minimum of three months or both such fine and imprisonment.

(e) Any person found guilty of killing or injuring other than protected birds in national parks, strict nature reserves and wildlife reserves without obtaining a hunting licence shall be punishable with a fine not exceeding ten thousand rupees, subject to a minimum of two hundred rupees or imprisonment not exceeding two years, subject to a minimum of three months or both such fine and imprisonment.

(f) Any person found guilty in contravention of the sections of this act or rules framed under this act, of matters other than those mentioned in Sub-sections (a), (b), (c), (d) and (e) shall be punishable with a fine not exceeding ten thousand rupees or imprisonment not exceeding two years or both with due consideration to the degree of offence.

27. Penalties for accomplice:

Any accomplice who knowingly assists a person committing an offence under this Act shall be punishable with half the penalties awarded to the offender.

Provided that an accomplice in an offence concerning rhinoceros, tiger, musk deer or elephant shall be awarded the same penalties as the offender.

28. Power of confiscation:

Where any person is found guilty of an offence under the provisions of this Act or of any rule framed thereunder the authority empowered to hear the case may confiscate any trophy, weapon, vehicle and other objects directly involved in the commission of the offence. A seized hunting dog can be killed by the order of authority empowered to hear the case prior to the decision of the case.
29. State cases:
Ces under this Act shall be construed as state cases.

30. Investigation and institution of cases:
(1) Investigation of a case under this Act shall be undertaken by the Ranger or an official of the rank of Subedar concerned with the management of the wildlife and forest or by an official of the rank at least of non-gazetted first class or in the case of police at least by Sub-Inspector and after the accomplishment of such investigation such official shall institute a case to the authority empowered to hear a case under this Act in the name of the National Park Office, Reserve Office or Wildlife Conservation Office or the Forest Office or such other offices relating to forest.

(2) The official concerned instituting a case to the authority empowered to hear a case under Sub-section (1) may consult with the Government lawyer.

31. Power to hear cases:
(1) The prescribed court or authority is empowered to hear a case under this act.

(2) The prescribed court or authority shall follow the same procedures which are applicable to an original court.

(3) An appeal shall lie to the Zonal Court against any order or decision of the prescribed court or authority within thirty five days of such order or decision.

32. Power of His Majesty's Government to amend the schedule:
His Majesty's Government may amend the schedule of this Act by notification in the Nepal Gazette.

33. Power to frame Rules (Regulations):
To carry out the purposes of this Act His Majesty's Government may frame Rule (Regulations).
34. Repeal and saving:

(1) The Wildlife Protection Act 2015 is hereby repealed.

(2) Matters other than those mentioned in this Act or rules framed thereunder shall be governed by existing Nepal Law.
Schedule 1 (Pertaining to Section 10)

1. **Animals**: (mammals)
   - (a) Rhinoceros
   - (c) Wild buffalo
   - (e) Clouded leopard
   - (g) Musk deer
   - (i) Gaur (Indian bison)
   - (k) Four-horned antelope
   - (m) Great tibetan sheep
   - (o) Brown bear
   - (q) Red panda
   - (s) Hispid hare
   - (u) Assamese monkey
   - (w) Lingsang
   - (y) Leopard cat

2. **Birds**:
   - (a) Impeyan pheasant (Danfe)
   - (b) Crimson-horned pheasant (Monal)
   - (c) Bengal florican (Khar mayor)
   - (d) Great pied hornbill
   - (e) Black Stork
   - (f) White stork
   - (g) Saras
   - (h) Cheer pheasant
   - (i) Leser florican

3. **Reptiles**:
   - (a) Python
   - (b) Gharial crocodile
   - (c) Golden lizard.