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# SAGARMATHA NATIONAL PARK AND TOURISM

A study of the background, impacts and relationships of tourism development and Park management responses in a World Heritage Site.



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SAGARMATHA NATIONAL PARK  
AND TOURISM

A study of the background impacts, and relationships of tourism  
development and park management responses in  
a World Heritage Site

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Pumori - 'Daughter Mountain' forms the Northern boundary of the Park with the North side of the peak lying in Tibet.

Only Ketchup the dog looks bored ----- Nevan, Kerry, Page 3  
Margaret and Lynda above Namche Bazar.

Construction work on the Visitor Centre and Park HQs is taking place on the hill in the background which is known as Mendelphu.

Access to Sagarmatha National Park from the South follows the valley of the Dudh Kosi. This area, although not included in the park, needs careful, and sensitive management as it provides the 'buffer zone' and first impression for almost all visitors. Page 10

The home land of Khumbu Sherpas is a combination of fiercely verticle country ----- Page 21

Cholatse (centre) and the Lungsampa Glacier with the summer 'yersa' of Gokyo visable in the lower centre. This is now a popular over night trekking destination, with consequent park management and environmental problems.

The village of Namche Bazar is the administrative centre for the region and the focus for much of the tourist development. Page 22

The Gompas of Sagarmatha National Park provide opportunities for visitors to experience important cultural and religious events. In-sensitive behaviour and excess numbers of visitors is obvious at many of these. Page 23

An additional challenge for managers in this park is the development of interpretive methods that will make visitors aware of their responsibilities to the cultural aspects of the park.

The 1970s saw a large scale promotion of trekking in Nepal. Page 26

Self contained groups supported by a Sirdar, cooks, camp crew, porters and more recently natural history guides visit the park in increasing numbers each year.

The transition from trading and agropastoralism to world renowned climbers and guides, as well as entrepreneur's in many associated tourism activities, has left some scars on Sherpa communities. Page 40

Constrasting this is the fact that important village festivals draw widely seperated families together for several weeks each year.

This group celebrating 'Domji' which commemorates the death of the patron saint of Khumbu Lama Sangwa Dorje, consists of several well known sirdars. Many Sherpas now live almost permanently in Kathmandu running large trekking and tourist operations.

Communication and discussion with village and community leaders is an important role for park managers. Page 58

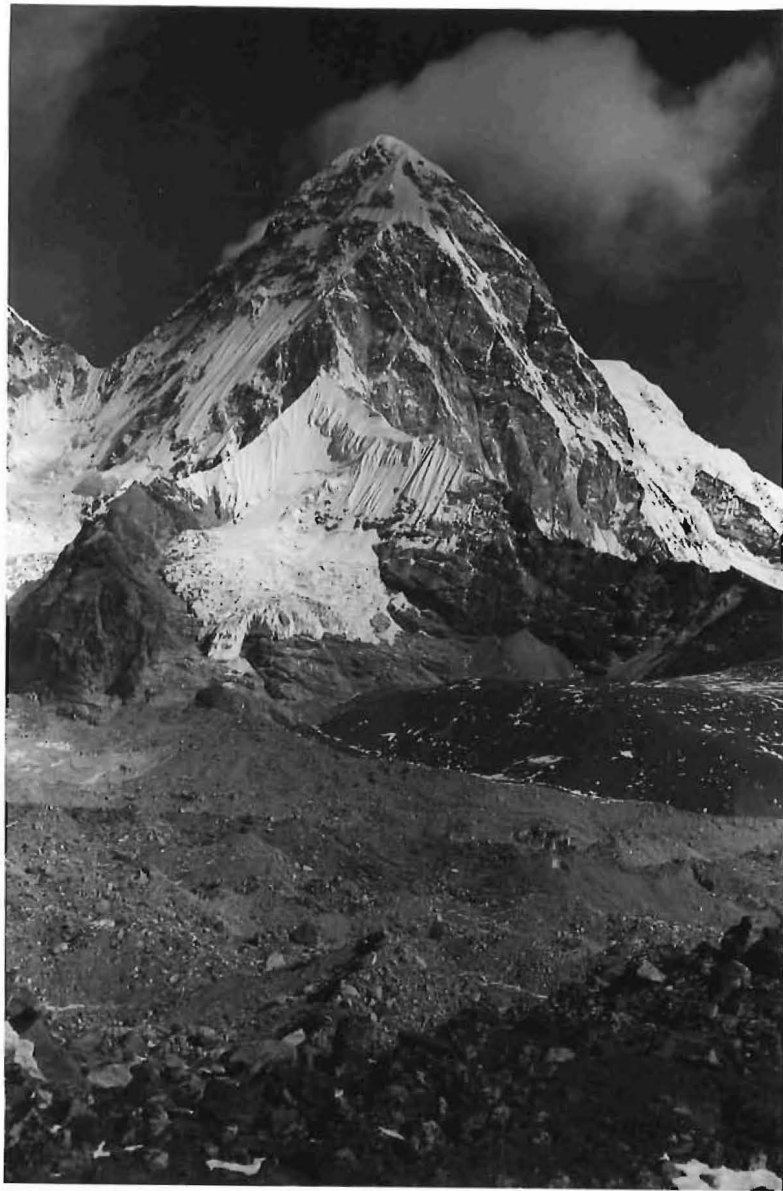
Here the Warden is discussing park plans with the High Lama Tengboche Gumpa and the Pradhan Panch (mayor) of Namche Bazar.

The Sagarmatha National Park Visitor Centre was developed to provide a focal point for the park. Displays and information on the unique natural and cultural aspects of the area are available in the building. Page 59

## List of Abbreviations

ADB	Asian Development Bank
DNPWC	Department of National Parks and Wildlife Conservation
FAO	Food and Agricultural Organisation
HMG/N	His Majesty's Govt. Nepal
IUCN	International Union for Conservation of Nature and Natural Resources
MFSC	Ministry of Forests and Soil Conservation
MPFS	Master Plan for Forestry Sector
NP	National Park
UN	United Nations
WHC	World Heritage Convention

## Bibliography



The rocks which form the world highest summits originally came from beneath the sea -----.

Fumori - 'Daughter Mountain' forms the Northern boundary of the Park with the North side of the peak lying in Tibet.



## PREFACE AND ACKNOWLEDGEMENTS

The preparation and presentation of this dissertation is in some ways the culmination of nearly ten years of interest including a little more than two years of actually living and working in Sagarmatha National Park.

When in 1977 the opportunity to work in Nepal as part of the New Zealand Government's Bilateral Assistance Programme became a reality, one of the most apparent changes that I needed to make was that many of the values, management techniques, and systems that are inherent in the NZ park system would need to be adapted radically to cope with the peculiar demands of the national parks system in Nepal.

Some of these same adaptations are still being made by the international conservation community and in a small way this dissertation is an attempt to add to the process of change. There is no question that conservation objectives in developing countries such as Nepal will only prosper if this process of adaptation continues. Devising alternatives for employment and resource use, actively advancing the reasons for retaining a representative system of protected areas, and conservation education programmes which progressively gain an understanding of the need for national parks and protected areas is a challenge that has never had greater urgency or priority.

It is impossible to record my appreciation to all of those people that have contributed to my understanding of the peculiar problems of protected area management in developing countries. The process started with my appointment as a ranger in Tongariro National Park and my special thanks go to John Mazey, Chief Ranger, Tongariro National Park 1961 - 1974, and until his retirement in 1986, Supervisor of National Parks and Reserves. John holds a special place as it was he who gave me my chance to become involved in national park work. Mr. 'Bing' Lucas the former Director General, Department of Lands and Survey, has always been supportive and has done much to advance New Zealand's image internationally but particularly within Nepal. Dr. Pat Devlin, Senior Lecturer Lincoln College for constantly reminding me that this work was not finished, but more importantly for his support, advice, and friendship. Mr. B.N. Upreti, Director General of the Department of National Parks and Wildlife Conservation, His Majesty's Government, Nepal, a former counterpart and Chief Warden during my period as Project Manager, Sagarmatha National park; Mingma Norbu Sherpa, currently Project Manager for the King Mahendra Trust for Nature Conservation, Annapurna Conservation Area; Passang Norbu Sherpa, my project Sirdar and companion during many weeks of field trips.

Finally but certainly not least I would like to publicly record my thanks for the support and assistance of my wife Margaret

Source: *De mini.*

2



Only Ketchup the dog looks bored ..... Nevan, Kerry, Margaret and Lynda above Namche Bazar.

Construction work on the Visitor Centre and Park HQs is taking place on the hill in the background which is known as Hendeelphu.

## SECTION 1.

### 1.1 INTRODUCTION AND BACKGROUND

#### 1.1.1 INTRODUCTION

The "raw materials" of sub tropical Terai jungles to the highest point on the earth's surface typifies the unique biogeographical location of Nepal. Mix this topography with the natural and cultural blends contained within this rectangular shaped country, of about 800 Kms in length by 140 Kms in width, with a population of approximately 17 million people, and it is not surprising that tourism is a well established part of Nepal's economy.

There is only one Sagarmatha, "Mother of the Universe" just as there is only one "Old Faithful" in Yellowstone National Park in the USA., Fujiyama in Japan, or Tongariro in New Zealand. These and many other special natural features (and relatively recently cultural sites) have been identified by governments for special protection, and by the tourist industry for promotion as places worth visiting by tourists. In most instances the only common denominator for many of these special places is the fact that they have been given formal protection as national parks, wildlife reserves, sanctuaries (or similar designations) by governments all around the world.

An understanding of the implications of tourism in Sagarmatha National Park cannot be developed by an eight day 'Instant Everest trek'.

"Nepal, with her multi-faceted problems, is an ideal breeding ground for experts. Just as ditches in the Terai harbour anopheles larvae, academic researchers and self-declared experts are hatching by the thousands throughout the country. People who come on short visits to Nepal and 'do' the Everest trek are interviewed on return in their hometown papers and discourse in detail about their 'ascent' of Kala Patthar (5600 m.) as well as the Himlayan Kingdom's foreign policy."

from 'Instant Experts' by Kunda Dixit, "Bikas, Binas", Dixit and Tuting.

Tourism impacts are a mix of obvious and subtle influences, changes and inter-relationships. For example, overgrazing of steep, fragile mountain slopes in Sagarmatha National Park can be attributed quickly (and superficially) to the fact that the villagers keep more domestic cross breeds of zhum (cow) and zopkiok (bulls) than they did traditionally for trading purposes. One of the reasons more domestic animals are purchased and utilised is the fact that crossbreeds can travel to lower altitudes, produce more milk and are less

temperamental than the traditional yak (male) and nak (female).

All these reasons have an inter-relationship with tourism development. Cross breeds can travel to Lukla airport at 2850m to meet trekking groups and transport food, equipment and other trekking 'necessities' to Base camp at 5400m. Milk and cheese find ready sales in local markets for tourist consumption. The subtle and less obvious 'flow-on' however relates to the fact that wealth gained through trekking and mountaineering is invested in cattle, and is a measure of status in Sherpa society.

To some people the relationship between tourism and protected area management may seem obscure. This is not the case as tourism is an important justification for maintaining a national park in the Sagarmatha area. It is, however, only one justification, and the objectives of the S.N.P. Management Plan balance tourist use against six other primary management objectives.

In terms of the economic benefits to Nepal as a country and the considerable economic advantages for the local Sherpa people of the park, it is surely a very important one. Our previous ability to disregard tourism as an almost incidental use of protected areas is a negative legacy of the past that we cannot afford to perpetrate

Tourism is already recognised as the world's second largest industry and the fastest growing. It has made and will continue to make a considerable impact on the social, economic and environmental fabric of Nepal. In 1986 nearly 34,000 visitors stated that the objective of their visit to Nepal was for mountaineering and trekking. (Rising Nepal, March 1987). Many of these visitors focus directly on the national parks and protected areas of the country. Sagarmatha with its special blend of natural and cultural features acts almost as a magnet to many of these visitors.

#### 1.1.2 BACKGROUND

This dissertation, prepared as part of the course requirements for the Diploma of Parks and Recreation, establishes one primary and eight supplementary objectives in relation to Tourism Impact and Management in Sagarmatha National Park (SNP). Refer Section 1.3 Objectives.

To understand the implications, inter-relations and impacts of tourism in S.N.P., it is necessary to provide an introduction to the natural and cultural resources of the area. In a paper such as this it is only possible to provide a framework as the natural processes that have shaped the park area are a complex

network of biological, ecological, geological and cultural evolution and development. Understanding natural processes is only one segment of the equation. The story of human migration and settlement is just as complex, and in some ways reflects more directly on the natural processes which are such a dynamic feature of the park area.

Natural and cultural resource information is an important tool for park managers. Without sufficient regard, knowledge and appreciation for the past it is impossible to develop management strategies appropriate for the future. Planning processes, which recognise the role of specialists and develop a planning mechanism that cohesively integrates as many different disciplines as possible into the development of practical and achievable management objectives and policies, is the challenge that needs to be directly addressed.

The writer believes that planning must be dynamic and flexible to change. This does not mean that the fundamental objectives for establishing protected areas should be compromised. The need for park managers to be responsive does not mean that parks should be expected to accommodate all of the activities, uses or expectations that individuals, commercial organisations or in some cases local communities will promote. It does however require an intimate knowledge and understanding of park legislation, objectives and policy, and an appreciation of society's expectations. The responsibility for developing this understanding is certainly not a one way liability. It is the duty and responsibility of natural area managers to promote the concepts and objectives of park management to as wide a forum as possible. In some cases acceptable middle ground will be established, often between apparently conflicting objectives. In other instances the compromise that managers will be required to make will be unsatisfactory, but for economic, political, or in some cases humanitarian reasons, managers will need to accept a compromise resolution. Other cases will require a non-negotiable stance, particularly if the value and integrity of the park resource is to be affected so adversely that fundamental principles of protected area management are violated.

Sagarmatha National Park presents to the park manager all dimensions of the management spectrum. To cope with the increasingly complex management issues of this area demands a special blend of management and interpersonal relationship skills. It is not possible for any park manager to be a biologist, anthropologist, forester, social scientist, ecologist, human resource specialist, geographer, geologist, engineer, or road construction expert, to name only a few of the disciplines required to successfully manage a natural area as complex as Sagarmatha. The challenge for managers is to identify the areas of expertise and advice they need in order to implement policies and objectives developed as part of a

planning process. This requires an ability, often gained only through practical experience, to objectively balance social and economic information against bio-logical or ecological assessments. This is the art that park managers must aspire to achieve, for it is this skill, that in the final analysis, will provide protection to this planet's special natural and cultural sites.

### 1.1.3 OBJECTIVES

The primary objective of this dissertation is:-

The presentation of practical management strategies for sustainable tourism use in Sagarmatha National Park (S.N.P.)

This objective will be achieved by completing the following supplementary objectives:

(a) Providing an introduction to location, and natural and human history of S.N.P.

(b) Providing an overview and historical perspective of the evolution and development of tourism.

(c) Describing the past and current tourism associated infrastructure.

(d) Describing and evaluating the major environmental impacts of tourism.

(e) Describing and evaluating the major socio-economic and cultural impacts of tourism.

(f) Evaluating the implications of (c), (d), (e) and (f) against the objectives and policies of the S.N.P. Management Plan.

(g) Isolating and describing the most critical factors for management action.

(h) Developing strategies for management action.

### 1.1.4 SCOPE

As the contents for this dissertation developed my thoughts became directed toward the need to suggest management strategies that would alleviate some of the impacts of tourism. It became increasingly obvious that management responses related to tourism impacts in S.N.P could not be isolated from other management responsibilities, or dealt with independently.

Section I is reasonably specific and is primarily directed

towards tourism. Section II recognises that tourism cannot be treated in isolation from almost all other management responsibilities and consequently broadens into an assessment of management awareness, capacity and effectiveness.

This need to broaden the subject matter also necessitated the development of some long term approaches which are more holistic than those which would normally be suggested for specific impacts and problems.

The justification for this is that resource management responsibility, particularly in protected areas, cannot in most instances be compartmentalised. The cause and effect relationship of tourism cannot be dealt with in isolation and for this reason capacity and effectiveness across the broad spectrum of management responsibility has been measured.

#### 1.1.5 METHODOLOGY

Research and background reading, interviews and discussions with local people and foreigners, whose opinions I respected, have been basic methods for gathering most of the material presented.

Almost more than all these however I have relied on the impressions, notes and personal experiences I have had in Sagarmatha National Park since my first visit in 1977. These experiences provided unique opportunities for me to observe, record and discuss with local people many of the issues and my ideas, some of which are presented here.



## 1.2.NATURAL SETTING

### 1.2.1 LOCATION

Sagarmatha National Park is situated in the north eastern region of Nepal in the area known as Khumbu Himal, and is part of a system of protected areas managed by H.M.G. Department of National Parks and Wildlife Conservation. (Refer Maps I II&III) The park includes a number of the best known high peaks of the Himalayas. The most significant of these is Sagarmatha (Mt. Everest), the world's highest mountain which at 8,848 m. (29,028 ft) is truly "The Mother of the Universe" (a literal translation for the name Sagarmatha). Sagarmatha is flanked by many other spectacular peaks: Lhotse 8501m., Cho-Oyo 8513 m., Nuptse 7879 m., and Ama-Dablam 6856 m.

Lower altitudes included within the park boundaries are the homeland of approximately 2,500 Sherpas, although the 63 villages and settlements of the park are technically excluded. The park is bordered in the north by the Autonomous Region of

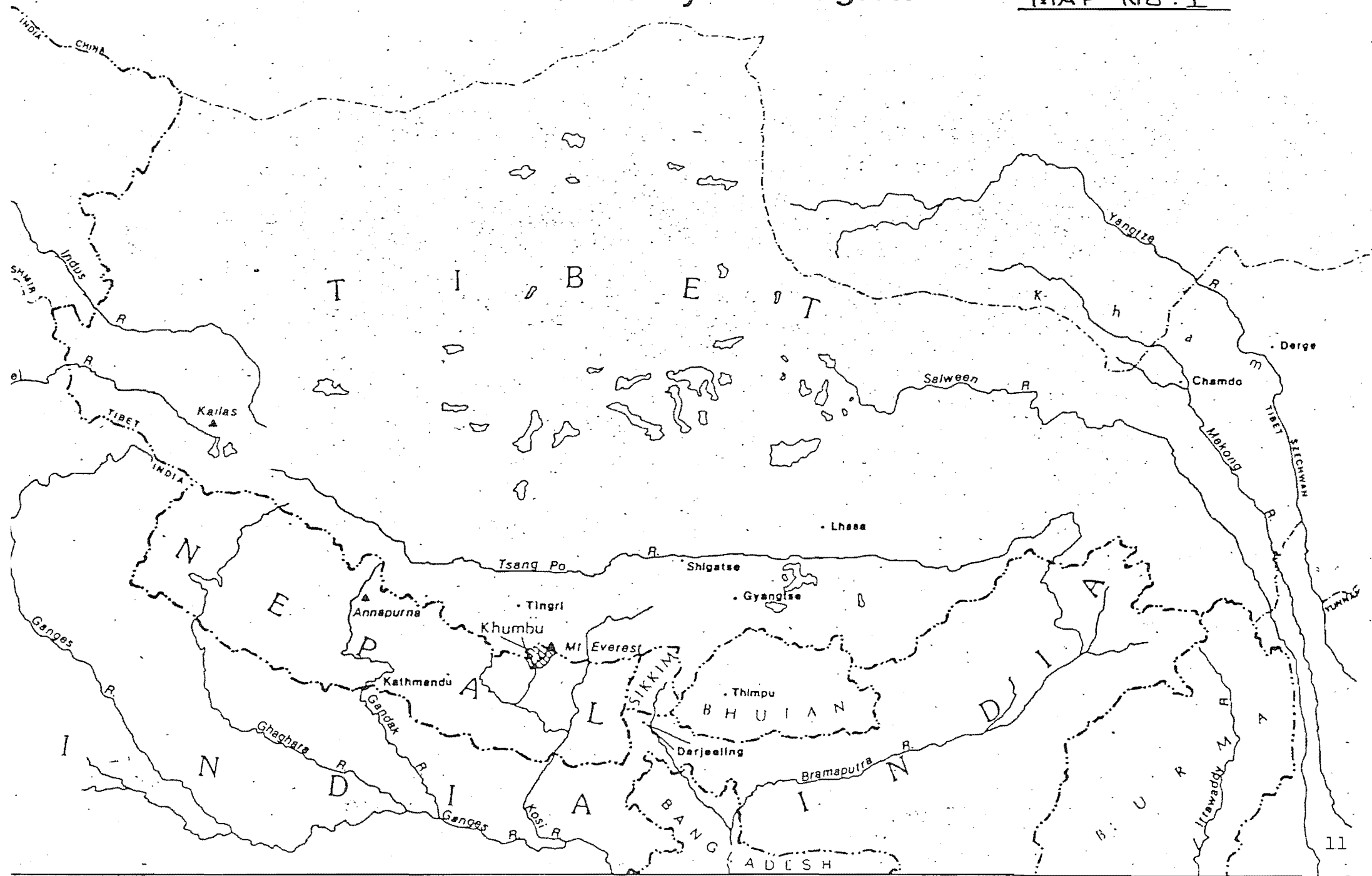
Tibet and is surrounded by high mountainous ridges, nowhere lower than 5,400 m. Access from the south via the valley of the Dudh Kosi is restricted by impassable narrow gorges. These have required the construction of high level trails to facilitate access for traders moving up from the middle hills, Terai, and India to the south. The natural barriers of high mountainous ridges to the north and heavily dissected gorges to the south kept the Khumbu area relatively untouched by outside influences, until mountaineering expeditions started to explore the southern approaches to Sagarmatha in the early 1950's.



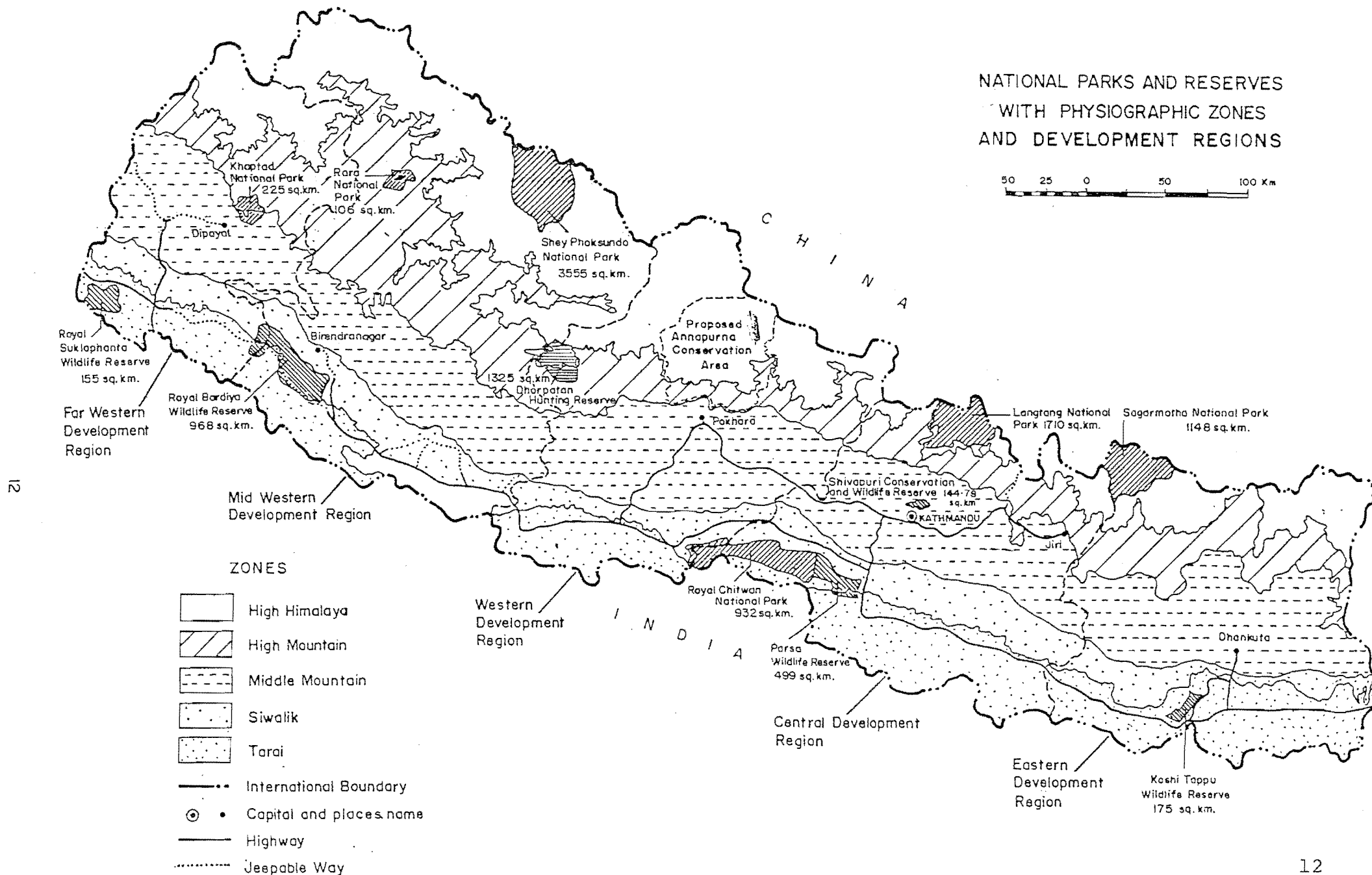
Access to Sagarmatha National Park from the South follows the valley of the Dudh Kosi. This area, although not included in the park, needs careful, and sensitive management as it provides the 'buffer zone' and first impression for almost all visitors.

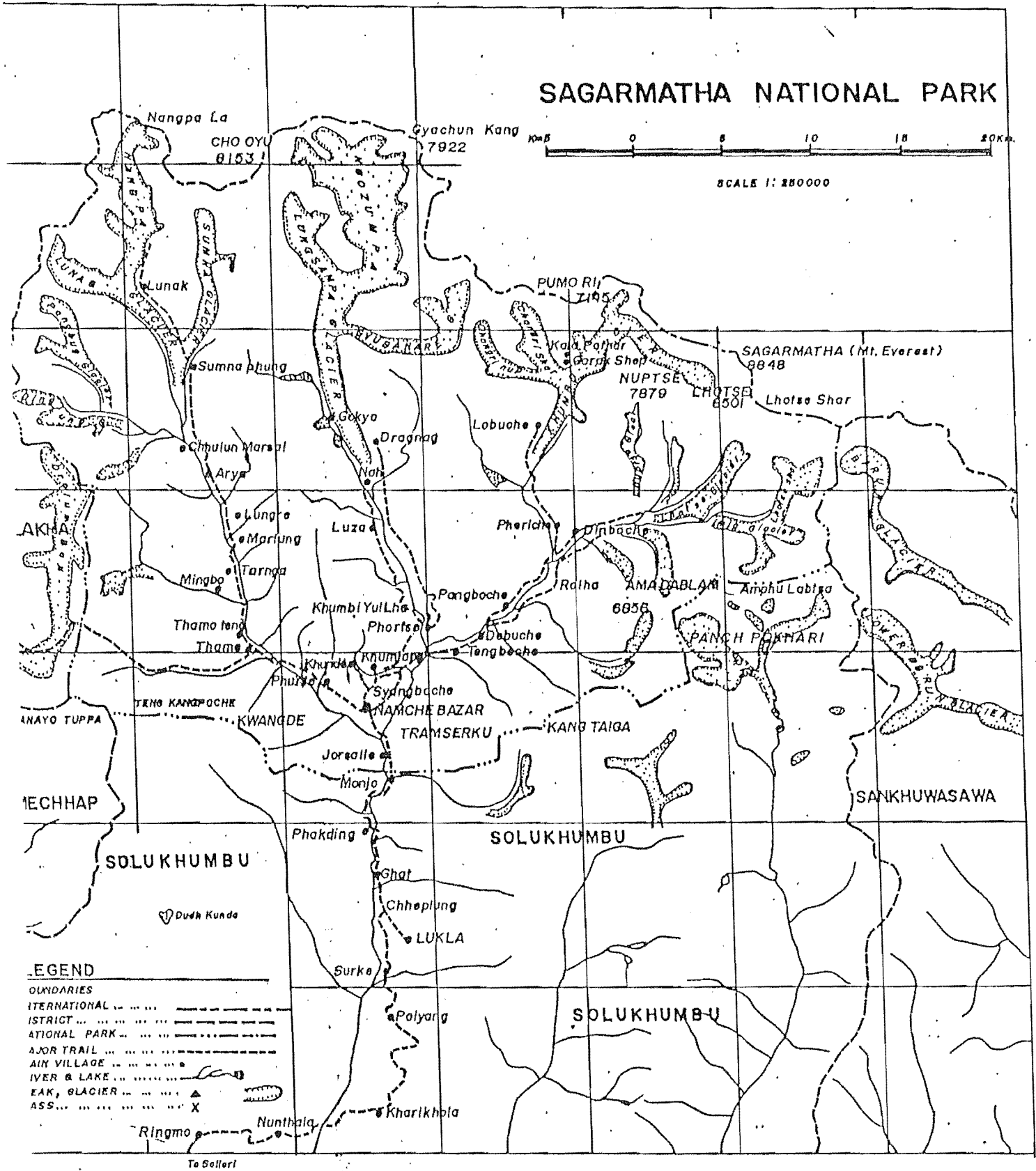
# The Himalayan Region

MAP NO. I



NATIONAL PARKS AND RESERVES  
WITH PHYSIOGRAPHIC ZONES  
AND DEVELOPMENT REGIONS





### 1.2.2 GEOLOGY

The rocks which form the world's highest summits originally came from beneath the sea as sediments, between 300 to 700 million years ago. Layers of mud, sand, loam and lime rich sediments have been overlaid by further sedimentary deposits, which in turn increased the pressure and temperature so that the rocks were altered in structure (metamorphosed). Later in geological time large intrusions of molten material, typically in the form of granites, also changed the thick sedimentary sequence and the mudstone, sandstone and limestone changed to slates, schists, marbles and gneisses. Subsequent upthrust of this material has formed the high Himalayas. Many good examples of this process can be seen in the park, particularly across the Lhotse-Nuptse wall at the head of the Imja valley.

#### Plate Tectonics.

This upthrust has been formed as a result of several collisions between the large continental plates that make up the earth's crust. The most recent of these began about 60 million years ago. The Indian plate was then located in the southern hemisphere and was already drifting northwards at about 26 cms a year. The inevitable collision between the Indian and Eurasian plates, about 50 million years ago, produced volcanic areas in northern Tibet and thrust southern Tibet over the leading edge of the Indian plate. The progressive pressure of the Indian plate against the Eurasian plate is in the order of 15 cms a year. Movement in the past 60 million years has resulted in about one thousand kilometers of the Indian plate being pushed under the Eurasian plate, causing tremendous upthrusting which has developed the high Himalaya, including the main mountains of the park.

The subsequent shaping of the park landscape has been carried out by natural erosive forces such as sun, wind, rain, freezing, flood and earthquakes. These forces are constant reminders of the dynamic processes that are still shaping these relatively young mountain ranges.

### 1.2.3 WEATHER

An influence and force in the park, which cannot be underestimated, is the dramatic and regular change between the winter and summer seasons in the Himalayas. The annual monsoon moving up from the Bay of Bengal usually reaches the park around mid June and starts the cyclic weather pattern. This dictates many other activities within the park, including agricultural practices, and in terms of the focus of this paper, tourism. Once established, the monsoon weather pattern is typically one of clear or partially clear mornings with rapidly forming clouds enveloping and obscuring the peaks and completely filling the valleys by mid-day. The mist becomes a damp drizzle and as the day progresses turns to heavy rain by early evening.

This weather pattern severely inhibits foot access, and aircraft activity stops completely for about three months. In the lower and middle hill areas, which are subject to almost continual heavy rain for long periods, trails become almost impassable by flooded rivers and leech infested jungles. The monsoon weather pattern continues until mid September then progressively withdraws with the approach of autumn and winter.

A major indicator of this change is a reversal in the direction of jet stream wind clouds which are very noticeable across the park's highest peaks, Sagarmatha and Lhotse. With the commencement of the typical cold dry westerly winds of autumn and winter temperatures drop steadily and heavy frosts from late October onwards freeze the ground to a depth of 45 cms. or more. The coldest months are December, January and February which again inhibits tourism activity. Heavy snows usually arrive in late December, once the shortest day has passed, and near zero temperatures mean that it will lie in shaded areas for many weeks. February until late March is a relatively stable time, with long clear periods interspersed by short intervals of unsettled weather, usually lasting for little more than two or three days. Temperatures of -20 degrees Celsius or more are common at 4,500 m. and again tourism at this time of the year is at a relatively low ebb. March, April and May see gradual increases in temperature, although it is possible that a few pre-monsoon clouds and showers of rain will be experienced. However, the weather is normally fine and clear, providing ideal trekking and climbing opportunities. The arrival of June and the onset of the next monsoon sees the cycle recommence.

Annual precipitation within the park area averages about 1000mm, with 75% of the rain falling during the summer monsoon period. The high peaks receive most of their snow during this time with snow-fall down to about 5,500 meters. This is in direct contrast to the way many people will perceive the weather patterns and illustrates that seasonal variation has a

considerable influence in terms of visitor numbers and use patterns , both important indicators for park managers.

#### 1.2.4 VEGETATION

The park can be broadly divided into three altitude zones: a lower zone (2800m - 4000m) of mainly forest; a middle zone of alpine scrub (4000 - 5000m); and an upper alpine zone (5000 - 5750m) almost devoid of vegetation except grasses and cushion plants. In each of these zones there is a variety of habitats which support wildlife populations as well as birds and insects. Vegetation variations are very pronounced according to location, and aspect as well as altitude.

##### The Forest Zone

Forests of the park are not large and probably never occupied very much more area than at the present time. Increased and sustained demands for firewood and construction timber have however modified and thinned the forest at an alarming rate. The dominant species within this forest zone are blue pine, juniper, silver fir, rhododendrons and birch, the last three often occurring in a mosaic. Rhododendron arboreum, the national flower of the kingdom, is relatively common with various shades of red and pink blooms, and occasionally the more scarce white form. The most imposing conifer in the park is silver fir, known locally as *tashing*, which extends from an altitude of 3,300 m. to about 4,350 m. in the Bhote Koshi and Dudh Koshi catchments. The gleaming, silvery underside of its needle-like leaves and its upright, candlestick-like cones, make the species an attractive and often dominant tree of the upper forest levels. Rhododendrons are normally mixed with birch and silver fir and are not usually found in pure stands. The red flowered tree rhododendron, which has a wide altitude tolerance, progressively makes way at higher altitudes to the pink, mauve or white flowered varieties of Rhododendron wallichii, and Rhododendron campylocarpum which has delicate lemon-yellow bell shaped flowers.

##### Alpine Scrub

This zone is fundamentally the interface between the mixed forest of birch, fir and tree rhododendrons and the dominant vegetation of the higher altitudes, progressively becoming typical alpine scrub as altitude increases. The major features of this area are the shrubby Alpine Cinquefoil, dwarf rhododendrons, dwarf junipers, dwarf cotoneasters and Cassiope fastigiata.



## Upper Alpine Zone

An increase in altitude into the upper alpine zone diminishes species representation as the environment becomes harsher and the climate colder and drier. Dwarf rhododendron and other shrub species dwindle in variety until the sole representative above 5,000 m. is the snow rhododendron (*R. nivale*). This small rhododendron hugs the savage slopes to escape the harsh environmental conditions of mountain winds, snow, ice and freezing. Above the upper alpine zone and up as far as the permanent snow line at about 5,750 m. plant life is very restricted and is represented by lichens, mosses, dwarf grasses, sedges, and cushion plants. Ephemeral plant life has been recorded as high as 6,000 m. amongst the morainic debris at the base of cliffs in the Western Cwm of Sagarmatha. This must be regarded as exceptional and it is generally accepted that permanent life, in plant form at least, ceases at 5,750 m.

## Vegetation Species List. Appendix I.

### 1.2.5 FAUNA

The variety of mammal species recorded or expected to be found within the park is reasonably large and includes moles, rodents, hares, cats, monkeys, deer, bears, cattle and canids. Their habitats vary in altitude and include streamside or wet places, bamboo forest, mixed birch / rhododendron / fir forest, steep rocky mountain sides, open grassy hill sides and high, bouldery open-type areas such as moraines.

The Himalayan black bear, which is distributed throughout Nepal, is represented by a resident population in the Khumbu region. Weighing up to 250 kg. these large mammals have a black coat with a distinct white marking on the chest. The musk deer, prized by poachers for the musk gland possessed by males of the species, lives within the birch and rhododendron forest. This shy, almost diminutive deer, weighing about 12 to 15 kgs and standing 50 to 60 cms (shoulder height), has a frizzled coat varying in colour between grey and brown. The buck, unlike other deer, does not produce antlers but instead has long canine teeth projecting from the upper jaw which are used for territorial combat and defence.

Several of the other animals found in the park are known to be predators of musk deer. Commonest of these are the wolves, jackals and wild dogs, although foxes and large birds of prey will also take young musk deer. Other predators found within the park include the yellow throated marten and North Indian marten.

Although the park is a high altitude region, two species of

monkey, rhesus and the common langur, are certainly found in the Dudh Koshi Valley and may extend their range into the park on a seasonal basis. The dog-like jackal, which is more often heard howling than seen, inhabits the upper forest areas. Cliffs and crags of the upper tree line provide habitat for the Himalayan thar, a powerful animal which stands about a metre at the shoulder and has a long, flowing yellow mane during the winter months.

The pika or Himalayan mouse hare can be found above the treeline amongst large rocks. Similar in appearance to a guinea-pig it is often seen around the freshwater springs at Lobuche and on the trail above Pheriche. A notable feature of this small animal is that the soles of its feet are also furred enabling it to move over smooth rocks. The woolly Himalayan hare is another inhabitant of this particular environment and the park has several species of rodents, the commonest being the house rat and house mouse, along with the less common alpine vole which lives in forest and breeds in hollow trees.

Although the snow leopard has not been positively sighted in the park for some years, there is reasonably conclusive evidence that this elusive cat, slightly smaller than the common leopard, and inhabiting a range from 2000 m. in winter to 5,500 m. in summer, is still one of Khumbu's more prized residents. (Jackson 1987)

Animal Species List Appendix II.

#### 1.2.6 BIRDS

At least 118 species of birds are known to use the park for food and shelter within the variety of habitats that such a diverse range of altitudes provides. Most of the rivers and streams in the park are swiftly flowing and provide excellent habitat for the white-capped river chat and redstarts. Both species range up-wards along streams with the redstart being found as high as 3,660 meters and the river chat to over 4,880 meters. The brown dipper is another remarkable species and is often seen near streams and rivers.

It is the large species, however, that attract the most attention. The Himalayan griffon is an incredibly large bird and possibly the heaviest in the park, with a wing span measuring over 2.5 metres from tip to tip. This bird relies on the heating up of air currents during the day so that it can gain height to commence its predatory hunting for food.

Bird Species List Appendix III.

### 1.3. CULTURAL SETTING

#### 1.3.1 THE SHERPAS OF KHUMBU

The Sherpas of the Sagarmatha National Park area have been presented in so many books, magazines, journals, documentary films and television series that they have become arguably one of the most well known groups of people in the world. The name Sherpa comes from the words 'Shar' meaning east, and 'Pa', people, and supports the earliest writings which indicate that this tribe of high altitude dwellers originated in the province of Kham in eastern Tibet, some twelve hundred and fifty kilometres from their present homeland in Khumbu. (Von Furer-Haimendorf 1975).

Sherpas inhabit much of the Tibetan borderland of eastern Nepal, from Helambu immediately north east of Kathmandu, along the line of the Himalayan range to as far east as the Indian state of Sikkim. Although this band is only approximately 300 km. in length, it contains considerable variation within the various Sherpa cultures and vast differences in local economic orientation and opportunity. There are approximately 2500 Sherpas in the high valleys of the Khumbu region, which since 1976 has been incorporated into the Sagarmatha National Park. In 1979 the area was recognised as a World Heritage Site by U.N.E.S.C.O. A primary focus of this recognition was on :-

"The Highlanders of Khumbu who stand out as a people distinctive in their character, their civic sense and their mode of adaptation to life in extreme altitudes".  
Christopher von Furer-Haimendorf 1964, The Sherpas of Nepal.

The homeland of Khumbu Sherpas is a combination of fiercely vertical country made up of four narrow valleys, enclosed by many peaks over 7000 m. high and four in excess of 8000 m. The fame of the Sherpas themselves and their spectacularly situated villages have made this region a primary tourist attraction and are also the fundamental rationale for establishing it as one of Nepal's six national park, and a World Heritage site.

Their language is a Tibetan dialect and their religion combines beliefs and practices of the Nyingmapa sect of Tibetan Buddhism with many gods and dieties indigenous to the area of Khumbu itself. The architectural form of their villages has a strong resemblance to those across the Himalaya as does their clothing. An important element for subsistence has been agropastoralism. These strong Tibetan influences in day to day Sherpa life are reflections of their origins.

There are eight main villages within the park, all situated between 3,400 and 3,900 m. The two largest villages, Khumbjung and Namche Bazar have approximately 125 and 90 Sherpa

households respectively. The village of Namche Bazar is the administrative centre for the region and the focus for much of the tourist development that has progressively increased during the last two decades. Apart from the Sherpa households, Government personnel and middle hill migrant household workers have increased the population to over 700 people, forming the largest village in the region.

Scores of small, seasonally occupied herding settlements occur above 4000 m. In addition there are numerous exclusively agricultural settlements such as Dingboche, Targna and Nar where substantial amounts of crops, mainly potatoes, are planted and harvested annually. Agropastoralism is the traditional basis of Khumbu Sherpa subsistence. Planting crops as high as 4,700 m. and herding live stock as high as 5,000 m., the Sherpas are without doubt the highest dwelling people in Nepal and have some of the highest settlements in the world.

Yaks and especially the female (Nak) are the most important livestock numerically, although more recently cross breeds raised for trading purposes and as transport for tourist baggage are an important economical influence. Traditionally buckwheat and tubers are the staple crop varieties. Potatoes (or rigi), which were introduced to Khumbu just over a hundred years ago, have replaced turnips and radishes as the staple vegetable. The current farming pattern which places more than two thirds of all the arable land in potatoes is a practice that has been implemented during the last half century. The Khumbu region has been a food deficient area since at least the early decades of the 19th century. Without doubt this fact stimulated Sherpa participation in the regional trading network of eastern Nepal, adjacent Tibet and India, providing an extremely viable and economically attractive means to augment agropastoral production.

This point is best illustrated by the fact that 90% of Sherpa families were involved in trading during the middle part of the present century. At this time at least four major classes of trade were carried out. Each of these focused on a specific range of goods, route and scale of operation. Most families also remained primarily cultivators and herders and traded to obtain grain (usually millet and maize). These families tended to not make trading trips to Tibet or India but simply purchased salt from traders in Namche Bazar and then exchanged this commodity for grain in villages approximately one weeks walk south of the Khumbu region, in the area known as Solu. (The regional name for this district is Solu Khumbu).

This entire trading framework has greatly altered since the 1960s. A varied interaction of factors, which includes the expansion of the roading system within Nepal, the availability of increasing amounts of cash in the region as a direct result of tourism, the establishment of a regular weekly bazaar (hat bazar) in Namche and the availability of Indian salt in the



The home land of Khumbu Sherpas is a combination of fiercely verticle country -----

Cholatse (centre) and the Lungsampa Glacier with the summer 'yersa' of Gokyo visable in the lower centre. This is now a popular over night trekking destination, with consequent park management and environmental problems.



The village of Namche Bazar is the administrative centre for the region and the focus for much of the tourist development.



The Gompas of Sagarmatha National Park provide opportunities for visitors to experience important cultural and religious events. In-sensitive behaviour and excess numbers of visitors is obvious at many of these.

An additional challenge for managers in this park is the development of interpretive methods that will make visitors aware of their responsibilities to the cultural aspects of the park.

middle hills , along with political and economic changes in Tibet, have all contributed at various times to bring about significant changes in trading patterns. Very few Sherpas traded in Tibet after the mid 1960s and Sherpa trade in the middle hills had almost ended by this time as well.

Refer Map III S.N.P. with main villages and subsidiary settlements.

#### 1.4. TOURISM

##### 1.4.1 HISTORICAL PERSPECTIVE

The Sherpas of Khumbu are no strangers to tourism and early records indicate that in 1907 several men from the region first took on work as high altitude porters for climbing expeditions setting out from Darjeeling. The 1920's saw the rise of the Sherpa to become a world renowned figure, particularly for exploits in the early British expeditions which came up through India and into Tibet to tackle Mt. Everest from its northern side. Nepal of course was still completely closed to westerners at this time. Transport into Tibet from Darjeeling did not provide large scale employment opportunities as most of the loads were ferried by pack animals. Consequently, most of the Sherpas employed to accompany expeditions were recruited in Darjeeling and during the first half of this century many men migrated on a seasonal basis to Darjeeling, or in some cases settled permanently in the region in order to secure permanent work. However, the 1933 British Everest expedition did arrange to recruit Sherpas directly from Khumbu and these rugged individuals met the expedition at the Rongbuk glacier base camp after hiking over mountains from the Khumbu region. Sherpa involvement in mountaineering changed considerably during the 1950s as expeditions began approaching Mt. Everest from the south through the Khumbu region.

The King of Nepal allowed the first mountaineering expeditions to move through the kingdom in 1949 and two years later, in 1951, the first reconnaissance group reached Khumbu. 1952 saw two major Swiss expeditions to Everest, and in the years following at least one major expedition per year to this mountain and other Khumbu peaks became part of every day life for the people of the region. During this transition period the borders of Tibet were being progressively closed and trading opportunities gradually became more difficult to negotiate.

A relatively easy change to new employment opportunities was provided by large expeditions which required hundreds of porters to establish their base camps. It also meant that for a few weeks per year work associated with expeditions was planned for. Whole families took advantage of this temporary opportunity to capitalise on cash income by involving any members of the family who were old enough or fit enough to



carry a full load. Porterage at this time was not regarded as the low status occupation that it is today in Khumbu. The wages earned then were as much as seven times those paid to an agricultural day labourer or porters carrying goods for traders over the passes to Tibet.

All of these changes led to a fundamental rearrangement of the Khumbu economy and as a consequence trading patterns were significantly affected. However, this early phase of tourism within the Khumbu region, which consisted of one or two expeditions per year, was not enough to dramatically change the standards of affluence for most families, and agropastoralism and traditional trading continued to be the primary source of subsistence until well into the 1960s.

The establishment of tourism as the single most important contribution to the Khumbu economy came only in the 1970's. The first commercial treks in Nepal were recorded in 1965 and records indicate that about twenty people participated at that time. Early growth was slow but within the first decade, to 1976, a total of 13,891 individuals had been issued with trekking permits. (Roberts 1985). The establishment of trekking, usually through an agent who offered guided camping trips, was based somewhat on the logistical system developed by mountaineering expeditions, where travellers toured in relative style with porters and pack animals carrying all their baggage. Most of the provisions were purchased in Kathmandu and carried, along with toilet and large mess tents. A cook and a camp crew attended to the demanding tasks of camp life and provided services to the guest. In addition there was a sirdar whose major responsibility was to keep a total trek operation running smoothly, and often a foreign "Group Leader", someone who had a good working knowledge of the natural and human history of an area, (or had read expedition books and knew the ropes). These events began to develop the new tourist who in turn began to significantly reshape the lives of the Sherpa people.

The 1970's saw a large scale promotion of trekking in Nepal coinciding with a world wide emphasis on adventure travel. Khumbu became one of the most popular destinations for these trips and by the end of the 1970s over 4000 people per year were visiting the park, with a total reaching more than 5,000 during the early 1980s. Since this time the number of tourists entering SNP has risen to about 6000 per year. Although this number is small relative to tourist levels in mountain regions in New Zealand, U.S.A. or Europe, it is extremely substantial when compared to the population of Khumbu. It is even more significant when measured against the fact that each tourist with an organised trekking group will have on average 2.5 to 3 people in the form of support i.e. porters, sirdar, kitchen boys, guides etc., and that the average length of stay in the area will be twelve to fifteen days. These facts substantially influence the visitor number equation and provide in the region



The 1970s saw a large scale promotion of trekking in Nepal.

Self contained groups supported by a Sirdar, cooks, camp crew, porters and more recently natural history guides visit the park in increasing numbers each year.

of 250,000 to 300,000 visitor days per year. In a high, fragile alpine environment with long periods when visitation is not possible for climatic reasons this is a considerable number, particularly when many of these groups are also accompanied by large groups of pack animals which require grazing, and impact track and overnight camping areas with trampling.

The arrival of trekking created many more jobs for the residents of Khumbu than mountaineering ever had. In addition the work was safer, much more sociable and economically very attractive. Work opportunities as sirdars, guides, camp crews, cooks and porters were easy to obtain and by 1984 trekking employment opportunities had outstripped expedition work as a source of income. Consequently few families now earn cash solely from climbing expeditions. The job of a high altitude porter and guide is however still seen as a lucrative, but somewhat risky occupation. This is balanced by the fact that fame, on the summit of one of the highest peaks in the world, is one of the best established ways to securing a high paid position with a trekking agency as a sirdar or group leader.

The fact remains that the trekking now offers less dangerous employment opportunities for more months each year, at nearly an equivalent wage level of expedition work. And once an individual has attained the position of sirdar even more money can be made as these individuals are in charge of hiring porters, arranging pack animals, selecting camp sites, purchasing kerosene and resupplying food stocks. All of these activities can be quickly turned into lucrative profit-making transactions as it is normal for a sirdar to require a commission for almost any service that he sub-contracts during a trekking trip.

The trekking season lasts generally from October through to May. This provides almost eight months of income, although most sherpas count on four or six months of trekking work per year i.e. October - December (post monsoon) and March - May (pre-monsoon season).

#### 1.4.2 ASSOCIATED BUSINESS ENTERPRISES

The development of trekking has also created many new opportunities for peripheral business ventures. Mountaineering provided jobs, but apart from selling firewood (now banned under the Himalayan Mountain Park Regulations, and second-hand expedition clothing, very few opportunities for entrepreneurial activity were available. Generally, expedition supplies were pre-packed and transported directly from Kathmandu. Much of the food, as well as equipment, was normally imported directly from overseas and little was purchased within the Khumbu region itself.

In terms of environmental impacts the one commercial commodity of any real significance both economically and ecologically was firewood for expedition base camps. This was preferred so that the expensive, imported kerosene and gas could be used in the high camps on the mountain. It was normal for campfires to be burning almost continually at base camp for 12-16 weeks, consuming enormous amounts of firewood.

Commencing with the Swiss in 1952 and carrying on for more than two decades, crews of Sherpas were contracted exclusively to keep the base camp area supplied with firewood. The 1960's brought changes in the system and expedition woodcutters were replaced by the 'piece meal' purchase system. At first individual loads were bought but later payment per kilogram became the accepted practice. This system continued well into the late 1970s and in 1979 it was estimated that the village of Pangboche, (alt. 3985 m., population 297), generated more than twelve lakh rupees, (US \$ 18 000), in cash each year from the sale of firewood to expeditions and trekkers in the upper Khumbu valley. All this wood was cut from park forests with little regard for species or site. The implementation of the Himalayan National Park Regulations in early 1981 has certainly eased the pressure of expedition and organised trekking group consumption of firewood and it is now a mandatory requirement that they be self-sufficient in fuel for themselves and their porters. The individual trekker who utilises local hotels and indirectly consumes the park's valuable natural resources is a problem that still needs to be addressed.

#### 1.4.3 SHERPA HOTELS AND LODGES

The first Sherpa inns (or hotels) were established in Namche Bazar in the early 1970's with the first shop in the same village as early as 1967. These facilities have increased tremendously in number and standard, reflecting not only a growing willingness on the part of the Sherpas to invest in tourism ventures but also a shift in the style of trekking tourism. A high percentage of visitors now rely on Sherpa hotels rather than the relatively expensive but possibly environmentally sounder activities operated by commercial trekking companies.

The Sherpas of Khumbu, unlike other ethnic groups of Nepal such as the Thakalis, did not have a tradition of operating lodges, tea shops or hotels. As noted in the previous section the first lodges appeared in the early 1970s and were extremely primitive. These lodges were invariably operated by families who recognised the opportunity for earning relatively easy cash from the increasing numbers of trekkers who had started to arrive in Khumbu. The family would erect a sign outside their house, advertising that lodging was available. In these houses trekkers were offered an extremely limited choice of food, a place to sleep (usually on the floor), and perhaps most importantly for the visitor, a chance to observe and interact with Sherpa family life. Only a few of these families spoke any English as the head male would normally be away on a mountaineering or trekking expedition at this time of the year.

This situation began to change relatively quickly and by 1975 several small hotels had been built specifically for trekkers and had introduced beds and in some cases partitions within the traditional large, single, open room.

In some cases complete houses have been remodelled and developed to create a dormitory for visitors. In 1977 the first shower for visitors was installed in a Namche Bazar hotel, but basically during this period Sherpa hotels were little more than remodelled traditional style houses.

In the upper settlements of the park at villages such as Pheriche and Lobuche, "Sherpa Hotels" were little more than unmodified yak herding huts. Establishment of lodges focused on the usual trekking circuit through the park, with the first major concentration of development being in Namche Bazar (which has retained its place as the hotel capital of Nepal), Tengboche Monastery, Pheriche and Lobuche. All of these places are conveniently located in respect to natural and cultural attractions and also fit very neatly into the normal acclimatisation pattern, as recommended by the Himalayan Rescue Association. This pattern recommends that visitors spend

two nights at Namche Bazar 3,440 m., one night at Tengboche Monastery 3,867 m., two nights at Pheriche, (or one night each at Pheriche and Dingboche 4252 and 4343m. respectively,) and two nights at Lobuche 4930 m. From a Sherpa hotel or camping base at Lobuche trekkers can reach the Sagarmatha Base Camp or climb the small rocky peak of Kalapatar for arguably one of the most impressive views of Sagarmatha, Nuptse, Pumori and Lhotse. An alternative exploited by some groups and individuals is to establish a camp at Gorak Shep, 5184 m. beside the Khumbu glacier which is a convenient starting place for a one day visit to the Sagarmatha Base Camp and a one day climb of Kalapatar. This sequence is for those who are not experiencing any effects from the altitude and wish to stay for a longer period in the higher regions of the park.

Since the late 1970s the increase in accommodation facilities from the airstrip at Lukla through to Lobuche and Gorak Shep, and also into the remote valleys of the Dudh Koshi towards the Gokyo lakes and the Imja Khola has been staggering.

The most recent figures indicate that by 1986 the total number of Sherpa hotels in the Khumbu region had reached 58. A significant part of this increase was an expansion of existing facilities and the opening of more hotels at traditional and well established sites. Namche Bazar for example, is still a relatively small village in terms of total population but currently has a total of 14 hotels, with three more in the nearby area of Chorkem, approximately 15 minutes walk above the village and adjacent to the Sagarmatha National Park Visitor Centre.

Change in other directions can also be observed with accommodation now being developed at some 'non-traditional', intermediate sites along the trail towards Sagarmatha. Areas such as Tuglha, Phunkitenga and Lhabarma, which were not traditional overnight stopping areas, have now developed facilities for trekkers and are spreading the impacts of waste disposal, firewood collection etc. Accommodation has also opened in some of the side valleys, allowing access to some of the less frequented but extremely spectacular country of the upper Imja Khola Valley and the Dudh Koshi area under Mt. Cho Oyo, near the Gokyo lakes. The villages of Thami in the Bhote Koshi Valley were also notably late starters, in terms of establishing lodges, and the first hotel was not built until 1985, in Thami Og. This now allows trekkers not associated with organised trekking groups to do a leisurely two day trip to this magnificent area. In the past a trip to Thami entailed a rather rushed visit from Namche Bazar, returning in the same day.

The Sherpa response to changes in the types of trekkers visiting Khumbu i.e. less organised trekking groups and an increase in small "hotel hopping" groups has resulted in a

significant increase in hotel development. Since the mid 1970's tourists are no longer offered Sherpa food and a place to sleep on the floor, which was part of the pattern for the early development of Sherpa hotels. Even in the most remote parts of the park it is difficult to order Sherpa food and the more easily prepared dishes such as pancakes, omelettes, fried rice, noodles and curry are the basic food items found on most Sherpa hotel menus today. This is supplemented by more expensive dishes such as 'Yak steak' (normally buffalo carried from the lower valley areas) and in some lodges, particularly in Namche Bazar, tourists complete their day's trekking by sipping hot, sweet coffee and devouring large slabs of chocolate cake or cinnamon rolls.

Sophistication of accommodation in Khumbu has continued to a point where some hotels now provide private rooms. Hotel keepers have realised that there is money to be made by providing services to a class of independent trekkers who willingly spend considerable amounts of money per day on food, and accommodation with more comfort and privacy. Showers are now almost common, not only in lodges in Namche but even in places such as Tengboche and Pheriche which are either on the treeline or in the case of Pheriche, well above.

The scale of buildings is also increasing. In 1983 a four storey hotel was built in Namche Bazar and a second four storey building was added almost next door in 1985. A trend for higher standards continued and the first 'upper storey' restaurant was constructed in 1982, which besides its wood panelling decorations was glazed on three sides to take advantage of the sun and spectacular views of the village and surrounding mountains. Since then six other hotels in Namche Bazar have remodelled or constructed similar restaurants and in 1986 this trend was transferred to Tengboche, with construction there of the first multi-storey lodge and upper storey restaurant.

The history, development and evolution of Sherpa hotels in Khumbu is exceptional in that apart from one all have been developed without Government assistance. Almost all are operated by Khumbu or Solu Sherpas with close family ties in the region. The evolution of visitor accommodation in Khumbu over the last fifteen to twenty years has been nothing short of spectacular and is another conclusive example of the outstanding adaptability and enterprising nature of the Sherpa people.

Almost no other group in Nepal can match this inherent adaptability of the Sherpas. In the last hundred years they have transformed from agropastoralists and traders to high altitude porters and guides for expeditions, then to commercial trekking organisers and now to relatively sophisticated hotel operators. And this is in an area which is difficult in terms of food supplies, building materials, climate etc.

#### 1.4.4 MODERN TRADE

The hotels provided opportunities for upgrading businesses but trading patterns within the Khumbu have also changed dramatically. The establishment of the weekly 'hat bazaar' as well as being the major trading activity is without doubt an event of significant social impact. There are now about 22 shops within the Khumbu region and only two of these are not located in the village of Namche Bazar. (Many of the hotels scattered through the park area also provide basic shopping facilities.) In terms of a specific enterprise the range and variety of materials and goods to be found in Namche Bazar is staggering. Stocks generally consist of a variety of Nepali or Indian canned goods, sweets, chewing gum, alcohol and biscuits etc. Most of the goods are flown to Lukla and portered to Namche Bazar although some are trucked to Jiri, about eight days walk to the south, and carried from there.

These supplies are augmented by surplus expedition foodstuffs and equipment. At any time of the year it is possible to locate in the shops in Namche Bazar anything from French pate to Italian cheeses, or American high altitude rations plus locally made clothing, either from Namche Bazar or Kathmandu. Trekking and mountaineering equipment and religious ornaments are also offered for sale, normally for tourist consumption. Locally manufactured woollen goods, especially hats and mittens, are finding increasingly receptive tourist markets and a result of this is a sharp increase in the price and availability of wool for the production of other more traditional items.

An interesting fact in relation to the shops in Namche Bazar is that more than half of them are operated by families which came to Khumbu after 1959 as refugees from Tibet. The operation and continued resupply of shops is another example of the expansion of traditional trading opportunities that have long been a part of the Sherpa economic system.

#### 1.4.5 ANIMALS FOR TRANSPORTATION

A further dramatic illustration of the economic benefit and expansion of the Khumbu region during the "Tourism Era" has been the substantial increase in the number of livestock kept exclusively for transporting tourist supplies and equipment. Up until the late 1960s and early 1970s yaks were without doubt the most popular pack animals as these have been used traditionally to carry goods from Khumbu over the Nangpa La pass into Tibet. Progressive cross breeding to produce the zopkio (male) and zhum (female) by breeding nak (female yaks) with bulls from the low and middle hills has produced a very valuable and versatile animal. Zopkio were not usually kept to full maturity, and were traded ultimately to Tibet by Namche



traders who had initially bought them from Solu stock raisers. This animal has since been developed as the principle means of carrying expedition and trekking loads from Lukla towards the Sagarmatha base camp area. In terms of the Khumbu economy it remains a valuable and extremely profitable trade commodity.

In the past the hiring of Sherpas as porters to transport luggage from Lukla into the heads of Khumbu valleys was a relatively easy task. Khumbu Sherpas will now negotiate with tourists to carry loads, not as porters but as drivers of 3 to 7 Zopkios, each carrying the equivalent of two porter loads. Increases in tourism and the subsequent greater volume of equipment have created yet another lucrative economic opportunity for Khumbu Sherpas who own pack animals suitable for hiring out.

Zopkio are preferred over the traditional yak for this purpose. They are more suitable for the two day portering between Lukla and Namche, are less temperamental, and they are also less susceptible to disease at lower altitudes. Yaks are not taken below 3,000 metres because of their susceptibility to lung disease at low altitudes. The profits from tourism have been diverted by many Sherpas to the purchase of livestock, and it has become one of the most popular investments. In some villages, especially Namche Bazar, families having members working as sirdars or having good connections with sirdars are especially attracted to investment in livestock. They are guaranteed considerable work because it is the sirdar who makes all the arrangements and completes the negotiations for pack animals and porters.

It is interesting to note that 70% of the sirdar families in Namche Bazar now own zopkios but that in 1963 there were only four adult zopkios in the entire village. This shift in animal populations is a particularly significant factor for park management since it comes from a village which was the last major settlement to be established and is the one with the smallest area available for pasture or grazing. Increases in animal numbers are a direct repercussion of the economic benefits of tourism coinciding with the abandonment of the traditional 'naua' system for managing grazing lands. This has led to severe overgrazing in the Namche Bazar area. Another problem caused by increased herds of pack animals are the conflicts with neighbouring Sherpa villages which have become resentful and hostile to the trespass of Namche Bazar animals on their traditional grazing areas. The problem of increased animal numbers in the form of zopkio, as well as the complex question of sustainable levels of grazing in the park area as a whole, are key issues which are increasingly significant and demand attention from park management.

## 1.5. ENVIRONMENTAL IMPACTS

### 1.5.1 OVERVIEW

It can be readily seen from the previous section that it has not only been the increasing number of visitors to the Khumbu region that have contributed to and aggravated environmental degradation in Sagarmatha National Park, but also the pronounced changes in the character of tourism. Both these factors have placed direct pressure on the natural resources of the park. Increased consumption of fuel wood and construction timber, more animals and grazing pressures are some of the more obvious factors but the more subtle and influential impact, however, has been the changing resource use patterns which are a direct result of growing Sherpa economic affluence.

### 1.5.2 RUBBISH AND SANITATION

For a long time environmental commentators have coined the phrase 'the Mt. Everest garbage trail'. and this was certainly much more the case in the mid 1960's through to the mid 1970's. Indiscriminate rubbish disposal is currently not the major problem or impact that it was at that time, although the situation is far from perfect. Impressions in 1987 are that there is a much more conscious approach to the problem by sirdars, some hotel owners and certainly visitors. The most serious concentrations of litter are still the expedition dumps, particularly those on the Khumbu glacier at the sites of past base camps, and areas adjacent to villages and hotels i.e. Loboche, Pheriche, Namche Bazar and Gorak Shep.

In spite of the implementation of various codes and regulations such as the National Parks Act and the Himalayan National Park Regulations, few expeditions bother to clean up their garbage after the base camp has been evacuated and very little or no garbage is packed out when an expedition leaves the area. Dumps of cans, plastics and excess food supplies etc. are all left behind and one observer in 1984 noted "When I had an opportunity to tour the base camp area it was possible to review the history of recent mountaineering on Sagarmatha by inspecting the dumps which each expedition had left behind."

Other areas in urgent need for clean up operations and garbage management are the regularly used overnight camping and village sites such as Namche Bazar, ("the area below the spring at Namche Bazar can only be described as an ecological disaster"), Tengboche monastery, the spring around Lobuche and the lake edge at Gokyo. In the winter of 1984 the Nepal Police Association organised a clean up expedition to the Everest Base Camp region and recorded that in excess of 16 tons of garbage from the Everest camp alone was removed. This was consolidated

in an open dump at Gorak Shep the small lake at at the side of the Khumbu glacier about three hours walk below the normal base camp site. The efforts of this expedition to clean up an important tourist area and to make visitors aware of the litter problem created in many ways a more significant aesthetic problem than the garbage itself. By painting red signs, advertising the 'Clean-up expedition', on granite boulders from Jorsalle to Mt. Everest they generated more complaints from tourists than there had ever been about the garbage itself.

The garbage generated over the almost 40 years of tourism in the park, starting with the early Everest expeditions, is certainly an aesthetic affront to both tourists and the National Park image. It does not however, have the same ecological impact or present the same hazard that the lack of sanitary and in particular toilet facilities does. Large numbers of tourists traditionally congregating in the same areas such as Tengboche, Pheriche, Lobuche, Gokyo and Gorak Shep are all without doubt adversely affecting the quality of water supplies and creating a hazardous situation in terms of the spread of disease. Tests conducted in March 1978 (even from springs at 5,200 m. indicated concentrations of more than 3 organisms per 100 ml. (114 organisms per gallon,) which is three times the level recommended by the U.S. Public Health Service for drinking water. Coliform concentration in the Dudh Koshi at altitude 2860 m. was as high as 1100 organisms per 100 ml. (42,000 organisms per gallon)

### 1.5.3 THE FORESTS

The indisputable influence that tourism has had in aggravating the deforestation in Sagarmatha National Park was probably the greatest single symptom in the overall rationale for establishing the park. There has however been some exaggeration in relation to the role of tourism as well as the pace of deforestation. It appears likely that a net deficit in terms of growth capacity (biomass), by sustained demands for purely local needs, has been a fact in this region for more than 150 years.

A major problem in terms of firewood consumption is that the tourist demand for wood is not spread evenly through the park but is almost exclusively confined to the narrow corridor of the tourist route from Lukla to the Everest Base Camp. As facilities and hotels develop in the side valleys of the park and to areas in the upper Dudh Kosi Valley as far as Gokyo Lake, and also towards the head of the Imja Khola, demands for fuelwood will increase here also.

Controls on organised trekking groups have been implemented since 1980, but as pointed out previously the increase in visitors is not coming from organised trekking groups but is directed almost exclusively to growth in the "Sherpa hotel

trekkers" . This accentuates the problem as it means that fuel wood for tourist demands is concentrated around the forests which provide wood for Namche Bazar, Tengboche, Pheriche, Khunde, Khumbjung, Lobuche and Gokyo. In this latter location the high altitude scrub juniper is being heavily exploited. This is a species where the recovery rate is poor and the annual growth rate almost imperceptible. As pointed out the initial measures which completely banned the use of firewood by mountaineering expeditions and trekking groups was an effective first step. This step has however been largely compromised by the shift in trekker use patterns and it is now necessary to look at ways to control firewood use by hotels, as this is the impact of most concern.

It is interesting to note that although far more trekkers come to Sagarmatha now than they did in 1975, very few actually sleep in tents. Another interesting development has been the use of Sherpa hotels by organised trekking groups. The comparatively inhospitable conditions found in a mess tent, which was once regarded as the height of luxury when compared with the smokey, poorly lit and ventilated Sherpa house, are now being discarded for the comparative comfort and warmth of restaurants, particularly in places such as Namche Bazar. Firewood use by a hotel is often four to six times more than that required by a family living in a similar house, and the expanding practice of offering tourists hot showers (at approx. 10 rupees [N.Z.\$1.00] for three minutes of hot water) is increasing the demand for firewood still further, adding to the potential and the reality of further depletion of forest resources.

#### 1.5.4 GRAZING LANDS

Large areas of the park are used for grazing and winter fodder collection. Grazing lands are generally confined to open areas in the high valleys up to 4,900 m. depending on aspect and vegetation condition. Grazing is still based on the traditional principle of transhumanance, which is basically the use of winter and summer grazing ranges. Herds of yak, nak, and crossbreeds of zopkio and zhum are moved to high altitude pastures for the spring and monsoon months and return to lower altitude settlements for the autumn and winter. Grass from adjacent hillsides is supplemented by feeding out fodder collected during the growth seasons. This practice of grazing has led to the development of summer and winter settlements. Major winter settlements in the park include Namche Bazar, Thami, Khunde, Khumbjung, Phortse and Tengboche while the summer settlements are spread out over the main valleys. It is the summer settlements that are now important links in the pattern of tourist use.

Products from the Sherpa cattle herds in the form of dried cheese, curd and cottage cheese are important supplements to

the normal diet of potatoes, buckwheat etc. Once again as tourist and mountaineering demands increase, animals that were not traditionally kept for meat are now being slaughtered, by non-buddhists, and supplied to expeditions and a considerable number of hotels. Restaurants now offer a range of meat dishes including 'Yak Steak'.

The availability of winter fodder is one of the factors limiting the number of animals that can be supported within the region. Grass is grown on private fields, or collected off the common grazing land and stored in summer houses (yersa) until carried back to the permanent villages for winter feeding out. A significant positive step in the management of the park was the move initiated and financed by the Hillary Foundation, a Canadian non-profit organisation formed to support the work of the Himalayan Trust and Sir Edmund Hillary in the Khumbu region. Sheep and goats, which were having an extremely negative impact on the already fragile and overgrazed areas adjacent to major villages, were purchased from local people and removed from the park.

It is interesting to note that since the census in 1957 the total number of large animals has remained nearly the same (2894 in 1957 and 2889 in 1979). The switch in animal types is the most significant factor to emerge when comparing these two surveys, which noted a decline of 410 yaks and naks being almost completely compensated by an increase in female cross breeds. This repercussion can be directly cross referenced to the impact of tourism as noted in section 1.4.5. The changes in animal types now preferred by Sherpas is a direct result of increased income from tourism.

These changing trends of animal type are particularly significant for park management. The trend towards cross breeds leads to substantially increased grazing impact on lower altitude pastures. This has the potential for correspondingly less grazing on high altitude pastures, which experience much more severe climatic conditions and consequently slower growth rates of indigenous grasses and fodder species. In addition cross breed owners tend to occupy the summer settlements for shorter periods than yak and nak owners.

The impact of HMG Yak farm at Shyangboche, which in 1970 had approx 72 animals, (predominantly yak and nak), and accounted for 2.5 % of the large animals grazing in the park is unknown. As part of the FAO National Parks and Protected Areas Project a reasonably intensive study of the impact of the Yak farm is being undertaken. The study will provide valuable data on the overall effects of grazing which must be recognised as one of the significant adverse environmental impacts on the park resource.

Another factor which is emerging as a potentially serious resource conflict is the competition between domestic cattle

and other indigenous ungulates such as tahr etc. for limited grazing areas. Information gathered as part of the Grasslands Survey (F.A.O project activity) will be an essential part of the evaluation required to develop management policy and effective guidelines for implementation.

The impacts of grazing and increases in domestic cattle are in many instances directly linked to tourism and in the writer's view are a far more serious park management problem than the heavily focused and researched forest degradation problem of the Khumbu region.

## 1.6. SOCIO-ECONOMIC AND CULTURAL DIMENSIONS

### 1.6.1 PRESENT STATUS

The ability of many researchers to develop definitive boundaries between cause and effect has in many ways confused the whole issue of evaluating tourism impact within Khumbu. Many other significant interior and exterior factors have contributed to the phenomenon known as 'cultural change'. These include the introduction of a national political system, establishment of a resource management agency in terms of the DNPWC in Sagarmatha National Park, continued development of the Nepalese education system, increasingly better communication ability and popularity of radios, and enhanced opportunities for entire families to visit Kathmandu.

There is no question that Sherpas could have been heavily influenced by tourists visiting their homeland. Stereos, cameras and other gifts in the form of cash or goods from tourists are now almost a normal part of Khumbu life. However, current trends among young Sherpas for disco music, modern polyester clothes and in some cases exposure to drugs and other aspects of western culture can be directly traced to the impact of visits to the capital city much more than an adoption of activities observed from tourists within Khumbu. Complex questions such as the effects of tourism and local inflation, social implications of the majority of village men being away for several months of the year, commercialism of art, radical changes in agropastoral practices, and shifts in the traditional quality of life are without doubt direct influences of sustained exposure to tourists.

As noted the major indication of socio economic change is the increasing degree of wealth dispersed amongst various groups in the Khumbu region. Khumbu is arguably one of the most affluent regions along the total Himalayan Chain. There is absolutely no question that the source of much of this affluence is directly or indirectly linked to the popularity of the Sagarmatha National Park area as a tourist destination and the result is an almost circular spiral. More money generates an ability to

buy more rice, construct more and bigger houses and in some cases to provide more support for religious activities. It also provides the means to purchase more livestock with which to carry more loads from the tourists, or ability to construct a new hotel to attract more tourists.

It must be stressed that the impacts have not, as some researchers would like to project, been all negative. Increased wealth makes it possible for many families to continue living in Khumbu when they may have been forced to immigrate into lower areas of the country in an effort to find enough land to support themselves and their family.

Trading opportunities, once the most important source of Sherpa income consisted of salt and wool which were transported from Tibet by yak over the Nangpa-la in exchange for products such as rice, sugar, cattle and yak butter from Nepal. The border was closed in 1959, severely affecting this trading pattern, and there is no question that without the gradual development of a viable tourist trade residents of the Khumbu region would be faced with some very difficult choices in terms of their long term survival.

Amongst the brightest and more ambitious young Sherpas, who in response to economic decline would have been the first to leave the area, many have been able to earn enough money from tourism to maintain at least a family base in Khumbu. There are of course many other instances where ambitious and intelligent young Sherpas have almost completely left the ties in Khumbu and live full time in Kathmandu, running successful trekking agencies as well as other forms of business associated with tourism. For instance, several Khumbu Sherpas are employed by the DNPWC and at least one occupies the position as an aircraft captain with Royal Nepal Airlines Corporation.

An interesting trend which is perhaps more significant than any other single factor is that important village festivals still attract Sherpas of all age groups back to their traditional family villages. It is fortunate that the trekking seasons during the year do not coincide with these important village festivals. The Dumji and Losar festivals are still regarded as particularly significant events which draw families together for up to ten days each year.

Another example of the effect of Khumbu's affluence, compared to adjacent regions in Nepal, is the influence it has on regional labour and trading patterns. It is the Sherpas' ready access to cash and the ability of Khumbu to support high market prices which keeps a long distance trading network operating. Rice transported from the Arun Valley, more than one weeks walk to the south and east, is an excellent example. The writer has observed groups of porters carrying rice over difficult terrain to the weekly market in Namche Bazar, by-passing relatively large villages on the way simply



The transition from trading and agropastoralism to world renowned climbers and guides, as well as entrepreneur's in many associated tourism activities, has left some scars on Sherpa communities.

Constrasting this is the fact that important village festivals draw widely seperated families together for several weeks each year

This group celebrating 'Domji' which commemorates the death of the patron saint of Khumbu Lama Sangwa Dorje, consists of several well known sirdars. Many Sherpas now live almost permanently in Kathmandu running large trekking and tourist operations.



because they could sell their products for cash, rather than exchanging them for other goods.

The number of other ethnic groups that can be found in most major Khumbu villages is another example of the effects of this affluence achieved through direct contact with tourism. In the late 1960's and early '70's it was almost unheard of for a Sherpa family to have a Tamang, Rai or Solu Sherpa as a servant. Namche Bazar is now liberally sprinkled with such workers, and there are increasing numbers of servants from outside the Khumbu region working in the villages of Khumbjung and Khunde. As noted previously Namche Bazar is regarded as the "Sherpa Hotel Capital" of Nepal and it was estimated that in 1984 more than 77 non-Sherpas were being employed by Sherpa hotel proprietors, with as many as four servants working for families which ran large hotel operations. In return for their services, which are usually directed to the carrying of water and wood, helping with cooking and preparing agricultural land, they get a place to sleep, regular food and a small monthly salary as well. The daily pay for such workers is well under the fifteen to twenty rupees per day that a Sherpa would expect to make for working in the fields or forests but for young Solu or Tamang workers the working conditions in Khumbu provide them with an opportunity to earn cash, something which is virtually impossible in many other areas of Nepal. In other areas wages are low, tourism almost non-existent and land fragmentation and tenant farming common.

There is possibly a misconception that all people share equally in the relative affluence of Khumbu but this is very far from the truth. There is considerable difference in tourism benefits and while in some villages a proportion of the residents become richer, all others share much more modestly in this new wealth. In the three major villages of Namche Bazar, Khunde and Khumbjung one can find higher standards of living than in any of the other villages in the region. Table I illustrates the contrast between villages in terms of the percentage of families which have an income directly from or associated with tourism.

TABLE I

INCOME FROM TOURISM  
(SHERPA HOUSEHOLD)

Village	Village Households with Tourism Income	Village Households with Trekking Income	Village Households with other Tourism Income
Namche Bazar	86%	66%	20%
Khumjung	85%	68%	17%
Kunde	96%	84%	12%
Thamichowk Villages	81%	74%	7%
Pangboche	66%	48%	18%
Phortse	49%	47%	2%
All Khumbu	77%	65%	12%

The difference between the three villages mentioned above and other villages within the park is striking, particularly when Table II is considered. This table clearly indicates that there are many differences in the ways in which households from different villages are involved in tourism activities. Namche Bazar, Khunde and Khumbjung have a high percentage of families which through trekking work are occupying the highest paying jobs available. It is particularly important to note the number of families which have at least one member working as a sirdar. A dramatic contrast to this example can be found in the villages of Phortse, Tengboche and the settlements of Thami Chowk in the upper Bhote Koshi Valley. In these locations only a few families have a sirdar and consequently the most ready access they have to cash is made by the hiring out of their livestock for a few weeks per year as pack animals.

TABLE II  
TREKKING INCOME  
(SHERPA HOUSEHOLDS)

Village	Sirdar	"Sherpa"	Cook	Proter	Pack Animals	Pack Animals Only
Namche Bazar	46%	9%	9%	1%	61%	11%
Khumjung	34%	22%	11%	5%	48%	11%
Kunde	28%	15%	17%	13%	70%	15%
Thamichowk Villages	10%	36%	0%	13%	72%	33%
Pangboche	15%	37%	10%	0%	66%	12%
Phortse	18%	57%	0%	0%	32%	21%
All Khumbu	25%	27%	8%	6%	60%	18%

Similar contrasts are apparent in other entrepreneurial activities. Table III is a graphic illustration of the extent to which the three most wealthy villages control the hotel businesses. Namche Bazar families, who have traditionally occupied the main link in the trading routes between the lower and middle hills of Nepal through to Tibet, now take positive advantage of that fact as the village occupies a key location on the main trekking route to the Sagarmatha Base Camp. Financial opportunities developed in Namche Bazar have enabled some of these families to open further hotels along the route to the base camp in places such as Lobuche and Tengboche.

TABLE III

KHUMBU HOTEL MANAGEMENT

Namche Bazar	35%
Khumjung	23%
Khunde	17%
Pangboche	12%
Thamichowk	5%
Phortse	0%
Other	7%

In complete contrast, the villages of Khunde and Khumbjung can boast only a single Sherpa hotel. The families from these villages however have been most active in converting many of their traditional herding huts on the high routes to the Gokyo Lakes and Sagarmatha Base Camp into simple lodges. Again these are located at key locations for trekkers, and also provide their owners with ready access to the sirdars and expedition leaders who are very willing to negotiate the sale of excess food and equipment at the completion of a successful climb. Air-freighting food and equipment out of the country is both time consuming and expensive and although the prices normally paid for excess expedition supplies appear ludicrously low, sale of these commodities is an expedient way for expedition leaders to dispose of unwanted supplies.

Other villages such as Thami Chowk and Phortse have distinctly fewer opportunities because of their unadvantageous physical location in relation to the main tourist routes. Villages such as Pangboche, located almost half way between Tengboche monastery and Pheriche, only recently realised the potential of their village location and now three hotels have been built in this relatively attractive area.

It appears inevitable that the regional differentiation of economic wealth is likely to deepen and has already reached a level of inequality which definitely surpasses the differences between villages established during the early trading era. Prior to 1960 Namche was noted as one of the wealthiest villages in the area and this is where most of the big traders resided. There were many poor families in Namche as well but the overall contrasts between that village and the others within the area were definitely not as pronounced as they are now. The repercussions of this economic differentiation within the fabric of Sherpa society remain to be seen, but it is conceivable that economic power and influence will affect political directions and also influence the future focus for the expenditure of development money.

## SECTION 2

### 2.1 TOURISM IMPACTS / IMPLICATIONS FOR PARK MANAGEMENT

#### 2.1.1 Introduction.

Section 1 has endeavoured to provide a framework and overview of the major natural and cultural elements of S.N.P. as well as an objective assessment of tourism related impacts on Park resources.

This section expands on the framework and overview and provides an evaluation of park management's performance measured against the Sagarmatha National Park Management Plan (S.N.P.M.P.). Through necessity this section takes a much broader perspective than strictly tourism related impacts. The writer contends that almost all implications of adverse tourism impacts and most other key park management issues in S.N.P. are inextricably linked. In this context it is appropriate to review management's performance in terms of the S.N.P.M.P. generally as aspects that require review or improvement will inevitably contribute to the better management of tourism development and impact.

In simple terms it is contended that the following will contribute more directly and positively to the protection of natural and cultural resources than most research:

- (a) well developed and clearly understood national policies, supported by;
- (b) realistic and practical management plans;
- (c) implemented by a motivated, sensitive management team;
- (d) provided with backup and support from the central office.

In too many instances research concentrates only on the identification of problems - not active steps to implement meaningful change at the resource management and operational level. The primary role of natural resource management is to blend research data and conclusions with result-orientated management action.

### 2.2 SAGARMATHA NATIONAL PARK MANAGEMENT PLAN. (S.N.P.M.P.)

#### 2.2.1 BACKGROUND.

The S.N.P.M.P. was produced during the period 1977-79 as part of the New Zealand Government's Bi-lateral Assistance Programme clear and concise objectives and policy statements. Provision was made in the document for regular reviews and the updating of policies. This was identified during the formative stages

of the plan, as a necessary part of the ongoing planning process.

Considerable problem orientated research, particularly on tourism use, land-use and grazing patterns and vegetation surveys were carried out as part of the plan's formulation. Although considered by the planning team, no zoning of the total park area was attempted. However, provision was made to establish strict nature reserves (refer S.N.P.M.P. Policy 6.1 ) but to date no implementation of this policy has been instigated.

A review of the S.N.P.M.P. has been identified as a priority task. This review will be carried out by the F.A.O./U.N.D.P. project during 1988-89.

#### 2.3.1 EVALUATION OF MANAGEMENT PLAN POLICIES AGAINST MANAGEMENT IMPLEMENTATION

The S.N.P.M.P. contains 65 specific policy statements. These were developed to provide positive direction and guidelines for the effective management of the park. Table IV is an assessment of management's effectiveness measured against individual policy statements.

MANAGEMENT EFFECTIVENESS AUDIT

A Measurement of Management Effectiveness in Relation to the  
Sagarmatha National Park Management Plan

Management Policies	Policy No.	Management Effectiveness			Comments
		1	2	3	
1. Consultation	1.1		X		Some positive success but generally the relationship between park administration, local people and other organisations using the park is distant and in some cases strained.
	1.2			X	
2. Energy	2.1		X		Energy policies have had some success i.e. Namche Bazar Mini Hydro Project. Little attention has been given to houses etc. 4 Proposals for the Namche/Kunde/Khumjung Mini Hydro Scheme are still under consideration.
	2.2			X	
	2.3			X	
	2.4		X		
3. Vegetation	3.1			X	Little action has been taken to identify the species that require special protection. Excellent research was carried out in terms of policy but little implementation has resulted. Problems of Firewood consumption by expeditions and trekking group occur from time to time. Generally dealt with by park staff.
	3.2	X			
	3.3		X		
	3.4		X		
	3.5			X	
	3.6			X	
	3.7		X		
4. Reforestation	4.1	X			Excellent work done to establish seedlings and nursery stock. Generally poor follow up and management of reforested areas. Policy need reviewing and is possibly inappropriate.
	4.2			X	
5. Grazing	5.1			X	The most serious problem the park faces with little positive progress is evident. This aspect of management is possibly the most important task to address.
	5.2		X		
	5.3			X	
6. Strict Nature Protection	6.1			X	No management action initiated. FAO Project will carry out work as part of Data Base establishment.
7. Indigenous Fauna	7.1		X		Apart from law enforcement little positive progress. Research on musk deer ecology commenced. Some surveys of the Thar and other ungulates.
8. Research	8.1	X			The research/monitoring capability of the DNPWC is limited and requires strengthening. The establishment of a research unit in HQ to provide co-ordination will assist unit
	8.2			X	
	8.3			X	
	8.4		X		

managers. Local initiatives are necessary and need to be taken inspite of problems. Scope for positive action.

Specimen Collection	9.1	X		Generally MP Provision and Legislative provisions are not implemented.
	9.2	X		
1. Data Collection and Retrieval	10.1		X	Little active interest or involvement by Park Management.
1. Approach Route	11.1		X	Limited improvement, potential for continued activity under active consideration.
2. Park Boundaries	12.1		X	These statements generally require revision in light of the current investigations for a major eastern extension to the park.
3. Villages	13.1		X	Little active influence obvious.
4. Trekking Routes	14.1		X	Limited management action to implement policy.
5. Visitor Health	15.1	X		Good co-operation with Himalayan Rescue Association Radio link continues to provide necessary support. Little other action obvious.
6. Interpretation and Information	16.1		X	Currently little management interest. Past activity has been excellent with the production of good material for visitors. Park Handbook is proving to be useful. More activity to implement these policies is necessary.
	16.2		X	
	16.3		X	
	16.4		X	
7. Entry Fee	17.1	X		Effective system established. P/Relations opportunities should be used to explain fees etc.
8. Visitor Accomodation	18.1		X	Facilities provided by donors are still serving needs. Management responsibilities for maintenance and services are poor.
19. Camping	19.1		X	Little effort has been made to implement M P Policies. Draft report under review.
	19.2		X	
20. Refuse Disposal	20.1		X	Only limited efforts have been made to implement MP Policies.
	20.2		X	
	20.3		X	
	20.4		X	
21. Toilet Facilities	21.1		X	Comment as in 20 above.
22. Tracks and Bridges	22.1		X	A more positive and active support role in these aspects would enhance the parks credibility.
	22.2		X	



3. Signs	23.1	X			Scope for considerable improvement in the implementation of these policies. Damage from vandalism is a potential problem.
	23.2			X	
	23.3			X	
4. Air Transport	24.1	X			No management action necessary since policy formulated.
	24.2	X			
5. Mechanised Ground Transport	25.1	X			As 24 above.
6. Water Supplies	26.1			X	Policy implementation would enhance the credibility of park management. Little active action obvious.
	26.2			X	
	26.3			X	
7. Park Headquarters	27.1		X		Possibly the most used and visible park asset. Management responsibility, to maintain and improve needs attention.
8. Staff Accommodation	28.1		X		Accommodation for staff in remote areas not provided.
	28.2				Reasonable standards around HQ.
9. Radio Communications	29.1	X			Reasonably well managed service.
	29.2		X		
10. Religious Structures and Buildings	30.1		X		Some participation. An active involvement in policies implementation is an important P/R role for management
	30.2		X		
11. Tangboche	31.1		X		Good ideas and almost unlimited resources at Tengboche to construct a cultural centre. Stronger profile and management involvement needed.

Management Effectiveness Scale	Total number of Policies
--------------------------------	--------------------------

1. Good: Well implemented Policy with positive management results.	Totals	9	24	32	= 65
	Percentage	14%	34%	49%	= 100%

2. Average:  
Policy implementation  
limited. Management  
results average.  
In some cases Policy requires  
reviewing.

3. Poor: Policy implementation  
almost disregarded.  
Management results negative.  
Active action necessary  
In some cases Policy needs reviewing  
urgently.

Although an assessment of managerial effectiveness using this relatively subjective method can only be regarded as indicative, the overall results must be viewed with some concern. Of the total number of policies (65) only 9 or 14% are being implemented with positive results. Of the remaining 56 policies, 24 or 37% are suffering from limited implementation, and 32 or 49% are being poorly implemented, with consequent limited management effectiveness.

## 2.4 CRITICAL FACTORS URGENTLY REQUIRING ACTIVE MANAGEMENT

### 2.4.1. LAND USE

Land use conflicts continue to be the basis for ongoing environmental degradation within the park. These conflicts are most apparent between man's demand for fuelwood, construction timber and other forest resources as well as uncontrolled grazing and the unauthorised development of agricultural land.

Although some recent documentation suggests that the exploitation of forest resources in S.N.P. is overstated there is no doubt that extensive areas of the park have experienced almost total ecological modification e.g. juniper shrubland in the upper Imja Khola and Khumbu Valleys. A less obvious resource conflict which little is currently known about, is the effect of grazing competition between the park's native ungulates and domestic stock. The inter-relationship between these two competing resource demands requires urgent research and the development, and more importantly implementation, and sustained management of policy and management strategies. Grazing pressure is sustained and widespread. Report writers and researchers have been saying this for two decades. Managers need to know what effect this land-use has on natural plant communities (experience suggests it must be negative) and native ungulate populations such as tahr, serow and ghoral. Other animals such as the lesser panda and carnivores, i.e. the snow leopard and wolf etc. are probably also suffering from depletion of food supplies which may well be traced directly back to competition for grazing between domestic and indigenous animals.

#### 2.4.2. MANAGEMENT CAPACITY

Almost all reports, (and in some peoples eyes the number has been excessive), studies and assessments researched as part of the background for this dissertation have concentrated on defining problems of a biological, ecological or cultural nature. The conclusions of these reports all suggest actions that need to be taken by park management.

Almost without exception little or no consideration has been given to the management capacity of the organisation, or individuals responsible for the development of appropriate management strategies and the implementation of management planning policy. In short, the management of a complex and demanding national park organisation .

Table IV. clearly illustrates that even when provided with a management plan, that appears to be practical and realistic, park management is performing inadequately and as a result negative impacts on the park's natural, and in some specific instances cultural environment, is continuing. In recognition of this fact the next section looks at ways to strengthen organisational and individual management ability and capacity

## 2.5 STRATEGIES FOR IMPROVED MANAGEMENT CAPACITY

### 2.5.1 MASTER PLAN FOR FORESTRY SECTOR

The Ministry of Forests and Soil Conservation (M.F.S.C.) in conjunction with the Asian Development Bank (A.D.B.), and the Finnish International Development Agency (Finnida ), are collaborating to produce a Master Plan for the Forestry Sector in Nepal (M.P.F.S.) for the next 25 years.

The production process for this plan includes the preparation of 14 sub-sector reports of the M.F.S.C. The sub-sector report on the Department N.P.W.C. provides a section containing national strategies for the sub-sector. Section 2.5.2 provides appropriate and consistent adaptations of the national strategies for implementation at a park level.

### 2.5.2 STRATEGIES FOR S.N.P. MANAGEMENT

#### 1. General Policy Implementation

The S.N.P.M.P. was developed and produced without the benefit of overall guidelines normally provided by a statement of general policy. Now that a General Policy for the D.N.P.W.C. (draft) has been prepared it is important that this be integrated into the Park Management Plan as well as the day to day management and decision making process. This step should be taken progressively, positively, but as early as possible.

The General Policy and provisions of the S.N.P.M.P. should be communicated to the community and action needs to be taken by management to implement this.

Considerable potential for innovative presentations to the community of the benefits of these documents is possible. Carefully developed programmes should be prepared in consultation with appropriate local and if necessary ex-patriate advisors.

#### 2. Management Capacity.

It is the responsibility of the Chief or Senior Warden to enhance the management capacity, capability and effectiveness of his organisation. In some cases outside coaching and courses for staff at the field management and operational level will be necessary.

Positive enforcement of various acts and regulations, particularly in relation to natural resource protection, are a continuing responsibility. Well developed and innovative conservation education programmes and a high standard of

example set by park staff to local people and visitors must be developed.

Initiatives to undertake planning of local projects, which will assist in the development of planning skills and increase the staff's appreciation of good planning practices, is a responsibility that the Chief or Senior Warden should accept.

The role of research in the park should be evaluated and priorities for research, which will contribute to a better understanding of management problems, should be encouraged. Research which is incompatible with park values and local peoples' interests should not be permitted.

### 3. Park Staff

The Park staff are the primary resource of any park manager. It is impossible for the Chief or Senior Warden to manage a complex operation such as S.N.P. alone. There is considerable evidence to suggest that human resources are not being adequately motivated, are poorly led and are provided with little training and incentive.

It is recognised that although there are current constraints at a national level which make it difficult to adequately reward staff, efforts can be made at a local level to develop an effective management style.

The Chief or Senior Warden must adopt an active role in training and motivating staff and make provision to reward good performance and progressively replace non-performers.

### 4. Protection Units

A positive effort to establish liaison and a good working relationship between park staff and protection units is essential

If agreement can be reached at higher levels the concept of establishing small, highly trained and mobile armed anti-poaching squads should be implemented in S.N.P. These squads would be called into action by the Chief or Senior Warden and would be used as a deterrent and last resort in serious cases of poaching, forest destruction, illegal fires etc.

### 5. Donor and N.G.O. Support and Liaison

The attraction of S.N.P. to international donor and N.G.O. organisations is almost without parallel. Park management support and active liaison with these organisations is a vital role if donor interest, assistance and confidence is to be maintained, and enhanced.

The Chief or Senior Warden and park staff can contribute immeasurably to the relationship between donors and the D.N.P.W.C. This can be done by providing positive support, taking an active role in donor supported projects and making visitors and local people aware of the type, scale and reasons for donor support and activities.

Almost more than any other person the Chief or Senior Warden is in the position to stimulate donor support by developing programmes, documentation of proposals and generally establishing a relationship and reputation for professional judgement and integrity.

## 6. Research, Monitoring and Planning

The priority needs for research, monitoring and planning for S.N.P. are;

- (a) to identify significant adverse impacts on relationships between the park and local people with a view to eliminating or at least substantially minimising them.
- (b) to gain a better understanding of the behaviour and habitat needs of rare and endangered species to ensure their preservation.
- (c) To identify natural systems and habitats within the park which require special protection or management
- (d) To assess the likely impacts of developments such as hydro electricity schemes, industry and tourism, and plan to minimise the negative impacts and maximise potential benefits of these developments to the park.

The establishment of a data bank of natural and cultural resource information for the D.N.P.W.C. will demand the full support and co-operation of the park's management and operational group. Monitoring and impact assessment is the responsibility of park management and cannot be regarded exclusively as a central office responsibility.

The role and responsibility for the implementation of management plans is ill defined at a national level. The Chief or Senior Warden must accept that he is manager of the park and therefore, the implementor of policy. He, better than almost anyone else, has the experience and the knowledge of problems at the workplace and should have a significant role in the development of management objectives and policies.

Commitment to management plans does not come without an involvement and influence with the plans' preparation. The Chief or Senior Warden of the park should be continually pressing for reviews of inappropriate or outdated policy, and presenting on an annual basis coherent workplans that are consistent with General Policy and the S.N.P.M.P.

## 7. Inservice Training

Wardens and other field staff must accept the responsibility and be required to implement training of subordinate staff.

At the moment only limited inservice training programmes are organised by park management. There is considerable scope to develop the skills and increase the motivation of operational level staff.

Time for providing training to staff is not generally a problem but resources and training aids, once training programmes have been established, will be necessary. Some assistance to prepare training programmes may also be required, particularly in areas such as research, resource monitoring, and some semi technical subjects.

The Chief or Senior Warden must take the initiative to develop a training strategy for his staff and identify areas and resources required to implement this.

## 8. Community Relationships

The future of S.N.P. is extremely vulnerable unless active measures are maintained to reinforce, and in specific areas establish, a working relationship between management and the local community.

Regular meetings between Management and community representatives are important but in many ways only scratch the periphery of this vital management responsibility of park staff.

Mechanisms that reach out and establish a positive degree of contact with as many members of the local community as possible are necessary.

The establishment of effective relations with local communities must be a conscious and planned activity. It is suggested that the Chief or Senior Warden, in consultation with other members of his staff and local community leaders, develop a scheme plan so that the park's community relations programme is part of a conscious strategy with clearly understood objectives. The strategy must be supported by an active field programme of conservation education, practical advice and assistance such as tree stocks for small reforestation programmes, and practical visible assistance to local peoples' welfare such as support for alternative energy programmes, drinking water supplies and support and technical assistance for sanitary and rubbish disposal schemes.

The establishment and management of a community development fund, which should be financed from park user fees, is recognised in the longer term as being one way that the park

can enhance its image and progressively provide to local people the feeling that they have a vested interest in the park and that park management has a genuine interest in their welfare.

An active involvement, interest and influence in the management of buffer areas adjacent to established park boundaries, such as the Dudh Kosi valley between Pharak and the park entrance at Jorsalle is a vital role for the park management group. Buffer zones have the potential to ease many resource pressures within the park. Unless an active role by park management is taken in the early stages, development and management of this corridor could negatively compromise park objectives and values.

## 9. Visitor Use and Tourism

The existing legislation and regulations, and the provisions contained in the S.N.P.M.P. provide management with ample opportunities for the effective control of commercial activities within the park.

Apart from the tendered concession arrangements for lodges at Tengboche, Pheriche and Lobuche (constructed by the NZ. S.N.P. Assistance Programme and now owned by H.M.G.) very little positive management of commercial activities within the park is undertaken. Management should be taking a lead to implement existing regulations and controls for commercial operators, including trekking companies. Many of the facility areas used by commercial operators are within the park i.e. camp sites with the associated need for toilets, water supplies etc. The control of activities undertaken by these groups will be a positive contribution to the preservation of the natural environment.

Strict implementation of the regulations regarding self sufficiency of fuel and trading in firewood within the park are necessary. Management methods to ensure that porters, and other local staff associated with tourist groups, are supplied with alternative energy for cooking and heating is an urgent requirement.

## 10. Flora and Fauna Conservation

The role of S.N.P. as a prestigious national park and World Heritage Site is significant. Of paramount importance is the contribution the area is, and can continue to make, to the biological and ecological diversity of Nepal, the Indian sub-continent, and in terms of the wider objectives of the World Conservation Strategy, the Earth generally. Management for conservation has three basic objectives :

1. To maintain essential ecological processes and life support systems.



2. To preserve genetic diversity
3. To ensure that the utilisation of living resources and the ecosystems in which they are found are sustainable.

When natural resource managers adopt a fragmented approach to these basic objectives conservation values are at best compromised or in most cases lost for ever.

The Chief Warden and his support staff are the frontline, exposed to all of the demands and competition for resources, complaints from local people and pressures from political and community leaders. Management Plans and attitudes must therefore be resilient and flexible, but never to the point of compromising the fundamental values of the national park legislation regulations and management plan. The most coherent and realistic contribution management can make to the conservation of flora and fauna is through the active implementation of appropriate policies as contained in the S.N.P.M.P. This must be supported by a commitment and involvement to research and monitoring programmes, and a sensitivity and commitment to cultural values.

#### 11. Cultural Conservation

The natural qualities of the region, particularly the magnificence of Sagarmatha and the cultural and religious significance of the unique way of life of the Sherpa community, made Sagarmatha an obvious choice for National Park status and in 1979 its establishment as a World Heritage site.

The management of cultural values is a delicate and demanding responsibility. Sensitivity to cultural values and sites of religious significance is a very positive way that park management can establish confidence and build communication bridges with local people.

Conservation education programmes and park interpretive efforts need to be developed with the support and assistance of locally recognised and respected authorities such as the Rimpoches of Thame and Tengboche monasteries.

Active participation in, and support for the newly established cultural centre at Tengboche, and other programmes such as the restoration of buildings, artifacts and paintings are other positive steps that could be taken to implement the cultural policies of the S.N.P.M.P.

Continued emphasis on the distribution of information, including cultural tips and responsibilities of visitors, must be maintained as part of the park's interpretation and education programmes.



Communication and discussion with village and community leaders is an important role for park managers.

Here the Warden is discussing park plans with the High Lama Tengboche Gompa and the Pradhan Panch (mayor) of Namche Bazar.



The Sagarmatha National Park Visitor Centre was developed to provide a focal point for the park. Displays and information on the unique natural and cultural aspects of the area are available in the building.

## SECTION 3. SUMMARY AND CONCLUSIONS

### 3.1 SUMMARY

Nine major points have been isolated to summarise this paper. These are:-

1. The establishment of S.N.P. in 1976 was a positive move which has proven that the protection and conservation management of the area is a realistic, necessary and attainable objective.

2. Tourism has provided many positive benefits to the Kingdom of Nepal and people of the Khumbu region. It is now necessary for some of the financial benefits of tourism to be reinvested, to ensure the long term protection of the park and the natural and cultural resources of the area.

3. Tourism is in some instances having a negative impact on the natural environment of the park. Many of these negative impacts are secondary or downstream effects but a detailed analysis of individual areas of degradation invariably shows tourism as an active part of the equation.

4. The economic benefits of tourism have generally had a positive effect on the culture and lifestyle of the Sherpa community. Examples of insensitive behaviour and cultural interaction do without doubt cause considerable problems.

5. The most positive action that can be taken to ameliorate negative tourism impacts in S.N.P. is the development of the park's management capability and capacity.

6. The future of S.N.P. is dependent on the establishment and maintenance of good park management/community relations and active programmes and definitive strategies need to be developed to ensure that these are maintained.

7. It is not possible to divide the strategies required to manage adverse tourism impacts and overall park management requirements generally. The answer to one contributes to the solution of the other and vice versa.

8. The direction needed to counteract impacts, including tourism, that currently affect park resources can only be taken by well trained and motivated management staff who have clearly defined and understood roles, with support from an adequate central office structure.

9. Park staff must be able to relate to the needs of local people and be able to mobilise support both within their own organisation and with the community in general.

### 3.2 CONCLUSION

The establishment of a national park in the Khumbu area coincided with, and in many ways influenced, the progressive evolution of a national park appropriate for Asian conditions. McNeely, in 1985, pointed out that efforts to link protected areas with human needs can support ecologically sound developments, which take on practical meanings for governments and local people.

One of the major lessons of the past decade is that the western or developed world's model of a national park is impractical, and more importantly inappropriate, in countries such as Nepal.

Sagarmatha National Park is emerging as a leader in terms of changing protected area managers' perceptions. It is also a classical example of the evolutionary process which is discarding the past and shaping the future.

Provided all components are given equal consideration and are properly managed, tourism and protected areas such as Sagarmatha can be natural partners. Effective management should endeavour to ensure that each component benefits from the other. When one activity, land use or process compromises another, then positive action needs to be taken to restore the equilibrium.

The Oxford Dictionary defines management as:-

skilful handling, cajolery

That, I believe, is the key.

NATURE HAS ENOUGH TO SUSTAIN ALL BUT NOTHING TO SATISFY THE GREED OF A FEW.

[GANDHI]

## APPENDIX, I.

### VEGETATION SPECIES LIST

The following list does not necessarily include all vegetation species in the park.

#### Forests

Blue Himalayan pine  
*Pinus wallichiana*  
 the national flower  
*Rhododendron arboreum*  
*Rhododendron triflorum*  
*Pieris formosa*  
 Himalayan hemlock  
*Tsuga dumosa*  
 Wallich's yew  
*Taxus wallichiana*  
 Himalayan oak  
*Quercus semicarpifolia*  
 Small-leaved cotoneaster  
*Cotoneaster microphyllus*  
 Scaly rhododendron  
*Rhododendron lepidotum*  
 Himalayan vine  
*Parthenocissus himalayense*  
 Mountain clematis  
*Clematis montana*  
 Campbell's maple  
*Acer campbellii*  
 Himalayan whitebeam  
*Sorbus cuspidata*  
 Silver fir  
*Abies spectabilis*  
 Himalayan birch  
*Betula utilis*  
 Lichen  
*Usnea*  
 Tree juniper  
*Juniperus recurva*

#### Alpine Scrub (lower zone)

Alpine cinquefoil  
*Potentilla arbuscula*  
 Dwarf rhododendron  
*Rhododendron setosum*  
 Dwarf rhododendron  
*Rhododendron anthopogon*  
 Dwarf rhododendron  
*Rhododendron lepidotum*  
 Dwarf juniper  
*Juniperus indica*  
 Dwarf juniper  
*Juniperus squamata*  
 Sikkim willow  
*Salix sikkimensis*  
 Alpine gentian  
*Gentiana prolata*  
*Cassiope fastigiata*

Himalayan edelweiss  
*Leontopodium stracheyi*  
*Codonopsis thalictrifolia*  
 Meadow-Rue  
*Thalictrum chelidonii*  
 Nepalese lily  
*Lilium nepalense*  
*Notholirion macrophyllum*  
 Fritillary  
*Fritillaria cirrhosa*  
 Himalayan primrose  
*Primula denticulata*  
 Himalayan primrose  
*Primula atrodentata*  
 Himalayan primrose  
*Primula woolastonii*  
 Himalayan primrose  
*Primula sikkimensis*  
 Milk-vetches  
*Astragalus species*

#### Alpine Scrub (upper zone)

Snow rhododendron  
*Rhododendron nivale*  
 Himalayan buckthorn  
*Hippophae tibetana*  
 Alpine shrubby horsetail  
*Ephedra gerardiana*  
 Black juniper  
*Juniperus indica*  
 Shrubby cinquefoil  
*Potentilla arbuscula*  
 Ornate gentian  
*Gentiana ornata*  
 Przewalski's mountain gentian  
*Gentiana algida var. przewalskii*  
 Edelweiss  
*Leontopodium jacotianum*  
 Spiny mountain poppy  
*Meconopsis horridula*  
 Stitchwort  
*Arenaria polytrichioides*  
*Tanacetum gossypinum*

## APPENDIX II

### MAMMALS SPECIES LIST

Mammals which occur or probably occur in the Park

#### Insectivora

Short-tailed mole

*Talpa micura*

Tibetan water shrew

*Nectogale elegans*

Himalayan water shrew

*Chimmarogale himalayica*

Brown toothed shrew

*Soriculus caudatus*

#### Primates

Rhesus monkey

*Macaca mulatta*

Langur

*Presbytis entallus*

#### Lagomorpha

Himalayan mouse-hare

*Ochotana royelei*

Wooly Himalayan Hare

*Lepus oiostilus*

#### Rodentia

House rat

*Rattus rattoides*

House mouse

*Mus musculus*

#### Carnivora

Lesser Panda

*Ailurus fulgens*

Himalayan wolf

*Canis lupus*

Jackal

*Canis aureus*

Snow leopard

*Panthera unica*

Himalayan palm civet

*Paguma larvata*

Himalayn weasel

*Mustela sibirica*

Yellow-throated marten

*Martes flavigula*

North Indian marten

*Charronia flavigula*

Tibetan polecat

*Mustela putorius*

Alpine Vole

*Pitymys sikimensis*

Himalayan marmot

*Marmot babak Himalayana*

Himalayan black bear

*Selenarctos thibetanus*

Mountain fox

*Vulpes montana*

#### Artiodactyla

Musk Deer

*Moschus moschiiferus*

Himalayan tahr

*Hemitragus jemlahicus*

Yak

*Bos grunniens*

#### Chiroptera

Leaf-nosed bat

*Hipposideros armiger*

Short-nosed fruit bat

*Cyanoptera sphinx*



# APPENDIX III

## BIRD SPECIES LIST

### Cranes (Cruidae)

Demoiselle crane

*Anthropoides virgo*

### Geese and Ducks (Anatidae)

Bar-headed goose

*Anser indicus*

Brahminy duck

*Tadorna ferruginea*

Gadwall

*Anas strepera*

Common pochard

*Aythya ferina*

Tufted pochard

*Aythya fuligula*

Eurasian wigeon

*Anas penelope*

### Dippers (Cindidae)

Brown dipper

*Cinclus pallasi*

### Titmice (Paridae)

Coal tit

*Parus ater*

Crested brown tit

*Parus dichrous*

Sikkim black tit

*Parus rubidiventris beavani*

### Wall creepers (Sittidae)

Northern tree creeper

*Certhia familiaris*

### Kites, Hawks, Eagles,

Vultures, and Allies

(Accipitridae)

Dark kite

*Milvus migrans*

Golden eagle

*Aquila chrysaetos*

Steppe eagle

*Aquila nipalensis*

Himalayan griffon

*Gyps himalayensis*

Lammergeier

*Gypaetus barbatus*

### Partridges and Pheasants

(Phasianidae)

Tibetan snow-cock

*Tetraogallus tibetanus*

Blood pheasant

*Ithaginis cruentus*

Impeyan pheasant

(the national bird)

*Lophophorus impejanus*

### Gulls (Laridae)

Black-headed gull

*Larus ridibundus*

Brown-headed gull

*Larus brunnicephalus*

### Pipits and Wagtails

(Motacillidae)

Rose-breasted pipit

*Anthus roseatus*

### Finches and Allies

(Fringillidae)

Beautiful rose-finch

*Carpodacus pulcherrimus*

Brandt's mountain finch

*Leucosticte brandti*

Common rose finch

*Carpodacus erythrinus*

Red-breasted rose finch

*Carpodacus puniceus*

Pink-browed rose finch

*Carpodacus rhodochrous*

### Pigeons (Columbidae)

Snow pigeon

*Columba leuconota*

### Owls

(Tytonidae and Strigidae)

Tawny wood owl

*Strix aluco*

### Larks (Alaudidae)

Horned lark

*Eremophila alpestris*

### Crows and Allies (Corvidae)

Jungle crow

*Corvus macrorhynchos*

Raven

*Corvus corax*

Red-billed chough

*Pyrrhocorax pyrrhocorax*

Yellow-billed chough

*Pyrrhocorax graculus*

### Minivets and Allies

(Campephagidae)

Long-tailed minivet

*Pericrocotus ethologus*

### Babblers, Laughing Thrushes,

and Allies (Timaliidae)

White-browed tit babbler

*Alcippe vinipectus*

Black-throated thrush

*Turdus ruficollis*

Parrotbill

*Paradoxornis*

### Warblers (Sylviidae)

Orange-barred leaf warbler

*Phylloscopus pulcher*

### Thrushes, Chats, and Allies

(Turdidae)

Orange-flanked bush robin

*Erithacus cyanurus*

White-browed robin

*Erithacus indicus*

Grandala

*Grandala coelicolor*

Plumbeous redstart

*Rhyacornis fuliginosus*

White-capped river chat

*Chaimarrornis leucocephus*

White throated redstart

*Phoenicurus schisticeps*

Chestnut-bellied rock thrush

*Monticola rufiventris*

### Accentors (Prunellidae)

Alpine accentor

*Prunella collaris*

Robin accentor

*Prunella rubeculoides*

Rufous-breasted accentor

*Prunella strophiala*

# APPENDIX IV

IN

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 of 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 area 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) "Weapon" 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 bird.
- (2) Any person intending to obtain a licence under Sub-Section (1) shall apply to the prescribed authority in the prescribed 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 there for.

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 Forests 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 authorized 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 authorized 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-sections (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

Cases 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 the 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 Rules (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
- (b) Wild elephant
- (c) Wild buffalo
- (d) Tiger
- (e) Clouded leopard
- (f) Snow leopard
- (g) Musk deer
- (h) Wild yak
- (i) Gaur (Indian bison)
- (j) Black buck
- (k) Four-horned antelope
- (l) Swamp deer
- (m) Great tibetan sheep (Nayan)
- (n) Tibetan antelope (chiru)
- (o) Brown bear
- (p) Gangetic dolphin
- (q) Red panda
- (r) Pigmy hog
- (s) Hispid hare
- (t) Pangolin
- (u) Assamese monkey
- (v) Wolf
- (w) Lingsang
- (x) Hyena
- (y) Leopard cat
- (z) Lynx

2. Birds:

- (a) Impeyan pheasant (Danfe)
- (b) Crimson-horned pheasant (Monal)
- (c) Bengal florican (Khar mayur)
- (d) Great pied hornbill
- (e) Black stork
- (f) White stork
- (g) Saras
- (h) Cheer pheasant
- (i) Lesser florican

3. Reptiles:

- (a) Python
- (b) Gharial crocodile
- (c) Golden lizard

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