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GREAT HIMALAYAN NATIONAL PARK
ग्रेट हिमालयन नैशनल पार्क

The Great Himalayan National Park

The Management Plan (April 2004 - March 2009)

(Based on Livelihood Approach)

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30th March, 2004

Preface

In the developing world, the concept of Protected Areas (PAs) is at crossroads. While the current impetus for the creation of such areas is very strong, past experiences has led to increasing resistance from both local communities and governments to expand the existing PA network. The American model of PAs (home of world's first National Park, Yellowstone established in 1872) isolated from human habitation and exploitation has since been replicated in many countries. This model has also resulted in inevitable conflict with local communities. People living in and around PAs have been regarded as a management problem, and historically, little effort has been made to involve them in the design and management of the PAs. The present Management Plan for the Great Himalayan National Park re-evaluates such exclusionary policies and recommends more socially responsive conservation processes and mechanisms.

Managing GHNP, or for that matter any other PA in our country, is like a juggling act. It is very difficult to manage habitat for the wild animals and plants if the local people continuously keep on using it. Hence in GHNP, we started working with the local people so that the animals and plants could remain safe from their interference. GHNP is quite remote, and without roads. The villagers in its neighbourhood are very poor, and reach of the govt., as well as NGOs, to these villages is extremely limited. We realized that the village poor women (who are 50% of the local population), also work with the natural resources that we try to conserve (i.e. water, fodder, fuelwood), but they remain alienated from the process of the nature conservation. At the same time the men have become used to the subsidy culture (an offshoot of the "lop-sided development"). So, we initiated our work in the GHNP ecozone by organizing the women of the poor households or (HHs) who depended upon the Park resources.

The proposed management is based on the experiential learning of user groups of women belonging to poor households. The process of planning and implementation should continue on a regular basis, because consensus cannot be reached on all issues and options in one term of a Management Plan. Experimental approaches and flexibility will be needed, demanding subsequent review and adaptation by stakeholders. The present Management Plan, based on a livelihood approach, is a precursor to ongoing strategic planning, and is thought to be a leading example of such processes in India.

30.3.04

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Great Himalayan National Park,
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Dated: 30th March, 2004

The Great Himalayan National Park
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The Great Himalayan National Park
The Management Plan (April 2004-March 2009)

Executive Summary

If we genuinely want to contribute to biological diversity conservation, we need to first resolve the socio-economic issues of the local people. The habitat of wild animals and plants will be better conserved if the local villagers stand by the forest guard and assist her/him in protection of natural resources. Biodiversity conservation at GHNP is gradually becoming synonymous with the People Management. In 1999 the rights of the local people in the Park were settled which resulted in displacement of their livelihoods. At GHNP the local community concerns and enhanced conservation interface are being addressed through a livelihood-based approach primarily routed through Women's Saving and Credit Groups (WSCGs).

An asset-building programme in combination with environmental awareness education, women empowerment, and Joint Forest Management is leading to a decline in biotic pressures upon the natural resources/biodiversity of the GHNP. The WSCGs, are now being federated into Village Forest Development Society at Panchayat or village council level. Rural poor and women will have the opportunity of making a CHOICE (decision - making) and raising their VOICE in preparation and implementation of the village level micro-plans. This further supports the important aspect of social/environmental justice and gender sensitivity. Eliciting cooperation in wildlife protection from these HHs is now an easier task for the Park officials.

The present management plan for the GHNP (2004 to 2009) provides for an Ecozone (an area adjacent to the Park) which contains villages that have historically had some livelihood dependence on the resources of the Park, which is now a *sanctum sanctorum* for biodiversity conservation. The Plan looks at the whole issue of biodiversity conservation from many stakeholders' perspectives; not merely from a wildlifer's viewpoint. The Plan looks forward to a sustainable future. It has three important aspects (i) basic principles for future biodiversity conservation, (ii) strengthened and participatory institutional framework at the Park level, and (iii)shared policy objectives.

Two Parts of the Management Plan of the Great Himalayan National Park
The present Management Plan is firmly based on multi-stakeholder consultations and multi-disciplinary analysis. The process of preparing the Management Plan has helped not only to get better information from key informants. It has also stimulated a strategic series of informed debates between these stakeholders on the policy and institutional issues affecting biodiversity conservation. In this regard, Part I of the Plan develops an understanding of the present. Part II defines a future vision. Thus, the Plan assesses the current situation in relation to a possible future. The analysis has not been confined to strict 'wildlife' concerns, but has given equal attention to cross-sectoral and livelihood-level issues.

Part 1: Description and Evaluation

Chapter 1 is an introduction to the area. The biophysical settings of GHNP are described, and a statement of significance provides the national and global context. The Park is naturally protected by very high peaks and ridges on its northern, southern and eastern boundary. The western boundary has habitations, which depended on the Park's natural resources. To facilitate implementation of World Bank aided Conservation of Biodiversity Project (1994-99) an area upto 5 km. from the western periphery of the Park had been created as an Ecozone. The GHNP, its ecozone and the Sainj and Tirthan Wildlife Sanctuaries are collectively referred to as the Great Himalayan National Park Conservation Area (GHNPCA).

Chapter 2 gives the background information and attributes of the terrain. It provides data on soil types, climate and rainfall, geological conditions, biodiversity values, and notification of the Park.

Chapter 3 looks into the historical and socio-political perspective of the human settlements and conservation efforts in the region where the GHNP is located. This account is mainly based on the material by the research team of the Wildlife Institute of India. Before the advent of roads and projects in the area, village life used to be a relatively self-sufficient system of subsistence and inter-relations with the natural world. In modern times there has been a lot of immigration into the area, which has impacted the status of the natural resources. A time line provides key events leading to the creation of the Great Himalayan National Park.

Chapter 4 focuses on the medicinal plant trade and grazing prior to the settlement of rights and final notification of the Great Himalayan National Park in 1999. The statistics about livestock and human population is given. The medicinal plant collection and trade from the Park has been contributing to the incomes of about 50 to 60% households in the Ecozone. The pastoral system that used to be in place in the area of GHNP is discussed in detail. The abrupt non-availability of GHNP (64.2% of the GHNPCA) to the resident and outside migratory graziers has had a great impact on the local economy.

Chapter 5 deals with a very important aspect of the recent conservation efforts at the GHNPCA. The World Bank aided Conservation of Biodiversity (CoB) Project (1994-99) occupies the central stage. The CoB Project was expected to contribute significantly through village level organization to biodiversity conservation of the GHNP. However, the World Bank's Project completion report says that the 16 village committees formed during the CoB Project became defunct during the Project period, itself. The women's saving and credit groups covering poor families and a Biodiversity Conservation Society established in the post Credit closure period are functioning well.

The chapter also describes important socio-economic issues such as literacy, caste profile, position of women in villages, etc. The new mechanisms of integrating the local people in Park management (such as Women Saving and Credit Groups, Village Forest Development Society, SAHARA, and *Jujurana Jeeve*), and mechanisms to manage the Park such as Biodiversity Conservation Society (BiodCS), and Friends of GHNP are discussed in detail. Other aspects of research and monitoring, forest fires, competence based training for the staff and community and current position of staff are described.

Part 2: Planning and Recommendations

Chapter 6 provides a landscape/an eco-regional perspective along with a livelihood approach for the biodiversity conservation at the GHNP. The livelihood approach is a way of thinking about objectives development, scope and priorities, to enhance progress in poverty elimination. Basically, this is a way of integrating and further developing recent thinking and best practices. In order to achieve this, the Park planning depends on two major goals: (i) working with the local communities to reduce their dependencies on the Park's natural resources, and (ii) interventions to manage, monitor and protect the natural habitats and resources. In both of these cases, it requires putting people at the center of Park's biodiversity conservation.

Chapter 7 discusses the strategies to work with the local communities to reduce/mitigate their dependencies on the GHNP's natural resources. To do this, zonation is one of the most important aspects. The strategy at GHNP has been based on participatory management of natural resources, wherein active preparations are made to take joint decisions about biodiversity conservation by the local communities and the Park administration. It is expected that such efforts of the Park staff and community will begin to "pay" in terms of economic gains by the local villagers, which may lead to further conservation of Park biodiversity. From 2000 through the present, the organized WSCGs are involved in asset building. The continuance of process of group formation and asset building is recommended as future strategy. Vermicomposting, apricot oil production, hemp produce, ecotourism, street theatre and wage labour are some of the options that have been explained in detail.

Providing compensation in form of asset building with respect to the loss of livelihoods is the *quid pro quo* for the local communities. The Plan provides for resolving the man-animal conflict with emphasis on social and environmental justice for the poor people living close to the GHNP, and development of a competence based training programme for the GHNPCA staff and the local community and NGOs.

Chapter 8 discusses the strategies to manage, monitor, and protect the natural resources. Habitat management including watershed monitoring, role of forests as gene pools, and carbon sinks, vaccination, exclusion of exotics, proactive wildlife

protection with the help of local community, wildlife protection maps, wireless communication system, prevention of poaching, group patrolling and reporting, knowledge about illegal trade in WL derivatives, community based street theatre for nature awareness have been discussed. Emphasis has been put on *in situ* medicinal plant conservation, effective management of grazing in the ecozone, wildlife surveys and estimation, fire protection, and research and monitoring. A separate section deals with the merger of the Sainj WLS into the GHNP so that a compact and viable conservation unit be in place.

Chapter 9 discusses important conservation concerns such as rewarding upland poor for the environmental services they provide. Recommendations have been made to create awareness about watershed protection services that the mountain communities provide to the down stream beneficiaries in the form of reduced siltation, improved water flows, and values such as gene pool and carbon sink etc. The chapter ends with a very relevant query "Will economic well-being contribute to Biodiversity Conservation"?

Chapter 10 provides details about Staff, Funding, Inter-Sectoral Co-operation, NGO and CBO Participation and Budget.

There are ten Appendix at the end of the Plan which support the main text.

The Great Himalayan National Park

The Management Plan

Part 1: Description and Evaluation

Chapter 1 : The Biophysical Setting

Preamble

Name, location constitution and extent

1.1 Location and Area

The Himachal Wildlife Project (HWP) surveyed the upper Beas region in 1980 (Gaston *et al.* 1981). As a result, an area comprising the catchments of Jiwa, Sainj and Tirthan rivulets was notified as Great Himalayan National Park (GHNP) in 1984 in the Kulu district of Himachal Pradesh. The existing Park including buffer zone (popularly known as Ecozone) lies between the latitudinal range of 31^0 38'28" and $31^0$54'58"N, and longitudinal range of 77^0 20'11" and $77^0$45'00". Starting from an altitude of 1,700 metres above mean sea level, the highest peak within the park approaches almost 5,800 metres (Singh *et.al.* 1990). The area of the National Park at present is 754.4 sq kms. The GHNP is naturally protected on the northern, eastern and southern boundaries because of area being under permanent snow or with steep ridges. To facilitate implementation of CoB Project an area upto 5 km. from the western periphery of the Park has been notified as Ecozone. The Ecozone has an area of 326.6 sq km (including 61 sq kms of Tirthan wildlife sanctuary) with about 160 small villages, comprising 2200 households with a population of 14000 people (Mehta *et.al.* 1993). Since, the Indian Wildlife Protection Act 1972 does not permit any habitation in the National Park, an area of 90 sq. kms. in Sainj valley comprising of villages of Shagwar, Shakti and Marore with a population of about 80 people has been notified as Sainj wildlife sanctuary. Due to 1994 notification, these two villages although technically 'outside' the national park, are physically located between two parts of GHNP. Together it is referred to as Great Himalayan National Park Conservation Area (GHNPCA).

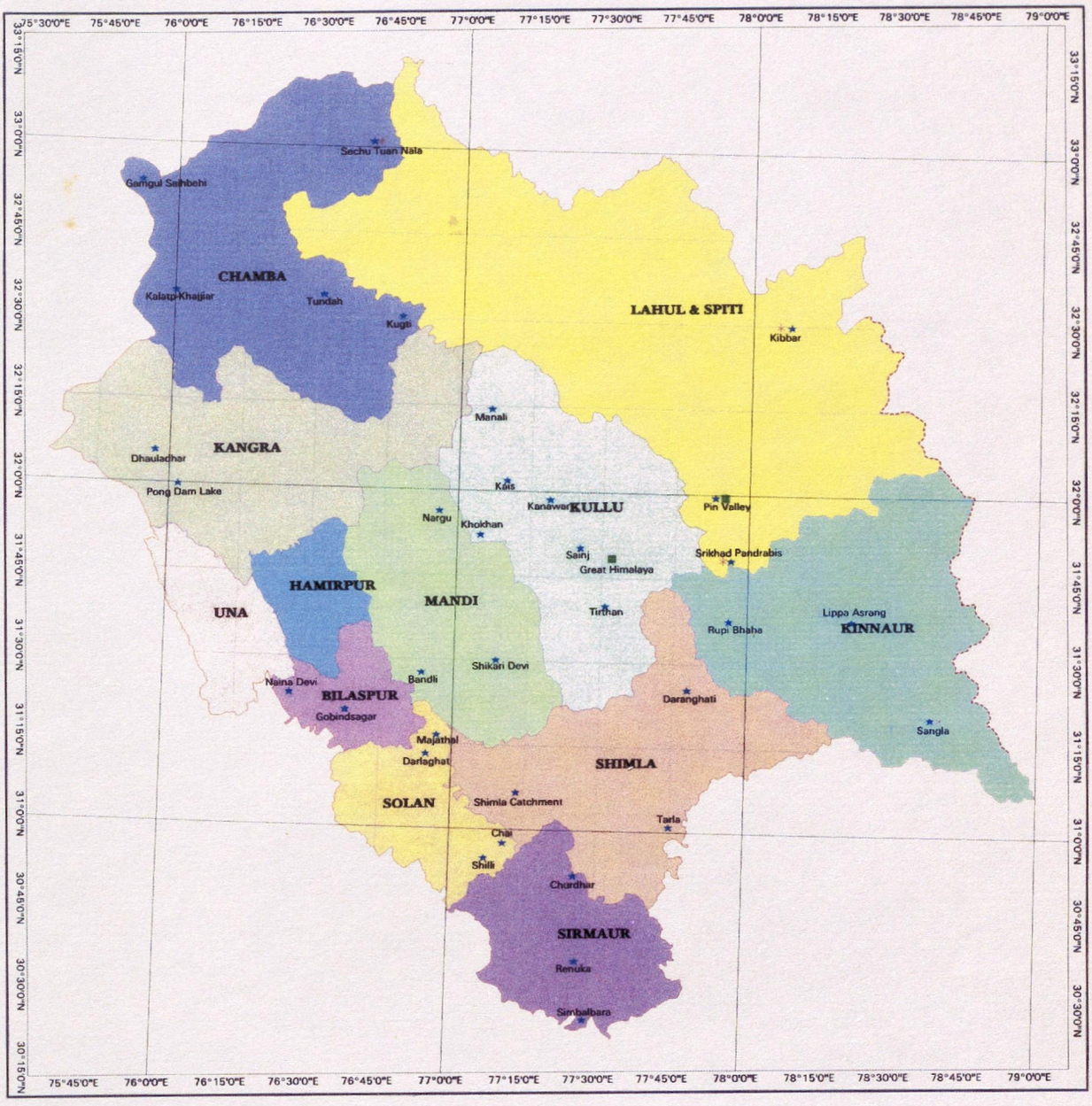
The climate of GHNP is typical of the front ranges of western Himalaya. It receives moderate (1100-1500mm) precipitation over most of the year and abundant during monsoon season in June-August. Snowfall in winter occurs throughout the National Park. Snow persists above 3,000 m from November to March with profound effect on distribution of fauna and flora.

1.2 Approach and Access

By Road

- **From Delhi:** Approximately 500 kms by road (14+ hour trip). General route: Delhi to Chandigarh by National Highway 1, then to Aut in Mandi district by NH 21. The towns of Chandigarh and

Protected Area Network (Existing & Proposed)
Himachal Pradesh



National Park

Wildlife Sanctuary

Proposed Protected Area

10 0 10 20 30 40 50

Kilometers

SCALE 1:500000

Indian Institute of Remote Sensing
(Natinal Remote Sensing Agency)
Department of Space, Government of India
4, Kalidas Road, Dehradun - 248 001

1° X 1° & 15' X 15' Map Series

International Boundary

State Boundary

District Boundary

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Swarghtat can be targeted to stay for staging the trip. Road journey in the mountain terrain of Himachal provides good views of Gobindsagar Lake near Bilaspur, followed by lush and wide Bahl Valley. The drive continues through the outskirts of Mandi, which leads into the Pandoh gorge. After Pandoh comes the small town of Aut from where a link road goes across the bridge over Beas River into the Banjar valley, where the Park is located. This trip can be made by private vehicle. Private and state run buses to the region are also available. Check with tour guides and books for details from major Indian cities to Bhuntar and Kullu.

Airline service is available from Delhi and Chandigarh to Bhuntar.

Approximate distances from GHNP:

Air Port : Bhuntar (Kullu), 50 kms.

Railhead : Joginder Nagar (Mandi), 100 kms.

Town : Kullu (District HQ), 60 kms.

The Four Valleys of the Park:

- **Tirthan Valley**

  The motorable, all-weather road from Aut to Gushaini is about 52 kms. Gushaini is the roadhead for trekking in this valley.

- **Sainj Valley**

  Starting from Aut, the 46 kms road in Sainj valley ends at Neuli where the trekking trail starts. About 5 kms short of Neuli, is the village Ropa. Here, a gravel road climbs up to Shangarh, which is famous for its large meadow surrounded by the cedar trees. Only four-wheel-drive vehicles can use this gravel road, which is very narrow and not generally advised for travel by car. Check with GHNP officials about access to Neuli by road. There is a bus service to Neuli.

- **Jiwa Nal Valley**

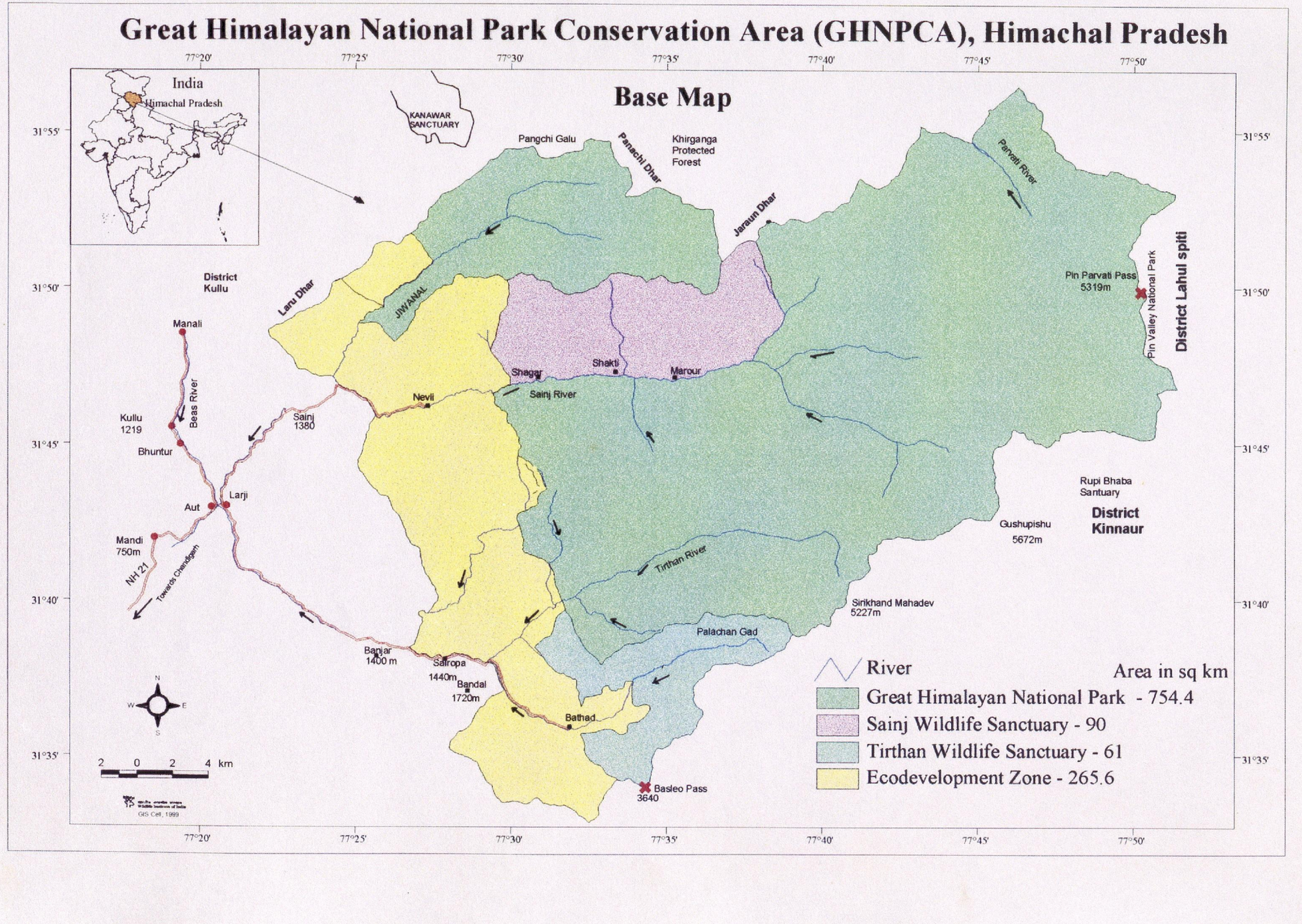
  On the Sainj valley road, about 35 kms. from Aut, is the Siund village where the Jiwa river meets Sainj. Siund is the starting point for treks in Jiwanal Valley.

- **Parvati Valley**

  Beyond Aut follow NH 21 up to Bhuntar then take the link road to Manikaran and up to Barshaini. The trek starts from Barshaini or the more popular village of Pulga (with an old Forest Rest House). This is the starting point of very popular treks up to Mantalai and further up to cross the Pin-Parvati Pass (5319 m altitude).

  From Kullu, Bhuntar (Airport connection from New Delhi), and Aut, there are regular taxi and bus services to the Sainj and Tirthan valleys. Consult a guidebook for places to stay in the Kullu or Bhuntar area while you stage your trek.

Great Himalayan National Park Conservation Area (GHNPCA), Himachal Pradesh



Address

Conservator Forests, National Parks, Great Himalayan National Park, Shamshi, Kullu, Himachal Pradesh, Pin-175126 India.

Telephone and Fax: 00 91 1902 265320

Email address: dirchnp@sancharnet.in

Website: www.greathimalayannationalpark.com

Reservations

Conservator Forests, National Parks, Great Himalayan National Park, Shamshi, Kullu, Himachal Pradesh, Pin-175126 India.

Range Officer, Tirthan Wildlife Range, Sai Ropa, Tehsil Banjar, Distt. Kullu, H.P., India

Range Officer, Sainj Wildlife Range, Sainj, Tehsil Banjar, Distt. Kullu, H.P., India

Range Officer, Jiwa Nal at Larjee, Jiwa Nal Wildlife Range, Larjee, Tehsil Banjar, Distt. Kullu, H.P., India

Fax and Phone: 01902-265320

Email: dirchnp@sancharnet.in

The visitors are advised to carry their portable tents, sleeping bags and ration etc. However, there are patrolling huts (kind of rain/snow shelters without any furniture, other facilities) inside the GHNP for the use of sanctuary officials. Necessary permits should be obtained in advance from above mentioned officials.

Other Rest houses/transit accommodation available in the vicinity of the GHNP are as below :

Forest Rest House, Aut. c/o Divisional Forest Officer, Mandi.

Public Works Department Rest House (PWD,RH), Larji. c/o Executive Engineer, Kullu Division No II.

PWD R.H. Banjar - Larji. c/o Executive Engineer, Kullu Division No II.

Forest Rest House, Sainj. c/o Divisional Forest Officer, Seraj.

Forest Rest House, Bandal c/o Divisional Forest Officer, Seraj.

Transit Accommodation, Sairopa c/o Director, GHNP, Shamshi.

One room accommodation at Lapah village in Sainj valley c/o Director, GHNP

PWD RH, Bathad. - Assistant Engineer, Banjar (Kullu).

Village level private guest houses are coming up at Shangarh, close to the Sainj WLS.

1.3 The Statement of Significance

Local, National and Global Context

The GHNP represents one of the few areas of semi-natural flora and fauna in the temperate, subalpine and alpine zones of the western Himalayas, an area of high species diversity.

It is large enough, with the adjacent sanctuaries (Rupi Bhaba, Sainj and Kanawar) and Pin Valley National Park to maintain viable populations of all plant and animal species characteristics of these zones and through remoteness and inaccessibility its protection should be easier that other areas of similar ecology.

In comparison with other parts of the Western Himalayas, the GHNP is unusual more for the preservation of its temperate and subalpine areas.

On a national scale, the value of the GHNP lies in protecting those species characteristic of the naturally occurring flora and fauna, because this Park represents the best chance of survival for many of these species.

In global context, GHNP stands out as an important conservation area in the North-West Himalayas (Biogeographic Zone 2A) with global conservation significance. It addresses some of the concerns relating to

- conservation of bio-diversity in a "megadiversity" country
- conservation of Himalayan ecosystem in danger of fragmentation and degradation
- help prepare future projects to address additional critical biodiversity issues
- developing linkages between conservation and development

India is one of the twelve 'megadiversity' countries in the world, which collectively account for 15 to 20% (in case of plants it is 11%: given that India occupies only 2% of the world's geographical area) of the world's biodiversity. The country has a broad range of ecosystems and species within its ten recognised biogeographic zones. The western Himalayas of Himachal Pradesh have some of the richest and endemic elements of biodiversity. A network of Protected Areas (PAs) in the state of Himachal Pradesh has been visualized as a means to protect and conserve the state's rich flora and fauna. However, there is a conflict in the interests of biodiversity conservation and the people who live close to the PAs. Traditionally, different silvicultural systems were prescribed to meet the objective of high forest yield without paying much attention to wildlife conservation. The need of integration of biodiversity conservation with the fulfilment of local communities forest based requirements has been emphasized in the National Forest Policy, National Conservation Strategy and the National Wildlife Action Plan.

Similarly the guidelines and order have been issued by Government of India in 1990 and Government of Himachal Pradesh in 2001 for participatory forest

management. The new Panchayti Raj Act under the 73rd amendment of the Constitution also emphasizes people's participation.

1.4 Conservation of Biodiversity Project at GHNP (1994-1999)

The GHNPCA was selected as one of the first protected areas in India to demonstrate the approach of linking biodiversity conservation with local social and economic development broadly known as ecodevelopment. An international assistance of US $2.5 million in form of soft loan from International Development Agency of the World Bank was arranged to fund the five-year duration Conservation of Biodiversity (CoB) Project which started in late 1994. The initial planning of the ecodevelopment program at GHNP was to be based on an 'indicative' plan by the Indian Institute of Public Administration (Mehta *et al.* 1993). The mechanisms set up at GHNP for biodiversity conservation through ecodevelopment will receive close scrutiny for implementing a larger World Bank assisted effort under the title of India Ecodevelopment Project in seven national parks of India.

The Conservation of Biodiversity (CoB) Project was expected to contribute significantly through village level organisation to the biodiversity conservation of the GHNP. Such an approach would necessitate that the professional capacity of GHNP staff is built up, and organisational structures, procedures are established. At GHNP, the concept of ecodevelopment was new both to the field staff and the neighbouring communities. The Project could succeed partially in addressing the problems of lack of establishing the mechanisms of a process-approach, micro level planning details, local communities involvement, and coordination among various developmental agencies, NGOs in the area.

Chapter 2 : Background Information and Attributes

2.1 Boundaries

Please refer to the Final Notification of the GHNP given at the end of this chapter.

The description given below is for the Great Himalayan National Park Conservation Area (GHNPCA):

2.2 Geology, rock and soil (Working Plan - Seraj Forest Division, - R.P. Jaiswal)

Geology, rock and soil effect the vegetation of a place by influencing the moisture regime, structure, texture and drainage of the soil. The underlying rock found in the area are quartzites, schists, phyllites, dolomites, limestones, shales, slates, gneisses and granites, which are responsible for a variety of coniferous and broad-leaved vegetation. The underlying rocks play an important role in the formation of soils. Quartzites produce sandy soils after disintegration while granites, schists, shales and gneisses produce loamy and sandy loam soils. While the physical contents of soil are made after weathering of underlying rocks, the mineral and organic contents of soil are influenced by climatic conditions, vegetational cover and host of other factors and in turn the type of soil determines the type of vegetation in a broad climatic zone.

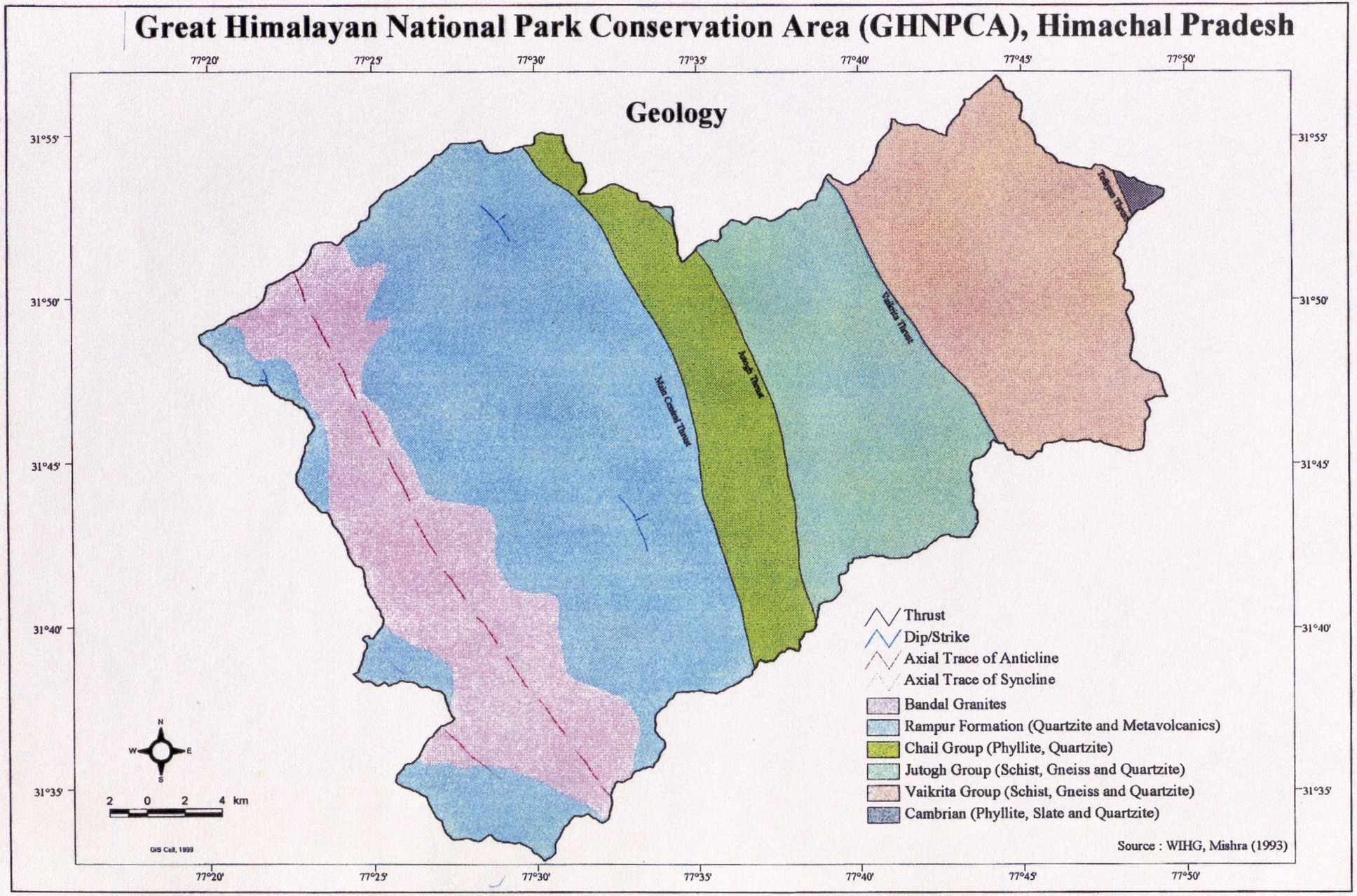
Alluvial soils are formed due to erosion mainly by water and landslips. In the process the weathered material is transported and deposited at a place other than its origin. In such cases the underlying rocks have little role to play in influencing the vegetation on alluvial soils. Such soils are found deposited in the basins of rivers and along the banks of the rivers.

Podsolic soils are found developed in temperate climates and generally hold conifers in the Himalayas. It is formed under coniferous vegetation. The soil is covered with thick layer of humus, which remains undecomposed due to low temperature and short summer. The leaching medium is acidic because of presence of humic acid. The microbiological activity is very low. The pH of soil is acidic. The chlorides, sulphates, alkali and alkaline earth substances get leached. These become degraded soils because of break of nitrogen cycle in temperate coniferous forests. These soils get improved by a mixture of broad-leaved species.

Brown forest soils are formed in temperate climate under broad leaved vegetational cover. There is no accumulation of thick humus on top and humus is of neutral type.

The underlying rocks influence the structure and texture of soils as some rocks on disintegration give rise to fine grained material and others coarse grained material which effects the water holding capacity of soil and consequently influences the type of vegetation which can come up on various structures and textures of soils.

Great Himalayan National Park Conservation Area (GHNPCA), Himachal Pradesh



Deodar cannot regenerate on calcareous parent rock. It requires heavy soil with good moisture retaining capacity while chil requires coarse-grained sand particles having good drainage. Therefore, the chil prefers the soil formed out of quartzites and deodar is happy on the soil formed due to disintegration of granites. Kail requires shallower soils with boulders in the subsoil and silver fir and spruce come up on all soils and can tolerate more acidic conditions.

The soil of almost entire tract has been formed *in situ* and belongs to podsolic group.

2.2.1 Soil Characteristics of the Area (Singh and Rawat, 2000):

In the absence of detailed soil characteristics for this area 10 samples of surface soil were collected from various altitudinal zones covering a depth of 0-10 cm. Soil moisture content was determined by weighing fresh samples and oven dry at 105°C for 24 hours and noting down weight difference. The values obtained for different stands were averaged for each forest type. All the samples for each forest type in each altitudinal zone were mixed in order to form a composite sample. The pH was measured with the help of pH meter and soil temperature by soil thermometer, inserting to a depth of 5 cm during May to October 1997. The values were averaged for each zone. In general, soil pH was 6.05 ± 0.90. High pH of 8.22 is recorded from temperate forest near camping site and low pH of 4.16 from alpine area in Tirth in the Tirthan valley.

2.3 Table: Aerial Estimation of Great Himalayan National Park Conservation Area

S. No.	Type	Area in sq. km.
1	Conifer (Pinus roxburghii)	2.08
2	Mixed conifer	127.98
3	Conifer and Broad Leaved Mixed	33.16
4	Broad Leaved	66.62
5	Broad Leaved and Conifer Mixed	83.36
6	Riperian	.14
7	Slope Grasses	25.92
8	Grasslands/ Blanks (Temp.sub Alpine & Alpine)	221.80
9	Secondary Scrub	22.28
10	Alpine Scrub	117.62
11	Plantation	.16
12	Habitation/Agriculture/Orchards	25.55
13	Exp. Rocks with Slope Grasses	27.60
14	Alpine Exp. Rocks with Slope Grasses	149.73
15	River	4.35
16	Lakes	.87
17	Escarpments	33.82
18	Landslide	.41
19	Snow	184.01
20	Morian	24.24
21	Morainic Islands	.48
22	Glaciers	18.82
	Total	**1171**

Table: Aerial Estimation of Great Himalayan National Park Conservation Area-Ecozone

S. No.	Type	Area in sq. km.
1	Conifer (Pinus roxburghii)	2.18
2	Mixed conifer	73.86
3	Conifer and Broad Leaved Mixed	10.63
4	Broad Leaved	30.10
5	Broad Leaved and Conifer Mixed	45.20
6	Riperian	.14
7	Slope Grasses	16.50
8	Grasslands/ Blanks (Temp.sub Alpine & Alpine)	7.23
9	Secondary Scrub	15.88
10	Alpine Scrub	6.08
11	Plantation	.01
12	Habitation/Agriculture/Orchards	25.90
13	Exp. Rocks with Slope Grasses	8.28
14	Alpine Exp. Rocks with Slope Grasses	.07
15	River	1.05
16	Escarpments	1.29
17	Landslide	.08
	Total	**255**

2.4 Climate and Rainfall (Negi, 1999)

There are prominently three seasons in the area viz. summer from April to June, Rainy season from July to September and winter season from October to March. Depending on variation in altitude, upper reaches are colder than the valleys. Winter is severe and main precipitation is received in the form of snow during winter. Rains are mostly confined to rainy season and heavy downpours in rainy season cause landslides and soil erosion.

Table : Rainfall recorded at Sainj

Month	Rainfall in mm		
	1992	1993	1994
January	240.0	130.3	55.6
February	39.0	97.8	187.8
March	148.0	353.0	12.6
April	11.0	25.3	136.4
May	67.0	42.8	64.7
June	52.0	38.4	116.1
July	307.3	248.1	248.1
August	173.5	80.5	294.7
September	100.9	94.4	112.6

October	-	-	10.4
November	25.6	21.6	-
December	-	-	25.6
Total annual rainfall	1164.3	1132.2	1264.6

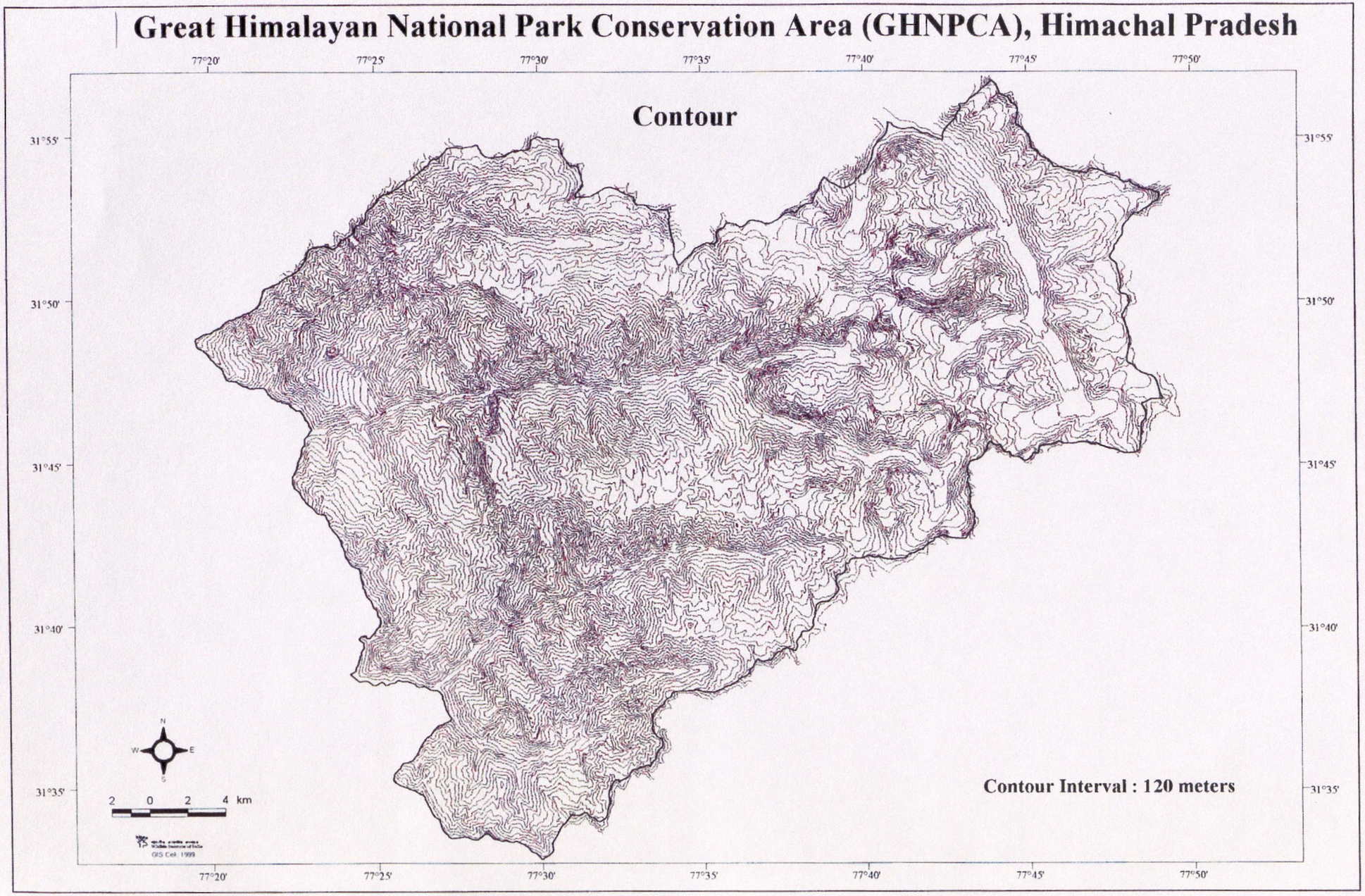
Table: Rainfall data for the year of 2001 of Parbati Hydro Electric Project

Month	Rainfall (mm)		Temp.°C		River flow in cums of Jiwa Nalah		River flow in cums of Sainj (Nalah)	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	127.50	0.0	23.40	0.4	3.33	3.01	9.55	8.86
Feb.	6.51	0.0	21.00	2.60	3.43	3.01	10.32	8.84
March	19.50	0.0	27.80	3.40	5.43	3.06	13.51	8.84
April	9.00	0.0	33.20	7.80	6.90	4.49	17.06	11.81
May	10.50	0.0	36.40	11.00	13.35	7.46	33.64	17.59
June	20.50	0.0	31.20	14.80	17.03	7.30	54.01	25.73
July	128.50	0.0	31.20	18.60	32.25	10.2	301.888	31.38
August	10.50	0.0	31.20	18.80	Not observed		133.04	36.78
Sept.	127.50	0.0	30.80	11.80	Not observed		49.38	25.18
October	32.0	0.0	29.00	10.00	Not observed		26.77	23.19
Nov.	25.50	0.0	28.40	5.80	Not observed		21.28	16.06
Dec.	24.50	0.0	19.60	1.00	3.76	3.42	22.35	12.08

Table: Rainfall data for the year of 2001 of Parbati Hydro Electric Project

Month	Rainfall (mm)		Temp. °C		River flow in (cums) Cubic meter/sac. of Jiwa Nalah		River flow in cums of Sainj (Salah)	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	23.05	0.0	22.2	0.4	3.76	2.99	12.96	10.72.
Feb.	27.5	0.0	20.8	0.8	5.04	3.33	15.70	11.25
March	127.5	0.0	27.2	4.00	8.09	6.46	23.95	15.58
April	24.5	0.0	33.2	8.2	18.25	7.20	56.27	24.08
May	4.5	0.0	34.8	12.0	19.59	8.21	58.73	27.65
June	27.5	0.0	35.0	14.8	19.59	7.80	58.73	28.92
July	21.0fs	0.0	31.6	18.2	20.96	9.79	60.84	37.49
August	164.0	0.0	31.6	17.00	65.52	9.79	149.36	37.24

Great Himalayan National Park Conservation Area (GHNPCA), Himachal Pradesh



Month	Rainfall (mm)		Temp. °C		River flow in (cums) Cubic meter/sec. of Jiwa Nalah		River flow in cums of Sainj (Salah)	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
37.24	12.5	0.0	29.0	12.4	27.09	12.01	73.03	41.23
October	10.5	0.0	29.0	13.0	12.53	7.65	41.23	25.49
Nov.	1.0	0.0	24.0	4.8	7.65	4.58	35.49	19.98
Dec.	0.0	0.0	21.8	0.6	4.86	3.27	20.47	15.43

2.5 Erosion intensity classification (Negi, 1999)

The GHNPCA has following erosion intensity classes as given below:

Table: Classification of area by erosion intensity classes

Sl No.	Name of area	Area in ha.						
		E_1	E_2	E_3	E_4	Rocky	Snow bound	Total
1.	GHNP	3005	7381	32603	2356	12874	18281	76500
2.	Sainj Sanctuary	-	1207	7078	312	44	359	9000
3	Tirthan Sanctuary	200	600	5135	80	-	85	6100
4.	Ecodevelop -ment area	671	4641	19776	312	-	100	25500
	Total	3876	13829	64592	3060	12918	18825	117100
	% of total area	3.3	11.8	55.2	2.6	11.0	16.1	100

E_1 = Slight Erosion, E_2 = Moderate Erosion
E_3 = Severe Erosion & E_4 = Destroyed

2.6 Types of erosion

Following types of erosion occur in the Project area:

- **Landslides**

  A landslide is the downward and outward movement of slope-forming materials composed of natural rocks, soil, artificial fills or combination of these materials.

  The GHNPCA is quite prone to landslides and their occurrence in frequent years is common phenomenon. During rainy season whenever there is higher intensity of rainfall during short span of time their occurrence assumes alarming proportions causing wide-spread damage and disruption of communication paralysing normal life.

- **Sheet erosion and Rill erosion**

  Soil erosion starts with sheet erosion i.e. washing of surface soil from arable land. Thereafter, as the water concentrates into mini rivulets in the fields, rill erosion takes place. When the eroded channels get larger, gully erosion occurs. Finally stream bank erosion takes place when rivers or streams are cutting into banks.

  The sloping cultivation fields in the GHNPCA have acute problem of sheet and rill erosion. Cultivation fields have not been properly bench terraced and in general they are alarmingly sloping and rain water washes down top soil including nutrients and micronutrients from the soil. Sheet and rill erosion are common in barren slopes too wherever vegetation has been destroyed due to biotic pressure.

- **Gully erosion and nala erosion**

  Gully erosion is advanced stage of rill erosion while the latter is advanced stage of sheet erosion. When the eroded channels of rills become large enough which can not be obliterated by normal agricultural operations they are called gulleys. The incessant rains during rainy season further aggravates gully to nala formation, taking soil, stones boulders and debris down hill damaging barren slopes and agricultural fields in its stride.

- **Bank erosion by streams and rivers**

  The high run off down the hill slopes with heavy silt loads fill up the stream beds thereby reducing their capacity to carry the run off and sediments. Consequently the fast flowing waters cut and erode banks. Bank erosion by turbulent waters of Sainj khad is acute in the GHNPCA.

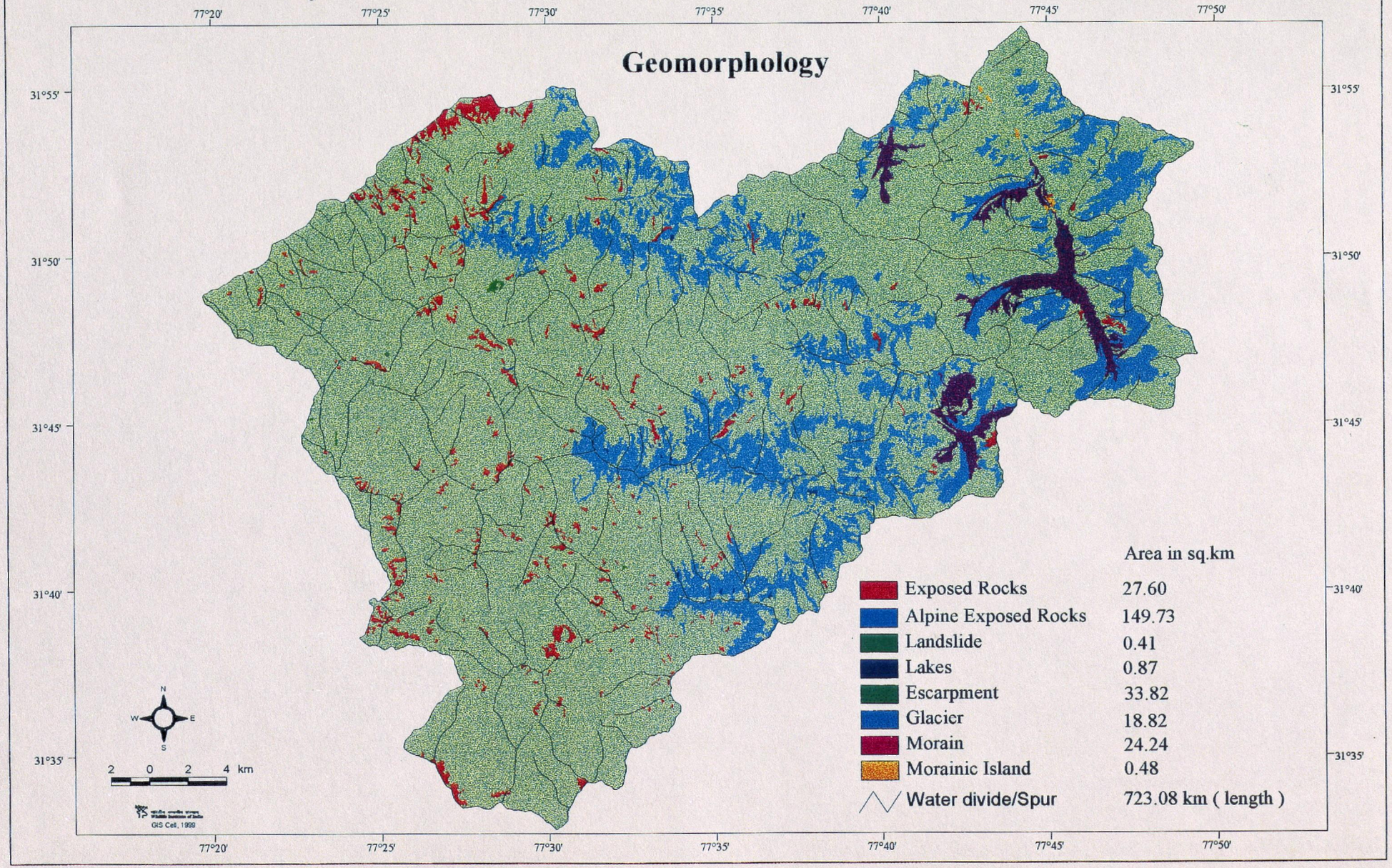
- **Glacial erosion**

  About 18825 ha. (16%) of the GHNPCA is snow bound and in this area on both sides-southern and northern slopes are sources of big avalanches forming glaciers down below. Glacial action consists of three distinct processes of erosion, transport and deposition. The erosive action of glacier is affected by abrasion and is aided by frost action. All products of erosion are transported downhill by the glacier ice, which tend to accumulate at the terminus called moraines. At times morainal deposits impound stream course forming lakes as in the upper reaches of Parbati Valley in GHNPCA. These natural calamities result in destruction of habitat and at times wild animals get trapped.

2.7 Factors causing Landslides (Negi, 1999)

Factors causing landslides can be broadly classified as geological, hydrological, seismic and land use. Almost all landslides involve failure of earth material under shear stress.

Great Himalayan National Park Conservation Area (GHNPCA), Himachal Pradesh



- **Geological factors**

  Landslides are dependent on structure and nature of materials involved. The beds of shales, sedimentary beds, ash beds and schist varieties are all pointers to weak zone and danger of landslides if along with above, structural deformities like steep dips, folds, faults accompany.

- **Hydrological factors**

  Water seeping through the disturbed slopes, toe cutting by rivers and torrents and pore water pressure in soil zone are major agents responsible for landslides. Torrents because of excessive velocities of flow and turbulence carry out quick removal of debris and cutting of sides. In Sainj valley particularly between Shakti and Maror the turbulent Sainj Khad river during heavy rains in 1995 rainy season caused toe cutting at numerous places on the banks resulting in occurrence of several landslides.

  The rainwater has mainly three effects - (i) it increases the effective weight of the material due to saturation (ii) lubricates any sliding places especially of shales and (iii) causes weakening of strata because of moisture intake. One or all these effects in combination brings about the landslide in rainy season.

- **Seismic factors**

  The intensity and frequency with which earthquakes are felt in a particular region also influence the occurrence of landslides. Blasting for slates, limestone quarrying and road making in Himalayan region reduces shear strength and mild seismic activity can take place to initiate landslides.

- **Landuse factors**

  Landslides may also be caused by single or a combination of activities such as (i) indiscriminate felling of trees, overgrazing, unscientific removal of land cover and fire (ii) adoption of improper agriculture on steep slopes (iii) blasting for mining and roadmaking (iv) undercutting of the base of existing slope by torrents or for road cutting and (v) improper alignment of roads and mule paths on weaker and unstable rock formation.

2.8 Extent of Soil Erosion

An assessment of land use in the GHNPCA has been given in table 2.8. The areas under different landuses is summarised below:

Cultivation	2032 ha.
Forest	38092 ha.
Blank	45233 ha.
Rocky	12918 ha.
Snowbound	18825 ha
Total	117100 ha.

The blank area in GHNPCA including the Sainj and Tirthan WLSs is mostly in higher altitudes beyond tree line but blank area of about 4359 ha. in Ecodevelopment area being in lower altitudes and around habitation is susceptible to process of water erosion and calls for soil conservation and afforestation measures.

The summary of erosion class wise distribution of area is as under:

Landuse	Area in ha. under				
	E_1	E_2	E_3	E_4	Total
1. Cultivation	32	1164	826	10	2032
2. Forest	832	4304	31786	1170	38092
3. Blank	3012	8361	31980	1880	45233
4. Rocky	-	-	-	-	12918
5. Snowbound	-	-	-	-	18825
Total	-	-	-	-	117100

Thus the area under E_3 and E_4 is about 57.8% of total area of the project.

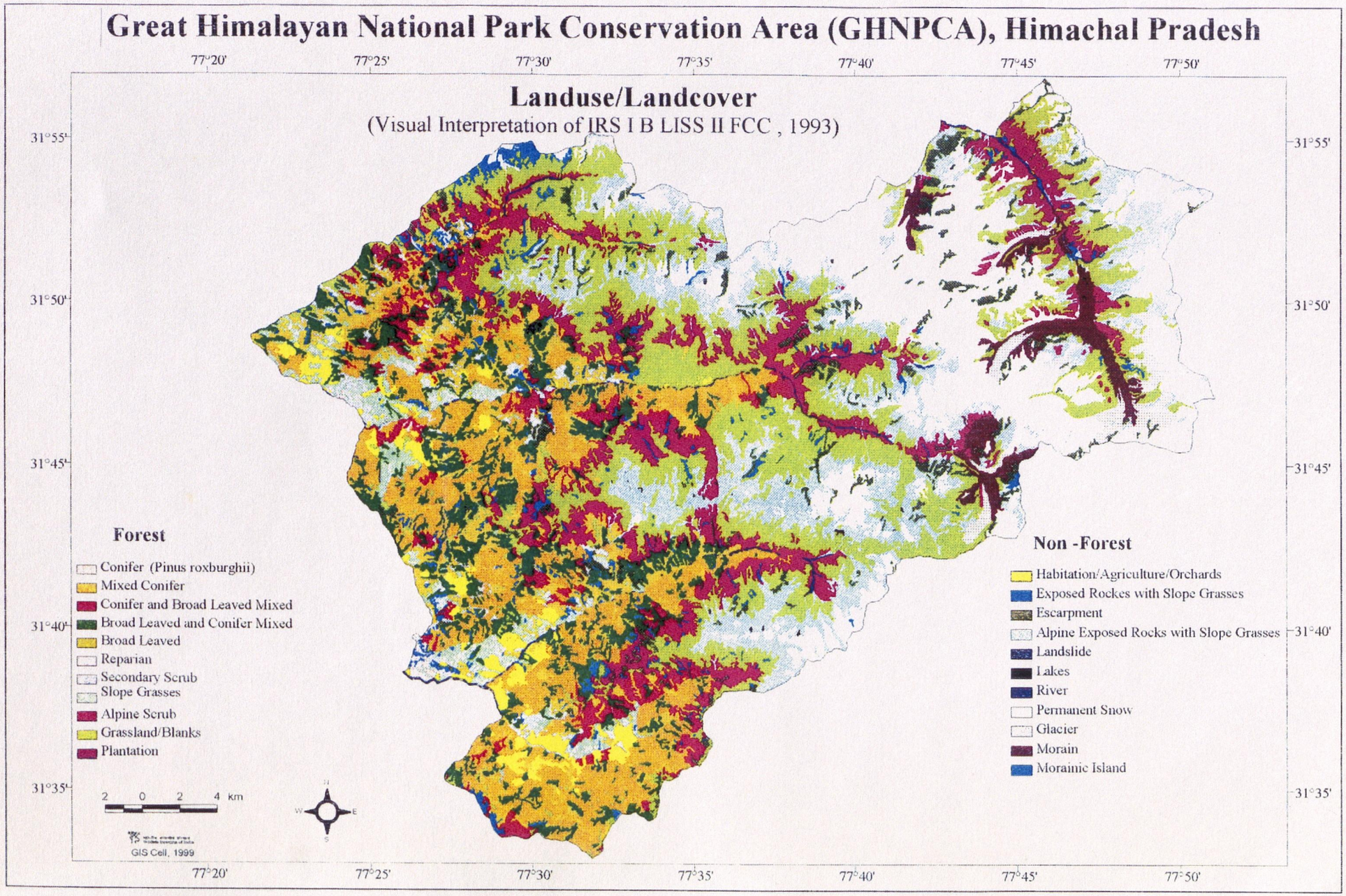
2.8.1 Extent of Landslides

Occurrence of landslides is found maximum in Sainj Khad valley followed by Tirthan Khad valley mainly due to toe cutting of banks by Sainj Khad and Tirthan Khad rivers. As many as 28 landslides were found between Shakti and Maror in a stretch of 5 kms. There was heavy rainfall in the end of August and beginning of September 1995. During the short span of 10 days between 27th August and 5th September rainfall of 132.5 mm was recorded. Thus heavy rainfall in the catchment of Sainj Khad and Tirthan Khad swelled the waters of these rivers resulting in bank cutting. Abetted by seepage of water to saturation and with base already cut by turbulent rivers there were numerous land slides. The stream near Lapah also caused havoc causing landslides and washing down the bridge at Lapah. There were numerous landslides around Rolla and also from Maror to Kutla. Though occurrence of landslides is spread over large area in the GHNPCA but their concentration was maximum in Sainj and Tirthan valleys. It is estimated that about 200 landslides exist in the GHNPCA and at least 50 landslides need immediate treatment for stabilization to overcome disruption of path and communication by these landslides. It was noticed that bridle path between Shakti and Maror had been completely washed down by landslides making movement of human beings difficult. Even essential commodities could not reach Maror due to landslides.

2.8.2 Extent of sheet and rill erosion

Large number of cultivation fields in almost all villages excepting paddy fields in bottom of valleys have undesirable slopes and improper terracing. Sheet and rill erosion is rampant in such cultivation fields. Out of about 2044 ha. area of cultivation fields, at least 400 ha. needs to be properly levelled and bench terraced.

Great Himalayan National Park Conservation Area (GHNPCA), Himachal Pradesh



2.8.3 Extent of Gully and Nala erosion

Gully and Nala erosion is maximum in Ecodevelopment area. Gully and nala erosion is affecting cultivation fields, habitation, Ghasnies etc. and it needs to be controlled by undertaking effective measures.

2.8.4 Extent of Bankcutting by streams and rivers

Sainj Khad, Tirthan Khad, Jiwanal and Parbati rivers and about a dozen other smaller streams are cutting their banks. The toe cutting of banks by Sainj Khad and Tirthan Khad is alarming as it has resulted in numerous landslides on the banksides.

2.9 Extent of Glacial erosion

Glacial erosion is widespread in the snow bound region of the GHNPCA. But due to its inaccessibility and adverse natural conditions nothing can be done to remedy this natural phenomenon.

2.10 Biogeography of Area

Biogeographically, the location of GHNPCA at the junction of world's two major faunal realms, i.e. the oriental to the south and palaearctic to the north makes it an important site. The temperate forest flora-fauna of GHNPCA represents the western most extenuation of the Sino-Japanese Region. The high altitude ecosystem of Northwest Himalaya has phytogeographic affinities with the adjacent Western and Central Asiatic region. These biogeographic elements are directly linked to the geomorphological evolution of Himalaya. In the continental drift when the Gondwanaland mass welded with Asia, the Tethys sea became obliterated progressively towards westward from the east. This resulted in formation of gigantic fold mountains of the Tertiary Himalaya-Alpine System of Eurasia. Due to welding of Gondwanaland and Asiatic landmasses, exchange of flora and fauna could be possible, which ultimately led to the biogeographical peculiarities in the region.

Because of its range of species assemblages, and availability of a compact area for conserving the habitat and biological diversity, GHNPCA is the foremost priority for conservation in the biogeographic zone 2B, i.e North-West Himalaya. The flora of GHNPCA shows affinities with Mediterranean, Tibetan as well as cis-Himalayan region. For example, *Valeriana jatamansi*, *Dactylorhiza hatagirea*, *Taxus baccata*, *Leycesteria formosa* are typical taxa which extends upto Afghanistan and west China. Other affinities that are met with here are in form of *Hippophae* of palaearctic region; *Cedrus deodara*, *Viola biflora*, and *Poa alpina* of mediterranean region; and *Euphorbia* of Peninsular India. In addition, the Himalaya have evolved a high proportion of their own endemic taxa, for example several species of balsams *Impetience*, *Androsace primuloides*, *Hedysarum cachemirianum*, *Draba lasiophylla*, etc. and Himalayan Tahr *Hemitragus jemlahicus* which are well represented in GHNP. As a result of the research work done by the Wildlife Institute of India, the flora and fauna of GHNPCA is now well documented. Dr. S.K. Singh and D. G.S. Rawat have published Flora of the Great Himalayan National Park in 2000 (publisher : Bishen Singh Mahender Pal Singh, Dehradun).

Occurrence of less disturbed temperate and alpine ecosystems in a geographical compact area, and inaccessible and rugged terrain representing the ecological, geomorphological and biological values of the North-west Himalaya make GHNPCA the biggest conservation unit in the biogeographic zone 2A. The boundaries of GHNP are contiguous with the Pin Valley NP in Trans-Himalaya, and Rupi-Bhaba WLS in Sutlej catchment. Another PA adjacent to the GHNPCA is Kanawar WLS. Together, all these PAs have varied wildlife habitats, and full range of western Himalayan biodiversity, from tropical to alpine and Tibetan.

2.11 Biodiversity of GHNPCA

2.11.1 Plant Community

The forest area consists of extensive stands of Oak (*Quercus semecarpifolia*), coniferous forests of Blue Pine (*Pinus wallichiana*), West Himalayan Silver Fir (*Abies pindrow*), West Himalayan Spruce (*Picea smithiana*) and Himalayan Cedar (*Cedrus deodara*). The broad-leaf forests contain Horse Chestnut (*Aesculus indica*), *Rhododendron arboreum*, *Quercus leucotrichophora*, *Q. floribunda* at the lower altitude, and pure patches of Birch (*Betula utilis*) at higher altitude. Yew (*Taxus baccata*) is an important medicinal tree of the understorey. A rich variety of shrubs and patches of ringal bamboo (*Arundinaria spathiflora*) are found as a dense understorey. The shrubs of (*Rhododendron campanulatum*) form the Krummholz patch in the sub-alpine zone. Other shrubs that are found about 3700 m are *Juniperus communis*, *J. pseudosabina*, *Lonicera*, *Berberis*, *Cotoneaster*, *Vibernum*, *Rosa* occur extensively about 3700 m. There are a number of man-made (by graziers) clearings/grasslands within the forest areas locally known as **thach** used as grazing and camping ground for the migratory livestock (cattle, sheep and goats). The alpine flora occurring above 4,000 meters is characterised by species rich meadows with medicinal and economical values. They include *Aconitum violaceum*, *Salvia moorcroftiana*, *Viola serpens*, *Jurinea macrocephala*, *Rheum emodi*, *Berginia ciliata*, *Picrorhiza kurroo*, *Saussurea graminifolia*, etc.

2.11.2 Floral Aspects

Analysis of the Flora (Singh and Rawat, 2000)

The WII research team undertook a detailed study of floral diversity in the GHNPCA. A total of 832 plant species belonging to 427 genera and 128 families of higher plants were recorded within the study area. The species have been appended (Appendix I and Appendix II) in the alphabetical order within each family, which follows the sequence of Flora of British India (Hooker 1872-97). Each species is given with authority and synonym. The nomenclature follows Rau (1975), Bennet (1988) and Aswal and Mehrotra (1994). Detailed taxonomic treatments (citation, keys for identification and description) are not given to avoid repetition from the literature cited above. Of this, 794 were Angiosperms, 11 Gymnosperms and 27 ferns. The ratio of family to genera is 1:3.33, family to species 1:6.50, and genera to species 1:1.94. The distribution of species in various groups is given in the following table :

Table: The ratio of families, genera and species

Groups		Families	Genera	Species
Angiosperms	a. Dicots	94	308	634
	b. Monocots	17	95	160
Gymnosperms		4	8	11
Ferns		13	16	27
Total		128	427	832

According to the growth habit these species are distributed over 69 trees, 113 shrubs, 28 climbers, 493 herbs, 96 graminoides and 27 ferns. The fern species are listed under Appendix II. The ferns were distributed all over the study area with high abundance.

Table : Distribution of flora of GHNPCA according to growth habit

Habit	Angiosperms		Gymno-sperms	Grasses & Sedges	Ferns	Total
	Dicots	Monocots				
Trees	61	0	8	-	-	69
Shrubs	107	3	3	-	-	113
Climbers	25	3	-	-	-	28
Parasites	6	-	-	-	-	6
Herbs	435	58	-	-	-	493
Grasses and sedges	-	-	-	96	-	96
Ferns	-	-	-	-	27	27
Total	634	64	11	96	27	832

Table: Habitat wise distribution of species in various altitudinal zones

Altitudinal Zones (m)	Genera	Species	Trees	Shrubs	Climbers	Herbs	Grasses & Sedges
Temperate	223	448	59	80	19	216	74
Temperate	311	624	62	92	22	368	80
Upper Temperate	220	468	35	67	14	294	58
Sub alpine	135	311	8	30	3	252	18
Alpine	158	387	3	63	1	281	29

2.11.3 Diversity, Richness and Evenness of the Flora (Singh and Rawat, 2000)

Species diversity, richness and evenness calculated for various climatic zones show that sub alpine zone has highest species diversity (3.20), followed by alpine (3.12) and upper temperate belt (2.56), the richness value of temperate zone is highest (2.57) and lowest for that sub alpine zone (2.15). The evenness value of lower temperate zone is maximum (0.92). The diversity, richness and evenness values across the various zones are given below:

Table : Diversity, richness and evenness of species in various zone

Climatic Zone	Genera	Species	Diversity	Richness	Evenness
Lower Temperate	223	448	2.86	2.40	0.92
Temperate	311	624	2.62	2.57	0.78
Upper Temperate	220	408	2.56	2.16	0.82
Sub alpine	135	311	3.20	2.15	0.75
Alpine	158	387	3.12	2.51	0.77

The species diversity, richness and evenness at various landscape categories show that the species diversity of alpine pasture was highest, (H'=3.15) and lowest (H'=1.10) for eroded slopes. Likewise richness of stable slopes was highest (2.73) and lowest of river belts (0.77).

The GHNPCA on the whole has 32.53% area under forests. The GHNP has 17.0% of its area, Tirthan Sanctuary has 47.1%, Sainj Sanctuary has 35.1% and Ecodevelopment area has 74.6% of their respective areas under forests. The low percentage of forest area in GHNPCA is due to preponderance of high altitude meadows beyond tree line and rocky and snow bound areas in the park area. Dense Himalayan Moist Temperate forests, characterised by both coniferous, cover the area and broadleaves species between 1500-3600 m with following dominant species occurring according to different locality factors in the area:

Deodar, Blue pine, Cypress, Chilpine, Silver fir, Spruce and Taxus among conifers and *Quercus incana, Q. dilatata, Q. semicarpifolia, Celtis australis,* Horse chestnut, Walnut, Maple, *Prunus,* Alder, Birch, Ash, *Cedrella serrata, Populus, Salix* etc. among broad-leaved species.

Blue pine occurs below 2000m and chilpine down below in the lowest limit of the project area. Diverse broadleaved species are seen in moderate slopes. Kharsu oak occurs in pure form between 2000 to 3500 m. Small areas of Ban oak are seen between 1800 to 2400 m with Moru oak overlapping upper range of Ban oak and lower range of Kharsu oak. Generally Silver fir and spruce are seen in Northern slopes and stands of blue pine, Deodar and Kharsu oak are seen in southern slopes. Alnus, Populus and Salix species are found near water streams. Bamboo brakes of Arundinarea species are also found in moist northern slopes in Tirthan and Sainj Valleys.

Undergrowth and ground cover comprises of *Indigofera, Viburnum, Sarcococca, Berberis, Iris, Polygonum, Cannabis, Balsam, Rumex, Gerardiana* etc.

The last tree line is mixed with sub-alpine scrub of Rhododendron and Juniper species, usually occurring in patches interspersed with meadows and out crops of rocks. Alpine thatches have preponderance of medicinal and aromatic plants. About 61 herbs have been identified in the park. Some of the commercial value herbs are Balchhar, Dhoop, Glaeoda, Guchhi, Hathpanja, Karoo, Mehndi, Nihanoo, Patish and Shingli mingli. List of medicinal herbs reported from GHNPCA is given in Annexure. Besides alpine meadows in GHNPCA we find grass lands in Ecodevelopment area which seem to have been created and maintained as "Ghasnies" as a result of practice of pastoralism.

Following Forest types based on Champion and Seth's classification, occur in the area:

i. Ban Oak Forest (12/C1(a)
ii. Moist Deodar Forest 12/C1(c)
iii. Western Mixed Coniferous Forest 12/C1(d)
iv. Moist Temperate Deciduous Forest 12/C1(e)
v. Kharsu Oak Forest 12/C2(a)
vi. Western Himalayan Upper Oak-Fir Forest 12/C2(b)
vii. Montane Bamboo Brakes 12/DS1
viii. Himalayan Temperate Parkland 12/DS2
ix. Himalayan Temperate Pastures 12/DS3
x. Western Himalayan Sub-Alpine Fir Forest 14/C1(a)
xi. Sub-Alpine Pastures 14/DS1
xii. Birch/Rhododendron Scrub Forest 15/C1
xiii. Deciduous Alpine Scrub 15/C2
xiv. Alpine Pastures 15/C3

2.12 Faunal aspects

The three phases of HWP-I: 1980, HWP-II:1983 and HWP-III:1993 in collaboration with HP Forest Department have provided some information on wildlife abundance.

Notable mammals found in the GHNPCA are

- Serow (*Capricornis sumatraensis*)
- Himalayan Tahr (*Hemitragus jemladhicus*)
- Goral (*Nemorhaedus goral*)
- Blue Sheep (*Pseudois nayaur*)
- Himalayan Black Bear (*Selenarctos thibetanus*)
- Himalayan Brown Bear (*Ursus arctos*)
- Himalayan Red Fox (*Vulpes vulpes*)
- Musk Deer (*Moschus moschiferus*) - listed in Red Data Book

The avifauna of GHNPCA has been reported only recently.

- The Park falls within one of the globally important Endemic Bird Areas (D02: Western Himalaya) identified by the ICDP Biodiversity Project (ICBP 1992).
- 183 bird species including 132 passerines and 51 non-passerines have been recorded from the NP which is comparable with 71 non-passerines and 150 passerines recorded throughout the hilly regions of Himachal Pradesh above 1,500 m altitude.
- This also suggests that the Park supports a substantial proportion of all the species occurring within its altitudinal range in the western Himalayas.

The GHNPCA receives at least 50 species, which are summer visitors. They include

- Eurasian Woodcock (*Scolopax rusticola*)
- cuckoos (*Cuculus*)
- Oriental Turtle Dove (*Streptopelia orientalis*)
- swifts, swallows
- Grey Nightjar (*Caprimulgus indicus*)
- drongos (*Dicrurus*)
- most flycatchers and warblers, many chats and thrushes.

Among raptors, species such as Black Eagle *Ictinaetus malayensis* and Booted Eagle (*Hieraaetus pennatus*) were recorded only a few times. Peregrine Falcon (*Falco peregrinus*) appears to have become quite rare in western Himalaya and could not be recorded from the Park.

Passerines are abundantly represented in the Park. They are represented by

- babbles (Garrulacinae and Sylviinae: Timaliini, 14 species),
- flycatchers (Muscicapinae: Muscicapini, 11 species),
- chats (Muscicapinae: Saxicolini, 11 species),
- warblers (Acrocephalinae, 14 species), and
- Thrushes (Turdinae, 12 species).

Special mention can be made of three species, White-browed Shortwing (*Brachypteryx montana*), Little Pied Flycatcher (*Ficedula westermanni*), and Rufous-vented Tit (*Parus rubidiventris*) which have extended their range to the north-west.

Galliforms in GHNPCA constitute a very important and spectacular component of biodiversity. The Sainj WLS is one of the major wildlife protected areas in Himachal Pradesh with a population of the endangered Western Tragopan (*Tragopan melanocephalus*). Another endangered pheasant, the Cheer (*Catreus wallichii*) is present on the steep, south-facing grassy slopes. Monal

(*Lophophorus impegenus*), and Koklas (*Pucrasia macrolopha*), are in abundant in the temperate forest zone while Kaleej (*Lophura leucomelana*) occurs in small numbers below 2,000 m. The sightings of Snow Partridge (*Lerwa lerwa*), Hill Partridge (*Arborophila torqueola*) and Himalayan Snowcock (*Tetragallus himalayensis*) are very few.

2.12.1 Facts about some important bird groups

Raptors

Both Himalayan Griffon *Gyps himalayensis* and Lammergeier *Gypaetus barbatus* were common in the GHNPCA, being seen daily at all seasons. Golden Eagle *Aquila chrysaetos* and Common Buzzard *Buteo buteo* were seen frequently at all seasons in the subalpine and alpine zones. Eurasian Sparrowhawk *Accipiter nisus* was common below the tree line. Black Eagle *Ictinaetus malayensis* and Booted Eagle *Hieraaetus pennatus* were recorded only twice each. There was no record of Peregrine Falcon *Falco peregrinus* from the Park. This species appears to have become very rare in the western Himalaya.

Pheasants, and Partridges

The GHNP supports a good population of the threatened Western Tragopan *Tragopan melanocephalus*. Males were heard calling during both spring surveys (1980, 1983), and in autumn (October-November) 1991, 1999, 2000, 2001, 2002 and 2003. The WT has a density of about 1.5 to 2.0 birds per sq km in its habitat in GHNPCA.

The Impeyan Monal *Lophophorus impejanus* and Koklass Pheasant *Pucrasia macrolopha* were abundant in the temperate forest zone, and Monal also occurred in subalpine scrub, especially in autumn. Kalij Pheasants *Lophura lelucomelanos* occurred in small numbers below 2,000 m, while some steep south-facing slopes covered by grasses and shrubs supported small numbers of the Cheer Pheasant *Catreus wallichii*. The Hill Partridge *Arborophila torqueola* occurred sparingly at altitudes below 2,5000 m. The Snow Partridge *Lerwa lerwa* has been recorded just once in the Park, above the tree-line in the Tirthan Valley during November 1991. The Snow Partridge has recently been sighted in Shrikhand Mahadev area in September, 2003.

Shorebirds

Eurasian Woodcock were recorded at several localities within the Park and in adjacent forested areas between 1,900-3,000 m. it is presumably a regular breeder. The Solitary Snipe *gallinq solitaire* was recorded in autumn 1991 on two small marshes at about 4,000-m elevation.

Pigeons

The Speckled Wood-Pigeon *Columbia hodgkin* and Snow Pigeon *C. leuconota* were both common in the Park, as was the Oriental Turtle-Dove in summer.

Parakeets

The Slaty-headed Parakeet *Psittacula himalayana*, seen commonly in forest up to 2,200 m, was the only species recorded.

Cuckoos

All species were summer visitors to the forests, the Common Cuckoo *Cuculus canorus* and the Oriental Cuckoo *C. saturatus* being encountered most frequently.

Owls

The Collared Owlet *Glaucidium brodiei* and the Tawny Owl *Strix aluco* were both common in the temperate forest zone and the Mountain Scops-Owl *Otus spilocephalus* was recorded on several dates. The Rock Eagle-Owl *Bubo bengalensis* and Short-eared Owl were recorded only once.

Other non-passerines

The Grey Nightjar was common during April-September upto 3,000m. Himalayan Swiftlets *Collocalia brevirostris* and Fork-tailed Swifts *Apus pacificus* were recorded frequently from April to October, occurring mainly over forests. There was one record for the White-throated Needletail *Hirundapus caudacutus*. The Eurasian Hoopoe *Upupa epops* occurred up to 2,500 m during April-September. Brown-fronted Woodpecker *Dendrocopos auriceps* and Great Barbet *Megalaima virens* were both recorded up to 2,000 m, while the Scaly-bellied Woodpecker *Picus squamatus* and Himalayan Woodpecker *Dendrocopos himalayensis* occurred throughout the temperate forests. The Speckled Piculet *Picumnus innominatus* was present only at the lowest altitudes (below 2,000 m).

Passerines

Like most Himalayan forests, those of the Great Himalayan National Park are rich in babblers (Garrulacinae and Sylviinae: Timaliini, 14 species), flycatchers (Muscicapinae: Muscicapini, 11 species), chats (Muscicapinae: Saxicolini, 11 species), warblers (Acrocephalinae, 14 species) and Thrushes (Turdinae, 12 species), which together comprised just under 50% of passerines recorded.

2.12.2 Small Mammals reported from GHNPCA

Sl. No.	Altitude (m)	Location(Valley)	Species
1.	1700	Tirthan	Grey Shrew *Crocidura attenuata* Wood Mouse *Apodemus sylvaticus*
2.	2300	Tirthan	House Mouse *Mus musculus*
3.	3650	Sainj	Royle's Mountain Vole *Alticola roylei*
4.	2850	Parbati	Grey Shrew *Crocidura attenuata* Royle's Mountain Vole *Alticola roylei*
5.	2600 to 3700	Tirthan	Indian Pika *Ochotona roylei*

Sl. No.	Altitude (m)	Location(Valley)	Species
	3700		
6.	1300 to 3700	All Valleys	Giant Indian Flying Squirrel *Petaurista petaurista*
7.	Upto 2800	All Valleys	Porcupine *Hystrix indica*
8.	1600 to 3700	All Valleys	Himalayan Palm Civet *Paguma larvata*
9.	1600 to 3700	All Valleys	Himalayan Weasel *Mustela sibrica*
10.	1600 to 3700	All Valleys	Yellow throated Marten *Martes flaviculа*

Record nos. 1 to 4 from Gaston and Garson 1981; rest from personal observations of Sanjeeva Pandey.

2.13 Legal Position

The villages, hamlets and cultivation are revenue lands under private ownership. Rest of the areas are either Reserve Forest (RF) or Protected Forest (PF). The RF are situated in remote areas and are free from rights. The Protected forests are further divided into Demarcated PF class I and class II and Undemarcated PF also called class III forests. The class I forests are situated near the habitation, the rights of users are less extensive but well defined and comprise of valuable growing stock both for people and for producing timber for market. The class II forests are situated above class I forests towards the ridge in higher elevation consisting of mainly Silver Fir and Spruce, alpine pastures and snowbound areas. Besides supplying large quantities of timber to local requirement and export, class II forests are also used as summer grazing grounds. The grazing rights are well defined in class II forests.

(i) Great Himalayan National Park:

Reserve Forests	42.34 sq. km.
DPF Class-II	618.84 sq. km.
UPF Class-III	93.22 sq. km
Total	754.4 sq. km.

(ii) Sainj WLS

Reserve Forests	1.1979 sq. km.
DPF	88. 214 sq. km.
Cultivation	0. 589 sq. km.
Total	90.00 sq. km

(iii) Tirthan WLS:

DPF	20.633 sq. km.
UPF	40.497 sq. km.
Total:	61.1303 or 61.00 sq. km.

(iv)EcoZone of GHNP:

Reserve Forests.	5.9598 sq. km.
DPFs.	177.6715 sq. km.
UPFs.	101.9687 sq. km.
Total	265.6 sq. km.

The undemarcated class III forests are all government lands other than notified as RF or Demarcated PF and the private land. The class III forests are important to people as its wooded areas provide timber and firewood and its grass lands are grazed. The large barren grass lands of class III forest also meet the demand of "Nautors" (land granted for fresh cultivation). The class III forests areas have been shrinking gradually due to demand for fresh cultivation land.

Authoritative English Text of this Department Notification No. FFE-B-F (3)-2/99- dated 28th May, 1999 as required under Clause (3) of Article 348 of the constitution of India.

GOVERNMENT OF HIMACHAL PRADESH
DEPARTMENT OF FORESTS.

No. FFE-B-F (3)-2/99- Dated Shimla-2 the 28th May, 1999

NOTIFICATION

Whereas Notification No. Ft. (B)-6-17/73-SF-II-dated 22.2.1994 under sub-section (1) of section 35 of the Wildlife (Protection) Act, 1972 was issued declaring intention of Himachal Pradesh Government to constitute the area mentioned, therein as a National Park to be known as "Great Himalayan National Park" in District Kullu, Himachal Pradesh.

And whereas proclamation under section 21 of the said Act was made by Collector and procedure as laid down in the Act ibid has been following by the Collector, Great Himalayan National Park, Kullu by finalizing the quantum of compensation after due investigation and determination of claims and extinguishments of rights, in relation to the forest areas falling in the final boundaries of the Great Himalayan National Park and the private holdings (including housing etc.) the Governor, Himachal Pradesh is hereby pleased to accept the award No. 1 group of 1999 dated 21.5.1999 covering the above issues.

Now thereafter, the Governor, Himachal Pradesh in exercise of the powers vested in her under sub-section (4) of section 35 of the said Act is pleased to declare that the areas as declared below shall be National Park (Great Himalayan National Park) from the date of issue of this Notification. The final boundaries as limited by the Collector, Great Himalayan National Park are notified as under:

North	Jiwa Nal Parihar, Phangchu Galu, Rohni Dhar, Khandedhar, Jaram Sher, Mahoun Dhar, Rakti Dhar upto Kokashani peak.
East	Kokashani Peak, Gashu Pishu
Sauth	Sirikhand Dhar from Gashu Pishu to Shri Khand Mahadev and the along Watershed between Palachan Gad and Tirthan Gad up to the point it meets Kharungcha Dhar (East of Kharungcha Village)
West	Tirthan Khad Catchment along Kharungcha Village Dhar to Tirthan Dhar areas as the Khad along the Western Boundary of Rolla RF and Rakhundi DPF along the villagepeak up to Gurar Thach

SAINJ KHAD CATCHEMENT

Along Dhar culminating in to a Nala east of Lapah Village along the nala to main Sainj Khad, upstream along Sainj Khad up to the point of its confluence with nala east of Majhan Village along the nala up to main

ridge dividing Sainj and Kartaul Khad Watershed along the main ridge down-wards and then along up to Kartaul Gad (opposite Bhagi Kashari Village) along Bunga Dhar up to Bunga.

JIWA NALA CATCHMENT

Nala between Jubkatan Thach and Apgrahan Thach and Chhogales P.F.

The Governor, Himachal Pradesh is further pleased to notify that all activities with in the meaning of Section 35 (sub-section 5 to 8) will be prohibited and regulated in the manner specified in the relevant section/clause of the said Act.

Area: 754.4 Sq. Km.

By Order

Commissioner-cum-Secretary (Forests) to
the Govt. Himachal Pradesh.

Chapter 3 : Historical and Socio-Political Perspective of the Human Settlements and Conservation Efforts in Seraj, Kullu Area

3.0 Human Settlements in Seraj, Kullu: A Historical Perspective

Because of the remoteness, and inaccessible mountain terrain, the human settlements in Seraj area of Kullu make an interesting subject of study for the scholars. Kulantpitha (the End of the Habitable World) is the name of Kullu in old scriptures (Chetwode, 1972). A hill society offers great opportunity to understand long-term changes in the interactions between its environment, economy and society. However, it also highlights the fact that there are certain social and ecological elements, which actually represent continuity (Singh 1998). A study 'The Historical Development of Human Impacts on Great Himalayan National Park' done by Dr. Richard Tucker explores some of the aspects on man-environment relations with reference to the Seraj area of which the GHNPCA is a part. The remote and relatively-isolated indigenous communities of the Jiwa, Sainj and Tirthan Valleys of GHNPCA have each developed distinct traditions and customs (Harcourt, 1871). Neither local history of natural resource use nor conservation practices have been well documented, although limited information has been extracted from edicts (an order sent out by the local rulers), copper plate inscriptions, and reports on land and forest settlement (Gazetteer 1918; Harcourt 1871; Anderson 1886).

3.1 Some aspects of human settlements in Seraj, Kullu area (Tucker, 1999)

- Human settlements in the Upper Beas Basin began well over 2,000 years ago, in a gradual drift northward from the lowlands up river valleys. Archeological knowledge of the following centuries, especially regarding agriculture and land use, is scanty.

- The dominant caste of farmers and shepherds on the land were people called Kanets; by the 1800s they owned over 80% of the agricultural land in Kullu Subdivision, and referred to themselves simply as zamindars, the owners of the land. In the early 1900s they began to claim the caste name of Rajput, a status which was recognized officially in the 1930s. Since the the term Rajput has indicated a wide range of social status.

- Perhaps as much as 1,000 years ago Rajputs of high status began penetrating the upper Beas region from the Punjab lowlands, during the early Muslim invasions. The most powerful Rajput families in modern centuries were descended from Kullu Rajas' retainers; they did not intermarry with Kanets in Rupi/Seraj.

- Brahmins also gradually moved into the mountains from the north Indian lowlands. They brought orthodox Hinduism to the region, and looked down on local religious traditions. They built temples to the high gods of Hinduism, and served as hereditary temple priests (pujaris). But in spite of their high ritual status, many of these

Brahmins also held land, and worked the plough, unlike most plains Brahmins.

- Below all these in status were small numbers of Untouchables, today's Scheduled Castes. These jatis, the most numerous of them called Dagis in the Kullu valley and Kolis in Seraj, were not allowed to hold land, but were tenant farmers, laborers attached to Kanet families for their subsistence. They also included Chamars (leatherworkers who processed livestock products), Barehis (axemen or woodcutters in the forest), Thanis (masons and carpenters, using trees and stones from the forest), and Balras or Barras, who had the exclusive right to make baskets from ringal bamboo. As this list shows, the caste hierarchy is also a division of natural resource use.

- For their agriculture these rural people had very limited arable soils in the mountain valleys. Even in the nineteenth century there was a high ratio of rural population to arable land. On their small tilled terraces they grew hardy subsistence crops, which were adapted to local conditions. [Harcourt 1870: 50-55; Diack 1897: 75-89] As an early British official wrote, "Throughout Kooloo, except in the higher vales, the soil yields two crops annually ... Almost every description of grain grows to perfection, and is thickly cultivated." [Harcourt 1870: 50]

- The farmers grew a variety of basic food grains. Rice, the main summer or kharif grain, was cultivated under irrigation in the valley bottoms. Winter or rabi grains included wheat, buckwheat and barley (the latter was cultivated in higher fields and was a favorite in Inner Saraj. In early modern times the kharif crop menu was enriched by several new cultigens from the Americas: maize, amaranth and potato.

- Intercropped with the grains, or on smaller patches, the farmers grew pulses, sarsun for cooking oil, gourds, green beans, leafy green vegetables, and by the nineteenth century many European vegetables as well. On steeper hillsides they grew fruit and nut trees: apricot and peach for oil, walnut and other nuts.

- Forest use was another dimension of the villagers' subsistence. They had open access to the forest for firewood and construction timber. They collected a wide variety of medicinal herbs, which anyone was allowed to harvest, and bamboos, which were reserved for Balras to gather and weave into baskets.

- For occasional meat they hunted mammals and birds in the forest, especially in winter when the snows drove ungulates down the mountainsides toward the farm settlements. Villagers did not use guns, but laid snares for quail, pheasant, and even mammals such as ghoral, baral and musk deer.

- The most important non-agricultural use of land in the Kulu and Seraj region was pastoralism. Village households had small numbers of cattle, sheep and goats for subsistence use. As a link with the

commercial economy, both local villagers and outsiders also kept larger flocks of sheep and goats, which had to migrate in a transhumant system in search of food.

- It is also debated whether the villagers' livestock caused severe denudation around settlements at lower elevations, especially on the warm, dry, south-facing slopes in the river valleys. Dietrich Brandis, the most knowledgeable early British observer, described a degree of degradation of the landscape of the lower Tirthan valley which was already as severe as today: "The lower part of the Tirath valley presents a lamentable scene of desolation, the slopes on either side ... being furrowed by torrents and scarred all over by landslips and incipient ravines, which indicate that grazing and burning are destroying rapidly the natural covering of the hill sides." [Brandis, Baden-Powell and Stenhouse 1877: 4; see also p. 33]

- One other dimension of the traditional world of village life on the land is easy to dismiss in modern times, because modern knowledge gives it little credence. But it may yet hold one key to effective, sustainable management of rural and natural mountain ecosystems. The upper Beas region, perhaps as much as any cultural region in the Indian subcontinent, maintained a geography of sacred places. Most villages in Kulu and Seraj had temples to ancient local gods and goddesses (devtas and devis). Temple groves of the sacred deodar tree were under the care of the devtas, protected against cutting. Some temples were within the villages; others were sited on prominent or dramatic locations in the forest. These gods' homes were constructed of stone and deodar timber, most of them in similar style to human homes. They held rent-free land and granaries, and were supported by one or more pujaris (some Brahmin but mostly Kanet) a manager (kardar), an oracle or shaman, interpreters (chelas), and musicians for festival times. All these positions in village society's management of sacred sites were hereditary.

- Management was by the "body of hereditary votaries," the people of one phati or more; manager (kardar) appointed for life; rare appeal to Raja. The devtas linked village life with the outside world too. One way a raja could make his power legitimate was with gifts to the temples. Rajas often gave endowments in perpetuity to devtas; by the late 1800s 1/7 of cultivated land in Kullu was temple endowments.

In summary, village life was a relatively self-sufficient local system of subsistence, and inter-relations with the natural world and the supernatural. As an agroecological system, it integrated croplands, forests and grazing lands. But throughout most of its history this system has also had important ties to two dimensions of the outside world: politically powerful overlords and urban markets linked by trade routes. Both were controlled by socially different groups, which impinged upon village life in ways sometimes disruptive or extractive, and also stabilizing. Historical documentation in recent years has not adequately traced the changing circumstances of villagers, in relation to both government agents and the market economy, but here too a general picture can be framed,

highlighting aspects of pre-modern life, which are important as a background for understanding the dynamics of recent times.

3.2 Links to the outside world: Political Perspective (Tucker, 1999)

- The key to life beyond the local village was the tradition of Ranas and Thakurs. From as early as the first or second century A.D., these local overlords established their control over small areas of each river basin. Most were local Kanet lineage chiefs, with their retainers. The pattern was very unstable, for they competed with each other, levying taxes and tribute from farmers, shepherds and traders.

- These local lords were gradually subdued by Rajputs from the lowlands after 1,000 A.D. The Rajputs were adventurers who established themselves as heads of aristocratic kinship networks, maintaining marriage relations with their counterparts as far south as Gujarat.

- In the upper Beas basin the key power that ultimately emerged was the Pal dynasty of Kullu, whose origin was traditionally linked to the hero Bhima in the Mahabharata. They controlled the richest valley lands of the region. Their headquarters were first at Jagatsukh, then Naggar; then in about 1660 they moved to the modern location of Sultanpur (Kulu town).

- Gradually the Ranas and Thakurs came under the limited overlordship of the Kullu Raja. Bahadur Singh (c. 1532-58) defeated the Thakurs of Seraj. But the situation was perennially unstable; the Kullu raja was able to exercise only limited control over the Ranas and in the villages. As Hutchinson writes, "For centuries the Rajas exercised little more than a nominal authority, and were constantly in danger of being overpowered by the local petty Chiefs. It was only after centuries of almost continuous warfare that they gained a real supremacy over the Ranas and Thakurs." [Hutchison and Vogel 1933: II, 425]

- The Ranas and Thakurs became tributaries of the Kullu Raja, and were granted land, revenue and other rights in return for service to the raja. Ultimately in colonial times their former holdings became waziris in Kulu Division. Penetrating into the villages, the Raja's officials were a hierarchy of men who collected dues from holders of arable land. This hierarchy the British successors largely adopted in the late 1800s. Lower-level officials functioned primarily as collectors of taxes in kind from villages. Each subdivision was headed by a wazir, under whose authority a negi was appointed for each kothi or revenue village, which was a cluster of phatis or hamlets. Village landholders held collective responsibility for payment of goods and labor. Tax assessments included portions of many items, including cash, grain, oil, ghi, honey, and possibly even wild items like bird plumage and deer antlers.

- The other general duty of villagers was begar or unpaid labor, a standard form of dues owed to the Raja, just as it was in many parts of India. For many purposes, including trail construction, service at the palace, and so forth. Brahmins and important courtiers were exempted. The most

important form in the mountains was as portage, to carry the goods of important people from one location to another. Men were required to report for begar duty when it was demanded, whatever other responsibilities they might have at home. Since the travelling seasons were before and after monsoon, begar demands for portage fell most heavily in the kharif crop's planting and harvesting seasons. This form of begar was evidently an endemic source of friction between villagers and their overlords.

- But this system of power was reciprocal, one of mutual dues and rights, providing stability to rural life, because the Raja and his agents were also the guarantors of villagers' rights with the local social hierarchy. Villagers were traditionally wary of outsiders, since they experienced outsiders mostly as people who had some advantage to gain by manipulating them.

- Perhaps the villagers' most important right was nautor, the right to open forest land to the plough. Individual crop land was held under the Raja as the ultimate owner of all land, but he rarely confiscated (resumed) land.

- Villagers were also guaranteed forest rights: the rights to gather wood products and building materials, grazing and fodder for their livestock, and non-timber forest products for their own use, including medicinal herbs and bamboos. The Rajas placed few restrictions on these rights, because the rural population was small in relation to the mountains' broad extent, and there was little monetization, little development of cash markets for forest produce.

- One other element of the Rajas' power, the aristocratic hunt, was also very relevant to the fate of wildlife in modern times.

"The hill state rajas exercised control over the forest lands and regulated hunting. The common man was prohibited by ritual, religion and means from hunting. Rajas established game reserves, enforced close season and restricted hunting on the basis of social hierarchy, to his courtiers and the military elite. Rajas themselves arranged big hunting parties in the open season to involve the general public in these highly ritualized hunt activities." Presented musk, and monal and pheasant plumes to important visitors. [V. Sharma, 1]

- As a final vital aspect of their powers, the Rajas as well as the Ranas and Thakurs were mediators with (or representatives of) the devtas, the ancient village gods and goddesses, such as Hidimba Devi, goddess of Manali village, whose ancient temple and sacred grove are still among the most prominent in the entire region. [Chetwode 1972]

- Like the villagers and their traditional gentry, the devtas were also gradually brought under the sway of the higher powers of lowland Hindustan, the chief of whom in the Kullu region was the god Raghunathji, who was brought to Kullu by Raja Jagat Singh in the early 1600s.

- The Rajas held the power to grant wealth, chiefly in the form of land, to the devtas and priestly families. Over the centuries Rajas (as well as others) presented ibex and bharal horns to temples, to honor the devtas and gain social respect.

- In sum, the pre-modern system of political power was inseparable from the social structure, and through it the people's use of the land and its resources for their sustenance. Politics, society and human ecology were one fabric.

3.3 Hill Settlements in Modern Times

The penetration of people from Punjab, Tibet and Nepal into the Kullu region in the 19th and 20th century, especially after India's independence in 1947, stimulated a social transformation (Singh 1989). Improved - if still limited - communications and penetration of the market economy has led to an increase in local resource exploitation, especially timber from the forests.

In more modern times, the British Colonial Administration commissioned forest and revenue settlements in the 1880s which recorded the details of the rights awarded to people in the local forests. Forest Settlement reports recorded the names of local forests, local peoples' access rights and the allocation of these rights to specific individuals and households. But local use of the forests could be restricted whenever the Forest Officers considered it necessary to ensure the regeneration of timber/other useful species.

Not surprisingly, conflicts then emerged between the local communities, whose access to and use of resources had become restricted, and the officials enforcing regulations (Tucker 1991). The Forest Settlement Report for Kullu District (hereafter referred to as Anderson's Report) defined local peoples' forest use rights and concessions. Only individuals who owned land and paid land revenue were allowed use rights, and these rights could only be exercised during the life of the right holder. Anderson's Report provided very limited rights of controlled grazing in the forests. But the rights to cut grass, to remove medicinal roots, fruits, flowers, dry fallen wood (except deodar, walnut, box and ash), to cut bamboos, and to take splinters of deodar and kail stump, were allowed in all forests without requiring permission.

Anderson's Report observed that it was impossible to specify who exercised rights in undemarcated forests, as these areas were unspecified. But the Report provided that those proprietors and tenants who had hitherto exercised any such rights could continue to do so. Non-agricultural residents (i.e. those who were neither proprietors nor cultivators of land) were allowed to graze their cattle, sheep and goats, to collect dry fuel and to cut grass in the undemarcated areas. One of the more significant rights was to net and snare wildlife. In the areas now included in GHNPCA, local people were formerly allowed to catch musk deer after obtaining permission from the forest officer (musk deer hunting is now illegal, although extremely lucrative; cases of musk deer poaching are reported from the Kullu district forests). Anderson's Report also specified the size of the net for catching hawks which was designed so that pheasants considered as game birds were not caught in them. The pheasant was, and remains, of significance in

the local culture. Wearing a crest of Monal (a pheasant species) on the cap is considered a sign of chivalry, and many such crests can be seen at local festivals and fairs (Chetwode 1972).

3.4 Forest Rights in Contemporary Perspective

Local resource use rights as mentioned in the Anderson's Report are still valid in Himachal Pradesh, except that commercial tree felling is now forbidden throughout the state. Large number of trees are still cut, however, mainly to satisfy the huge demand for timber to construct/repair houses of the right holders. Though the current market timber price of a deodar *Cedrus deodara* tree may be Rs. 90,000, the local right holder still gets it for Rs. Five only as was the rate when Anderson prescribed it in his Forest Settlement record. This practice of granting timber is popularly known as TD (Timber Distribution). The demand for timber increased in 1960s when Kullu valley experienced the huge demand for wooden packing cases required by the apple orchard industry. However, in the western portion of Ecozone, there has been a restricted development of apple industry due to lack of road connection. Due to increasing demand, it has become difficult in Ecozone to spot a *Cedrus deodara* tree which is locally preferred species for the house construction.

Till recent past GHNPCA's high altitude forests and alpine areas have been used for sheep grazing by local villagers as well as migratory graziers from Suket (Mandi) and Saraj (Outer Kulu). Though the Anderson's report provided rights only for the life of the right holder, the provisions of this report have been adopted as such after the independence. This resulted in passing on the right after the death of the right holder to the offsprings. With time, the hereditary rights of the local inhabitants have become quite ambiguous. Many of the original right holders are dead making it very difficult to verify the rights of persons who enter the NP.

The Anderson's report mentions herb collection for bona fide use by the local inhabitants. However, today it has become an occupation of the people. This is evident from existence of middle men and herb dealers in Kullu and adjacent towns. The timing and amount of medicinal herbs to be collected is quite ambiguous. For example, under the original settlement, the collection of medicinal plants for bona fide needs is permitted for 2 months annually, starting from 15 August. In Seraj, this activity starts as the snow melts and may involve as many as 5-600 people from the 5 **kothis** (a small administrative unit) in lower Sainj alone (Gaston and Garson 1992). Similarly, the Guchi (morsel) collection is done in April-June. Both these activities contribute to sizeable income to the local people. In a recent intervention the HP Forest Department has revised their export fee for the entire state of H.P. The revision of rates has considered availability and abundance of the herb in the wild. Extraction of *Dioscorea deltoides* is banned in the state because of its over exploitation.

Local resource utilisation continues to intensify as modern research finds new uses for hitherto unmarketable trees and plants (Gadgil and Guha 1993). For example, it has been estimated that 20-year old tree of *Taxus baccata* which occurs in patches in GHNP can yield up to 30 kg of leaves and 5 kg of bark to produce 4 gm of taxol worth US$10,000 (Shukla *et al.* 1994). New finds in the

pharmaceutical industry have encouraged the commercialisation of medic herbs and animal products, providing strong incentives for local harvesti Some herbs, such as *Aconitum heterophillum, Nardostachys jatama Dactyloirhiza hatagirea* and *Jurinea macrocephala*, found in GHNP have become commercially valuable during the last two decades. Marketing th herb products is relatively easy, as there are hundreds of commercial herb dea in India (Mehta *et al.* 1993).

3.5 Settlement of rights of local people in the Great Himalayan National Par

The final notification of the Great Himalayan National Park has been issu This notification does not allow any biotic pressures in the Park area.

3.6 Process of Ecodevelopment and Final Notification of the Great Himalayan National Park

The GHNPCA has habitation only on the western boundary known as ecozo (other sides are naturally protected due to high peaks and ridges). Th Ecozone is an area adjacent to the Park and Sainj WLS, which contain villages that have historically had some economic dependence on th resources of the land incorporated into the Park as well as of the Sainj a Tirthan WLSs. The formal designation of the Park boundaries (up settlement of rights in the GHNP) and the resulting loss of access of lo villagers to these resources has economically impacted them in ecozone a the Sainj and Tirthan WLSs.

Locally, the GHNPCA has a very high public profile. The inhabitants of Ecozone recognize the fact that the medicinal herbs in the Park and two WI have been overexploited. A sustainable alternative income generation sourc provided to the villagers, the exploitation of the medicinal herbs of ecozone and WLSs can be checked. Similarly, the grazing pressures have increased manifolds in the past.

3.7 Great Himalayn National Park: Time Line

By Wildlife Protection Act, (1972) of India, the Great Himalayn National was set apart for protecting, propagating or developing wildlife therein environment. Following is the historical account of creation of the Himalayan National Park:

a) **1980: Survey for creation of a National Park in the western Himalayas:** In 1980 the Himachal Wildlife Project-I (HPW-I) comprising of an internatio team of scientists surveyed the areas in Solang Nala close to Manali in Kullu district and watersheds of Tirthan, Sainj and Jiwanal in Banjar area of Kullu district. The survey team included Dr. A.J. Gaston of Canadian Wildlife Serv Dr. P.J. Garson of University of Newcastle upon Tyne, U.K. and Dr Hunter with scientists from Delhi university and officials of Himachal Pradesh Fores Department.

b) **1983: Second phase of surveys:**
In 1983, the Himachal Wildlife Project-II (HPW-II) continued the wildlife surveys and recommended creation of the Great Himalayan National Park in its present location i.e. the Banjar area of Kullu district.

c) **1984: Notification of intention:**
The Government of Himachal Pradesh issued initial notification on 1st March, 1984 expressing its intention to constitute the Great Himalayan National Park with buffer zone.

d) **1984: First Revision of notification of intention:**
Because there if no mention of constitution of buffer zone with a National Park in the Indian Wildlife (Protection) Act, 1972, the Government of Himachal Pradesh revised its earlier notification dated 1.3.1984. The new notification dated 30th July, 1999 did not have mention of buffer zone.

e) **1987: First Management Plan of the Great Himalayan National Park.**
In 1987, the first Management Plan of the Great Himalayan National Park was written by the Chief Wildlife Warden, Himachal Pradesh.

f) **1988: Beginning of Settlement Proceedings:**
In 1988, under the Indian Wildlife Protection Act, 1972 the settlement proceeding for settling of rights of local communities in the Great Himalayan National Park were started. The Government of Himachal Pradesh appointed Settlement Officer for this purpose.

g) **1992: Continuance of wildlife surveys in GHNP:**
In July, 1992, the Himachal Wildlife Project-III (HPW-III) re-assessed wildlife abundance, obtained information on livestock grazing and herb collection and reviewed the existing management plan.

h) **1994: Second Revision of notification of intention:**
On 22nd Feb.,1994 the Government of HP revised the Notification of intention to constitute the Sainj Wildlife Sanctuary. This is in suppression of the earlier notifications.

i) **1994: Third Revision of notification of intention:**
On 26th Feb., 1994 the Government of HP revised the Notification of intention to constitute the Great Himalayan National Park by including upper Parvati watershed. This is in suppression of the earlier notification dated 30th July, 1990.

j) **1994-99: Conservation of Biodiversity Project:**
From October, 1994 to December 1999, the World Bank aided Conservation of Biodiversity (CoB) Project continued for five year duration at the Great Himalayan National Park. During the Project, sixteen Village Ecodevelopment Committees were set up for the participation of local community in the biodiversity conservation.

k) **1994-99: Major Research Initiatives at the Great Himalayan National Park:** For the duration of CoB Project, 1994-1999, the Wildlife Institute of India, Dehradun conducted a research project at the Great Himalayan National Park. The research inputs contributed to the management of the Park.

l) **1996: Registration of the Biodiversity Conservation Society (BiodCS):** In December, 1996, a Biodiversity Conservation Society (BiodCS) was registered to share he responsibility of the management of the Great Himalayan National Park. It provides fund advances, empowerment, flexible administrative procedures, and governing board structure, which in combination provides continuity of Park funding across fiscal years, eliminates most bureaucratic delays, renders managerial autonomy at the Park level, and help to ensure the flexibility required for a process-oriented approach. The member-secretary (i.e. Director, GHNP) of the Governing Board of the BiodCS is responsible for the management, along with assumption of responsibility and accountability for production of outputs, achievement of the Park's objective and for the use of the Park management funds. However, the H.P. govt. gave financial powers to the BiodCS on 22nd May, 2001.

m) **1999: Declaration of Award upon Completion of Settlement Proceedings:** In 1999, the Settlement Officer at GHNP completed the settlement proceedings at GHNP and announced Award (in May, 1999)to extinguish the rights of local communities in the Park. The Award included monetary compensation for those who had written rights in the Settlement Report of the area.

n) **1999: Final Notification of the Great Himalayan National Park:** The Govt. of Himachal Pradesh accepted the Award of Collector, GHNP and issued final notification (dated 28th May, 1999) of the Great Himalayan National Park. . The GHNP is the latest and newest National Park of India.

o) **1999: Completion of CoB Project at GHNP:** The CoB Project was completed at the GHNP on 31st December, 1999. The World Bank Implementation Completion Report mentions, "At GHNP, the process in formation of local level institutions and micro planning left much to be desired. There has been little or no impact on the ground from ecodevelopment investments. The 16 village committees formed during project period are defunct. However, in the post Credit period, women's savings and credit groups have been established covering poor families and a Biodiversity Conservation Society is in palce".

p) **1999: Beginning of Participatory Forest Management at the GHNP:**

In January 1999, the GHNP management selected 12 ladies from the ecozone to be trained as Group Organizers to work in the villages where they live. A number of training programmes have been organized for these ladies on the subject of how to recognize the poor households (HHs) who have been dependent on the Park's natural resources, and then organize them into small Women Saving and Credit Groups (WSCGs).

q) 1999 onwards: Microcredit scheme introduced in WSCGs:

Since 1999, the GHNP management is providing training inputs to the G.Os to facilitate a microcredit scheme in the WSCGs. From the very beginning, the G.Os. organized the poor women in the GHNP ecozone on the premise that each of the member of the WSCG will save one rupee daily. With their savings the women have been encouraged to take up the alternative income generation sources so that the dependencies of these HHs is reduced on the natural resources of the Park.

r) 2000: Formation of a Community Based Organization, SAHARA

In July 2000, all the G.Os. registered themselves as SAHARA (Society for Advancement of Hill and Rural Areas) under the Society Registration Act, 1860. This is an apex body of all the poor Women Saving and Credit Groups in the ecozone of the GHNP. SAHARA and the GHNP management are working together.

s) 2002: BiodCS secures two Major Medicinal Plant Propagation Projects

The member-secretary, BiodCS raised Rs. 50,00,000 through two major projects on Conservation & Cultivation of Medicinal Herbs in Sainj, and Tirthan Ranges of GHNP. These projects in the ecozone of the Park function through WSCGs and aim at reduction of local dependence on the medicinal herbs of the Park.

t) January, 2004: Full Coverage of Forest Dependent HHs under the WSCGs

More than 92 WSCGs have been formed covering about 980 women of such HHs whose members used to go to the forests covered under the GHNP for medicinal plant collection and grazing their sheep and goats. Their collective savings in the local banks is now more than Rs. 5,00,000 out of which they have done alternative income generation activities and earned more than Rs. 24,00,000.

Chapter 4 : Management and Practices prior to Final Notification : Medicinal Plant Trade and Grazing

4.0 Upon final notification of the GHNP, there is no village/habitation in the Park area. The habitation with reference to the Park is confined to its western boundary. In order to run the World Bank aided Project (1994 - 1999), an Ecodevelopment Project Area (EPA) or Ecozone was demarcated to include villages upto the 5km. distance from the western boundary.

Table :List of Villages in the Ecozone of GHNP

Sl No.	Name of area	No. of villages	Name of villages
1.	Sainj Sanctuary	3	Shagor, Shakti and Maror
2.	Tirthan Sanctuary	-	-
3.	Ecozone	160	

Note: The discrepancy in number of villages if any is attributable to inclusion of hamlets in the main village.

In Tirthan Sanctuary there are no villages inside the sanctuary. But in Sainj sanctuary there are 3 villages viz., Shagor, Shakti and Maror. These villages are situated on the right bank of Sainj Khad. The presence of these villages seems to be the reason to carve out and create Sainj Sanctuary from initial park area as all efforts to shift these villages out of the park area had failed. However, considering the richness in the biodiversity in and core situation of the Sainj Sanctuary, it is suggested that Sainj Sanctuary should be included in the GHNP.

4.1 Human Population (Negi, 1999)

In the ecozone of GHNP, the total human population is as following:

Table : Census Information of the Great Himalayan National Park (2002)

Name of Range	No of Panch-ayats	No of Wards	No of Households			Total HHs.	Population						Total
			Gen.	SC	OBC		Gen		SC		OBC		
							M	F	M	F	M	F	
Tirthan	7	31	1013	335	14	1362	3028	2883	923	896	33	31	7794
Jiwanal	4	22	483	279	10	772	1337	1279	706	695	30	23	4070
Sainj	3	7	205	69	0	274	665	354	269	145	0	0	1433
G.Total	14	60	1701	683	24	2408	5030	4516	1898	1736	63	54	13297

4.1.1. Number of Families

In the project area the number of families is 1362 as detailed in table below:

Name of area	Number of families
Sainj Sanctuary	12
Total for Sainj WLS and Ecozone	2408

4.1.2. Livestock Population

Present population figures of livestock in the GHNPCA is given in table below:

Range	Cow	Ox	Sheep/ Goat	Horse
Jiwa Nal	2215	657	5043	13
Sainj	434	1343	1714	10
Tirthan	3112	2272	12739	0
Total	5761	4272	19496	23

On perusal of human and livestock population figures given in above Tables, it is evident that most of these are concentrated in the ecozone which bears the maximum brunt of the biotic pressure which, in turn, spills over to the GHNP in the form of illicit grazing, and extraction of medicinal herbs, Guchhi mushroom, fuelwood collection etc. Besides above sheep and goat population of about 20,000 already in the area, a large number of sheep and goats (about 15000 to 20000) from outside the ecozone also migrate to into the area for summer grazing.

4.1.3. Literacy (Negi, 1999)

Literacy percentage in the area is extremely low as given in table below:

Table : Literacy Percentage

Sl No.	Name of area	Literacy Percentage
1.	Sainj Sanctuary	Nil
2.	Tirthan Sanctuary	-
3.	Ecozone	17.9%
	Total for GHNPCA	17.6%

4.2 Landuse Practice

Only 12 families with about 66 members reside in three villages of Shakti, Marore and Shagwar in the Sainj WLS. However, these villages are about 18 kms away from the roadhead i.e. Neuli (Marore is about 26 kms away) so the living conditions are extremely rudimentary. All the ration and other material is brought on human back or when the bridle path is not damaged by landslides, by mules. However, the residents of these villages have their relatives living in the ecozone mostly in the Shenshar valley. Usually, the Park staff complaints that

these relatives visit the residents of the three villages inside the Sainj WLS and try to indulge in poaching. Often there are references of volunteer relocation of the inhabitants of these villages to the ecozone of the Park.

The main occupation of the villagers of Sainj WLS and those of the ecozone is agriculture along with horticulture. However, to a considerable extent, the villagers augment their income by rearing sheep and goats for wool and meat and by extracting medicinal herbs and collecting guchhi mushroom (*Morchella esculanta*). There are very few persons who do the service (salaried job). Extraction of medicinal herbs and collection of guchhi mushroom has been their traditional source of income since several generations and it fetches them ready cash money which goes a long way to sustain them. Villagers go to extract and collect medicinal herbs and guchhi mushroom in the interior of project area with ration and camp there for 2-3 weeks. With the dwindling of these natural resources due to over exploitation, now the villagers have to go to farther interior areas to collect them. Medicinal herbs are generally collected by digging and during their extraction camps the villagers cut saplings and shrubs etc. for fuelwood resulting in soil erosion and eco degradation. Guchhi mushroom is sold at Delhi/Shimla at a price of about Rs.5,000/- per kg. as it is considered a delicacy particularly by foreigners and so it has great demand and export value. As all efforts to reproduce Guchhi mushroom artificially have failed and it grows only in high altitudes in natural conditions so it commands a good price. The traders purchase from villagers medicinal herbs and Guchhi mushroom through their local agents. Every family is said to earn substantially from sale of medicinal herbs and Guchhi mushroom depending upon number of working members in the family.

The final notification for the Sainj WLS has been issued without extinguishing the rights of the local villagers residing in the Sanctuary area. These villagers are still enjoying their rights of grazing sheep and goats and herb collection in the area. Rearing sheep and goats is still practised on a fairly large scale as it has been traditional profession of villagers. There is great demand for sheep wool in Kullu for making woollen shawl etc. Kullu shawl is great name in Indian and foreign markets. A large number of handloom cottage industries have come up in and around Kullu, which manufacture woollen shawls and other woollen garments. Even in remote villages, villagers are found weaving sheep wool in crude handlooms to manufacture woollen clothes and blankets etc. for themselves. The sheep and goats are taken to high altitude thatches inside the Sainj WLS to graze during summer and rainy season.

Animal husbandry is practised for farmyard manure and for family use of milk and milk products. Generally, we find local breed of cows but now a few improved breed of cows are also seen in the villages. The cattle are left open to graze in the forest area and stall feeding is seldom done. A few progressive farmers have started rearing Jersey and other cross bred cows and sell the milk and milk products to nearby markets. However, a redeeming feature is rearing of grass by villagers in "Ghasnies". The grass reared in Ghasnies is cut and stored for stall feeding in winter months.

Horticulture is catching mass movement in the ecozone area (not in the Sainj WLS as it is very difficult to transport the produce) and it is a matter of good

achievement that people are raising orchards of apple, plum, cherry, walnut etc. Orchards fetch good income to villagers. Young orchards take some time to reach to fruiting stage and established orchards are few so far. However, the area has great potentiality for development of horticulture and more of sloping cultivation fields need change of landuse from agriculture to horticulture for soil and water conservation in the area.

4.2.1 Cropping Pattern

In agriculture villagers mostly grow maize and ogal (Kotu) during rainy season. Maize is widely grown in the area and it seems the main food crop of the villagers. After rainy season, wheat and barley etc. are also grown in lower areas but where winters are severe, only one crop that of maize is grown. Agricultural production is poor and people depend upon fair price shops to purchase wheat etc. brought from the plains.

4.3 Medicinal Plant Collection and Trade

Earlier studies and records pertaining to herb collection (before the Final Notification of the Park in May 1999) as a source of income for local communities show that this activity is important especially in the local cash economy. GHNP project records, from the Microplans prepared, show that in many of the Units between 70 and 100 % of HHs are engaged in herb collection. The Eco-zone around the GHNP, as presently set out, has about 141 villages/ hamlets with 2400 HHs, all totalling to a population of 14,000 people. If we assume that half of the HHs are actively engaged in herb collection, approximately the total annual income from herb collection comes to Rs 11.2 million. This means a per capita income of about Rs 1000 or about Rs 7000 per HH per year for the entire eco-zone. These figures would be much more if we take the percentage of herb collecting HHs as 70. These income figures by far outstrip income from any other source, including agriculture, which is largely subsistence level & rainfed. This would apply to 70% of the HHs where the principal source of income has been recorded to be from herb collection.

Further in terms of number of individuals engaged in herb collection, it is seen that for species like Guchhi, almost the entire family, particularly the children are involved. For species like *Dioscorea deltoidea* women collectors are reportedly common. For other species, 2 or 3 able bodied males per HH would be collecting between 2 to 6 months in a year. From a village normally a group of people move out for herb collection and make trips varying between 10 to 15 days at a time.

4.3.1 Trade in Medicinal Plants

From the data gathered in the eco-zone (before the Final Notification of the Park in May 1999), it is clear that most people sell their collected herbs to local shopkeepers or agents of dealers in Bhuntar or Kullu. Few of the collectors directly sell to dealers in Banjar, Bhuntar or Kullu. The main local traders are at Gushaini, Sainj and Banjar. They appear to be handling the bulk of the raw material going out of the eco-zone area. These traders are the local procurement centres for herbs and play a crucial 'financial' role in the business. While many of the collectors indicated that they usually take down payment from the traders or other agents, quite a few said that they either take advance money or ration to

support collection trips or on credit to get over the lean season. This was corroborated by the trader in Gushaini and one at Bathad. The collectors and the local traders-cum-shopkeepers thus have a business relationship, often cemented by years of dealing together, and this is rarely breached.

4.3.2 Quantities extracted

An estimate of the annual volumes/ quantities of major herbs **extracted** by people within the eco-zone of the GHNP is given below. (These figures are based on the average, annual collections made species-wise per HH in the eco-zone villages.)

Table : Major herbs extracted

Species	Quantity in kg
dhoop	34,378
mehandi	10,038
kadu	8,920
nehani	8,592
kaudi	7,453
nehanu	6,972
patish	5,101
singlimingli	2,508
panja	991
mushkbala	762
guchi	665
banafsha	55

4.4 Grazing

Attitude of the Park officials towards the shepherd

a. Usually due to over-cautious and alarming attitude pastoral people and their livestock have been perceived as one of the major threats to wild animals and degradation of forests.

b. Livestock is more or less seen as destroyer of natural resources.

c. The Park officials consider the overall pastoral lifestyle as a burden on the forest resources and also a challenge for the forest/park protection staff.

The Grazing Resources

Shepherds in the GHNPCA had grazed their flocks of sheep and goat throughout different temperate forests and alpine pastures much prior to the beginning of written records. The seasonal migration is a traditional way of livestock rearing and management in the region. Thus, livestock and dependent graziers spend winter months in village and village surrounds at

lower reaches while they migrate to higher reaches during summer and rainy seasons traversing through various forest/vegetation types.

Broadly four types of grazing/fodder resources distinct in their composition, intensity of grazing incidence and seasonal use pattern *viz.*, Village pastures ('Ghasnis') and their surrounds (VS), Migratory routes adopted across different forest types and along ascending altitudinal gradient (MR), Transitory forest camping sites (TFCS) and Alpine pastures (AP) were recognised for various assessments at the landscape and site specific levels. A well defined seasonal as well as highly spatial distributed resource use strategy adopted by people, livestock and wild animals was an insurance for sustainability and a device for lesser conflicts. This well established system of sustainability in spite difficult terrain and harsh climate is gradually getting perturbed due to abrupt changes brought in agricultural and livestock grazing practices, policies and increasing market influences. The pastrolists in the GHNPCA have followed strict means of seasonal utilisation of various grazing resources. Not only this, the resource use pattern at any one time is also widely distributed. Comparative to many other similar areas elsewhere, the overall grazing pressure in the GHNPCA has remained low.

4.4.1 The Pastoral System

The Pastoral System includes the nature and extent of grazing rights, livestock holdings, pastoral cycle – migratory routes and different grazing resources used, allied activities, and livestock–wild animal interactions.

4.4.2 Grazing Rights

The earliest official reference for the settlement of Kullu forests dates back to 1866. During this year, the District authorities were directed to handover the possession of forests to the Forest Department. Till then, these forests were managed by the District authorities. The recommendations made by the then Settlement Officer (Mr. Lyall) were lost sight of as early as 1870s. In 1876, Mr. Dietrich Brandis, the then Inspector General of Forests visited the region and expressed concern about the ill effects of increasing grazing pressure on these forests. It was in 1878, that the forests were classified and demarcated as the Reserved Forests (RFs) and Protected Forests (PFs) of different classes in accordance with the Forest Act, 1878. Subsequently, Mr. Alex Anderson worked for full five years and submitted a monumental 'Forest Settlement Report' in the year 1886, providing minuscule details of rights granted to the local people (Anderson, 1886). However, a debate among forest officials and local people continued for a considerable time with regard to the fixing of ceilings of overall numbers of villagers, their livestock and rights of grazing to 'outsider' pastoralists from the adjacent areas. It was finally decided not to fix any numerical limits. The chief livestock usages described in the Settlement Report of 1886 were: (i) grazing was open to cattle, sheep and goat, except in a few fenced portions, (ii) trees could be lopped for fodder inside as outside the forest, and (iii) grass could be cut wherever it was found. It took exactly ten years (1886-1896) for the Government to finally adopt the Anderson's Report. Later, these forests were managed scientifically on the principles of silviculture and prescriptions as laid in the periodically revised Forest

Working Plan(s). These consequent Forest Working Plans recognised and continued with rights those were described in the Settlement Report of 1886.

Noticeably, the Settlement Report in its unequivocal remark stated that, in Kullu, it would be 'impossible' to commute rights by cash payments since 'the people are dependent on these rights for their very existence and the extinction of these rights would be most unjustifiable expropriation' (Baviskar, 1998). This very fact deterred any action regarding revision/settlement of rights for a long span of 113 years (1886-1999). During this long period, the landscape and the human population that the Anderson's Report had described have radically transformed. While the desired actions to revise the Settlement Report or extinguish rights described therein have not kept pace with the changing demography growing market forces and several conservation related laws enacted time to time.

The Recent Interventions

Recently i.e. in the beginning of year 1999, the Government of Himachal Pradesh instead of revising these long established rights, ultimately decided to extinguish rights forever in order to bring the long awaited final notification of the GHNP. Through a rapid course of proceedings, multiple traditional rights – either full rights or exclusive for the collection of medicinal plants, timber, non-timber forest produces and livestock grazing in the area of the Great Himalayan National Park (pre-revised 765 sq km and finally notified 754.4 sq km) were ceased on 21 May, 1999 by the Notification issued by the District Collector, Kullu by making provisions for the cash compensation and proposed alternative development of pastures, fodder and medicinal plants. The notification on the final settlement of rights and declaration of the National Park has resulted into: (i) the abrupt non-availability of the GHNP area or 64.42% of the GHNPCA landscape to the resident as well outside migratory people for any type of resource use; (ii) an over-burdening of resource use in the remaining area, with serious implications for the Sainj Wildlife Sancturay where grazing is allowed and the shepherds who were grazing their sheep and goats in the GHNP now go to the Sanctuary; (iii) constrained resource use and ensuing conflicts especially in the Sainj WLS area; and (iv) a great challenge for the PA staff to protect park resources and enforce law.

4.4.3. Land and Livestock Holdings

Like elsewhere in hills, most of the cultivated land in the GHNPCA was in small and scattered holdings of less than 1.5 ha. The cultivators largely depend on bullock labour for tillage. he farming system including cultivation of cereals, pulses, vegetables and fruits was mainly carried out on the terrace land. As such the farming is the backbone of the local economy and thus, also the primary occupation of the inhabitants. The livestock rearing is the second main profession supporting: (a) agricultural activities through tillage labour, manure; (b) subsistence through meeting different needs of food and fibre; (c) economy through an additional income from sale of livestock and livestock products; and (d) an overall insurance for livelihood against any natural vagary. Bulk of the livestock in the GHNPCA was constituted by sheep and goat in addition to the essentially required number of cow and ox for milk and

tillage purposes, respectively. Buffalo were usually not kept. A small number of mules and horses also made a part of the overall livestock, mainly used for transportation of goods.

i. The density of livestock in the area under consideration has always remained low in comparison to several other adjacent areas.

ii. The seasonal migration has been a traditional feature throughout specifically in the case of sheep and goat.

iii. No evidence for significant increase in livestock number exists in spite a long time has passed.

iv. Despite an evident increase in human population through the past period, there was hardly any reliable evidence indicating proportionate increase in the livestock population.

4.4.4 Impact of Livestock grazing on physical, biological and environmental values of GHNPCA

The habitats in GHNP have undergone the following impacts:

Soil Compaction

Localized soil compaction in intensive grazing/movement zones in Village pastures ('Ghasnis') and their surrounds (VS), Migratory routes adopted across different forest types and along ascending altitudinal gradient (MR), Transitory forest camping sites (TFCS) and Alpine pastures (AP) have been witnessed.

Soil Erosion

The selection of same trails and vegetation removal leads to soil erosion. The traditional strategy of well-distributed spatial resource use minimizes this problem.

Soil Fertility

Overgrazing causes preponderance of opportunistic nitrophilic plants. In case of VS, fertility of land was enhanced. The extent of opportunistic plants in three SWS or different TFCS and AP was not alarming despite livestock grazing has continued in those sites year after year. This was again due to spatial and seasonal distribution of pressure.

Biological Environment

The constant availability and movement of livestock, shepherds and accompanying dogs in alpine pastures during 3-month period normally prohibit habitat use (alpine pasture) by wild animals viz., Himalayan Tahr, Blue Sheep, Musk Deer and Himalayan Brown Bear to forage. The present population of these wild animals appear to be quite suppressed.

Harvest of grass in Village Pastures (Ghasnis)

Harvest of grass from Ghasnis can lead to degradation and disturbance to grass dependent wild animal species.

Lopping and Girdlings of trees – collection of Fodder, Livestock Bedding Material and Fuelwood

Lopping and girdling of trees in Village surrounds for fodder, livestock bedding material and fuelwood is a common incidence. However, data revealed that the pressure was confined to small high disturbance zone in proximity to VS. Again, no severe impact due to this activity was evident as 127 hamlets and individual households were widely distributed. Collection of fuelwood from sub-alpine areas was definitely alarming. Unchecked lopping of Oak trees for collection of lichens may affect livestock and several wild ungulates, primates and pheasants.

Fire

People make use of fire in 'Ghasnis' in order to facilitate new shoots. This may have –ve impact on the ground dwelling organisms and birds.

Disturbance to Nests and Predation by Accompanied Dogs

Direct impact in terms of damage of nests of ground nesting birds including of endangered Western Tragopan, Monal and Chir pheasant. Occasional chasing, injury and predation of young ones of wild ungulates viz., goral, musk deer by the shephard dogs is extremely harmful. Predation on cub of Red fox was reported in a few cases.

Disease Communication

This has a very serious implication. The un-vaccinated sheep and goats are very serious threat to the wild ungulates to spread the viral disease.

Collection of Medicinal Herbs

The shepherds are gradually turning into herb collectors due to a lucrative market.

Social Environment

Livestock predation to the extent of >0.5% in any given year by leopard, Asiatic Black bear and Himalayan Brown bear was a concern of local people. The PA authorities have compensated the owners.

Human Injuries/Killings

Villagers and shepherds spend considerable time in forests and alpine pastures for collection of forest produces and livestock grazing and they are prone to encounters with wild predators.

4.4.5. Livestock Dependent Socio-economics

The social system in ecozone of GHNP is based on the stationary family units. Male members in the family are primarily responsible for herding, rearing and grazing of sheep and goat and moved along with their flocks to the summer grazing areas. Men are also involved in other outdoor activities *viz.*, agriculture, collection of fodder and marketing. Shearing of wool/hair in the case of sheep and goat is mainly done by men. Stall feeding, milking, cleaning of house and livestock sheds, dung collection and other household activities are mainly performed by women. Processing of fiber (wool/goat

hair), spinning and preparation of woolen garments and other artifacts are jointly done by men and women. Wool yield per animal per clip is quite low. However, nearly 1 kg wool yield per animal per annum is obtained in the case of healthy adult sheep. The market rate for wool range from Rs. 70/- to Rs. 90/- per kg. The annual hair yield in the case of goat is about 800 g per animal. Sheep and goat manure is considered better than those of cow as nitrogen content in the former is quite rich. Despite sheep and goatskins are valuable and important source of raw material to the leather industry, local people use skins to make bags ('Khalta'). Local people consume meat of sheep as well as of goat. Cow milk is used for making butter and 'ghee' (purified butter). People mainly use milk, butter, ghee for self-consumption. Number of dress items using sheep wool and goat hair are made by the local people. Among these prominent ones are: Drape ('Pattu'), shawl, jacket, trouser, muffler, mat (Shela), socks, etc. Majority households possess wooden looms and people are usually busy in making these items during the winter season when other outdoor activities are at minimal. On occasions, farmers/pastoral people sold their livestock in local markets and also obtain cash incomes. Thus, livestock has been the part and parcel of the social life style in the GHNPCA.

4.4.6 Pastoral People

Pastoral people believed that there has not been any change in flock numbers. Over the years, the numerical strength of each flock has probably declined. Reasons attributed for this decline were as under:

a. Increasingly, less and less land for grazing is available in village surrounds due to the expansion of agriculture, horticulture and habitation areas. Obviously, the extent of grazing grounds once available in plenty have shrunk.

b. The average livestock holdings per household have reduced in recent decades. However, the overall number of livestock in the GHNPCA has remained unaltered. This was probably a result of an increase in human population and number of households.

c. The concept of 'joint families' like elsewhere in the hills is fast fading away. Thus, smaller nucleus families were unable to cope up with the multifarious activities, particularly rearing of livestock or practice of migratory graziers.

d. The educated youth has become averse to the traditional way of pastoral lifestyle realizing greater problems and hardships. Thus, they are now more interested in secured and comfortable life style.

e. The recent advancements in the fields of agriculture and horticulture have opened up new avenues and these professions are thus more lucrative than the primitive pastoral lifestyle.

f. The greater benefits obtained based on the short duration adventure in the interiors of the forests and alpine pastures for collection of medicinal herbs has given better dividends and thus, discouraged people to practice pastoral lifestyle.

g. Pastoral people have visualized the landscape as their belonging. Stricter enforcement of the Wildlife law by PA authorities and any

type of restrictions imposed were perceived as hindrance in their traditional life style.

h Pastoral people feel that the Government is more concern for wild animals while they and their livestock have been ignored. Indeed any effort by PA authorities in protection of the PAs and consequent likely increase in the population of wild predators will be a major threat to their livestock and themselves.

4.4.7 Final Notification of Park and Grazing Issue

The Award of Collector, GHNP mentions no compensation for grazing. The shepherds have been told to shift their sheep and goats to the ecozone and Sainj and Tirthan WL sanctuaries. The Collectors Award of May 1999 has been accepted by the H P government, and final notification of the issues in May, 1999. The final notification prohibits any kind of biotic pressures on the Park, including grazing.

Recently, the Hon'ble Supreme Court has passed an order CWP 202/95 dated 14.2.2000 which prohibits the removal of even dead, diseased, dying or wind fallen trees, driftwood and grasses etc. from any National Park or Sanctuary.

Chapter 5 : The Recent Conservation Efforts at the Great Himalayan National Park Conservation Area (GHNPCA): Post Final Notification Period (1999 - 2003)

5.0 Introduction

India is one of the twelve 'megadiversity' countries in the world, which collectively account for 60-70% of the world's biodiversity. The country has a broad range of ecosystems and species within its ten recognised biogeographic zones. The western Himalayas of Himachal Pradesh have some of the richest and endemic elements of biodiversity. A network of Protected Areas (PAs) in the state of Himachal Pradesh has been visualized as a means to protect and conserve the state's rich flora and fauna. However, there is a conflict in the interests of biodiversity conservation and the people who live close to the PAs. Traditionally, different silvicultural systems were prescribed to meet the objective of high forest yield without paying much attention to wildlife conservation. The need of integration of biodiversity conservation with the fulfilment of local communities forest based requirements has been emphasized in the National Forest Policy, National Conservation Strategy and the National Wildlife Action Plan.

The objectives of tenth five year Plan of India call for the protection of the environment and preservation of the natural resource base; and it contains a specific Strategy for Environment Protection, Forest Development and Wildlife Conservation. The creation of the Forest Development Agency (FDA) is one the main strategic schemes for afforestation and conservation of the biodiversity in the country. Similarly the guidelines and order have been issued by Government of India in 1990; and Government of Himachal Pradesh in 1993, then in 2001 for participatory forest management. The new Panchayti Raj Act under the 73rd amendment of the Constitution also emphasizes people's participation in natural resource conservation.

5.1 GHNPCA and Local Communities

- Due to isolation and inaccessibility, the indigenous communities of the Jiwa, Sainj and Tirthan Valleys have developed distinct traditions and customs.
- In Kulu district, the differences of climate and altitude have considerably affected the seasons for sowing and harvest, and procurement of produce in the various valleys.
- The isolation of valleys has led to the development of different farming practices and methods of forest exploitation.
- The villages in Sainj WLS and on western side of the GHNP have also evolved their own terminology and folklore, and methods of classification and local faunal and floral taxonomy.
- These attributes influence the daily lives of people and their impact on their surroundings.

Whilst there is some information on this region from edicts, copper plate inscriptions, and reports on land and forest settlement, there has been no social science research, which might provide information on past local approaches to natural resources conservation.

5.2 Dependencies on GHNPCA

Before the settlement of rights of the local people, they were dependent upon the resources of the GHNPCA mainly for grazing their sheep and goats and some cattle, and collection of minor forest produce.

a. About 2500 people collected herbs and mushrooms (*Morchella esculenta*) from this area each year. The areas within which these rights may be exercised are organised on a *kothi* (a revenue unit) basis.

b. An estimated 35000 sheep and goats (local 25000, and migratory 10000) grazed in the Park during the summer months.

People living on the western boundary had grazing rights as well as rights of herb collection in the National Park (Anderson, 1886). Pressures on Park resources from neighbouring village communities varied considerately. Some of them depend on the Park heavily during collection season of mushrooms (April-June) and medicinal herbs (August-October). Others do not affect the Park at all: the villagers subsist through of basket making, handloom weaving, horticulture, etc.

i. The penetration of people from Punjab, Tibet and Nepal into the region in the 19th and 20th century, and more prominently after independence of India in 1947, has affected the social and economic conditions of the Kulu district people.

ii. These new settlements have influenced the older inhabitants, which so far were characterised by features such as inaccessibility, fragility, marginality, diversity, 'niche', and specific human adaptation mechanisms to the mountains.

iii. Though the changes brought by these influences in Kulu valley is a subject of a comprehensive sociological study, it is suffice to mention here that development of communication such as roads have initiated the process of resource exploitation and affected the long-term sustainability.

iv. The most significant change that occurred in Kulu district was acquisition of skills and material necessary for exploitation of forest wealth for marketable use as opposed to its appropriation merely for home utilization.

v. At the same time it resulted in strengthening of law enforcement and imposition of more restrictions on the local people.

vi. Modern research continues to find new uses for hitherto unmarketable trees and plants. For example, it has been estimated that 20 year old tree of *Texus baccata* can yield upto 30 kg. of leaves and 5 kg. of bark which can produce 4 gm. of taxol which is priced at US10,000 at a very conservative estimate.

vii. New finds in the pharmaceutical industry encouraged the commercialisation of medicinal herbs and animal products which, in turn, may have affected the extent of their exploitation by the local people.

viii. Some herbs such as *Aconitum heterophillum, Nardostachys jatamansi, Dactyloirhiza hatagirea* and *Jurinea macrocephala* have only become commercially valuable during the last 15 to 20 years.

At the moment, there are hundreds of dealers in the country including Delhi, Amritsar, Lucknow and Calcutta who deal in herbs on commercial basis.

5.3 Conservation of Biodiversity (CoB) Project (1994 to 1999)

The Forestry Research Education and Extension Project (FREEP) aided by the World Bank started in 1994 for next five years. In order to test the people assisted biodiversity conservation in India, an additional sub-Project Conservation of Biodiversity (CoB) was formulated as part of the bigger FREE Project. Under the CoB, two Protected Areas, Great Himalayan National Park in north and Kalakad Mundanthurai in south India were selected for funding. The 90 sq. kms Sainj Wildlife Sanctuary was created around three villages of Shagwarh, Shakti, Marore, within the GHNP (pl refer to the Timeline in Chapter 3). The FREE Project ended at GHNP in 1999. The FRRE Project was given a two years extension and concluded elsewhere on 31st December, 2001.

5.3.1 Global and National Context of the CoB

In global context, the CoB Project at GHNP would address some of the concerns relating to

- conservation of bio-diversity in a "megadiversity" country
- conservation of Himalayan ecosystem in danger of fragmentation and degradation
- help prepare future projects to address additional critical biodiversity issues
- developing linkages between conservation and development

The CoB Project was expected to contribute significantly through village level organisation to the biodiversity conservation of the GHNP. Such an approach would necessitate that the professional capacity of GHNP staff is built up, and organisational structures, procedures are established. At GHNP, the concept of ecodevelopment was new both to the field staff and the neighbouring communities. However, the Project faced problems of lack of establishing the mechanisms of a process-approach, micro level planning details, local communities involvement, and coordination among various developmental agencies, NGOs in the area.

5.3.2 An Appraisal of the CoB Project

In order to involve the various stakeholders in the buffer zone area of GHNP, and of Sainj WLS, about 16 microplan units were developed, each having its own Village Ecodevelopment Committee (VEDC). By and large, the micro-

plan involved all the villages in a particular micro-watershed. For example, the microplan made for Tirthan watershed covers 19 villages with a population of 1300 (it becomes a macro-plan at local level). Considering the difficult hilly terrain and distance of villages from each other, it became difficult (rather impossible) for all the villagers and specially the women and poor to participate in a dialogue, collectively (Pandey and Wells 1997). The main learnings from these VEDC are as following:

- The livelihood and conservation issues involving water, fuelwood, fodder and NTFPs (medicinal plant collection) are deeply related to the poor, and especially the womenfolk in the buffer zone area.
- A user group has to be representative of resource dependent village poor with an emphasis on the women, who are poorest of the poor in a village Household (HH)
- User groups at the village level need to be the basis of the micro-planning.
- Hence, a need was felt to work further with the local communities to incorporate realistic and measurable reciprocal commitments that would directly address GHNPCA conservation issues.
- The gap between the micro level planning and its actual implementation need to be reduced so that the local people do not start loosing interest in the programme.

The World Bank under CoB Project at GHNP stopped financing on December 31, 1999, though the CoB Project at KMTR, and FREE Project continued for next two years (extended period). However, the review of the CoB Project at GHNP was done in the first quarter of 2002, i.e. after two years since stoppage of the World Bank's financing. The World Bank prepared an Implementation Completion Report (ICR) for the FREE Project which closed on December 31, 2001 with the following comments on the CoB Project at GHNP:

"In the GHNP, achievement of project objectives during the project period was unsatisfactory when provision of bank financing ceased due to difficulties over legal ruling that compromised the ecodevelopment program. However, during the post Bank-financing period, some promising innovations have been established at GHNP."

"At GHNP, the processes in formation of local level institutions and micro planning left much to be desired. There has been little or no impact on the ground from ecodevelopment investments. The 16 village committees formed during project period are defunct. However, in the post Credit closure period, women's saving and credit groups have been established covering poor families and a Biodiversity Conservation Society is in Place."

"At GHNP, women's saving and credit groups have been successful. However, because project financed GHNP investments tended to be routine forestry works without imagination, without community

involvement and without clearly targeted linkages to conservation, those ecodevelopment investments have not proved cost effective."

"At GHNP, there is need for strategic communication to win over antagonists and gain the support of allies. In this context, some key activities would include: (i) continued capacity building of women groups; (ii) successful demonstration of income generation activities on the ground; (iii) extension of coverage to other left out poor forest department communities; (iv) improved communication and relationship with wider range of stakeholders; and (v) closer and effective linkages with other government agencies to channel resources to the benefit of forest department communities. If such steps are undertaken, the likelihood of sustainability of GHNP could be marginally improved. However, national and state level policy and legal changes regarding the sustainable use of park resources by local communities may be needed if there is to be a viable incentive and regulatory framework over the long-term."

"At GHNP, the performance of implementing agency remained unsatisfactory for much of the project period. However, performance started to improve in the last year of the project prior to the Government action on settlement of rights, and in 2000 and 2001, after project closure on December 31, 1999."

5.3.2.1 Experiencial Learnings (between 1999-2000 and 2003-04)

1. An organization like a WSCG can be used for introducing many other programmes such as improvement in literacy, health care, and veterinary care. This is being done with the support of the district administration, which is the government agency for rural development of the area.

2. The Participatory Forest Management Rules of H.P. Govt, 2001 provide for the organizing the user groups (such as WSCGs) at the ward level and the user groups be federated into a Village Forest Development Society (VFDS). These rules also provide that all the voters (everybody above 18 years of age in that ward) are the members of the VFDS. The executive committee of VFDS provides for 50% representation of women. Each WSCG being a user group, their federation into VFDS at the ward level is to integrate the VFDS directly and organically with the Panchayat. In the present case, 16 women members of Scheduled Caste groups, including animators, contested the Panchayat elections in November 2000 and out of them 7 were elected either as members of the Panchayat (representing a Panchayat ward) or some as Panchayat President. It is also significant that this is the first time that a sustainable village/ hamlet level organisations in the hills of Kullu have emerged.

3. There has been a definite change in attitude of males towards the women of the household participating in the WSCGs. The initial skepticism of males towards WSCGs is now changing into a pragmatic

approach. There are reports of males sharing the household jobs to provide time to the women of HH to attend WSCG meetings.

4. The male members of the WSCGs are being organized in income generation activities. Ecotourism is one such activity by which the male members are earning livelihoods (jobs of porter, cook and guides for the males of the WSCGs).

5. Poor villagers participate in income generation programmes, which have very little investment, very low level of technological inputs and ready markets for the sale of produce, such as production of vermicompost in WSCGs, which was readily bought by the Park management. The WSCGs show a preference for such medicinal plants which fetch more incomes and easy to grow.

6. The members of WSCGs see more good in a diverse income generation activities. This provides them with more security.

7. In a male dominated, poverty-ridden society, the local womenfolk who constitute half of the population can play a very important role. A WSCG through a micro-credit scheme and income generation sources provides an opportunity for the poor women to participate in the natural resource management.

8. Because it is their own savings that the women are loaning for 'production activities', the recovery of such small loans is almost 100%. At the same time, these women are getting away from the 'subsidy culture'.

9. In long run, such WSCGs are going to be sustainable and will contribute to the conservation of the biodiversity of the Park.

10. The Park management has opened two shops, one in Manali and other one in Aut to market all the stuff prepared by the members of the WSCGs. So training and marketing are two identified activities that the Park management is undertaking. This is for the first chance that the Park staff experienced a direct link on the issue of marketing with the local community.

11. Recently, encouraged by the WSCGs and their income generation activities, the Panchayats of ecozone of the Park came together and formed a group called as Jujurana Jive (Long live Western Tragopan) in which the Pradhans (chief of the Panchayat) have identified three men and three women from each Panchayat to take an active role in wildlife protection. The group is quite upbeat and says that it will not only keep an eye on villagers and poachers but also on the activities of the Park staff.

12. Similarly, the Park engaged the male and female members of WSCGs in a street theater, which spread message of nature awareness in the buffer zone of the Park. This also results in a win-win situation. The

poor HH enhance their incomes and skills and at the same time the Park staff gets support for wildlife protection from the local community.

13. Realizing the collective impact of several hundreds of women engaged in firewood collection on the forest/vegetation that often leads to degradation of the resource, the Park management introduced "Drudgery Reducing Intervention", among the WSCGs. This scheme was to provide energy and drudgery reducing devices like LPG stoves (for cooking), pressure cookers etc to the selected members of the WSCGs. This is a one-time support. In order to avail such a facility, a woman member was required to contribute at least 50% of the total cost. She was free to raise her contribution either from her own resources or a loan from her group or both. This is easy to monitor the impact of cooking gas, etc. on the forests if the beneficiaries are organized in a group such as WSCG.

14. In many cases the male members of the WSCGs who were earlier herb collectors have now organized themselves in an Ecotourism group. This group has helped the Park staff in managing the tourism into the Park as well as patrolling the area to protect the wildlife. They are earning through the jobs of porter, cook and guides as well as gaining a sense of becoming a responsible part of the Park's set-up. This is nice shift from enforcement to interdependence.

15. A distinction can be made between the NGO, which has its roots outside the GHNP ecozone, and the one like SAHARA, which emerged from the area itself. In the buffer zone of the GHNP, the acceptance of SAHARA amongst the villagers can be attributed to the fact that all their staff (group organizers and the director) are locally rooted and live there. Most of the group organizers are women. SAHARA is committed to working with poor households including scheduled castes. The composition and acquired credibility of SAHARA continues to increase the coverage of area as well as households under the present initiative. Without the local CBO, such a program would be nearly impossible to initiate and sustain.

5.4 Efforts of Biodiversity Conservation in modern perspective

There are two major considerations in this regard:

5.4.1 Unlike the Protected Areas in USA, the scenario in India is quite different. The National Parks in USA are very large in size and do not have dependencies of the local populations for their livelihoods, this is quite opposite in India. Most of the PAs in India have villages inside them or on their periphery. The villagers depend for their livelihoods on the resources of the PAs. With reference to the mountain region, this may be a reality that the areas that have maximum biological diversity are the ones, which are away from the roadheads, where poverty is all pervasive and the reach of various

agencies including the NGOs is quite limited. The conservation of biodiversity in such areas is thus a big challenge for the Park managers.

5.4.2 In the light of above discussion, this may be safely stated that the biodiversity conservation or management of the natural resources in India is directly related to the "People Management". In other words, if we genuinely want to contribute to biological diversity conservation, we need to first resolve the socio-economic issues of the local people. The habitat of wild animals and plants will be better protected if the local villagers stand by the forest guard and assist him in protection of natural resources. Such an approach emphasises the fact that the livelihood issues of the local communities need to be resolved first. However, the biodiversity conservation will occur only when we combine the livelihood aspects with the support of appropriate policy, women empowerment, joint forest management, environmental conservation education and other allied issues.

Based on the learning of the CoB Project, the Park management is concentrating its efforts in three major fields:

- Biodiversity Conservation
- Socio-economic aspects
- Setting up of new mechanisms of management

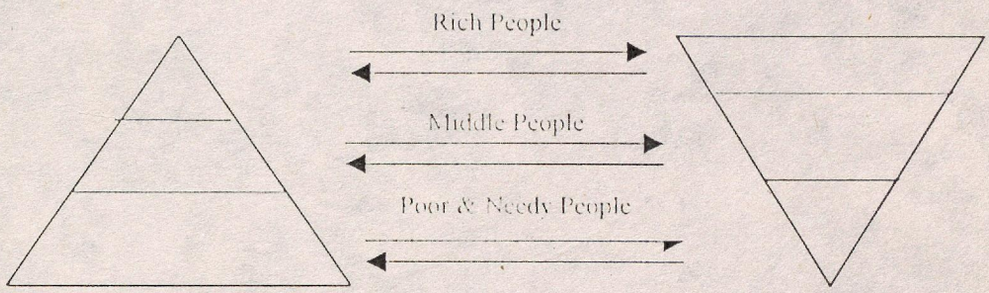
5.4.2.1 Biodiversity Conservation

The biodiversity conservation at GHNPCA is aimed at improving the awareness levels, providing conservation education, and building capacity of the local people whilst simultaneously reducing the demand for the natural resources which were being extracted from GHNP. The ultimate aim of these activities is to prevent the destruction or degradation of habitats, and the extinction of species. This, at GHNP, is being done through a planned management of natural resources to prevent exploitation, pollution, destruction, or neglect and to ensure the continuity of the future natural functions of gene banks, watershed values and evolutionary processes, till perpetuity. Maintenance of "naturalness" of the existing ecosystems of the Park is of top priority. All the interventions such as improving the socio-economic aspects of the neighboring community, empowerment of poor and women, environment conservation education, developing enabling policies, and new mechanisms are in support of biodiversity conservation at the Great Himalayan National Park.

5.4.2.2 Socio-economic aspects

By and large we can understand the socio-economic aspects in 3 categories. At the top of the triangle (See figure below) are the richer people but these are few in number. In the middle are the middle-income groups that are substantial in number. At the bottom are the poorer people whose numbers are quite substantial. If we correlate this triangle with the distribution of assets we generally get an inverted triangle which shows that the few rich own most of

the assets in a village like land, good land, irrigated land, good houses, good cattle, tapped water etc. The middle-income people also own assets but in much smaller measure. However, the poorer category owns very few assets, small land holdings with poor soil and largely unirrigated, no tapped water. The poor (especially where women are illiterate) also tend to have more children.



Social structure in a village **Normal distribution of assets**

This inverted distribution of assets and resources (which include social status, connections with people in power, educational qualifications, jobs in government etc.) underlines social differentiation in any society.

Literacy

Literacy levels are low and lower still for women. According to 2001 census, the state of Himachal Pradesh has 77.13% literacy (Males: 86.02%; Females: 68.08%), while the Kullu district shows 73.36% literacy (Males: 84.55%; Female: 61.24%) (H.P. Census Data, 2001, Unpublished). For the same period, the overall literacy rate for the GHNP ecozone in the Kullu district is 64.3% (Unpublished survey results). The situation of women literacy in the interior areas of the GHNP ecozone is particularly bad. In one panchayat (Garaparli) of several villages there is not even one literate woman out of a total population of 175 women. Government jobs (the only permanent jobs here), held important in Himachal, are very few.

Caste Profile

The villages in Park's ecozone are highly stratified. The Rajputs, and Brahmins are the main constituents of the village society. Mostly these are the affluent people belonging to the higher stratum of the society. The Scheduled Castes (SCs) are 27.3% of the total population in the ecozone. The people belonging to the SC are mostly dependent upon the natural resources for their livelihoods. However, due to their low status in the society, they are mostly illiterate and commonly excluded from access to key resources and institutional services. Literacy levels are lowest among the SCs. School dropout rates are higher among SC's than other castes. Widows and deserted women are almost universally included among the poorest category of people, but coverage under government programs like widow pension scheme is seen to be poor.

The Position of Women in Villages

It is well understood that the rural poor are most dependent on forest resources for livelihood needs. In the process they come in direct conflict with the wild animals. Among all categories of the poor, the women are poorest. In most societies, the women are poorer than the men because of patriarchy and general discrimination against girls/ women. Traditionally and because of lack of education it is women who are engaged fully in household work. This includes working in agricultural fields, taking cattle for grazing, collection of fodder and fuelwood, fetching of water, daily milking and care of cows and so on. Women are also almost wholly responsible for the care of children, elders, the sick and old persons in the HH. Thus, most women are heavily over burdened with work.

Therefore, village level decisions like closure of areas, restrictions on grazing or collection of fodder and fuelwood, choice of tree, fodder and grass species to be planted, location of and access to water bodies/ sources directly affect the work burden of women. It has been seen that due to closure made by the HP Forest Department, many women esp. the poor women have to spend much more time and effort collecting fodder, fuel etc. This adds much more work to their already over burdened life. Often this leads to forcing the mothers to seek help of their daughters to cope with the housework thereby making many girls drop out from school. For this reason it is very important to know, understand and act upon the concerns of women while discussing the role of community in the biodiversity conservation.

5.4.2.3 Setting up of new mechanisms of management

Very innovative systems of the Park management have been set up at the GHNPCA. They include two types of institutional arrangements:

i. to manage the Park

ii. to integrate the local people in Park management

i. To manage the Park

Biodiversity Conservation Society (BiodCS)

The public (govt) funds alone cannot do justice to the Himalayan heritage, which is being conserved at the GHNPCA. The new mechanism of the Biodiversity Conservation Society (BiodCS) for the GHNPCA can raise funds for nature conservation. The BiodCS shares responsibility for the management of the GHNPCA. It provides fund advances, empowerment, flexible administrative procedures, and governing board structure, which in combination provides continuity of Park funding across fiscal years, eliminates most bureaucratic delays, renders managerial autonomy at the Park level, and help to ensure the flexibility required for a process-oriented approach. The provisions of the BiodCS are in order to (1) provide functional autonomy in the running of the Society to create an incentive to utilize

the staff and assets more productively, and (ii) ensure that it results in economy for the government by lessening the pressure for budgetary support.

The governing board structure of BiodCS is sufficiently powerful to provide autonomy at the Park management level. The Forest Minister of Himachal Pradesh is its Chairman. Members include high officials from departments of forest, finance, agriculture, animal husbandry, industry, and horticulture. Institutional members include Director of Wildlife Institute of India, Dehradun. In addition, there are three known eminent conservationists from India and two residents from the ecozone of GHNP as members of the governing board. The Director, Great Himalayan National Park is member-secretary of this governing body and does all the works concerning management, financial and administrative works duly approved by the governing body. The Governing Body is strong, capable, and committed to the biodiversity conservation of the Park.

The Society is a fully autonomous organisation with the main aim of managing the GHNPCA by involving the neighbouring communities through the strategy of ecodevelopment which is a site-specific package of measures derived through people's participation to address all aspects of land use and other resources, in order to promote sustainable land use practices, as well as income generating activities, which are not deleterious to the values of the GHNPCA. The funds of the Society shall consist Grants-in-aid made by the state government for furtherance of the objectives of the Society. However, this provision is yet to be implemented.

The member-secretary of the BiodCS, raises funds for the GHNPCA at national as well as international levels in two ways (i) plan, design, develop and execute projects for the management of biodiversity of GHNP (ii) develop a corpus fund for biodiversity conservation at the GHNP. So far, a sum of Rs. 60 lacs has been raised by writing three Projects which were sanctioned for BiodCS. Two of these projects are about raising medicinal plants by the community members in the ecozone of the Park. The third Project is for publication of publicity material for the Park. Some of this material is in shape of Ecotourism booklet, four posters, post cards, stickers, etc. In addition, the Society gets receipts from Park entry fee, Van Vihar fee, rent of field equipment, camping gear, camping grounds, all Forest Rest Houses/Inspection huts/Interpretation Center at Sai Ropa/ Information Center at Larjee/stores at Aut and other places, etc. Sale proceeds from posters, booklets, books, stickers, souvenirs, and other like items also add to the funds of Society. The Society can receive grants, donation or assistance of any kind from foreign governments and other external agencies with prior approval of the central government.

Friends of GHNP

The Friends of GHNP come from all walks of life (mostly the foreign people who have visited the GHNP) and believe that GHNPCA should have international support for its efforts to protect a part of the unique environment of the Western Himalaya. The Park needs to get its message out to the world. As a volunteer group donating their time and energy, they are always eager to have new "friends" to help. The Web site www.greathimalayannationalpark.com has been created and developed by the "Friends of GHNP." Some of the prominent names of the Friends of GHNP are: Dr. A.J. Gaston, Canadian Wildlife Service; Dr. Peter Garson, Deptt of Zoology, Univ of Newcastle upon Tyne, UK; Dr. Richard Tucker, Michigan Univ; Payson R. Stevens of Internetwork Media, California.

ii. To integrate the local people in Park management

Women's Saving and Credit Groups

Acknowledging that the Village Eco-development Committees (VEDCs) are mostly male dominated; realizing that poverty is the main opponent of conservation, and recognizing that the women, who constitute nearly and significantly, half the total population are poorer of the poorest in the buffer zone of the Great Himalayan National Park (GHNP), the efforts to organize womenfolk of poor and natural resource dependent households were initiated through the Women Saving and Credit Groups (WSCGs). The group members save their own money (one rupee a day) and give credits within the WSCG to invest money in natural resource-based enterprise development. Starting in 1999, by now, there are 980 women in 95 WSCGs with a total saving of Rs. 5,25,000. Through this saving the poor women have done business (starting in July 2000) worth Rs. 23,00,000. Vermicomposting, apricot oil production, hemp produce, medicinal plant cultivation, ecotourism, local handicrafts, organic farming, street theatre and wage labour are some of the options that these WSCGs use as natural resource-based enterprises. This rural development programme in combination with environment awareness education, women empowerment, and Joint Forest Management is leading to a decline in biotic pressures upon the natural resources/biodiversity of the GHNPCA.

Important: The PA management has intervened actively (from 1999 till now) in the formation, training, capacity building and **follow up support** (quality control, marketing) of the women's savings and credit groups (WSCGs), and has also played a major role in promoting a support organization called SAHARA to help the fledgling WSCGs in all aspects of their functioning. Some of the income-generating activities taken up by the WSCGs include production of vermi-compost, apricot oil and handmade woollen items like scarves, caps and shawls, for all of which, marketing support is provided by the PA management through its outlets in HP as well as Delhi. **However, at this juncture, continuation of handholding support is critical for firming up marketing and quality control.**

Village Forest Development Society

The WSCGs are now being federated into Village Forest Development Society (VFDS) at Panchayat or village council level. A VFDS is constituted at a Panchayat Ward level including all the voters in that Ward. It provides the rural poor and women an opportunity of making a CHOICE (decision-making) and raising their VOICE in preparation and implementation of the VFDS (Ward) level micro-plans. Thus, a WSCG is an important institution, which promotes an equitable access to the natural resources, and supports the important aspect of social/environmental justice and gender sensitivity.

Society for Advancement of Hill and Rural Areas

The WSCGs and their Group Organizers were facilitated to form a NGO called SAHARA (Society for Advancement of Hill and Rural Areas). In July 2001, they registered themselves as NGO, which provides continuity and mass support to biodiversity conservation in GHNPCA. The NGO organizes poor and women, empowers them with asset building, rationalizes use of natural resources, helps in socio-economic development, provides market support and raises funds, all these actions in support of reducing the dependencies on the Park's resources.

Jujurana Jeeve

Some of the responsible and senior members of the community have organized themselves in an informal Community Based Organization called as Jujurana Jeeve. They associate with the Park officials in providing useful information against poachers/defaulters, assist in monitoring/census operations in the Park. The Jujurana Jeeve performs the most important function of creation of a constituency among the local people in favour of wildlife protection and conservation.

5.5 Coordination among NGOs and other agencies

The importance of cross-sectoral cooperation for economic development and rural livelihoods has been given cognizance in the biodiversity conservation efforts at GHNPCA in which the Himachal Pradesh Forest Department is an important implementing agency. In order to achieve greater inter-sectoral coherence and coordination between concerned departments at the level of the village level for attaining Sustainable Forest Management, various meeting of govt. agencies, Panchayats of ecozone of the Park and local NGOs have been organised. The govt. officials related to Panchayat Raj Institution, and departments such as Rural Development, Public Health, Electricity, Police, Tourism, Handicraft, Forest, Wildlife, Bee-Keeping, Education (Primary and Higher), Irrigation, Him Urja, Handloom, Industry, Veterinary, Women and Child Care, Literacy Mission, and others are coming together to contribute to the WSCGs as well as the Village Forest Development Societies that are now being organized in the GHNP ecozone.

The Great Himalayan National Park has developed appropriate linkages with

- training institutions such as the Wildlife Institute of India and relevant NGOs within (such as Participatory Natural Resource Management Group, Palampur) and others;
- regional (international) training institutions and study tour sites such as of Annpurna Conservation Area Project (ACAP), Nepal
- institutions for information networking, such as NICNET, etc.
- institutions for supporting environmental education and awareness programmes, e.g. Himachal Pradesh Gyan Vigyan Samiti (Shimla), WWF-India, Wildlife Institute of India (Dehradun), National Museum of Natural History (Delhi), Centre for Environmental Education (Ahmedabad).

5.6 Some of the emerging concerns of ecodevelopment at GHNPCA

- Prominence of poor and women as main stakeholders in conservation
- Organising the poor and women in user groups or WSCGs
- Federate the user groups at Panchayat level
- Scale of area of operation
- Active/pro-active or advocacy or a balanced combination of all these
- Internal management structures
- One man show vs democratic/consensus approach (need of more time to consolidate and internalize the gains of Project and the post-Project interventions)
- Attract and retain talent
- Help organize the local/grassroot NGOs
- Accountability to people
- Defined roles of Village Forest Development Society (VFDS), representative (Panchayat), and community (Women's Saving and Credit Groups) based organisation

Through experiences, the Park/Sanctuary staff is learning that the synergy lies in the interdependence between the Park and People. This may be characterised by:

- mutually accepted co-existence between staff and community
- effective leadership and team building
- mutually accepted and competence based roles and goals
- common (shared) vision
- mutual understanding
- sharing of experiences
- meaningful mutual dialogue irrespective of person incharge

- dialogue followed by action
- research followed by field action

For such interdependence, the GHNPCA management has explored new areas of capacity building. The economic empowerment of poor and women is the basis of their social and political empowerment. The fourth dimension of spiritual empowerment is perhaps the most important aspect of nature conservation among the hill people.

5.7 Research and Monitoring at GHNPCA

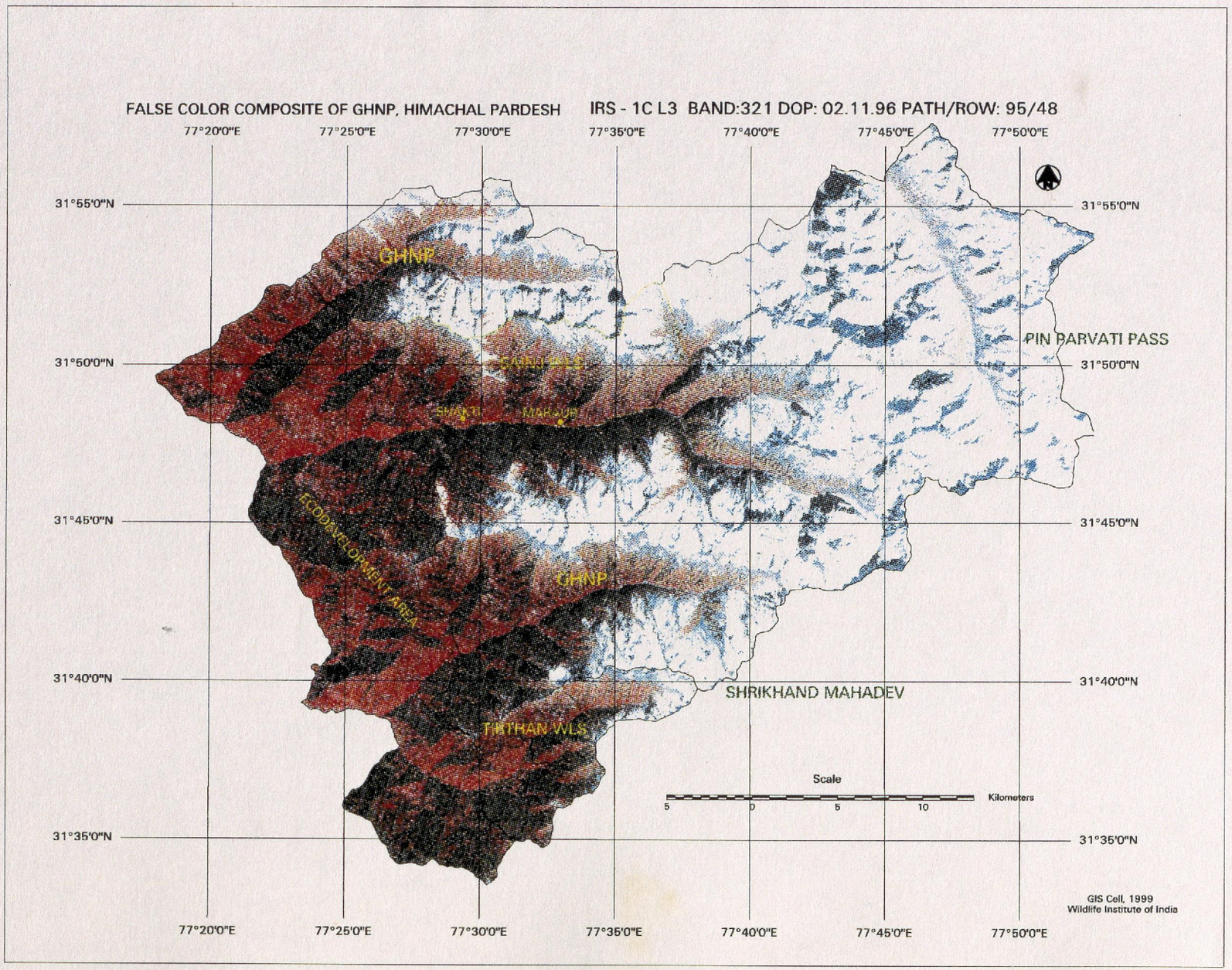
GHNPCA is one of the few Protected Areas in India that has developed a significant ecological and environmental database. A well-executed research program, in collaboration with the Wildlife Institute of India, Dehradun, has studied the flora, fauna, and socio-economic aspects of the Park and environs. The research results from, 1994 to 1999, were published in a six volume report, titled, "An Ecological Study of the Conservation of Biodiversity and Biotic Pressures in the Great Himalayan National Park Conservation Area-An Ecodevelopment Approach"

The Volumes include:

- *Volume 1:* The Project, Research Design, Resource Mapping and Physical Environment
- *Volume 2:* The Biological Environment-Floral Diversity: Vegetation Description and Collection of Herbs
- *Volume 3:* The Biological Environment- Faunal Diversity: Mammals, Birds, Reptiles, Amphibians and Insects
- *Volume 4:* The Social Environment: Historical Perspective, Socio-Economic Conditions and Man-Wildlife Conflicts
- *Volume 5:* The Social Environment: Ecotourism and Livestock Grazing
- *Volume 6:* Long Term Ecological Monitoring (LTEM)

Research has significantly contributed in providing baseline information on the floral and faunal diversity, land use, historic development, socio-economic conditions, peoples' attitudes and perceptions. The GHNP is one among the few conservation areas in the country where different taxonomic groups were studied simultaneously. They included vertebrates (mammals, birds, reptiles and amphibians), invertebrates (insects, annelids and mollusks), plants (Angiosperms, Gymnosperms, Pteridophytes, Bryophytes and Lichens).

The Park is subject matter of a successful model of biodiversity conservation through people's participation for various magazines, newspapers, radio talks, and TV shows. A book entitled "The Flora of Great Himalayan National Park" by Sanjay Singh and G.S. Rawat has been published by the Bishen Singh Mahender Pal Publishers, Dehradun. Six Ph.Ds on the subject of flora, fauna,


FALSE COLOR COMPOSITE OF GHNP, HIMACHAL PARDESH
IRS - 1C L3 BAND:321 DOP: 02.11.96 PATH/ROW: 95/48
77°20'0"E
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31°35'0"N
GHNP
PIN PARVATI PASS
SAINJ WLS
SHANTI
MARANDA
ECODEVELOPMENT AREA
GHNP
SHRIKHAND MAHADEV
TIRTHAN WLS
Scale
5
0
5
10
Kilometers
GIS Cell, 1999
Wildlife Institute of India

GIS studies, grazing, and social aspects of GHNP have been awarded to the researchers who worked at the Park between 1994 and 1999.

5.8 Monitoring

Ecological monitoring provides a basis to track fluctuations in stocks and, thereby, evaluate the utility of the regimes adopted for conserving biodiversity. The GHNPCA staff while realizing dynamic nature of ecosystem is expected to know "How healthy are ecosystems?" The Long Term Ecological Monitoring intends to develop an integrated strategy based on a mix of several isolated approaches. The strategy incorporates on one hand the simple well-tested field methods for monitoring of climate, plant, animal and socio-economic attributes, while on the other hand aims to make use of modern techniques viz. remote sensing and GIS.

Salient features of the role of GIS/Remote Sensing at GHNPCA

- Repetitiveness in data acquisition for large area such as GHNP which is not possible by conventional methods.
- Information acquisition in inaccessible areas, where reaching is not easy.
- Save time and money.
- Pin points the change areas.
- Data on different season and resolution.
- Whereas digital data are permanent data
- Information is unbiased.

There are 52 layers of GHNPCA generated through Geographical Information System (GIS). Details of this study can be referred to the Volume I: The Project, Research Design, Resource Mapping and Physical Environment of the WII study "An Ecological Study of the Conservation of Biodiversity and Biotic Pressures in the Great Himalayan National Park Conservation Area-An Ecodevelopment Approach". During the Project period, a vast amount of baseline information including detailed methodologies devised to measure indicators has been developed. Actual monitoring based on research work is now required.

a. Monitoring of large mammals

Probably this is the oldest activity in Sainj, Tirthan WLSs and GHNP. At GHNPCA, different methods viz., transact, block-count, silent drive, vehicle count, etc. are being employed. At the same time, doubts and controversies regarding the accuracy, reliability and robustness of field methods and data collected have been raised.

b. Monitoring ecological changes

A special programme of vegetation monitoring and monitoring changes in abundance of the prey of the GHNPCA is ideal. However,

problems on account of lack of trained staff, identification of plant species, tedious work, data analysis, etc. have been experienced by the GHNPCA authorities.

c. Meteorological monitoring

Only a few PAs have established meteorological stations and possess information on past climatic trends. Lack of required number of such field stations in the representative field sites, adequacy of various parameters studied, seriousness of data collection, analysis and lack of interpretation are some of the factors those have undermined the significance of meteorological information in the GHNPCA management.

d. Monitoring of visitors

Wildlife tourists, pilgrims, forest dependent people, researchers, etc. visit the Park. It was only in the recent past that the GHNPCA staff has started keeping data on such visitations. However, information greatly lacks on the items and quantity of forest produce harvested and taken away by the resource dependent population.

e. Monitoring of livestock grazing

The Sainj and Tirthan WLSs and ecozone of GHNPCA collect part information on resident and migratory cattle visiting the PAs, cattle and transit camps, season and time spent. Grazing in the GHNP is now banned since issuance of the final notification of Park in May 1999.

f. Socio-economic monitoring

Socio-economic monitoring in and around GHNP is an activity of recent years. Because of ecodevelopment schemes being formulated, information on demography, resource dependency, etc. is being collected in villages those are within the Park or its around. In all the cases, these efforts needs further strengthening.

5.9 Forest Fires

Human use of fires had a significant impact on shaping the distribution and composition of the native vegetation. The forests are under significant pressures from the local communities because of the traditional rights held by the local people for use of the forests and their products. Fire has long been used as a management tool to encourage the growth of grass for grazing. Fire management involves managing the threat and occurrence of wildfires and the use of controlled burning to achieve specific fire and other management objectives. The strategy concerning fire provides a basis for establishing and maintaining a consistent standard of fire management on forest land. Fire impacts on the whole range of the Park's diverse land and resource management responsibilities.

This Strategy supports the discharge of the Park's legislative responsibilities which include :

- Indian Forest Act 1927
- Section 26(1) setting fire to a reserve forest is punishable;
- Section 33(1) similar provisions exist for protected forests;
- Section 26 (3) and 33 (2) right and concessions can be suspended for some period wherever fire is caused willfully by the villagers/right-holders;
- Section 79(1) it is obligatory on every person who exercises rights in the forest to furnish information he/she has about the forest offence to the nearest Forest Officer or Police Officer.
- Section 79(2) provides for punishment of imprisonment up to two years and/or fine of upto 5000/-.
- Himachal Pradesh Village and Small towns Act 1964.

The fire Strategy lays down principles, standards and guidelines that apply to fire management on all forest land in GHNPCA to ensure that in an effective, efficient and safe manner:

- human life, property and assets are protected, as far as practicable, from the deleterious consequences of wildlife
- environmental values, including the vigour and diversity of the GHNPCA's indigenous flora and fauna, are protected, as far as is practicable, from the deleterious effects of wildfire and inappropriate fire regimes;
- water catchment, watershed and landscape values are conserved; and
- historical, religious and other cultural site are conserved.

5.10 Competence Based Training for the staff of GHNPCA and local community and NGOs

Salient Features

The following are some of the salient features of the existing circumstances regarding the training progrmmme at GHNP.

a. Inadequacy of existing training

There is a recognition of the fact of the shortcomings of existing training per se and more particular the one related to protected area management in the state. There is no systematic need analysis, the training may not necessarily be related to the organisational objectives, there is hardly any emphasis on entry behaviour, the training methodology hardly addresses need of adult learners, no assessment of training again standards and very limited scope for career development.

b. Competence Based Training

In order to over come some of the inadquacies outlined above concept of competence need to be emphasized. A competence can be explained as "ability to perform work role or job to the standards required in one or more area of competence". What does it require on the part of frontline staff in the PAs to carry out their work roles ? The answer to the question can lead to cluster competence units. Each unit can comprise several different elements of competence. The role holder would need to master each element individually to have gained competence. Each individual element of competence needs to be supported by performance criteria in non-ambiguous terms i.e performance criteria should reflect the outcome of performance and they should further specify condition under which the action is to be performed. The performance criteria (standards) are related to the organisational needs (driven out of need analysis) and there should be a general agreement of GHNP over these standards. Competence based standards are designed to make explicit what people do in their normal work role. The assessment of trainees against the agreed standards should lay a greater emphasis on such evidences that require the trainee to demonstrate the skills through performance. Unless a person is able to demonstrate his/her performance against the performance standards, he/she cannot be qualified competent. Such an assessment process need not belittle evidences related to knowledge and understanding. However, one should not forget that the application of knowledge and understanding is of paramount importance in competence-based system of assessment. Assessors in competence based are usually the line managers (PA managers in this case) and they would require training in the skills and application of competence based assessment.

c. Changing roles

There has been a marked shift in the recent national forest policy over the previous one which has put the areas with rich biodiversity values at the centre stage. But given the complexity of field realities, the staff manning these areas needs to professionally equip itself with all those critical skills that can help them to discharge their role efficiently. Training has to play a very critical role to address such organisational needs.

The conceptual frame work as outlined above would lead to certain implications for the department, a few of which are outlined as under:

Competence based system lays down the framework for performance appraisal of staff by their line managers against the agreed criteria as the ongoing process that will figure out the training needs of the individual staff member. The competence-based system provides a valuable foundation to measure, manage and maintain a high quality performance in the department becomes possible. The identified training needs in the course of performance appraisal need to be addressed by designing the training on modular basis which provides flexibility for individualised

learning. Designing and development of the training programme must be based on explicit standard of performance.

5.11 Community Based Ecotourism

Like most mountain regions, the Great Himalayan National Park faces the problem of being situated relatively remote and afar from the main markets for tourism, which are situated in urban agglomeration regions. The major challenge thus lies in creating links between predominantly urban consumers and predominantly rural remote mountain regions, provided that a sustainable development of mountain environments and their population is considered to be a desirable goal.

The Ecozone is an area adjacent to the Park, which contains villages that have historically had some economic dependence on the resources of the land incorporated into the Park. The formal designation of the Park boundaries and the resulting loss of the resources has economically impacted these villages. In recognition of this adverse economic impact various programmes have, and are being, developed by the state government of Himachal Pradesh, NGOs (non-government organizations), and the villagers themselves to create alternative sources of economic well-being. Ecotourism, one such program, offers rewards to both the visitor and the villagers and helps protect GHNP.

Key Elements of CBET

- reflects modern mindset of conservation
- sensible tourism which could be one of the most effective conservation tools to help protect the wilderness of Himachal Pradesh
- strictly controlled tourism in specially demarcated tourism zones of forests/Protected Areas
- an educational tool for conservation
- encourages caring our own heritage
- may need co-ordination in between the Forest Deptt. and Tourism Deptt. of the state
- differentiates a nature lover from pleasure seekers
- sustainable tourism drive which can give a sense of achievement to the local communities, forest officials and ecotourist guides
- depends upon proper training and orientation programme for its key personnel
- emphasises that the Himalayan fauna and flora should not be subjected to stress and disturbances as this would seriously affect their behaviour and breeding ecology
- demands support from the general public, particularly local residents
- favours process-approach in place of blue-print approach: series of consultations and debates on ecotourism can be starting point; includes

actual communities in whose midst such tourism will operate, wildlifers, and policy makers

- helps the tourist to allow the city to seep out of his/her system, while the wilderness seeps in
- abhors a situation where commerce replaces education and conservation
- do'nt offer much to a discerning tourist who stops frequenting ruined destinations long before they are ruined

Ecotourism or 'green tourism' or 'nature tourism' is facilitated by mutual cooperation/persuasion and not by command.

'Community Based Eco-tourism' Development Programme

The 'community based eco-tourism' development programme in the GHNP ecozone is proposed with a long-term goal of conserving the rich cultural and ecological heritage of the Park, so that various benefits from this conservation endeavour, including the benefits by way of tourism, could continue to accrue to generations to follow.

- Promotion of community based ecotourism involving various categories of ecotourists such as nature lovers, students, teachers, others in the buffer zone of the GHNP.
- Development of infrastructure for sustainable community based ecotourism with emphasis on socio-economic development of the most-weaker sections of the community.
- Women's empowerment through WSCGs, and ecotourism related income generation activities.
- Networking for federating the community based ecotourism for securing collective economic and social gains.

Target Group/Tourist Profile

Ecotourism or CBET is meant for ecotourist, who are increasing in numbers. The following tourist profile, both national and international will be addressed through ecotourism programme:

- Student Groups from Educational Institutions.
- Groups from various professional organisations/ business concerns.
- Responsible tourists in family groups.
- Keen individuals/groups looking for trekking, adventure and exploring something new. They include the following:

  i. **Backpackers:** they rely mostly on local availability of food, shelter and other services, such as school children, NCC cadets, trekkers from Youth Hostel of India, some tight-budget foreigners.

ii. **Do-it-yourself Trekkers:** they come prepared with own food, tents, etc. A number of foreigners are in this category

iii. **Pre-planned Trekkers:** their trip is pre-planned, organized and executed by a trekking agency

Tourists and pilgrims: the most transitory of stakeholders, nonetheless, a large influential group in the forest areas/GHNP

Services to the Tourists and Pilgrims: to be provided by more permanent stakeholders such as community living in the ecozone

5.12 Present Position of the Field Staff

At the moment, the Great Himalayan National Park is being managed under the control of Conservator of Forests, National Park Shamshi with the assistance of following executive and ministerial establishment:

Executive Establishment

i.	ACF HPFS	1
ii.	Forest Rangers	4
iii.	Deputy Ranger	8
iv.	Forest Guards	29

Ministerial establishment

i.	Superintendent	1
ii.	Sr. Assistant	2
iii.	Jr. Asstt./ Clerk	4
iv.	Chowkidar	4
v.	Peons	4
vi.	Mali	1
vii.	Forest Worker	11
viii.	Beldar	1
ix.	Surveyor	1

Part 2
Planning and Recommendations

Chapter 6 : Planning Perspective, Approach and Objectives

6.0 Landscape/an Ecoregional Perspective

The boundaries of Great Himalayan National Park Conservation Area (GHNPCA) are contiguous with the Pin Valley NP in Trans-Himalaya, and Rupi-Bhaba WLS in Sutlej catchment. Another PA adjacent to the GHNPCA is Kanawar WLS. Together, all these PAs (GHNPCA includes Sainj and Tirthan WLSs) have varied wildlife habitats, and full range of western Himalayan biodiversity, from tropical to alpine and Tibetan. Furthermore, a very low rate of tourist visitation, in addition to local economy based on traditional undertakings, and low population make this whole area quite suitable to become a single conservation unit. Rodgers and Panwar identified this area as being of foremost priority for biodiversity conservation in India.

Bounded to the East by the Himalayan Mountains, the proposed conservation unit (CU) of GHNPCA, Pin Valley NP and WL Sanctuaries forms part of the boundary between four ecological zones: (1) the dry deserts of interior Asia and the well-watered lowlands of the Indian plains, (2) the Oriental and Palearctic faunal realms, (3) the high plateau of Tibet and the jumbled Himalayan peaks, and (4) the catchments of the Beas and Sutlej Rivers, both mighty tributaries of the Indus. Because of its complex geography and its great variations in altitude, the limited area of the CU encompasses an enormous range of species, which span the subtropical to the alpine and include those characteristic of the south-east Asian forests as well as those found across Siberia and the Asian steppes. Few ecological sanctuaries present such a variety of wildlife habitat and biological diversity in such a small area.

As a future conservation strategy, the greater conservation unit comprising areas of all the above-mentioned National Park and Sanctuaries and the habitations in between may be constituted. The higher reaches may be set aside for conservation purposes and the valley bottoms for development. A harmonious relationship between conservation and development need to be developed and demonstrated in this part of Himalayan landscape.

A larger CU could easily become part of the overall landscape/ecoregional perspective, which needs to look at larger conservation issues without putting "categories" on them, and therefore allow greater flexibility in proposing ways to manage these units holistically. The implementation of ecodevelopment approach at proposed CU facilitates an understanding of a number of issues which cut across many administrative boundaries: remoteness, inaccessibility, and difficult terrain have helped in evolving peculiar aspects of biological diversity and local practices. Such uniqueness is further enhanced as the area has fewer biotic disturbances.

An ecoregional planning for the larger conservation unit needs to take into account the common and unique aspects of species, area, wild and agricultural biological diversity, and measures for conservation and sustainable/equitable use. A rational and dialogue based prioritisation involving a wide section of society including local community, NGOs, panchayats, gram sabhas, Mahila Mandals, various user groups, experts, politicians, and others can help in preparation of an ecoregional plan for a larger CU. Such an effort is expected to integrate biodiversity into various sectoral plans, and reorienting developmental planning to make it more sensitive to ecological concerns on a larger regional basis.

During the last two decades, efforts to conserve forests and wildlife have gradually begun to shift away from law enforcement and use restrictions, towards more participatory approaches emphasising equitable and sustainable use of natural resources by local people. The biodiversity is concentrated in the areas located away from main habitations where poverty tends to be pervasive, and where the reach of government development programs is often limited. At the GHNPCU, due to remoteness and inaccessibility, the indigenous communities living in the larger landscape have developed distinct traditions and customs. The isolation of valleys has led to the development of different farming practices and methods of forest use. However, the theme of a harmonious relationship between conservation and development at a landscape level cuts across the regional diversity. Hence there is a need to have a planning approach, which is wholesome, which can amalgamate the distinct cultural and management aspects of local communities, and at the same time which is able to bring the intricacies of biodiversity conservation and rural development, together.

6.1 The Elements of Planning Mechanisms:

- Participation in biodiversity conservation for livelihood needs (especially of rural poor and women)
- Maintenance as well as enhancement in capability and assets of the natural resource dependent community through improved natural resource management in the buffer (ecozone) of the GHNP
- Governance, laws and policy coherence to achieve the above

The Key Issues:

- the unique biological diversity of GHNP
- role of the local forest stakeholders and their socio-economic aspects
- new mechanisms to set up institutions at village and Park level to manage the biodiversity conservation
- the status and adequacy of the on-going rules, procedures to manage the Park's biodiversity

6.2 Planning Approach

The traditional rights of the local people in the GHNP were settled in May 1999 through an elaborate procedure, as prescribed in the Indian Wildlife

Protection Act 1972. This has led to the issuance of final notification of the GHNP. The post-settlement-of-rights situation is affecting the Park in the following ways:

(i) the biological processes, when free of current biotic disturbances, are expected to bring positive changes in the status of biological diversity in the park;

(ii) the restrictions on access to the Park area may have some negative effect on the livelihood of the local community, given their high dependence on herb collection and livestock grazing. Alternative ways and means are now getting in place to mitigate such effects.

The strategic approach aims at bringing about a change in the relationship between the natural resource base including the park and the immediate and long term livelihood needs of the local communities from the open access arrangement to an increasingly participatory mode of joint management involving all stakeholders. That is when conservation through sustainable use rather than exploitation will begin to "pay".

Recognizing the fact that the biodiversity conservation is possible only through active support of the local community, there is a need to gain a more informed understanding of the livelihoods of different stakeholder groups and the major influences that shape them. Such an approach is primarily based on analysis of livelihoods of the local people with a focus on such (poor) people who have been depended upon the Park's resources. This is also expected to bridge the gap between macro policies (Himachal Pradesh Participatory Forest Management Rules, 2001) and micro realities (at the village level) and vice versa.

A Livelihood Approach for the Biodoiversity Conservation at GHNP:

The livelihood approach is a way of thinking about objectives, scope and priorities for development, to enhance progress in poverty elimination. Basically, this is a way of integrating and further developing recent thinking and best practices. The ecozone of GHNP typically shows that the local villagers are mostly natural resource dependent. Their livelihoods comprise capabilities, assets and activities required for a means of living. The assets may be Human (knowledge, skills, technology, ability to labour), Physical (shelter, transport, infrastructure, tools), Social (community, membership of groups, bonds of trust), Natural (access to biomass, rivers), and Financial (access to credit, savings, income, remittances). As issues connected to sustainable rural livelihoods come more into focus, there is simultaneously a growing need for better co-ordination between various government departments and their capacity to institutionally engage with civil society groups. Many such issues need inter-disciplinary approaches.

The present management plan attempts to relate the biodiversity conservation to the local livelihoods. It provides for strategies, which can facilitate the sustainability of local livelihoods and alleviate poverty. The GHNP model of addressing the local community concerns and enhanced conservation interface

through a livelihoods based approach is primarily routed through women's saving and credit groups. The livelihoods are sustainable when they can cope with and recover from stresses and shocks and maintain or enhance their capabilities and assets both now and in the future, while not undermining the resources base. The livelihood strategy draws upon the Natural Resource (NR) such as live stock rearing, medicinal plant propagation/collection; Non NR such as petty business, bicycle repair, motor winding, and Migration, which may be permanent (e.g. government work), seasonal (e g. construction work in towns), or temporary (e.g. army)

6.3 Goal

The primary goal of management is to link the village level development issues (local livelihoods) with the conservation of biodiversity at the Great Himalayan National Park. This needs to be done by integrating environmental, social and economic issues into a holistic framework based on the livelihoods of the natural resource dependent community.

In order to achieve this goal, it is imperative to integrate the functions at two fronts, i.e

A. Working with the local communities to reduce their dependencies on the Park's natural resources, and

B. Interventions to manage, monitor and protect the natural habitats and resources.

Primarily, in both of these cases, it requires putting people at the center of GHNP's biodiversity conservation. Accordingly, the implementation of the actions based on these objectives will be able to achieve the perceived goal.

6.3.1 Objectives

The implementation of the actions based on the following objectives will be able to achieve the perceived goal.

A. Working with the local communities to reduce/mitigate their dependencies on the GHNP's natural resources.

1. Assess the strengths and assets of the natural resource dependent community members (with an emphasis on the women of poor households) to establish explicit links between the management plan activities and livelihood priorities of these people.

2. Facilitate organizing of sustainable community based organizations, user groups of rural poor and women, preferably with strong linkages to the local village councils known as Panchayats. Establish the biodiversity conservation efforts at Panchayat level through the consultative process of micro planning.

3. Develop a capacity building programme for the members of WSCGs, other User Groups and Park staff on the basis of local wise practices,

and experiential learning, especially with reference to the alternative income generation activities. Strengthen the existing ones and identify the new partnership opportunities between the Park management and the local community.

4. Improve the identification, appraisal, implementation and evaluation of developmental or income generation programmes so that they better address the livelihood priorities of the local people and facilitate conservation of the Park's biodiversity. Reduce/mitigate tensions between locally identified needs for greater livelihood security and wider concerns about environmental sustainability.

5. Help resolve man-animal conflict with emphasis on social and environmental justice for the poor people living close to the GHNP.

6. Develop competence based training programmes for the GHNPCA staff and the local community and NGOs.

B. Interventions to manage, monitor and protect the natural habitats and resources.

7. Maintain the naturalness of large and compact areas as representative samples of the Western Himalayan biogeographic zone in its unaltered state to ensure the continuity of evolutionary processes, and environmental services such as adequate quality and flow of water, animal migration, and functions of Gene Pool and Carbon Sink.

8. Maintain and protect the natural vegetation communities, populations of large ungulates (with emphasis on Himalayan Tahr and Musk Deer) and pheasants, especially Western Tragopan.

9. Facilitate a Rehabilitation Action Plan for relocation of the three existing villages of the Sainj WLS into the ecozone of the GHNP. Improve or regain the standard of living of displaced villagers, relocate village sections or families as village units, integrate villagers into the communities in which they are resettled, and provide them with adequate compensation and infrastructure in order to accomplish rehabilitation.

10. Provide facilities and opportunities in natural areas for purposes of formal and informal education, research and the study and the Long Term Ecological Monitoring (LTEM).

11. Provide opportunities for healthy and constructive outdoor recreation for local residents, regional and foreign visitors, and to serve as elements for ecologically sustainable tourism development.

12. Protect and make available (with the consent of the local community) the cultural, historic and archaeological objects, structures and sites for public visitation and research purposes as elements of the cultural heritage of the GHNP /region.

6.4 Definitions

Biodiversity encompasses the diversity of life, including genes, species, habitats and the processes linking those components.

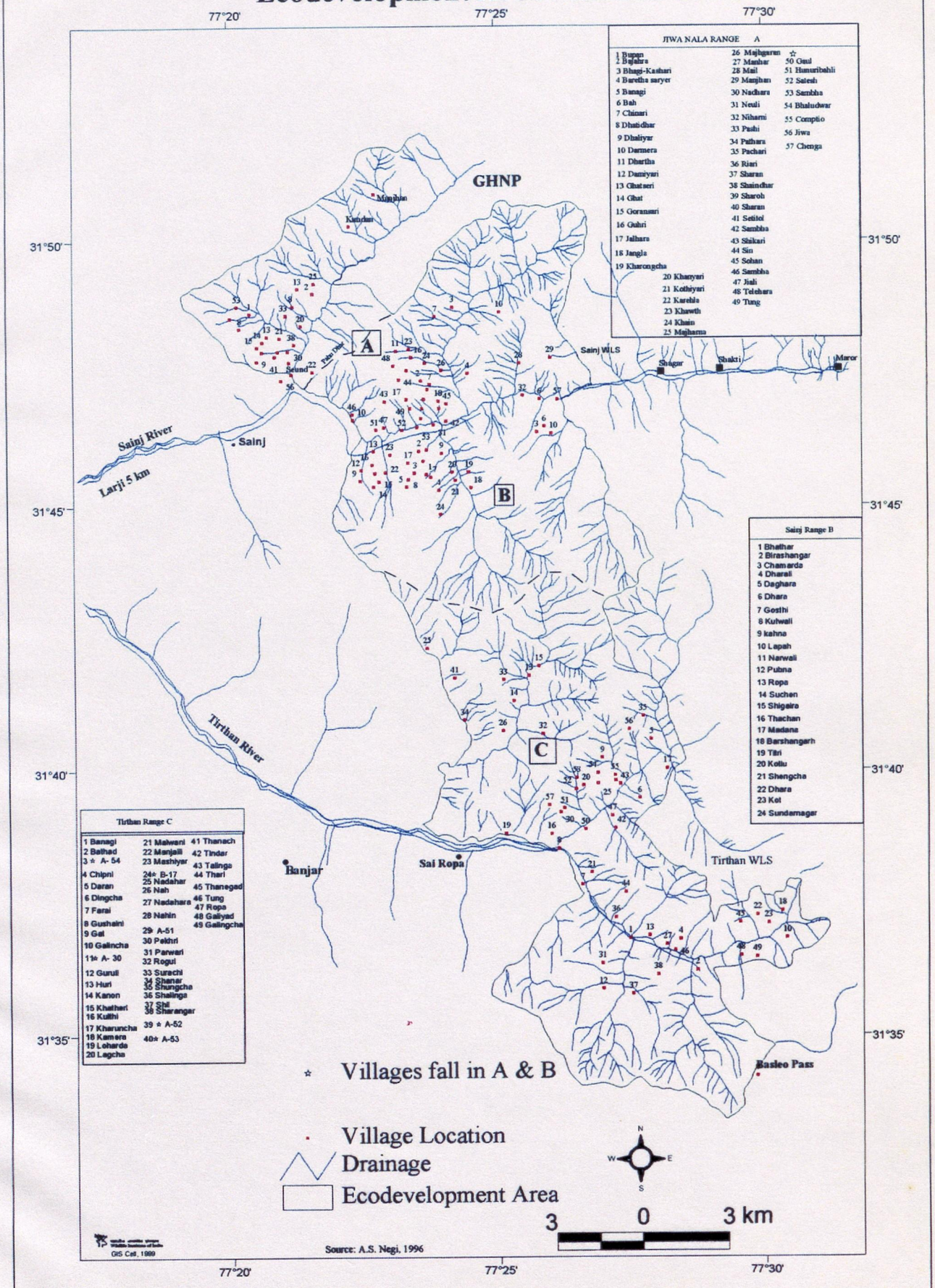
Participation is active preparation for a decision-making process.

Process involves do-able steps to achieve an objective.

Paricipatiry processes involve different stakeholders in monitoring or assessing biodiversity; for example in conservation assessments by rural communities or nature surveys by amateur enthusiats.

Livelihoods comprise capabilities, assets and activities required for a means of living.

Great Himalayan National Park Conservation Area(GHNPCA)
Ecodevelopment Area : Human Settlement



Chapter-7 : The Strategies - Working with the Local Communities to Reduce/Mitigate their Dependencies on the GHNP's Natural Resources

7.0 The Principles

The strategy at the Great Himalayan National Park needs to be based on the sound principles of participatory management of natural resources wherein active preparations are made to take joint decisions about biodiversity conservation by the local communities and the Park administration. It is expected that such efforts of the Park staff and community will begin to "pay" in terms of economic gains by the local villagers, which may lead to the conservation of biodiversity of the Protected Area. Such a strategy must provide (i) the scale on which it must be applied (ii) it should specify standards (iii) should prescribe techniques and procedures (iv) should discuss time frames, costs and logistics (v) should discuss locality details on a priority since funds for any given year are limited. (vi) should provide follow up operations if pertinent (vii) provide monitoring techniques enabling evaluation of a strategy.

At GHNPCA, the following facts have a very specific connotation:

- Creation of a buffer zone or Ecodevelopment Project Area (EPA) or Ecozone extending upto 5 kms. on the western boundary is an innovative land use strategy. This is an area of 255 sq. kms. covering about 160 small villages, comprising 2400 households with a population of 14000 people. In case of GHNP, people live only on the western side of the PA while eastern, northern and southern sides are naturally protected by high peaks and ridges.
- stoppage of local people's access to forest resources of GHNP on which they had previously depended for grazing their cattle and for collecting medicinal herbs, fuelwood.
- the restrictions on access to the Park area may have some negative effect on the livelihood of the local community. Ways and means are being found to mitigate such effects.
- the biological processes free of biotic disturbances are expected to bring positive changes in the status of biological diversity.

7.1 Zonation

A zone is an area of specific management category distinguishable on account of its objectives. Separate zones need to be created in the first place because some of the management objectives may not necessarily be compatible. For example an objective to maintain catchment capability is non-compatible with the objective for accommodating the requirement of grazing of domestic livestock. Three zones of the GHNPCA:

i. Ecozone

This is the buffer zone of the GHNP, which also serves the purpose for the Sainj WLS.

ii. The Restoration Zone

This is w.r.t. the present location of the enclaved villages of Shakti, Marore and Shagwar which need to be relocated. Here, the main management practices must aim at habitat recovery upon eviction of these villages.

iii. Village Relocation Zone

The counterpart zone or the zone consisting of areas where the relocation of the villages Shakti, Marore, and Shagwar is to take place.

In order to facilitate the biodiversity conservation, the GHNP of GHNPCA is the core zone or the *sanctum sanctorum*. It needs to be ensured, however, that there is no stark contrast in resource use pattern immediately outside the boundary of the core. In principle, the resource use pattern should change gradually with increasing distance from the core. The resource use can vary from such as livestock grazing which is consumptive in nature to tourism which is non consumptive but potentially capable of impacts. In its true sense, the core is really a red flag area needing complete protection and just a minimum of restorative management intervention to secure its objectives.

The Ecozone is an area adjacent to the Park, which contains villages that have historically had some economic dependence on the resources of the land incorporated into the Park. The formal designation of the Park boundaries and the resulting loss of these resources have economically impacted these villages. In recognition of this adverse economic impact various programmes have, and are being, developed by the state government of Himachal Pradesh, NGO's (non-government organizations), and the villagers themselves to create alternative sources of economic well-being.

The best learning at the Park is that if we genuinely want to contribute to biological diversity conservation, we need to first resolve the socio-economic issues of the local people. The habitat of wild animals and plants will be better protected if the local villagers stand by the forest guard and assist him/her in protection of natural resources.

Objective 1:

Assess the strengths and assets of the natural resource dependent community members (with an emphasis on the women of poor households) to establish explicit links between the management plan activities and livelihood priorities of these people.

Objective 2:

Facilitate organizing of sustainable community based organizations, user groups of rural poor and women, preferably with strong linkages to the local village councils known as Panchayats. Establish the biodiversity conservation efforts at Panchayat level through the consultative process of micro planning.

7.2 Context

One of the important lessons learnt from past experience in Social Forestry / JFM is that earlier most schemes taken up by the HPFD were applied across the board i.e. village communities were treated as one homogenous unit. All persons were referred to as "villagers" implying that they were all equally badly off. For example under the Social Forestry scheme, plants were distributed at very nominal rates to the "people". The result of this was that most of the plants (which were largely industrial woods like Eucalyptus, poplar etc.) were lifted by the rich farmers to be grown as large scale plantations. This approach might have made the rich farmer richer, but it failed to give timber, fodder, fuelwood in the hands of the poor for whom the Social Forestry scheme was started in the first place. This story applies equally to most other community development schemes of Government.

As a whole, the villages in the ecozone of the Park represent a stratified society: where a small number of rich households command most of the assets/resources such as land, orchards, cattle and sheep and goats. The poor, in contrast, are numerically greater and have larger families on an average, but own very little resources/assets. The poor are further getting marginalized over the years due to lop-sided "development". Caste-wise, Rajputs and Brahmins are the dominant castes, while the Scheduled Castes are the most marginalized economically, and depend upon manual labour and the natural resources of the PA.

The village level decisions like closure of areas, restrictions on grazing or collection of fodder and fuelwood, choice of tree, fodder and grass species to be planted, location of and access to water bodies/ sources directly affect the work burden of women. It has been seen that due to closure made by the Forest Department, many women esp. the poor women have to spend much more time and effort collecting fodder, fuel etc. This adds much more work to their already over burdened life. Often this leads to forcing the mothers to seek help of their daughters to cope with the housework thereby making many girls drop out from school. For this reason it is very important to know, understand and act upon the concerns of women while discussing and planning microplans under JFM. To make this happen, the PFM Rules (Appendix 1) provide that 50 % of the EC of the VFDS will be of women members.

Recommended Action

- The Great Himalayan National Park management will adopt the Himachal Pradesh Participatory Forest Management Regulations, 2001 (Appendix 1) for the involvement of the local communities.

- Identify "pockets of poverty" or such HHs, which have been depended on the Park resources for their livelihoods.

- Conduct workshops with the local people and Park officials to decide the criteria to be used for identification of poorer areas or panchayats in each range of the Park ecozone. (Some of these criteria may be Road density per sq. km. Or number of roads in the panchayat; Distance from roadhead / remoteness or How long does it take to reach a village?; Size of average land holding/ irrigated area/ cash crops in the village; Literacy rate especially the female literacy; Proportion or %age of Scheduled Castes in the area; Limited livelihood sources or what are the main occupations of villagers? Or Dependence on NTFP collection for cash income such as Guchhi, medicinal herbs, others; Number of IRDP families)

- Collect secondary information for all the villages in each ward from the **Panchayat Secretary,** B.D.O. (as per 2001 Census) that should be helpful for knowing the total population, households and literacy rate.

If we look at the existing strength of the field staff and the multifarious duties they perform, it will be very difficult for the Park staff to carryout PFM and micro planning on their own. This is mainly because PFM work entails many visits to the VFDSs and villages and is a highly iterative process. Therefore, it appears necessary that Park management take help of some outside agency. These could be either some individuals or some organizations that can work on behalf of the Park and continuously interact with the villagers, which is required to make PFM work. A Community Based Organization (CBO) can be the best option for such action.

7.3 Working with a Community Based Organization

A well-coordinated effort with the local community, various departments, NGOs, conservation-oriented individuals and the field staff may contribute to the conservation of biodiversity. The experience at GHNP shows that readiness of all the partners to participate in the conservation effort is of great importance. It is difficult for a partner to actively contribute to biodiversity conservation unless it sees a definite role in it.

Recommended Actions

Most of the following recommendatiosn are already being followed since January 1999. It is suggested that this work continues in future as well.

- Select women "Group Organizers" or GO from the local community who have done at least matriculation and able to communicate with the village women who are needy and depend on natural resources

(herb/morel/bamboo/fuelwood collection), for their livelihoods. These women should be willing to work in villages especially with the poor and SCs and also be ready to attend training when required and to undertake tours/ exposure visits as part of training. The selection of the G.O. is very important. On recommendation of the Range Officer of suitable candidates, the selection should personally be done by the Director, GHNP so that women with appropriate attitude and learning abilities are selected. (It is advisable to select at least two candidates for each panchayat till the first training is done). The CBOs can be hired on contract for three to six months initially on unskilled or semi-skilled wages.

- Once the GOs. are selected, they will be put through initial training as a group. This training will normally be residential and of two or two and a half days. The finally selected GOs. are then deployed in the panchayat where they belong and given an action plan as part of the initial training.

- The GOs. will be in the field for 2 or 3 weeks. During this time besides carrying out the action plan, they are expected to know all the Panchs / Pradhan/ Mahila Mandal President and members of the panchayat. Preferably they should attend any Panchayat or Gram Sabha meetings during this period. The survey of poor households is one of the main point of the GO's action plan.

- The Park Director should personally facilitate an information sharing and initial PFM training session with the GOs. This could last one full day.

- Besides addressing their questions / problems, the purpose of the second training is to get the GOs. to begin holding meetings with various groups in the villages especially the poor and the SCs. They will be asked to keep a record of these meetings and note down questions that people might have.

- Monitor the performance of these GOs. right from the first training in the field, then organize the next training course as per their experiences. Repeat the process of training and monitoring depending upon the situation.

- Introduce advanced, and competence-based training for GOs and the User Groups that are being formed in the villages.

- Encourage the GOs. to organize the 12 to 16 women of the poor households in a homogenous group (women of similar social and financial status). Such groups are to be organized on the Panchayat Ward basis. For effective participation (means regularity of meetings, full attendance, and group decision taking), a group of homogenous nature (such as Women's group, herb collectors group, basket-makers group, and like) is stable and long lasting. Later on these small groups

in a Panchayat Ward can be integrated into a Village Forest Development Society (VFDS).

- The GOs. are expected to actively take part in organising meetings, meeting panchayat members, undertake further training in PRA etc. as may be arranged by the Park.

- Over time the GOs. are thus expected to become an extension and facilitation support for the Park in PFM.

- Introduce a micro-credit programme to bring poor women together in a user group. The organized poor villagers/women in small groups can save their own money and then give credits to the group members to invest money in income generation activity (Women Saving and Credit Groups or WSCGs). The Govt. departments can provide most of the wage oriented work such as preparation of nurseries, plantation work, path repair, etc. to these poor villagers/women groups on priority basis. This in turn will enhance the saving capacity of the poor villagers/women.

- Provide training inputs and support to each user group. Each user group to select an 'animator' who will be trained to assist in maintaining the group processes and cohesion; and a 'paraprofessional' who will be trained in the appropriate technical skills for the group's priorities (e.g. livestock handling, NTFP production, or funds and loans management).

- The Park officials and local NGO/CBO to ensure that the poor and women not only attend VFDS meetings in good number but also participate actively so that their voice is heard.

The GOs and WSCGs have organized themselves as a Community Based Organization, SAHARA (Society for Scientific Advancement of Hill and Rural Area) which is a registered body under the Registration Act, 1886.

An Important Recommendation

By far the weakest link in the WSCG model as promoted in GHNP is the **internal dynamics** within these groups. The selection of women within a group has been made more on the basis of expediency (the poorest women, the women who exert maximum pressure on the PA) than factors like affinity and mutual trust, and the most serious consequence of this is that even groups that have managed to save large amounts of money are wary about lending this money within the group. This shows a mutual lack of trust and confidence among the group members, as a result of which most groups do not have members taking loans for starting income-generating activities. Thus, the link between savings and ultimate livelihood security is still tenuous in GHNP. **To guarantee the financial sustainability of the WSCGs, it is recommended that the groups are religned and further training and capacity building of group members is undertaken with immediate effect.**

7.3.1 Integration of WSCGs into Village Forest Development Society

Villagers participate in such programmes, which have potential for enhancing their incomes. It is important that the people are organized in small, identifiable groups for effective decision-making and participation. A proper survey and Participatory Rural Appraisal (PRA) can facilitate identification of User Groups. The reference point for each group will differ according to the livelihood priorities (e.g. herb collectors group, basket-makers group, etc.). In a male dominated, poverty-ridden society, the local womenfolk who constitute half of the population can play a very important role. Each of the user group of poor villagers/women can be developed into a Production Center. The group members discuss an income generation activity. The group being small, and members knowing each other's capabilities, the decision of 'who will undertake which activity' is taken within the group. The most important of the activities, which these groups can do, are of medicinal plant cultivation (in the buffer zone), vermicomposting, handicraft making, etc. Because it is their own savings, which the poor villagers/women are loaning for 'production activities', the recovery of such small loans is almost 100%. At the same time, these poor villagers/women are getting away from the 'subsidy culture'. In long run, such user groups of poor villagers/women are going to be sustainable and will contribute to the conservation of the biodiversity of the Park.

Recommended Actions

- **Sensitizing villagers for Panchayat ward level Meetings:** The WSCGs organized by the G.Os. will be federated at the Panchayat Ward level. Organizing the poor women in WSCGs make it easier for the participation of poor HHs in the Panchayat Ward level meetings. In a Panchayat Ward level meeting, the Park Range Officer/G.O. has to ensure the presence of women, poor, under privileged classes (IRDP) and primary forest users, graziers, panchayat and other village organizations. The meeting will be held as per time schedule and venue suggested by the villagers.

- **Meeting at ward level:** The details of the PFM Rules, 2001 (Appendix 1) are to be explained by the R.O. in the Ward level meeting. This may need repetition twice or thrice so that ALL persons in the ward understand the scheme. At least two such meetings are advised and in one of the meetings the Panchayat Pradhan/Panch should be present. The RO should keep a record of the questions asked, and issues raised as these will be useful later when similar questions are asked elsewhere. Communication should be in the local dialect as far as possible. The help of the G.O. or CBO in this would be useful.

- **Consent letter from the villagers:** 15 days to one month time has to be given to the villagers so as to understand the PFM Rules. After that they can be contacted by the G.O. or CBO, whether they would like to take up PFM rules based natural resource management in their ward? If yes, they have to submit a consent letter along with list of ward voters, giving full address and signatures. Minimum of 50% voters must sign their consent for start of the process. The consent letter will be sent to the Park Director/ACF through Range Officer concerned.

- **Agreement on site selection:** After the receipt of consent letter (application) the CBO, forest guard, DR, RO and Park Director/ACF, will visit the Panchayat ward and will agree / on the sites selected by the villagers. In case of disagreement, they can select other areas after having detailed and open discussion with the villagers. During this visit as many ward members as possible should be present. (CBO to ensure this).

- **General House meeting and Executive committee formation:** A General House meeting will be organized in which Executive committee will be constituted by the villagers. ACF/ Range Officer MUST attend this meeting. Attendance of minimum 60% of the general house members is required to fulfill the quorum and out of these 50% should be women as per PFM Rules (Appendix 1).

- Before Executive Committee is ELECTED, the RO must explain (in a clear and audible voice) the importance of the Executive Committee (EC) and candidates who would be more suitable for fulfilling the responsibilities expected of EC members. Main points that need to be emphasized include:

  - EC members should preferably be literate especially the women members
  - There should be adequate representation of each group, caste, the poor.
  - Ward Panch, President Mahila Mandal, Representative of other organised groups are ex-officio members of the EC.
  - Being very important post, first election should be carried out for the post of Member-Secretary. It should be stressed that person with a minimum qualification of matriculation or plus two holds this post. Also the Member Secretary has to devote much time to this work and should be willing to do so. The CBO can be a good candidate where applicable.
  - Some effective and experienced people should also be elected in EC.
  - EC has to play an important role in fund raising.
  - EC has to play an important role in conflict resolution at village level.
  - EC will have to take initiative to establish linkages with the Panchayat and other line depts.

Thereafter half an hour to an hour's time must be given to General House for their internal discussions. Then election of Member Secretary, President and Vice President should be carried out, in that order. Villagers should be encouraged to have a consensus on EC members' election. Forest Dept. staff should be seen to play a fair and non-partisan role in case there is voting. After constitution of the EC, the list of elected members will be sent to Director

GHNP along with full name, address, and signature and post held. The tenure of the EC is for two years as per PFM Rules.

Registration of Society: MOU will be signed by FD and VFDS (not yet prepared by Forest Deptt.). EC has to frame bye-laws for functioning of VFDS. Bye laws pertaining to:

(1) **Quorum for meetings:**

(a) Executive Committee	Minimum 66% presence with 50% of it to be women is presence
(b) General House	Minimum 60%; 50% should be women

(2) **Frequency of meetings:**

(a) Executive Committee	Once a month.
(b) General House	Twice or three times a year.

(3) Fines for offences.(grazing, illicit felling, not attending meetings regularly, not giving membership fee etc.)

(4) Units for usufruct sharing etc.

It would be useful to advise the GH/ EC to persuade the members to have some nominal membership fee, say Rs 10 or Rs 20 per annum. These Byelaws should be framed by EC in an open general house. Once this has been done, the EC is to register the VFDS with the concerned SDM/ Registrar as a Registered Society under the Societies Registration Act, 1860.

- **Training of the Executive committee by Forest Deptt.:** Training of EC members will be organized by the FD at the Park level. Formats, contents of the training are to be prepared at circle level by a resource person. CBO, Forest guards, Deputy Rangers are to be included in these training programs. Training has to be conducted in three sessions with time interval of at least one week between two consecutive trainings and its schedule has to be prepared by Park Director.

- After the completion of training, a micropaln exercise will be undertaken as per the twenty point procedure given in the Appendix 8.

7.3.2 Micro-Planning Process

This is perhaps the most important aspect of the GHNPCA Management Plan. In the present case, it is proposed to develop a micro-plan based on the livelihood issues of the user groups (or WSCGs). Linking together various user groups will essentially be the process of the micro-planning.

Recommended Actions

- Both, the Park staff and the local communities need to develop understanding to ensure that a microplan is an institutional contract to bring benefits (to the local communities through ecodevelopment programmes) and responsibilities (of the local communities to help conserve the natural resources of GHNP).

- Ensure that the GHNP funds are provided for micro-plans only where funds from other agency/govt. department are not available.

- Try to cover the activities of micro-plan by existing schemes.

- Develop a funding criteria, such as:

  - Where relevant funding sources exist (line agencies/govt. deptt): no funding from GHNP

  - Where relevant funding sources exists and insufficient funds are available: some form of matched funding from the GHNP

  - Where there are no relevant funding sources: funding to be arranged by the GHNP

- Do not treat the above process as a prescription. Take into account the local circumstances and develop the process accordingly. For example, in some places existing groups which had been formed for different purposes would be encouraged to link the Ward or Panchayat.

The above mechanisms have been developed so that the user groups of poor villagers/women relate themselves to the village councils (Panchayat). This will further ensure that these organized groups attain significance in the gaining attention from the govt. departments, which often ignore the poor section of the society. This programme is expected to address the issues of sustainability through its inherent strength of empowerment of poor villagers/womenfolk within the GHNP Conservation Unit. Such an action is expected to contribute to the conservation of the biodiversity of the GHNPCA.

7.3.3 The Future for Existing Village Ecodevelopment Committees

Some of the Village Ecodevelopment Committees (VEDCs) formed during the CoB Project still exist. They suffer from problems of financial and institutional sustainability. They have been evaluated as essentially unrepresentative and inadequately targeted at the poorest.

Recommended Action

- The Park management will integrate the existing VEDCs (made during the FREE Project) into its overall working of the livelihood approach. The following criteria may be used for the proposed integration:

- Attendance of members in the past

- Number of meetings that were held after the project was over.

- Independent actions taken.
- Ownership of resources.
- Homogeneity in structure and membership.
- Their location in the pockets of poverty.
- Use the provisions of H.P. Participatory Forest Management Regulations, 2001 for integration of the VEDCs.

Use the lessons from these VEDCs to further modify the existing User Groups approach.

7.3.4 Micro-Planning Process and Participatory Monitoring and Evaluation

A very important part of the micro-planning process is its flexibility towards change. The community based monitoring and evaluation can facilitate mid-course changes in the micro-planning progress.

A format for the Livelihood based Participatory Panchayat Micro-planning Process (adopted from the Rural Technology and Development Centre, Palampur) is recommended to be followed in the Ecozone of GHNP (Appendix 8). First training workshop for this purpose has already been conducted at the Community Training and Tourist Center, Sai Ropa from 20th to 25th March, 2004 with the help of RTDC and Park officials. The trained villagers and Park personnel will undertake microplanning exercise in most of the sixty Pachayat Wards falling in 14 Panchayats in ecozone. It will take about four to six months time to prepare one microplan. Funds to fund the microplan activities will be drawn from various departments as well as sources such as NHPC, CSS, Panchayats, HPSFR Project, etc (see Chapter 10).

Recommended Actions

- Provide training to the community and Park staff to develop microplans specific to their areas.
- Allocate fiunds for preparing microplans (Rs. 5,000 per microplan as also recommended under the Sanjhi Van Yojna or SVY (Appendix 3).
- Initially a sum of Rs. 1,50,000 to 2,00,000 may be allocated to fund one microplan for natural resource management for a year. Out of this allocation, 80% will fund microplan activities and 20% for the departmental expenses. Further break-up of microplan activities will be: 60% for grassland and NTFP (medicinal plants) development; 15% for moisture and soil conservation; 25% for various livelihood related activities including building of capacity and assets. The departmental expenses will be for nursery development (50%); training programmes (20%); workshops (10%); Inspection (10%), and contingency (10%) – Appendix 3.
- The microplan will try to get funds for other activities such as irrigation, public health, primary education, vet care, rural

development, watershed development, etc. from the respective departments. The Panchayati Raj Institution is expected to channel these funds through the microplanning process.

- Follow the Grant-in-Aid mechanisms of the Sanjhi Van Yojna to fund the microplan activities (Appendix 2).

- Direct a community based monitoring and evaluation towards livelihood status and micro-plan progress.

- Facilitate a community based monitoring and evaluation of the condition of forest and natural resources on an annual basis.

- Support the community to develop appropriate indicators for monitoring changes in the livelihood status and the changing status of the forests.

Objective 3:

Develop a capacity building programme for the members of WSCGs, other User Groups and Park staff on the basis of local wise practices and experiential learning, especially with reference to the alternative income generation activities. Strengthen the existing ones and identify the new partnership opportunities between the Park management and the local community.

Since 1999, various training programmes have been arranged for the Group Organisers to build their capacity to work among the poor women. All the G.Os meet on 7th and 22nd of each month and undergo a short training programme as per needs.

Recommended Action

- Facilitate the training of the G.Os. and Group animator's (each WSCG has one animator who needs to keep record and accounts of a WSCG) in subjects such as accounts, communication skills and allied subjects.
- Arrange trainings for activities which are related to developing skills among the local people, such as
  - how to relate to the local communities,
  - how to organize people in small, homogenous user groups (such as WSCGs, herb collectors, ecotourism activities, etc.),
  - how to communicate within the groups and between groups,
  - how to make sustainable use of locally available natural resources (very low cost income generation activities),
  - how to monitor a Group activities over time,
  - how to take advantage of microcredit for biodiversity conservation,
  - how to do record keeping for savings, and credit amounts,
  - how to do marketing, and ultimately,
  - how to become a good Group Organizer, etc.
- Facilitate stress management courses (such as yoga, meditation) for the community members and Park staff.
- Please refer to the section of the Income Generation Activites for more training inputs.
- Facilitate constituency-building for GHNP's nature conservation programme among various sections of the community. For example, involve school children and teaches in nature awareness programmes, bird-watching trips, conduct nature education workshops for village youth, Mahila Mandals, Panchayat representatives, and college students. Take help from WWF-India office located in

Shimla/Chandigarh

- Organise exposure visits for all sections of the village society as mentioned above. Include Park officials in such visits.

- Provide village level forums to facilitate people's organizations for nature conservation. *Jujurana Jeeve* is one such emerging forum.

- Take up issue based campaigns such as solid waste management; ban on polythene; village hygine and sanitation.

- Celebrate Wildlife week in village schools; Dueshera festival and other Melas with the villagers.

- develop and implement training programmes for improved participation of community and GHNPCA staff in:

  i. creation of public opinion in favour of awareness and protection of Western Tragopan/Musk Deer among the local people and people living in urban areas;

  ii. CBO/NGO roles and responsibilities in WL protection;

  iii. CBO/NGO-GHNPCA staff interface for WL protection;

- support applied field research with community participation, including:

  i. use of indigenous knowledge for baseline inventories of biological resources and biodiversity

- conduct training programmes to improve protection of GHNPCA, including

  i. training of local people in WT/MD surveys, census

  ii. self defence and first aid, etc.

- Environmental Education Awareness support for GHNPCA staff, community and CBO participation in design and implementation of:

  i. appropriate conservation education programme to enhance environmental awareness. Involve Centre for Environmental Education (CEE), Ahmedabad to develop a new Interpretation Center at Sai Ropa and equip the existing WL Information Center at Mnaali for nature conservation education programmes. The CEE officials have already done a preliminary survey for these works in 2003.

  ii. Organize the local youth in village level Street Theater to carry on the message for jujurana/MD conservation in the GHNPCA and adjacent areas.

  iii. Strengthen the existing institutons/centres of knowledge at

village level such as Devta committees, ethnobiology usage, etc. Document these usage and local folklores, dances, songs as essential elements of the cultural heritage and their importance in nature conservaion and WL protection.

iv. Encourage diverse activities for nature awareness in diverse target groups (village communities, school children, college students, teachers)

v. Establish linkages with other Environmental Education Awareness programmes of local NGOs, and schools

In order to accomplish the above, the services of the personnel of different agencies and institutions will be hired. These personnel are expected to provide relevant expertise for enhancing levels of knowledge and skills, and initiate experiential learnings through facilitation of training in village-level work, team building, proper handling of the leadership issues, etc. This exercise will provide a common working platform to the involved agencies, organisations and local communities through seminars/ workshops and field visits.

Objective 4:

Improve the identification, appraisal, implementation and evaluation of developmental or income generation programmes so that they better address the livelihood priorities of the local people and facilitate conservation of the Park's biodiversity. Reduce/mitigate tensions between locally identified needs for greater livelihood security and wider concerns about environmental sustainability.

At the Great Himalayan National Park (GHNP), the Park management works on the hypothesis that the conservation of biodiversity will happen if pressures on the Park are removed and the effected people have been provided with alternative income generation sources supported by measures and incentives including empowerment, collaborative management, tenure security and other allied matters. This is to be done in accordance with the ecologically sustained development (ecodevelopment) of the area.

7.4 Final Notification and a possible *quid pro quo*

The final notification of the Park (May 1999) does not allow any habitat disturbances (including grazing) under the Wildlife Protection Act, 1972. Such a drastic change is expected to affect/enhance the management of conservation of the biological diversity of the Park to a great extent. It will be interesting to monitor these changes in the coming years.

However, the management problems of GHNP are further compounded by the fact that there has been a dramatic and sustained increase in the number of such villagers who now claim that they also had (traditional) rights in the Park, hence need to be paid compensation upon the final notification. The GHNP administration admits that the local people hold the key of management of

biological diversity of the Park. Providing compensation in form of alternative income generation sources with respect to the loss of livelihoods is the *quid pro quo* for the local communities. The process of reducing dependencies of the local communities upon the Park has been initiated. The community is being organised in smaller groups to participate in alternative income generation activities. The prevailing situation at GHNP warrants redressing the balance. In this regard, the following issues need immediate attention:

This Award is exclusively based on the Anderson's Forest Settlement Report, which was prepared in 1886. In absence of revision of the Forest Settlement, the rights of the local people are still governed by this Report. According to this Report, the number of families depending on the forest areas of present day GHNP were only 349. With the help of genealogical record, the present day descendents of these persons have been compensated for the settlement of rights in the Park. Contrary to this, there has been a tremendous rise in the local population on the western boundary of the Park (please see Chapter 3 for details). Most of these people have been using the Park area as a traditional source of their livelihoods. There are villagers of Shenshar Valley, Raila, Shangarh area in Sainj Valley, and villagers of Nauhanda Panchayat in Tirthan Valley who have been traditionally going into the Park area for herb collection and grazing their sheep and goats. Because, there names do not figure in the Settlement Report of Anderson, the Award has made no consideration for such people.

The unattended issues of grazing, and compensation given to a very limited no. of villagers are creating problems for conducting effective Park management, and implementing ecodevelopment programmes which in turn may dilute the provisions of the HP govt's final notification of the Great Himalayan National Park.

With reference to the Final Notification of the Great Himalayan National Park, the Park management is trying for a *quid pro quo* through the Women's Saving and Credit Groups (WSCGs), and application of H.P. Forest Department's Participatory Forest Management Rules 2001 in the ecozone.

7.4.1 Community Organizations

Experience and lessons learnt during the past show that community organization is better achieved through smaller and more cohesive groups in villages and possibilities of real involvement of such groups in Participatory Forest Management (PFM) is that much more. In hills, the women have intimate knowledge of natural resources and their use, they are more honest, and responsible towards their families than man, and get involved rather quickly with participatory approach of management. Through their savings, the group members are initiating income generation activities such as vermicomposting, medicinal plant growing, organic farming, and oil extraction from stone fruits, handicraft development and marketing of these.

Each of the WSCGs is getting developed into a Production Center. The WSCG members are developing self-esteem and responsibility of investing their own savings. All the income-generation activities are being introduced in these groups. The group members discuss each activity. The group being small, and members knowing each other's capabilities, the decision of 'who will undertake which activity' is taken within the group. The most important of the activities which these groups are doing in the current year is of *ex situ* (outside the Park and within the ecozone) medicinal plant cultivation which to some extent will be able to compensate for the loss of their herb collection rights in the GHNP. The following two are very important strengths of these Groups:

1. Because it is their own savings, which the women are loaning for 'production activities', the recovery of such small loans is almost 100%. At the same time, these women are getting away from the 'subsidy culture'. There is an understanding that in the initial stage, the WSCGs will not have any tie-up for loans, etc. with any bank or outside agency for more money.

2. In long run, such WSCGs are going to be sustainable and will contribute to the conservation of the biodiversity of the Park. The WSCGs are expected to address the issues of sustainability through its inherent strength of economic, social and political empowerment of womenfolk in the hill society.

Be it a Women Saving and Credit Group or User Group, they are essentially a forum at which major activities can take place. These activities can be:

Part I: Asset Building for economic empowerment, and

Part II: Activities for providing energy and reducing drudgery among the villagers with an emphasis on the poor women

Part III: Activities concerning "services" which will bring socio-political empowerment, collaborative forest management, nature conservation education, tenure security and other allied matters to these focussed groups.

7.4.2 Part I: Asset Building for Economic Empowerment

Accumulating a sizeable amount of savings, the WSCGs have started participating in asset building activities. Except for Vermicomposting (for which the Park nurseries are ready buyers), all other activities such as apricot oil extraction, handloom weaving, hemp based handicrafts, organic farming, medicinal plants cultivation, etc., have been decided by the WSCGs with a little facilitation from the Park management. Ecotourism activity is an introduction primarily for the male members of the WSCGs.

The link between GHNP and the local community addresses livelihood issues of those who were directly or indirectly depending upon the resources of the Park. Major interventions as Asset Building Activities include:

- Vermicomposting
- "Organic" Farming
- Medicinal Plant Cultivation
- Ecotourism
- Apricot Seed Oil Extraction
- Crafts/Souvenirs
- Street Theater
- Wage Employment

In addition to above, there are other user groups of basket weavers, eco-tourism and village craftsmen who are gaining from the asset building activities. Looking at the present trends, in next few years the monthly income of each poor woman in the WSCGs (about 950 women in 95 WSCGs) is expected to be between Rs. 1000 to 1,600. This will mean a fitting *quid pro quo* as explained above.

Details of Some of the Income Generation Activities (IGA):

IGA 1: Vermiocomposting

This process creates a rich organic fertilizer by the transformation of plant waste by worms. The WSCGs find it a good starter as an IGA, because it requires an investment of only Rs1200, which is affordable by most of the poor members of the WSCGs. GHNP is already an immediate client for the vermicompost for its nurseries.

About 850 sites have already been established by January, 2004 which have a combined production of about 8 to 10 tones per month.

Recommended Action

- Integrate vermicompost preparation by the WSCGs in the Park management actions such as medicinal plant production.
- Co-ordinate and facilitate marketing of vermicompost with WSCGs through their apex organization, SAHARA.
- Conduct training programmes for interested parties (e.g. farmers, orchard owners, etc.) in the vermicomposting through WSCGs (SAHARA).

IGA2: "Organic" Farming

Vermicomposting is in fact the first step towards the "organic" farming which means farming with the help of vermicompost without using any factory made fertilizers and pesticides. The WSCGs are now using the surplus

vermicompost to manure their fields. Long-term use is expected to produce quality fruits, vegetables and cereals.

Recommended Actions

- Provide training inputs to the WSCGs regarding organic farming.
- Impart training regarding marketing of organic produce among the WSCGs.
- Federate WSCGs to undertake marketing of their organic produce.
- Integrate Organic Farming with Ecotourism in the area.
- Strengthen the WSCGs to monitor changes due to introduction of organic farming in the area.

IGA 3: Conservation and Propagation of Medicinal Herbs

(The experiential learning so far is that by January 2004, about 60 MPPAs have been set up with the help of about 40 WSCGs. The following procedures will be followed to set up more MPPAs in theSainj WLS and the ecozone of GHNP)

Before 1999 notification, the exploitation of NTFPs (or Minor Forest Produce as it was historically termed) at the GHNP has generally been managed through a state of benign neglect. Thus, while permits for extraction and/ or transport were given by the Park authorities, little heed was paid to the *in situ* management aspects, particularly of species that did not account for substantial revenue collection. Such species included most medicinal plants. Even though medicinal plants are overwhelmingly wild collected, largely from the forest estate, the existing lack of importance given to NTFPs in forest management, has led to extant free riding abetted and spurred on by the growing but little understood herb trade. The recent spurt in demand for herbals has in turn resulted in severe over-exploitation of many high value species in the Himalayas.

The strategy proposed here therefore seeks to combine and make complimentary the roles of the Park management and its partner NGO in order to institutionalise an approach whereby the livelihood dependence of poorer forest dependant households can be wedded to NTFP management in a sustainable way.

Recommended Actions

- Develop projects/schemes for under the Van Vanaspati Scheme of the Govt. of India or the initiatives of the Medicinal Plant Board (both are ongoing programmes at the GHNPCA) for the funding of the medicinal plant propagation.
- Prioritize the herb collection and its significance in the local economy in the park/ ecozone management.
- Extend JFM to well-stocked forests as provided under the Participatory Forest Management Regulations, 2001.

- Involve the organized user groups (WSCGs or Herb Collectors groups) gradually and increasingly in decision making and planning in Park management to:

  i. control and curb illegal herb collection and grazing

  ii. register herb collectors of their units (in ecozone, only)

  iii. regulate and monitor herb collection

  iv. support *in situ* conservation

- Support income generation / value addition activities like collective marketing, small scale enterprises based on medicinal plants collection or growing.

- Conduct regular training for staff and collectors in methods of sustainable harvest regimes. This is important as most herbs involve destructive harvest of the root or entire plant.

- Initiate and strengthen village level organizations such as WSCGs and SAHARA through involvement of outside, experienced agencies and training of park staff.

- Develop a number of Medicinal Plants Propagation Area (MPPA) per cluster of villages.

- Link medicinal plant cultivation to Vermicompost production and wage employment for the poor members of the WSCGs.

Medicinal Plants Propagation Areas (MPPAs)

MPPAs seek to combine both *in situ* and *ex situ* approaches towards the production and sustainable harvest of medicinal plants grown in forest/ community lands. In practice MPPAs would be effectively closed lands suitable for indigenous medicinal species and located in the immediate vicinity of villages or habitations. These could also be areas that have already been closed under other forestry plantation schemes (so that the expenditure on the barbed wire fence is saved). A clearly identified community/ user group or WSCG within the village would be associated with each MPPA. This group would be responsible for the protection, planting, and management and later share the benefits that accrue from the area.

In the MPPA, to begin with 4 to 5 selected, high value medicinal species that are also in good demand would be short-listed. The ones suitable for the area and which are easily grown would then be raised in nurseries and later planted out in the selected sites.

It is important that when such an area is so used and the MPPA work allocated to a particular user group then a clear written down arrangement for sharing usufructs or other monetary benefits are spelt out and understood by all the immediate stake-holders in the endeavour. The Park authorities and the WSCGs need to be signatories to such a written agreement.

One of the strengths of the MPPA concept over conventional tree-oriented-JFM is that the returns through short rotation herbal species from the closed areas can be quick enough (12 to 24 months) and substantial enough (high value species) to promote and sustain public/ immediate stakeholder interest in the scheme.

Recommended Actions

Since the Medicinal Plants Propagation Areas are to be located on forest lands and to be managed through user groups, the co-ordination would need to be done by the Park authorities. The raising of nurseries would be through the Park management (concerned Range officers). The cost of raising nurseries would be borne by the Park authorities themselves initially. At a later stage (as the incomes of poor user group members increase which may take a gestation period of five to eight years) the plants would be sold to the user groups at production cost so that the nurseries can be sustained in the future.

- Organise and strengthen the WSCGs and Herb Collector groups (user groups) to undertake MPPA work. Impart suitable training to undertaking such job.
- Prepare Ihac nursery, each near the villages in ecozone. Plant the MPPA with 150 two metre square patches with each patch having 150 plants of 2/3 species. Thus a hectare would have about 22,500 plants. A major reason for this intensity of planting is that while the MPPAs would be small and protectable areas, it is important that they produce "marketable" quantities of raw drugs. Anything less than a lorry load would be difficult to market.
- Provide effective protection to the MPPAs so that fairly dense natural spread of the desired species takes place (in subsequent years there would be little need to replant the area).
- Sign a MoU with each WSCG mentioning the date of establishment of MPPA, the number of species and plants in it and number and name of members of WSCG. Encourage the WSCG to sign such MoU with the concerned Panchayat so that there is no confusion over royalty, etc. at the time of harvest.
- Work out sustained levels of harvest. It is suggested that in 3rd or 4th year when the plants are ready for harvest, only surplus numbers beyond the initial 22,500 plants will be harvested. The rest will be allowed to further propagate themselves for next year's yield. Develop a rotation cycle of harvest on this basis.
- Let the local NGO (SAHARA) manage the WSCGs or herb collectors groups.

IGA 4 : Community Based Ecotourism

(The experiential learning so far indicates that the male members of the WSCGs in the ecozone of the GHNP have been organized in an ecotourism group, which has provided wage labour in form of porter, cook and guide.

Since start of SAHARA in July 2000, there has been a business of more than Rs. 4,50,000 from ecotourism upto Dec2003).

The Great Himalayan National Park Conservation Area offers the causal hiker and serious trekker a wide range of experiences in the natural wonders of the Park. Trails range from relatively easy day walks in the Ecozone to challenging week or longer treks through arduous and spectacular terrain. GHNP ranks as one of the best national parks in the world and reveals its beauty, diversity, and depth through time spent in exploration.

Primarily, Ecotourism caters to an ecotourist, a recently coined word for wildlife tourist or nature tourists. Ecotourism aims at providing ecotourist with nature tourism opportunities and also aims at generating economic returns to strengthen PAs/forests and augment economic benefits for local people. Community Based Ecotourism (CBET) includes tourism and recreation that is based on (a) natural environment, (b) community involvement, and (c) environmental education.

Recommended Actions

Proposed Actions to set up Eco-treks and facilities would broadly fall within two programme components, namely

Part A: preparation and implementation of a programme for eco-treks support activities, and capacity building of the Park staff and local communities to enable their involvement/participation in establishment of the eco-treks.

Part B: development of capabilities among the Park staff and local communities for an Environmental Education and Awareness programme so as to promote the ecotourism programme at GHNP more effectively.

Activities envisaged under Part A would include Eco-trek Development Support Activities

- prepare (if not prepared so far) the village level microplans to incorporate the ecotourism as a community based activity
- Use the existing published material on GHNP and the website (please see the Box) for promotion of ecotourism
- set up eco-trek Development Committees (for cooks, porters, camp organisers, guides) by making them more participatory and responsive towards nature conservation as well as to provide quality services to the trekkers, tourists.
- develop eco-friendly Forest Rest Houses of GHNP (like the one at Community Training and Tourist Centre, Sai Ropa; and Shakti Trekkers Camp) with alternative energy sources e.g. indene cooking gas, solar lights, solar geysers, green houses, heating through alternative sources of energy (most of these are available from Himurja)

- identify `Heritage FRH'/village houses (more than 50 years old or so with an historical background) and their maintenance conforming to the original architecture (consider outer Seraj Forest Rest Houses such as Takrasi, Panehu, Talara, and FRH at Jibbhi, Sainj for this purpose)
- identify `Heritage FRH'/village houses (more than 50 years old or so with an historical background) and their maintenance conforming to the original architecture (consider outer Seraj Forest Rest Houses such as Takrasi, Panehu, Talara, and FRH at Jibbhi, Sainj for this purpose)
- develop brochures to market the eco-friendly `Heritage FRH'/village houses and trekking routes around them
- enlist cooperation and help of relevant GOs, NGOs, institutions such as H.P. Tourism Deptt., Wildlife Institute of India, Bombay Natural History Society and Worldwide Fund for Nature-India, World Pheasant Association, India
- **Work out rules and Regulations** of ecotourism in collaboration with the community
- Have proper displays at the prominent points in English and Hindi
- **Incorporate rules to** prevent use of loudspeakers, tape-recorders;
- Close approach paths/trails/treks to the pheasant breeding sites during breeding season, prohibit butterfly-collection; prohibit bringing exotic plant species; restrict use of flash photography; do not permit uncontrolled picnic
- Develop **brochures to market** the eco-friendly `Heritage FRH' and trekking routes around them
- **Display rates** of meals/ecotourist guide fee/other facilities, etc. at the FRH
- **Display interesting information** regarding birds, mammals, plants, local ecosystem, longterm landscape change, socio-economic variables of influence (population growth, tourist increase etc.) in form of charts/pictures/maps, etc. Also make available a list of local birds, animals, brochures, maps, etc with the ecotourist guide or chowkidar on nominal rates. Information, e.g. it takes about 60 years for a juniper to reach a height of 35 cms. may influence the tourists' opinion regarding forest growth.

There are a number of stages under both the parts, which will be undertaken to reach the objective of the ecotourism.

Trekking Options

There are two main options for visiting GHNPCA: (1) the Ecozone, and (2) the Park itself.

Ecozone Tours

The Ecozone areas are adjacent to the park and provide a combination of natural and cultural experiences. The trails go through villages and are generally easy to moderate. The best time to visit is during the festival season (October). The treks offer an opportunity to interact with villagers and observe their daily activities, including weaving, basket-making, cooking, farming, etc. Some examples: **1. Neuli-Shangarh Loop,** 24 km; **2. Neuli- Manu Temple,** 12 km. (round trip); **3. Gushaini-Tinder village,** 12 km; **4. Siund-Saran-Ghat Seri- Pashi villages,** 10 km.

Treks within the Park

1: **Sainj Valley:** A five day trek through the Sainj valley. Total Distance: 56 km (round trip).

2: **Sainj-Tirthan Valleys:** An 8 day trek crossing two valleys. Moderate to strenuous. Experience the transitions between two magnificent valleys; about 85 km.

3: **Gushaini to Shilt hut:** Easy to moderate three day hike from Ecozone into Park; 30 km.

4: **Jiwa Nala to Parvati River Valley:** A very strenuous, dramatic 7 day hike, crossing the mountain passes at Kandi Galu (3627m), and Phangchi Galu (4636m). Incredible vistas. Must be in excellent physical condition; 110 km.

Trek 5: **Up to Tirath in Tirthan Valley:** Experience the origin of a river; 6-7 days; 76 km.

Trek 6: **Up to Raktisar in Sainj Valley:** Trek within the Sainj Wildlife Sanctuary/GHNP; 6-7 days; 92 km.

Trek 7: **Crossing the Pin Parvati Pass:** From Pulga to Pin Valley via the Pin Parbati pass (5319 meters altitude). A very challenging hike; 6 days, 90 km.

- **Develop a route policy** (with do's and don'ts; arrangement of fuel *en route* for cooking by the tourist/HPFD; arrangement of porters) may be evolved and tried on pilot basis in GHNP.
- **Link management of FRH-based-ecotourism to the WSCGs/Village Forest Development Societies (VFDSs)** and let the tourists also know about it.
- **Improve waste disposal** around FRH and along the trekking routes.
- **Assess carrying capacity** (such as a study done by Tej Vir Singh on Manali; studies done by Kullu branch of GBPIHED) of the Park trekking routes.

- Set-up **mechanisms for enhanced opportunities for rural Himachalis** to benefit from ecotourism
- **Learn lessons from HP Forest Deptt. (HPFD)** earlier efforts of appointment of forest officers at the district level to manage tourism, etc.
- **Learn lessons from tourist activities** in the villages such as Malana, Pulga, Manikaran, etc.
- Set-up **mechanisms at the Forest Deptt.** level so that the a part of earnings from ecotourism including tourism zone entrance fee is ploughed back for maintenance of FRHs and payment of wages of ecotourist guides, etc.

- **Published Material (available for Sale):** The Biodiversity Conservation Society has developed material for publicity and promotion of tourism in the Great Himalayan National Park. It includes following:
- One brochure entitled "An Introduction to the Great Himalayan National Park".
- Map of the Great Himalayan National Park.
- Four booklets: (i) Ecotourism (ii) Birds, A Guide (iii) Wildlife, A Guide (iv) Vermicompost For Organic Gardening.
- Four Posters: (i) Conserve Nature (ii) Protect Nature (iii) Respect Nature (iv) Celebrate Nature.
- Ten types of postcards, and several kinds of stickers depicting the natural sceneries of the Great Himalayan National Park.
- A book "Flora of Great Himalayan National Park" written by Dr. S.K. Singh and G.S. Rawat has been published by Bishen Singh Mahender Pal Singh, Dehradun.

The Friends of GHNP have developed a very elaborate and deep website for the Great Himalayan National Park: www.greathimalayannationalpark.com

Capacity Building:

- **Provide appropriate training** for ecotourist guides, concerned Forest Guards/Dy. Rangers/Rangers through specially designed courses at the Community Training and Tourist Centre, Sai Ropa
- **Prepare a cadre of trained** chowkidar/cook/ecotourist guides for their posting at priority FRHs in and around the cultural sites, etc.
- **Develop and implement** training programmes for improved participation of eco-trek staff and community in:
  - i. participatory resource management along the eco-treks;
  - ii. resource sharing rights and responsibilities;
  - iii. local level coordinating arrangements;
  - iv. NGO roles and responsibilities;
  - v. NGO-GHNP staff interface;
  - vi. shared understanding of biological diversity between Park staff and communities, etc.

- Support applied field research with community participation, including
  - i. use of indigenous knowledge for baseline inventories of biological resources and biodiversity,
  - ii. surveys of productive non-timber forest products
- Organize training programmes to improve management of eco-treks, including
  - i. appropriate zoning, management planning
  - ii. habitat management
  - iii. working with stakeholder in conservation
  - iv. infrastructure development and maintenance
  - v. village literacy and health
  - vi. self defence and first aid, etc.
- improve local institutional capabilities for monitoring and evaluation
- develop infrastructure facilities and the scientific skills required to execute the eco-treks development and management

Part B will support the following activities

Environmental Education and Awareness

Design and implement

- appropriate conservation education programme to enhance environmental awareness. The eco-treks will have their own Environment Education and Awareness (EEA) strategy and plan. Involve H.P. Tourism Deptt., Himachal Pradesh Gyan Vigyan Samiti, Shimla; Wildlife Institute of India, Dehradun; National Museum of Natural History, Delhi; or Centre for Environmental Education, Ahmedabad.
- Use the existing published material and GHNP website to promote the Park for an effective Community Based Ecortourism programme.
- provide a common meeting place to local communities, NGOs, school teachers, relevant university departments, and PA staff to collaborate in workshops to evolve EEA strategy and plan
- strengthen the existing institutions/centres of knowledge at eco-trek level such as Devta committees, ethnobiology usage, WSCGs, other User Groups, etc.
- consider diverse activities for diverse target groups (village communities, school children, college students)
- establish linkages with other EEA programmes of local NGOs, and schools

IGA 5: Apricot Seed Oil Extraction

(The experiential learning shows the poor members of the WSCGs have done business worth more than Rs. 2,80,000 since their apex organization SAHARA came into being in July 2000 in the GHNP ecozone).

Traditionally, the seed fruits such as hill apricots, walnuts, almonds are grown on the private lands in the ecozone of the GHNP. However, the local traders at a low cost for oil production were mainly buying the seeds. Now the WSCGs/VEDC's are collecting the apricot seeds in their villages and setting up their own oil extractors

Recommended Actions

- Train WSCGs to save their money and give credits among the group members for purchasing apricot seeds so that the exploitation by the local traders is checked.
- Encourage value addition such as apricot seed oil extraction
- Monitor the change due to this IGA

IGA 6: Crafts/Souvenirs

(Introduced in the WSCGs in 2001, this activity needed a lot of training inputs in form of hemp-workshops. So far about 18 WSCGs have taken up this activity and could do business of about Rs. 60,000 only)

Hemp is a local fiber being used by the villagers for their local requirements. However, use of hemp for trafficking in narcotic has brought it a bad name in the region.

Recommended Actions

- Organize training workshops to make hemp or grass-based handicrafts and souvenirs
- Organize sale (marketing) of such material through departmental shops as well as various local fairs and exhibitions.
- Train WSCGs/user groups for value addition
- Develop awareness programmes for hemp based products and discourage its trafficking in narcotics. In this regard, conduct workshops, seminars, and rallies of all sections of the society including students, youth and elders.

IGA 7: Wage Employment

Wage employment is perhaps one of the major initial activity which the identified WSCGs or other user groups of poor villagers can undertake. To organize the local people, this activity can pursue them as an initial intervention.

Recommended Actions

- Provide training/other inputs to the Park staff for employing the poor in the works such as medicinal plant nurseries, construction work, repairs, etc.

- Encourage the members of WSCGs/other user groups to save more money (about one third of the daily wage) for the days for which they get wage employment.

IGA 8; Street Theater

Indigenous knowledge about the nature reflects into the folk songs and dances of the ecozone of the Park. A theater group of boys and girls belonging to the WSCGs with a knowledge of local folksongs can earn good incomes. The street theater is an on-going activity of the WSCGs in the ecozone of the Park.

Recommended Actions

- The Park management will employ the street theater for spreading messages of wildlife conservation and protection in the remote villages.

- The street theater will specially be active in sensitive times such as upon snow fall when animals come down to the villages and need protection, at festival times when the people tend to indulge in poaching.

7.4.3 Part II: Activities for providing energy and reducing drudgery among the villagers with an emphasis on the poor women

LPG/Indene Gas Connections

It is well know that cooking is a major daily activity in the lives of most rural women. This has to be done practically every day of their adult life. In the hills, firewood has been the main source of energy for cooking. The burden of firewood collection usually falls on the every woman who has to cook. Firewood collection is time consuming and entails much hard work. This adds to the work burden of the average hill women. Besides, burning firewood in open " Chullas" often leads to severe health problems among women. All this makes for much little or no time to pursue gainful, economic livelihood options.

The collective impact of several hundreds of women engaged in firewood collection on the forest/vegetation is severe and often leads to degradation of the resource thus making firewood availability even more difficult. In order to mitigate the adverse effects of this downward spiral both on the lives of rural women and the forest, the following intervention need to be taken up in the affected areas of the ecozone and Sainj and Tirthan Wildlife sanctuaries. These may be appropriately called " Drudgery Reducing Intervention", though through them a positive impact on the health of forests surrounding habitations is also envisaged.

Recommended Actions

One time support may be planned for providing energy and drudgery reducing devices like LPG stoves, pressure cookers etc. in order to maximize the number of beneficiaries and reducing the impact of firewood extraction from the forests:

- Involve the poor, rural women who have been members of a WSCGs for over three years and have been saving regularly. Give preference to such women who have demanded for the indene gas and their groups located in relatively more remote pockets.
- Develop a kit of the LPG connection with one burner, gas chullah, a gas cylinder and a pressure cooker to the qualifying woman member of a WSCG. One such set costs about Rs. 3,000. (In order to qualify for a LPG connection, a woman member is required to contribute ATLEAST 50% of the total cost. She is free to raise her contribution either from her own resources or a loan from her group or both).
- The Park administration will make the remainder of the contribution out of the funds raised for this purpose thus extending the available funds to the maximum number of beneficiaries.
- Involve the local NGO SAHARA in the process which will bring in greater transparency into the operation and help counter criticism that has plagued earlier such efforts that were carried out directly by the forest department.

Such an approach, besides being participatory in nature, is also in consonance with provisions of the recently promulgated PFM Rules (in 2001) for HP (Appendix 1). While PFM rules stipulate (under Sanjhi Van Yojna that 15% contribution would be made by the beneficiaries, in this case over 50% contribution was provided for. In order to ensure proper implementation of this component, the GHNP staff and SAHARA have been monitoring and reporting the proper utilization of the gas connections given in 2001-02.

Fuelwood Production

One of the most important but neglected aspect of the village lifestyle is fuelwood collection from the forest floor. This activity is part of the drudgery-experienced daily by the village women. This need to be given due thought with an appropriate response by the HPFD.

Recommended Actions

- Hire/lease 1 to 2 ha of marginal land of poor people/women on annual basis
- Plough this land. Sow seeds of quick growing trees suitable for the locality, HPFD to pay for this.
- Hire the services of the poor owners of the marginal land to weed/remove congestion/water once or twice if necessary
- Retain two to four hundred trees per ha and remove the rest of the woody biomass

- Make bundles of the woody removals in bundles of five/ten/fifteen kgs. (an activity for the members of the WSCGs)
- Fix reasonable rate and sell through the WSCGs. The sale proceeds go to the HPFD.
- Use the sale proceeds, and part contribution by the HPFD to lease more land next year
- Wages involved to be paid by the HPFD

7.4.4 Part III: Activities concerning "services" which will bring empowerment, collaborative forest management, nature conservation education, tenure security and other allied matters to these focussed groups (WSCGs).

Most of the 95 Women Saving and Credit Groups (WSCGs) involving about 950 women show very low rates of literacy and a perpetual lack of medical facilities. There is also a lack of veterinary care for the cattle in these groups as well as the villages where they live. Hence, it is important the WSCGs become active centers for propagation of literacy programmes, women and child health care, and veterinary programmes. Through income generation activities, the WSCGs are making "choices" (or decisions) about spending their savings in more productive manner, which is bringing financial stability, while the activities/services such as literacy programme, women and child health care, and Veterinary care will be able to bring changes in the social status of the poor women members of the WSCGs. This, in turn is expected to make the poor women's "voice" heard at the village political forum such as Panchayats/Mahila Mandals, etc.

(i) Literacy Programme in the WSCGs

The literacy rate within the WSCGs is about 30% only as against the literacy rate of Kullu district, which is about 61.24% for the women (as against to 84.55% for the males). Generally, in a WSCG, it is difficult to keep the account for the savings and credits of a because of the nil literacy in the group. The girl child is seldom sent to graze the cattle to the forests as compared to the boy child who is encouraged to attend the school. If the girl child fails in 5th or 8th or 10th standard, she is often married rather than making a second attempt to pass the class. It is often observed that the girl child usually fails in maths and science subjects for which there are not good teachers in the remote village schools. Hence, this is very important to make arrangements for the education of girl child and women in the remote villages close to the Park.

In ecozone of the GHNP, this has been observed that a person without education has a reduced income, the probabilities of being jobless is bigger, and the scholar desertion of their children seeking for a job is also big. The lack of land resources or capital does not have the capacity to transmit misery from one generation to another, than the lack of education opportunities. The education is the main resource to overcome poverty as well as the structural causes that generate it low productivity, cultural marginality and social vulnerability

Recommended Actions

The Park administration is recommended to facilitate the literacy programmes in the prioritized WSCGs. This needs help from the education department of Kullu district as well as the programmes of the Literacy Mission.

- Conduct surveys within the WSCGs and find out such groups where the economic interventions have become effective.
- Develop information education and communication material on critical socio-economic and environmental issues for the illiterate women/villagers.
- Initiate discussions about nature conservation education/joint forest management and role of women in-there. Provide appropriate training inputs on these subjects to the selected/chosen women.
- Introduce the literacy programmes for the girl children as well as the adult education programme.
- Make alternative arrangements for a village-based teacher to teach the girl children in 5th, 6th and 10th classes after the school hours. Encourage the poor parents pay a part of the teacher's fee from their earnings.
- Link the solar energy programmes (providing solar lamps) to the literacy programmes for the members of the selected/chosen WSCGs.
- Facilitate the comprehension of the environment to search for conditions of equity and provide welfare to the members of the WSCGs. This will enhance understanding of the issues pertaining to the joint forest management, relevance of wildlife protection, values of watershed, etc.

(ii) <u>Women and Child Health Care Programmes</u>

The remoteness of the villages necessitates immediate care for the villagers, particularly the women and children. Though there are a number of state sponsored programmes for this purpose, the benefits of them scarcely reach to the habitations away from the roadheads. Even if there are dispensaries in the remote areas, they are very ill equipped and poorly staffed. Hence, there is a need of on-the-spot health services.

Recommended Actions

- Provide training in primary health care to the selected village women from within the WSCGs in the matters of providing first aid, etc. The trained women can charge a fee for each service and thus, this can be yet another source of income generation activity.

- Facilitate the village level programmes of the Health Department. A WSCG can be an active center for parking such a programme in the village.

- Facilitate various state level schemes (widow pension; old age pension; mid-day meal scheme, etc.) into the WSCGs.

- Let the trained women from a WSCG earn money for each service that she provides.

- Upgrade skills of such women through a continuous training and monitoring programmes.

(iii) Veterinary Programme

The villages located on the periphery of the Park and away from the road head do not get proper veterinary services. The dependency of the local villagers on animal husbandry makes this aspect of a great importance.

Recommended Actions

- Facilitate the "Dangar Dhai" programme in these villages. Under this programme, a member of the WSCG is trained in the health aspects of the cattle and sheep and goats. She can provide first aid before the animal is attended by the proper Vet doctor.

- Let the trained women from a WSCG earn money for each service that she provides.

- Upgrade skills of such women through a continuous training and monitoring programme.

Objective 5:

Help resolve man-animal conflict with emphasis on social and environmental justice for the poor people living close to the GHNP.

7.5 Man-Animal Conflict

The man-animal conflict in the GHNPCA is a resultant of various aspects of the natural resource degradation as well as societal stratification. Very often damage caused by the wild animals directly affects the poor, marginalized rural communities living next to the GHNP and within the Sainj WLS. There are various reports of damage by porcupine, monkeys to the forest trees and agricultural crops. There have been a number of episodes of hunting/poaching and snaring of the animals and game birds by the locals in the region. The Anderson's settlement refers to the snaring of musk deer as a right. However, the Himachal Pradesh govt. has banned hunting of wild animals throughout the state. There is a need to understand the man-wildlife interface w.r.t. the affected people who are usually poor having little say in decision making, and help them to bring these issues upfront. Better information dissemination and use of the present govt. system may help in resolving the man-animal conflict to some extent.

7.5.1 Crop Depredation

The Sainj WLS and GHNP are examples of presence of crop fields just outside their boundary where mostly the poorest and most marginalized villagers live. About fifteen years back, the state govt. imposed ban on the hunting of wild animals (1986). As a result of this ban the number of wild animals has been increasing in the area. The resource-deficient villagers need to resort to labour intensive measures of crop protection, which include burning fire at night, beating drums, or putting up scarecrows in the fields. Such actions mostly result in disproportionate cost of raising crops by the poor and marginal villagers. The villagers often use retaliatory measures of harming/killing the wild animals of which there is hardly any record or report. The depredation enhances dramatically when there is an increase in the number of livestock as well as the area under cultivation close to the WLS and Park; when there is a decline in the availability of the natural food; when there is an increase in the number of large wild herbivores due to "conservation measures". In all these circumstances, the crop depredation or killings of livestock gets escalated exponentially.

7.5.2 Livestock Depredation

Due to increasing population pressures and consequent degradation of forest habitat, the wild animals such as Himalayan Black Bear or leopards have become "refugees" in their own habitats. The rhesus macaque and langurs are able to adapt themselves to the human presence. The wild animals intrude into agriculture fields as the crops raised are more palatable, and they are located in easy locations. The domestic livestock is very easy prey for the wild animals. This has been prominently depicted in the local folk songs and folklores. Most of the killings by the wild animals are in the months of June to September when the villagers bring their livestock to graze in the pastures.

7.5.3 Compensation

The Himachal Pradesh Forest Department has a provision of providing compensation to the person whose sheep, goats or cattle have been killed by the wild animals. However, no compensation is provided for the damage to agriculture crops and horticulture. In addition, not many poor people apply for the compensation as they live in very remote areas and they will need at least two to three days to complete the formalities of compensation. Often the locals are not aware of the compensation scheme of the Park. In future the situation can be quite alarming as the damage done to their crops by the wild animals is quite enormous. This may also adversely affect the acceptance of the conservation ideals among the locals.

7.5.4 Conflict Management

The majority of people in the ecozone of the GHNP are directly dependent on their immediate environment. If creation of a National Park is justified in the larger benefit of the society, there is an immediate need to provide adequate compensation (and building capacity to cope) for the poor families living close to the Park and getting adversely affected by the wildlife damage. This necessitates a fair and prompt compensation for the consequences of the animal-man conflict.

Recommended Actions

Proactive

To prevent the damage by the wild animals.

- The villagers are already using deterrents such as making sounds at night, beating drums, lighting a fire, or putting up a scarecrow in their fields. The alternative access to crop fields can be of some use. The Park staff and the local villagers need to put up a combined defense against the human-animal conflict.
- The Park management needs to take some proactive measures such as proper identification of the rogue animals, their tracking, and if needed elimination.
- Feasibility of radio collaring of the problem animals may be explored.
- There is a need to undertake action research on human-animal conflict so that preventive guidelines are made in consultation with the villagers.
- Regular census of ungulates and carnivores in the wild will give an insight into the prey-predator relationship. This will also help understand the carrying capacity of their habitats.
- The issue of crop insurance has a lot of promise to resolve the man-animal conflict in the ecozone of the Park. It is suggested that the possibility of paying a portion of the insurance premium by the Park management for poor villagers should be explored.

- Where the local villagers are willing such as in cases of villages of Shagwar, Shakti and Marore in Sainj valley and Kundar and Majhan in Jiwanal valley, the translocation of their villages may be a feasible solution to avoid the human-animal conflicts.

Reactive

When the damage by the wild animals has already been done.

- A suggestion that the compensation for damage to livestock should be given by the concerned Panchayat may be considered for the speedy disposal of damage cases.

- The removal of problem animals may be considered by the Park officials in case such animals have been properly identified.

- The future of man-animal conflict resolution lies as much in the involvement of the local communities in the wildlife habitat management, as in the measure that are taken to leave the wild habitats to the wild herbivores.

- **Chemical Restraint**
  It includes any method that primarily uses a chemical agent or 'drug' for restricting animal freedom i.e. walking, running, and aggressiveness. The state of restraint can very from immonilization (arresting movement), tranquilization (calming) to anaesthtization (complete loss of consciousness). The drug delivery may be from simple oral or by hand injection to complicated by darts as used in many wild animkal chemical capture techniques. It is recommended that the GHNPCA must be well equipped for chemical restraint which may be needed for an straying or trapped wild animal in village or habitation.

  Traps, Cages

  These contraptions must be available in various sizes with the GHNPCA administration to rescue wild animals or catch a man-eater leopard.

Objective 6

Develop competence based training programmes for the GHNPCA staff and the local community and NGOs.

7.6 Human Resource Development

A well trained cadre of field staff is highly critical for the GHNPCA management. Any training programme, which is not based on the foundation of well-researched organisational and individual training needs, may altogether loose its focus.

Recommended Actions

- The foremost requirement for the staff of the GHNPCA (including the Sainj WLS) is that all the Field level staff should undergo formal training before they are inducted into the Wildlife Wing of the HPFD. For example, a Forest Guard to attend six or nine month course at Forest Training Schools at Chail or Sundernagar; similarly a Deputy Ranger or Range Officer to attend formal training from the state's training facilities or outside.

- All the Field Staff to undergo one or two refreshing training modules in a year. In case of GHNP these can be organised at the Community Training and Tourist Centre at Sai Ropa.

- The following are basic topics which should be known by everyone in the field staff (Forest Worker, Forest Guard, Deputy Ranger, and Forest Ranger) in varying degree of details and understanding:

  i. The importance of nature conservation
  ii. The importance of a Protected Area (WL Sanctuary or National Park)
  iii. A few terms relevant to biodiversity conservation
  iv. Introduction and identification of local flora, vegetation/forest types
  v. Introduction and identification of local fauna (mammals, birds, reptiles, etc)
  vi. Elementary field methods for vegetation and animal population sampling
  vii. The Protected Areas of Himachal Pradesh
  viii. Laws regarding forest and WL protection
  ix. Patrolling and Reporting
  x. Conducting Anti-poaching operations
  xi. Law enforcement procedures
  xii. Maintenance of FRH and other facilities
  xiii. Fires and control of Wildfires

xiv. Map-reading

xv. First Aid and medical care

xvi. Field Craft-how to survive in the forest

xvii. Monitoring impact of villages and community on the PA

xviii. Importance of local people in nature conservation

xix. Importance of linking conservation efforts to the livelihoods of the villagers

xx Importance of women and poor in conserving the biodiversity

xxi. Importance of local knowledge in biodiversity conservation

xxii. Organising the local villagers in small user groups to participate in Nature Conservation efforts

xxiii. Importance of nature based enterprise development as an alternative source of income generation for biodiversity conservation

xxiv. Federation of the small user groups at the Panchayat Ward and Panchayat level to focus on biodiversity conservation of the PA

xxv. Importance of developing constituency in support of biodiversity conservation of a PA at the local, regional, national and international levels

The officials with above basic knowledge about the biodiversity conservation will be encouraged to undergo the competence based training as following:

7.6.1 Competence based Training

The training need analysis should clearly bring out all that is required (elements of competence) to help the target group to perform competently in the given area of the job/role. For agreed elements of competence it will be required that necessary performance criteria are generated which necessarily means that unless distinct performance criteria are developed for agreed elements of competences, there would always be an ambiguity with respect to what training be imparted to trainees. Once the performance criteria have been laid out, the mode of assessment becomes important. The assessment is about generating and collecting evidences that tell whether or not the trainee is able to perform as per the laid out standards.

Recommended Actions

Various phases of training are outlined as under:

Phase 1 : Setting the clock and Preparatory Phase

Phase 2 : Need Analysis

Phase 3 : Planning and Design of Training

Phase 4 : Pilot Training

Phase 5 : Training of Trainers

- Create a core group of professional trainers at the Park level involving local as well as state level and agencies such as the Wildlife Institute of India, Dehradun and relevant NGOs.
- Set up training programmes for community and staff
- Setting the Clock and Preparatory Phase: A formal meeting between concerned WII faculty and counterpart core group at GHNP will decide the work plan including responsibility of the core group members emerging out of this meeting. Phase I culminates with the preparation and submission of Inception Report
- Need Analysis: The phase begins with a questionnaire design by the WII faculty which will be sent to core group members which the concerned members will administer with suitable modifications. The questionnaire will be so designed that it addresses both organisational and individual needs. The exercise should help to reach agreement as to what all in terms of training is required by the role holder to qualify as competent worker. The phase will also require recruitment of two researchers on contract basis so that they can as well be equipped to conduct need analysis survey independently
- It may however be mentioned that questionnaire survey will not be the sole method to complete the need analysis. It will be supplemented by (i) the semistructured interviews conducted by the core group members and the researchers and (ii) workshops both at field level to arrive a consensus agreement on competencies for role holders (front line staff). The field workshop would also aim to start laying down of performance standards for each competency.
- Planning and Design of Training: The phase will begin with 10 day workshop at Shamshi where core group members in close collaboration with WII faculty staff working on curriculum for different competences and development of training aids
- Pilot Training: The phase will commence once the design of curruculum and other training aids gets completed. The core group members would facilitate running of pilot training programmes with the help of develop material in their respective areas.
- Training of Trainers (TOT): A validated training will be imparted to the selected trainers (10 Nos) following the pilot training programme.

7.6.2 People's Biodiversity Register

A People's Biodiversity Register (PBR) has been envisaged as a record of knowledge, perceptions and attitudes of people towards biodiversity, its utilization and conservation. A PBR document is supposed to cover a village or a Panchayat. There are three major aspects that the PBR will focus on: (a) knowledge and information about species, their occurrence in the village landscape, abundance, uses and techniques (b) other knowledge and information about cultural and ecological history (c) people's developmental aspirations and their implications for conservation and sustainable use of local resources in an equitable framework.

Recommended Actions

- Crerate trainers/facilitators to train/facilitate the local user groups such as WSCGs, or VFDSs (at Panchayat Ward kevel) to prepare PBRs.
- Identify and encourage the Park officials, local NGOs such as SAHARA and Jujurana Jeeve, and community members along with the school teachers and students to prepare PBRs. Make a team of interested persons to undertake the exercise of PBR creation and updating.
- Set up pilot locations for creation of PBR in the selected WSCGs, which are contributing to the management of the bio-resources.
- Set up a unit over which the PBR data will be collected. This may be entire catchment area of a village or a group of hamlets. Identify landscape and geographical elements for data collection. Some of the landscape elements can be : Forests, Plantations, Orchard, Grassland, Cropland, Barren areas, Habitation, Roads and Paths, Lakes, Pondsd, Rivers and Streams, Wells, Canals, etc.
- Classify the species along local taxonomic categories, which will include trees, bushes, shrubs, herbs, grasses, climberrs, birds, mammals, insects, butterflies, fishes, and other categories.
- Through PBRs, provide a mechanism in a village based user group for monitoring the current use and existing knowledge about a variety of biodiversity resources, such as medicinal plants, land races of crops, wild relatives of cultivated plants, and other bulk-use-resources such as fuelwood and fodder species.

7.6.3 Special Stress Management Courses for the GHNPCA staff, local community and NGOs

The forest staff, local community members and NGOs such as SAHARA and Jujurana Jeeve must be encouraged to undergo special training courses in Personal Living Skills or Stress Management (such as Yoga and Meditation).

The Personal Living Skills or Stress Management are very intimately related to the personal attitude of a person, so essential for PFM and other activities, hence, this needs to be given priority. The staff member of the GHNPCA, villagers from the ecozone, members of SAHARA or Jujuran Jeeve or any other local NGO or CBO must be encouraged to undertake a course in Yoga or a ten-days course in Vipassana meditation (the Vipassana meditation is a logical process of mental purification through self-introspection). Such courses must always be optional and never compulsary. The ten days Vipassana meditation courses are residential and offered without any fees/charges. So the interested candidates are to be paid only return bus-fare and food charges of the travelling days. The govts of Maharashtra and Rajasthan and many organisations such as ONGC officially facilitate the Vipassana meditation. The following two centres may be of use for the GHNPCA:

1. Dhamma Shikhar, Vipassana Meditation Centre at Mcleod Ganj, Dharamshala
2. Dhamma Salil Vipassana Meditation Centre at Dehradun

Chapter 8: The Strategies - Interventions to Manage, Monitor and Protect the Natural Habitats and Resources

Objective 7

Maintain the naturalness of large and compact areas as representative samples of the Western Himalayan biogeographic zone in its unaltered state to ensure the continuity of evolutionary processes, and environmental services such as adequate quality and flow of water, animal migration, and functions of Gene Pool and Carbon Sink.

and Objective 8

Maintain and protect the natural vegetation communities, populations of large ungulates (with emphasis on Himalayan Tahr and Musk Deer) and pheasants, especially Western Tragopan.

8.1 Context

Management interventions commensurate with the objectives at the Great Himalayan National Park will be essential since all systems have been subjected to human influences in past. For this purpose, it is absolutely essential to maintain the 'wilderness' condition with minimum necessary management interventions. One of the important objectives for setting up core areas is for such areas to serve as centers of ecological reference and ecological processes so also to maintain at least a good percentage of the key habitats, elements of conservation importance such as species, communities and populations under reduced threats. Management intervention should not be over done', ought be the thumb rule. There is a need to have as large the core areas as possible to maintain a range of plant and animal diversity.

8.2 Habitat Management

The habitat management strategies will always carry some element of artificiality. There is hence a risk that a strategy might at times become completely artificial and run counter to the theme of 'naturalness'. e.g. providing artificial feed purchased in market to wild ungulates during drought or to attract wild ungulates at pre determined points for tourism purposes on artificial feed is unacceptable. Hence, it is very important to be prudent about any management intervention in GHNP

The GHNP has an ecozone (or buffer zone). Fortunately, the administrative control of the ecozone is with the Park authorities. This in fact reduces the gap between the intent and practice to the minimum with appropriate prescriptions for the administrative and management responsibilities. The buffer zone management should reflect shared landuse. In the core, management is biased in favour of wildlife. Moving away from core towards the outer boundary of PA, regulated resource use for the benefit of people should receive increasing focus without jeopardising wildlife habitat values. It is true that often the existing local socio-economical-political situation will limit what can be done within the

ecozone. There is a need to reach mutually acceptable wildlife-people equations, including plans for sustainable use of land and its resources through viable resource alternatives and vocations, which might best serve the major conservation objectives under the ecodevelopment strategy packages. Buffer management cannot succeed without sustainable landuse practices, which are central to ecodevelopment planning. Buffer zone management will typically include the managed forests situation.

Recommended Actions

In addition, general and specific habitat needs of wildlife, especially those of endangered, threatened, rare and endemic forms of animals and plants must be satisfied. This involves reorientation of forest management and other landuses for maintenance of biological diversity.

The following actions are recommended for the habitat management of the GHNP:

- Waterholes, Watch towers: Creation of waterholes in an otherwise temperate zone of the GHNP with many waterfalls and streams is unacceptable. Similarly, construction of watch towers in mountain conditions is not advisable.

- Restorative strategy: This aims at restoration of habitat attributes lost over time. The revival of a waterhole/pastures lost due to sedimentation or control of excessive erosion or weeds to restore the potential of a site, soil conservation work to restore the catchment capability are some of the examples. The habitat loss due to fragmentation and subsequent degradation is one of the main basis for restorative and compensatory management. It is recommended that the Sainj WLS, which at the moment is dividing the GHNP in two parts, must be merged with the Park. In Sainj WLS, this kind of work will be limited in the areas of Shakti, Marore and Shagwar villages, which need to be rehabilitated from their present location into the ecozone.

- Watershed Monitoring: Monitor the changes in the watersheds of the GHNPCA. Are most of the watersheds stable or they have changes in water flow, water quality or major changes such as flash floods, cloud bursts, soil/wind erosion, etc?

- Climatic Change and Carbon Sinks: All over the world there is a concern for the climatic change and greenhouse effects. The United Nations Framework Convention on Climate Change (UNFCCC) has come up as an international response to the climatic change. The forest areas are one of the major sources to sequester the increasing Carbon in the atmosphere. Hence the Clean Development Mechanism (CDM) approach advocates sustainable development with emphasis on afforestation and reforestation. It is recommended that the Projects for afforestation and reforestation based on CDM must be prepared for the forest area available in the ecozone of the GHNP (A growing forest sequesters more carbon than an old growth)

- Gene Pool : There are a number of biotic elements in nature which exist in nature and yet to be discovered by the human effort. Hence, the PAs like GHNPCA are a major repository of biological diversity still evolving in its natural form. The protection of such forested areas and special habitats must be very strict so that the evolutionary processes in these "ecological references" may continue uninhibited.

- Special Habitat Concerns: Mark all the sites as described below on map and send there patrols for regular monitoring. All the following standard habitat concerns need to be part of the basic management endeavor of the GHNPCA

  i. Maintain the water sources through minimum disturbance e.g. avoid building cement structures in the wild areas; at the same time make sure that the human use of the water source do not pollute it or disturb the flow.

  ii. Manage the snags, fallen trees and down log material as part of the ecological cycle; If a tree has nest, hollows as special WL habitat (for owls or Flying Squirrels), mark such trees on a map for future monitoring.

  iii. Protect riparian areas for their special role in ecosystem.

  iv. Protect the old forests (old growth) as they provide special niche for a number of unique variety of wildlife such as insects, butterflies, moths, birds, and small mammals.

  v. Protect unique and sensitive habitats such as overhangs, caves, talus which may be very useful for the vultures such as lammergeyer, Griffons and a number of birds of prey including Black Eagle, Golden Eagle, Kestral and others.

- Special mention of Vultures and others: Since the last decade of 20th Century and at present, there is a great threat to the vultures in plains and the foothills of Himalayas. The breeding cycle of the vultures has been thrown out of gear. Sometimes the cause has been attributed to Diclofinac, a pain killer medicine given to the cattle, the carcass of which have been eaten by the vultures. The low breeding and high mortality may become a cause of total wipeout of the vultures, known as scavengers of the nature. It is recommended that the GHNPCA management keeps itself at a red alert and sense any major change in vulture population in time. Also check the populations of species such as Himalayan Grey headed Fishing Eagle, which is a very good indicator for the good health of the water bodies of GHNPCA.

- Vaccination: As has been discussed above, all the cattle, sheep and goats going into the Sainj WLS (which is so close to the GHNP) must be vaccinated at the entry points. For this purpose, a close liaison with the Veterinary Doctor at Banjar is very essential. Recently, a workshop for the members of the Women Saving and Credit Group (November, 2003) has been organized at the Community Training and Tourist Center, Sai Ropa where the Group members have been apprised of utility of

vaccination and other First Aid methods for their cattle. It is recommended that the continuity of such workshops must be maintained.

- Exclusion of exotics: The technique of restoration needs to be such that is acceptable on aesthetic, economic, environmental or ecological consideration and as 'near natural' as possible eg restoration of a degraded sites in Sainj wildlife sanctuary (close to GHNP) cannot be attempted by planting the quick growing exotics. This is not acceptable since exotic species have no place in a protected area. Exotics have long ranging ecological implications, which are now well established. As another example, the weed control cannot be attempted by using weedicides since they have a potential for adversely affecting several food chains. Local herbs, grasses, tree species are recommended to be planted in the Sainj WLS (action through microplanning).

- Compensatory strategy: The techniques used for compensatory development also need to be chosen on similar considerations as applicable to restoration strategies. In case the villages of Shakti, Marore and Shagwar of Sainj WLS are relocated, a comprehensive compensatory mechanism needs to be employed. This can best be planned only when the evicted sites are available. A detailed rehabilitation/restoration strategy has been discussed at the end of this Chapter.

- Ecodevelopment: Restoration and compensation need not necessarily be within the management area. Such actions often will need to be taken outside the PA to reduce pressures on management area eg. providing waterholes for cattle and pasture development outside the GHNPCA; working with the natural-resource dependent local community to reduce their pressures on the PA. The idea of eco-development in the surrounds of PAs is both a restorative and compensatory strategy in a larger context.

8.3 Wildlife Protection

The protection of the wildlife in a Protected Area (PA) such as the Great Himalayan National Park and associated Sainj and Tirthan Wildlife Sanctuaries and ecozone on the western boundary of the Park is highly detrimental to the actions taken by the staff of forest department as well as the community living in the neighborhood of these PAs. The PAs are virtual oasis in the vast forest areas where wild animals occur in almost similar density and diversity. Hence it is imperative to protect the wild animals in the forest areas, both inside and outside the PAs.

Local Community as Main Source of Problem as well as of Solution for WL Protection in and Outside the Protected Area. However, a generic issue in 'state-sponsored' conservation effort such as ecodevelopment is that some of the essential steps in protected area establishment have met strong resistance, notably the completion of legal formalities and regulations covering resource use by local people. Relations between villagers and park authorities often have been poor, and hostile clashes are not uncommon. Two problems recur frequently.

- First, the Sainj WLS (partly), and GHNP (completely) prohibit local people's access to forest resources on which they had previously depended for grazing their cattle and for collecting NTFP, fuelwood and construction timber.
- Second, there has been a dramatic and sustained increase in the severity of crop damage, livestock losses and sometimes human fatalities inflicted by protected wildlife in villages close to PA boundaries, with minimal compensation available.

To resolve such conflict situations, the stage is thus set for new approaches to protected area management, which give considerably more attention to relations with local communities.

8.3.1 Proactive Actions for WL Protection

Recommended Actions

- **Training of Frontline Staff :** This has to be done for all such staff of the GHNPCA which are stationed at the forest areas with high incidence of wildlife. For imparting training in protection aspects, apart from using the already trained executive staff and officers of the state; expertise from other departments/ agencies such as Police Department; Justice and Law Department; SSB; Mountaineering Institute, Manali; WWF-India etc. are to utilized to train an efficient cadre of frontline staff. The specific areas for training are

  i. Field craft (Appendix 5)

  ii. Weapon training (if need be)

  iii. Legal Process and Procedures

  iv. Rock climbing and mountaineering

- **WL Protection Maps:** There is a great need of preparing the Wildlife Protection Maps which should indicate the hot spots of the GHNPCA, topography, water/salt points, the vegetation type of these WL hotspots, concerned trekking routes, availability of patrolling huts and other related information. Protect such maps from poachers.
- **Wireless Communication:** The wireless communication is a basis need for the WL protection at the GHNPCA. The areas of the Sainj and Tirthan WLSs and GHNPCA are very remote, inaccessible and far-flung. Hence, the option of the wireless communication has a very high relevance. The existing wireless communication system at GHNPCA is in very bad shape. Most of the Walkie-Talkie (handsets) and the permanent stations are irreparable. In Sainj WLS, the permanent stations have to be at Shakti, Marore, Lapah and Sainj. In ecozone, they can be at Kharoncha, Sai Ropa, Mashiyar (all in Tirthan WL Range) and in Panjai (in Mandi Forest Division). All the Ft. Guards, Deputy Rangers and Forest Rangers need to have mobile handsets. The permanent stations and handsets must be charged through solar light, because at most of the stations mentioned above, either there is no electricity or the supply of electric current is very irregular. The

wireless communication may prove very useful for the tourist management and WL survey or census work.

- **Prevention of Poaching:** The organized poaching is usually the work of a few individuals who are not local. The local villagers who do not participate in poaching and share the benefits usually have latent resentment against the poachers. A well-accomplished Nature Awareness programme through street theater/meetings can arouse public opinion in favour of conservation. Publicize and discuss recent captures and punishments and set up a system of informers. Also take help from police and district administration to keep a check on known firearm holders.

- **Group Patrolling and Reporting:** This portion of the WL protection needs very effective strengthening through patrolling by the WLS staff and WL watchers.

  i Unlike traditional patrolling by one Forest Guard in his beat in the Territorial Wing of the HPFD, it is recommended that at least two Ft. Guards, two Forest Workers and two or three wildlife watchers need to form one patrolling party and conduct three or four patrols in a month. This, in fact, is introduction of Chowki System to conduct the Group Patrols. Shakti and Bah can be the Chowki for Sainj WLS (also see Chapter 9).

  ii Each patrol to cover interior areas of the GHNPCA. The patrolling party has to have maps with their route shown on it.

  iii Full reporting on every patrol including collection of biological information is to be ensured.

  iv. The biological information collected during patrolling must be organized and tabulated so that they are readily available for reference.

  v. It is suggested that there should be some overlap of patrol team coverage so that independent reporting is compared and teams may comment on the signs of habitat damage, poaching, etc in the areas normally covered by other teams.

  vi. The patrol reports may be very useful for the evaluation of management effectiveness and for monitoring habitats and population of target species.

  vii. The regular inflow of patrolling reports also enables the GHNPCA management to check that the Forest Guards are active and if there are weak points in the patrolling system.

- **Anti Poaching Operations**

  Get a clear picture of the poaching:

  i Commercial or subsistence poaching.

  ii Time: day or night.

  iii Season: wet or dry.

iv. Number of people involved or size of the party

v. Middle men who purchases the trophies/Market

vi. Poaching methods (use of snares/dogs/guns)

vii. Role of local villagers in the poaching case

- **Detection of Poaching:** This is the first step to check/capture poachers.

  i. Conduct spot checks of vehicles/places where wild animals or their remains are suspected to be sold

  ii. Maintain an adequate patrolling intensity.

  iii. Maintain all the existing patrolling huts in the GHNPCA and make sure that the poachers do not get to use them (as they are in the wilderness, and without chowkidar).

  iv. Ensure that the field staff is actually in field and patrolling. Increase supervision.

  v. Enhance the number of staff in areas at times of increased incidences of poaching. Prepare a "Poaching Map" and update it regularly.

  vi. Patrols to cover GHNPCA boundaries, known access routes, water holes and preferred localities of the target species.

  vii. Patrol routes and schedules should vary. Keep the patrol group small and mobile.

  viii. Maintain an effective radio-communication network.

- **Enforcement through statutory powers:** The GHNPCA staff must use its statutory powers to control occurrence of WL offences. The Park officials must register all such villagers who have licensed guns with them (this is a requirement under the WL Protection Act, 1972). Where there is sufficient evidence to suggest that a person (or persons) was responsible for deliberately poaching, action must be taken in accordance with the law/HPFD guidelines. The GHNPCA staff should undertake patrols in areas where deliberate poaching/ snaring activities are common to ensure compliance with WL protection legislation and to provide advice and assistance regarding importance of wildlife and protected areas.

- **Reward to persons:** A reward is recommended to be given to a person or villager who renders assistance in the detection of an offence or the apprehension of the offenders as per decision of the Chief Wildlife Warden, H.P.

- **The Community Training and Community Center at Sairopa** can be further developed as a Training Centre for short term courses (one week or so) for the staff of HP Forest Department to impart training in wildlife protection. The Center will cater to the specific needs of not only HP, other Himalayan states such as UP, J&K etc. In this regard

experiment of MP Govt., in developing the Game Guards Training School at Bhandhawgarh in collaboration with WII, can be taken as a model for developing such a specialized training center at state/ regional level. Some of the suggested courses for Forest Guards, Dy. Rangers, and Forest Rangers are:

i. one week module on **Identification and prevention of illegal trade in wildlife, its derivatives and parts;**

ii. one week module **on intelligence gathering, investigation and prosecution of wildlife offence cases;**

iii. one week module on **Wildlife Protection Act 1972, and its application: This course will help develop** standard Performa for booking forest and wild life offences under IFA and WPA, such as slandered Search Warrant, Seizure Memo, Bail Bond, Case Dairy/POR etc. for the entire state. This will help in making prosecution of cases simple and will reduce the chances of technical errors in filing offence cases in the court of law.

iv. one week module on **man-animal conflict, Nature Conservation Education, and provisions of wildlife compensation**

- **Knowledge about Illegal Trade in Wildlife, its derivatives and parts:** As such there is a great paucity on Knowledge about Illegal Trade in Wildlife, its derivatives and parts among the staff of forest, wildlife and police departments. There is a great need to develop expertise among the officials of Forest and Police departments. This can be done with an active collaboration with the Wildlife Institute of India and NGOs such as WWF-India, TRAFFIC India, and Wildlife Protection Society of India.

- **The Street Theater:** The ecozone of GHNPCA has a village level Street Theater group as a part of the local NGO, SAHARA. This street theater group is made up of eight boys and four girls from the identified Women Saving and Credit Group families. The group has been imparted an initial training and it goes from village to village giving two performances of 45 to 90 minutes in one village. The group gives out messages in nature and biodiversity conservation in form of dance and drama in local language and Hindi. It is recommended that the GHNPCA staff must hire the services of the Street Theater Group on daily wages (skilled labour) and (thus provide employment to the poor families of WSCGs) use their services for nature awareness campaign.

- **Development of training manual:** There is also need to develop proper training manuals in local language, in the field of wildlife management, census, protection, ecodevelopment etc. The Hindi version of WPA, 1972 is very difficult to comprehend largely due to its highly technical and legal terminology. Development of a Ready Reference for Wildlife Management and Protection, for the frontline

staff along with glossary of technical terms containing easy explanations in simple Hindi, will be great help.

- **Development of relevant Performa:** There is also need to develop standard Performa for booking forest and wild life offences under IFA and WPA, such as slandered Search Warrant, Seizure Memo, Bail Bond, Case Dairy/POR etc. for the entire state. This will help in making prosecution of cases simple and will reduce the chances of technical errors in filing offence cases in the court of law.

8.3.2 Special recommendations for the protection of the Flagship species such as Western Tragopan and Musk Deer in GHNPCA

The Western Tragopan– Jujurana - *Tragopan melanocephalus*, is a symbol of the grandeur of pheasants and is among the most beautiful of birds and aptly named the King of Birds. It is endemic to the North West Himalaya, a fact that makes the species the leading choice to represent the full range of avian diversity in the region. There is an extremely limited area in the world where this pheasant is found: Himachal Pradesh, part of Jammu and Kashmir and Palas Valley in Pakistan. Because its populations in the wild are very low, the Western Tragopan is in the Vulnerable category of IUCN. The biggest and possibly the most viable population of the WT are found in the GHNPCA. At GHNPCA, there is the greatest likelihood of any conservation intervention for the jujurana to meet with success.

The GHNPCA is also one site where the government agency, the local people and CBOs like SAHARA and Jujurana Jeeve are most organised to mount an effective, collaborative effort to save the jujurana. The efforts to conserve Jujurana are in order to both engage public sympathy as well as ensure broader biodiversity benefits. Western tragopan is only present (in addition to the GHNP) in one other National Park in the world, at Machiara in NE Pakistan. The Western Tragopan is a charismatic creature, which inspire conservation efforts for itself- and for the thousands of lesser known, but vitally important plants and animals with which it co-exists, the most important of which is Musk Deer. At the same time the bird is quite known in the region for its beauty and endangered status. There are a number of folk songs and folklores in name of this bird.

The Western Tragopan (WT) has been adopted as logo of the Great Himalayan National Park. Like WT, the Himalayan musk deer (*Moschus chrysogaster*) is another charismatic/flagship species of the GHNP. The Musk Deer (MD) are sighted occasionally (2800-4000 m), in the '*krummholz*'. In past, the local people and outsider for its musk have hunted the musk deer. This has threatened the existence of this endangered species, which is the state animal of Himachal Pradesh.

Recommended Actions

8.3.3 Special WL Protection Squads

The GHNPCA staff will involve Panchayats, VEDSs, SAHARA and Jujurana Jeeve in identifying the persons who are fit to be engaged as daily wage wildlife watchers from the villages of the ecozone. One squad will contain two

to four wildlife watchers and two to four forest guards and forest workers. They will go to patrol the area at least three times in a month. Each squad will be equipped with tents, sleeping bags, warm jackets, boots, map of the area and other material. They will be very vigilant during the snowfall when most of the wild animals migrate to the lower altitudes.

8.4 Grazing and Medicinal Plant Collection

The Government of Himachal Pradesh in May 1999 has decided to extinguish rights of local villages forever in order to bring the long awaited final notification of the Park. A provision of the cash compensation of about Rs. 1,56,00,000 (to 349 families, names of whose ancestors are mentioned in the Anderson's Settlement report) was made for the right holders of the medicinal plant collection. However, the Award of the Collector does not give any monetary benefits to the villagers whose sheep and goats were going into the Park area. Only alternative development of pastures, fodder and medicinal plants has been proposed in the Award.

The notification on the final settlement of rights and declaration of the Great Himalayan National Park has resulted into:

i. the abrupt non-availability of the GHNP area or 64.42% of the GHNPCA landscape to the resident as well outside migratory people for any type of resource use;

ii. an over-burdening of resource use in the remaining area, with serious implications for the Sainj Wildlife Sanctuary where grazing is allowed and the shepherds who were grazing their sheep and goats in the GHNP now go to the Sanctuary;

iii. constrained resource use and ensuing conflicts especially in the Sainj WLS area; and

iv. a great challenge for the PA staff to protect park resources and enforce law.

Recommended Actions

- Follow the provisions of the grazing schedule that is part of the Award of settlement of rights.
- Enforce the grazing schedule as given in the Award of the Settlement of the rights.
- Herb collection and its significance in local economy needs top priority in eco-zone management.
- In ecozone of GHNP, no herb collection will be done before September (*Bees Bhadon*) when the seed of medicinal plants get matured for further propagation in nature.
- Any unlawful activity by the right holder in the Sainj WLS and ecozone of GHNP will amount to suspension/cancellation of his rights.
- A three-year cycle programme for the extraction of the medicinal plants in the ecozone of GHNP is in operation from 2003 (the Sainj

WL Range is open for 2003; Jiwa WL Range for 2004 and Tirthan WL Range for 2005). The next cycle will be from 2006 onwards (the Sainj WL Range will open for 2006; Jiwa WL Range for 2007 and Tirthan WL Range for 2008).

- The Park maangement to support income generation/ value addition activities like collective marketing, small-scale enterprises based on medicinal herbs collection or growing, in the ecozone.
- Conduct regular training for FD staff and herb collectors in methods of sustainable harvest. This is important as collection of most herbs in the ecozone area involves destructive harvest of the root or entire plant.
- Develop a number of Medicinal Plant Development Area (MPDA) in the ecozone of GHNP and Sainj WLS.

8.4.1 Medicinal Plants Conservation Areas

The floristic survey of the Park suggests *in situ* reserves containing valuable populations of threatened medicinal herbs. Their ultimate value would lie in harbouring viable, breeding populations of known medicinal herbs (other species as well).

Recommended Actions

- Set up at least one *in situ* conservation areas for medicinal herbs in each forest type within the Park.
- A MPCA will be easily protectable and accessible micro-watersheds of about 200 ha within the Park with easily distinguishable natural boundaries.
- Commission detailed floristic, botanical and ecological studies in these MPCAs or 'reserves'.
- Develop an effective record keeping for the MPCAs and the results of surveys done.
- Maintain a herbarium of the medicinal plant species, surveyed in the MPCAs.
- Encourage research to help in enriching the genetic variation within a species so that a sufficiently large gene pool can be conserved over long term.
- Conduct monthly monitoring and inspections involving Park staff and community.
- Build a data base of all the on-going activities in this regard (process documentation).

8.5 Wildlife Surveys and Abundance Estimation

One of the important indicators of the success of management practices is the abundance of animals (pheasants, large mammals). The Wildlife Institute of India has done a comprehensive research work on the biodiversity of the GHNPCA. The inventories of mammals, birds, reptiles, amphibians, annelids,

molluscs and insects (mostly butterflies and moths) have been prepared. The vegetation of the GHNPCA has been studied and very well documented. The angiosperms, Gymnosperms, ferns, bryophytes, mosses and lichens have been well documented.

Recommended Actions

- The frontline staff including the Forest Guards, Forest Workers and wildlife watchers must be good at simple measures of the abundance species: absent, rare, occasional, common and abundant (first level).
- Conduct proper field trainings for the Forest Guards, Forest Workers and wildlife watchers for the next/second level of information collection on evidence of the animal's presence, such as tracks, droppings, calls, nests, feeding signs, etc.
- The advanced or third level of information collection is by determining the **trends** or **indices** of population growth and the **actual** population numbers (such as the density of Musk Deer in Guntarao thatch is 5.7 animals per sq. km. in 1999 and 7.5 animals per sq. km in 2003 thus suggesting a trend in the increase of population). However, the trends do not say much about the total population of the species.
- Set up Line Transects to sample each habitat in proportion to its availability. For long term monitoring, these transects need to be marked on the ground permanently. The transects should not follow major topographic features (e.g. streams). Only two to three observers should walk on the transect very silently, preferably in morning when the animals are most active. Record the species sighted, numbers and estimated distance (angular) from the observer. In GHNPCA, a patrolling path has been used as a transect line for such observations. The density (D) of a population is obtained by using the equation: $D = n/(l \times \text{mean psd} \times 2)$ where n is the number of animals seen on the transect, l = transect length, psd = perpendicular sighting distances, and 2 indicates two sides of the transect.
- Secial Silent Drive Counts for Musk Deer: Several training programmes have been conducted in field for the Park staff. The WII scientists may be called to conduct more training programmes in this regard.
- Relative abundance estimates based on evidences can be undertaken by the trained field staff. In GHNPCA, this is very practicable for the ghoral droppings, musk deer latrine sites, Brown/Black Beer dung and diggings, leopard scats, pheasant droppings, feathers and nesting sites, and porcupine quills (Appendix 6). The villagers can also testify occurrence of various animals such as Serow in the forest.
- Population estimation based on vocalisation is recommended for the pheasant surveys and census (please see the Appendix 4). Based on the mean group size, obtained from direct observations of the 6 to 10 groups, and the number of groups counted from vocalisation, the approximate population in the area could be estimated.

- Point Sampling or Two Step Method for ground cover is recommended for the measuring the ground or basal cover of vegetation at the ground level. Two persons (the lead person has a mark on the toe of his shoe, the second person is the recorder) devise the appropriate cover categories e.g. grass, herb, bare soil and traverse the meadow/pasture in series of straight transects. Ten transects of 50 each paces give an adequate sample in a relatively homogenous area. As one walks along the transect, at every second step record the cover immediately under the mark of the shoe. A grass blade pushed down by a descending shoe is not ground cover. Grass emerging out of the ground and touched by the mark of the shoe-tip is counted as grass cover. Thus one transect of 50 paces will contain 25 sampling points.

8.6 Fire Protection

Wildfire: The GHNPCA's response, to the threat of wildfire on forest land must satisfy legal requirements, be thoroughly planned, safe, effective, cost efficient, and environmentally sensitive. It follows that :

i. planning an appropriate response to the inevitable occurrences of wildfire must include an assessment of the threat to human life, property, forest land assets and values and consider these in conjunction with the management objectives for the area;

ii. the incidence of preventable wildfires (i.e. wildfires of human origin) must, as far as practicable, be minimized;

iii. preparedness for fire suppression must be based on designated performance criteria and reflect the variable nature of fire danger;

iv. fire suppression response must be measured, and must consider the safety of personnel as well as monetary costs.

v. rehabilitation of disturbance resulting from suppression works and rehabilitation activities which are part of a broader post-fire recovery strategy must also be based of principles of environmental care.

Recommended Action

Each plan must have four main components: a wildfire prevention strategy, a wildfire preparedness strategy, a wildfire suppression strategy, and a wildfire recovery strategy.

Planning Maps: The GHNPCA must prepare, planning maps which present the following types of information

- fire protected area;
- fire history;
- fire origins and causes;
- topography;
- fuel or vegetation types;

- cultural and natural assets such as historic buildings and regenerating forests requiring protection from wildfire or inappropriate fire regimes;
- natural values which are highly localized and restricted to high points in the landscape and need to be considered when locating and constructing fire lookouts, and breaks;
- significant areas of housing and other private or community improvements on or adjacent to forest land;
- existing fire suppression infrastructure such as water points;
- natural values which are particularly sensitive to soil or hydrological disturbance and need to be considered when planning the use of heavy machinery during firefighting operations;
- known areas of soil-borne disease likely to be spread by machinery involved in fire fighting operations;
- existing road and track networks and travel times from major centers; and where appropriate and practicable, an indication of the combined affects of one or more of the above factors, including fire risk* and/or levels of fire suppression.

When preparing the Fire Protection Plan, the GHNPCA staff must :

- involve its specialists in flora, fauna, parks, forestry, land and water protection, and fire management;
- consider the principles of environmental care; and
- consult with other agencies with a major interest in fire protection and the community.

Work Programmes:

The GHNPCA must prepare a work program consistent with this plan annually to implement strategies contained in the Fire Protection Plan. The works program must contain:

- a three-year forward program comprising a schedule and maps for fuel reduction burning and any new preparedness works planned for the immediate three-year budget period; and
- a detailed schedule of prevention and preparedness works planned for the immediate 12-month budget period.

Education. The GHNPCA must

- conduct and participate in programs which maintain public awareness of the wildfire threat, promote the importance of self-protection, and encourage the responsible use of fire by the community; and
- conduct and participate in programs aimed at changing the behavior of people known to cause wildfire or who are suspected at causing wildfire.

Enforcement:

The GHNPCA must use its statutory powers to control the use of fire and activities known to cause wildfire. The Park officials must attempt to establish promptly the place of origin and cause of all wildfire on forestland. Where there is sufficient evidence to suggest that a person (or persons) was responsible for deliberately lighting or negligently causing such a fire, action must be taken in accordance with the law/FIPFD guidelines to recover the cost of suppression and/or damage caused by the fire and prosecution will be considered. The Department should undertake patrols in areas where deliberate and accidental fires are common to ensure compliance with fire legislation and to provide advice and assistance regarding the wise and proper use of fire.

Where deliberate lighting is suspected to have occurred on forest land the GHNPCA staff must take appropriate action to identify and, as appropriate, prosecute the offenders.

The GHNPCA must :

- consider fuel management on and around sites of known high hazard and/or risk on forest land and where appropriate implement measures (e.g. slashing, fuel reduction burning) to reduce the possibility of wildfire ignition; and
- plan and conduct controlled burning on forest land in accordance with statutory requirements, this Strategy, Departmental standards, prescriptions and guidelines to maximize safely, minimize the likelihood of fire escape and achieve burn objectives.

Records: The GHNPCA must maintain records to assist fire prevention, planning and assessment of the effectiveness of prevention activities which include details of:

- wildfire origins (where and when they originated);
- wildfire causes (their sources and causes, if known);
- area burnt (in hectares);
- weather conditions;
- annual Departmental cost of suppression (cost of labour, equipment, etc.);
- estimate of annual fire damage (cost of damage to property, fences, wood and non-wood produce);
- other economic or ecological consequences; and
- annual cost of the fire prevention program.

Preparedness: Determine the required level of preparedness for damage of different conditions, taking into account fire risk and hazards, and addressing the requirements of infrastructure for fire suppression, location of resources, level of training of firefighters, and an appropriate fire detection system.

Paths and Tracks: The GHNPCA must maintain a strategic paths and track network for fire protection purposes. Fire access roads and tracks must be classified according to their standard, and strategic maintenance must be scheduled and recorded.

Water Points: Fire Protection Plans must indicate the strategy and standards used to determine the local and type of water points within the planning area to supply water for ground firefighting.

The GHNPCA must construct and maintain strategically located water points on forest land and provide signposted access of a standard which should enable the quick and safe operation of firefighting vehicles and pumps.

Detection of Wildfire: The GHNPCA must ensure that a system of detection appropriate to the fire danger is operating at all times and that it is responsive to fire potential especially in relation to the time between the ignition and detection of wildfires.

Where they are required, the Park management must locate fire lookouts after considering the strategic importance of the lookout the land use of the proposed site and the GHNPCA's fire protection priorities in the area.

Communications: The GHNPCA must, as far as practicable, ensure the availability of an effective communications network with appropriate links with other responding agencies and groups.

Fire Suppression: Control of wildfires on or threatening forest land will be given priority over all normal GHNPCA activities. Upon detection of a wildfire, control action will be fast, determined, safe, and through with the primary objective of controlling the fire in the shortest possible time with due regard being given to management objectives, environmental values and economy.

Health and Safety: Firefighter safety must be given priority over all other fire suppression considerations. All firefighting operations must comply with relevant occupational health and safety standards.

Fire control operations usually involve the removal of vegetation, litter and duff from the surface of the ground and a degree of soil disturbance. This can have implications for soil, water catchment, landscape, and remoteness values. Implications for flora and fauna management may include the potential for weed invasion and the disturbance of endangered species or communities.

Where practicable the location and method of construction of control lines should minimize disturbance of vegetation and soil and avoid undue side-cutting, filling and the creation of windrows of vegetation and soil.

Recovery After Wildfire: Measures will be taken, where practicable, to assist the recovery of both firefighters and the ecosystem from the adverse impacts of wildfire and fire suppression on forest land.

These will include measures that address:

- the rehabilitation of disturbance resulting from firefighting operations
- the amelioration of deleterious environmental and economic impacts of the wildfire;
- the improvement of fire suppression performance; and
- fire-related occupational health and safety issues.

The following must be considered :

- Potential erosion;
- Water quality particularly in domestic water supply catchments;
- Potential forest pathogen activity;
- Potential invasion by pest plant and animals;
- Animals welfare issues;
- Impact on flora and fauna, particularly endangered species or communities;
- Damage to bridges, roads, installations, and other forest land assets and values
- Damage to timber growing stock and the need for the salvage of timber from the fire area; and
- Landscape and wilderness values.

Competence and Training: All personnel involved in controlled burning must be competent in the roles and tasks which are assigned to them and be appropriately endorsed by the Park management. Develop a fire training program that is competency-based; requires regular validation and endorsements; addresses relevant occupational health and safety codes of practice, standards, and the correct use of equipment; and is suitable for both GHNPCA personnel and daily wagers.

Fire Training: The GHNPCA must engage in a coordinated fire training program for both GHNPCA staff and community members. The program will cover all aspects of fire management; including prevention, preparedness and suppression. The Department must show recognition and appreciation to community members for their assistance in fire prevention, preparedness and suppression.

Education: The GHNPCA must engage in a coordinated fire education program for both Park personnel and the general public. The GHNPCA must engage in the use of various media to make the general public aware of the Park's strategies towards fire management.

Research and Development: The GHNPCA must undertake participate in, or support research programs aimed at all aspects of fire management, including

Determining the relationship between annual climate and the number of fires and extent of fires:

- improving the effectiveness of fire prevention activities.
- the effectiveness of fuelbreaks on suppression effectiveness, and loss potential for likely wildfire scenarios or on the control of controlled burns;
- improving firefighter safety.
- Improving the understanding of fire behaviour;
- Improving the knowledge and prediction of the threat of wildfire to life, assets and values;
- Improving the knowledge of the effects and effectiveness of preparedness actions;
- Improving the firefighting methods, including knowledge of their impact on environmental values;
- Opportunistic research, where practicable, into fire behaviour, firefighting methods and firefighter performance;
- Improving the knowledge of the effects of wildfire on natural values (this would also be opportunistic research); and

Improving the knowledge and techniques of recovery and rehabilitation.

Objective 9

Facilitate a Rehabilitation Action Plan for relocation of the three existing villages of the Sainj WLS into the ecozone of the GHNP. Improve or regain the standard of living of displaced villagers, relocate village sections or families as village units, integrate villagers into the communities in which they are resettled, and provide them with adequate compensation and infrastructure in order to accomplish rehabilitation.

(This objective has also been discussed in the Management Plan of the Sainj WLS).

8.7 Unique aspects of the three villages in the Sainj WLS

The three villages of the Sainj WLS are Shagwar, Shakti and Marore. These villages are located on the southern boundary of the Sainj sanctuary, which is almost contiguous with the boundary of the Great Himalayan National Park (GHNP). The nearest roadhead for these villages is at Neuli, which is more than 16km from Shagwar; 20km from Shakti and 25 km from Marore. The total population of these villages is about 89 individuals and the cattle population is about 400. Because of the very interior area, all these villages are without electricity, roads, hospitals and school facility. The local people's main occupation is agriculture, which does not yield much of the produce because the area is quite remote to avail the modern agricultural facilities.

In fact there is very little presence of the govt. agencies in these three villages. All the transportation for these distances is mostly on human back or for a limited period of time by the mules. The basic facilities such as education are limited to a primary school in Shakti and no medical help in all these villages. Due to 1994 notification of the Sainj WLS, the three villages although technically 'outside' the National Park, are physically located between two parts of the GHNP. The total agricultural land in all the three villages of Shakti, Marore, and Shagwar is approximately160 bighas (12.80 hactare). In Shakti village, there is an establishment of GHNP with two guard huts, and one Shakti Trekkers Camp.

8.7.1 Rationalization of the boundary

One of the main objectives of this Management Plan is to maintain large and compact areas as representative samples of the Western Himalayan biogeographic zone in its unaltered state to ensure the continuity of evolutionary processes, including animal migration and gene flow. The principals of Conservation Biology clearly mentions that the compactness of the area is very important for uninterrupted gene flow and continuous interactions among the various populations of wild animals and plants. For doing so it is imperative to merge the 90 sq. kms area of the Sainj Wildlife Sanctuary into the Great Himalayan National Park. In order to rationalise the boundary of the Great Himalayan national Park (which at the moment is in two parts), there is a need to include the 90 sq. kms of the Sainj WLS into the Park.

In past there have been a number of efforts to rehabilitate these villages to the areas which now are part of the ecozone. The traditional rights of the local people into the GHNP have been settled in May 1999 through an elaborate procedure as prescribed in the Indian Wildlife Protection Act 1972. However, the Sainj WLS remained outside this process. The post-settlement-of-rights situation in GHNP is affecting the Sainj WLS because the grazing pressures of the Park have now been diverted to the Sainj WLS. This in turn is causing more harm to the wildlife habitats of the Sanctuary.

8.7.2 Factors, detrimental to the biodiversity conservation of the Great Himalayan National Park Conservation Area

The settlement of rights of the local right holders in the Sainj WLS in October, 1999 has allowed continuation of all the previous rights and concessions to the local people. No regulations or restrictions in favour of wildlife protection or conservation have been applied on to the people living in the WL Sanctuary area. The local people and the villagers from the GHNP ecozone use the Sainj Wildlife Sanctuary area mainly for grazing their livestock (sheep, goats and some cattle) and collecting herbs and mushrooms. In addition, about 5,000 migratory sheep and goats graze in the Sanctuary area during the summer months. About 500 people (almost all outsiders) collect herbs (August-October) and mushrooms (April-June) each year. All this causes a great amount of disturbance to the wildlife of the area, the main effected ones being pheasants, and critically endangered species of Musk Deer, Himalayan Tahr, Serow and others. There are incidences of poaching cases (through snaring or shooting by gun) in the remote area of the Sainj WL Sanctuary.

Many people living both inside and outside the Ecozone of the GHNP claim traditional rights to use the Sanctuary's resources. In fact, local people claim rights over the demarcated protected forests, which make up more than 75% of the Sainj WLS. These rights are complex, ill-defined and are currently subject only to token regulation or management. Until these rights are resolved, the Sainj WLS cannot be merged with the Park. Anecdotal evidence strongly suggests that current levels of use of the area's natural resources are unsustainably high.

Local resource utilization continues to intensify as modern research finds new uses for hitherto unmarketable trees and plants. For example, it has been estimated that 20-year old tree of Texus bacata which occurs in patches in GHNP can yield up to 30 kg of leaves and 5 kg of bark to produce 4 gm of taxol worth US$10,000. New finds in the pharmaceutical industry have encouraged the commercialization of medicinal herbs and animal products, providing strong incentives for local harvesting. Some herbs, such as Aconitum heterophillum, Nardostachys jatamansi, Dactyloirhiza hatagirea and Jurinea macrocephala, found in the Sainj WLS have only become commercially valuable during the last two decades.

8.7.3 Rehabilitation of the three villages of the Sainj WLS

Recommended Action

The goals of the Rehabilitation and Relocation Plan is to improve or regain the standard of living of displaced villagers, relocate village sections or families as

village units, integrate villagers into the communities in which they are resettled, and provide them with adequate compensation and infrastructure in order to accomplish rehabilitation. Such a policy may recommended that a certain amount of compensation will be given to those losing their house or their land or losing both house and land.

- Initiate public opinion building for the rehabilitation of the three villagers from their present location into the ecozone of the GHNP. Earlier, the site near Bar Shangarh village was considered for this purpose. With adequate public support, this work can again be undertaken. The H.P. govt needs to issue an order to this effect and constitute a committee involving district and GHNP authorities to undertake the relocation work.
- The relevant officers to visit Nagarhole National Park to study how the relocation work has been undertaken at this Park.
- An effective planning process is the main basis of the rehabilitation work.
- It is better to take assistance of the local NGO in the process of designing and implementation of the Rehabilitation Action Plan. This will facilitate the consultation with the community regarding the types of economic rehabilitation desired by them. A high degree of community participation in the rehabilitation programme may thus be achieved.
- Gather valid information about the three villages, their inhabitants and various aspects of land ownership, size and location of houses, number of trees on the land, ownership of cattle, etc. It should provide validated demographic information, occupation, education, skills, and changes in economic activity due to displacement and resettlement.
- Involve the revenue department authorities to help in such process. See that the process is in accordance with the latest Land Acquisition Procedures.
- Develop a Rehabilitation Action Plan for this purpose. The Govt. of India usually has adequate funds for such purposes. So approach the Govt. of India, Ministry of Environment and Forest to provide funds for this purpose.
- Develop an implementation schedule for the Rehabilitation Action Plan. The action plan should propose a timetable of one or two years. The details of the action plan must be agreed upon or accepted by the state government. The implementation capacity of the concerned office is to be strengthened by the appointment of a Rehabilitation Officer to head a division responsible for the implementation of the rehabilitation programs. The Rehabilitation Officer should have enough authority to mobilize the government resources needed.
- Include various components, such as roads, drinking water, schools; residential buildings, electricity, housing, irrigation and rehabilitation services. The last item will include the self-employment schemes, and employment training.

- The experiential learning in Rehabilitation programmes indicates that the authorities usually nicely do the infrastructure part. However, the more problematic area is of economic rehabilitation of the displaced villagers. Therefore, be ready with a package of organizing the displaced villagers of the three villages in small groups to undertake the income generation activities which are nature based, and acceptable to the displaced villagers. Marketing of the products prepared by the displaced villagers is of utmost importance.
- Several programs need to be undertaken concurrently -such as the Jawahar Rojgar Yojana, the Development of Women and Children in Rural Areas, the District Rural Development Agency's youth training program, and the Employment Guarantee Scheme- for the displaced villagers.
- The Park staff to provide leadership, adequate staff, and timely assistance to the effected villagers of the three villages. The design of houses to be constructed under the Rehabilitation Plan has to be in accordance with the local needs. If required the construction will be undertaken by the effected villagers, themselves.
- The rights of the effected people (such as Timber Distribution, collection of medicinal plants, and grazing) need to be relocated/purchased.
- During rehabilitation, it is often seen that some of the displaced villagers settle in the areas, which may not be the exact site where they are officially being rehabilitated. Adequate attention is to be paid to this aspect of rehabilitation.
- The flexibility of actual expenditure on the Rehabilitation Action Plan has to be built in so that the process of relocation of the three villages is done in one go.
- Make sure that the rehabilitation work is completed within the time frame of the Rehabilitation Action Plan.
- A "Completion and Impact" study must be done for the rehabilitation work, which will highlight a number of important factors of success.

8.7.4 Revision of the Boundaries: Merger of the Sainj WLS with the Great Himalayan National Park

Boundaries carry legal, managerial and ecological significance. The proposed boundaries of the GHNP shows merger of the Sainj WLS in it. For GHNP boundary, the physical features are stable including the survey benchmarks for which the cross compass bearings would be necessary. As a principle, the entire concept of ecodevelopment is to a considerable extent PA management effort outside its boundaries. Such issues, in the ecozone of GHNP need to be reviewed in relation to the external boundary to help provide suitable management measures. The internal boundaries are likewise of management significance. Internal boundaries are important in GHNP in context of protection, habitat management, research and monitoring. Provision for regular maintenance and verification needs to be made.

The following are the proposed boundaries

North: From SoI benchmark 6110m (Lat 31°53' 11" N Long 77°52' 7" E), the boundary moves towards west following the points of 5845m, 5805m, 5741m, 5185m meeting a nulla which joins Parvati river between Choti Dwari thatch and Bari Dwari thatch. The boundary moves along Parvati river to Bakar Bihar Khol to the SoI benchmark 5840m, 5440m then upto 5280m (before Jaraun Dhar). From S.O.I. 5280m, the boundary moves west along Jaraun Dhar to SoI 5160m then northward to SoI bench mark 5445m. From 5445m SoI benchmark, (Lat 31°52' 45" N Long 77°34' 23" E) the boundary moves towards west following Khande Dhar, SoI points 5230m, 5172m, 5043m, 5150m, 5342m, Baskinag 5238m, Phangchi Dhar, Phangchi Galu 4636m, Ori Dhar, Rohni Dhar, Plangcha Dhar, Kaili Dhar upto 3847m SoI benchmark, then finally meeting the nullah, which is between Jubkutan and Apgain thatches (Lat 31°51' 48" N Long 77°22' 30" E).

East: The boundary starts from Srikand Mahadhev (Lat 31°39' 36" N Long 77°38' 56" E) and moves north following SoI benchmarks 5227m, 5167m, 5003m along Sirikand Dhar, 5270m, 5159m, 5602m and reaching Gushu Pishu at 5672m. From Gushu Pishu the boundary moves north skirting the Zangsu glacier and touching Kokshane peak at 5625m. Then the boundary moves along the district boundary of Kullu following SoI benchmarks 5695, 5380m, 5530m, Pin-Parvati Pass 5319m, 5470m, upto 6110m SoI benchmarks (Lat 31°53' 11" N Long 77°52' 7" E).

South: From SoI benchmark 3745m. (Lat 31°38" 26" N Long 77°29' 52" E) along the Basu PF forest, the boundary moves eastward following the SoI benchmark 3868m, Manjnikot, then the forest boundary dividing Badhar PF and Bungdhar PF upto 5148m SoI benchmark and meeting Srikand Mahadhev at 5227m SoI benchmark (Lat 31°39' 36" N Long 77°38' 56" E).

West: Nullah between Jubkutan Thatch and Apgain thatch (Lat 31°51' 48" N Long 77°22' 30" E), then the boundary moves along Jiwanal towards west upto SoI benchmark 1720 m (Lat 31°49' 3" N Long 77°21' 45" E). The boundary moves from SoI 1720m eastward along the ridge upto Bunga Dhar, Deun Dhar then to Kandi Galu, Barohi (4335m SoI bench mark), downwards to SoI 3660m near Socha Thach, then it continues through Autidhar PF out-skirting the Majan village and then joing the Sainj River at the SoI 1890m. From SoI benchmark of 1890m (Lat 31°47' 07" N Long 77°26' 37" E) on Sainj River, the boundary moves along the forest boundary of Humkani RF towards south along the dividing boundary line of Humkani RF and Tispur PF to SoI benchmark 3760 m, 3438m upto the point where boundary of Guninal PF and Rakhundi PF meet. The boundary moves east following the boundary of Rakhundi PF, then goes on to Tirthan Khad. From Tirthan Khad the boundary moves along the forest boundary of Basu PF upto 3745m SoI benchmark (Lat 31°38" 26" N Long 77°29' 52" E).

Area: 844.4 sq. kms. to constitute as a compact area of the Great Himalayan National Park including the Sainj WL Sanctuary.

Recommended Action

- Complete the processes of the Rehabilitation Action Plan.
- Follow the process of settlement of the rights as prescribed under the Wildlife Protection Act 1972 through the Collector of Kullu district, who will write the Award for this purpose.
- The Govt. of H.P. to accept the Award of the Collector, Kullu and issue a fresh notification with the revised boundaries of the Great Himalayan National Park.
- The final notification of the Park has been issued upon the settlement of rights in 1999. Hence, demarcation of boundary with the boundary pillars (as per the HP Forest Department's instructions) needs to be in place, immediately.

Objective 10

Provide facilities and opportunities in natural areas for purposes of formal and informal education, research and the study and the Long Term Ecological Monitoring (LTEM).

8.8 Research and Monitoring - Vital for PA Management

Research and monitoring have been recognized as two indispensable arms, which support and strengthen the Protected Area (PA) management. They improve understanding of issues and strategies relevant to PA management and interactions between the PA and people. Monitoring has been considered as an essential component of any viable strategy to conserve biological diversity because it provides a basis to track the status of various components of biodiversity over time.

As such research and monitoring activities have remained on a lower priority. Remarked by Noss (1990) "Monitoring has not been a glamorous activity in science, in part because it has been perceived as blind data gathering (which, in some cases, it has been). The kinds of questions that a scientist ask when initiating a research project about causes and effects, probabilities, interactions, and alternative hypotheses-are not commonly asked by workers initiating a monitoring project".

8.8.1 Need for New Research Initiatives

If the monitoring and evaluation of ecodevelopment alternatives and their effect on biodiversity conservation, is to be effective, a thorough on-going, understanding of the ecological processes within the major Park ecosystems is needed. A partnership between researchers and the Park management is also essential.

- The GHNP plans to introduce and strengthen development of its computerized database. A Park level computerized biodiversity database (using Geographical Information System or GIS) needs to be set up.

Areas of potential research include:

- Impact of climatic change/global warming on the snow areas, glaciers in the Park.
- Impact of prevention of use of Park's pastures, and other resources
- Study of ecosystem services provided by the biodiversity of GHNPCA
- Study links between natural and domesticated ecosystems and texa at GHNPCA
- Conduct research to determine sustainable use levels for meadows/pastures of the Sainj and Tirthan WLSs and ecozone of the Park
- Study the community traditions, knowledge, and livelihoods with reference to the biodiversity of GHNPCA

- Strengthen the existing Geographical Information System (GIS) in terms of Special habitats, changes in glacial features, etc.
- Set up research projects to detect changes such as changes in vulture populations and populations of the Birds of Prey and pheasants.
- Access to other potentially relevant databases (e.g. forest inventories, regional development, database of the Wildlife Institute of India, etc.) and facilitation of interaction between database systems.
- Facilitate participatory research w r t livelihoods and their relevance to the natural resource conservation.
- Development of an electronic mail network, which will connect the GHNP HQ with related conservation organizations.

8.8.2 Long Term Ecological Monitoring (LTEM)

Gathering of periodical 'blind' or 'total' data on each and every species or element of habitat those are occurring on a fixed, permanent transact, plot, etc., subsequent data analysis and infer what has happened to species richness, diversity, productivity, succession, etc., and based on the preliminary knowledge of the study area, selected taxa are identified as "indicator" or "vital signs".

Recommended Action

Methodology:

- Consider the entry points in the Great Himalayan National Park. The trail/path starting from the boundary/roadhead and going into the Park need to be selected in the manner that it reaches the areas of ecological significance, i.e. where most of the biological diversity is located. Such trail/paths either follow the valley-bottom or lead to the hilltops covering various altitudinal gradients. Thus walking along a path/trail can give idea about the vegetation, and animals across the altitudinal variations. This path/trail (transect line) also covers the habitation areas to study PA-local communities interactions, impacts of Park management actions as well as the impacts of village ecodevelopment programmes.
- The LTEM (or experimental) plots can be laid all along the considered transect line (the path/trail). From a statistical point of view, it is better to use many small plots than a few large ones. The plots and transects need to be placed randomly with respect to the area being sampled. In this regard, regular dispersion of plots on a pre-existing transect line is easier and simpler to arrange and is also valid as long as the arrangement of the transect line bears no relation to regularities in the habitat.

Recommended Action

- Disseminate the knowledge of LTEM among the staff and community members residing close to GHNPCA.

- Prioritize the paths/transect lines for LTEM work.
- Mark one or many paths (transect line) that goes through most of the representative HOTSPOTS of biodiversity on the ground and on the map of the GHNPCA for LTEM work.
- Use LTEM for habitat monitoring.
- Mark the main path (transact line) at 250 meter intervals. Consider those points which are HOTSPOTS of biodiversity for the initial monitoring works.
- Mark about 30 to 50 such points (HOTSPOTS) for initial LTEM purposes.
- Fill up all the parameters as mentioned in the description above (General Information, Floral Information, Floral Information, Human Interference, Recommendations) at each HOTSPOT (LTEM point).
- Store information for each HOTSPOT (LTEM point) in a register or feed in a computer as baseline.
- Consider LTEM an important part of management plan of GHNPCA. This in turn will lead to management interventions such as enhanced protection, other relevant actions.
- Give an important role to the local community in LTEM.
- Use LTEM for threat assessment of floral/faunal elements of a GHNPCA.
- Use LTEM for monitoring impact of tourism.

An example of laying LTEM or experimental sample plots along a transect line in GHNP can be considered the path or transect line starting from Gushaini (roadhead) in Firthan valley and leading into the National Park through Rolla (2080m), Shilt (2900m), Rakhundi (3750m), Guntrao (3460m), Patal (3500m) and upto the ridge point of Sainj catchment (3820m) can be named as T1. It is suggested that the first experimental plot can be considered at Gushaini followed by second plot after 250m, then the third plot after next 250m and so on. Thus there will be four experimental plots in each km. Each point after every 250m can be marked on a tree or rock or any other easily recognized object. Each of these points can be numbered as T1/1, T1/2, T1/3,..... an so on, suggesting that T1 is the number of a particular transect line (path) and denominator is number of the particular experimental plot. Similarly, Sainj, Jiwa, Parvati valleys will have numbers like S1/1, J1/1, and P1/1, respectively.

- Devise a performa to record observations at the experimental plots. For each experimental plot, such a Performa will have the following parameters:

  i Circular plots of 12.65m radius: trees including timber and fodder species, their regeneration, signs of human pressure and wild life use, structure and species composition (area of a circular plot: 498.9 or about 500 square meters)

ii. Nested plots of 5.65m radius: all the shrubs and saplings, their cover, height, browsing signs and other uses. (area: 98.5 or 100 sq. meters).

iii. Four square plots of 1m x 1m within each circular plot at NWSE directions: to record cover of herbs and grasses, presence of medicinal plants, mushrooms etc.

The Proforma will have following information for each experimental plot

General Information:

1. Experimental Plot No.
2. Date of observation
3. Locality
4. Latitude and Longitude
5. Altitude (m)
6. Aspect
7. Slope (degree)
8. Tarrain
9. Rock soil
10. Snow cover

Floral Information:

1. Tree cover
2. Trees
3. Canopy
4. Shrub cover
5. Herb cover
6. Grass cover
7. Medicinal plants
8. Weeds
9. Montane bamboo

Faunal Information:

1. Mammals (signs or sightings)
2. Birds (signs or sightings)
3. Insects
4. Reptiles
5. Amphibians
6. Fishes

Human Interference:

1. Signs of grazing
2. Signs of grass collection
3. Signs of lopping
4. Signs of wood collection
5. Signs of bamboo collection
6. Cultivation
7. Habitation

Important Recommended Actions

As indicated above, the Performa filled-up at an experimental plot will give lot of information regarding biodiversity of the area as well as human interference (Please see the Appendix 7 for LTEM sheets for some selected species of animals and plants).

- Based on the information collected, select such LTEM or experimental plots which have large number of biodiversity values (HOT SPOTS) or some other specific characteristics. Such experimental plots can be used for conducting research work for several studies based on faunal, floral and aspects of GHNP-human interactions.

8.8.3 Usefulness of Experimental Plots

The experimental plots can be used for conducting research work for several studies based on faunal, floral, and aspects of GHNP-human interactions. The data recorded on the performa as mentioned above can be easily entered into a computer using Foxbase or FoxPro software. However, it can also be suggested that a performa filled-up at one or several experimental plots on a particular date can be kept in a file. Repeat observations for the same experimental plots can be inserted in this file by the observer. Over the years, this data will help in showing trends in change of biodiveristy of the area. It is suggested that one file should be made for one transect line (path). This will help in updating as well as retrieval of data.

The observations made through different studies at these plots can be used to draw together information from disparate studies to interpret common patterns of occurrence. Such LTEM plots will also allow best possible use of incidental discoveries and opportunities for inter-study comparisons and synergies.

8.8.4 Role of Community:

The community members and frontline staff of a PA will find this method quite easy to follow. The local villagers/forest guards usually know the local names of plants and animals. Therefore, it is suggested that the GHNP staff can collaborate with the local community. They can fill-up the performa using local names which ultimately can easily be translated/converted into the Latin names. The most important aspect of the above mentioned methodology is that it is community/ frontstaff-friendly, easy to understand and follow in the field. Such a methodology can be standardized in the field for monitoring/research work through a well-coordinated effort.

Objective 11

Provide opportunities for healthy and constructive outdoor recreation for local residents, regional and foreign visitors, and to serve as elements for ecologically sustainable tourism development.

and Objective 12

Protect and make available (with the consent of the local community) the cultural, historic and archaeological objects, structures and sites for public visitation and research purposes as elements of the cultural heritage of the GHNPCA including sacred groves.

These two objectives have been discussed in detail under the Objective 4 entitled as Community Based Ecotourism for the local villagers.

Chapter 9 : Important Conservation Concerns

9.1 The planning recommendations given in Chapters 8 and 9 focus on protection of the huge area of about 750 sq. kms for its biodiversity and watershed values. However, it is evident that many instances of watershed protection have faced serious problems with regards to equity, with benefits of forest protection going mainly to rich landowners, and costs being borne mainly by the poorer and landless forest dependent communities. In the case of larger downstream beneficiaries such as hydro-power projects and urban water supply agencies too, there are no payments made to upstream communities for the watershed protection services that they provide to the former in the form of reduced siltation, improved water flows, and values such as gene pool and carbon sink etc.

Rewarding poor upland communities as an incentive / compensation for conservation of forest / watershed areas has the potential of being an alternative yet complementary mechanism to existing regulatory and collective action / participatory approaches. It has been found in other parts of the world that markets for environmental services are an efficacious medium for the conservation of natural resources, without compromising on the benefits that have been traditionally derived from them in the nature of goods. However, in India there is still very little awareness both at the level of policy makers as well the service providers (upland communities resident in and around forest areas) and service receivers (downstream beneficiaries) of the concept of rewards as incentives for conservation in order to sustain the flow of various environmental services.

9.2 **Rewarding Upland Poor for the Environmental Services they Provide (RUPES)** A long-term strategy to facilitate the development of reward mechanisms to upland communities for various environmental services being provided at a National Level need to be in place. This needs creation of awareness about RUPES at national level. The Great Himalayan National Park in the state of Himachal Pradesh constitutes a major natural watershed for all of Northern India, providing significant environmental services to downstream states. The policy environment in HP is conducive towards promoting the RUPES approach. The existing institution of the street theater at GHNPCA may act as an independent vehicle of awareness creation at the local grass roots level amongst upland communities.

Recommended Actions:

- A concept note of the RUPES approach prepared in English be disseminated to key policy makers at the National and State level in relevant government ministries (e.g. The Ministry of Environment and Forests, The Ministry of Water Resources and the Planning Commission).
- Catalyze a long term process of creating awareness and building a pressure group in HP to actually start RUPES types mechanisms. This needs to build a coalition amongst the local government and politicians without whose support it will not be possible to persuade more powerful downstream beneficiaries like hydro-power projects to make any payments for upstream catchment conservation. Furthermore, currently there are already some one-time

payments being made by such downstream stakeholders under regulatory frameworks at the outset of project implementation for catchment area treatment. However, there is no system in place to ensure that these payments are directed towards upland communities or indeed towards conservation at all. In order to streamline this process too, there is a need to build up a coalition of key decision makers at the state level. Therb is a need to mainstream the RUPES agenda by making short presentations at existing meetings of relevant departments, bureaucrats and politicians at the state level. Some of the main stakeholders for this will be the State Forest Department, The Rural Development Department, The Himachal Pradesh State Electricity Board and the Finance and Planning Departments.

- The Great Himalayan National Park Conservation Area (GHNPCA) in the Kullu district of HP is to be proposed as a possible RUPES site in India by Winrock International India (WII). The GHNPCA and its surrounding Eco development zone is perhaps the last intact wildnerness that can be viably managed in the North West Himalaya, making it a prime candidate and provider of immense value for a range of environmental services, from landscape beauty to biodiversity conservation and watershed services. A pilot attempt to start a Community based eco-tourism programme has already been started by a local NGO SAHARA some years ago. This needs tremendous strengthening, SAHARA has a small group of dedicated and talented individuals who have formed a street theatre group to propagate messages on various social issues. Capacity building of this group will be a simple, strong yet cost effective method of creating awareness about the RUPES concept amongst the local upland communities. It will serve as a medium of consciousness creation living beyond the life span of any single project. WII will provide the RUPES themes in a simplified form to this group and facilitate through this proposal their training by a professional theatre person.

  (Courtesy: WII)

9.3 Will economic well-being alone contribute to Biodiversity Conservation?

The livelihood approach with a thrust on income generation activities may by itself be not enough for the conservation of biodiversity of the GHNPCA or the Sainj WLS (there are less than 90 residents in three villages of the Sainj WLS, however, the major pressures on its natural resources are from the ecozone of the ecozone of GHNP). These alternate income generation interventions have to be supported with a range of other measures and incentives besides economic incentives including effective policy and legislation, tenure security, empowerment, collaborative management, etc. By themselves, economic incentives are usually inadequate and unsustainable. Hence, the work on alternate income generation around GHNPCA needs to be supported with other measures that promote participation of communities in aspects of resource management.

However, the livelihood approach will facilitate the poor, and women to become part of the decision-making process. The economic uplifting of local communities may prepare the basis for developing a common understanding on the issues of participatory management of biological diversity, its importance to villagers and outside world, identification and protection of biodiversity hot spots, etc. The user groups can be developed into centres of

discussion on these aspects. This ultimately will lead into formation of common vision among the community members and govt. and non-govt. organizations.

Most of the 95 Women Saving and Credit Groups (WSCGs) through income generation activities are making **"choices"** (or decisions) about spending their savings in more productive manner, which is bringing financial stability, while the activities/services such as literacy programme, women and child health care, and Veterinary care will be able to bring changes in the social status of the poor women members of the WSCGs. This, in turn is expected to make the poor women's **"voice"** heard at the village political forum such as Panchayats/Mahila Mandals, etc.

Chapter 10 : Staff, Funding, Inter-Sectoral Co-operation, NGO and CBO Participation and Budget

The biodiversity conservation at the GHNPCA is being undertaken with the active involvement of the local community. At the moment there is no Divisional Forest Officer posted. The participatory approach being new, there is a need to post a DFO rank officer at GHNPCA who should assist the Conservator of Forests in the process of community participation. Moreover, the DFO will be able to assist the CF in the works of conducting training courses for the HPFD and other institutions at the Community Training and Tourist Center at Sai Ropa.

- **Recommended Action**

  Keeping in view the increasing workload, the following additional executive and ministerial officer/ officials (staff) are urgently required (for GHNPCA):

D C F (IFS)	1
Forest Rangers	2
Deputy Rangers	4
Forest Guards	8
Forest Workers	16
Stenographer	1
Jr. Asstt./Clerks	2
Cashier (Jr.Asstt.)	1
Chowkidar	2
Driver	2
Surveyor	1
Sweeper	2

- **Reorganization of Wildlife Beats**

  The wildlife beat will be such as can be conveniently patrolled by a patrolling party. The Group patrolling needs a Chowki System, whereby about two Forest guards, two Forest Workers and three or four Wildlife watchers can live in one place. Their families can stay in towns such as Kullu or Sainj or Banjar for the medical and education facilities of their children. Shakti and Bah are very appropriate places in Sainj WLS to have such Wildlife Chowki.

- **Funding for the execution of recommendations of the present Management Plan**

  The HPFD will be the main executing agency for the implementation of the present Management Plan for the GHNP. The management of habitat, trekking activities, man-wildlife conflict, grazing and

medicinal plant collection, WL and fire protection, Long Term Ecological Monitoring, capacity building of the staff, community and local NGOs are the main focal points for this Management Plan. The Conservator of Forest and the field staff will execute the work with the help of several collaborating agencies and individuals.

- **Funding Agencies**

  The main funding agencies for the Management Plan of GHNP will be as following:

  i. Himachal Pradesh Forest Department

  ii. Centrally Sponsored Schemes (CSS)

  iii. Forest Development Agency (FDA)

  iv. Funds from National Hydro Power Corporation for the wildlife management of the GHNP

  v. Biodiversity Conservation Society or BiodCS

- **Cross-sectoral co-operation**

  The importance of cross-sectoral co-operation for biodiversity conservation and generation of rural livelihoods has to be underlined by the implementers of the Management Plan of GHNP.

- **Recommended Action**

  i. Hold regular meetings, seminars and workshops for an effective information sharing process among the govt officials related to Panchayat Raj Institution, and departments such as Rural Development, Public Health, Electricity, Police, Tourism, Handicraft, Forest, Wildlife, Bee-Keeping, Education (Primary and Higher), Irrigation, Him Urja, Handloom, Industry, Veterinary, Women and Child Care, Literacy Mission, and others.

  ii. Involve the members of the Bar Association and local Press in process of the activities related to the biodiversity conservation at GHNP.

  iii. Provide a platform to local NGOs such as SAHARA and Jujurana Jeeve and user groups such as the Women Saving and Credit Groups to participate in the biodiversity conservation programme of the GHNP.

- **Budget: The Proposed budget is given in the Appendix 9**

  It is recommended that the budget for the works at the GHNP must be allocated well in advance so that the summer season is usedto execute the field works. It snows heavily in the GHNPCA, which must be the time to undertake only protection activites.

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Appendix 1

(Authoritative English text of this Department Notification No. Fts-II (B)-15-10/87 Dated 23.8.2001 as required under clause (3) of Article 348 of the Constitution of India)

Notification

No. Fts. II (B) 15- 10/87 Dated 23.08.2001

In exercise of the powers conferred under Sections 80 read with section 81 of the Indian Forest Act, 1927 (Act No. XVI of 1927), the Governor of Himachal Pradesh is pleased to make the following regulations, namely:

1. **Short title, application and commencement**

(1) These regulations may be called the Himachal Pradesh Participatory Forest Management Regulations, 2001.

(2) They shall apply to such Government forests and such Government lands including the common land, which shall be selected jointly for Participatory Forest management by the Society and the Department.

(3) They shall come into force from the date of publication in Rajpatra, Himachal Pradesh.

2. **Definitions - In these rules, unless there is anything repugnant in the subject or context,**

(a) "**Act**" means The Indian Forest Act, 1927, (Act No.16 of 1927) as amended in its application to Himachal Pradesh;

(b) "**Conflict Resolution Group**" means a group consisting of a representative of the concerned Gram Panchayat, a representative of the local non-government organizations or local community based organizations and the concerned Assistant Conservator of Forests;

(c) "**common land**", "**family**", "**Gram Panchayat**", "**Panch**", "**Pradhan**", "Village" and "**Ward**" shall have the meanings respectively assigned to them in the Himachal Pradesh Panchayati Raj Act, 1994 (Act No.4 of 1994);

(d) "**Department**" means the Himachal Pradesh Forest Department.

(e) "**Divisional Forest Officer**" means the forest officer in-charge of a territorial or wildlife forest division of the Department ;

(f) "**Executive Committee**" means executive body of the Society;

(g) "**Forest Officer**" means a Forest Officer as defined under sub-section (2) of section 2 of the Act;

(h) "**General House**", means General House of the Society;

(i) "**Government**" means Government of Himachal Pradesh;

(j) "**Grazier group**" means a group of persons, whether resident members or migratory graziers, who are dependent on the grazing resource in the selected area for meeting their livelihood needs;

(k) "**Micro-plan**" means a holistic forest management and development plan of the area selected for participatory management;

(l) "**participatory forest management**" means management of Government forest and Government land including common land managed jointly by the Society and by the Department;

(m) "**selected area**" means any Government forest and Government land including common land selected under regulation 3 of these Regulations;

(n) "**self help group**" means any organized group of persons, who collectively by mutual help are able to enhance their economic status through resource based activities;

(o) "**site specific plan**" means a sub component of the micro-plan which is a technically appropriate plan for the site;

(p) "**Society**" means village forest development society registered under section 3 of the Societies Registration Act,1860 (Act No.21 of 1860) for participatory forest management;

(q) "**sustainable forest management**" means management which is economically viable, environmentally benign and socially beneficial, and which balances present and future needs, and

(r) "**user group**" means a group of persons dependent upon a common natural resource for sustaining its livelihood need

3. **Intent of Participatory Forest Management**

(1) On an application made to the Divisional Forest Officer signed by at least 50 percent of the voters of a Gram Panchayat Ward, any Government forest and Government land including common land may be brought under participatory forest management. The land so identified shall be known as selected areas.

(2) In accordance with the wider objectives and plans of Government for sustainable forest management, the selected area shall be managed jointly by the Society and the Department on the terms and conditions of an agreement to be entered between the Society and the Department.

4. **Village Forest Development Society**

(1) There shall be a Society for a Gram Panchayat Ward. However, where the Ward is not compact and the hamlets within it do not have common forests, common grazing lands, common rights and concessions, more than one Society may be formed for each cluster of hamlets. The Society shall be registered under section 3 of the Societies' Registration Act, 1860 (Act No 21 of 1860).

(2) All voters of a Gram Panchayat Ward shall be entitled to be enrolled as members of the Society.

5. **Constitution of Executive Committee of the Society.** The Executive Committee shall consist of -

(a) President - to be elected by General House;

(b) Vice President - to be elected by General House;

(c) Four Members - to be elected by General House;

(d) Treasurer	-	to be nominated by the elected members from amongst the members of the Society;
(e) Joint Secretary (woman)		-do-
(f) Ward Panch	-	ex-officio member;
(g) President	–	Mahila Mandal -do-
(h) Representative	-	Local women group -do-
(i) Three Members	-	to be co-opted from the village level committees constituted by other departments of the Government; societies registered under the Societies Registration Act, 1860, (Act No.21 of 1860); user groups, self help group and grazier group;
(j) Member-Secretary	-	to be elected by the General House.

Provided that at least 7 members of the Executive Committee shall be amongst the women. Joint Secretary shall assist the Member-Secretary.

6. **Term of office of members of the Executive Committee.** Elected members of the Executive Committee shall hold office for a period of two years from the date of assumption of office.

7. **Powers of the Executive Committee.**- Elected members of the Executive Committee shall hold office for a period of two years from the date of assumption of office.

8. **Usufruct Sharing .**—The Society shall be entitled to the following benefits, namely:-

(a) to collect the yield such as fallen twigs, branches, loppings, grass, fruits, flowers, seeds, leaf fodder and non timber forests products free of cost;

(b) to the sale proceeds of all intermediate harvest, subject to protection of forest and plantations for at least 3 years from the date of agreement;

(c) to organize and promote vocational activities related to forest produce and land; and other activities such as promotion of self help groups which may provide direct benefits, including micro-lending to women. None of the activities so promoted shall affect the legal status of the forest land;

(d) recorded rights over the forest shall not be affected by these benefits;

(e) the Government shall charge no royalty on the forest produce within the selected area;

(f) after 5 years, the Society may expand the area, on the basis of a fresh agreement deed, by inclusion of adjoining or nearby areas;

(g) after 20 years from the date of agreement and based on the principles of sustained forest management, 75 percent of the net sale proceeds from the selected area shall be put into the account of Society and the remaining 25 percent of the net sale proceeds shall go to the concerned Gram Panchayat; and

(h) to utilize at least 40 percent of the sale proceeds on forest regeneration activities including soil and water conservation.

Provided that for the purpose of usufruct usufruct sharing family shall be one unit.

9. **Funds** Funds shall be generated by the Society through contributions by members and sale of usufructs under these regulations. All funds, including those received from the Government, Gram Panchayats and non-government sources, shall be utilized through the micro-planning process.

10. **Maintenance of accounts.** The sum received by the Society shall be deposited in the name of the concerned Society in a nationalized bank or scheduled bank or co-operative bank or post office and the account shall be operated under the signatures of the President, Treasurer and Member-Secretary of the Society.

11. **Grant-In-Aid**. The department shall release Grant-In- Aid to the Society under the Grant-In-Aid Rules subject to the availability of funds and satisfactory performance of functions by the Society.

12. **Settlement of dispute.** In case of any dispute in relation to usufruct sharing in the Society, the Deputy Ranger concerned of the Department, shall take steps to reconcile the dispute. In case the dispute is not resolved, the Deputy Ranger shall refer the dispute, along with his report to the Ranger Officer concerned of the Department. The Range Officer, after hearing the parties, shall resolve the dispute within 30 days from the date of receipt of report of the Deputy Ranger.

13. **Appeal.** An appeal shall lie from the decision of the Range Officer the Conflict Resolution Group to be filed within 30 days from the date of decision, who shall decide the same within 60 days from the date of filing of appeal, after affording an opportunity of being heard to the parties. The decision of the Conflict Resolution Group shall be final and binding on the parties. The Conflict Resolution Group shall send a copy of the decision to the Society and the Divisional Forest Officer concerned free of cost.

14. **Preparation of micro-plans:**

(1) A micro-plan shall be prepared for the holistic forest management and development of the selected area, by the Society. The Department shall help the Society in preparation of the micro-plan. A micro-plan shall be operative for a period of five years from the date of its approval by the Divisional Forest Officer and may be revised after three years. The micro-plan shall be passed in the general house with at least 60 percent majority of the members present.

(2) The Divisional Forest Officer may approve whole or part of the micro-plan.

15. **Powers of the Government.**- Notwithstanding anything contained in these regulations, the Government shall have the powers to issue directions to the Society on participatory forest management processes, micro-planning, co-ordination, monitoring, grant-in-aid and implementation mechanisms.

By order

FC- cum-Secretary (Forests) to the
Government of Himachal Pradesh

Endst. No. As above Dated. Shimla-2, the 23.8.2001.

Copy is forwarded to the following for favour of information and necessary action.

1. The Secretary, Government of India, Ministry of Environment and Forests, Paryavaran Bhawan, CGO Complex, Lodhi Road, New Delhi-3.
2. The FC-cum-Secretary (Finance-Reg) to the Government of Himachal Pradesh Shimla-2, with 3 spare copies.
3. The Pr.Chief Conservator of Forests, H.P. Shimla-1, with 20 spare copies.
4. The Addl. PCCF, HP Shimla-1.
5. The Accountant General (Audit), HP Shimla-3 with 5 spare copies.
6. All CCFs in Himachal Pradesh.
7. The Conservator of Forests, Planning, HP Shimla-1.
8. The Controller (P and S), HP Govt. Press, Shimla-5, for publication in the Rajpatra.
9. The Asstt. Controller (FandA), O/o PCCF, HP, Shimla-1.
10. Guard File.

Addl. Secretary (Forests) to the
Government of Himachal Pradesh

Appendix 2

NOTIFICATION

The Governor, HP is pleased to promulgate the following rules regulating payment of Grant-in-Aid to the Village Forest Development Societies under the Participatory Forest Management (PFM) schemes operative in Himachal Pradesh.

RULES

1.	**Short Titile and Extent**	(i)	These Rules may be called "Rules Regulating the Grant-in-Aid to the Village Forest Development Societies under the PFM schemes in Himachal Pradesh.
		(ii)	These Rules shall come into force immediately.
2.	**Definitions**		In these Rules, unless there is any thing repugnant in the subject or context:
		(i)	'Department' means the Himachal Pradesh Forest Department.
		(ii)	'Govt ' means the Government of Himachal Pradesh.
		(iii)	'Revenue' means the revenue administered by Himachal Pradesh Govt.
		(iv)	'Secretary' means the secretary to the Govt. of Himachal Pradesh in the Himachal Pradesh Forest Department.
		(v)	'Conservator' means the Conservator of Forests of the Circle concerned.
		(vi)	'DFO' means the Divisional Forest Officer of the Division concerned.
		(vii)	'PFM' means Participatory Forest Management.
		(viii)	'Society' means Village Forest Development Society.
3.	**Purpose of the Grant-in- Aid**		The purpose of Grant -in-aid is for the furtherance of objectives of PFM and its implementation through the Societies. The assistance in the shape of Grant -in- Aid would be meant for expenditure on plantation and pasture improvement, soil and water conservation, income generation activities, maintenance, fencing, protection etc., subject to the availability of funds, and based on such norms, and for such other purposes, as may be decided by the Govt. from time to time. All Grant-in- Aid disbursal will be guided by transparent norms, framed in advance, to govern

			not merely the unit of cost of different activities, but to also specify maximum costing for amounts for different activities and individual Societies would be entitled to.
4.	**Mode of Payment**		The amount of Grant-in-Aid shall be sanctioned and released quarterly by the DFO, keeping in view both, the norms and, within these, the requirement of the society, as well as available funds, on receipt of a written request for the Society, indicating the purpose for which it is required. Normally a self-contained proposal containing the demand for the whole year shall be furnished by the Society by 30th April every year for scrutiny of the DFO, prior to sanction.
5.	**Conditions for Sanction of Grant -in-Aid**		The sanction of the Grant -in-Aid shall be subject to following conditions:
		(i)	That the DFO shall have right to check the accounts of the Society, to satisfy himself that the Grant-in -Aid has been spent for the purpose for which it has been sanctioned. In case it is found that the Grant-in-Aid has been mis-utilised, it will be open to the DFO to recover the aid from the Society, and to stop further payment.
		(ii)	The assets acquired wholly or substantially out of Govt. grants would not, without the prior sanction of the Govt., be disposed of, encumbered or utilized for purposes other than those for which grants are sanctioned. The Society shall maintain a register in the form (as in Annexure-A) in respect of the permanent and semi-permanent assets acquired wholly or mainly out of Govt. grant. This register should be maintained by the Society separately in respect of each sanctioning authority to whom a copy thereof will be furnished annually for permanent record. The assets would be taken to means all immovable and movable property of capital nature where the value exceeds Rs. 1000/- Library books and articles of furniture will not, however, be included in it.
6.	**Maintenance of and Accounts Submission of Utilisation Certificates**	(i)	The Society shall maintain its accounts and records, and the same will be open to inspection by the nominee(s) so deputed by the Government.
		(ii)	An un audited utilization certificate will be furnished.

			furnished by the Society in respect of Grant-in-Aid released to the Society during a particular year by 15th April of next year, as per form in Annexure-B, to the sanctioning authority, who will furnish the same to the Accountant General HP. The account in respect of the Grant-in-Aid released to the Society for PFM activities during a particular year, under various PFM schemes, will be furnished by the DFO to the Accountant General (Audit) HP by the end of September of the next/ following year of sanction of Grant-in-Aid. The PFM account of the Society will be audited by a qualified Accountant, or any other agency approved by the Government, before December next, in order to ensure proper utilization of the amount of the Grant-in-Aid released by the department to the Society. Thereafter the Society will submit one copy of the audited utilization certificate in respect of each project activity to the DFO. The quarterly installment in respect of the Grant - in-Aid for a particular year will be released by the DFO on the basis of un-audited utilization certificate furnished by the Society.
7.	**Miscellaneous**		In order to ascertain the utilization of funds released to Societies by DFOs under various microplan activities, the Conservators shall furnish a half-yearly report on a prescribed format to the CCF-PFM.
8.	**Head of Account**		The expenditure on account of payment of Grant-in- Aid is to be charged under Head 2406 Forestry and Wild Life (Plan)- 01 Forestry - 800 Other Expenditure-06-SOON and 06-SOOS- under those schemes as may be included under PFM.

By order
FC-cum-Secretary (Forests)
to the Govt. of Himachal Pradesh.

Appendix 3

GOVERNMENT OF HIMACHAL PRADESH
DEPARTMENT OF FOREST

File No FFE-C (9)-1/2001 Dated 23.8.2001

NOTIFICATION

The Governor of Himachal Pradesh is pleased to promulgate the following scheme for sustainable management of forest resources in the State in collaboration with the local communities, namely:

1. This scheme shall be called Sanjhi Van Yojna Scheme, 2001.
2. It shall come into force with immediate effect.
3. The existing Sanjhi Van Yojna Scheme, 1998, the Parisharam Hamara Van Hamara Scheme, 2000 and the Apna Van, Apna Dhan Scheme, which was to be launched during the year 2001 shall stand clubbed with the Sanjhi Van Yojna Scheme, 2001.

1. **Objectives:** The present scheme shall have the following objectives:

   (i) Involvement of grass root level institutions such as gram panchayats, mahila mandals, yuvak mandals, ex-servicemen's bodies, schools, Village Forest Development Societies (VFDSs), User groups, other Community Based Organisations (CBOs) and NGOs in sustainable management of forest resources;

   (ii) Grant of 100 % income from plantations to the VFDSs and Panchayats;

   (iii) Grant of total usufruct rights to the VFDSs;

   (iv) Regeneration of degraded forest areas and conservation and sustainable use of better forests through community involvement.

   (v) Involvement of local communities in the choice of species to be planted under the scheme;

   (vi) Creation and enhancement of social, physical and financial capital of the participating communities for poverty reduction;

   (vii) Special emphasis on involvement of women in the scheme;

   (viii) Address problem of rural unemployment by utilising degraded forest land for large scale plantations;

   (ix) Establish linkage between Food for Work Programme and the present scheme by making payments in the shape of food grains under the scheme;

   (x) Increasing productivity of the Forest areas by improvement of nursery stock and adoption of mixed plantations

   (xi) Training of forest staff, VFDS members and CBOs / NGOs for facilitating and strengthening community participation.

   (xii) Gradually empower local communities and local level institutions to become more pro-active in sustainable forest management.

   (xiii) To help VFDSs achieve financial viability and sustainability by introducing proper mix of short and long duration cropping patterns as a short and long term objective to ensure their continued participation in the scheme.

2. Strategy

1. Recognise that participatory processes are critical to Sustainable Forest Management in HP.

2. Recognise that to institutionalise participation, strengthening of local institutions like the Panchayat, Forest Development Societies, User groups etc., *and* the forest department is essential.

3. Recognise the link between rural poverty reduction and the sustained and increasing availability of forest resources and access to them for the rural communities particularly the poor, to target pockets of poverty in the state.

4. Recognise that the role of the HPFD, as the main facilitating agency for PFM, will need to be complemented by a regular, equitable participatory system through which stakeholders on their own meet, debate strategic issues, consider optimal solutions and form partnerships. In strengthening the latter, the engagement of Non Governmental Organisations (NGOs) and Community Bases Organisations (CBOs) would be encouraged.

5. Recognise that Gender issues form a thematic concern in PFM. Thus a gender sensitive approach will need to be adopted within the HPFD and amongst the organised community groups involved with PFM.

3. Implementation

The scheme shall be governed by the PFM Rules, 2001 promulgated vide Notification No. Fts.II(B)15.10.87 dated 23.08.2001.

4. Coverage

(i) To begin with the existing 364 VFDSs and 153 VFDCs formed earlier under the Sanjhi Van Yojna and the Himachal Pradesh Forestry Project in Kullu and Mandi shall be brought under the umbrella of this scheme;

(ii) The scheme shall be extended to other areas subsequently.

(iii) In tribal areas of the state the scheme shall be implemented from the current financial year i.e. 2001-02.

5. Process Approach

Since Participatory Forest Management entails a process approach, the Sanjhi Van Yojna scheme shall not be target driven. For the long-term success and the sustainability of the village level institutions, it is important that proper and adequate methods of community organisation and management are followed. Thus, normally in the first year where the scheme is introduced, major emphasis will be on the systematic and sequential formation of VFDSs, training of staff, CBOs and community members. Towards the end of the first year, a well documented but simple and understandable micro-plan needs to be ready for approval and implementation during the next year. The procedure for approval of micro-plans as laid out in the PFM processes has to be strictly followed. The forest department may also begin creation / extension of nurseries in the first year so that plants are ready in the second year.

6. Funding

(i) The funding under Sanjhi Van Yojna scheme to the VFDSs for works to be carried out by them shall be made in the form of Grant-in-Aid (GIA) to the concerned society by the Divisional Forest Officer (DFO) concerned.

(ii) The Grant-in-Aid will be governed and regulated as per the GIA Rules notified vide Notification No. FFF-B-(G)9-6/99 dated 31.05.2000.

(iii) The GIA will be deposited in the bank account of the VFDS and unspent funds shall be allowed to roll over to the next financial year.

7. **Contribution by the VFDSs**

On the pattern of *Vikas Mein Jan Sahyog* policy of the Government, each VFDS shall be required to make a cash contribution of 15 % of the annual outlay under the approved micro-plan. This contribution can be made in instalments during the year provided each instalment will be 15 % of the GIA being released to the VFDS at one time. In the case of plantation work this contribution can be in the form of *shramdan* and deducted from the wage bill for the plantation work.

8. **Maintenance**

The maintenance of physical assets created shall be the responsibility of the VFDS concerned. For plantations, however, the forest department shall continue to supply planting material to the VFDS on demand, free of cost for three years including the year of plantation. Thereafter, for any more supply of plants price will be charged from the VFDS.

9. **Income Generation Activities**

(i) In order to enhance the economic stake of rural communities in the conservation and sustainable utilisation of forest resources as well as to create means of income for the VFDS and its members, forestry related income generation activities be promoted under Sanjhi Van Yojna scheme. Such activities may include water harvesting and its use for irrigation / drinking purposes. *In situ* or *Ex situ* growing of medicinal plants of high economic value within the selected areas or even on private lands. Value addition to medicinal raw drugs through simple semi- processing etc., and training in these. Introduction of improved grasses and development of village pastures. High-density fuelwood / fodder plantations. These examples are illustrative only and suitable income generation activities can be adopted as per the local conditions.

(ii) The income generation activities, however, may commence only in the second or third year of the micro-plan. The proportion of funds earmarked to support income generation activities shall be as enumerated in the subsequent paragraphs.

10. **Input Sharing Arrangement**

(i) The HPFD shall encourage social fencing by the VFDS as a matter of policy. Wherever necessity of physical fencing arises it will be done by using local materials like bushes etc. In order to encourage social fencing, funds that are normally spent on fencing, including cost of materials, will be made over to the VFDSs. The VFDS's shall then be free to use this money for protection of the plantations as they deem fit.

(ii) Tools, implements and other material required for carrying out activities under the approved micro-plans will be arranged by the VFDS.

11. **Usufruct Sharing**

(i) 100 % of forest produce including NTFPs and all intermediate harvest from the closed area(s) shall go to the VFDS.

(ii) 75 % of the final harvest will go to the VFDS and 25 % to the Panchayat. However, out of its share of 75 % from the final harvest, 40 % shall be earmarked to regeneration / conservation activities within the closed area(s) of that VFDS.

12. **Norms for allocation of budget**

The statement of annual plan of operations under various micro plans will be submitted by the DFOs to their respective Conservators, who will scrutinize these APOs vis-a-vis Micro plans submitted to them and will allot the budget accordingly. Component wise allocations will be made as per the ratio proportions given in the following table.

However, in the first and second year of the execution of the scheme, emphasis shall have to be placed on the initial processes of establishing nurseries, preparation of the micro plans, soil and

moisture conservation measures, workshops, and training. This will help achieve sustainability. Accordingly in the first two years of the scheme, the budget allocation will be at variance from the norms given in the table below:

Table showing norms for allocation of budget

S No	ACTIVITY		PROPORTION OF BUDGET
1	Lump sum	Preparation of MP	Rs. 5000/- for each MP
2	Micro plan activities. 80% (of this 15 % is to be contributed by the VFDS)	Plantation incl. grasses. NTFPs	60%
		Soil and Water conservation	15%
		Income Generation Activities	25%
3	Departmental Expenditure 20%	Establishment of Nursery	50%
		Trainings	20%
		Workshops	10%
		Monitoring	10%
		Contingencies	10%

By Order

(Avay Shukla)
FC – cum Secy (Forests) to the
Govt. of Himachal Pradesh

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Appendix 4
Pheasant Surveys

Pheasant Census

The following method is advised for tourists to observe/record their pheasants observations, systematically, in the Great Himalayan National Park:

CALL COUNTS

This method can be used for most of the pheasants which call during morning hours in their breeding season. The counts can be made from a strategic point in the habitat of the particular pheasant. The number obtained can be doubled for obtaining the estimate of breeding population (e.g., one male, one female). The following factors will influence observations

1. Season of the Year

   The counts of calling males assumes that all the existing males in the area will call every morning. In the western Himalayas, the calling behavior of three species of pheasants during various months of the year is as following.

Cheer	:	January to May; September to December
Koklas	:	January to June; September to December
Western Tragopan	:	April to June

2. Time of Day

   Most Koklas observations are made during a short period of early morning. The males usually call at dawn for 15 - 20 minutes. The Western Tragopan starts its song in early morning and continues intermittently throughout the day during breeding period. Cheer pheasants call in chorus at dusk and dawn

3. Position of Census Point

   Surveys will be more successful if a strategic point is selected in the habitat of pheasant. This site should be identified on the day before the survey/census. The census point should allow the observer to hear the birds over as wide an area as possible. A point on a ridge usually allows the observer to listen to the pheasant calls on both the sides. It is possible to hear all the calling birds within a radius of 400 meters from the ridge, however, this can be reduced by the intervening ridges.

4. Position of Observers

   When there are multiple observers taking part in census operation of pheasants, they must be positioned at an interval of about 500m to 600m. All the observers must have visited their observation points on the previous evening of the census day. They should be in position well before dawn so that all the calling pheasants are counted

5 Recording of Observations

The observer should have good knowledge of identification of the calls of pheasants which s/he is likely to encounter in the field. The observers should practice counting the involved numbers of calling birds. An approximate range of each call and the direction of the call, must be anticipated. A compass can be used by the observer.

It is best to have similar formats for all the observers. These formats will have following details:

- Date of observation
- Time of start and end of observations
- Altitude of the observation point
- Major vegetation types within the sample area.
- Weather conditions on the day of observation including wind speed, precipitation, cloud cover, temperature etc.
- Marking of observation points on a large scale map of the area (marking of a conspicuous point such as a rock or a tree which can be located for subsequent census in the same area.)

The completed observation form should be left at any GHNP office.

Appendix 5

Field Craft - How to Observe and Understand the Jungle

(Adopted from an account by Dr. AJT Johnsingh of WII)

When guards/officers/others venture into the forest they should be equipped with certain indispensable articles: a small sharp knife, a compass, a lighter or a match-box (covered in a water-proof polythene bag), leech-proof socks (if it is a leech country), a small rope, rain-coat (if it is in the rainy season or in an area of high rainfall), a good pair of field shoes and field dress (olive green or khaki), which will merge with the background.

Animals such as Himalayan Black Bear, Brown Bear and Leopard can move much faster than humans. At the first close encounter they may snort, roar or scream. These sounds when heard in the setting of the jungle can frighten us terribly and only experienced lucky persons who have survived these encounters will be able to tell us how week and wobbly their knees became after the first nerve-wracking encounter. We should not think that we can easily outrun and escape these animals which, as said earlier, are much faster than we are. Also the terrain on which we will have to run- with slope, many holes, sharp wooden stumps, tangle of creepers, dense tall grass, logs, and rocks- is not an ideal place to outrun these beasts which run with four legs while we have only two teetering legs.

Therefore, go with caution in a forest where there are dangerous animals. Please follow the dictum " I should see these animals before they see me and should hear them before they hear me". Do not talk unnecessarily. Human voice can be heard, even from a long distance, by the jungle animals, in the "silence" of the forest. If there is a need to communicate, better whisper and signal. The objective of our visit to the forest is to see as many animals as possible and observe them. This can be accomplished only when we move as quietly as possible. We spend a fraction of our life looking for and observing animals in the forests. During this brief period, we should be as quiet as possible and observant of the events that happen around us. Silence is an essential part of jungle-craft.

In the jungle, smokers should become non-smokers. This is necessary for several reasons: by not smoking (i) the animals will not be alerted by the smell of the smoke, (ii) we avoid setting fire to the jungle, (iii) we show the utmost reverence to the jungle which we have resolutely determined to conserve. When we walk along a forest trail, particularly when the wind carries our smell down the train, we should proceed with utmost caution. This is because animals like bear (particularly those which have had encounters with people earlier and therefore are not shy of people) can smell your approach and then either slink away or wait for your arrival. When the wind carries your smell down the path, walk slowly and silently, stop for a few seconds every 50-100 m, listen for sounds and then proceed. Most animals like bear make some sound and indicate their presence. All these can be heard if you walk silently.

Forest Rules

- Never approach dangerous animals like black bear (particularly with the cubs) very close when they are in a flat terrain. With caution it is possible to

approach them in a hilly or rocky terrain where the chances of escaping these animals are much greater.

- If there is a fresh blood trail on the path one should proceed carefully. A wounded animal (e.g. a bear wounded by a poacher) may be ahead of us and should turn aggressive if approached very close. The same is applicable to other potentially dangerous animals like the leopard.

- A leopard carrying its fresh kill may cause the fresh blood trail. Approaching a leopard on its fresh kill could be dangerous.

- While on a blood trail if there are alarm calls of monkeys, and birds ahead of us it could be an indication of the predator going ahead. Go with caution.

- If you are returning to your camp alone on foot late in the evening and if you see a dangerous animal (e.g. a bear with cubs), stop immediately. Stay at a safe distance. Hide behind a tree or rock, observe the animal and then by talking, by tapping on the tree with a stone or wood, or even by allowing the wind to carry your smell let the animal know that a human being is somewhere in the vicinity. The presence of the unseen human being makes most animals nervous and they make a slow but steady retreat away from your direction. Who will enter in to a patch of tall dense grass where you hear the hissing of a cobra but don't see the snake? We will move away from the area. The great naturalist Dr. George B. Schaller has successfully used the above technique of remaining unseen and scaring away the Himalayan black bears in Dachigam National Park, Kashmir, India.

- Do not stumble through the forest without carefully looking at the path.

- Climbing a steep hill slope by clinging on to trees, climbers and rocks. Particularly in a tropical habitat, needs to be done with great caution. Before placing the palms, which like the feet are not protected, to hold on to some thing, watch carefully. There could be a scorpion, a nettle plant or a wasp nest nearby.

- People often fail to differentiate between chasing and charging by a bear. Charging may stop with a forward aggressive rush for 20-50 m but chasing can go much beyond that even for a few hundred meters which could be very dangerous. When chased by an animal throw a conspicuous object (e.g. a white hand-kerchief) on a bush and run down a slope or run zig-zagging among the bushes. Put up as much distance as possible between you and animal. While chased, do not crouch inside a bush hopping to hide.

- When chased by an animal, never try to climb a tree. A jungle- living tribal can do that but not a guard if he is recruited from a town or a Manager who is not used to tree-climbing. The fear would drain all the energy needed to climb.

- Sometimes you will be forced to walk through the forest at night. If you are in a group, stay together. As you walk along make some noise (talk, sing, or tap on a tree or rock at regular intervals). Don't surprise animals by walking in to them. Tap the ground periodically, as you walk along, either with your foot or

a stick. The vibrations will keep the snakes away and most animals will also move away when they are warned from a distance.

Water

- Before you go in to the forest for the day drink as much water as possible which will help you manage most of the day with out drinking further. If you are going to work in a hot, humid area and the work involves a lot of climbing, then carry enough clean (boiled) water with you.
- Avoid drinking from dirty streams or stagnant pools unless desperate. If available, use halide purifying tablets or a filter before drinking.
- If forced to drink from stagnant sources, drink sparingly.
- Dig a hole for water where animals, have scraped in a depression. You will get clean water.
- A plastic sheet laid over vegetation at night will attract condensation beneath it and this can be channeled to a mug for collection.

Emergency Food in the Jungle

As soon as you start working as a forest guard or a Manager, learn as much as possible from the jungle-living people about edible plants including tubers and mushrooms. Remember you can last several days without food but you should drink every day.

If you are desperate to eat, remember the following. All palm shoots (heart) are edible. Most bamboo heart is edible (although some are very bitter). Young shoots of most grasses are edible. The young leaves of most plants are less toxic than mature leaves. Fruits that are eaten by monkeys or hornbills are less toxic (but not necessarily totally safe). Figs are generally safe though often very dry and fluffy. It is safer to eat a little of several plant than to eat a lot of one. So do not eat much of any doubtful food. If you can catch or kill an animal, or come across a fresh kill, eat the fresh meat and dry the remaining in the sun to keep it from rotting. But make sure before you approach the kill that the owner, particularly if it is a leopard, is not around. Cooked snakes, Varanus, and frogs are edible.

Keeping Warm

Sleeping out in the forest at night can be very cold. If you are expected to stay out, take a tent and/or sleeping bags. If you are forced to spend the night out unprepared, keep warm by wearing all your clothes with the driest closest to your skin. Try to keep you self dry. Heat is lost much faster if you are wet. Curl in a tight ball. Cling close to a companion. Another way to keep warm is to do some physical exercise. Keep out of the wind. Lie on the ground rather than on a platform. Try to find a dry hollow in the ground, a hollow tree, rock shelter, etc. or make a roof of palm leaves, banana or other large leaves to keep away the wind.

Making a Temporary Shelter

Guards are often caught in the rain or may have to stay out a night. Sometimes they must occupy a campsite in the forest for several days. A variety of simple shelters can be used. If patrols need to spend the night in very cold conditions, they should take tents and sleeping bags but in tropical conditions these are often not needed and it takes less effort to sleep rough than carry extra luggage.

In the dry season, a simple branch shelter will be adequate for warmth and protection. In the rainy season, a plastic sheet that can be spread over a horizontal pole will be an adequate shelter. In wet conditions, raincoats will be required which can also be suspended as rain shelters placed on the ground as a dry ground sheet. If you have to stay for several days in the same camp it is usually worth making a raised platform to get of the damp floor. Sandy beaches are comfortable places to sleep. Remember that in the rainy season rivers can rise suddenly and you may have to evacuate your comfortable camp in the middle of the night at short notice ! Selection of camp-site is important for convenience (not far form water) and safety (not under a large tree with dead branches).

Making a Fire

Fires need to be built to cook food, keep warm, keep animals away at night, or as a signal if in trouble. The following should be remembered while building a fire. Start a small fire with dry tinder-paper, dry grass, dry leaves, knife scrapings from a dry inflammable bit of wood such as pine or hardwood, dead bamboo, bamboo scrapings, etc. Have small dry twigs or wood scrapings available for when the tinder lights. Gradually pile on larger and wetter materials as the fire grows. Built the fire in a sheltered place. Allow plenty of air to flow through the fire. Do not choke it. Light the fire on a sandy beach or scrape away the leaf litter to make sure the fire can't spread to the surrounding natural vegetation. Make sure the fire is dead before leaving it.

Leaving Signals

If you wish to leave signals for others to find you (in case of an accident or being lost in the jungle) or if you yourself want to leave a trail to return through confusing terrain, devise a suitable code.

Do not litter the area with confusing signals. Paths can be marked by simply bending over the terminal branches of saplings or bushes every few meters. The reversed leaves will stand out quite clearly even in torch light but the signs will be clear only for a few days. You can leave scratch signals such as arrows or initials on bare earth at forest path junctions or leave a broken twig of leaves pointing in the direction you have followed. Similarly, you can leave dead stick across the month of a trail you did not follow. You can use several stones to make an arrow and show the direction in which you have gone. More detailed written notes can be left at regular crossroads or prearranged posting places (e.g. tree holes, rock crevices), which are known to your colleagues.

In Case of Accident or Getting Lost

If you are seriously injured by an accident, try to reach a place/path, which is frequently by wood/grass cutters, poachers, honeycollectors. Stay near the path, if possible in a safe place (e.g. on a rock) and wait for help. If lost in very difficult terrain, follow a river/stream, which may take you out of the forest after a day or two. If stranded in a leech-infested forest spend the night on a rock in the middle of the river/stream. It may be cold, but will prevent your blood being drained by the leeches.

Practicals Each guard/officer should be persuaded to tell an interesting experience he has had in the jungle during his career.

Appendix 6

Autumn WL Surveys/Census, 15th November 2003

Animals	Area searched during Census	Direct Sightings	Density based on Direct sightings	Additional Signs / evidences	Density based on Indirect sightings
Monal	1.2 sq. kms	22	18.3	Pheasant Droppings: 45 WT feathers : 2	WT = 2.5
Koklash	.8 sq. kms.	6	7.5		
W. Tragopan	.8 sq kms	Nil			
Ghoral	.8 sq. kms	4	5	Droppings: 38	
H. Tahr	.4 sq. kms	Nil		Hoof marks; droppings : 28	28 animals in a small area
Musk Deer	.8 sq. kms	4	5	Latrine sites: 8	
Brown Bear	.2 sq. kms	2		Latrine sites: 14	
Black Bear	1.2 sq. kms	1		Latrine sites: 5	
Common Leopard	1.2 sq. kms	Nil		Scats: 5	
Small Mammals	1.2 sq. kms	Nil		Scats, hair, etc: 18	

Conducted by Sanjeeva Pandey and party in Dhel meadow (altitude 3737 m)

Spring Census: February 2004

Survey 1

Date : 20.02.2004 to 21.02.2004 Party member : Sh. Bhupinder Singh, Fgd.

Route Name : Goshaini to Chalocha 16 Kms.

Wildlife Survey - Party location: Goshaini to Chalocha 16 Kms

Ghoral	Martin	Monal	Koklas	Kalij	Langoor
12	One pair	8 Male 5 Female	2	6	28 (1)

Survey 2

Date : 28.2.2004 to 2.3.2004 Party member : 1. Sh. Ravinder Singh, DR
2. Tulsi Ram, Fgd.
3. Tek Singh, Fgd.

Route Name : Given below

Route Name	Distance covered (km)	Number of animals/birds							
		Lang.	Monal	Ghoral	Kok	Mon.	Rock pigon	Martin	Vulture
Sai-ropa to Rollah	15	20(1)	-	-	-	-	-	-	3
Rolla to Bassu and back	20	-	M25 -10 -15	3	3	15(1)	20	2	-
Rolla Sungcha-Shilt and back	18	25(1)	30	15	3	10(1)	29	-	5
Rolla to Sairopa.	15	30(1)	-	-	-	-	-	-	-

Survey 3

Date : 28.2.2004 to 2.3.2004 Party Member : Sunder Singh, Fgd.
Dev Raj, Fgd
Dile Ram, Fgd
Roshan Lal, II Fgd
Bhupinder Singh, Fgd.

Route Name : Given below

Route Name	Distance covered (km)	Number of Animals/birds								
		Lang	Vul-ture	Gho	Monal	Kok	W/T	Rock Pigeon	H. Thar	Monkey
Sairopa to Rolla	15	20(1)	3							
Rolla to Shil Chhoodwn-Khodu Dhar and Bude Rolla	26	30(1)	-	18	50 M-22 F-28	4	1 Lem			22(1
Ralla to Nara and back Rolla	26	35(1)	7	-	40 M-18 F-22	3	-	60	25	-
Rolla back H.Qu	15	30(1)								

Survey 4

Date : 13.2.2004 to 14.2.2004 Party Member : Anil Kumar, Fgd.
Mehar Singh, Fgd.
Narotam Singh,Fgd.

Route Name : Given below

Route Name	Distance covered (km)	Number of Animals/birds								
		Langur	Vulture	Ghoral	Monal	Kok.	W/T	Rock Pigeon	H. Thar	Monkey
Rakhol Ban	4	-		3	7 M-2 F-5	2	-	-	-	15 (1)
Rakhol ban to Heen thatch	5	-	-	6	5 M-2 F-3	2	-	-	-	-
Majahan to ganticol	12	27	-	-	19 M-8 F-11	4	-	-	1	11 (1)

Survey 5

Date : 16.2.2004 to 20.2.2004 Party Member : Shri Nirlep Kumar, Fgd.

Route Name : Given below

Route Name	Distance covered (km)	Number of Animals/birds								
		Langur	Martin	Ghoral	Monal	Kok.	Kalij	Kakar	H. Thar	W.T
Neuli to Shakti and back	12	-	2	3	8 M-3 F-5	-	1	-	1	1
Lapah to Tiku Pather and back	16	10	-	4	M-4 F-11	6	1 (Foot print)	-	-	-

Survey 6

Date : 20.2.2004 to 24.2.2004 Party Member : Shri Room Singh, Fgd.

Route Name : Given below

Route Name	Distance covered (km)	Number of Animals/birds								
		Langur	Monkey	Ghoral	Monal	Kok.	Serow	H. Tahr	Kalij	W.T
Shakti to gahu thatch	8	-	-	7	11- 26	21	-	-	23	1
Shakti Gaur Maroi	22	-	48 (1)	13	5-6	27	-	9	29	1

Survey 7

Date : 14.2.2004 to 16.2.2004 Party Member : Shri Jai Dev, Fgd.

Route Name : Given below

Route Name	Distance covered (km)	Number of Animals/birds								
		Langur	Monkey	Ghoral	Monal	Kok	Golden eagle	H. Tahr	Kalij	W.T
Pashi to Gati Pat	5	-	-	7	3	1	-	-	5	-
Gati to Majhan Galu	8	23(1)	-	8	14	9	-	-	5	-
Kunder to Shiphad	9	-	-	12	9	10	3	-	-	-

Appendix 7
Selected Species for LTEM in GHNP

Monitoring Species	:	Himalayan monal (*Lophophorus impejanus*)
Local Name	:	Monali, Kardi
Family	:	Phasianidae
Monitoring Category	:	Animal-Pheasant
Monitoring Code	:	GHNP/02/034
Status	:	Vulnerable (IUCN), Schedule – I, Wildlife (Protection) Act, 1972

Species Description

A medium sized bird. Male has brilliant metallic green except the head part; back and sides of the neck changeable reddish copper, metallic golden green; chin and throat black. A long racket-shaped feathers on the middle of the crown. Female has head and upper parts dark brownish black with warm buff margins. Wing quills black, rump white. A whistling call in flight; flies into trees when flushed and freezes.

Local Distribution

Found in upper temperate forest areas between 2,000 m to 3,000 m in the GHNPCA.

Threats

Poaching for collection of crest is the main threat. Forest fires and predation of nests by accompanied dogs of herb collectors are also considered as other threats.

Conservation Significance

The state bird of Himachal Pradesh. One of the five pheasant species occurring in the GHNPCA.

Monitoring Need

Population declining due to disturbance in habitat. The population is probably on decline due to poaching and habitat disturbance.

Monitoring Locations

Five monitoring sites - two locations in Tirthan valley - Grahani 'thach' and Basu, Two in Sainj valley Homkhani and Jognidhar and one in Jiwa valley in Gatipat were selected for its monitoring.

	Elevation	Slope	Aspect
Grahani in Tirthan	2,700	35 degree	SE
Basu in Tirthan	2,600	40 degree	N
Homkhani in Sainj	2,600	30 degree	SE
Jognidhar in Sainj	2,700	45 degree	SE
Gatipat in Jiwa	2,600	40 degree	S

Monitoring Frequency	:	Fortnightly (January to March)
Monitoring Parameters	:	Encounter rate
Monitoring Methods	:	Trail walk and call count method

Monitoring Species	:	Western Tragopan (*Tragopan melanocephalus*)
Local Name	:	Jujurana
Family	:	Phasianidae
Monitoring Category	:	Animal-Pheasant
Monitoring Code	:	GHNP/02/035
Status	:	Vulnerable (IUCN), Schedule - I, Wildlife (Protection) Act, 1972

Species Description

Most spectacular bird. Male has black head with long crest feathers tipped with red; back and sides of neck red, upper parts finely vermiculated buffish grey. Feather with a terminal white with black dots. Female has upper part with pale brownish grey and spotted with black patches.

Local Distribution

Found in upper temperate conifers and mixed conifer forest areas between 2,000 m to 3,500 m in the GHNPCA.

Threats

Poaching is the major threat. Any disturbance to its habitats such as ground fires, predation of nest by dog and presence of large number of people during breeding can disturb the species.

Conservation Significance

Rarest of all living pheasants. GHNPCA is among the two NPs in the world to support its population and habitat.

Monitoring Need

Being an endangered species and likely to be affected by different types of disturbance monitoring of this species is justified

Monitoring Locations

Three monitoring sites - two locations in Tirthan valley in Chordwar, Kholipoi and Shakti nala in Sainj valley were selected for its monitoring.

	Elevation	Slope	Aspect
Chordwar in Tirthan	2,600	40 degree	S
Kholipoi in Tirthan	2,800	30 degree	N
Jognidhar in Sainj	2,700	45 degree	SE

Monitoring Species	:	Koklass (*Pucrasia macrolopha*)
Local Name	:	Khoksha
Family	:	Phasianidae
Monitoring Category	:	Animal-Pheasant
Monitoring Code	:	GHNP/02/036
Status	:	Schedule - I, Wildlife (Protection) Act, 1972

Species Description

A medium sized bird. Male has metallic green head and horn like ear tufts. Large white patch on the side of the neck. Female has white throat, underside black and brown.

Local Distribution

Found in upper temperate conifer and mixed conifer forest areas between 2,000 m to 3,500 m in the GHNPCA.

Threats

Poaching, fire, nest predation and disturbance in the habitat by herb collectors are threat to its population.

Conservation Significance

One species of the assemblies of five pheasants and endangered.

Monitoring Need

Endangered status and being under constant threat due to various biotic factors calls for its monitoring.

Monitoring Locations

Three monitoring sites - Chordwar and Kholipoi in Tirthan valley, Jognidhar in Sainj were selected for its monitoring.

	Elevation	Slope	Aspect
Chordwar in Tirthan	2,900	40 degree	S
Kholipoi in Tirthan	2,700	30 degree	N
Jognidhar in Sainj	2,700	45 degree	SE

Monitoring Frequency	:	Fortnightly (January, February, May)
Monitoring Parameters	:	Encounter rate
Monitoring Methods	:	Trail walk and call count

Monitoring Species	:	Goral (*Nemorhaedus goral*)
Local Name	:	Goral
Family	:	Rupicaprinae
Monitoring Category	:	Animal - Herbivore
Monitoring Code		GHNP/03/037
Status	:	Common

Species Description

A goat like animal forming a small crest on the neck. Yellowish grey suffused with black. The chin, upper lip, underside of jaws and throat patch are white. Horns are short, diverge slightly, curve backward and marked with rings.

Local Distribution

The species occurs in upper temperate conifer and mixed conifer forest areas between 2,000 m to 3,500 m in the GHNPCA.

Threats

Poaching for meat is one major threat.

Conservation Significance

A major prey species for wild predators

Monitoring Need

Population declining due to poaching.

Monitoring Locations

Five monitoring trails were selected. Three trails were in Tirthan valley, two in Sainj valley and one in Jiwa valley.

	Elevation	Slope	Aspect
Chalocha-Nada in Tirthan	2,600-3,300	60 degree	NW
Rolla-Basu in Tirthan	2,100-3,000	35 degree	N
Rolla-Shilt in Sainj	2,100-2,800	35 degree	SW
Shakti-Jognidhar	2,100-2,700	45 degree	SE
Gatipat-Majhan in Jiwa	2,600-2,900	40 degree	S
Majhan-Shugard	2,800-2,850	60 degree	SW

Monitoring Frequency	:	Annually during February
Monitoring Parameters	:	Abundance
Monitoring Methods		Line transect method

Monitoring Species	:	Musk deer (*Moschus chrysogaster*)
Local Name	:	Male – Kasturi; Female - Bina
Family	:	Bovidae
Monitoring Category	:	Animal-Herbivore
Monitoring Code	:	GHNP/03/038
Status	:	Schedule - I, Wildlife (Protection) Act, 1972

Species Description

It is dark brown speckled with grey, horn less deer more than 50 cm high. Male has long canine teeth, the musk gland is situated beneath the skin of the abdomen of male.

Local Distribution

Mainly occurs in the sub-alpine and alpine areas between 3,300 m to 4,000 m in the GHNPCA.

Threats

Poaching and habitat destruction are two main threat to the species.

Conservation Significance

A highly endangered species of the high altitude ecosystem.

Monitoring Need

The population is always under threat of poaching and habitat destruction and thus declining.

Monitoring Locations

Three monitoring sites, one Gumtarao in Tirthan valley, one in Dhela in Sainj valley, and one in Gatipāt of Jiwanal are selected for monitoring.

	Elevation	Slope	Aspect
Guntarao in Tirthan	3,600	40 degree	NE
Dhela in Sainj	3,400	60 degree	NE
Gatipat in Jiwa	2,600-2,900	40 degree	S

Number of Monitoring Points	:	1
Monitoring Frequency	:	Half yearly (May and October)
Monitoring Parameters		Abundance
Monitoring Methods		Silent drive count method

Monitoring Species	:	Blue sheep (*Pseudois nayaur*)
Local Name	:	Meattu (Bharal)
Family	:	Bovidae
Monitoring Category	:	Animal-Herbivore
Monitoring Code	:	GHNP/03/039
Status	:	Schedule - I, Wildlife (Protection) Act, 1972

Species Description

It is brownish grey suffused with slate blue in colour. Horns are rounded and smooth, curved backwards over the neck and look like a goat. They generally live in flocks of 10 to 40.

Local Distribution

Found in alpine areas between 3,000 m to 4,800 m in the GHNPCA.

Threats

Poaching and habitat disturbance can be visualized as threats.

Conservation Significance

Endangered status and prey species of snow leopard.

Monitoring Need

A species of high concern. Thus, it requires monitoring.

Monitoring Locations

Three monitoring sites – one in Tirth area of Tirthan valley, one in Sartoo pond area in Khandedhar, and other one in Raktisar in Sainj valley were selected for monitoring.

	Elevation	Slope	Aspect
Tirath in Tirthan	4,200	40 degree	SE
Raktisar in Sainj	4,500	70 degree	NW
Sartoo in Khandedhar	3,900	45 degree	SE

Number of Monitoring Points	:	3
Monitoring Frequency	:	Annually during September
Monitoring Parameters	:	Abundance
Monitoring Methods	:	Scanning method

Monitoring Species	:	Himalayan tahr (*Hemitragus jemlahicus*)
Local Name	:	Karth bakri
Family	:	Bovidae
Monitoring Category	:	Animal-Herbivore
Monitoring Code	:	GHNP/03/040
Status	:	Schedule - I, Wildlife (Protection) Act, 1972

Species Description

A wild goat with heavy body and long robust limbs. It is generally deep reddish brown with dark mid-dorsal streak. Old male are darker, young's are lighter brown. The horns are short and stout at the base, keeled in front, and wrinkled except towards the tip.

Local Distribution

The species is found between 2,800 m to 4,000 m in the GHNPCA.

Threats

Poaching and habitat disturbance are two main threats to this species.

Conservation Significance

One of the major prey species.

Monitoring Need

This species is under constant threat. Hence, monitoring is required.

Monitoring Locations

Three trails, two in Tirthan valley and one in Sainj valley were selected for its monitoring.

	Elevation	Slope	Aspect
Chidor-Nada in Tirthan	2,800-3,300	40 degree	SE
Guntarao-Patal in Tirthan	3,600-3,000	70 degree	SW
Dhela in Sainj	3,400	60 degree	SE

Number of Monitoring Points	:	5
Monitoring Frequency	:	Half yearly (May and June)
Monitoring Parameters	:	Abundance
Monitoring Methods	:	Scanning method

Monitoring Species	:	*Papilio machaon* (Moore)
Common Name	:	Yellow swallowtail
Monitoring Order	:	Lepidoptera
Family	:	Papilionidae
Monitoring Category	:	Animal - Insecta
Monitoring Code	:	GHNP/04/048
Status	:	Rare

Species Description

This butterfly is with yellow and black colour. The hindwings have fairly short tail and are variably marked with orange patches.

Local Distribution

A high altitude butterfly found up to 4,000 m areas of the GHNPCA. It is usually found on short flowering plants of the alpine region.

Threats

A large scale collection of medicinal herbs may affect the life cycle of this butterfly.

Conservation Significance

One of the important pollinator species.

Monitoring Need

The species is sensitive to disturbance or change in native vegetation. Thus, as indicator of disturbance to the native ecosystem requires monitoring.

Monitoring Locations

Tirath in Tirthan valley and Dhela area in Sainj valley were selected for monitoring.

	Elevation	Slope	Aspect
Tirath in Tirthan	4,000	15-35 degree	W
Dhela in Sainj	3,400	15-35 degree	SE

Monitoring Frequency	:	Annually during May and June
Monitoring Parameters	:	Abundance of the species
Monitoring Methods	:	Counting of individuals on the selected trail (walk count).

Monitoring Species	:	*Parnassius hardwicki viridicans* Fabricus
Common Name	:	Common blue apollo
Monitoring Order	:	Lepidoptera
Family	:	Papilionidae
Monitoring Category	:	Animal - Insecta
Monitoring Code	:	GHNP/04/049
Status	:	Endangered

Species Description

Creamy white, with red marking on the forewing

Local Distribution

A high altitude butterfly found up to 4,000 m altitudes of the GHNPCA. A fast flying species, fly close to the ground.

Threats

A large scale collection of medicinal herbs and livestock grazing are the major threats to the normal life cycle of this butterfly.

Conservation Significance

The endangered status and prominent pollinator.

Monitoring Need

The species is sensitive to any type of change in its habitat. This calls for its monitoring.

Monitoring Locations

	Elevation	Slope	Aspect
Urath in Tirthan	4,000	15-35 degree	W
Dhela in Sainj	3,400	15-35 degree	SE

Monitoring Frequency	:	Annually during May and June
Monitoring Parameters	:	Abundance of the species
Monitoring Methods	:	Counting of individuals on the selected trail (walk count)

Common Name	:	Yellow and white butterflies
Monitoring Order	:	Lepidoptera
Family	:	Pieridae
Monitoring Category	:	Animal - Insecta
Monitoring Code	:	GHNP/04/050
Status	:	Common

Family Description

Most of the species of this family are predominantly white, yellow, or orange in colour. The most common species are cabbage white commonly available in gardens.

Local Distribution

These species are sun loving and found in large congregation near the river or stream bed and sucking moisture and salt. They are found upto 3,000 m in the GHNPCA.

Threats

The use of insecticides in the Ecodevelopment zone can affect these life cycle of these butterflies. Collection of host plant is also one of the threats.

Conservation Significance

Important pollinating species. Sensitive to changes in native vegetation.

Monitoring Need

As indicators of disturbance to native vegetation, the group of these butterflies require monitoring.

Monitoring Locations

Nevli to Bah area and Dhela in Sainj valley were selected for monitoring of butterflies of family Pieridae.

	Elevation	Slope	Aspect
Nevli-Bah	1,500-1,800m	15 degree	S
Dhela in Sainj	3,400	15 degree	E

Monitoring Frequency	:	Annually (March - April-June)
Monitoring Parameters	:	Abundance of the species
Monitoring Methods	:	Counting of individuals on the selected trail (walk count).

Common Name	Lady bird beetle
Monitoring Order	Coleoptera
Family	Coccinellidae
Monitoring Category	Animal - Insecta
Monitoring Code	GHNP/04/052
Status	-------

Family Description

The ladybird beetle is minute or small circular or oval, with black, yellow, brown, red and often spotted. Most of the species of this family feed on small soft-bodied insects and plants.

Local Distribution

Species of this family are widely distributed and recorded up to 3,700 m in the GHNPCA

Threats

Use of increased insecticides in the Ecodevelopment zone is the main threat

Conservation Significance

Play role in the biological control, they feed on aphid.

Monitoring Need

This species is sensitive to disturbance

Monitoring Locations

Dhela area in Sainj valley was selected of monitoring of beetle belonging to the Family Coccinellidae.

	Elevation	Slope	Aspect
Dhela in Sainj	3,400	15 degree	E

Monitoring Frequency	Annually (May – June)
Monitoring Parameters	Abundance of the species
Monitoring Methods	Counting of individuals on the selected trail.

Common Name	:	Tiger beetle
Monitoring Order	:	Coleoptera
Family	:	Cicindelidae
Monitoring Category	:	Animal - Insecta
Monitoring Code	:	GHNP/04/053
Status	:	-------

Family Description

The tiger beetle with brilliant green in colour, spots on elytra. They occur in open sandy places in riverbank or streams.

Local Distribution

Species of this family were recorded upto 2,500 m in the GHNPCA.

Threats

Increased use of insecticides in the Ecodevelopment zone seems to be one major threat

Conservation Significance

Tiger beetle are recognised as a good Indicator for biodiversity.

Monitoring Need

Universal acceptance of Tiger beetle as an indicator species signifies importance for its monitoring.

Monitoring Locations

Rolla area in Tirthan valley was selected for monitoring of Tiger beetle.

	Elevation	Slope	Aspect
Rolla in Tirthan	2,100m	15-45 degree	N

Monitoring Frequency	:	Annually (August – September)
Monitoring Parameters	:	Abundance of the species
Monitoring Methods	:	Counting of individuals on the selected the trail

Common Name	:	Dung beetle
Monitoring Order	:	Coleoptera
Family	:	Scarabaeidae
Monitoring Category	:	Animal - Insecta
Monitoring Code	:	GHNP/04/054
Status	:	-------

Family Description

The dung beetles are small or very large, robust smooth and shiny. They mostly feed on dung of various mammals.

Local Distribution

Species of this family were recorded up to 2,500 m in GHNPCA.

Threats

Forest fire and use of insecticides in Ecodevelopment zone are considered two major threats.

Conservation Significance

They improve the soil fertility by rolling the dung and bury them in the underground chambers.

Monitoring Need

As an indicator species.

Monitoring Locations

Rolla area in Tirthan valley was selected for monitoring of Family Scarabaeidae.

	Elevation	Slope	Aspect
Rolla in Tirthan	2,100m	15-45 degree	N

Common Name	Long horn beetle
Monitoring Order	Coleoptera
Family	Cerambycidae
Monitoring Category	Animal - Insecta
Monitoring Code	GHNP/04/056
Status	-------

Family Description

The long horn beetle is usually large, somewhat flat with very long antennae.

Local Distribution

Species of this family were recorded up to 3,500 m altitudes in the GHNPCA.

Threats

Forest fire.

Conservation Significance

Serious forest pest on conifer and oak species

Monitoring Need

Considered to be an indicator species

Monitoring Locations

Shilt area in Tirthan valley was selected for monitoring of Family Cerambycidae.

	Elevation	Slope	Aspect
Shilt in Tirthan	2,800m	15-45 degree	S

Monitoring Frequency	Annually (August – September)
Monitoring Parameters	Abundance of the species
Monitoring Methods	Counting of individuals on the selected trail

Monitoring Species	:	*Taxus wallichiana* Zucc
Local Name	:	Rakhal
Family	:	Taxaceae
Monitoring Category	:	Plant - Tree
Monitoring Code	:	GHNP/01/001
Status	:	Endangered - IUCN

Species Description

Medium-sized evergreen tree, occurs sporadically in shady places usually in the understory of *Abies* forests. The foliage with dark green and bark with reddish-grey colour. Fruit red fleshy concealing the single olive green seed. Fruiting season is September to November.

Local Distribution

In GHNPCA it is distributed in certain patches between 2,600 m to 3,400 m altitude in Tirthan, Sainj and Jiwa valleys with records of new seedlings and saplings.

Uses and Threat

Bark and leaves are heavily lopped and sold thus, causing decline.

Conservation Significance

Bark and leaves are source of Taxol-a potent anticancer drug, used in treatment of ovarian and breast cancer. Leaves are also used in Ayurvedic medicines for the treatment of asthma and bronchitis. The habitat of *Taxus* provides shelter to pheasants like Himalayan monal and Western tragopan. Many other birds preferred its fleshy fruit.

Monitoring Need

The high price of Taxol in the world market, causing serious reduction in population.

Monitoring Locations

Two sites in Tirthan valley were selected for the monitoring of *Taxus*. One is Kholpot in Banoi protected forest and about 10 km from Rolla hut. Another point is Chordwar in Rolla protected forest and about 2 km from Shilt *thach*. Both the points have been marked with paint and aluminum foils.

	Elevation	Slope	Aspect
Kholpot in Tirthan	2,800m	20-45 degree	N
Chordwar in Tirthan	2,600m	30-40 degree	S

Monitoring Frequency	:	Once in 5 years in month of May.
Monitoring Parameters	:	No. of individuals, Girth at breast height (cm), regeneration – seedlings, saplings, tree height (m) and number of affected trees by lopping, girdling and dead trees so as to determine frequency, density and abundance values which will give an idea of change in the population structure over a period of time.
Monitoring Methods	:	Counting of all individuals of this species within a circular plot of 12.61 m radius in the monitoring location after every 5 years interval during May.

Monitoring Species	:	*Quercus leucotrichophora* A. Camus
Local Name	:	Ban
Family	:	Fagaceae
Monitoring Category	:	Plant -Tree
Monitoring Code	:	GHNP/01/002
Status	:	Common

Species Description

A large or medium-sized evergreen tree, distinguished by its leaves, which have dense white hairs beneath, leaves sharply toothed. Fruit (Nut) ovoid, 1.5 cm long.

Local Distribution

In GHNPCA, it is widely distributed in the Ecodevelopment zone and occur between 1,500 m to 2,400 m altitudes.

Uses and Threat

Principally it is one of the most preferred fodder species. Hence, local people lopp it.

Conservation Significance

Main source of fodder and fuelwood during winter in the Ecodevelopment zone, provides shelter to many birds and other wildlife during winter.

Monitoring Need

Excessive use is likely to cause reduction in population.

Monitoring Locations

Two locations in Tirthan valley were selected for the monitoring of this species. One is near Kharongcha village, the entrance point of Tirthan valley and another point is above Dhar village, other side of river Tirthan which is about 2 km from Kharongcha village. These points were marked with colour paint and aluminum foils.

	Elevation	Slope	Aspect
Kharongcha in Tirthan	1,800m	15-25 degree	S
Dhar in Tirthan	1,800m	20-30 degree	N

Monitoring frequency	:	Once in 5 years during May
Monitoring Parameters	:	Quantification of number of individuals, GBH (cm), tree height, regeneration and affected trees would help in determination of frequency, and abundance so as to obtain an idea of change in the population structure over a period of time.
Monitoring Methods	:	Counting of all individuals of this species within a circular plot of 12.61 m radius in the monitoring location after every 5 years interval during May.

Monitoring Species	:	*Quercus semecarpifolia* Smith
Local Name	:	Kharsu
Family	:	Fagaceae
Monitoring Category	:	Plant -Tree
Monitoring Code	:	GHNP 01 003
Status	:	Common

Species Description

A large evergreen tree distinguished by its spiny marginal teeth on young trees, with entire margins on old trees. Nuts globular with thin concave involucral cup. Nuts are brown when ripe. This species is popularly called as the Himalayan brown oak.

Local Distribution

In GHNPCA it is widely distributed in upper temperate and sub-alpine forests (2,500 m to 3,600 m).

Uses and Threat

This is also one of the preferred fodder trees. Local people, migratory pastrolists and trekkers use this species as fuelwood. Trees are increasingly lopped in order to collect lichen – *Usnea longissima* (old man beard) for its high commercial value.

Conservation Significance

The species constitutes an important upper temperate forest harbouring a rich diversity of plants and animals. Due to its gregarious growth, it plays an important role in local ecology.

Monitoring Need

The growing use of species and its likely adverse effects call for monitoring.

	Elevation	Slope	Aspect
Nada in Tirthan	3,300m	15 degree	S
Guntarao in Tirthan	3,500m	20 degree	S

Monitoring frequency	:	Once in 5 years during May.
Monitoring Parameters	:	Quantification of number of individuals, GBH (cm), tree height, regeneration and affected trees would help in determination of frequency and abundance so as to obtain an idea of change in the population structure over a period of time.
Monitoring Methods	:	Counting of all individuals of this species within a circular plot of 12.61 m radius in the monitoring location after every 5 years interval during May.

Monitoring Species		*Quercus floribunda* Lindley ex A.Camus
Local Name	:	Moru
Family	:	Fagaceae
Monitoring Category	:	Plant-Tree
Monitoring Code	:	GHNP/01/004
Status	:	Common

Species Description

A large evergreen tree with grey or black bark, leaves with spiny margins or with entire margins and hairless beneath.

Local Distribution

In GHNPCA, it is widely distributed between 1,600 m to 2,600 m altitudes.

Uses and Threat

The species is one of the preferred fodder tree. Increasingly lopped for collection of fodder, lichens and fuelwood.

Conservation Significance

Oak forest constitutes an important habitat for goral and several birds.

Monitoring Need

Increasing demand and lopping are likely to cause disturbance in habitat and reduction in its population.

Monitoring Locations

Two sites - one near Ropa and other in Tinder village in Tirthan valley were selected for monitoring.

	Elevation	Slope	Aspect
Ropa in Tirthan	1,600m	10-25 degree	S
Tinder in Tirthan	1,800m	15-30 degree	S

Monitoring Frequency		Once in 5 year during May
Monitoring Parameters		No. of individuals, tree height (m), GBH (cm), regeneration, affected trees by lopping and dead trees so as to determine frequency, density and abundance. Such assessment will given an idea of change in the population structure over a period of time.
Monitoring Methods	:	Counting of all individuals of this species within a circular plot of 12.61 m radius in the monitoring location after every 5 year interval during May.

Monitoring Species		*Betula utilis* D Don
Local Name	:	Bhojpatta
Family	:	Betulaceae
Monitoring Category	:	Plant -Tree
Monitoring Code	:	GHNP/01/010
Status	:	Common

Species Description

A medium sized tree with white and brownish bark, which peels off in very thin almost transparent strips. Leaves are woolly haired below, ovate, fine pointed, irregularly saw-toothed. Flowering during April to June.

Local Distribution

The species occur in the sub-alpine areas, between 3,000 m to 3,800 m altitudes in the GHNPCA

Uses and Threat

Bark used for water proofing and roofing of huts by herb collectors and pastrolists. Wood used for fuel during camping in alpine areas.

Conservation Significance

The tree gets its importance due to its occurrence in sub-alpine area. This species is the sole tree species in those areas. Its association with *Rhododendron campanulatum* (Krummholtz) makes an important plant community, being used by several dependent endangered species *viz.* musk deer. Only tree species, which is demarcating alpine and timberline.

Monitoring Need

Excessive use of this species by trekkers, pastrolists, herb collectors etc. for fuel can cause deleterious effect on its population and other dependent species

Monitoring Locations

Two sites *viz.* Gumtraoa and Tirth in Tirthan valley, one in Jiwanal were selected for monitoring

	Elevation	Slope	Aspect
Guntarao in Tirthan	3,500m	20 degree	E
Dwada in Khandedhar of Jiwanal	3,500m	30 degree	E
Tirath in Tirthan	3,500m	15 degree	S

Monitoring Frequency	:	Once in 5 year during May
Monitoring Parameters	:	Assess no. of individuals, tree height (m), GBH (cm), regeneration affected trees by lopping and dead trees so as to determine frequency, density and abundance. Such assessment will given an idea of change in the population structure over a period of time
Monitoring Methods	:	Counting of all individuals of this species within a circular plot of 12.61 m radius in the monitoring location after every 5 years interval during May

Monitoring Species	:	*Arundinaria falcata* Nees
Local Name	:	Nigal
Family	:	Poaceae
Monitoring Category	:	Plant-Shrub
Monitoring Code	:	GHNP/01/011
Status	:	Common

Species Description

Found in low altitude areas, the stem erect, densely tufted, slender, often glaucous and waxy. Inter-nodes 15 – 30 cm long. Leaves thin, linear long pointed.

Local Distribution

Found mainly on north facing slopes of the GHNPCA between 1,500 m to 2,500 m.

Uses and Threat

Locals use this bamboo for making baskets (kilta), mat and other household articles.

Conservation Significance

It is one of the two bamboo species occurring in the GHNPCA. Dense bamboo areas constitute habitats of birds, endangered pheasants and its fresh shoot are eaten by the Himalayan black bear.

Monitoring Need

The species is exploited by locals for its commercial use.

Monitoring Locations

Two trails were selected one in Tirthan and another in Sainj valley for monitoring of this species.

	Elevation	Slope	Aspect
Rolla-Chaloch in Tirthan	2,100-2,600m	20 degree	E
Neyli-Bah in Sainj	1,500-1,800m	15-45degree	S
Tirath in Tirthan	3,500m	15 degree	S

Monitoring Parameters	:	To determine frequency, density, abundance and affected clumps.
Monitoring Methods	:	Enumeration of clumps and culmn. Counting of number of cut clumps, browsed twigs, new shoots, phenology (flowering condition) on 4 marked monitoring locations on those trails within 5.65 m radius (500 m^2) of each locations.

Monitoring Species	:	*Rhododendron campanulatum* D. Don
Local Name	:	Kashmiri patta, Tangal
Family	:	Ericaceae
Monitoring Category	:	Plant - Shrub
Monitoring Code	:	GHNP/01/013
Status	:	Rare

Species Description

Gregarious shrub, widely branched, spreading 2-6 m. Constituted *krummholtz* (alpine scrub) in the sub-alpine zone.

Local Distribution

Occur in sub-alpine zones (Nara, Gumtarao, Dhela, Tirth and Raktisar) between 3,000 m to 3,600 m in the GHNPCA

Uses and Threat

Main threat due to collection by the graziers, herb collectors and tourists for fuelwood.

Conservation Significance

The dense shrub patch (*Krummholtz*) makes the prime habitat of Himalayan musk deer.

Monitoring Need

Any type of disturbance and destruction of *krummholtz* would affect dependent endangered musk deer, other associated species and the local environment.

Monitoring Locations

Two sites in Tirthan valley for annual monitoring were selected.

	Elevation	Slope	Aspect
Nada in Tirthan	3,300m	15-25 degree	S
Gumtarao in Tirthan	3,400m	20-40 degree	E
Dwada in Khandedhar of Jiwanal	3,500m	30 degree	E

Monitoring Frequency	:	Annually, in June
Monitoring Parameters	:	Frequency, density, abundance and affected shrubs by biotic pressure.
Monitoring Methods	:	No. of individual shrubs, cut shrubs and phenology (flowering condition) in each monitoring location within 5.65 m radius (500 m^2). It is also proposed to monitor number of *Krummholtz* patches at each monitoring sites and average patch size.

Monitoring Species	:	*Juniperus communis* L.
Local Name	:	Bittal
Family	:	Cupressaceae
Monitoring Category	:	Plant -Shrub
Monitoring Code	:	GHNP/01/014
Status	:	Endangered in GHNPCA

Species Description

Large gregarious shrub with needle like sharp pointed leaves. Fruit 6-10cm long, ovoid, brown, blue when ripe.

Local Distribution

Found in sub-alpine and alpine areas between 3,300 m to 4,000 m and at steep slopes in the GHNPCA. Sparsely distributed.

Uses and Threat

Leaves are used in making incense 'Dhoop' Wood for fuel by graziers, herb collectors and trekkers during their camping in alpine areas.

Conservation Significance

A rare shrub of alpine areas. Fruits berry like and fleshy, eaten by birds.

Monitoring Need

The sharp decline of this shrub species in the recent past and ongoing practice of its harvest, justifies its monitoring.

Monitoring Locations

Two sites were selected in Tirthan valley (Tirth and Sakheti) above Bheem Dwari, the camping site in Tirth and on the way to Sakheti. The distance from Tirth to Sakheti is about 4 km (Sakheti is the last boundary of Tirthan valley)

	Elevation	Slope	Aspect
Tirath in Tirthan	4,000m	15-25 degree	W
Sakheti in Tirthan	4,200m	10-40 degree	W
Dwada in Khandedhar of Jiwanal	3,500m	30 degree	E

Monitoring Frequency	:	Annually, in June
Monitoring Parameters	:	Frequency, density and abundance.
Monitoring Methods	:	No. of individual shrubs, counting of all cut shrubs, new shoots, phenology (flowering condition) in all marked monitoring plots within 5.65 m radius (500 m^2)

Appendix 8
Proposed Livelihood based Participatory Panchayat Micro-planning Process adopted from the Rural Technology and Development Centre- LSG

No.	Step	Process and Objective	Output	Who is responsible
1.	Block level sensitization	a. Orientation and sensitization of concerned representatives of Panchayati Raj Institutions (PRIs), the concerned Line Departments (LD) functionaries at the Block level, Research institutions, representatives of ongoing Govt./NGO projects in the area, Group organizer (GO) Gram Panchayat Microplanning Facilitator (GPMF) and if possible the concerned MLA. b. Formation of Block Level Expert committee (BLEC) comprising of Heads of concerned LDs at Block level, representatives of Research Institutions, Govt./NGO projects in the area to be co-ordinated by the BDO & RO/ACF as member Secretary. Identification of Panchayat level Group Dev. Support Team (GDST) comprising of Panhayat level officials of line departments. c. BLEC requested to provide relevant maps and secondary data and detailed information on various GoHP and GoI Schemes relevant to the Panchayat.	• Concerned stakeholders sensitized on the purpose, process and outputs of the Panchayat level Participatory Micro Planning (PMP) process. • Block level expert Committee(BLEC) formed • Panchayat level Group Development Support Team formed • BLEC to arrange and provide within 15 days a folder consisting of all the required information about the Pilot Panchayat to GDST members as formed	• Concerned ACF/RFO and Master trainers (MTs) • BLEC to provide the relevant information /data/Maps.(ACF/RFO to persue).
2.	Training of : GDST members GO/GPMF.	Training of GDST members, GO/GPMF on the purpose, methodology and the outputs of the GHNP Management Plan (MP)	GDST members, GPMF / GO trained on their responsibilities.	Master trainers (MTs) under GHNP MP.
3.	First Special Extended meeting of GP at least 15	• Panchayat level Familiarization in PMP/HPFSR by GO/ GPMF and preparation for next Gram	• Local CBOs given the task to hold meetings for awareness building on	RFO & GO/ GPMF

No.	Step	Process and Objective	Output	Who is responsible
	days prior to the Gram Sabha meeting. To be attended by representatives of Gram Panchayat, CBOs, local NGOs, concerned Zila Parishad & Panchayat Samiti Members and GDST members .	Sabha Meeting • 4 resolutions to be passed by the GP namely regarding : a. Initiation of the micro planning process by the GP b. Requesting the Line departments at the Block/Panchayat level for co-operation in the micro planning process. c. Some specified expenses for the process to be met out of Panchayat's own funds. d. To decide the dates of meetings for Up Gram Sabhas	the objectives of the PMP process before the next Gram Sabha meeting.	
4.	CBOs' internal meetings	Awareness building, forming common opinion on micro planning process and preparing for the forthcoming meeting of the Gram Sabha.	Community based organizations sensitized in Panchayat Level Participatory Micro Planning	GPMF/GO and CBO heads.
5.	First Up Gram Sabha at ward level	• Familiarization of the Up Gram Sabha members to the purpose, process and outputs of the micro planning process. • Discussions on the merits of the process and the responsibilities of the Up Gram Sabha members in the planning process. • Formation of Ward Yojna Dal (WYD) having a representation of all hamlets, all sections of the village society and active members of local CBOs. • Nomination of 15% of total households in the ward to represent the ward in the Gram Sabha meeting. .	• Up Gram Sabha familiarized in micro planning Process. • WYD formed with clear roles and responsibilities. • 15 % representatives of the ward for Gram Sabha meeting nominated and listed.	Ward member to be facilitated by GMPF/ GO.
6.	First Gram Sabha meeting. (Quorum: At least 15% of total	• Familiarization of the Gram Sabha members on the purpose, process and outputs of the micro planning process. • Passing of the resolutions as adopted in the	• Resolutions passed • Panchayat Micro Planning Committee formed	GPMF/GO

No.	Step	Process and Objective	Output	Who is responsible
	households from each ward as nominated in Up Gram Sabha meeting).	special extended meeting of Gram Panchayat (Sr.No.3) by the house. • Formation of Panchayat Micro Planning Committee. Comprising of GDST, Ward Yojna Dal members, Gram Panchayat representatives and concerned Panchayat Samiti and Zila Parishad members and representatives of Govt./ NGO implemented projects in the area.		
7.	First training of Ward Yojna Dal.	Training of WYD on collection of primary Social and Economic data, social concerns, use of information from secondary data and the facilitation techniques for Panchayat micro planning.	Ward Yojna Dal trained in social economic survey and facilitation techniques and use of secondary data for Panchayat Micro Planning.	GO /GPMF.
8.	Primary/baseline data collection by Ward Yojna Dals.	Ward Yojna Dal to conduct: • hamlet wise meetings with the residents • house hold surveys, • meetings with the CBOs • meetings with the existing Panchayat level welfare / development institutions (e.g. Health sub center, schools, veterinary dispensary, patwarkhana etc.) .	Information on the following aspects collected and collated in the Ward Planning work book: • Primary house hold level Socio-economic data. • Village infrastructural data. • Information about CBOs, their functioning, problems and potentials. • Welfare services available and shortcomings therein. • Information about individual beneficiaries of welfare schemes	Chairman and Convener WYD GPMF/GO
9.	Second training of Ward Yojna Dals in resource analysis	WYD trained in : • Rapid Rural Appraisal (RRA) techniques • situational analysis of Natural Resources • use of cadastral maps • Resource and social mapping • Natural Resource related problem identification and suggested solutions.	WYD trained in participatory processes and resource analysis.	GPMF/GO

No.	Step	Process and Objective	Output	Who is responsible
		• Identification of new infrastructural development needs		
10.	WYD conducts Village walk and RRA	• Identification and mapping of natural resources & livelihood dependence on them and estimation of their quantum • User Group identification • problem identification and proposed solutions • Identification of potential resources with respect to livelihoods.	• Social and Resource maps prepared • Relevant entries in the Ward Planning work book filled.	Chairman and Convener WYD GPMF/GO
11.	Third Training of the Ward Yojna Dal regarding social issues.	WYD trained in identification of : • social issues • related problems and solutions.	WYD trained in social issues.	GPMF/GO
12.	Hamlet level meetings by WYD	Meetings by WYD with different social groups in all hamlets for : • identification of problems • suggested solutions and • likely interventions.	• Social issues and their suggested solutions highlighted. • Relevant entries in the Ward Planning Workbook made	Chairman and Convener WYD GPMF/GO
13.	Second Up- Gram Sabha	• For sharing of information collated and presentation of micro planning activities thus far. • User groups and self help groups (SHG) formed based on common issues/ resource dependence. • Schedule for forthcoming village transects (Techno-economic feasibility with GDST) discussed.	• Verification of information generated through surveys and meetings. • Formation of user groups and self help groups. • Transect schedule finalize.	Chairman and Convener WYD GPMF/GO.
14.	Last training of WYD	WYD trained in : • Sector wise transects. Ward problem prioritization & collation • Formation of Ward Development Committee and Ward Development Maintenance Fund.	WYD training completed	GDST GPMF/GO

No.	Step	Process and Objective	Output	Who is responsible
15.	Preparation of draft ward development plan	• Transect walk as per schedule in the ward • Incorporation of technical inputs in the solutions in the draft ward plan.	Draft ward development plan ready	GDST and members of Block level expert committee WYD and GPMF/GO.
16.	Third Up Gram Sabha meeting	Up Gram Sabha meeting for : • Sharing of the outcome of the process thus far. • Additions and alterations to the findings. • Prioritization of problems. • Approval of the draft Ward Development Plan by Up Gram Sabha • Dissolution of WYD. • Nomination for standing committees of the Panchayat (active WYD members) • Formation of WDC comprising of all standing committee members and the ward member. • Formation of WDMF for maintenance of assets.	• Ward Development Plan (WDP) approved • • WDC formed • WDMF established.	Chairman and Convener WYD GPMF/GO. GDST
17.	Training of WDC	• Training in preparation for the Panchayat Development Seminar for preparation of draft Panchayat development plan.	WDC trained in preparation of draft Panchayat development plan.	GDST GPMF/GO
18.	Panchayat Development Seminar with GP representatives. WDC members. Panchayat level GDST and concerned BLEC members and Panchayat Samiti and Zila Parishad members, representatives of concerned Govt./ NGO implemented projects in the area.	• Identification and negotiation of inter ward issues and their solutions. • Prioritization of Panchayat level activities. • Preparation of Draft Panchayat Development Plan (DPDP).	• Panchayat level activities prioritized and DPDP prepared.	Panchayat Microplanning committee all WDC members GDST GPMF/GO.

No.	Step	Process and Objective	Output	Who is responsible
19.	Fourth Up Gram Sabha	For sharing the outcomes of the PDS and the DPDP	Approval of the DPDP with respect to ward	Ward member + WDC GPMF/GO
20.	Second Gram Sabha meeting.	• Presentation of the DPDP by the GP Pradhan. • Approval of the DPDP. • Passing resolution a. On commitment of GP s own funds for PDP and its implementation through works committees (WCs) of concerned User Groups under the HP Panchayati Raj Financial Rules. b. Request the concerned PS. ZP, Distt Planning Committee, line departments other projects, MLA and MP for funding of PDP. • Dissolution of the PMPC. • Formation of Panchayat level Standing committees .	• Final Panchayat Development Plan (PDP) ready. • Gram Panchayat standing committees approved.	Gram Panchayat WDC GDST GPMF/GO .

Appendix 9 : Budget for GHNPCA

Biodiversity Conservation in the Great Himalayan National Park Conservation Area (GHNPCA)

GHNP and Ecozone

Proposed Expenditure Accounts by Components (in Indian Rupees-000)

	Years					
	I	II	III	IV	V	Total
INVESTMENT COSTS (Non Recurrent)						
A. Improved PA Management						
I. Infrastructure, Protection and Communication						
(a) Civil Works						
Demarcation of Boundary and Pillars	0.00	0.60	0.60	0.60	0.60	2.40
Const. of Paths.	3.00	4.40	4.80	3.60	4.60	20.40
I/Path/B/paths (Seasonal repair)	2.00	3.60	3.60	3.60	3.80	16.60
Anti-Poaching Camps/ Patrolling Huts Repair and new.	2.50	2.80	3.00	3.20	3.20	14.70
Const. of new Bunkers.	1.00	1.50	2.25	1.75	1.75	8.25
Maint. of Bridges.	1.80	3.80	4.00	3.80	3.80	17.20
Const. of new Bridges	2.00	4.80	6.00	3.90	3.50	20.20
Barriers (Check Posts) repair	0.00	0.00	0.00	0.60	0.60	1.20
Const. of Main Gates of GHNP in Tirthan , Sainj , Jiwanal and Pin Parvati Valleys	0.00	3.00	3.00	3.50	3.50	13.00
Const. of Roap way spans (as per microplaning)	3.00	3.50	3.50	3.00	3.00	16.00
Buildings						
Training Hall with dormitory at Shamshi	0.00	8.00	0.00	0.00	0.00	8.00
Interpretation & Info center at Sai Roda (CEE, Ahmedabad	0.00	0.00	30.00	0.00	0.00	30.00
Rest House- Shangharh,Baghi Kashari,Mahnan,Rolha and Sai Roda (upper st	0.00	14.00	13.00	14.00	0.00	41.00
Staff Quarters -B.O.Qtrs ,Fgd huts,Peon Qtrs. And Mali hut	0.00	8.50	6.80	6.50	0.00	21.80
Stores	2.00	1.20	1.20	0.00	1.20	5.60
Rest Rooms (Toilet) at Shamshi	0.00	2.70	0.00	0.00	0.00	2.70
Solar Power Demostration Center at Shamshi (in collaboration with Hi	0.00	2.50	2.50	0.00	0.00	5.00
Transit Camp, Sainj.	0.00	0.00	5.00	5.00	0.00	10.00
Fire Protection Network						
Tri-annual burning of firelines	0.00	0.20	0.20	0.20	0.20	0.80
Wages of fire watchers.	1.00	1.00	1.00	1.00	1.00	5.00
Water Tanks (Microplaning works)	2.50	3.20	3.20	0.80	0.80	10.50
Water Harvesting structures (Microplaning works)	0.00	3.20	3.20	2.20	3.20	11.80
Tranching for fire prevention.(Microplaning works)	0.00	1.80	2.40	1.30	1.30	6.80
(b) Vehicles						
Toyota Qualis	0.00	0.00	0.00	6.50	0.00	6.50
Bus for Nature Education tours etc.	0.00	10.00	0.00	0.00	0.00	10.00
One Mini Truck	0.00	0.00	0.00	6.80	0.00	6.80

(c) Fixtures, Furniture and Equipment						
Field						
Wireless Communication-Walki Talki, Ground Mobile Stations	4.45	0.00	0.00	0.00	2.50	6.95
Physical Capture - Cages etc (3 Nos.)	0.00	2.00	0.00	2.00	0.00	4.00
Chemical Restrain - Guns, Darts, Drugs, etc	0.80	0.80	1.00	1.00	1.25	4.85
Animal Rescue, Translocation/Transportation	0.30	0.30	0.30	0.30	0.30	1.50
Audio-Visual -Projectors,Camera, Digital and Video	1.05	1.50	0.00	1.10	2.50	6.15
Field Measurement - GPS, Altimeter,Pedometer Campass,etc.and accessories	0.00	1.50	1.10	1.00	0.00	3.60
Binoculars and Spotting Scope (15 Nos.)	1.75	0.65	0.75	0.75	0.00	3.90
Meteorological Station and Equipment (Computerized)	0.00	0.00	4.00	2.00	0.00	6.00
High Altitude Camping Gear	0.75	0.75	0.75	1.00	1.00	4.25
Equiping the Manali Wildlife Information Center (CEE, Ahmedabad)	0.00	35.00	35.00	0.00	0.00	70.00
Office/Field use Furniture and Equipment						
Furniture, Storage Almirahs, File Cabinets,etc	0.50	0.50	0.50	0.70	0.70	2.90
Office Automation - Photocopier, Fax, etc., Wildlife/Nature Photography	0.50	2.50	0.50	0.00	0.60	4.10
Information Technology						
Two Computer, Two laptops, Printers, Scanner software and accessories	0.40	0.80	0.50	0.50	0.80	3.00
Books and Periodicals						
Supplies and Material (Small equipment, etc.)	0.40	0.50	0.50	0.40	0.30	2.10
Sub-Total	**31.70**	**131.10**	**144.15**	**82.60**	**46.00**	**435.55**
II. Catchment Treatment, Habitat Restoration and Species Management						
(i) Special Habitat Improvement works (SMC) at Parvati Project site in Jiwanal Catchment	0.00	10.00	15.00	17.00	10.00	52.00
(ii) Water hervesting structures, gully plugging etc.(in Ecozone)	4.80	3.50	4.00	4.80	4.80	21.90
(iii) Nursery development for medicinal plants grasses and forest trees for requirement of wildlife animals/Community (in ecozone)	8.00	7.00	7.00	7.00	6.50	35.50
(iv) Anti-Poaching, Fire Fighting Squads to conserve Flagsship species such as Western Tragopan, musk deer and other wildlife (wages)	2.50	2.50	2.00	2.00	2.80	11.80
(v) Long Term Ecological Monitoring with the help of HFRI, Shimla.	0.00	11.90	8.10	8.35	8.65	37.00
(vi) Nature education programme in all the schools of Ecozone.	1.00	1.50	2.00	2.80	2.90	10.20
(vii) Nature Awareness programmes with the help of street theater, puppet shows, cultural activities of local community; participation of GHNP through exhibitions, street theater, etc., in events such as Kullu Dushera, Phagli Mela in Banjar, Sai, and other, places.	2.50	2.80	2.80	3.00	3.00	14.10
(viii) Compensation for Human-Animal conflict	1.00	1.25	1.25	1.25	1.25	6.00
(ix) Vaccination Programme for local livestock	1.00	1.50	1.50	1.50	1.75	7.25
Sub-Total	**20.80**	**41.95**	**43.65**	**47.70**	**41.65**	**195.75**

III. Community Participation, Sustainable Livelihoods, Women Empowerment (innovative schemes for women literacy, Mother and Child care, drudgery reduction), Emphasis on NTFP production with emphasis on Medicinal Plants a IGA; Conflict Resolution, Ecodevelopment, Alternate Income Generation Activities, Develop Effective and Intensive Community Support (As per microplans for VFDS at Panchyat Ward level) under HP Govt. Rules 2001.						
(a) Support for organizing the poor and women in the ecozone (through local NGOs.)	2.00	2.00	2.00	2.00	2.00	10.00
(b) Preparation of VFDS at Panchyat ward level under PFM Rules 2001.						
(I) Microplanning in VFDS.	0.50	2.40	0.60	0.00	0.00	3.50
(ii) Feulwood, grasses, fodder and Medicinal Plants Propogation Areas (MPPAs) under 60 microplans in ecozone (nursery development, maint. and planting) @1.0 lac per microplan	60.00	60.00	60.00	60.00	60.00	300.00
(iii) Soil and water conservation programmes under 60 microplaning in ecozone @ Rs. 50 lac per microplan	30.00	30.00	30.00	30.00	30.00	150.00
(iv) Income Generation Activities to reduce dependency of local villagers (man and woman) on GHNP natural resources, provision of drudgery reduction and energy saving devices such as LPG connections (50% cost to be given by the beneficiary),' feul wood plantation, etc. and Community Based Tourism under 60 Nos. microplans @ Rs. .75 lac per microplan	45.00	45.00	45.00	45.00	45.00	225.00
Sub-Total	**137.50**	**139.40**	**137.60**	**137.00**	**137.00**	**688.50**
IV. Capacity Building - Support to SL Based Approach to Conservation						
(a) Training of officials, frontline staff, community and CBOs/NGOs. (emphasis on women and poor - natural resource dependents) and others. Training of staff in Wildlife habitat management, WL surveys and census.Training of women of poor Households in literacy programmes, mother & child health, Vet. Care programe, gender sensitive issues; IGA related workshops for all community members and NGOs.Special Stress Management Courses in Vipassana Meditation for staff and community	4.50	5.00	5.50	3.00	3.00	21.00
(b) Workshops, Seminars and conferences for flagship species and wildlife conservation subjects.	1.75	1.50	2.00	2.50	5.00	12.75
(c) Baseline Information and support for Action Research .	0.50	0.30	0.30	0.40	0.40	1.90
(d) Monitoring and Evaluation of social aspects and their impact on WL conservation	0.30	0.50	0.50	0.50	0.50	2.30
Sub-Total	**7.05**	**7.30**	**8.30**	**6.40**	**8.90**	**37.95**
V. Planning Processes and Project Management						
(a) Integrated Management/Regional Planning Process and Plan Preparation, Plan Revision workshops and Office expenses	0.00	0.00	1.50	1.75	2.00	5.25
Sub-Total	**0.00**	**0.00**	**1.50**	**1.75**	**2.00**	**5.25**

VI. Tours, Specialist Services and Consultancy						
(a) International/National Study Tours and Training	0.00	2.00	2.00	2.00	1.00	7.00
(b) Consultants - Specialist services for Park management	0.00	2.00	2.00	1.50	1.50	7.00
(d) Exposure Trips for staff, community members, local NGOs to Demonstration Sites	2.50	2.00	2.00	1.50	1.25	9.25
Sub-Total	**2.50**	**6.00**	**6.00**	**5.00**	**3.75**	**23.25**
Total Investment (Non Recurrent) Costs	**199.55**	**325.75**	**341.20**	**280.45**	**239.30**	**1386.25**
RECURRENT COSTS						
(a) Salaries and wages (contractual staff	0.00	1.50	1.50	1.50	1.50	6.00
(b) Operation and Maintenance						
Buildings - Civil Works	2.50	2.00	1.50	1.50	2.00	9.50
Vehicles	3.50	1.50	2.00	2.00	2.00	11.00
Equipment repair	0.30	0.20	0.50	0.50	0.50	2.00
Information Technology - Annual Maintenance	0.30	0.30	0.50	0.50	0.50	2.10
Sub-Total	**6.60**	**5.50**	**6.00**	**6.00**	**6.50**	**30.60**
Total Recurrent Costs	**6.60**	**5.50**	**6.00**	**6.00**	**6.50**	**30.60**
(I) Research on Biodiversity after final notification of the Park, Action Research on Environmental Justice issues : Cost of associating WII and other institutions in research work	0.00	20.00	20.00	10.00	0.00	50.00
(ii)Remote sensing and Geographical Information System (GIS) & others in collaboration with WII.	0.00	5.00	5.00	4.00	4.00	18.00
Sub Total	**0.00**	**25.00**	**25.00**	**14.00**	**4.00**	**68.00**
Contingency Charges	0.00	3.00	4.00	4.00	5.00	16.00
Sub Total Contingency.	**0.00**	**3.00**	**4.00**	**4.00**	**5.00**	**16.00**
TOTAL COST	6.60	33.50	376.20	304.45	254.80	1500.85

Population Details of GHNP Ecozone

Name of Range	Total No. of Panchayat	Total No. of Wards	Total no. of Villages	No. of Households			Total No. of households	Details of Population						Total Population
								GC		SC		OBC		
				GC	SC	OBC		M	F	M	F	M	F	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tirthan	7 Panchayats	31	72	1013	335	14	1362	3028	2883	923	896	33	31	7794
Jiwanal	4 Panchayats	22	98	483	279	10	772	1337	1279	706	695	30	23	4070
Saini	3 Panchayats	7	28	205	69	0	274	665	354	269	145	0	0	1433
GHNP	**14 Panchayats**	**60**	**198**	**1701**	**683**	**24**	**2408**	**5030**	**4516**	**1898**	**1736**	**63**	**54**	**13297**

Name of Range	Detail of Voters						Total voters	Illiteracy						Total illiteracy	Red Circles			Total Red Circles	IRDP			Total IRDP families	Groups
	GC		SC		OBC			GC		SC		OBC			GC	SC	OBC		GC	SC	OBC		
	M	F	M	F	M	F		M	F	M	F	M	F										
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Tirthan	As per voter list of 2000						4316	694	1016	310	435	4	10	2469	189	126	2	317	177	103	2	282	24
Jiwanal	As per voter list of 2000						2316	371	587	224	414	17	13	1626	141	173	7	321	64	83	3	150	18
Sainj	As per voter list of 2000						903	195	277	79	100	0	0	651	24	19	0	43	53	14	0	67	10
GHNP	0	0	0	0	0	0	7535	1260	1880	613	949	21	23	4746	354	318	9	681	294	200	5	499	52

Tirthan Range

No. of Hosehold			Total house hold	Population						
				Gen		SC		OBC		
Gen.	SC	OBC		Male	Female	Male	Female	Male	Female	
4	5	6	7	8	9	10	11	12	13	14
55	5	12	72	163	160	14	15	28	24	404
51	29	0	80	135	137	74	65	0	0	411
45	0	0	45	93	119	0	0	0	0	212
60	15	2	77	213	171	29	29	5	7	454
33	3	0	36	115	102	12	11	0	0	240
52	14	0	66	136	134	37	35	0	0	342
35	2	0	37	121	97	7	10	0	0	235
43	5	0	48	111	97	9	10	0	0	227
19	20	0	39	41	37	57	56	0	0	191
35	0	0	35	74	69	0	0	0	0	143
43	1	0	44	104	105	3	5	0	0	217
44	7	0	51	111	93	23	13	0	0	240
0	9	0	9	0	0	23	22	0	0	45
9	3	0	12	20	18	5	5	0	0	48
23	5	0	28	59	54	9	17	0	0	139
32	15	0	47	93	97	52	51	0	0	293
22	25	0	47	81	74	75	83	0	0	313
25	2	0	27	99	102	4	6	0	0	211
45	1	0	46	140	134	1	2	0	0	277
24	32	0	56	69	73	79	90	0	0	311
31	23	0	54	97	93	67	75	0	0	332
25	20	0	45	85	72	57	57	0	0	271
33	4	0	37	104	97	11	10	0	0	222
31	0	0	31	91	90	0	0	0	0	181
1	17	0	18	6	3	51	53	0	0	113
41	0	0	41	138	112	0	0	0	0	250
44	4	0	48	125	138	8	9	0	0	280
42	18	0	60	150	132	42	29	0	0	353
24	0	0	24	73	73	0	0	0	0	146
30	37	0	67	125	152	95	84	0	0	456
16	19	0	35	56	48	79	54	0	0	237
1013	**335**	**14**	**1362**	**3028**	**2883**	**923**	**896**	**33**	**31**	**7794**

Sainj Range

Sr.no	Name of Panchayat	Name of Ward	No. of Hosehold			Total house-hold	Populations						Total populations
			Gen.	SC	OBC		Gen		SC		OBC		
							Male	Female	Male	Female	Male	Female	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Shangarh	Madana	33	1	0	34	107	91	1	3	0	0	202
		Katwali	31	0	0	31	84	67	0	0	0	0	151
		Goshti	0	29	0	29	0	0	80	83	0	0	163
		Dharali	33	20	0	53	111	100	61	44	0	0	316
		Lapah	18	4	0	22	71	71	20	15	0	0	177
2	Suchain	Suchain	66	15	0	81	264	-	107	-	0	0	371
3	Garaparli	Shakti-Maror	24	0	0	24	28	25	0	0	0	0	53
	G.Total :	7 Wards	205	69	0	274	665	354	269	145	0	0	1433

P4

Jiwanal Range

Sr. No.	Name of Panchayat	Name of Ward	No. of Hose hold			Jiwanal Range	Population						Total popula-tion
			Gen.	SC	OBC		Gen		SC		OBC		
							Male	Female	Male	Female	Male	Female	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	**Dehuri dhar**	Neuli	4	40	6	50	11	7	109	99	16	12	254
		Darmehra	17	29	0	46	67	60	91	85	0	0	303
		Tung	17	21	0	38	45	42	69	83	0	0	239
		Sehin	16	21	0	37	37	47	73	65	0	0	222
		Dhartha	3	30	0	33	11	16	80	88	0	0	195
2	**Shainsher**	Khain	36	0	0	36	76	83	0	0	0	0	159
		Manahra	25	0	0	25	85	104	0	0	0	0	189
		Chanaahidi	0	26	0	26	71	75	0	0	0	0	146
		Bajahra	18	2	4	24	52	59	5	3	14	11	144
		Patahra	17	28	0	45	63	53	54	75	0	0	245
3	**Garaparli**	Majhan	31	3	0	34	72	77	12	11	0	0	172
		Mail	27	8	0	35	62	48	20	14	0	0	144
		Banaugi	8	4	0	12	27	27	14	8	0	0	76
		Bathedha	4	25	0	29	12	11	70	69	0	0	162
		Banaughi	16	2	0	18	41	44	8	7	0	0	100
4	**Railla**	Majhan-II	50	2	0	52	169	153	3	3	0	0	328
		Bhupan-I	48	0	0	48	148	128	0	0	0	0	276
		Sharan	35	11	0	46	110	95	30	28	0	0	263
		Jiwa	16	0	0	16	29	29	0	0	0	0	58
		Ghat	89	20	0	109	133	108	38	36	0	0	315
		Bhupan-II	3	6	0	9	11	9	29	20	0	0	69
		Railla.	3	1	0	4	5	4	1	1	0	0	11
	G.Total:	**22 Wards.**	**483**	**279**	**10**	**772**	**1337**	**1279**	**706**	**695**	**30**	**23**	**4070**

Information of Tirthan Range (Village wise)

Name of Beat	Name of Panchayat	Name of Ward	Name of village	No. of households			Total No. of households	Details of Population						Total Population
				GC	SC	OBC		GC		SC		OBC		
								M	F	M	F	M	F	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Mashyar beat	Mashyar	Dalingcha	Dalingcha	44	4	0	48	125	138	8	9	0	0	280
		Kemehra	Kemehra	13	18	0	31	43	39	42	29	0	0	153
			Manjli	29	0	0	29	107	93	0	0	0	0	200
		Total:	**2 villages.**	**42**	**18**	**0**	**60**	**150**	**132**	**42**	**29**	**0**	**0**	**353**
		Mashyar	Mashyar	19	0	0	19	57	56	0	0	0	0	113
			Thanegar	5	0	0	5	16	17	0	0	0	0	33
		Total:	**2 villages.**	**24**	**0**	**0**	**24**	**73**	**73**	**0**	**0**	**0**	**0**	**146**
		Dhaliyad	Gadingcha	0	19	0	19	0	0	44	36	0	0	80
			Dhaliyad	30	18	0	48	125	152	51	48	0	0	376
		Total :	**2 villages.**	**30**	**37**	**0**	**67**	**125**	**152**	**95**	**84**	**0**	**0**	**456**
		Serot	Serot	3	19	0	22	11	8	79	54	0	0	152
			Batnad	13	0	0	13	45	40	0	0	0	0	85
		Total:	2 villages.	16	19	0	35	56	48	79	54	0	0	237
	G. Total :	**5 Wards**	**9 villages**	**156**	**78**	**0**	**234**	**529**	**543**	**224**	**176**	**0**	**0**	**1472**

Name of village	Detail of Voters						Total voters	Illiteracy						Total Illiteracy	Red Circles			Total Red Circles	IRDP			Total IRDP families	Group
	GC		SC		OBC			GC		SC		OBC			GC	SC	OBC		GC	SC	OBC		
	M	F	M	F	M	F		M	F	M	F	M	F										
4	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Dalingcha	69	77	8	9	0	0	163	15	35	2	6	0	0	58	12	0	0	12	18	3	0	21	1
Kemehra								8	17	10	17	0	0	52	4	7	0	11	4	9	0	13	0
Manjli							225	14	29	0	0	0	0	43	6	0	0	6	11	0	0	11	0
2 villages.	0	0	0	0	0	0	225	22	46	10	17	0	0	95	10	7	0	17	15	9	0	24	0
Mashyar								8	14	0	0	0	0	22	5	0	0	5	8	0	0	8	0
Thanegar							91	4	8	0	0	0	0	12	0	0	0	0	3	0	0	3	0
2 villages:	0	0	0	0	0	0	91	12	22	0	0	0	0	34	5	0	0	5	11	0	0	11	0
Gadingcha								0	0	8	17	0	0	25	0	7	0	7	0	8	0	8	0
Dhaliyad							260	18	40	11	21	0	0	90	7	9	0	16	10	5	0	15	1
2 villages.	0	0	0	0	0	0	260	18	40	19	38	0	0	115	7	16	0	23	10	13	0	23	1
Serot								4	5	9	24	0	0	42	1	6	0	7	3	8	0	11	0
Bathad							117	6	13	0	0	0	0	19	3	0	0	3	0	0	0	0	0
2 villages.	0	0	0	0	0	0	117	10	18	9	24	0	0	61	4	6	0	10	3	8	0	11	0
9 villages	69	77	8	9	0	0	856	77	161	40	85	0	0	363	38	29	0	67	57	33	0	90	2

Information of Tirthan Range (Village wise)

Name of Beat	Name of Panchayat	Name of Ward	Name of village	No. of households			Total No. of households	Details of Population						Total Population
				GC	SC	OBC		GC		SC		OBC		
								M	F	M	F	M	F	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Chalori beat	Shilli	Sharungar	Katolcha	3	13	0	16	12	7	35	35	0	0	89
			Sharungar	22	7	0	29	73	65	22	22	0	0	182
		Total:	2 villages	25	20	0	45	85	72	57	57	0	0	271
		Shill	Shill	33	4	0	37	104	97	11	10	0	0	222
		Garuli-I	Garuli-I	1	17	0	18	6	3	51	53	0	0	113
		Garuli-II	Garuli-II	31	0	0	31	91	90	0	0	0	0	181
		Parwari	Parwari	41	0	0	41	138	112	0	0	0	0	250
	G.Total:	5 wards	6 villages	131	41	0	172	424	374	119	120	0	0	1037
Shrikot beat	Shrikot	Kanon	Kanon	36	5	0	41	93	77	9	10	0	0	189
			Sharchi	7	0	0	7	18	20	0	0	0	0	38
		Total:	2 villages	43	5	0	48	111	97	9	10	0	0	227
		Shareda	Shareda	8	20	0	28	19	19	57	56	0	0	151
			Huri	11	0	0	11	22	18	0	0	0	0	40
		Total:	2 villages	19	20	0	39	41	37	57	56	0	0	191
		Anah	Anah	27	0	0	27	55	50	0	0	0	0	105
			Jadli dhar	8	0	0	8	19	19	0	0	0	0	38
		Total:	2 villages	35	0	0	35	74	69	0	0	0	0	143
		Shanad	Shanad	17	0	0	17	34	39	0	0	0	0	73
			Thanach	9	0	0	9	30	24	0	0	0	0	54
			Nadhara	2	0	0	2	6	5	0	0	0	0	11
			Ghatsari	4	0	0	4	10	6	0	0	0	0	16
			Badhlakhet	7	0	0	7	18	22	0	0	0	0	40
			Peckana	4	1	0	5	6	9	3	5	0	0	23
		Total:	6 villages	43	1	0	44	104	105	3	5	0	0	217
	G.Total	4 Wards	12 Villages	140	26	0	166	330	308	69	71	0	0	778
Shrikot beat	Kalwari Panchayat	Kalwari	Gahidhar	0	9	0	9	0	0	23	22	0	0	45
		Dehuri	Dehuri	9	3	0	12	20	18	5	5	0	0	48
	Total:	2 Wards	2 villages	9	12	0	21	20	18	28	27	0	0	93

Name of village	Detail of Voters						Total voters	Illiteracy						Total illiteracy	Red Circles			Total Red Circles	IRDP			Total IRDP families	Group
	GC		SC		OBC			GC		SC		OBC			GC	SC	OBC		GC	SC	OBC		
	M	F	M	F	M	F		M	F	M	F	M	F										
4	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Katolcha							167	5	4	8	14	0	0	31	2	7	0	9	1	2	0	3	
Sharungar								2	31	10	16	0	0	59	3	4	0	7	2	2	0	4	1
2 villages	**0**	**0**	**0**	**0**	**0**	**0**	**167**	**7**	**35**	**18**	**30**	**0**	**0**	**90**	**5**	**11**	**0**	**16**	**3**	**4**	**0**	**7**	**1**
Shill							**143**	**18**	**36**	**8**	**8**	**0**	**0**	**70**	**11**	**3**	**0**	**14**	**5**	**2**	**0**	**7**	**1**
Garuli-I							**56**	**2**	**4**	**33**	**37**	**0**	**0**	**76**	**1**	**8**	**0**	**9**	**0**	**6**	**0**	**6**	**0**
Garuli-II							**104**	**27**	**34**	**0**	**0**	**0**	**0**	**61**	**9**	**0**	**0**	**9**	**3**	**0**	**0**	**3**	**1**
Parwari							**147**	**30**	**40**	**0**	**0**	**0**	**0**	**70**	**15**	**0**	**0**	**15**	**5**	**0**	**0**	**5**	**0**
6 villages	**0**	**0**	**0**	**0**	**0**	**0**	**617**	**84**	**149**	**59**	**75**	**0**	**0**	**367**	**41**	**22**	**0**	**63**	**16**	**12**	**0**	**28**	**3**
Kanon	60	40	4	3	0	0	107	35	48	4	7	0	0	94	7	5	0	12	3	3	0	6	0
Sharchi	7	8	0	0	0	0	**15**	4	13	0	0	0	0	17	0	0	0	0	0	0	0	**0**	**0**
2 villages	**67**	**48**	**4**	**3**	**0**	**0**	**122**	**39**	**61**	**4**	**7**	**0**	**0**	**111**	**7**	**5**	**0**	**12**	**3**	**3**	**0**	**6**	**0**
Shareda	14	12	33	31	0	0	**90**	10	19	10	28	0	0	67	2	5	0	7	0	2	0	2	0
Huri	15	11	0	0	0	0	**26**	7	13	0	0	0	0	20	2	0	0	2	0	0	0	0	0
2 villages	**29**	**23**	**33**	**31**	**0**	**0**	**116**	**17**	**32**	**10**	**28**	**0**	**0**	**87**	**4**	**5**	**0**	**9**	**0**	**2**	**0**	**2**	**0**
Anah	31	32	0	0	0	0	63	12	22	0	0	0	0	34	6	0	0	6	1	0	0	**1**	**0**
Jadli dhar	10	8	0	0	0	0	18	6	15	0	0	0	0	21	3	0	0	3	1	0	0	**1**	**0**
2 villages	**41**	**40**	**0**	**0**	**0**	**0**	**81**	**18**	**37**	**0**	**0**	**0**	**0**	**55**	**9**	**0**	**0**	**9**	**2**	**0**	**0**	**2**	**0**
Shanad	25	30	0	0	0	0	55	6	18	0	0	0	0	24	2	0	0	2	3	0	0	3	1
Thanach	21	16	0	0	0	0	37	14	19	0	0	0	0	33	1	0	0	1	1	0	0	1	0
Nadhara	4	4	0	0	0	0	**8**	1	1	0	0	0	0	2	0	0	0	0	0	0	0	**0**	**0**
Ghatsari	7	3	0	0	0	0	**10**	3	5	0	0	0	0	8	0	0	0	0	0	0	0	**0**	**0**
Badhlakhet	13	11	0	0	0	0	**24**	6	14	0	0	0	0	20	3	0	0	3	3	0	0	3	0
Peckana	5	7	1	2	0	0	**15**	4	6	1	2	0	0	13	1	1	0	2	1	1	0	2	0
6 villages	**75**	**71**	**1**	**2**	**0**	**0**	149	34	63	1	2	0	0	100	7	1	0	8	8	1	0	9	1
12 Villages	**212**	**182**	**38**	**36**	**0**	**0**	468	**108**	193	15	37	2	0	353	27	11	0	38	13	6	0	19	1
Gahidhar	**0**	**0**	**11**	**13**	**0**	**0**	**24**	**0**	0	9	16	0	0	25	0	9	0	9	0	4	0	4	1
Dehuri	14	13	3	3	0	0	33	8	12	2	2	1	0	24	2	1	0	3	1	0	0	1	1
2 villages	14	13	14	16	0	0	57	8	12	11	18	1	0	49	2	10	0	12	1	4	0	5	2

Information of Tirthan Range (Village wise)

Name of Beat	Name of Panchayat	Name of Ward	Name of village	No. of households			Total No. of households	Details of Population						Total Population
				GC	SC	OBC		GC		SC		OBC		
								M	F	M	F	M	F	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Bathad beat	Tung		Bathad	23	5	0	28	59	54	9	17	0	0	139
		Chipni	Chipni	32	15	0	47	93	97	52	51	0	0	293
		Nagdhar	Tung	15	2	0	17	43	45	3	7	0	0	98
			Nagdhar	7	23	0	30	38	29	72	76	0	0	215
		Total :	2 villages	22	25	0	47	81	74	75	83	0	0	313
		Naini	Naini	14	2	0	16	61	69	4	6	0	0	140
			Jamtan	11	0	0	11	38	33	0	0	0	0	71
		Total :	2 villages	25	2	0	27	99	102	4	6	0	0	211
		Shalinga	Shalinga	22	0	0	22	79	77	0	0	0	0	156
			Barnagi	23	1	0	24	61	57	1	2	0	0	121
		Total :	2 villages	45	1	0	46	140	134	1	2	0	0	277
		Pharyadi	Pharyadi	24	32	0	56	69	73	79	90	0	0	311
		Rikhli	Rikhli	5	16	0	21	16	13	50	58	0	0	137
			Dhar	0	7	0	7	0	0	17	17	0	0	34
			Manoni	26	0	0	26	81	80	0	0	0	0	161
		Total :	3 villages	31	23	0	54	97	93	67	75	0	0	332
	G.Total:	7 Wards	12 villages	202	103	0	305	638	627	287	324	0	0	1876

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Name of village	Detail of Voters						Total voters	Illiteracy						Total illiteracy	Red Circles			Total Red Circles	IRDP			Total IRDP families	Group
	GC		SC		OBC			GC		SC		OBC			GC	SC	OBC		GC	SC	OBC		
	M	F	M	F	M	F		M	F	M	F	M	F										
4	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Bathad							84	17	23	7	12	0	0	59	3	0	0	3	3	0	0	3	
Chipni							177	36	36	35	26	0	0	133	8	6	0	14	8	6	0	14	
Tung								16	7	0	0	0	0	23	3	1	0	4	3	1	0	4	1
Nagdhar								7	9	27	27	0	0	70	3	1	0	4	3	1	0	4	
2 villages	0	0	0	0	0	0	180	23	16	27	27	0	0	93	6	2	0	8	6	2	0	8	1
Naini								18	16	2	6	0	0	42	3	1	0	4	3	1	0	4	0
Jamtan								11	16	0	0	0	0	27	2	0	0	2	2	0	0	2	0
2 villages	0	0	0	0	0	0	147	29	32	2	6	0	0	69	5	1	0	6	5	1	0	6	0
Shalinga								26	24	0	0	0	0	50	4	0	0	4	4	0	0	4	0
Barnagi								25	17	0	0	0	0	42	4	0	0	4	4	0	0	4	2
2 villages	0	0	0	0	0	0	154	51	41	0	0	0	0	92	8	0	0	8	8	0	0	8	2
Pharyadi							171	18	15	33	44	0	0	110	2	8	0	10	2	8	0	10	3
Rikhli								4	5	16	15	0	0	40	5	4	0	9	5	4	0	9	
Dhar								0	0	8	9	0	0	17	3	3	0	6	3	3	0	6	
Manoni								19	13	0	0	0	0	32	3	2	0	5	3	2	0	5	4
3 villages	0	0	0	0	0	0	182	23	18	24	24	0	0	89	11	9	0	20	11	9	0	20	4
12 villages	0	0	0	0	0	0	1095	197	181	128	139	0	0	645	43	26	0	69	43	26	0	69	10

Information of Tirthan Range (Village wise)

Name of Beat	Name of Panchayat	Name of Ward	Name of village	No. of households			Total No. of households	Details of Population						Total Population
				GC	SC	OBC		GC		SC		OBC		
								M	F	M	F	M	F	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Goshaini beat	Nohanda	Shalinga	Dhar	3	0	0	3	9	11	0	0	0	0	20
			Shungcha	8	0	0	8	25	29	0	0	0	0	54
			Daran	10	0	0	10	23	23	0	0	0	0	46
			Ahrudhar	2	0	0	2	6	8	0	0	0	0	14
			Talinga	9	0	0	9	25	20	0	0	0	0	45
			Shalinga	14	0	12	26	45	38	0	0	28	24	135
			Ghat	9	0	0	9	30	31	0	0	0	0	61
			Waitee	0	5	0	5	0	0	14	15	0	0	29
		Total	**8 villages**	**55**	**5**	**12**	**72**	**163**	**160**	**14**	**15**	**28**	**24**	**404**
		Nahi	Nahi	34	29	0	63	95	90	74	65	0	0	324
			Lakcha	17	0	0	17	40	47	0	0	0	0	87
		Total:	**2 villages**	**51**	**29**	**0**	**80**	**135**	**137**	**74**	**65**	**0**	**0**	**411**
		Pekhri	Pekhri	45	0	0	45	93	119	0	0	0	0	212
		Total :	**1 village**	**45**	**0**	**0**	**45**	**93**	**119**	**0**	**0**	**0**	**0**	**212**
		Munhar	Ludhar	6	0	0	6	17	14	0	0	0	0	31
			Nadhar	6	0	0	6	25	20	0	0	0	0	45
			Barnuli	4	0	0	4	15	13	0	0	0	0	28
			Kulthi	20	0	0	20	75	61	0	0	0	0	136
			Rupajani	0	10	0	10	0	0	19	17	0	0	36
			Munhar	20	0	0	20	72	53	0	0	0	0	125
			Goshaini	1	2	0	3	2	5	3	3	0	0	13
			Gadehed	3	3	2	8	7	5	7	9	5	7	40
		Total:	8 villages	60	15	2	77	213	171	29	29	5	7	454

Name of village	Detail of Voters						Total voters	Illiteracy						Total illiteracy	Red Circles			Total Red Circles	IRDP			Total IRDP families	Group
	GC		SC		OBC			GC		SC		OBC			GC	SC	OBC		GC	SC	OBC		
	M	F	M	F	M	F		M	F	M	F	M	F										
4	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Dhar	5	3	0	0	0	0	8	4	5	0	0	0	0	9	0	0	0	0	0	0	0	0	0
Shungcha	22	15	0	0	0	0	37	14	18	0	0	0	0	32	0	0	0	0	0	0	0	0	0
Daran	14	15	0	0	0	0	29	11	13	0	0	0	0	24	0	0	0	0	0	0	0	0	0
Ahrudhar	4	2	0	0	0	0	6	2	3	0	0	0	0	5	0	0	0	0	2	0	0	2	0
Talinga	13	9	0	0	0	0	22	4	5	0	0	0	0	9	0	0	0	0	0	0	0	0	0
Shalinga	25	23	0	0	12	10	70	6	9	0	0	4	9	28	2	0	2	4	2	0	2	4	1
Ghat	12	13	0		0	0	25	11	17	0	0	0	0	28	0	0	0	0	2	0	0	2	1
Waitee	0		8	8	0	0	16	0	0	7	11	0	0	18	0	2	0	2	0	1	0	1	0
8 villages	**95**	**80**	**8**	**8**	**12**	**10**	**213**	**52**	**70**	**7**	**11**	**4**	**9**	**153**	**2**	**2**	**2**	**6**	**6**	**1**	**2**	**9**	**2**
Nahi	48	45	23	24	0	0	140	8	25	12	27	0	0	72	4	6	0	10	2	8	0	10	0
Lakcha	25	26	0	0	0	0	51	13	16	0	0	0	0	29	0	0	0	0	3	0	0	3	0
2 villages	**73**	**71**	**23**	**24**	**0**	**0**	**191**	**21**	**41**	**12**	**27**	**0**	**0**	**101**	**4**	**6**	**0**	**10**	**5**	**8**	**0**	**13**	**0**
Pekhri	73	58	0	0	0	0	131	25	39	0	0	0	0	64	9	0	0	9	7	0	0	7	0
1 village	**73**	**58**	**0**	**0**	**0**	**0**	**131**	**25**	**39**	**0**	**0**	**0**	**0**	**64**	**9**	**0**	**0**	**9**	**7**	**0**	**0**	**7**	**0**
Ludhar	11	9	0	0	0	0	20	3	5	0	0	0	0	8	0	0	0	0	1	0	0	1	0
Nadhar	11	7	0	0	0	0	18	3	4	0	0	0	0	7	0	0	0	0	2	0	0	2	0
Barhuli	6	3	0	0	0	0	9	4	4	0	0	0	0	8	0	0	0	3	1	0	0	1	0
Kulthi	25	27	0	0	0	0	52	2	3	0	0	0	0	5	3	0	0	5	7	0	0	7	0
Rupajani	0	0	7	11	0	0	18	0	0	3	3	0	0	6	0	5	0	4	0	4	0	4	1
Munhar	42	30	0	0	0	0	72	2	4	0	0	0	0	6	4	0	0	1	1	0	0	1	1
Goshaini	1	4	2	3	0	0	10	0	0	0	2	0	0	2	0	1	0	1	0	2	0	2	0
Gadehed	3	3	5	6	3	3	23	1	1	0	3	0	1	9	**1**	**0**	**0**	14	0	0	0	0	0
8 villages	**99**	**83**	**14**	**20**	**3**	**3**	**222**	**15**	**21**	**3**	**8**	**0**	**1**	**48**	**8**	**6**	**0**	**28**	**12**	**6**	**0**	**18**	**2**

P13

Name of Beat	Name of Panchayat	Name of Ward	Name of village	No. of households			Total No. of houscholds	Details of Population						Total Population
				GC	SC	OBC		GC		SC		OBC		
								M	F	M	F	M	F	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tinder beat	Nohanda	Dingcha	Kauncha, Kharongcha, Dingcha and Zaleri											
			4 villages	33	3	0	36	115	102	12	11	0	0	240
		Tinder	Tinder & Ropa											
			2 villages	52	14	0	66	136	134	37	35	0	0	342
		Zaniyar	Baringcha, Zaniyar, Barelga, Chadhari, Galsar and Gushaini.											
			6 villages	35	2	0	37	121	97	7	10	0	0	235
	G.Total:	7 wards	31 villages	331	68	14	413	976	920	173	165	33	31	2298
Goshaini beat	Khande- dhar	Dhari	Dhari	18	0	0	18	49	37	0	0	0	0	86
			Chamni	13	0	0	13	35	35	0	0	0	0	70
			Jawal	2	5	0	7	5	4	12	8	0	0	29
			Ropagoal	3	0	0	3	4	5	0	0	0	0	9
			Loharda	4	2	0	6	11	5	6	4	0	0	26
			Nagladi	4	0	0		12	8	0	0	0	0	20
	Total:	1 ward	6 villages	44	7	0	47	116	94	18	12	0	0	240

Name of village	Detail of Voters						Total voters	Illiteracy						Total illiteracy	Red Circles			Total Red Circles	IRDP			Total IRDP families	Group
	GC		SC		OBC			GC		SC		OBC			GC	SC	OBC		GC	SC	OBC		
	M	F	M	F	M	F		M	F	M	F	M	F										
4	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Kauncha, Kharongcha, Dingcha and Zaleri																							
4 villages	69	66	10	7	0	0	152	36	50	5	9	0	0	100	2	3	0	5	1	2	0	3	1
Tinder & Ropa																							
2 villages	71	73	22	20	0	0	186	36	50	25	17	0	0	128	10	10	0	20	13	4	0	17	1
Baringcha, Zaniyar, Barelga, Chadhari, Galsar and Gushaini.																							
6 villages	66	57	4	4	0	0	131	35	47	5	7	0	0	94	3	1	0	4	1	0	0	1	0
31 villages	546	488	81	83	15	13	1226	220	318	57	79	4	10	688	38	28	2	82	45	21	2	68	6
Dhan								0	2	0	0	0	0	2	0	0	0	0	1	0	0	1	0
Chamni								0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jawal								0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	0
Ropaoa								0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
Loharda								0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
Naglad								0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 villages	0	0	0	0	0	0	0	0	2	0	2	0	0	4	0	0	0	0	2	1	0	3	0

Information of Sainj Range (Village wise)

Name of Beat	Name of Panchayat	Name of Ward	Name of village	No. of households			Total No. of households	Details of Population						Total Population
				GC	SC	OBC		GC		SC		OBC		
								M	F	M	F	M	F	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Suchain	Suchain	Suchain	Suchain	15	0	0	15	39	30	0		0	0	69
			Gurshera	5	6	0	11	15	7	14	8	0	0	44
			Narwali	10	1	0	11	30	20	4	3	0	0	57
			Sari	0	5	0	5	0	0	34	30	0	0	64
			Thatchan	5	3	0	8	6	4	9	5	0		24
			Tungru	7	0	0	7	9	6	0	0	0	0	15
			Shiargi	6	0	0	6	11	8	0	0	0	0	19
			Ropa	18	0	0	18	45	34	0	0	0	0	79
	Total :	**1 ward**	**8 villages**	**66**	**15**	**0**	**81**	**155**	**109**	**61**	**46**	**0**	**0**	**371**
Shakti-Maror	Garaparli	Shakti-Maror	Shakti	11	0	0	11	13	10	0	0	0	0	23
			Maror	8	0	0	8	10	11	0	0	0	0	21
			Shagwad	5	0	0	5	5	4	0	0	0	0	9
	Total:	**1 Ward**	**3 villages**	**24**	**0**	**0**	**24**	**28**	**25**	**0**	**0**	**0**	**0**	**53**

Name of village	Detail of Voters						Total voters	Illiteracy						Total illiteracy	Red Circles			Total Red Circles	IRDP			Total IRDP families
	GC		SC		OBC			GC		SC		OBC			GC	SC	OBC		GC	SC	OBC	
	M	F	M	F	M	F		M	F	M	F	M	F									
4	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Suchain	25	15	0	0	0	0	40					0	0	0	1	0	0	1	1	0	0	1
Gurshera	16	12	0	0	0	0	28					0	0	0	0	1	0	1	0	0	0	0
Narwali	12	8	2	1	0	0	23					0	0	0	0	1	0	1	0	1	0	1
Sari	0	0	7	5	0	0	12					0	0	0	0	1	0	1	0	1	0	1
Thatchan	5	3	12	8	0	0	28					0	0	0	1	0	0	1	0	0	0	0
Tungru	15	10	0	0	0	0	25					0	0	0	1	0	0	1	1	0	0	1
Shiargi	20	13	0	0	0	0	33					0	0	0	1	0	0	1	0	0	0	0
Ropa	28	15	0	0	0	0	43	221		30	13	0	0	264	1	0	0	1	1	0	0	1
8 villages	**121**	**76**	**21**	**14**	**0**	**0**	**232**	**221**	**0**	**30**	**13**	**0**	**0**	**264**	**5**	**3**	**0**	**8**	**3**	**2**	**0**	**5**
Shakti	13	10	0	0	0	0	23	13	10	0	0	0	0	23	2	0	0	2	2	0	0	2
Maror	10	11	0	0	0	0	21	10	11	0	0	0	0	21	1	0	0	1	1	0	0	1
Shagwad	5	4	0	0	0	0	9	5	4	0	0	0	0	9	0	0	0	0	0	0	0	0
3 villages	**28**	**25**	**0**	**0**	**0**	**0**	**53**	**28**	**25**	**0**	**0**	**0**	**0**	**53**	**3**	**0**	**0**	**3**	**3**	**0**	**0**	**3**

Information of Sainj Range (Village wise)

Name of Beat	Name of Panchayat	Name of Ward	Name of village	No. of households			Total No. of households	Details of Population						Total Population
				GC	SC	OBC		GC		SC		OBC		
								M	F	M	F	M	F	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Shangarh beat	Shangarh	Madana	Madana	13	0	0	13	34	32	0	0	0	0	66
			Bira Shangarh	7	0	0	7	33	27	0	0	0	0	60
			Kanava	11	0	0	11	35	30	0	0	0	0	65
			Neuli	2	1	0	3	5	2	1	3	0	0	11
	Total		4 villages	33	1	0	34	107	91	1	3	0	0	202
	Shangarh	Katwali	Katwali	14	0	0	14	30	20	0	0	0	0	50
			Dachra	9	0	0	9	27	21	0	0	0	0	48
			Pathara	6	0	0	6	21	18	0	0	0	0	39
			Dhara	2	0	0	2	6	8	0	0	0	0	14
	Total		4 villages	31	0	0	31	84	67	0	0	0	0	151
	Shangarh	Goshati	Goshati	0	11	0	11	0	0	31	30	0	0	61
			Dhara Pathara	0	11	0	11	0	0	38	32	0	0	70
			Tadora	0	4	0	4	0	0	6	11	0	0	17
			Kotalu	0	3	0	3	0	0	5	10	0	0	15
	Total		4 villages	0	29	0	29	0	0	80	83	0	0	163
	Shangarh	Dharali	Dharali	15	6	0	21	51	40	15	13	0	0	119
			Bar-Shangarh	17	0	0	17	54	56	0	0	0	0	110
			Sunder Nagar	1	13	0	14	6	4	42	28	0	0	80
			Shangcha	0	1	0	1	0	0	4	3	0	0	7
	Total:		4 villages	33	20	0	53	111	100	61	44	0	0	316
Lapah beat	Shangarh	Lapah	Lapah- Dhara	18	4	0	22	71	71	20	15	0	0	177
	Total:		1 village	18	4	0	22	71	71	20	15	0	0	177
	G.Total:	5 Wards	17 villages	115	54	0	169	373	329	162	145	0	0	1009

Name of village	Detail of Voters						Total voters	Illiteracy						Total illiteracy	Red Circles			Total Red Circles	IRDP			Total IRDP families	Group
	GC		SC		OBC			GC		SC		OBC			GC	SC	OBC		GC	SC	OBC		
	M	F	M	F	M	F		M	F	M	F	M	F										
4	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Madana	25	22	0	0	0	0	47	2	6	0	0	0	0	8	2	0	0	2	6	0	0	6	1
Bira Shangarh	25	13	0	0	0	0	38	5	5	0	0	0	0	10	1	0	0	1	5	0	0	5	0
Kahava	20	19	0	0	0	0	39	8	19	0	0	0	0	27	1	0	0	1	4	0	0	4	0
Neuli	3	3	0	0	0	0	6	4	3	0	0	0	0	7	0	0	0	0	0	0	0	0	0
4 villages	**73**	**57**	**0**	**0**	**0**	**0**	**130**	**19**	**33**	**0**	**0**	**0**	**0**	**52**	**4**	**0**	**0**	**4**	**15**	**0**	**0**	**15**	**1**
Katwali	29	19	0	0	0	0	48	4	14	0	0	0	0	18	2	0	0	2	6	0	0	6	1
Daghra	14	17	0	0	0	0	31	0	11	0	0	0	0	11	2	0	0	2	5	0	0	5	0
Pathara	21	20	0	0	0	0	41	2	6	0	0	0	0	8	1	0	0	1	4	0	0	4	0
Dhara	0	0	0	0	0	0	0	2	3	0	0	0	0	5	1	0	0	1	0	0	0	0	0
4 villages	**64**	**56**	**0**	**0**	**0**	**0**	**120**	**8**	**34**	**0**	**0**	**0**	**0**	**42**	**6**	**0**	**0**	**6**	**15**	**0**	**0**	**15**	**1**
Goshati	0	0	15	20	0	0	35	0	0	10	13	0	0	23	0	2	0	2	0	4	0	4	0
Dhara Pathara	0	0	25	17	0	0	42	0	0	8	15	0	0	23	0	2	0	2	0	4	0	4	1
Tadora	0	0	4	5	0	0	9	0	0	2	3	0	0	5	0	1	0	1	0	2	0	2	0
Kotalu	0	0	2	2	0	0	4	0	0	2	6	0	0	8	0	1	0	1	0	0	0	0	0
4 villages	**0**	**0**	**46**	**44**	**0**	**0**	**90**	**0**	**0**	**22**	**37**	**0**	**0**	**59**	**0**	**6**	**0**	**6**	**0**	**10**	**0**	**10**	**1**
Dharali	28	27	9	9	0	0	73	8	9	10	17	0	0	44	0	2	0	2	5	1	0	6	1
Bar-Shangarh	31	26	0	0	0	0	57	7	18	0	0	0	0	25	0	0	0	0	5	0	0	5	0
Sunder Nagar	1	3	29	15	0	0	48	0	0	13	21	0	0	34	0	4	0	4	0	0	0	0	0
Shaingcha	0	0	1	1	0	0	2	0	0	1	2	0	0	3	0	1	0	1	0	0	0	0	1
4 villages	**60**	**56**	**39**	**25**	**0**	**0**	**180**	**15**	**27**	**24**	**40**	**0**	**0**	**106**	**0**	**7**	**0**	**7**	**10**	**1**	**0**	**11**	**2**
Lapah- Dhara	40	41	8	9	0	0	98	8	20	3	10	0	0	41	6	3	0	9	7	1	0	8	1
1 village	**40**	**41**	**8**	**9**	**0**	**0**	**98**	**8**	**20**	**3**	**10**	**0**	**0**	**41**	**6**	**3**	**0**	**9**	**7**	**1**	**0**	**8**	**1**
17 villages	**237**	**210**	**93**	**78**	**0**	**0**	**618**	**50**	**114**	**49**	**87**	**0**	**0**	**300**	**16**	**16**	**0**	**32**	**47**	**12**	**0**	**59**	**6**

Name of village	Detail of Voters						Total voters	Illiteracy						Total illiteracy	Red Circles			Total Red Circles	IRDP			Total IRDP families	Group
	GC		SC		OBC			GC		SC		OBC			GC	SC	OBC		GC	SC	OBC		
	M	F	M	F	M	F		M	F	M	F	M	F										
4	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Sharan	73	52	22	19	0	0	166	21	33	14	17	0	0	85	5	3	0	8	7	2	0	9	2
1 village	**73**	**52**	**22**	**19**	**0**	**0**	**166**	**21**	**33**	**14**	**17**	**0**	**0**	**85**	**5**	**3**	**0**	**8**	**7**	**2**	**0**	**9**	**2**
Jeva	20	18	0	0	0	0	38	4	5	0	0	0	0	9	3	0	0	3	5	0	0	5	0
1 Village	**20**	**18**	**0**	**0**	**0**	**0**	**38**	**4**	**5**	**0**	**0**	**0**	**0**	**9**	**3**	**0**	**0**	**3**	**5**	**0**	**0**	**5**	**0**
Dhaliyara	3	3	0	0	0	0	6	7	3	0	0	0	0	10	1	0	0	1	0	0	0	0	0
Majgran	8	10	0	0	0	0	18	4	8	0	0	0	0	12	1	0	0	1	1	0	0	1	0
Garain	4	3	0	0	0	0	7	0	3	0	0	0	0	3	1	0	0	1	0	0	0	0	0
Sari	5	4	0	0	0	0	9	2	3	0	0	0	0	5	1	0	0	1	0	0	0	0	0
Nanigran	2	3	0	0	0	0	5	1	3	0	0	0	0	4	0	0	0	0	0	0	0	0	0
Tamuhal	9	5	0	0	0	0	14	1	3	0	0	0	0	4	0	0	0	0	0	0	0	0	0
Aashatan	4	3	1	1	0	0	9	0	0	1	1	0	0	2	0	1	0	1	0	0	0	0	0
Shetitohal	0	0	6	7	0	0	13	0	0	3	5	0	0	8	0	0	0	0	0	0	0	0	0
Ghat	15	12	0	0	0	0	27	4	9	0	0	0	0	13	1	0	0	1	1	0	0	1	0
Shaindhar	12	12	0	0	0	0	24	4	9	0	0	0	0	13	0	0	0	0	0	0	0	0	0
Ghat Sari	15	8	0	0	0	0	23	5	2	0	0	0	0	7	1	0	0	1	0	0	0	0	0
Shroah	0	0	10	10	0	0	20	0	0	2	3	0	0	5	0	3	0	3	0	1	0	1	0
Shillar	1	1	0	0	0	0	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
13 villages	**78**	**64**	**17**	**18**	**0**	**0**	**177**	**28**	**43**	**6**	**10**	**0**	**0**	**87**	**6**	**4**	**0**	**10**	**2**	**1**	**0**	**3**	**0**
Kathiyari	8	4	0	0	0	0	12	4	3	0	0	0	0	7	13	7	0	20	0	0	0	0	0
Shaidhar	0	0	16	13	0	0	29	0	0	14	11	0	0	25	0	2	0	2	0	2	0	2	0
2 villages	**8**	**4**	**16**	**13**	**0**	**0**	**41**	**4**	**3**	**14**	**11**	**0**	**0**	**32**	**13**	**9**	**0**	**22**	**0**	**2**	**0**	**2**	**0**
Koichat	4	2	1	1	0	0	8	1	2	0	1	0	0	4	0	0	0	0	0	0	0	0	0
Chouchra	1	1	0	0	0	0	2	1	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0
2 villages	**5**	**3**	**1**	**1**	**0**	**0**	**10**	**2**	**3**	**0**	**1**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
19 Villages	**184**	**141**	**56**	**51**	**0**	**0**	**432**	**59**	**87**	**34**	**39**	**0**	**0**	**219**	**27**	**16**	**0**	**43**	**14**	**5**	**0**	**19**	**2**

Information of Jiwanal Range (Village wise)

Name of Beat	Name of Panchayat	Name of Ward	Name of village	No. of households			Total No. of households	Details of Population						Total Population
				GC	SC	OBC		GC		SC		OBC		
								M	F	M	F	M	F	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Sharan beat	Railla	Sharan	Sharan	35	11	0	46	110	95	30	28	0	0	263
	Total :		1 village	35	11	0	46	110	95	30	28	0	0	263
		Jeeva	Jeva	16	0	0	16	29	29	0	0	0	0	58
	Total :		1 Village	16	0	0	16	29	29	0	0	0	0	58
		Ghat	Dhalivara	1	0	0	1	3	3	0	0	0	0	6
			Majoran	6	0	0	6	15	13	0	0	0	0	28
			Garain	2	0	0	2	6	3	0	0	0	0	9
			Sari	1	0	0	1	8	8	0	0	0	0	16
			Nanigran	1	0	0	1	6	4	0	0	0	0	10
			Tamuhal	4	0	0	4	13	6	0	0	0	0	19
			Aashatan	3	1	0	4	7	6	2	3	0	0	18
			Shetitohal	0	3	0	3	0	0	15	15	0	0	30
			Ghat	5	0	0	5	26	14	0	0	0	0	40
			Shaindhar	8	0	0	8	23	28	0	0	0	0	51
			Ghat Sari	6	0	0	6	23	18	0	0	0	0	41
			Shroah	0	5	0	5	0	0	21	18	0	0	39
			Shillar	1	0	0	1	3	5	0	0	0	0	8
	Total :		13 villages	38	9	0	47	133	108	38	36	0	0	315
		Bhupan	Kathiyari	3	0	0	3	11	9	0	0	0	0	20
			Shaichar	0	6	0	6	0	0	29	20	0	0	49
	Total :		2 villages	3	6	0	9	11	9	29	20	0	0	69
		Railla	Kolchat	2	1	0	3	5	4	1	1	0	0	11
			Chouchra	1	0	0	1	1	2	0	0	0	0	3
	Total :		2 villages	3	1	0	4	6	6	1	1	0	0	14
	G.Total:	5 Wards	19 Villages	95	27	0	122	289	247	98	85	0	0	719

Information of Jiwanal Range (Village wise)

Name of Beat	Name of Panchayat	Name of Ward	Name of village	No. of households			Total No. of households	Details of Population						Total Population
				GC	SC	OBC		GC		SC		OBC		
								M	F	M	F	M	F	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Majhan Beat	Gara Pari	Majhan	Majhan/ Thachan	30	3	0	33	71	75	12	11	0	0	169
			Leachen	1	0	0	1	1	2	0	0	0	0	3
		Total:	**3 villages**	**31**	**3**	**0**	**34**	**72**	**77**	**12**	**11**	**0**	**0**	**172**
		Mail	Mail	14	5	0	19	31	28	15	9	0	0	83
			Niharni	4	1	0	5	9	8	0	1	0	0	18
			Bah	6	2	0	8	14	6	5	4	0	0	29
			Chenga	3	0	0	3	8	6	0	0	0	0	14
		Total:	**4 villages**	**27**	**8**	**0**	**35**	**62**	**48**	**20**	**14**	**0**	**0**	**144**
	do	Banaugi	Banaugi	8	4	0	12	27	27	14	8	0	0	76
Shainsher beat			Bagi Kashadi	16	2	0	18	41	44	8	7	0	0	100
		Total:	**2 villages**	**24**	**6**	**0**	**30**	**68**	**71**	**22**	**15**	**0**	**0**	**176**
Bah beat		**Badehtha**	Shiryadi	0	5	0	5	0	0	14	10	0	0	24
			Badhani	0	3	0	3	0	0	12	12	0	0	24
			Soyan	2	0	0	2	9	4	0	0	0	0	13
			Badehtha	1	12	0	13	1	3	29	33	0	0	66
			Bhajhinala	0	3	0	3	0	0	7	9	0	0	16
			Shamshi nala	0	2	0	2	0	0	8	5	0	0	13
			Maloan	1	0	0	1	2	4	0	0	0	0	6
		Total:	**7 villages**	**4**	**25**	**0**	**29**	**12**	**11**	**70**	**69**	**0**	**0**	**162**
		G.Total:	**16 villages**	**86**	**42**	**0**	**128**	**214**	**207**	**124**	**109**	**0**	**0**	**654**

Name of village	Detail of Voters						Total voters	Illiteracy						Total illiteracy	Red Circles			Total Red Circles	IRDP			Total IRDP families	Group
	GC		SC		OBC			GC		SC		OBC			GC	SC	OBC		GC	SC	OBC		
	M	F	M	F	M	F		M	F	M	F	M	F										
4	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Majhan/ Thachan	42	44	6	6	0	0	98	31	45	5	5	0	0	86	10	4	0	14	2	2	0	4	2
Leachen	0	1	0	0	0	0	1	1	1	0	0	0	0	2				0	0	0	0	0	0
3 villages	**42**	**45**	**6**	**6**	**0**	**0**	**99**	**32**	**46**	**5**	**5**	**0**	**0**	**88**	**10**	**4**	**0**	**14**	**2**	**2**	**0**	**4**	**2**
Mail	20	13	6	4	0	0	43	10	11	5	5	0	0	31	8	4	0	12	8	4	0	12	1
Niharni	4	5	0	1	0	0	10	3	5	0	1	0	0	9									
Bah	8	6	2	3	0	0	19	3	5	0	4	0	0	12									
Chenga	3	4	0	0	0	0	7	2	5	0	0	0	0	7									
4 villages	**35**	**28**	**8**	**8**	**0**	**0**	**79**	**18**	**26**	**5**	**10**	**0**	**0**	**59**	**8**	**4**	**0**	**12**	**8**	**4**	**0**	**12**	**1**
Banaugi	13	14	4	4	0	0	35	7	11	7	5	0	0	30	1	0	0	1	1	0	0	1	1
Bagi Kashadi	23	18	3	4	0	0	48	15	17	3	4	0	0	39	10	0	0	10	3	2	0	5	1
2 villages	**36**	**32**	**7**	**8**	**0**	**0**	**83**	**22**	**28**	**10**	**9**	**0**	**0**	**69**	**11**	**0**	**0**	**11**	**4**	**2**	**0**	**6**	**2**
Shiryadi	0	0	7	5	0	0	12	0	0	5	6	0	0	11	0		0		0	1	0	1	0
Badhani	0	0	5	4	0	0	9	0	0	5	4	0	0	9	0		0		0	1	0	1	0
Soyan	4	3	0	0	0	0	7	3	4	0	0	0	0	7	0		0		0	1	0	1	0
Badehtha	1	2	15	14	0	0	32	1	2	13	16	0	0	32	0		0		0	6	0	6	0
Bhajhinala	0	0	3	3	0	0	6	0	0	4	3	0	0	7	0		0		0	0	0	0	0
Shamshi nala	0	0	4	4	0	0	8	0	0	1	3	0	0	4	0		0		0	0	0	0	0
Maloan	2	2	0	0	0	0	4	1	2	0	0	0	0	3	0		0		0	0	0	0	0
7 villages	**7**	**7**	**34**	**30**	**0**	**0**	**78**	**5**	**8**	**28**	**32**	**0**	**0**	**73**	**0**	**9**	**0**	**9**	**0**	**9**	**0**	**9**	**0**
16 villages	**120**	**112**	**55**	**52**	**0**	**0**	**339**	**77**	**108**	**48**	**56**	**0**	**0**	**289**	**29**	**17**	**0**	**46**	**14**	**17**	**0**	**31**	**5**

Information of Jiwanal Range (Village wise)

Name of Beat	Name of Panchayat	Name of Ward	Name of village	No. of households			Total No. of households	Details of Population						Total Population
				GC	SC	OBC		GC		SC		OBC		
								M	F	M	F	M	F	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Pashi	Railla	1. Majhan	Khaniyari	7	2	0	9	19	17	3	3	0	0	42
			Maiharna	14	0	0	14	51	35	0	0	0	0	86
			Thati Dhar	6	0	0	6	17	22	0	0	0	0	39
			Khadungcha	23	0	0	23	82	79	0	0	0	0	161
		Total :	**4 villages**	**50**	**2**	**0**	**52**	**169**	**153**	**3**	**3**	**0**	**0**	**328**
Bhupan	do	2. Bhupan	Bhupan	15	0	0	15	44	34	0	0	0	0	78
			Karmtan	5	0	0	5	10	8	0	0	0	0	18
			Sharan	12	0	0	12	46	41	0	0	0	0	87
			Pashi	16	0	0	16	48	45	0	0	0	0	93
		Total :	**4 villages.**	**48**	**0**	**0**	**48**	**148**	**128**	**0**	**0**	**0**	**0**	**276**
	G.Total:	2 wards	8 villages	98	2	0	100	317	281	3	3	0	0	604

Name of village	Detail of Voters						Total voters	Illiteracy						Total illiteracy	Red Circles			Total Red Circles	IRDP			Total IRDP families	Group
	GC		SC		OBC			GC		SC		OBC			GC	SC	OBC		GC	SC	OBC		
	M	F	M	F	M	F		M	F	M	F	M	F										
4	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Khaniyari	11	11	3	3	0	0	28	5	9	2	1	0	0	17	2	0	0	2	0	2	0	2	0
Majharna	32	26	0	0	0	0	58	22	22	0	0	0	0	44	2	0	0	2	1	0	0	1	0
Thati Dhar	13	12	0	0	0	0	25	8	10	0	0	0	0	18	0	0	0	0	0	0	0	0	0
Khadungcha	47	43	0	0	0	0	90	25	37	0	0	0	0	62	3	0	0	3	1	0	0	1	0
4 villages	**103**	**92**	**3**	**3**	**0**	**0**	201	**60**	**78**	**2**	**1**	**0**	**0**	141	**7**	**0**	**0**	**7**	**2**	**2**	**0**	**4**	**0**
Bhupan	30	23	0	0	0	0	53	8	16	0	0	0	0	24	5	0	0	5	1	0	0	1	1
Karmtan	10	8	0	0	0	0	18	3	5	0	0	0	0	8	2	0	0	2	0	0	0	0	0
Sharan	31	30	0	0	0	0	61	16	30	0	0	0	0	46	0	0	0	0	2	0	0	2	0
Pashi	33	29	0	0	0	0	62	25	27	0	0	0	0	52	0	0	0	0	4	0	0	4	0
4 villages.	**104**	**90**	**0**	**0**	**0**	**0**	194	**52**	**78**	**0**	**0**	**0**	**0**	130	**7**	**0**	**0**	**7**	**7**	**0**	**0**	**7**	**1**
8 villages	**207**	**182**	**3**	**3**	**0**	**0**	395	**112**	**156**	**2**	**1**	**0**	**0**	271	**14**	**0**	**0**	**14**	**9**	**2**	**0**	**11**	**1**

Information of Jiwanal Range (Village wise)

Name of Beat	Name of Panchayat	Name of Ward	Name of village	No. of households			Total No. of households	Details of Population						Total Population
				GC	SC	OBC		GC		SC		OBC		
								M	F	M	F	M	F	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Neuli beat	Dehuri dhar	1. Neuli	Goal	0	14	0	14	0	0	33	26	0	0	59
			Zeevalu	1	2	6	9	3	4	5	8	16	12	48
			Keouli	0	6	0	6	0	0	17	12	0	0	29
			Neuli	2	8	0	10	5	2	20	25	0	0	52
			Satesh	1	7	0	8	3	1	20	18	0	0	42
			Nununbahli	0	3	0	3	0	0	14	10	0	0	24
		Total :	**6 Village**	**4**	**40**	**6**	**50**	**11**	**7**	**109**	**99**	**16**	**12**	**254**
		2. Darmerha	Thatch Bihali	6	0	0	6	19	18	0	0	0	0	37
			Darmehra-I	3	5	0	8	17	15	19	15	0	0	66
			Darmehra-II	0	11	0	11	0	0	37	32	0	0	69
			Bihali	3	0	0	3	12	9	0	0	0	0	21
			Nadahra	1	6	0	7	2	4	20	24	0	0	50
			Karhila	2	6	0	8	10	8	12	11	0	0	41
			Nin	1	1	0	2	4	4	3	3	0	0	14
			Riyada	1	0	0	1	3	2	0	0	0	0	5
		Total :	**8 Village**	**17**	**29**	**0**	**46**	**67**	**60**	**91**	**85**	**0**	**0**	**303**
		3.Tungh	Tunch	17	6	0	23	45	42	19	17	0	0	123
			Shabnadi	0	8	0	8	0	0	26	37	0	0	63
			Pichadi	0	4	0	4	0	0	17	15	0	0	32
			Briula	0	3	0	3	0	0	7	14	0	0	21
		Total :	**4 village**	**17**	**21**	**0**	**38**	**45**	**42**	**69**	**83**	**0**	**0**	**239**
		4. Sihan.	Sihan. Riyad	14	4	0	18	32	42	12	7	0	0	93
			Guhid	2	12	0	14	5	5	44	44	0	0	98
			Jalonra	0	5	0	5	0	0	17	14	0	0	31
		Total :	**3 Village**	**16**	**21**	**0**	**37**	**37**	**47**	**73**	**65**	**0**	**0**	**222**
		5. Dhartha	Dhartha	0	9	0	9	0	0	31	27	0	0	58
			KentnaAge	0	8	0	8	0	0	18	18	0	0	36
			Taliyara	3	0	0	3	11	16	0	0	0	0	27
			Bashtiyara, Hadinal	0	13	0	13	0	0	31	43	0	0	74
		Total :	**4 village**	**3**	**30**	**0**	**33**	**11**	**16**	**80**	**88**	**0**	**0**	**195**
		G.Total	**25 villages**	**57**	**141**	**6**	**204**	**171**	**172**	**422**	**420**	**16**	**12**	**1213**
	Gara Parli	**Banougi Ward No. 5.**	**Bagi-Shadi**	**18**	**2**	**0**	**18**	**41**	**44**	**8**	**7**	**0**	**0**	**100**

Name of village	Detail of Voters						Total voters	Illiteracy						Total illiteracy	Red Circles			Total Red Circles	IRDP			Total IRDP families	Group
	GC		SC		OBC			GC		SC		OBC			GC	SC	OBC		GC	SC	OBC		
	M	F	M	F	M	F		M	F	M	F	M	F										
4	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Goal	0	0	19	16	0	0	35	0	0	9	13	0	0	[illegible]	0	7	0	7	0	2	0	2	0
Zeeyalu	2	3	2	2	11	7	27	0	1	2	6	9	6	[illegible]	0	1	3	4	0	0	0	0	1
Keouli	0	0	11	8	0	0	19	0	0	6	7	0	0	[illegible]	0	1	0	1	0	3	0	3	0
Neuli	3	2	12	12	0	0	29	1	2	3	4	0	0	[illegible]	0	2	0	2	1	2	0	3	0
Satesh	1	1	10	12	0	0	24	1	0	6	8	0	0	[illegible]	1	2	0	3	0	3	0	3	0
Nununbahli	0	0	6	7	0	0	13	0	0	1	4	0	0	[illegible]	0	0	0	0	0	0	0	0	0
6 Village	**6**	**6**	**60**	**57**	**11**	**7**	**147**	**2**	**3**	**27**	**42**	**9**	**6**	[illegible]	**1**	**13**	**3**	**17**	**1**	**10**	**0**	**11**	**1**
Thatch Bihali	11	10	0	0	0	0	21	6	0	0	0	0	0	[illegible]	0	1	0	1	0	0	0	0	0
Darmehra-I	10	9	10	10	0	0	39	1	3	4	10	0	0	[illegible]	0	1	0	1	1	0	0	1	0
Darmehra-II	0	0	17	16	0	0	33	0	0	3	15	0	0	[illegible]	0	4	0	4	0	1	0	1	1
Bihali	8	4	0	0	0	0	12	3	2	0	0	0	0	[illegible]	0	0	0	0	0	0	0	0	0
Nadahra	1	2	10	13	0	0	26	0	1	8	15	0	0	[illegible]	0	5	0	5	0	3	0	3	0
Karhila	5	7	8	6	0	0	26	2	7	4	6	0	0	[illegible]	0	4	0	4	0	1	0	1	0
Nini	3	3	2	1	0	0	9	2	2	1	1	0	0	[illegible]	0	0	0	0	0	0	0	0	0
Riyada	3	2	0	0	0	0	5	1	1	0	0	0	0	[illegible]	0	0	0	0	0	0	0	0	0
8 Village	**41**	**37**	**47**	**46**	**0**	**0**	**171**	**15**	**16**	**20**	**47**	**0**	**0**	[illegible]	**0**	**15**	**0**	**15**	**1**	**5**	**0**	**6**	**1**
Tungh	22	22	9	6	0	0	59	11	18	4	11	0	0	[illegible]	9	4	0	13	2	1	0	3	0
Shaphadi	0	0	16	14	0	0	30	0	0	4	21	0	0	[illegible]	0	7	0	7	0	1	0	1	0
Pichadi	0	0	7	7	0	0	14	0	0	5	9	0	0	[illegible]	0	3	0	3	0	1	0	1	0
Briula	0	0	5	5	0	0	10	0	0	2	11	0	0	[illegible]	0	3	0	3	0	1	0	1	0
4 village	**22**	**22**	**37**	**32**	**0**	**0**	**113**	**11**	**18**	**15**	**52**	**0**	**0**	[illegible]	**9**	**17**	**0**	**26**	**2**	**4**	**0**	**6**	**0**
Sihan, Riyad	16	21	5	4	0	0	46	9	22	3	4	0	0	[illegible]	3	4	0	7	0	1	0	1	1
Guhidi	2	3	21	26	0	0	52	1	3	1	3	0	0	[illegible]	0	6	0	6	0	3	0	3	1
Jalohra	0	0	8	7	0	0	15	0	0	5	9	0	0	[illegible]	0	4	0	4	0	2	0	2	0
3 Village	**18**	**24**	**34**	**37**	**0**	**0**	**113**	**10**	**25**	**9**	**16**	**0**	**0**	[illegible]	**3**	**14**	**0**	**17**	**0**	**6**	**0**	**6**	**2**
Dhartha	0	0	11	10	0	0	21	0	0	5	12	0	0	[illegible]	3	4	0	7	0	3	0	3	0
KenthaAge	0	0	7	8	0	0	15	0	0	7	8	0	0	[illegible]	0	6	0	6	0	2	0	2	0
Taliyara	7	6	0	0	0	0	13	4	6	0	0	0	0	[illegible]	0	4	0	4	0	0	0	0	1
Bashtiyara, Hachal	0	0	22	18	0	0	40	0	0	14	26	0	0	[illegible]	0	8	0	8	0	3	0	3	0
4 village	**7**	**6**	**40**	**36**	**0**	**0**	**89**	**4**	**6**	**26**	**46**	**0**	**0**	[illegible]	**3**	**22**	**0**	**25**	**0**	**8**	**0**	**8**	**1**
25 villages	**94**	**95**	**218**	**208**	**11**	**7**	**633**	**42**	**68**	**97**	**203**	**9**	**6**	[illegible]	**16**	**81**	**3**	**100**	**4**	**33**	**0**	**37**	**5**
Bagi-Shadi	23	18	3	4	0	0	48	15	17	3	4	0	0	[illegible]	10	0	0	10	3	2	0	5	1

Information of Jiwanal Range (Village wise)

Name of Beat	Name of Panchayat	Name of Ward	Name of village	No. of households			Total No. of households	Details of Population						Total Population
								GC		SC		OBC		
				GC	SC	OBC		M	F	M	F	M	F	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Shainsher beat	Shainsher	1. Khain	Khain	36	0	0	36	76	83	0	0	0	0	159
		2. Manhara	Manhara	25	0	0	25	85	104	0	0	0	0	189
		3. Chanahdi	Chanahdi	0	26	0	26	0	0	71	75	0	0	146
		4. Bajhara	Bajhara	4	0	4	8	11	23	0	0	14	11	64
			Chatardala	7	2	0	9	18	12	5	3	0	0	38
			Jaga	4	0	0	4	9	9	0	0	0	0	18
			Bharogi- Sanogi	3	0	0	3	14	10	0	0	0	0	24
		Total :	4 Villages	18	2	4	24	52	59	5	3	14	11	144
		5. Pathara	Pathara	6	0	0	6	24	23	0	0	0	0	47
			Dhanidi	0	6	0	6	0	0	8	17	0	0	25
			Bandlu- Duhar	0	8	0	8	0	0	14	22	0	0	36
			Jangla Nalasen Bandhar Luhari	9	7	0	16	31	27	18	21	0	0	97
			Rwanda	2	7	0	9	8	3	14	15	0	0	40
		Total :	5 Villages	17	28	0	45	63	53	54	75	0	0	245
	G.Total:	5 Wards	12 Villages	96	56	4	156	276	299	130	153	14	11	883

Name of village	Detail of Voters						Total voters	Illiteracy						Total illiteracy	Red Circles			Total Red Circles	IRDP			Total IRDP families	Group
	GC		SC		OBC			GC		SC		OBC			GC	SC	OBC		GC	SC	OBC		
	M	F	M	F	M	F		M	F	M	F	M	F										
4	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Khain	59	48	0	0	0	0	107	26	37	0	0	0	0	63	7	0	0	7	5	0	0	5	1
Manhara	42	44	0	0	0	0	86	16	44	0	0	0	0	60	13	0	0	13	9	0	0	9	1
Chanahdi	0	0	35	38	0	0	73	0	0	18	58	0	0	76	0	23	0	23	0	16	0	16	1
Bajhara	5	8	0	0	9	5	27	0	9	0	0	8	7	24	0	0	4	4	0	0	3	3	0
Chatardala	8	10	3	2	0	0	23	2	9	1	1	0	0	13	3	2	0	5	1	0	0	1	0
Jada	4	3	0	0	0	0	7	2	5	0	0	0	0	7	4	0	0	4	0	0	0	0	0
Bharogi- Sabogi	8	6	0	0	0	0	14	0	6	0	0	0	0	6	0	0	0	0	0	0	0	0	0
4 Village	25	27	3	2	9	5	71	4	29	1	1	8	7	50	7	2	4	13	1	0	3	4	0
Pathara	10	13	0	0	0	0	23	6	14	0	0	0	0	20	4	0	0	4	2	0	0	2	0
Dimahidi	0	0	8	9	0	0	17	0	0	1	12	0	0	13	0	5	0	5	0	2	0	2	0
Bandlu- Duhar	0	0	11	10	0	0	21	0	0	6	14	0	0	20	0	7	0	7	0	1	0	1	0
Jangla Nalasari Bahidhar Luhari	17	15	9	7	0	0	48	11	25	6	9	0	0	51	6	7	0	13	3	3	0	6	1
Rivahda	3	2	9	8	0	0	22	3	2	8	17	0	0	30	0	7	0	7	0	2	0	2	0
5 Village	30	30	37	34	0	0	131	20	41	21	52	0	0	134	10	26	0	36	5	8	0	13	1
12 Vill.	156	149	75	74	9	5	468	66	151	40	111	8	7	383	37	51	4	92	20	24	3	47	4