



GOVERNMENT OF SIKKIM
**FOREST, ENVIRONMENT & WILDLIFE MANAGEMENT
DEPARTMENT**

**ANNUAL ADMINISTRATIVE REPORT
2006-07**



FORWARD

Natural resources are vital components for sustaining life support system on Earth and human beings are dependent not only for economic activities but also for meeting their day-to-day needs. The very system of human society depends on sustenance of forest eco-system and conservation of bio-diversity. However, with the ever increasing demand on the forest resources for goods and services, the forests are under tremendous biotic pressure.

Keeping this in view, the Planning Commission of India has set the target for achieving the national goal of 33% of forest and tree cover of the total geographical area of the country by 11th Five Year Plan period i.e. 2012 as approved by the National Development Council to check the environmental hazards and have a reasonably eco-friendly environment to live in addition to cater to needs of growing population of the country. The Forest, Env. & Wildlife Management Department, I am proud to say has already achieved this target as the forest cover accounts for over 46% of the total geographical area of the State. The State has set the target to increase the forest cover to 60% by 2015 as earmarked by the Ministry of Environment & Forests, Government of India, for the hill states. For this, there is need to generate awareness among the common mass and institutional mechanism needs to be strengthened to ensure active participation of the people in the management, regeneration and rejuvenation of the forest wealth.

The State Government has launched a unique and innovative programme called " STATE GREEN MISSION" with a view to raising avenue plantation along the roads and beautification of all vacant and wastelands to further reinforce widespread reorganization of Sikkim being a Green State. The Hon'ble Chief Minister Dr. Pawan Chamling has formally launched this Mission on 27th February 2006, in the presence of all ministers, officers and the public of Sikkim.

Although the total tree cover in the state is about 46%, the density of tree cover in main areas is very low. The state would try to increase the area under tree cover further and also improve the density of the tree cover. A massive need based and time bound 'Programme of Afforestation and Tree Planting' needs to be taken up with greater emphasis in production of fuel wood and fodder in degraded and denuded lands, both forest and non-forest. An urban forestry programme is a necessity to improve the environment in the urban areas of all the districts through planting of ornamental trees and bushes. Such a programme will increase the scenic beauty of the towns as well as check soil erosion and landslides in these areas.

(S.B. SUBEDI)

MINISTER

**Forest, Env. & Wildlife Management,
Mines, Minerals & Geology and
Science & Technology Department**

PREFACE

The State is bestowed with abundant natural resources. Covering with just 0.2% of the geographical area of the country, it has tremendous biodiversity and has been identified as one of the Hot Spot for biodiversity. The Sikkim Himalayas that spread over Sikkim and the hill region of Darjeeling harbors more than 26% of the flowering plants reported in the country and known to be an important phytogeographical reserve of the country. Species wise, it has approx. 5000 flowering plants, 515 Orchids, 36 Rhododendrons, 16 Conifers, 23 Bamboos, 363 Ferns and Fern Allies, 8 Tree Ferns, 60 Primulas, 11 Oaks, over 424 medicinal plants, 150 Mammals, 552 birds, 48 Fishes and over 690 nos. Butterflies and also 28 nos. Mountain/ Peaks, 21 Glaciers, 227 High Altitude Lake & wetlands and over 104 rivers and streams.

During the last two decades forest Department has laid emphasis on development of fodder and fuel wood in the agriculture fallow lands of the villagers giving priority to plantation of fodder grasses like Broom Grass and fodder trees in agricultural fallows for economic upliftment of the villagers. This year, the Department has achieved 3550.26 Ha. by plantation in forest lands under 20 Point Programme. Besides, seedlings of fuel wood fodder and timber were distributed to the villagers and voluntary organizations for planting in private lands due to which 487.35 Ha. of private wastelands have been afforested. The Department is trying its level best to meet the aspirations and demands of the people who are directly or indirectly dependent on forest resources. Joint Forest Management is being strengthened by introduction of Forest Development Agencies in all districts, the structure of which will be federation of all Joint Forest Management Committees in the district. Emphasis has also been laid down for development of inland fisheries and trout farming. Sericulture being one of the schemes for socio-economic development of the people in rural areas, extension and development of the scheme in all the four districts was taken up in the 9th five year plan and the programme is continued in the 10th Five Year Plan also. This Department has given high priority in generation of revenue. Realization of revenue during the last five years has exceeded the target fixed for the Department.

The report for the year 2006-07 has been compiled by the Planning & Statistical Cell of the Forest, Environment and Wildlife Management Department. Shri Manjit Singh, Additional P.C.C.F. (Planning & Administration.) and Shri B.K.Tewari, Additional Director (Planning & Administration.) guided the officials for compilation and also scrutinized the report.

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CHAPTER - 1 INTRODUCTION

The state of Sikkim with only 0.22% Of the geographical area of the country harbors around one third of the flowering plants of India. It has about 4500 species of flowering plants and 350 species of ferns and fern allies. Sikkim of the home of the Orchids and has about 450 species both in the sub-tropical and temperate regions. Available genetic material of Orchids in Sikkim has immense potential for commercial varieties. The biodiversity of Sikkim is very rich and also includes wild relatives of more than 400 species of medicinal plants in the state. The state support luxuriant tropical and alpine vegetation in its pristine virgin form. Its unique geographical position, varied topography, high annual precipitation, minimum demographic pressure make the state one of the richest botanical treasure house of the country. While forest cover accounts for over 46% of the total geographical area of the state, the total area of the state under the administrative control of Forests, Environment and Wildlife Department in the state is over 81% of its total geographical area. 34% of our geographical area has been set side for the protected area network consisting of the National Park, Sanctuaries and Biosphere Reserve as against a figure of 5% or so of the country. In the forested areas hitherto unspotted animals like Takin are reappearing. In ex-situ conservation center wild animals are multiplying. Red Panda in Himalayan Zoological Park has been successfully bred.

The State has adopted and practically implemented policy for the management of national resources based on the principle of conservation and sustainability. Keeping this objective and vision for future in mind, the State Government has already taken up various steps in this direction to overcome the challenges in sustainable development. In this effort sufficient financial and technical assistance is needed from the Government of India in the form of Centrally Sponsored Scheme and External Aided Projects.

CHAPTER - 2

Table 1.1

A-POPULATION

SL. No	ITEMS	UNIT	SIKKIM	INDIA	REFERENCE YEAR
1	Total	No.	540851	1028610328	2001 Census
2	Male	No.	288484	532156772	2001 Census
3	Female	No.	252367	496453556	2001 Census
4	SC	%	5.0	16.2	2001 Census
5	ST	%	20.6	8.2	2001 Census
6	Main Workers	%	39.31	30.54	2001 Census
7	Per-Capita GSDP at Current Prices	Rs.	23786	23492	2003-04(Q)
8	People Below Poverty Line	%	36.55	26.10	1999-2000
9	Human Development Index	No.	0.532	0.602	1998(Sq.km)2005(Ind)
10	Per Capita Outlay on Health	Rs.	296(2 nd Highest among)	11969	2002-03
11	Crude Birth Rate	Per '000	21.9	44.8	2003
12	Crude death Rate	Per '000	5.0	8.0	2003
13	Natural Growth Rate	Per '000	16.9	16.8	2003
14	Infant Mortality	Per '000	33	60	2003
15	Neo Natal Mortality Rate	Per '000	26.3	43.4	1998-99
16	Post Neo Natal Mortality Rate	Per '000	17.6	24.2	1998-99
17	Under 5 Mortality Rate	Per '000	71.0	94.9	1998-99
18	Total Fertility Rate	Per '000	2.75	2.85	1998-99
19	Doctor Per Population	No.	2504	18000	2004-05
20	Population Bed Ratio	No.	530	1451	2004-05
21	Couple Protection Rate	No.	21.5	46.2	2002
22	Literacy Rate	%	68.8	64.8	2001 Census
23	Per Capita Outlay on Education	Rs.	1288	65	2002-03
24	Teacher-Pupil Ratio	No.	1:8	1:34	2004-05,2002
25	Per Capita Forest Cover	Hectares	0.61	0.08	2003
26	Plants per Sq.Km	No.	0.7	0.009	2005
27	Green Protection Index	No.	0.903(1 st in India)	0.425	2005

Source:

- i) Draft Annual Plan 2006-2007 Part –I
- ii) Census of India 2001-final population totals,
- iii) Planning Commission,
- iv) NFHS,
- v) Annual Report – HC, HS & FW
- vi) Inter - State Indicators, GOK
- vii) Forest Survey of India
- Viii) Carrying capacity- Teesta River bas

Table 1.2

B-Population and sex ratio of Scheduled Castes & Scheduled Tribes

District/ State	Population		Sex ratio (Female/1000 Male)	
	Scheduled Castes	Scheduled Tribes	Scheduled Castes	Scheduled Tribes
North	897	21722	949	927
East	14277	45321	962	964
South	6262	20483	989	984
West	5747	23829	959	945
Sikkim	27165	111405	967	957

Source: Census of India 2001

Table 1.3

C- DECENNIAL GROWTH RATE (%)

Census Year	India	Sikkim
1901	-	-
1911	5.75	48.98
1921	(-).31	(-).7.05
1931	11	34.37
1941	14.22	10.67
1951	13.31	13.34
1961	21.51	17.76
1971	24.8	29.38
1981	24.66	50.77
1991	23.85	28.47
2001	21.51	33.06

Source: Census of India 2001

Table-1.4

C-DENSITY (per Sq.Km)

Census Year	Sikkim	India
1901	8	77
1911	12	82
1921	12	81
1931	15	90
1941	17	103
1951	19	117
1961	23	142
1971	30	177
1981	45	216
1991	57	267
2001	76	324

Source: Census of India 2001

CHAPTER - 3

LANDUSE, CLIMATE AND SOIL

Sikkim is a tiny mountainous state in the Eastern Himalayan region, extending approximately 114 km from North to South and 64 km from East to West. It is situated between 88°5'25'' East longitudes and 27°04' and 28°07'48'' North latitude. The state is surrounded by vast stretches of Tibetan plateau in the North; Chumbi valley of Tibet and the kingdom of Bhutan in the East; Darjeeling district of West Bengal in the south and kingdom of Nepal in the West. Sikkim is one of the smallest states of the India and has a geographical area of 7096 sq km. The state has four districts namely, East, West, North and South.

Whole state of Sikkim is hilly and criss-crossed by number of streams. Soil erosion is one of the major problems. Lots of nutrients are washed away along with soil. The proposed project intends to arrest the erosion and landslides in few selected areas in all four districts of Sikkim and develop demonstration models for technology extension.

PHYSICAL FEATURES OF THE AREA:

Physiographically, Sikkim can be said to have its feet in the ocean and its head in the sky. The altitude vary from 300m. to 8500m. above mean sea level. Sikkim is primarily the catchment of Teesta drainage system. Teesta river flowing north to south divides the state in two parts. The river rises from north district fed by snows from Kanchendzonga; its other tributaries join it from Lhonak, Zemu, Talung glacier of Kanchendzonga group in the west. The chief tributary of Tista- the great Rangit is fed from the snow of Narsing and Kabru peak south of Kanchendzonga. All along the high altitude, near about snow line on the eastern and western border and particularly in the north there are large number of lakes; most of these lakes have been formed from receding glaciers by deposit of terminal moraines at the outlet.

The mountainous terrain of Sikkim consists of tangled series of interlacing ridges rising one above the other, from south to the foot of the high peaks, which mark the abode of the snow in the north. The entire state is covered with steep hills and deep valleys. The trend of mountain system viewed as a whole is in a general east-west direction. The general run of the main ridges is north south with subsidiary interlacing spurs from each ridge in a roughly east-west direction. Main ridges in Sikkim run in more or less north-south direction. Singallela and Chola ranges arising from great Himalayan range determine the boundary in east and west respectively. Another north-south chain runs through the central portion of Sikkim separating the Rangit from Teesta valley. All these ridges are lofty indeed with an average elevation exceeding 800m. the surface of the vast incline is dissected into innumerable rugged peaks and tortuous valleys with deep gorges.

SOIL STRUCTURE AND GEOLOGY:

Sikkim is a part of lesser Himalayan terrain of eastern sector. Tectonostratigraphically it has been classified under four tectonic belt i). Foothill belt ii). Inner belt iii) axial belt and iv) transaxial belt. The state is predominantly covered by the unfossiliferous metamorphic and crystalline rocks grouped under the inner and axial tectonic belts. The inner belt is essentially made up of Precambrian Daling and Darjeeling group of met sediments and minor development of Buxa group of rocks. The axial belt exposes the crystalline of Central region and intrusive granites. There are two predominant zones viz. gneissic and Daling group. The entire state is a young mountain system with highly folded and faulted rock strata at many places. It encompasses the lesser Himalayas, Central Himalayas and Tethys Himalayas. Great mountains ranging from 300m. to 8500m. in height separate the state from its surroundings. In fact, it has no flat piece of

land of good size anywhere. Major portion is covered by the pre-Cambrian rocks and is much younger in age. The rock type consists of phyllite and schist and therefore, the slopes are highly susceptible to weathering and prone to erosion and landslides. The northern portion of the state is deeply cut into steep escarpments. Southern Sikkim is lower, more open and fairly well cultivated. The western portion of the state is constituted of the hard massive gneissose rocks capable of resisting denudation. The southern portion is formed of comparatively soft, thin, slaty and half schist ore rocks, which denude very easily. The trend of the mountain system is in a general east west direction.

The southern and western portions of the state primarily consist of gneissose rock and half-schistose rocks. The soil developed from the gneissose group of rocks is brown clay, generally shallow and poor. They are typically coarse often with ferric concentrations, neutral to acidic with poor

organic/mineral nutrients. They tend to carry most of evergreen and deciduous forest with Sal (*Shorea robusta*) as dominant species. The high intensity of rainfall often causes extensive soil erosion and heavy losses of nutrients of land by leaching.

An idea of the problem of the intensity of erosion can be judge from the reports of the Forest Survey of India which says that in West Sikkim 7.13% of the area is heavily eroded, 10.95% of the area is moderately eroded and 74.85% of the area is mildly eroded. Similarly in South Sikkim 2.27% of the area is heavily eroded, 14.33% of the area is moderately eroded and 74.22% of the area is mildly eroded. For whole Sikkim the statistics of erosion is as follows.

Table 3.1

Sl No.	Description	Area (ha)	% of TGA
1.	Slight	7627.00	1.1
2.	Moderate	123504.00	17.4
3.	Severe to very severe	103270.00	14.6
4.	Rocks	43360.25	6.1
5.	Glacier and Misc.	108510.06	15.3

CLIMATIC CONDITIONS:

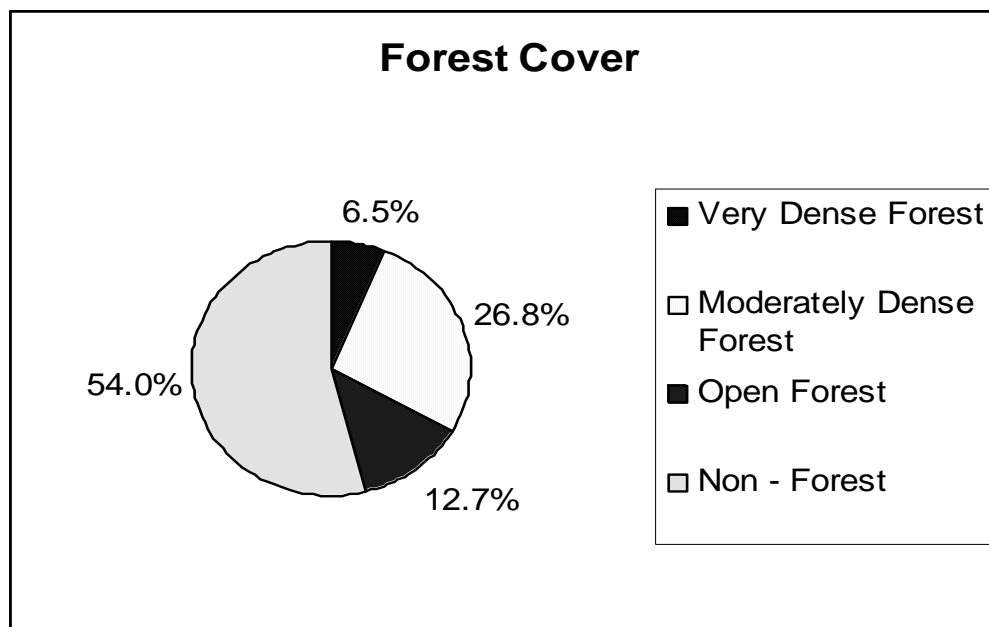
The climate of the state varies generally from sub-tropical to alpine depending upon the place. Within the Catchment watershed of a stream, sub-tropical or even tropical climate is often observed at the lower end of the watershed in the valley, while temperate climate prevails in the upper reaches of the stream. Climatically Sikkim experiences variable temperature with burning summers in the foothills to freezing winter on high mountains. The climate of the state has been roughly divided into the tropical, temperate and alpine zones. For most periods in year, the climate is cold and humid as rainfall occurs in each month. Temperature varies with altitude and slop aspects- it generally decreases with increase in altitude. Three soil temperature classes have been identified- Thermic, Mesic and Isofrigid. Throughout the year the relative humidity remains above 70% in most of Sikkim. The area experiences a heavy rainfall due to its proximity to the Bay of Bengal the mean annual rainfall varies from 2000mm to 5000mm with intensity ranging drizzling to torrential rain. Rainfall is heavy and well distributed from May to September during which July is the wettest month in most of the places. Rainfall is moderate in the months of April to October. It is generally low during the months of November to February. Rainfall patterns are essentially monsoonal due to wide variation of rainfall and temperature. There are two zones receiving maximum rainfall i) in South-East quadrant including Mangan, Singhik, Dukchu, Gangtok, Rongali, Gnathang ii) In the south-west corner including Hilley. In between these two region there is low rainfall region viz. Namchi area. Rainfall in this area is half the firmer area. The state receives an average annual rainfall of 500 cm which is the highest eastern Himalayas. The high intensity of rainfall causes extensive soil erosion and frequent landslides.

CHAPTER - 4

Table 4.1
STATE OF FOREST REPORT

Average Population Density	76 persons per sq.km.
Livestock Population	3.90 lakhs (0.1% of country)
Forest Cover	
a. Very Dense Forest	458 sq. km.
b. Moderately Dense Forest	1,904 sq. km.
c. Open Forest	900 sq. km.
d. Tree Cover	22 sq. km.
TOTAL	3284 sq. km.
Of State's Geographic Area	46.28 %
Of Country's Forest & Tree Cover	0.42 %
Per Capita Forest & Tree Cover	0.61 ha.

Table 4.2



CHAPTER - 5

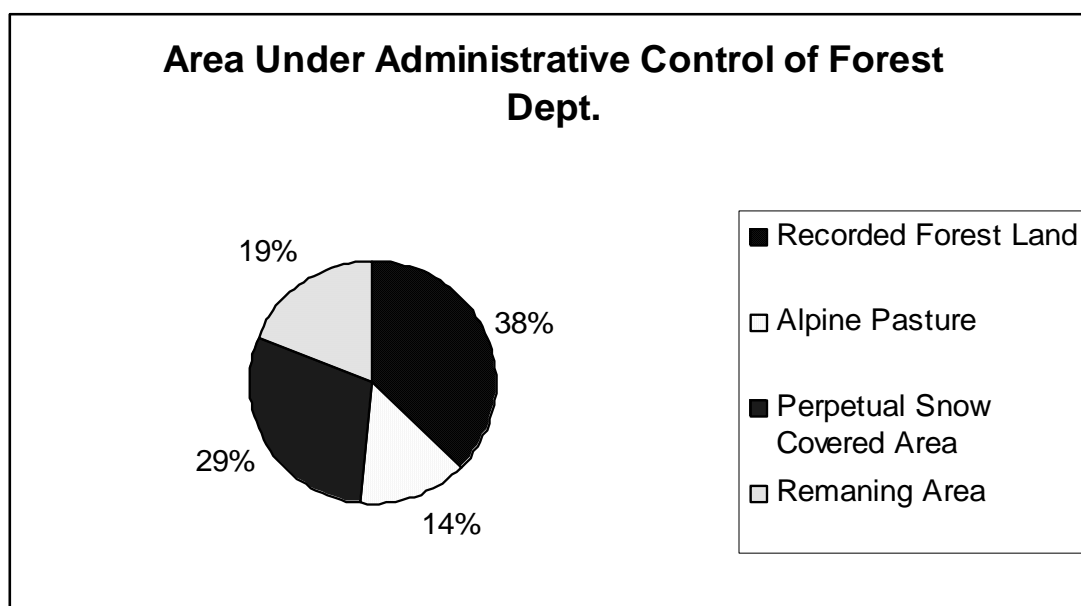
RECORDED FOREST LAND

Over 81% of the total geographical area of the state is recorded as forest land comprising forest land tree cover, road reserve, streams, lakes, alpine pasture and scrub and land under perpetual snow cover. There has been an increase of 469sq.km. of forest covers till 1993 and another 8 sq.km, between 1993 and 1995. The details of forestland and increase in forest cover is shown below:

AREA STATISTICS OF FOREST COVER IN SIKKIM

<u>Description</u>	<u>Area in</u>	<u>% of Total</u>
	Area in Sq.Km.	Area.
(1) Recorded forest land with tree cover.		
(i) Reserve Forest	2261.00	
(ii) Khasmal Forests	285.00	
(iii) Goucharan Forests	104.00	
Total	2650.00	37.34
(2) Alpine Pasture and scrub	1024.00	14.44
(3) Perpetual snow Covered Area	2091.10	29.50
Total (1+2+3)	5765.10	81.28
(4) Remaining Area	1331.00	19.00

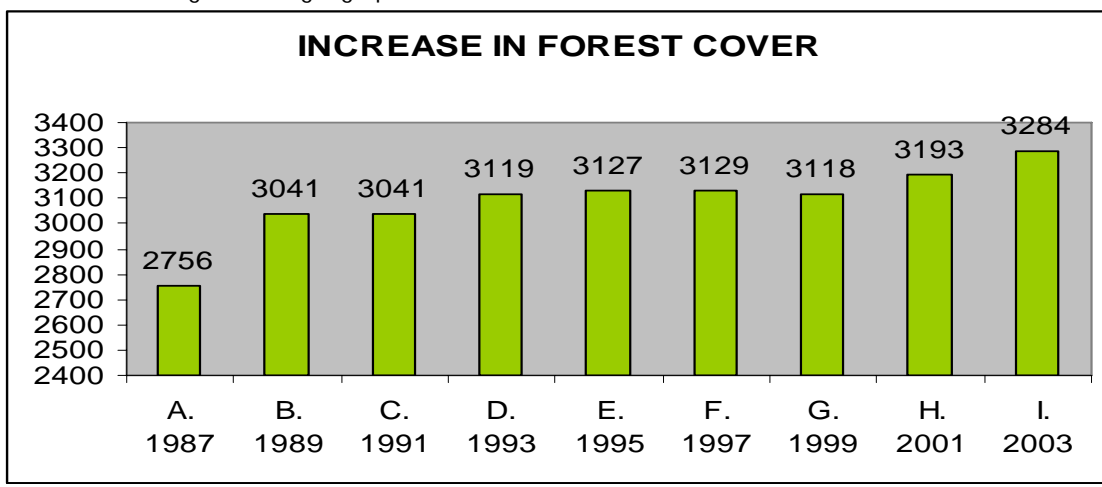
Hence, total area which is under administrative control of Forests, Environment and Wildlife Department is 5765.10 square kilometers which accounts for 81.28 % of the total geographical area of the state.



CHAPTER - 6

INCREASE IN FOREST COVER

Description	Area in Sq. Kms.	% of Total Geographical Area
a) Recorded forest Area under tree cover as on 1975-76 Actual Forest Cover Assessment	2650.00	37.34
(a) 1987	2756.00	38.84
(b) 1989	3041.00	42.86
(c) 1991	3041.00	42.86
(d) 1993	3119.00	43.95
(e) 1995	3127.00	44.06
(f) 1997	3129.00	44.10
(g) 1999	3118.00	44.00
(h) 2001	3193.00	45.00
(i) 2003	3284.00	46.28
• Net increase in forest cover till 2005	634.00	8.93
• Increase in forest cover as percentage of total geographical area of the state.		8.93%
• Increase in forest cover as percentage of the recorded forest area of the state.		23.92%
• Percentage of total geographical area under forest cover.		46.28%



Source: State Of Forest Report 2003, (FSI)

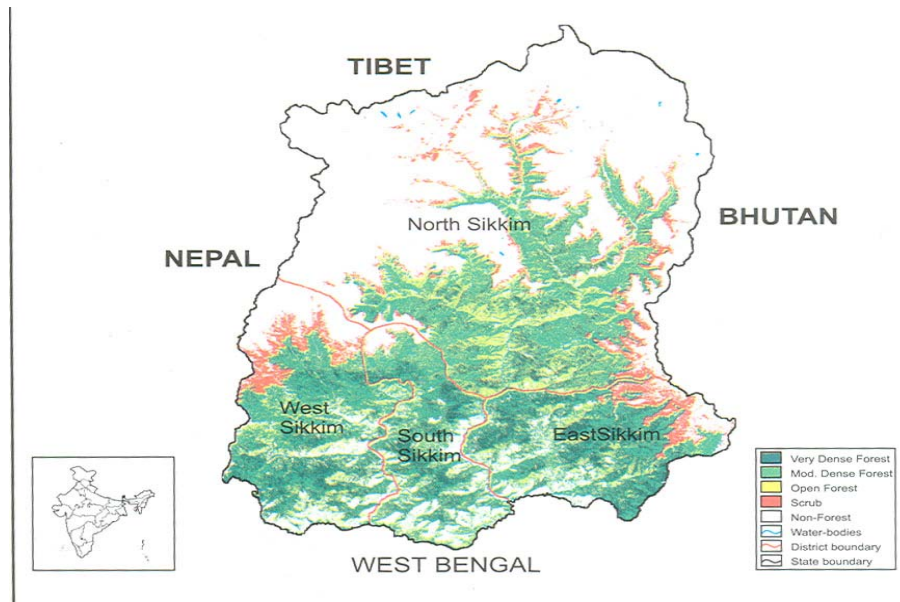
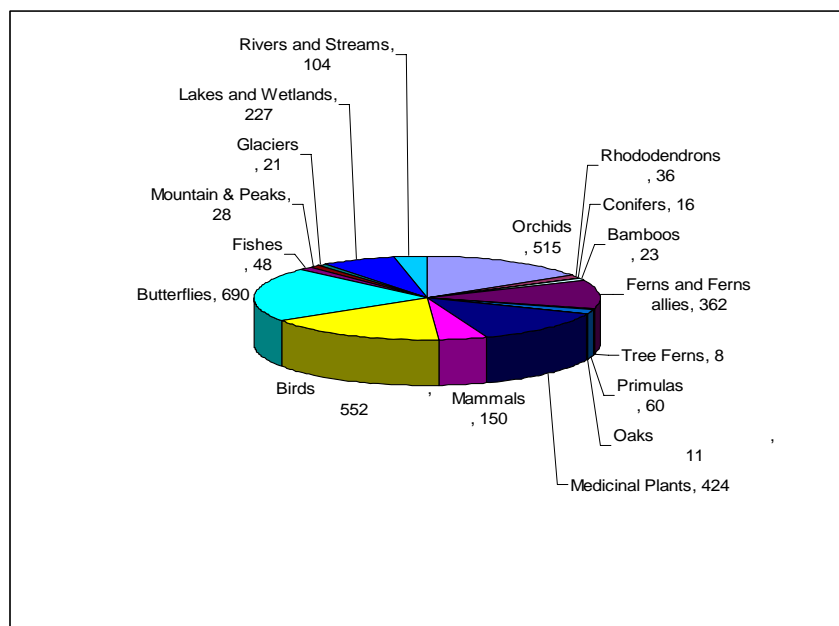


Fig. 7.24 Forest Cover Map of Sikkim

BIODIVERSITY & NATURAL RESOURCES OF SIKKIM AT GLANCE (estimated)

<i>Biodiversity</i>	<i>Nos</i>
<i>Flowering Plants</i>	4500
<i>Orchids</i>	515
<i>Rhododendrons</i>	36
<i>Conifers</i>	16
<i>Bamboos</i>	23
<i>Ferns and Ferns allies</i>	362
<i>Tree Ferns</i>	8
<i>Primulas</i>	60
<i>Oaks</i>	11
<i>Medicinal Plants</i>	424
<i>Mammals</i>	150
<i>Birds</i>	552
<i>Butterflies</i>	690
<i>Fishes</i>	48
<i>Mountain & Peaks</i>	28
<i>Glaciers</i>	21
<i>Lakes and Wetlands</i>	227
<i>Rivers and Streams</i>	>104



CHAPTER - 8

Major Initiatives Taken During Last Five Years

Sikkim has a long history conservation and sustainable use of natural resources with the peoples' participation. People at large in Sikkim take keen interest in the conservation of our forest resources and protection of environment. Forest, Environment and Wildlife Management Department has also taken up a number of initiatives during the last five years for sustainable management of forest resources and protection of environment with peoples' participation. Some of the initiatives are given below:

Forest, Wildlife and Biodiversity Sector

- Forest Decentralization with the formation of 200 JFMCs/EDCs.
- Implementation ban on grazing in Reserve by removing 500 cattle sheds and 10,000 cattle
- Initiated zonation of protected areas into conservation and ecotourism zones
- Prepared the regulations for trekking tourism sector
- Initiated Ecotourism in forest areas for poverty alleviation
- Constituted the State Biodiversity Board, Medicinal Plants Board and State Wildlife Board.
- Created two new wildlife sanctuaries in the state to increase the protected area network to 31% Of the geographical area of the State.

Environment Sector

- State Green Mission is being implemented
- Task Force on Environment has been constituted
- Formed Eco-clubs in all the schools above Junior High School
- Created awareness regarding solid waste management
- Initiated Lake Conservation in partnership with Pokhri Sanrakshan Samitis
- Constituted an autonomous State Environment Agency
- Prepared an atlas of the natural resources of the State
- State Biodiversity Strategy and Action Plan have been prepared.

CHAPTER – 9

THRUST AREAS FOR THE NEXT FIVE YEARS

FOREST, WILDLIFE AND BIODIVERSITY SECTOR

- Forests decentralization and universalization in Sikkim with the constitution of 900 village based JFMCs. There is a paradigm shift in developing powers to the Panchayati Raj Institutions which is the constitutional body at the grass root level. This throws up a mammoth task of capacity building and grass root infrastructural needs of the community and forest staff in participatory approaches and forest management. Empowerment of the JFMCs is a major thrust.
- A Training Institute on Bioresearches and Integrated Mountain Development is needed to provide training in the fields of forestry, mountain livelihood and eco-tourism.
- Protection and conservation of natural forests will involve using GIS and GPS demarcation of the boundary by erecting boundary pillars. Creation grass root infrastructure for Range and Block cluster complex.
- Bio diversity conservation Programmes need to focus on zonation of sensitive habitats for pure wildlife conservation and multiple use zones for community benefit.
- Community development should focus on livelihood support and not on giving freebies.
- Species recover programmes are the need of the day so that the people and wild life friendly species like oaks, chestnuts, rhododendrons and canes which also act as the water reservoirs of the state and can be regenerated with peoples participation using hi-tech tools .

ENVIRONMENT SECTOR

- Eco-Certification: We need to work towards making the private sector mainly tourism, travel, trekking and the hospitality sector in the state eco-friendly. For this an incentive based eco-certification scheme is needed for the tour and travel agents, hotels and taxi drivers to make their operations eco-friendly.
- State Green mission: to raise the awareness for nature conservation and to make Sikkim into a clean, green and garden state.
- Wetlands and Glaciers: to initiate participatory conservation of the lakes and wetlands and to provide benefit sharing to the local community.
- Rivers: Treatment of sewerage entering the rivers in coordination with various engineering departments especially in the river side townships of Jorethang, Singtam, and Rangpo.
- Ecocity Mission: Proper solid waste management, sanitation and green areas for towns like Gangtok, Gyalsing, Mangan, Namchi, Jorethang, Singtam, Ranipul and Rangpo.
- Environmental Education and Awareness; For Schools, NGOs, and CBOs.

CHAPTER - 10

ADMINISTRATIVE SET-UP

Under the **Minister** in charge of Forests, Environment & Wildlife, Department is headed by the **Principal Chief Conservator or Forests cum Secretary** who is assisted by the following officer at different wings/levels.

- Advisor 1
- Principal Chief Conservator of Forests 1
- Additional Principal Chief Conservator of Forests 4
- Chief Conservator of Forests 4
- Conservator of Forests 5
- Additional Director of Forests 4
- Joint Director of Forests 6
- Special Secretary 1
- Joint Secretary 1
- Chief accounts Officer 1

Officers under the Additional Principal CCF (I)

CCF(Working Plan)			CCF(Social Forestry/Utilization/Sericulture)								
CF(Working Plan)		Addl. Director (Sericulture)	CF(Social Forestry)							Additional Director Research, NTFP, SMPB	
		Joint Director (Sericulture)								Joint Director NTFP, SMPB	Joint Director Research Edn. & Extn.
DFO (Working Plan)	DFO (Survey & Demarcation)		DFO North	DFO East	DFO SF & Zilla South	DFO West	DFO Zilla North	DFO Zilla East	DFO Zilla West	DFO NTFP	DFO Silivi.
-	ACF (Survey & Demarcation)	Assistant Director (Sericulture)									
R.O	R.O.- 2	R.O Rorathang	RO-2	RO-4	RO-3	RO-3	-	-	-	R.O-2	RO-1
		R.O Mamring									

The Range Officers are assisted by Block Officers, Head Guards & Forest Guards

Offices under the Additional Principal CCF (Territorial)

CCF(Territorial)								
CF(Territorial)								
DFO North		DFO East	DFO Pakyong		DFO South		DFO West	
ACF Chungthang	ACF Mangan	ACF Gangtok	ACF Pakyong	ACF Rongli+	ACF Rabongla	ACF Namchi	ACF Soreng	ACF Geyzing
Ranges	Ranges	Ranges	Ranges	Ranges	Ranges	Ranges	Ranges	Ranges
Lachen	Mangan	Gangtok	Pathing	Phadamchen	Lingmo	Namchi	Sombaria	Geyzing
Lachung	Phodong	Ranipool	Pakyong	Rongli	Rabongla	Melli	Soreng	Yuksom
Chungthang	Dzongu	Singtam				Namthang	Dentam	Tashiding
		Kyongnosla						
		Tumin						

Officers under the Additional Principle CCF (Wildlife/Chief Wildlife Warden)

CCF(Wildlife)							
CF (Territorial)				Additional Director of Forests(N.P. & Zoo)			
				Joint Director of Forests (N.P & Zoo)			Senior Research Officer Wildlife
DFO North	DFO East	DFO South	DFO West	DFO (KNP) North	DFO (KNP) West	Deputy Director Himalayan Zoological Park	
R.O Shingba Rhododendron Sanctuary	R.O. Fambonglho Wildlife Sanctuary	R.O Mainam Wildlife Sanctuary	R.O. Barsey Rhododendron Sanctuary				
	R.O.Pangolakha Wildlife Sanctuary						
	R.O.Kyongnosla Alpine Sanctuary			R.O. North	R.O West	RO(HZP)	

The Range Officers are assisted by Block Officers, Head Forest Guards and Forest Guards

Offices under the Additional Principal CCF (Environment)

CCF(Landuse & Environment)					
CF ((Landuse & Environment)					Additional Director
DFO North	DFO East	DFO South	DFO West	DFO (EPC)	DFO (RVP)
					ACF (RVP)
R.O. Chungthang	R.O.Gangtok -3	R.O. Namchi	R.O. Sombaria	R.O. -1	R>O. -6
R.O. Mangan	R.O. Singtam	R.O. Rabongla	R.O. Dentam		
R.O. Dzongu	R.O. Sang	R.O. Namthang			
	R.O. Pakyong				
	R.O. Samdong				

The Range Officers are assisted by Block Officers, Head Forest Guards and Forest Guards

Offices under the Additional Principal CCF (Planning and Administration)

Joint Director (Planning & Adm)	Joint Director (Statistics)	Special Secretary
Deputy Director (Statistics)	-	Joint Secretary
Assistant Director	Assistant Director	Under Secretary – 3
Statistical Officer	Statistical Officer	OS
Statistical Investigators - 4	Statistical Investigator-1	Has, UDCs, LDCs

ACCOUNTS DIVISON

Chief Account Officer
Senior Account Officer
Accounts Officer – 2
Senior Accountants
Accountants, Jr. Accountants, LDCs

DIFFERENT BOARDS UNDER FORESTS, ENVIRONMENT AND WILDLIFE DEPARTMENT.

- State Wildlife Advisory Board
- State Land-use Board
- State Pollution Control Board
- State Medicinal Plants Board

CHAPTER -11 MANPOWER

Forest, Environment and Wildlife Department is one of the largest departments in terms of manpower strength. There are 110 gazetted officers and 839 regular employees of Group 'B' and 'C' category. This department has provided round the year employment to as many as 824 on muster roll and 13 on work charged employment in the rural areas in the form of nursery laborers and chowkidars in plantation areas. Beside, this department provides seasonal employment to a large number of villagers in plantation activities and soil and water conservation works including development of sericulture and fisheries. The present manpower strength of the department is as follows.

Table 11.1

LIST OF REGULAR OFFICERS O FOREST, ENV. & W.LIFE M. DEPARTMENT DURING 2006-2007.

Sl.no.	Designation	Cadre	Total strength	Remarks
1	Advisor	IFS	1	
2	PCCF-cum-Secretary	IFS	1	
3	Addl.PCCF	IFS	04	
4	Chief Conservator of Forests	IFS	4+2=6	2 on deputation
5	Conservator of Forests	IFS	7	
6	O.S.D.	IFS	1	
7	Divisional Forest Officer	IFS	4	
8	IFS Probationary	IFS	1	
9	Director of Forests	SFS	2	
10	Addl. Director of Forests	SFS	3	
11	Joint Directors	SFS	6	
12	Divisional Forest Officers	SFS	26	
13	Assistant Conservator of Forests	SFS	65	
14	Addl. Director (Sericulture)	-	1	
15	Joint Director (Sericulture)	-	1	
16	Asstt. Director (Director)	-	1	
17	Special Secretary	SCS	1	
18	Joint Secretary	SCS	1	
19	Under Secretary	SCS	2	
20	Chief Accounts Officer	SFAS	1	
21	Sr. Accounts Officer	SFAS	1	
22	Accounts Officer	SFAS	2	
23	Joint Director	SSS	1	
24	Deputy Director	SSS	1	
25	Asstt. Director	SSS	2	
26	Chief Scientist	-	1	
27	Sr. Research Officer	-	1	
28	Asstt. Scientific Officer	-	1	
29	Deputy Director (WL & Zoo)	-	1	
30	Sr. Private Secretary	-	1	
31	Private Secretary	-	1	
32	D.E. (Electric)	-	1	
33	O.S.D.	-	2	
34	Range Officers	SFS	75	
35	Block Officers	SFS	93	

36	Head Forest Guard	SFS	45	
37	Forest Guard	SFS	273	
	Designation	Cadre	Total strength	Remarks
38	Sericulture Inspector	-	2	
39	Sericulture Sub-Inspector	-	2	
40	Veterinary Compounder	-	1	
41	Driver	-	39	
42	Statistical Officers	SSS	2	
43	Statistical Investigator	SSS	7	
44	Sr. Accountant	SFAS	8	
45	Jr. Accountants	SFAS	27	
46	Accounts Clerk	SFAS	9	
47	Office Superintendent	SCS	4	
48	Head Assistant	SCS	4	
49	U.D.C.s	SCS	19	
50	L.D.C.s	SCS	51	
51	Steno	-	7	
52	Sr. Technical Assistant	-	2	
53	Cartographer	-	2	
54	Surveyor	-	1	
55	Asstt. Surveyor	-	1	
56	Tracer	-	1	
57	Draftsmen	-	3	
58	Mali	-	22	
59	Peon	-	49	
60	Chowkidar	-	19	
61	Cook	-	1	
62	Bearer	-	1	
63	Pipe Fitter	-	1	
64	Lab Asstt.	-	1	
65	Supervisor	-	2	
66	Tally Clerk	-	1	
	TOTAL OFFICERS			

CHAPTER -12

FOREST FIRE, PROTECTION & ENCROACHMENT

Forest Fire Management

A forest fire management policy has been developed in State for the first time to enable the government to focus on fire prevention aspects and to coordinate efforts by various agencies towards this important function. The policy integrates modern fire fighting approaches with community based fire fighting strategies and is devised to preserve the unique biodiversity of the forests of the State especially those of the lower altitudes. The policy provides for zoning of the forests on the basis of their vulnerability, assessed ecological impacts and intrinsic value so that different treatments can be meted out to the different zones. The Forest Fire detail from the year 2002 to 2006 is given in the following table:

Table 12.1

FOREST FIRE

Calendar Year	No. of fire incidents	Burnt Area (in Ha)	Casualties/ loss of human life	Loss of Wildlife	No. of crown fires and area affected (in ha)	Estimated loss (in lakhs)
2002	32	170	Nil	Nil	Nil	17.00
2003	23	120	Nil	Nil	Nil	11.77
2004	21	118	Nil	Nil	Nil	14.16
2005	42	362	Nil	Nil	Nil	41.64
2006	58	408	Nil	Nil	1.3	48.96

FOREST PROTECTION AND ENCROACHMENT

Besides implementation of different Forest Acts, the Territorial Circle is also responsible for maintenance of nurseries. Territorial Circle also deals with the implementation of Indian Forest Act, 1972, Sikkim Forests, Water Courses, Road Reserve (Protection and Preservation) Act, 1988 and Forest (Conservation Act, 1980. Prevention and Control of Forest Fires, Control of illicit felling of trees, control and regulation of movement of timber and other forests produce, control and eviction of encroachment, issuing of marking orders, transit permits as well as Afforestation are the activities carried out by Territorial Circle.

Territorial Sector is the main sector of the Department for the management, protection and regulation of all forest land resources in the State. This sector is being managed by the by the five Territorial Division (DFOs), Nine Sub-Divisions (ACFs), Twenty six Ranges (Range Officers), Fifty four Blocks (Block Officers) and Beats (Head Forest Guards).

Table 12.2

ILLCIT FELLING

Year	No. of cases of illicit felling	No. of trees illicitly felled	Loss of Timber (Volume in cu. mt.)	Value of losses (Rs. lakhs) in	No. of Offenders arrested	No. of Vehicles seized	No. of Vehicles confiscated
2002-03	41	41	51.00	5.00	2	1	Nil
2003-04	30	35	35.14	3.33	9	1	Nil
2004-05	40	45	47.29	5.35	6	1	Nil
2005-06	25	65	45.36	3.78	8	2	Nil
2006-07	15	92	83.40	10.10	24	4	Nil

Table 12.3

FOREST LAND ENCROACHMENT

Year	Total Area Encroached (in ha.)	Encroachment evicted (In ha.)	Net Area under Encroachment (in ha.)
2002-03	3613	-	3613
2003-04	3613	-	3613
2004-05	3613	156.9374	3456.0626
2005-06	3456.0626	8.00	3448.0626
2006-07	3448.0626	2.00	3446.0686

Chapter - 13**NATIONAL AFFORESTATION PROGRAMME AND JOINT FOREST MANAGEMENT COMMITTEES (JFMCs) & FDA:**

Forest resources are basically the community resources and the community itself has to address it self to the task of regeneration, protection and rehabilitation of degraded areas. Therefore, by analyzing all the facts and problems, the State Government decided that the people's participation and involvement is very much essential for the management and development of natural resources. It is, however, the primary responsibility of the State Government to develop the natural resources areas as the productive units by ensuring the proper management of the forests with the active participation of the people.

The Government, therefore, has adopted the participatory approach to forest protection, management and development. It has taken up formation of Joint Forest Management Committees / Eco-Development Committees at the village-level which comprises of all the villagers who wish to participate in the forest management, development and protection functions of the forests that are located in the vicinity of their villages. So far 155 JFMCs (Fewer than four territorial FDAs) have been registered all over the State and the work of JFMC constitution in the villages not yet covered is being taken up. At the district level all the JFMCs have together been formed into a confederation called the Forest Development Agency (FDA). The JFMCs will be entrusted with the task of Afforestation and protection of the natural resources of their area and they will be implementing the National Afforestation Programme through the four FDAs in the Tenth Plan period. More than 10000 hectares of land will be developed over the Plan period through this Scheme.

Table 13.1
Work carried out under FDA AS ON 31.03.2007
(Territorial Circle)

Sl. No	Name of FDA	Project Period	Total outlay (Rs.in lakh)	Total physical Target (in hac.)	Fund released till date(Rs. in Lakh)	Fund utilized (Rs in lakhs)	Physical Achievement (Area in ha.)
1	North Sikkim FDA.	2002-03 To 2006-07	531.11	2330	381	379.77	1995
2	East Sikkim FDA	-do-	590.14	2533	471.82	454.24	2203
3	South Sikkim FDA	-do-	573.66	2655	446.67	441.69	2655
4	West Sikkim FDA	-do-	459.67	2265	441.85	434.37	2265
	Total		2154.58	9783	1741.27	1710.07	9118

Table 13.2

NO. OF HOUSEHOLDS COVERED JFMCs
AS ON 31.03.2007

S L. No	Name of FDA	No of JFMCs	Name of Household in Project Village			Name of Household Directly Benefiting								
						From EPA Activities			From Silvicultural Works			From Wages		
			SC	ST	Total	SC	ST	Total	SC	ST	Total	SC	ST	Total
1	North Sikkim FDA	32	31	4364	4430	15	1980	1995	5	640	645	20	3102	3132
2	East Sikkim FDA	49	628	5317	15666	625	3540	11000	150	1100	2000	500	680	2500
3	South Sikkim FDA	36	1755	4804	16889	355	450	1755	568	987	2840	630	788	5500
4	West Sikkim FDA	38	561	2251	9515	298	1165	4800	345	1298	5400	388	1558	3400
	TOTAL	155	2975	16736	4650	1293	7135	19550	1068	4025	10885	1538	6128	14532

Table 13.3

**WORK CARRIED OUT UNDER FDA AS ON 31.3.2007
(WILDLIFE CIRCLE)**

Sl. No	Name of FDA	Project period	Total Outlay	Total Physical Target (in Lakh)	Fund released till Date	Fund Utilized	Physical Achievement
1	North-East Wildlife Sanctuary	2002-03 To 2006-07	440.93	2000	-	345.16	2000
2	South-West Wildlife Sanctuary	-do-	302.02	1600	221.50	204.21	1030
3	KNP FDA	-do-	325.28	1000	196.63	172.48	965
	Total		1068.23	4600	418.13	721.85	3995

Table 13.4

NO. OF HOUSEHOLD COVERED UNDER EDCs AS ON 31.06.2007

SL. No	Name of FDA	No. of JFMCS/EDCS	No of Household in Project Village			No of Household Directly Benefited								
						From EPA Activities			From Silvicultural Works			From Wages		
			SC	ST	Total	SC	ST	Total	SC	ST	Total	SC	ST	Total
1	North-East Wildlife FDA	16	427	938	4316	20	208	950	20	208	934	64	442	567
2	South-West Wildlife FDA	16	192	1516	29065	7	372	937	16	1427	1958	10	34	51
3	KNP FDA	17	50	3500	4042	10	850	1200	15	1150	1200	25	1500	1790
	Total	49	669	5954	37423	37	1430	3087	51	2785	4092	99	1976	2408

CHAPTER -14

STATUS OF INTEGRATED WASTELAND DEVELOPMENT PROJECTS (I.W.D.P) IN SIKKIM AS ON 31.03.2007

The Integrated Wasteland development Programme is being implemented on watershed basis under the common guidance for Watershed Development generally treatment of watershed outside of recorded forest area. This programme is promoting the generation of employment in the rural areas besides enhancing people's participation at all stages in the development of wastelands leading to sustainable development and equitable sharing of the benefits. The programme is being implemented with full participation of the Watershed Development Committees, villagers, local NGOs, and line Department in planning, implementation and monitoring..

At present there are 21 on I.W.D.P. ongoing projects in Sikkim. Till last year there was problem of state share for these projects because of which progress of the projects were slow. Now for all the 21 projects, state share to the tune of 61.18 lakhs has been provided recently during current financial year 2007-2008. There is need of Central share in 10 projects during this quarter of financial year. Out of which, in the case of one project, central share has already been released. In case of remaining nine projects the Department has provided UC, QPR, ASA and other information for five projects but additional information is sought by DoLR mainly UC till date including details of state share released which will be sent shortly.

Table 14.1

STATUS OF PENDING INSTALMENTS PROJECTWISE AS ON JULY 2007 FOR SIKKIM STATE. (Rs. In lakhs)

Sl. No	Name of projects	Year of Sanction	Area in (Ha)	Cost of projects	Amount release till date	Central share due in 2007-08	State share released during 2007-	Opening balance as on 1.4.2007	Remarks
1	East Sikkim-III (FC)	1997	5669	222.76	55.53				Foreclosed
2	East Sikkim-IV (FC)	1998	11900	476	71.4				
3	South Sikkim VI	1999	11200	448	198.7	67.20	100%CSS	4.69	UC,QPR,ASA & other addition information asked by DoLR will submitted shortly
4	West Sikkim-II	1999	9060	362.4	288.33	35.81	100%CSS	8.50	Proposal for Release will be Submitted shortly
5	South Sikkim-VII	2000	10500	420.00	86.63	86.63	7.88	17.90	UC,QPR,ASA & other additional information asked by DoLR will submitted shortly
6	East Sikkim-V	2001	6000	360	92.227	49.50	4.50	6.41	„
7	East Sikkim-VI	2001	6177	370.62	98.182	50.95	4.01	13.93	„
8	East Sikkim-VII	2003	6000	360	49.5	99.00	4.50	53.02	Work in progress
9	West Sikkim-III	2003	6000	360	49.5	99.00	4.50	2.72	Proposal for Release will be submitted shortly

10	North Sikkim-III	2003	6000	360	148.5	99.00	4.50	4.30	UC,QPR,ASA will be submitted shortly
11	West Sikkim-IV	2004	1572	94.33	38.91	25.40	1.18	-	Released
12	East Sikkim-VIII	2004	6000	360	48.5	99.00	4.50	56.89	Work in progress
13	East Sikkim-IX	2004	5469	328.14	45.12	90.24	4.10	48.33	-do-
14	East Sikkim-X	2004	3349	200.94	27.63	55.26	2.51	29.59	-do-
15	East Sikkim-XI	2005	4075	344.5	33.62	67.24	3.06	36.02	-do-
16	West Sikkim-V	2005	2160	129.6	17.82	35.64	1.62	20.15	-do-
17	West Sikkim-VI	2005	2000	120	16.5	33.00	1.50	18.66	-do-
18	West Sikkim-VII	2005	787	47.22	6.49	12.98	0.59	7.34	Proposal for Release will be submitted shortly
19	North Sikkim-IV	2005	5320	319.2	43.89	87.78	2.86	10.21	-do-
20	East Sikkim-XII	2006	5600	336	46.2	92.40		46.20	Work in progress
21	North Sikkim-V	2006	4500	270.00	37.125	74.25	2.38	38.13	-do-
22	West Sikkim-VIII	2006	6000	360	49.5	99.00	4.50	49.50	-do-
23	South Sikkim-VIII	2006	5600	336	46.2	92.40	2.49	46.20	-do-
	Total		130938	6885.71	1597.00	1451.68	61.18	518.69	

CHAPTER – 15

STATE GREEN MISSION

The Government of Sikkim a unique and innovative programme called “State Green Mission” with the view to raising avenue plantation along the roads and beautification of all vacant and waste lands to further reinforce wide spread recognition of Sikkim being a Green State. The Hon’ble Chief Minister has formally launched this Mission on 27th February 2006 in the presence of all Ministers, officers and the public of Sikkim.

Aims & Objectives: The major objectives of the programme are to create green belt and avenues for meeting aesthetic recreational need of the people and beautify the areas for tourist attraction. This programme is expected to provide fringe benefits like reduction in the surface run-off discharge and checking erosion in the downhill side and will also create a store house of genetic diversity by planting all the indigenous trees, shrubs, herbs, climbers, creepers, conifers and green foliages including fruits and medicinal plants. The greenery generated out of this programme will also reduce noise pollution to the neighboring household population; attract the avifauna, butterflies, squirrels etc and their shelter. Sikkim becoming a Garden State, the mission will also work with objective to promote tourist as a sustainable and eco friendly activity in the state of Sikkim. The programme is also expected generated awareness on environment and forests and brings in sense of participation and ownership among people in the whole process.

Implementing Mechanism: A state level committee under the chairmanship of Hon’ble Chief Minister is formed to oversee and to provide policy and administrative support to this mission. The Forest, Environment and Wildlife Management Department are the Nodal Department. At constituency level, there is Green Task force headed by the Area MLA to implement the programme in the Field. One District level officer is appointed as Nodal officer for each constituency. The Forest Department will provide all technical guidance, saplings and manure for the programme. All the Government department will provide managerial and labour force from the existing establishment. At ward level, one village protection committee is constituted by the concerned ward Panchayat member.

Some Technical Aspects:

Planting pattern: The pits are normally to be dug at 6-7 feet away from the edge of the road. If Space available, two rows plantation on either side of the road. Spacing at six meter interval for tree species and 2 meter for ornamental bushes may be given. Maintain 3m distance in between two rows. Pit digging will be in staggered manner (Center between the two pits of the other row). If the space is less single row plantation to be taken on either side at the Spacing of 3m for tree species and 1m for ornamental bushes. Bulbous and Herbaceous plants to be planted only on up hill side ordinarily. If there are visible clear continuous patch available on the down hill side, bulbous and herbaceous plants can be planted.

Pit size: 2'x2'x2'= for up to 2.5' height saplings; 3'x3'x3' for plants with 3' and other tall plants; 1'x1'x1' for ornamental bushes/shrubs; total soil working for bulbous plants. Place the dug out soil on the uphill side.

Plantation: cuttings like Erythrina, populus, Garpis and Weeping Willow are to be planted between January and first week of April. Cuttings are other species to be planted after June. All the sapling is planted generally from May to June/July depending on showers. Conifers, Rhododendron may be planted between 2nd week of March to May and Cherry (paiyu) to be planted between first weeks of March to 3rd Week October. Where as Cherry (Geyzing Type) may be planted during December and March. The Ornamental bushes and bulbous plants are to be planted before May.

The detailed work programmed under this Mission has been enumerated, cost norms and basis of the expenditure for each work component has also been worked out as per the approved Govt. schedule of rates.

Table 15.1

Break up of physical & financial targets are as follows:

Sl.No	Item of Work	Rate/Unit	Physical target Km/Ha/Nos.	Financial in Lakhs.
1	A venue Plantation	36518/Km/LA	290Km	105.90
		38227/Km/LA	20Km	7.65
2	To generate seedlings for 2 nd and 3 rd phase	186000/ha/LA	20 ha]	37.20
		27000/ha/HA	05 ha]	13.50
3	Plantation of evergreen perennial herbs and development of Namchi Rock Garden	L/S		8.00
4	Purchase of Poly bags & seeds	L/S		16.00
5	Construction of greenhouse at Gangtok	L/S	1Nos	2.08
6	Block plantation in and around Gangtok	64492/ha	15ha	9.67
	TOTAL		310 Km 40 Ha	200.00

STATEMENT OF THE PHYSICAL MONITORING OF SURVIVAL OF THE PLANTATION WORKS DONE UNDER STATE GREEN MISSION

Table 15.2

A- NORTH & PART OF EAST SIKKIM

Sl. No	District	Name of Constituency	Tree species found in the field	Flower spp. Found in the field	Total	Distance/Area covered in Km/Ha	Pits without seedlings/Dead
1	East	Sang Martam	4890	1272	6162	(Not Given)	344
2	„	Rakdong Tintek	7293	386	7679	-do-	321
3	„	Khamdong	11920	3104	15024	-do-	260
4	„	Gangtok	3018	6799	9817	-do-	5
5	North	Kabi-Tingda	3668	767	4434	-do-	83
6	„	Dzongu	1907	5442	7349	-do-	233
7	„	Lachen-Mangshilla	5029	8612	13641	-do-	831
	Total		37725	26382	641017		2077

Flower spp.shown is not planted in the pit. Almost all the Flower species planted are cuttings.

Table 15.3

B- EIGHT CONSTITUTENCIES OF EAST DISTRICT.

Sl. No	Name of the Constituency	Distance/Area Covered in Km/Ha under SGM	No. of tree species found in the field	No. of flower species found in the field	Total No. of species	Blank Pits/dead Plants.
1	Ranka	6KM	1538	828	2366	139159
2	Rumtek	12KM	1419	1765	3184	159
3	Assam Lingzey	12KM/1Ha.	3175	1557	4732	82
4	Central Pendam	17KM	2694	774	2468	440
5	Regu	22KM/2.557/Ha.	7974	7547	15521	53
6	Pathing	37.5KM/0.5967 Ha.	25623	8115	33738	80
7	Losing Pacheykhani	39 KM	3729	2801	6530	336
8	Rhenock	15 KM	1269	1648	2917	233
	Grand Total	160.5 KM/ 5.1537 Ha	47421	25035	72456	1522

Pits were not dug for plantation of flower species. Most of the flower species planted was cutting & seasonal flowers.

Table 15.4

C- SOUTH DISTRICT OF SIKKIM.

Sl. No	Name of the Constituency	Trees species found in the field	Flower spp. Found in the filed	Total (2+3)	Pits without Seedlings/Dead	Remarks
1	Damthang Constituency	4185	34308	38493	631	Weeding required urgently
2	Jorethang Constituency	1408	2055	3463	545	-do-
3	Ralang Constituency	2594	2252	4846	308	-do-
4	Temi-Tarku Constituency	5631	2275	7906	349	-do-
5	Melli Constituency	1899	11349	13248	959	-do-
6	Rateychu Constituency	5199	500	5699	389	-do-
7	Wok Constituency	6466	3350	9816	850	-do-
	Grand Total	27382	56089	83471	4031	-do-

The Flower spp. Shown in the above format are not necessarily mean in the pits. Most of local flowers just planted in the road site without pits.

Table 15.5

D- WEST DISTRICT OF SIKKIM

Sl.No	CONSTITUENCY	Tree spp. Found in Numbers	Ornamental Spp. Found	Total Numbers
1	Daramdin	13837	10416	24253
2	Soreng	5452	5992	11444
3	Chakung	4027	4456	8483
4	Rinchenpong	4068	2921	6989
5	Bermiok	6056	18618	24674
6	Dentam	1146	873	2019
7	Gayzing	11988	43001	54989
8	Tashiding	3132	5501	8633
9	Yoksum	1970	5859	7829
	Grand Total	51676	97637	149313

CHAPTER - 16

PLANNING AND STATISTICAL CELL

The main role of this cell is to assist the Principal CCF-cum-Secretary in all matters related to policy, planning the activities to be undertaken by the department, monitoring the progress of the schemes being implemented by different Circles and reporting the progress to the State as well as the Central Government. This Circle also deals with the works of the management of IFS and SFS cadres, training of IFS and SFS officers, inter as well as intradepartmental meetings. Reply to Parliament Questions, Cases of the Department in the Supreme Court and Co0ordination with the different Ministries in the government of India, Planning Commission, preparation Five Year Plan and Annual Plans, handling of RTI Applications & Green Mission advertisements.

CHAPTER – 17

WORKING PLAN

GEOGRAPHICAL INFORMATION SYSTEM (GIS) IN WORKING PLAN

The history of the application of Remote Sensing Technology in Forestry Sector in the State can be traced to as early as in 1998-89. Initially, the State Forest Department, Government of Sikkim carried out the work of classification of Forest type and forest density map on 1:50,000 scale and 1:100,000 scale respectively in the entire state of Sikkim in collaboration with Regional Remote Sensing Service Centre (RRSSC Kharagpur) based on the Imageries procured from National Remote Sensing Agency (NRSA) Hyderabad. But in the year 1994, the GIS Cell was created in the office of the Conservator of the Forests, Working Plan Circle with the license of ARC INFO and ERDAS Software. At present, the work of GIS is being carried out on 5 Nos. of Workstation simultaneously for digitization and interpretation of Satellite Imageries.

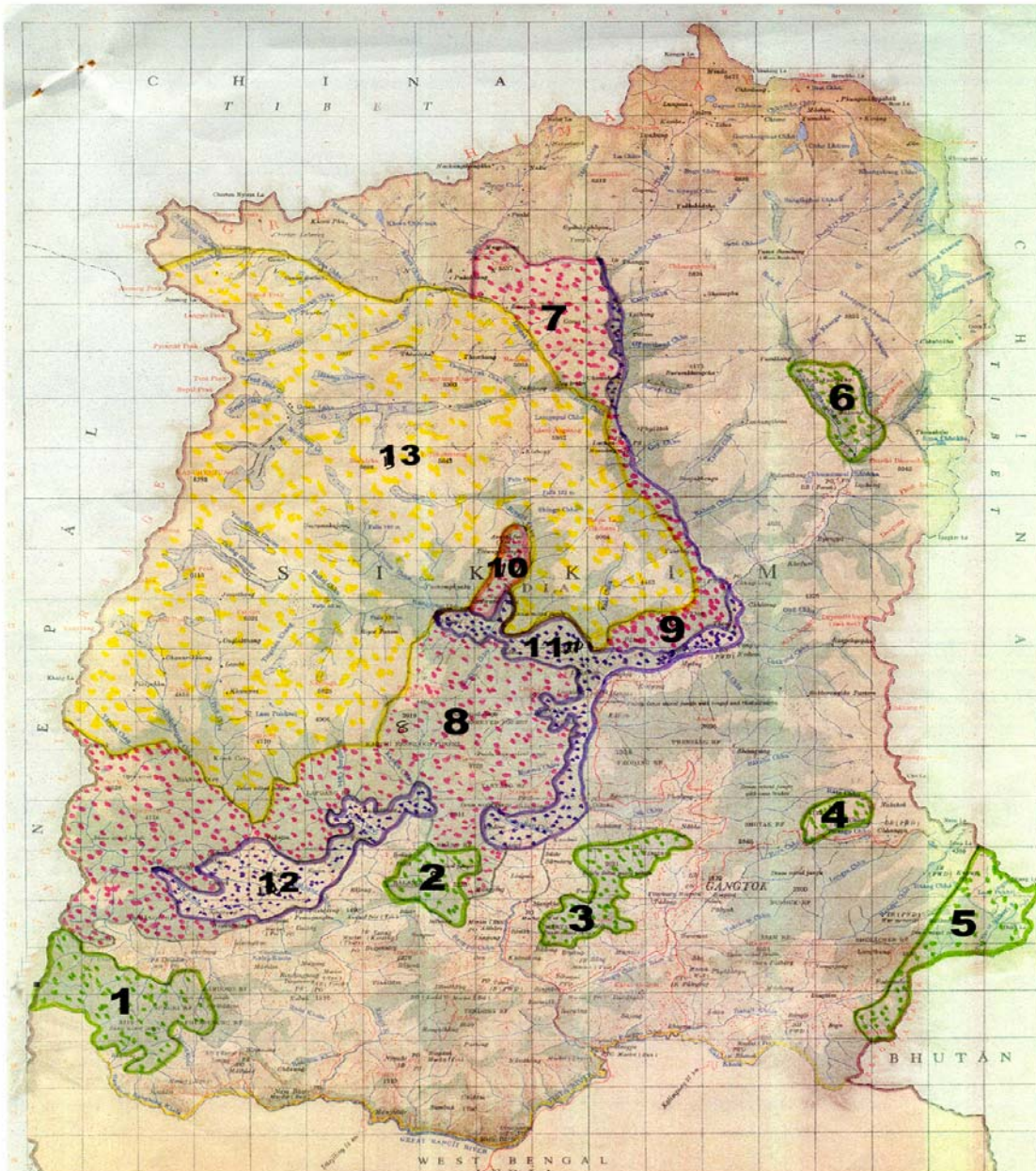
THE WORK SO FAR UNDERTAKEN AND EXECUTED BY THE GIS CELL.

During the past couple of years, the Remote Sensing Cell of the Forest Department, Government of Sikkim did various job for preparation of maps and worked on projects like:

- Pilot project with Space Application Centre regarding development of methodology for Forest mapping using Satellite Data.
- District wise Forest Type mapping on 1:50,000 Scale for all the four Districts of the State.
- District wise Forest Density Mapping on 1:50,000 Scale for all the four Districts.
- District wise Broad land use mapping on 1:100,000 Scale for all the four Districts.
- Preparation of Soil Map in collaboration with National Bureau of Soil Survey and Land Use Planning (ICAR Nagpur), Regional Centre Calcutta.
- Forest Cover MAPPING through Digital Image Processing of Indian Remote Sensing Satellite Data in collaboration with RRSSC Kharagpur, I.S.R.O., Department of Space, Government of India.
- Preparation of Range and Block Territorial Maps for entire state of Sikkim in collaboration with IIT, Kharagpur.
- Preparation of maps for (Khangchendzonga National Park) and Wildlife Sanctuaries located in Sikkim.
- Preparation of different types of maps like slope map, contour map, Drainage map, Catchment Area Map, location map etc. for various EIA (Environment Impact Assessment) studies.

CHAPTER - 18

LOCATIONS OF WILDLIFE SANCTUARIES IN SIKKIM



WILDLIFE SANCTUARIES

1. BARSEY RHODODENDRON WILDLIFE SANCTURY (WEST)
2. MAENAM WILDLIFE SANCTUARY (SOUTH)
3. FAMBONGLOW WILDLIFE SANCTUARY (EAST)
4. KYONGNOSLA WILDLIFE SANCTUARY (EAST)
5. PANGOLAKHA WILDLIFE SANCTUARY (EAST)
6. SINGBA RHODODENDRON WILDLIFE SANCTUARY (NORTH)
13. CORE ZONE I , KANCHENDZONGA N.PARK (NORTH & WEST)
BUFFOR ZONE = 7,8,9, 10,11, & 12.

WILDLIFE SECTOR

Introduction:

Wildlife Circle is headed by Chief Conservator of Forest-cum-Chief Wildlife Warden stationed at Head Office, Gangtok which controls the overall activities of the four Wildlife Divisions, Khangchendzonga National Park and Biosphere Reserve and the Himalayan Zoological Park.

The Wildlife Circle of the Department controls over the Conservation and protection of the Wild life (Flora & Fauna) of the State's rich biodiversity. At present there are Six numbers of wildlife sanctuaries which are as follows:

Table 18.1

Sl.No.	Name of Protected Areas	Location/ District	Month & Year of Notification	Area in Sq.Km.
1	Khangchendzonga National Park	North East.	August 1977	1784.00
2	Shingba Rhododendron Sanctuary.	North	August 1984	43.00
3	Kyongnosla Alpine Sanctuary	East	August 1984	31.00
4	Fambonglho Wildlife Sanctuary	East	April 1984	51.76
5	Pangolakha Wildlife Sanctuary	East	November 2000	128.00
6	Mainam Wildlife Sanctuary	South	March 1987	34.35
7	Barsey Rhododendron Sanctuary	West	July 1996	104.00
	Total			2176.11

The Wildlife Sanctuaries has special protection scheme by way of implementing the various Centrally Sponsored Schemes and state Sponsored Projects. The visitors require the permission of the concerned WL Officer for entering into the sanctuaries. The Wildlife wing aims at the Conservation and Protection of the Wildlife (Flora & Fauna) all over the State as per the Wildlife Protection Act of 1972.

Aims and objectives:

- Protection & Conservation of Wildlife.
 - Implementation of CSS Projects and State Projects.
 - Preservation & Conservation of State's rich Biodiversity.
 - Protection through the people's participation.
 - Rescue of injured wild animals.
- Implementation of CSS Projects and State Projects.

The East Wildlife Division is headed by the Divisional Forest Officer (Wildlife) East with headquarters at the Forest Secretariat Annex building at Deorali, Gangtok. The division is a part of the Wildlife Circle of the Forests, Environment and Wildlife Management Department headed by the Conservator of Forests (Wildlife) who in turn reports to the Chief Wildlife Warden, who is the topmost Wildlife authority in the state.

Function:

The East Wildlife Division controls 210 sq km of wildlife protected areas in East Sikkim. It is the largest among the four wildlife division in the state with protected areas supporting a good population of highly endangered flora and fauna. The Wildlife Sanctuaries has special protection scheme by way of implementing the various Centrally Sponsored Schemes and state Sponsored projects. The visitors require the permission of the Chief Wildlife Warden for entering into the Sanctuary.

DETAIL STATEMENT OF ONGOING SCHEME UNDER SOUTH WILDLIFE DIVISION FOR THE YEAR 2006-07

Table 18.2

(I) MAENAM WILDLIFE SANCTUARY

Sl. No.	Name of scheme	Funded by	Amount sanctioned (Rs. in lakhs)	Amount released (Rs. in lakhs)
1	Development of Maenam Wildlife Sanctuary	100% C.S.S MOEF	14.40	11.52
2	Development of Kitam Birds Sanctuary	100% C.S.S. MOEF	12.90	9.63
3	Construction of R.C.C. Gate, watch tower, waterline connection, bridle path	M.P. fund	19.90	19.90

DETAIL STATEMENT OF ONGOING SCHEME UNDER WEST WILDLIFE DIVISION FOR THE YEAR 2006-07

Table 18.3

(II) BARSEY RHODODENDRON SANCTUARY

Sl. No.	Name of scheme	Funded by	Amount sanctioned (Rs. in lakhs)	Amount released (Rs. in lakhs)
1	Development of Eco-Tourism in Barsey Rhododendron Sanctuary West Sikkim	NEC	36.00	16.20
2	Development of Barsey Rhododendron Sanctuary West Sikkim under 100% C.S.S.	Ministry of Environment & Forest, Government of India	23.50	18.00

DEVELOPMENT ACTIVITIES IN EAST WILDLIFE DIVISION DURING 2006-07

Table 18.4

(III) FAMBONGLHO WILDLIFE SANCTUARY

Description of items	Unit Cost	Physical(Ha/Km/No/LS)		Financial(Rs. in lakhs)	
	Ha/Km/No/LS	Target	Achievement	Target	Achievement
2	3	4	5	6	7
Field Survey for rationalization of the Sanctuary bounded (Km)	0.087	70	70	6.090	6.0884
Provision for purchase of wireless & communication items	0.20	3	3	0.600	0.600
Major renovation & furnishing of the Tumin Rest House, furnishing of Golitar Log Hut	LS	LS	2	2.000	1.996
Electrification & connection of cable with main line for newly constructed kitchen at Golitar Log Hut(LS)	LS	LS	2	2.000	2.031
Strengthening & enforcement activities towards wildlife protection(LS)	0.60	LS	2	1.000	0.972
Soil Moisture conservation works (Ha)	0.23	10	10	2.300	2.300
Awareness, Training & Capacity Building	LS	LS	1	0.500	0.500
Publication of book on Bird Diversity	LS	LS	404	1.000	1.000
Total				15.490	15.486

Table 18.5

(IV) KYONGNOSLA ALPINE SANCTUARY

Description of items	Unit Cost	Physical(Ha/Km/No/LS)		Financial (Rs. In lakhs)	
		Ha/Km/No/LS	Target	Achievement	Target
2	3	4	5	6	7
Provision for scientific equipments like Silva Compass(LS)	LS	LS	LS	0.750	0.7489
Development of Water Harvesting structures(No)	0.50	5	5	2.500	2.4989
Development of Water holes(No)	0.43	5	5	2.150	2.1493
Soil moisture conservation(Ha)	0.34	10	10	3.400	3.3683
Clearance of Wildlife trails(Km)	0.60	4	4km	2.400	2.4000
Anti poaching & Trap Demolition (No of camps)	0.25	3	3	0.750	0.7477
Provision for camping equipments(LS)	LS	LS	-	1.00	0.9982
Habitat Improvement of indigenous species	LS	LS	-	1.00	0.9997
Repairing of Log House	0.60	1	1	0.600	0.5985
Publication of book on Bird Diversity	0.00248	282	282	0.700	0.6995
Total				15.25	15.209

Table 18.6

(V) PANGOLAKHA WILDLIFE SANCTUARY

S N	Description of items	Unit Cost	Physical(Ha/Km/No/LS)		Financial (Rs. In lakhs)	
			Ha/Km/No/LS	Target	Achievement	Target
1		3	4	2	5	7
1	Provision for purchase of wireless & communication items	0.20	2	2	0.400	0.399
2	Purchase of G.P.S	0.50	2	5	1.000	1.000
3	Development of water holes for providing water to wild animals (No)	0.44	5	5	2.150	2.147
4	Construction of bridle path (Km)	2.28	2	2	4.560	4.559
5	Clearance of Wildlife trails (km)	0.40	4	5	1.600	1.599
6	Anti poaching & Trap Demolition(No)	0.40	5	5	2.000	1.998
7	Reduction of control grazing (No)	0.10	5	0	0.500	-
8	Boundary post erection				1.350	1.218
	TOTAL				13.560	12.921

Table 18.7

(VII) SINGBA RHODODENDRON SANCTUARY

Sl. No	Description of items	Physical		Financial (Rs. In lakhs)		Remarks
		Target	Achievement	Target	Achievement	
1	Boundary Demarcation	5 Kms	5km	2.85	2.55	Payment pending 0.30
2	Anti poaching & trap demolition operation	LS	-	2.00	-	To be revalidated in the year 2007-08
3	Anti-avalanches protection measures.	2km.	2km	8.00	8.00	Work completed
4	Preparation of Check lists of Birds	LS	-	1.00	-	To be revalidated in the year 2007-08
5	Awareness Raising	10 nos.	1No	1.50	0.15	„
6	Piggery farming	20 family	-	0.80	-	„
7	Construction of Watch Tower	2 nos.	2 nos.	3.40	3.40	Work completed
8	Camping kits for staff	10 sets	All	1.00	1.00	„
9	Procurement of Arms	9mm 1 A-Pistol 3 nos. 0.135 sporting rifles 2 nos.	----	0.66 0.60	-	To be revalidated in the year 2007-08
10	Interpretative signages, printing of materials, brochures, souvenir, etc.	-----	-----	0.35	0.35	Work completed
	TOTAL			21.95	15.30	

(VIII) KHANGCHENDZONGA NATIONAL PARK AND BIOSPHERE RESERVE

The Khangchendzonga National Park (KNP) covers an area of 1784 Sq.Km. and is the core zone of the Khangchendzonga Biosphere Reserve (KBR). The KBR has the total area of 2620 Sq. Kms. Inclusive of four Buffer Zones. Buffer Zone I, II, III and IV identified and demarcated in the North, East and South of the National Park. The vast area of the Park covers with dense forest like Broad leaved Forest within the altitude of 1829 to 2730 mts., Mixed Coniferous Forest within the altitude of 2730 to 3650 mts. And Alpine-Scrub, grass, variety of flowers and medicinal plants from 3650 mts. And ultimately barren rocks and snow beyond 6000 mts. The Buffer Zone of the Park is surrounded by number of small villages. The population consists of Lepchas, Bhutias and Nepalese in the periphery of Buffer Zones of the Park. The villages such as Bey, Sakyong, Pentong, Satdharey, Leek, Shipgyar, Saffo, Lingya situated in the Buffer Zone of central part of the Park are inhabited by Lepchas mainly while the Chungthang, Lachen, Munsithang, Pegong consists of Bhutias with few Nepalese communities. The Western part of the Park such as Yuksom, Tsong, Nesha, Chongrang, Kongri, Labdang, Dhupi, Narkhola, U, Karjee is dominated by Nepali Communities. About 75% of households are considered to be at subsistence level and they depend on the Biosphere Reserve for their livelihood. The rural economy of the area is of fixed type and mostly depend on traditional farming, horticulture, agriculture and animal husbandry apart from tourism. As such this National Park has least biotic interference.

Table 18.8

MANAGEMENT ACTION PLAN (MAP) FOR CONSERVATION AND MANAGEMENT OF KHANGCHENDZONGA BIOSPHERE RESERVE

Sl. No.	Work Components	Physical Target	Financial Target (Rs. in lakhs)
A	Infrastructure Development		
1	Construction and renovation of Log Huts	1 no.	3.30
B	Eco Development Activities		
1	Broom Grass Plantation	45 ha	3.96
2	Piggery Farming	60 families	1.50
3	Cardamom Rejuvenation	900 families	4.50
4	Horticulture Development	30 ha.	2.61
5	Milking Cow Distribution	45 families	6.75
6	Construction of Toilets	9	3.15
C	Forest Protection		
1	Construction of Biodiversity Check post	1 no.	3.00
2	Demarcation and Boundary Pillars	6 km.	6.00
3	Mint. And Repair of Interpretation Centre, Yuksom	-	1.00
Sl. No.	Work Components	Physical Target	Financial Target (Rs. in lakhs)
D	Social Welfare Activities		
1	Health camp at remote areas	-	2.00
2	Cattle Immunization	-	2.00
3	Distribution of fuel wood saving Devices (LPG Connections)	90 families	2.70
4	Construction of Mule track	5 km.	5.00
E	Habitat management		
1	Bamboo Plantation	60 ha.	10.77
2	Soil & Moisture Conservation Work	30 ha	6.90
3	Pasture Development	30 ha	4.29
4	Maint. Of Plantation	30 ha.	0.76
5	Gap Filling	60 ha.	6.24
F	Awareness Activities & Camps		
1	Preparation of Signages	6 nos.	2.50
2	Nature Trip to school students	60 students	1.50
3	Awareness Programmes	3 places	3.00
		TOTAL	Rs. 83.43 Lakhs

Table 18.9

KHANGCHANDZONGA NATIONAL PARK

Sl. No.	Works Done in the year 2006-07	Physical Target	Financial Target (Rs. in lakhs)
1	Construction of Biodiversity Check post	1 no.	3.00
2	Construction of Log Bridge	1 nos.	2.00
3	Drinking Water Provision	-	3.00
4	Up gradation of Trekking Trails	5 Kms.	4.00
5	Habitat Management	30 ha.	5.00
6	Preliminary Survey Work	21 Kms.	2.74
7	Purchase of Field Kits for Staff and EDCs	10 sets	1.00
8	Wildlife Enforcements	20 ha.	2.00
	Total		Rs.22.74 Lakhs

Table 18.10

ECO-DEVELOPMENT COMMITTEES UNDER WILDLIFE CIRCLE

Sl.No	Name of Sanctuaries	Name of EDC	
1	Barsey Rhododendron Sanctuary, West Sikkim	i)	Uttaray EDC
		ii)	Dentam EDC
		iii)	Hee Patal EDC
		iv)	Bermiok Martam EDC
		v)	SribedemEDC
		vi)	Soreng
		vii)	Sombaria EDC
		viii)	Ribdi EDC
2	Maenam Sanctuary, South Sikkim	i)	Sada Phamtam EDC
		ii)	Borong EDC
		iii)	Ralang EDC
		iv)	Rabongla EDC
		v)	Yang yang EDC
		vi)	Pathing EDC
		vii)	Lingmo EDC
		viii)	Sokpay EDC
3	Fambonglho Wildlife Sanctuary	i)	Song EDC
		ii)	Martam EDC
		iii)	Sumik EDC
		iv)	Rumtek EDC
		v)	Ranka EDC
		vi)	Ray EDC
		vii)	Samdong EDC
		viii)	Rabdong EDC
		ix)	Tumin EDC
4	Pangolakha Wildlife Sanctuary	i)	Dhalopchen EDC
		ii)	Regu EDC
		iii)	Signay Bas EDC
		iv)	Rhodamchen EDC
5	Kyongnosla Alpine Wildlife Sanctuary	i)	Tsangu EDC
		ii)	Kyongnosla EDC
6	Shingba Rhododendron Wildlife EDC	i)	Shengba EDC

Table 18.11

IMPORTANT FLORA AND FAUNA FOUND IN SIKKIM

FLORA	FAUNA
SHOREA ROBUSTA	SNOW LEOPARD
ABIES DENSA	HIM BLACK BEAR
PICEA SMITHINA	SHAPI
LAEIX SPP	MUSK DEAR
TERMINALIA SPP	RED PANDA
RHODODENDRON SPP	BLOOD PHEASANT
BAMBOO SPP	SATYR TRAGOPAN
TREE FERNS	RUSTY BELLIED SHORTWING
ORCHIDS	HIM MONAL
RATTANS	MONAL, TAKIN
ALNUS NEPALENSIS	GAUR, TIGER
CRYPTOMERIA JAPONICA	BLUE PEAFOWL
QUERCUS SPP	
CASTANOPIS	

CHAPTER - 19

DETAIL OF SERICULTURE SCHEMS & PROGRAMMES UNDERTAKEN DURING THE 10TH FIVE YEAR PLAN (2002-2006)

The sericulture in Sikkim is very new in origin. The mulberry Sericulture was introduced in the State during the year 1977-78. In spite of having congenial climate for sericulture, much progress in this sector is not yet achieved due to various reasons. The **Vanya Silk** particularly Muga and Sericulture practices was also introduced in the state during 10th plan (2003-04). At present Directorate of Sericulture is functioning under the Forest Environment and Wildlife Management, with the handful of manpower i.e.(08) persons comprising of one each Addl. Director Sericulture, Joint Director Sericulture, Asst. Director Sericulture, Range Officer Sericulture (02), Block Officer Sericulture (02), and Forest Guard (01). The infrastructures available under the Sericulture sector are as indicated in the table below:

Table 19.1

Sl.No	Particular	Unit	Location	Sectors
1	Govt. Sericulture Farm, Nursery cum Muga Grainage Centre.	01	Rorathang, East Sikkim	Mulberry, Muga & Eri
2	Govt. Sericulture farm cum Nursery	01	Mamring	-do-
3	Govt. Sericulture Centre cum- Eri Grainage Centre.	01	Nadghara, West Sikkim	-do-
4	Mulberry Chowki Rearing Centre	01	Namthang	Mulberry

For the two and half decades, there have been limitations in its Extension and Development activities and towards the mid of 9th Five year plan Sericulture Division in the forest Department got break through thereby creating the Directorate of Sericulture and provision of separate of budget was made available for Sericulture scheme. Then onwards Extensional activities in the village level and Development of infrastructures started gearing up though passively in the two existing Govt. Sericulture farms at Rorathang and Mamring. On the other hand shortage of technical manpower, appropriate input technology remains un-attended till to date. Since then the Sericulture Directorate is implementing a programme called Catalytic Development Programme for Extension and Development of Mulberry, Muga and Eri culture practices in Sikkim, which is sponsored by the Central Silk Board, Ministry of Textiles Government of India. Under the CDP, provision is available for improvement and development of services facilities centre under state Government like Seed Centre, marketing support etc. and rest of the schemes are beneficiary oriented with 50% subsidy having sharing pattern of 10:90% State and Centre Government.

Over the past few years the CDP has considerable impact in Sericulture particularly, the area of Silkworm food plants (mulberry, Kutmero, Tapioca and Castro) plantation in the private holding has increased, farmers those have under taken silkworm food plants plantations are trained. The trained Sericulture farmers are provided with the Silkworm Rearing start up tools, out of whom Silkworm Rearing houses are also provided to some of the progressive farmers. And continuous efforts are being made to make all sericulture farmers to get involve in practice of Silkworm Rearing as per Crop Schedule, so that cocoon production figure of the state could be enhance and sericulture farmers get direct benefit out of it. The information of sericulture

activities in detail as require by the department are furnished in the supplied format, are made available in the Tables.

Table 19.2

ACHIVEMENT OF SERICULTURE DIRECTORARE;

Year :	No. of Farmers: (Mulberry)	Area taken for Seri. Development.	Management Of existing Farms & nursery	No. of Extension Camps Organized.	Production of cocoons. (Mulberry) Only.	Creation of new nurseries.	Revenue realized by sale of Cocoons:
2001-02	68 families.	68 acres.	03	01	1107 kg (green)	Nil	Rs.34,400/-
2002-03	21 families.	21 “	-do-	01	1278 “ “	Nil	Rs.39,305/-
2003-04	53 “	53 “	-do-	01	985 “ “	Nil	Rs.35,333/-
2004-05	16 “	16 “	-do-	01	765 “ “	Nil	Rs.58,555/-
2005-06	41 “	41 “	-do-	01	604 “ “	Nil	Rs.77,860/-
2006-07	41 “	41 “	-do-	01	622 “ “	Nil	Rs.87,102/-
	240 families.	240 acre.	03 Nos.	,,,	4,254 kg (gr)	----	Rs.3,32,555/-

NB;1. Production figure of mulberry cocoons have slightly decreased due to diversion of manpower resources towards Muga and Eri Sectors.

2. Revenue figure from the sale of cocoons is poor due to lack of cocoon marketing facility.

Table 19.3

PHYSICAL TARGET AND ACHIEVEMENT

Sl.No	Name of Programmes:	2001-02		2002-03		2003-04		2004-05		2005-06		Achieved up to 31.3.06	
		Tar.	Ache.	Tar.	Ach e.	Tar.	Ach e.	Tar.	Ach e.	Tar.	Ache.	Tar.	Ache.
	Mulberry Sector:												
1	Plantation of mulberry:		68	21	53	53	53	16	16	41	41	199	199
2	Farmers Training & Start up tools:	100	68	21	39	39	39	39	39	30	30	229	197
3	Subsidy for plantation and weeding.	100	68	21	39	39	39	40	40	30	30	230	198
4	Providing of alkathene pipe:	100	68	21	39	39	39	40	40	40	40	240	208
5	Construction of silkworm Rearing house:	---			21	21	21	20	40	20	20	61	61
6	Assistance to Bivoltine Rearers:	---			--	30	30	19	19	15	15	64	64
7	Provision of			100	100	100	100	--	--	50	50	100	100

	Disinfectants:	---											
8	Drip Irrigation facilities:	---			--	--		01	01	02	02		
9	Improvement of rearing tools & implements, in 1 Govt. sericulture farms.	---			--	--	--	03	03	01	01	03	03
10	Establishment of Chowki Rearing Centre:	---			--	--	--	--	--	--	--		
	Muga Sector;												
11	Plantation Kutmero:	---			--	--	--	15	14	15	27	30	41
12	Farmers Training & Start up tools:	---			--	--	--	15	14	15	27	30	41
13	Subsidy for plantation & weeding;	---			--	--	--	15	15	15	15	30	30
14	Provision of alkathene pipe:	---			--	--	--	15	15	15	27	42	42
15	Assistance to Muga Seed Rearers:	---			--	--	--	--	--	40	40	40	40
16	Construction of Grainage building:	---			--	--	--	--	--	01	01	01	01
17	Maintenance of Muga food plants:	---			--	15	--	--	--	15	15	15	15
	Eri Sector:				--								
18	Plantation of Castor/Tapioca:	---			--	20	30	30	26	60	55	170	111
19	Farmers training & Start up tools:	---			--	--	--	--	50	60	54	110	104
20	Subsidy for plantation & weeding:	--								60	55	60	55
21	Construction of Rearing house:	--								60	60		60
22	Construction of Grainage building.	--								01	01	01	01

CHAPTER – 20

DIVERSION OF FOREST LAND UNDER FOREST (CONSERVATION) ACT 1980

Forest (Conservation) Act is a unique piece of legislation, and a regulatory mechanism that reflects the collective will of the nation to protect its rich biodiversity and natural heritage and that permits only unavoidable use of forest land for various developmental purposes. It embodies the firm commitment of the government of India and the state government to balance the conservation of forests with the sustainable development need of the country contributing to better environment, health and economy. The remarkable feature of this Act is that it is regulatory and prohibitory.

Since 1980, Rules and Guidelines have been formed for division of forest land for non-forestry purposes. Since its inception, the Act has facilitated developmental activities like construction of power projects, irrigation projects, roads, railways, schools, hospitals, rural electrification, drinking water facilities, mining etc. on forest land and checked the indiscriminate diversion of pristine forest areas. Between 1950 and 1980, forest lands have been diverted at the rate of 1.5 lakh hectare per annum by the various state government/UT Administration. This diversion has however, come down as low as 0.38 lakh hectares per annum after 1980. In the state of Sikkim, since the inceptions of the Act till March, 2005 about 165 numbers of proposals have been accorded forest clearance for diversion of about 934.00 ha of forest land for various development projects. The Compensatory Afforestation stipulated was 2337.01 ha, out of which about 2141.99 ha, i.e. 91.65% of Compensatory Afforestation target has been achieved and the balance target could not be achieved due to either non-receipt of fund from the User Agency. The details are given below in table- **Basic information for proposal under Forest (Conservation) Act, 1980 (Districts & State profile)**

Table 20.1
Application of Forest (Conservation) Act, 1980
State Profile As On 31ST March 2007
Period [25-10-1980 to 31-03-2007]

Sl. No	1	2	3	4	5	6	7
Districts			East	West	North	South	Total State
Forest covers (Ha.) FSI 2001			67900	72800	132600	52900	326200
Clearance under Act so far	Forest land diverted (Ha.)	-	240.06	51.78	370.85	271.74	934.44
	No. of Proposals	-	53	22	42	56	173
Purpose of Diversion	Hydel	Area	107.9	14.746	66.147	35.20	223.99
		Nos.	7	3	7	4	20
	Irrigation	Area	3.21	0.35	0	0.88	4.44
		Nos.	1	1	0	3	5

Table 20.2
Application of Forest (Conservation) Act, 1980
State Profile As On 31st March 2007
Period [25-10-1980 to 31-03-2007]

Sl. No	1	2	3	4	5	6	7
Districts			East	West	North	South	Total State
	Mining	Area	0.62	1.80	0	0	2.42
		Nos.	1	1	0	0	2
Road	Road/Railway	Area	62.15	2.8667	301.107	34.4348	400.56
		Nos.	15	8	26	19	68
Transmission Line	Thermal/Tr. Line	Area	24.346	29.86	0.48	91.29	145.98
		Nos.	6	4	1	9	20
	Others	Area	41.837	2.16	3.1164	109.94	157.05
		Nos.	24	5	8	21	58
Compensatory Afforestation	Stipulated	Non forest land	0	15.78	7.276	2.70	25.75
		Deg.Forest land	487.72	235.26	1151.49	436.79	2311.26
	Achieved	Non forest land	0	13.014	2.262	2.50	17.77
		Deg.Forest land	583.07	271.55	800.405	496.19	2124.22

Abstract: 1. stipulated compensatory Afforestation=2337.01 Ha.

2. Achieved Compensatory Afforestation=2141.99 Ha.

Hence, the compensatory Afforestation % of stipulated=91.65%

CHAPTER 21

SMRITI VAN PROGRAMME-SIKKIM A PEOPLE'S PROGRAMME

The concept of *Smriti Van* is a novel idea of involving society at large in nature conservation. This is a concept in which trees can be planted, including on marriage, birthdays, anniversaries, demises, and friendship or in the remembrance of near and dear ones. The concepts can be implemented by setting up "Smriti Vans" in all villages/Panchayats, urban areas, tourist places, religious places and crematorium etc. the initiatives for this purpose no doubts have to be taken by the state government or the local body by making the land available, technical and seedlings etc. The planning and implementation would necessarily require active participation of the local community and ultimately the management should be entrusted to the local community, organizations, NGO's or welfare associations etc.

All over the world, people believe in perpetuating the memory by erecting memorials. Trees can be planted as "Live Memorials". Planting of tree(s), on any occasion would not only satisfy the desire to keep the memory fresh, but also help in national causes of "Greening and Maintaining the ecological balance as well as atmospheric equilibrium". The planting of non timber species, which have value in terms of the regular usufruct they give like fruits, flowers, nuts, leaves, medicines, fodder and even shade, without having to be felled when mature, will enhance the concept of perpetuation of the memory of an ancestor, who is seen to continue to be benefactor.

To make it a mass voluntary movement, involvement of people and all the section of society for a **GREEN SIKKIM**, the State Government decided to create and establish the **MEMORIAL FORESTS/ SMRITI VANS** at various desirable places in the State. **Hon'ble Chief Minister Dr. PAWAN CHAMLING** inaugurated and launched the programme on 5th June 1999 (**WORLD ENVIRONMENT DAY**) at Bulbuley in East district, which is followed in other districts as well. The programme has been taken to the doorsteps of the by creation of Smriti Vans in every Village & Panchayats.

In this programme till date in the State of Sikkim, in addition to Smriti Van in every Panchayat (Total 166 Nos.), more than 62(sixty two) numbers of SMRITI VANS at various places have been created such as: BULBULEY (56 nos.) [East District]; Rinchenpong -Tagore Smriti Van & Sakyong [West District]; and the Yumthang Valley Smriti Van (High Altitude) in North District. A total of more than 1,35,000 nos. (One Lakh thirty five thousand) numbers of seedlings in additions to Panchayat Smriti Vans have been planted in the year 1999-2000, 2000-01, 2001-02, 2002-03, 2003-04, 2004-05, 2005-06 & 2006-07 and are being maintained, nursed & protected by various Non- Governmental Organizations (NGOs), Community Based Organizations (CBOs), Associations, Religious & Social Institutions, Schools, Government & semi government agencies, and by individuals as well. The response and participation is tremendous and very encouraging.

CHAPTER – 22

River Valley Project Scheme

A project proposal for implementation of RVP scheme was submitted to the Government of India for Tb3g Watershed which is the Catchment of Reshi Khola in Samdong, Sribadam and Deythang area in West Sikkim. These Catchments have been recognized as very high priority area by the All India Soil & Land Use Survey Organization (AISLUS) for scientific watershed management. The project has been approved by the Government of India for implementation at a total cost of Rs. 553.48 lakhs during five year plan period. Under the guidelines for Macro Management issued by the Government of India, the funds for the State Government are released to the State Agriculture Department which is the Nodal Department for routing the fund to the Forest Department.

The RVP Scheme of Tb3g Watershed started during 2003-2004 under 10th Five Year Plan period. The physical and financial achievement for the year 2006-2007 involving the total expenditure of Rs. 55.83 lakhs is given below in the table.

Information on project under implementation

1. Name of the project : Reshi Khola Watershed Development 100% CSS
2. Name of Scheme : Soil Conservation for enhancing productivity of degraded lands
In the Catchments River Valley Project and Flood Prone Rivers.
3. Sponsored by : National Resource Management Division, Ministry of Agriculture and Co-operation, Government of India.
4. Funded by : Macro Management Mode in Agriculture
5. Project Period : 2003-2004 to 2007-2008 (approved in 2003)
6. Commencement : Financial Year 2003-2004
7. Watershed Name : Sub- Watershed Code – Tb3g of Teesta Catchment (classified As High Priority Watershed by AISLUS)
8. Total Project Cost : Rs. 553.93 lakhs
9. Annual Outlay approved : Rs. 100.00 lakhs
10. Total Expenditure : Rs. 55.83 + 21.45 (Project & Non Project Activities respectively)
During 2006-07
11. Villages covered : Sribadam, Deythang, Samagaon in West Sikkim
12. Name of seedling : Rani Champ, Phusrey Champ, Accr, Panisaj, Nevara, Lapsi
Tooni, Pipli, Lampatey, Arupatey, Khamari, Kaijal, Kawla etc.
13. Project Headquarter : Office of the Divisional Forest Officer, River Valley Project Division , Gangtok.

Table 22.1

Details Of Work Carried Out By RVP Division During 2006- 2007

Sl. No.	FOREST LAND	PHYSICAL ACH. (Area in Ha, Str., in Nos)	Financial Achievement (Rs. in lakhs)
1	Demarcation & preparatory works	200	0.26
2	Closure by Guards	50	0.26
3.	Composite Nursery	150	4.98
4	Sowing & Planting	150	8.30
5	Contour/ Staggered trenching	20	0.69
6	Silvipasture Development	50	2.41
7	Gap Filling with Post Planting Care	150	5.16
8	Drainage Line Treatment	20	1.76
	Sub Total	770 Ha 20 Nos	23.93
	WASTELEND		
1	Demarcation and preparatory works	94	0.18
2	Composite Nursery	54	1.79
3	Sowing & Planting	54	2.98
4	Silvipasture Development	40	1.93
5	Gap Filling with Post Planting Care	54	1.86
6	Contour Graded bunding	24	1.31
7	Drainage Line Treatment	33	6.63
	Sub-Total	350 Ha 33 Nos	16.68
	AGRICULTURE LAND		
1	Contour Graded Bunding	21	1.14
2	Agro-Forestry	100	1.20
3	Drainage Line Treatment (No)	55	12.88
	Sub-Total	121 Ha 55 No.	15.22
	TOTAL	1241 Ha 108 Nos	55.83

CHAPTER - 23

CATCHMENT AREA TREATMENT

The Catchment Area Treatment Programme is an integral part of all the development projects especially all Hydroelectric Projects. To conserve and protect the Water Shed Area of the development projects it is mandatory. The Teesta Stage V Hydro-electric project is being executed by the National Hydroelectric Power Corporation (NHPC). As part of this project the Catchment area of the project is being treated so as to increase the life of the project by cutting siltation. The targets and achievement till 31st March 2006 are as under.

The Project is being implemented in the North & East District from the year 2001 and will continue till 2008-09 at a total cost of **Rs.2420.45 lakhs**. The project has been **revised** based on the revision of the minimum wage rate of Rs. 85/- per man-day w.e.f. 1.4.2004. The total financial implication to achieve the original physical target has been worked out to **Rs.4031.77 lakhs** & submitted to NHPC for funding the remaining amount of Rs. 1611.32 lakhs so that the physical target could be achieved

Table 23.1

TOTAL YEARWISE PHYSICAL & FINANCIAL TARGET AND ACHIEVEMENT UNDER TEESTA STAGE V.

Sl. No.	Items of work	2001-02		2002-03		2003-04		2004-05		2005-06		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Afforestation HA	0	0	0	0	47	5.64	250	77.7	455	101.01	852	184.35
	Afforestation LA	0	0	650	52	333	26.64	947	141.1	792	118.01	2722	337.75
2	Natural Regeneration	171	11.13	145	9.60	62	3.82	118	14.75	100	12.5	596	51.80
3	Bamboo Plantation	134	18.86	97.5	14.74	103	14.36	101	14.65	70.5	10.22	506	72.83
4	Medicinal Plantation	2.5	0.6	0	0	0	0	24.5	10.34	12	5.06	39	16
	Medicinal Plantation LA	35	5.64	12	1.94	0	0	0	0	0	0	47	7.58
5	Seed Sowing	119.5	9.56	3	0.24	0	0	2.5	0.26	0	0	125	10.05
6	Fuel wood & fodder plantation	0	0	150	12	150	12	150	22.35	150	22.35	600	68.70
7	Pasture development	254	18.08	249	17.83	150	10.5	47	4.14	0	0	700	50.55
8	Silvipasture development	0	0	100	11.10	100	11.10	100	14.30	100	14.30	400	50.80
9	Roadside/Bamboo Plantation	0	0	40	30.41	40	30.40	50 B	7.25	20 B	2.90	80	70.96
10	Broom grass Plantation	0	0	200	14	200	14	200	28.60	200	28.60	800	85.20
11	Soil conservation Measures	2676.12	23.60	1315.45	16.23	559.70	7.17	0	0	0	0	4551.27	47
12	1:4:8 CCM Wall	1877.5	13.78	2058.4	22.28	1375.90	22.05	0	0	0	0	5311.8	58.11
13	Dry stone Wall	2333	8.89	2543.50	15.06	2376.49	13.67	0	0	0	0	7252.99	37.62
14	Bally benching	140	19.40	280	42	0	0	20	3.62	0	0	440	65.02
15	Live Hedge Fencing	5.7	2.59	2.5	1.08	0.8	0.35	1	0.23	0	0	10	4.25
16	Barbed wire Fencing	0	0	18.2	42.65	15	41.75	16.2	63.99	3.6	9.48	53	157.87
17	Watch & Ward	17450	8.73	23020	11.51	306660	15.33	24395	20.74	24395	20.74	119920	77.05
18	Creation of Nursery	5.3	4.6	6.5	8.54	0	0	0	0	0	0	10	13.14
19	Horticulture Development	0	0	100	6.90	100	6.90	100	8.70	100	8.70	400	31.20
20	Catch water	394	2.81	126	1.31	0	0	0	0	0	0	520	4.12
21	Contour Bunding	100	10.21	120	12.93	150	15.86	50	9.85	0	0	420	48.85
22	Sausage Wall	3640	33.74	6768.90	51.16	1830.40	23.20	1160.2	17.96	1276	19.75	14675.5	145.81
23	1:4:8 CCM Wall	6769.76	47.78	2564.68	18.53	2176	34.11	94	1.70	1506	27.20	13110.44	129.32
	Total		240		414.04		308.85		462.23		400.82		1825.94

Note: The above information is based on the revised programme on account of enhancement of wages from 2001 and 2004 @ Rs.50/-and Rs.85/head.

Table 23.2
DIVISIONAL WISE EXPENDITURE OF CAT PLAN , TEESTA STAGE V

Sl. No	Year	LU&E		Territorial Division		Social Forestry		Adm. Expenses	Total Exp. Of The Year
		East	North	East	North	East	North		
1	2000-01	818725	3718820	238254	1130950	199133	87389	518854	6712125
2	2001-02	7384700	13422190	1149724	4928103	707698	433201	1582366	29607982
3	2002-03	5336889	14565064	5362844	12026705	5615878	4030160	578850	47516390
4	2003-04	3772418	14489968	3692411	6340371	6965551	4611807	75570	39948096
5	2004-05	7198154	17330785	6412391	14668510	11036158	6661035	290979	63598012
6	2005-06	3608787	8453663	8466816	12269162	11223190	8755906	560898	53338422
7	2006-07	1329005	4309001	2758624	48355793	6128277	3569835	10335115	33265650
	Grand Total Up to 31.03.07	29448678		28081064		41875885	28149333	13942632	273986677

CHAPTER – 24

OUT TURN OF TIMBER & FIREWOOD

The Utilization Circle is the commercial wing of the department. Extraction of Wind-fallen trees, trees from project sites where forest land is diverted to the user agencies, extraction of poles from thinning of old plantations and conversion into timber, firewood and charcoal and sale of these forest produce is done by this Circle.

Table 24.1

Details of Extraction and Sale of Forest Produce

Year	Timber		Firewood		Charcoal		Total
	Quantity extracted and sold (Cubic feet)	Revenue realized (Rupees)	Quantity extracted and sold (Piles))	Revenue realized (Rupees)	Quantity extracted and sold (Bags)	Revenue realized (Rupees)	Revenue realized (Rupees)
1997-1998	2153.50	2.75	36	0.50	986	0.57	3.82
1998-1999	1004.75	1.41	58	0.22	180	0.18	1.81
1999-2000	1535.52 1872 Nos (Ballies)	2.23	157	0.84	620	0.45	3.52
2000-2001	1741.75 1393 Nos (Ballies)	2.93	168	0.83	245	0.18	3.94
2001-2002	11869.54 1225 Nos (Ballies)	22.31	95	0.18	77	0.37	22.86
2002-2003	13421.31 cft.	20.13	379.72	1.90	213	0.28	22.31
2003-2004	4863.50cft.	10.28	151.82	0.76	176	0.26	11.30
2004-05	3852.62 cft.	8.23	169.15	0.85	13	0.21	9.29
2005-06	3367.52cft	8.14	111.80	0.77	13	0.19	9.1
2006-07	1876.43cft	2.81	224	1.21	-	-	4.08
Total:	4490 Ballies 45686.44cft	81.22	1550.49	8.06	2523	2.69	91.97

CHAPTER - 25

ENVIS Centre In Sikkim

ENVIS Centre on State of Environment is established under EPC Division in the year 2002-03. A brief description about the Centre is given below.

INTRODUCTION

Realizing the importance of Environment Information, the Government of India, in December, 1982, established an Environment Information System (ENVIS) as a plan programme. The focus of ENVIS since its inception has been on providing environmental information to decision makers, policy planners, scientists and engineers, research workers, etc. all over the country.

Since environment is a broad- ranging, multi-disciplinary subject, a comprehensive information system on environment would necessarily involve effective participation of concerned institutions/organizations in the country that are actively engaged in work relating to different subject areas of environment. ENVIS has, therefore, developed itself with a network of such participating institutions/organizations for the programme to be meaningful. A large number of nodes, known as ENVIS Centres, have been established in the network to cover the broad subject area of environment with a Focal Point in the Ministry of Environment & Forests.

WHAT IS ENVIS?

ENVIS, the Environmental Information System is a decentralized system with a network of distributed subject oriented Centres ensuring integration of National efforts in environmental information collection, collation, storage, retrieval and dissemination to all concerned. Presently the ENVIS network consists of Focal Point at the Ministry of Environment & Forests ENVIS Centres set up in different organizations/establishments in the country in selected areas of environment.. These Centres have been set up in the areas of pollution control, toxic chemicals, central and offshore ecology, environmentally sound and appropriate technology, bio-degradation of wastes and environment management, etc. ENVIS Focal Point ensures integration of national efforts in environmental information collection, collation, storage, retrieval and dissemination to all concerned.

OBJECTIVES OF ENVIS CENTRE

1. Long Term Objectives

- To build up a repository and dissemination centre in Environmental Science and Engineering
- To gear up modern technologies of acquisition, processing, storage, retrieval and dissemination of information and environmental nature : and
- To support and promote research, development and innovation in environmental information technology.

2. Short Term Objectives

- To provide national environmental information service relevant to present needs and capable of development To meet the future needs of the users, originators, processors and disseminators of in formations;
- To build up storage, retrieval and dissemination capabilities with the ultimate objectives of disseminating information speedily to the users:
- To promote, national and international co-operation and liaison for exchange of environment related information:
- To promote, support and assist education and personal training programmes design to enhance environmental Information processing and utilization capabilities:
- To promote exchange of information amongst developing countries.

Responsibilities of ENVIS Centre:

- Building up a good collection of books, reports and journals in the particular subject area of environment;
- Establishment of linkages with all information sources in the particular subject area of environment;
- Responding to user queries;
- Establishment of data bank on some selected parameters relating to the subject area;
- Coordination with the Focal Point for supplying relevant, adequate and timely information to the users;

- Helping the Focal Point in gradually up an inventory of information material available at the Centre; identification of information gaps in the specified subject areas and action to fill these gaps;
- Bringing out newsletter/ publications in their subject area for wide dissemination.

The ENVIS Sikkim Centre is functioning under Forest, Environment and Wildlife Management Department, in the subject area " Status of Environment and Related Issues of Sikkim". The Centre has launched a website with the domain name of www.sikenvis.nic.in. The website contains information environment related issues including forest and forestry, status of environment, land and water, wildlife, biodiversity, ecotourism, sericulture etc. The website also includes various reports and publications in addition to the legislation on forest and environment. Various programmes relating to forest and environment implemented in the State of Sikkim also being included.

CHAPTER – 26

AFFORESTATION UNDER 20 POINT PROGRAMME

Afforestation, Natural Regeneration, Pasture Development (Fodder Plantation), Plantation of Bamboo other Minor Forest Produce as well as Medicinal Plants is being carried out by Forests, Environment and Wildlife Department regularly. Area under both forest as well as private lands covered under plantation during the last 30 years is given below.

Sl. No.	Period of Afforestation	Area in Hectares		Total Area
		Government land	Private land	
1.	1971-80	7463.00	1317.00	8780.00
2.	1980-85	3332.65	676.35	4009.00
3.	1985-86	1666.25	558.75	2225.00
4.	1986-87	1470.00	490.00	1960.00
5.	1987-88	1511.25	503.75	2015.00
6.	1988-89	1616.25	538.75	2155.00
7.	1989-90	1852.50	617.50	2470.00
8.	1990-91	3416.25	1138.75	4555.00
9.	1991-92	4622.47	1580.82	6203.29
10.	1992-93	5484.00	1828.00	7312.00
11.	1993-94	5786.70	1928.90	7715.60
12.	1994-95	6900.00	2300.00	9200.00
13.	1995-96	7189.50	2398.50	9588.00
14.	1996-97	7500.00	2500.00	10000.00
15.	1997-98	6356.56	2610.30	8966.86
16.	1998-99	7537.00	500.00	8037.00
17.	1999-00	6923.00	4183.00	11106.00
18.	2000-01	8048.00	3031.00	11079.00
19.	2001-02	6217.00	2483.24	8600.24
20.	2002-03	3696.00	2946.00	6618.00
21.	2003-04	6125.19	1732.00	7857.19
22.	2004-05	6191.00	2064.00	8255.00
23.	2005-06	8012.87	306.00	8319.00
24.	2006-07	3550.26	487.35	4037.61
Total :				

* Area worked out on the basis of 14,73,000 seedlings distributed to public for raising plantation on private land, Smritivan, World Environment Day etc.@ 500 seedlings per Ha.

CHAPTER - 27

STATE POLLUTION CONTROL BOARD

Environmental pollution is one of the major problems the world is facing and pollution are byproducts of man's own action. In developed countries, the lake and rivers are polluted with wastes from industries, pesticides, herbicides, fertilizers and chemicals and with exhaust gases of automobiles and chimneys smoke etc. In under developed countries pollution is mainly caused by population explosion, unplanned dumping of wastes and sewage, and as well due to unhygienic and poor mode of living.

Although it was thought that nature would take care of the environmental problems of Sikkim but due to rapid developmental programme the pace of development exceed the facilities and the infrastructure available in the state. To tackle the problem of environmental degradation created by various sources, the State Pollution Control Board- Sikkim was created and entrusted with the implementation of different Act and Rules in vogue for the prevention and control of environmental pollution. And accordingly various projects were implemented to find out the base line information on the present status of environmental pollution in Sikkim.

The land use and Environment Board was constituted vide notification no. 51(7) Home /81 dated March 1983 under the chairmanship of Chief Secretary, Govt. of Sikkim.

The State Pollution Control Board of Sikkim is entrusted with the implementation of following Acts & Rules:

1. Water (Prevention & Control of Pollution) Act, 1974.
2. Water (Prevention & Control of Pollution) Cess Act, 1977.
3. Air (Prevention & Control of Pollution) Act, 1981.
4. The Environment (Protection) Act, 1981.
5. Hazardous Waste (Management & Handling) Rules, 1989.
6. Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989.
7. Public Liability Insurance Act, 1991
8. Bio-Medical Waste (Management & Handling) Rules, 1998.
9. The Recycled Plastics Manufacture and Usage Rules, 1999.
10. Environment (Protection) (Second Amendment) Rules, 1999 regarding standard of fire works.
11. Noise Pollution (Regulation & Control) Rules, 2000.
12. The Municipal Solid Waste (Management & Handling) Rules, 2000.
13. Ozone Depleting Substances (Regulation & Control) Rules, 2000.

Table 27.1

Scheme completed by SPCB:

Sl. No	Name of schemes	Status
1	Establishment of Pollution awareness and assistance centre.	Completed
2	Study of the hot water spring of Sikkim	Completed and (report submitted)
3	Study of water quality of 3 revered lakes of east Sikkim	-do-
4	Environment Assessment of Urban Settlement	-do-
5	Assessment of Pollution and formulation of action plan.	-do-
6	Strengthening of SPCB for implementation of rules other the water and air	-do-

7	Establishment of 2nos. of Ambient Air Quality Monitoring Station at Gangtok.	-do-
8	Strengthening of SPCB, Sikkim upgradation of laboratories	-do-
9	Public Hearing on 510 MW, Teesta H.E Project	-do-
10	Public Hearing on 36 MW, Rolep Hydro-electric Power Project, East Sikkim	-do-
11	Public Hearing on Municipal Solid Waste Treatment Plant, Lower Martam, East Sikkim	-do-
12	Abatement of Pollution through cleaning of Jhoras in and around Gangtok	-do-
13	Public Hearing on construction of Airport at Pakyong, east Sikkim	-do-
14	Setting up National Green Corps	-do-
15	Strengthening of SPCB	-do-
16	Air and Water Quality Monitoring of Namchi	-do-
17	Bio-monitoring of Gurudongmar Lake	-do-
18	MINARS	-do-
19	NAAOM	-do-
20	Public Hearing of 100 MW Chujachen HE Project	-do-
21	National Environment Awareness Campaign (NEAC)	-do-

ENVIRONMENTAL MONITORING

The State Pollution Control Board has a regular Ambient Air and Water Quality Monitoring Programme to assess the status of pollution in the natural environment. These monitoring programmes are funded by the Central Pollution Control Board, Ministry of Environment & Forest, Govt. of India.

A. AIR QUALITY MONITORING

Introduction

To prevent, control and abate air pollution in the country, the Government of India enacted Central legislation called the Air (Prevention & Control of Pollution) Act, 1981 (referred to as the Air Act, 1981).

The main function of the State Board described in the Air Act, 1981 is that the State Pollution Control Board are entrusted with the direct implementation of the provision of the Air Act, 1981 in their respective State.

- Every polluting industry must obtain a consent from the State Pollution Control Board for the discharge of air pollutants in any form through chimney or otherwise.
- The State Board may lay down suitable conditions while giving consent to discharge air pollutants in the light of emission standards developed by the Central Board, subsequently notified through the rules framed under the Environment (Protection) Act, 1986 Rules.
- The State Boards are also empowered to take legal action against any industrial unit not meeting the conditions of the consent.

The other activities of the State Board include:

- To plan a comprehensive programme for air pollution prevention, control and abatement.
- To advise the State government on any matter concerning air pollution prevention & control.

- To inspect air pollution control equipment & give such directions as may be considered necessary for pollution control.

AIR QUALITY OF GANGTOK.

Air quality monitoring of Gangtok town was initiated out under the project “Assessment of Pollution & Formulation of Action Plan” during the year 2000-2001 and as per the report the air quality of Gangtok town is represented in the table.

Table 27.2

Ambient Air Quality in and Around Gangtok (Yearly average) in (ug/m3).

Sl.No	Name of sites	Category	SPM	SO2	NOX
1	Tadong	Residential	108	16.2	15.7
2	Indira Bye-Pass	Commercial	137	17.4	22.6
3	Deorali	Residential	118	18.6	16.1
4	Bazaar area(near Metro point)	Commercial	145	22.3	20.4
5	Hospital point	Sensitive	122	19.6	18.6
6	Zero point	Sensitive	98	10.2	12.3

B. WATER QUALITY MONITORING

The central Pollution Control Board, Delhi initiated the National Water Quality Monitoring Programme to consistently monitor the water quality in a systematic manner to know the nature and extent of water quality degradation and the existing quality of water in the water bodies. The national programme is also termed as Monitoring of Indian National Aquatic Resources MINARS.

The major objectives of Water quality monitoring are:

- To warrant appropriate pollution control on the discharge reaching the water bodies.
- To identify any deficiency in the water quality and to implement water pollution control strategies.
- To determine affect of water quality the intensity and exposure of various pollution on human health.
- To determine long term trends in water quality.

MINARS

Under the MINARS programme the State Pollution Control Board, Sikkim collects water samples from River Teesta and its tributaries at nine station. This programme is totally funded by Central Pollution Control Board. The details of sampling Station are as follows.

Table 27.3

ESTABLISHMENT OF NEW WATER QUALITY MONITORING STATION BY STATE POLLUTION CONTROL BOARD, SIKKIM, UNDER MINARS.

SL.No	Name of Station (station code)	Location (Latitude & Longitude)
1	Chungthang (1801)	Lat.88°39'0" Long. 27°36'0"
2	Dikchu (1802)	Lat.88°31'30" Long. 27°23'44"
3	Burtuk(1803)	Lat.88°31'30" Long.27°21'30"
4	Adampool(1804)	Lat.88°35'15" Long. 27°18'30"
5	Ranipool (1805)	Lat.88°35'45" Long. 27°17'15"
6	Singtham (1806)	Lat.88°29'45" Long. 27°13'45"
7	Singtham D.S (1807)	Lat.88°29'44" Long. 27°13'44"
8	Rangpo(1808)	Lat.88°31'45" Long. 27°10'8"
9	Melli (1809)	Lat.88°37'30" Long. 27°5'15"

CHAPTER - 28

Biodiversity Conservation

State Biodiversity Park, Tendong, South District

LOCATION

Tendong Biodiversity Park is located in South District, and lies about 70 km to the west of Gangtok and 14 km north of the district headquarter, Namchi. This is in the southern part of the Maenam – Tendong ridge, which virtually bisects Sikkim longitudinally. The purposed Tendong State Biodiversity Park occupies the northern aspects of this ridge, between Gaanchung and Damthang, below the state highway, and is very accessible. It is adjoining to the Temi Tea Garden. The total area of the park is 255 ha and the altitude varies from 1400 msl to 2050 msl, aspect being north. Topography is hilly, with flat land only in patches. A number of streams pass through the area.

A programme for strengthening of State Biodiversity Park has been formulated and being implemented since a few years back for protection, propagation and conservation of rare and endangered species including medicinal plants of the locality. This will not only serve as a representative unit of subtropical to temperate flora and fauna of State but also serves as a centre for nature education, awareness and recreation. The details of fund allocated and utilized till the end of financial year 2006-2007 are given below:

Table 28.1

Sanctioned Provision	Fund allocated & utilized		Total	Remarks
	2005-2006	2006-2007		
76.69	20.00		50.00	Under progress

BIODIVERSITY & NATURAL RESOURCES OF SIKKIM

India is recognized as one of the 12 mega diversity centre of the world. India has two out of the 18 BIODIVERSITY hot-spots in the world, which are in the Western Ghats and Eastern Himalayas. Sikkim, covering just 0.2% of the geographical area of the country, has tremendous biodiversity and has been identified as one of the HOT-SPOT in the Eastern Himalayas.

The Sikkim Himalayas falls under the Himalayan (2) Biogeography Zones and Central Himalaya (2C) Biotic Province. As per the Champion & Seth 1968 new classification of Forests Types, about 9 Types of Major Forests Types are found in the State. Sikkim Himalayas has more than 26% of flowering plants of the country and is very important phytogeographical reserve of the country and is very important phytogeographical reserve of the country.

- There are 10 bio-geographic zones & 25 biotic provinces--- which have 16 major forests type & > 200 sub types as per (Champion & Seth 1968).
- Sikkim falls under “Himalayan (2) Biogeography zone & Central Himalaya (2c) biotic province---having about 9 types of forest types (Champion & Seth).

CHAPTER - 29

ASSISTANCE TO BOTANICAL GARDENS

Introduction:

This scheme was initiated during 1991-92 to promote ex-situ conservation and propagation of rare plants resources in different regions of the country through a network of botanical gardens. Under this scheme a one-time, non-recurring financial assistance is provided to botanic gardens for strengthening their existing infrastructural facilities to facilitate conservation and propagation of rare and endangered endemic plant species of the region.

The Botanical Survey of India has prepared a list of endangered in different phytogeographic regions of the country and an Expert Group constituted by the Ministry examines the proposals received from various institutions, universities and State Governments/UTs for assistance under this scheme.

AIMS AND OBJECTIVES

1. Ex-situ conservation and propagation of rare and endangered endemic species
2. Strengthening of existing infrastructural facilities for conservation of germ-plasms, establishment of seed banks, arboreta and mist propagation facilities will be subject to review and identification of gaps by BSI for the furtherance of items 1 above.
3. Education and public awareness in respect of endemic plant species and reintroduction of endangered taxa in wild for in-situ propagation in natural ecosystems in collaboration with Forest Department.

The scheme is being implemented by the Environment & Pollution Control Division under the Forest Department.

Table 29.1

STRENGTHENING OF JAWAHARLAL NEHRU BOTANICAL GARDEN

Sl. No.	Item of the works	Estimated Cost (Rs. in lakhs)	Remark
1.	Compound fencing CRSM wall with an angle iron	9.81	Sl. No.1 & 2 completed
2.	Construction of Green House	5.05	
3.	Construction Poly House	3.28	Sl no. 3 to 8 is being carried out
4	Construction of footpath (pavement)	3.99	
5.	Construction of CRSM Resting Bench	3.92	
6.	Extension/ Landscaping of Garden	3.00	
7.	Collection of suitable plants	3.50	
8.	Power Supply	4.50	
		Rs. 37.05 lakhs	

CHAPTER - 30

Statement of revenues realised during last ten years.

Sl.No.	Financial Year	Estimated (in lakhs)	Realised (in lakhs)	Percentage	Remarks
1	1997-1998	170.00	137.76	81.04	Shortfall 18.98 %
2	1998-1999	140.70	159.63	113.45	Excess 13.45 %
3	1999-2000	145.00	411.63	283.61	Excess 183.61 %
4	2000-2001	145.00	639.32	440.91	Excess 340.91 %
5	2001-2002	200.00	664.77	332.39	Excess 232.39 %
6	2002-2003	438.00	7129.72	164.32	Excess 64.32 %
7	2003-2004	550.00	723.4	131.53	Excess 31.53 %
8.	2004-2005	550.00	787.45	143.17	Excess 43.17 %
9.	2005-2006	700.00	817.66	11.81	Excess 16.81 %
10.	2006-2007	800.00	802.00	100.30	Excess 30%

CHAPTER - 31

PARKS AND ZOO

(i) Himalayan Zoological Park

Introduction:

The role of Zoos and Zoological Park in conservation of many rare forms of Wildlife gets prominence in our country where phenomenal growth of human and cattle population have ravaged the habitat to threaten their very existence in the wild. The role played by Zoos and Zoological Parks to provide an inexpensive, efficient, thrilling and refreshing past time is too well known. In India, several Zoos and Zoological Parks have come into existence since the middle of the last century. Most of them might not have fulfilled the requirements of the time. Now a days, the Zoos, Zoological Parks and Zoological Gardens are required to be established with modern developments in view of the changing concept of their role. The need for keeping the wild life animals in simulated natural conditions in capacity has been recognised for a long time. This not only keeps the animal occupied but also the people will see them in a naturalistic environment. Every animal has it own requirement in their natural habitat. Such requirement varies from animal to animal and some animals' requirements may be of a special or unique nature. Food, shelter and health are basic requirements but apart from these, there are many other requirements for each animal, which are fulfilled in the wild. Keeping in mind the requirements of each animal, the enclosures are constructed with

environmental enrichment works to provide physical enrichment, physiological enrichment, biological enrichment and behavioural enrichment. Such enrichment devices will make the animal feel at home and several others breed successfully.

The Himalayan Zoological Park at Bulbulley, Gangtok is first of its kind in the North-Eastern region designed with developments in line with the concept of the modern Zoo that the animals have been kept in simulated natural conditions. The Zoological Park initially established in the year 1991 is in infant stage now with limited number of animals in capacity. The Himalayan species of animals and birds are unique and amazing not found in low lands. Enclosures for animals such as Snow Leopard, Musk Deer, Bharal or Blue Sheep, the Great Tibetan Sheep, Serow, Himalayan Tahr or the Shapi of Sikkim, Clouded leopard and high altitude pheasants are being made ready. The Zoological Park, when set up fully will have finest collection of high altitude and birds of native land.

The State of Sikkim is rich in floral and faunal wealth. The floral wealth comprises with a record of as many as 4000 flowering plants and herbs, 450 species of orchids, 300 species of fern and fern allies, 9 species of conifers and over 40 varieties of rhododendrons. It is a veritable storehouse of a multitude of medicinal and economic plants. The faunal wealth is also equally rich with an estimated 144 species of mammals, 550 species of birds, 650 species of butterflies, 33 species of reptiles and 16 species of frogs. The myriad of life forms both plant and animal that characterise this small bio-geographical region is unique and unparalleled, perhaps in the whole world encountered nowhere else in a similar situation and size. Sikkim is bio-diversity hotspot in the eastern Himalayan region. With so much of rich in animal species in the State, the Zoological Park could have good collections of Zoo exhibits by now but due to prohibition of capturing from the wild this has resulted in lesser number of animals in this Park at present. The other Zoos in the country are not in the position to exchange high altitude animals, as they do not have and those who have no surplus numbers for exchange. Most of the present collection has been brought through rescue.

The State Government of Sikkim in the Department of Forests, Environment & Wildlife Management is the controlling authority of this Himalayan Zoological Park. The management makes efforts to have high altitude animals of native land besides few exotic species and will house over 50 species of mammals, 5 species of primates, 25 species of birds etc. making a total number of about 300 individuals in future.

Location and Area:

The Himalayan Zoological Part, Gangtok is located as an altitude of 5840 ft. (1780m) from msl at Bulbulley at a distance of 3 km(approx.)from Gangtok, the capital of Sikkim.

The Zoological Park is spread over an area of 205 hectares of mountainous land with terrain suitable for high altitude animals and birds.

The present Park area was in vary bad shape before establishment due to both biotic and abiotic reasons. Grazing was taking place. Firewood and fodder collections were rampant. Soon after the area was taken up for Zoo, fencing with GI wires was done initially, the limiting factors disappeared gradually and now the area has developed dense forests with small bamboos and shrubs for animals & birds to live in natural environment.

Climate:

Summer temperature: Max.21 C, Min.13 C.

Winter temperature: Max.13 C, Min.0.5 C.

Best Seasons:

Mid-February to May end

Mid-September to December end.

Objectives:

1. Conservation and breeding of endangered and other Himalayan species of animals and birds and restocking in the wild.
2. Promote education, enquiry, research, culture and ecological functions.
3. Inculcate love, affection and create awareness among the people about wildlife.
4. Promote eco-tourism for employment and sustainable life.

Zoo exhibits :

The cat-bear or Red Panda which is the State animal of Sikkim, Panther or common Leopard, Himalayan Palm civet, Leopard Cat, Himalayan Black Bear, Tibetan Wolf, Barking deer, Goral spotted deer, common Langur and a few high altitude pheasants are kept in the simulated natural environment. They are quite difficult to be sighted due to thick shrubs and small bamboos. Since the Zoo area is quite big and fully fenced, some of the animals species such as Red Panda, small cats, deer, Kaleej pheasants, jackals and foxes are also living wild due to congenial habitat and food availability.

Health, Hygiene & Sanitation:

Maintenance of health of animals in a Zoological Park or Zoo is of primary importance; as such it is fully attended to here. There is a veterinary section headed by the veterinary doctor of the rank of Deputy Director who is assisted by veterinary compounder and laboratory assistants. Zoo hospital has also been constructed for treatment of Zoo and rescued sick animals. The veterinary sector is well equipped with darting equipments, medicines, drugs, lab. equipments etc. for the present situation. Besides satisfactory general sanitation, sufficient space for animals, nutritious diet, clean water, proper shelter for protection from extremes and vagaries of climate are available. Feeds and food supplements are monitored daily by the veterinary personnel's.

Zoo Education:

Wildlife educational programmes are conducted in the Zoological Park from time to time and during the Wildlife Week in October every year. School children are mostly involved in such programme, which includes wildlife quiz, painting, debates, nature trails, campings etc. Wildlife interpretation centre with a host of wildlife books & reading facility in the library has come up for educational programmes to promote and support wildlife education and interpretation aimed at wider public appreciation of the importance of wildlife to human betterment. Wildlife brochures and pamphlets are printed and distributed to the public and visitors to promote the programmes.

Amenities to the Public:

The Zoological Park is a public institution meant to attract a large number of visitors; an effort is being made to provide reasonable amenities to the visitors. Both private and public transport is allowed to enter unto certain permitted area since walking may not be possible for many of the visitors. Watch towers, sheds for shelter, resting seats, drinking water, toilets, picnic spots, lawns and shades are available for visitors.

Entry fees:

Visitors are allowed to enter the Zoological Park with tickets only. Adults have to pay Rs.10/-per heads for one entry and minor children half of it. There are fees for transport vehicles @Rs.20/-per vehicles for entry for those who want to take the vehicle inside. The fees are subject to change.

Research facilities:

A research wing is being set up with qualified research faculty members. The branch will find out ways and means to improve management and study the ecological behaviour of animals. The wing will also have contacts with research institutions and zoological museums in the country to encourage research hands ensure fuller utilization of research materials available with the Zoological *Park*.

Other special features:

The Zoological Park has also embarked upon zoological museum, setting up of nocturnal animal house, reptile house, insectariums, aquarium etc. to enhance the appeal of the park to the visitors.

Financing Agency and Monitoring:

The State Government being the controlling authority is financing for the management of this Himalayan Zoological Park since inception in 1991-92. Since the financial resource being meagre with the state Government, the Central Zoo Authority of India was also requested to provide fund for development and the Authority is also granting fund since 9th.Plan. The Zoological Park is monitored annually by the CZA and all constructions are as per their guidelines.

Suggestions invited:

The Himalayan Zoological Park at Bulbuley, Gangtok is in infant stage and may take quite a long time to become a fully organised Zoo. The reason being may such as inadequate fund and trained manpower and non-availability of animals for Zoo display as and when required when the structures are already ready, lack of proper infrastructure etc. Sooner or later, this Himalayan Zoological Park has to flourish fully fulfilling its laid out aims and objectives and set an example as one of the modern Zoos in the country, an appeal is made to all visiting the Park to send in their valuable advice and suggestions.

The Zoological Park was started in the 8th Five Year Plan and continued in the 9th Five Year Plan. This is an on-going scheme of the 8th Five Year Plan which has continued in 9th as well as 10th Five Year Plan.

The Salient Features of the project are as under.

1. Establishment of Project started	-	1991-92
2. Initial Project Cost	-	Rs. 467.00
3. Revised Project Cost (1997)	-	Rs. 675.55
4. Revised Project Cost (2000)	-	Rs 1,064.00
A. Expenditure upto 9 th .plan	-	Rs. 395.03
B. Fresh Proposal for 10 th .plan	-	Rs. 1,504,60
TOTAL OF (A + B)	-	Rs. 1,899.63

Animals Housed in the Zoo.

Sl.No	Species	Male	Female	Total
1.	Himalayan Black Bear	1	-	1
2.	Barking Deer	2	4	6
3.	Goral	1	-	1
4.	Red Panda	4	1	5
5.	Tibetan Wolf	2	3	5
6.	Leopard(common)	1	1	2
7.	Leopard Cat	2	1	3

8.	Himalayan Palm Civet.	3	2	5
9.	Spotted Deer	1	-	1
10.	Monkey	1	-	1
	Total:	18	12	30

The Himalayan Zoological Park having an area of 205 Ha. is established at Bulbuley which is about 5 kilometers from the main town of Gangtok. This is for the purpose of providing recreation and education need of the local people as well as the visiting tourists in ex-situ conservation of wildlife. This zoological park provides the natural habitat to the animals. Currently, this park harbors the following animals.

Himalayan Black Bear.
 Red Panda
 Goral
 Barking Deer
 Wolves
 Clouded Leopards
 Civet Cats
 Monkeys
 Monal Pheasant etc.

Construction of enclosures for animals like Himalayan Thar, Snow Leopard etc are under construction and are expected to be completed within a year.

CHAPTER -32

STATE MEDICINAL PLANT BOARD

1. The State Medicinal Plants Board (SMPB) , A State Level Body has been set up by the Government vide Notification No. 100/FEWD dated 10.06.2002 under the guidance of National Medicinal Plants Board (NMPB) to look after policy formulation & coordination with department/ organization ensuring sustained availability of medicinal plants and to coordinate all matters relating their development and sustained use.
2. The NMPB sanctioned 13 (thirteen) Herbal Garden Projects of 10 ha. each in different locations in the State. They have been created for ex-situ cultivation covering in an area of 130 ha. And in-situ conservation of medicinal and aromatic plants in different regions depending upon the agro-climatic zones. Total in-situ conservation areas covered under the scheme are more then 2100 ha. In different locations covering all four districts for conservation of germ plasm, seed stands for quality planting materials.
3. Created and established 1 (one) ha. Area of each modern nurseries with poly and hothouse by providing maximum nursery inputs for production of quality planting materials. The total estimated planting materials produces in each nursery is **75000 to 2,50,000 seedlings depending upon the characteristic of species and agro-climatic zones** which have been widely utilized for ex-situ cultivation and in-situ conservation areas in herbal garden and some seedlings have been distributed to the farmers and Self-Help Groups.

4. The Action Plan of SMPB has been prepared with a view to have comprehensive study to assess the requirement for the development of the sector, commercial potential of various medicinal plants, to gather a reliable data on the existing demand & supply position and price mechanism duly involving existing growers, primary collectors, traders and user networks thereby covering the entire conceivable value chain.
5. The initial total outlay for year 2002-03 funded by NMPB under the scheme for creation and establishment of 13 Herbal Garden and nurseries was Rs. 272.00 lakhs. The NMPB has recently provided fund for maintenance of Herbal Nurseries for 2006-07 to 2008-09 to the total outlay of Rs. 25.00 lakhs.

Table 32.1
13 (Thirteen) Herbal Gardens in Sikkim

NORTH	SOUTH	EAST	WEST
Dombang	Bio-diversity Park	Rateycgu	Guransey
Thangu	Samduptse	Tamze	Yoksum
Zema	Kitam	Kyongnosla	Barsey
	Maenam		

Besides these 13 Gardens, there are 166 nos. of Panchayat Herbal Gardens in all the Panchayat unit of Sikkim.

There are also 3 (three) private agents of medicinal plants and 7 (seven) manufacturers in the State.

OBJECTIVES :

- ✓ To familiarize general public with herbal plants.
- ✓ To disseminate Medicinal plants cultivation technique.

PRESENT STATE OF THEIR COLLECTION AND UTILIZATION:

Prior to establishment of State Medicinal Plants Board (SMPB) collection and transit of medicinal and aromatic plants from the state was regulated by Forest Department. The Forest Department used to issue collection permit on payment of royalty to the government. Two years before the establishment of SMPB in the year 2002, Government banned the collection of medicinal and aromatic plants from the forest to rejuvenate the areas. After establishment of SMPB the main emphasis of SMPB is to encourage progressive farmers to undertake cultivation of medicinal plants such as Aconitum heterophyllum, Aconitum ferox, Picrorhiza Kurooa, Swertia Chirayita, etc. After establishment of SMPB considerable quantity of Chirayita has been in the process of marketing by the SMPB collected from the Herbal Gardens and farmers engaged in cultivation of medicinal plants during the year 2004-05 & 2005-06. It is expected that more and more farmers will start cultivation of medicinal plants and SMPB is expecting considerable volume of herbal products of Chirayita, Atees, Vatsnabh, Kutki, Jatamansi, Kalihari, Shatavari etc.

The SMPB has registered 463 (four hundred sixty three) farmers, 186 (one eighty six) Collectors and 221 (two hundred twenty one) Traders.

AVAILABILITY OF AGRO-TECHNOLOGY AVAILABLE

After establishment of SMPB the Board is also maintaining 10 ha. Of nurseries of medicinal plants attached to the herbal garden at different locations. It is continuously experimenting to improve the agro technology through extension of technology in their nurseries and herbal gardens. The agro techniques of a few species like Chirayata, Atees, Kalihari, Shatavari, Kutki, Jatamansi etc. have been transferred to the farmers.

TRADE STATUS

Prior to year 2000 the collectors from the state used to sale their herbal products collected from the wild to the traders located at Gangtok, Kalimpong, Siliguri and Kolkota. Since the Government has banned the collection of Medicinal plants products from the wild and encouraged cultivation of medicinal plants, the traders from different parts of the country have approached the SMPB for supply of raw drugs products namely Aconitum heterophyllum, Picrorhiza Kurooa, Swertia Chirayita etc.

PANCHAYAT BIODIVERSITY REGISTER:

The State Government has decided that all Panchayats will open register (to be called Bio-diversity register) to register every specie in their area as to the kind and usage especially of the medicinal value. This way they will also undertake to protect the biodiversity – our flora and fauna as well as our traditional knowledge bar. Annual feedback and information from these registers shall be compiled by the SMPB and they shall be classified. It is proposed to provide technical and financial support to Panchayats for better result and output.

TRAINING OF STAKE HOLDERS:

The success of development of medicinal plant mission primarily depends on the effective & vibrant involvement and initiative of stakeholders. Duly realizing this, the SMPB has organized several training programme and workshops to promote technology and knowledge to the stakeholders like field functionaries of the Forest Department, training of community bases para-taxonomists, tribal and other forests dwellers.

JARIBUTI CHETNA KENDRA

Created and established Medicinal Plants Awareness Centre (Jari Buti Chetna Kendra) in Kyongnosla, East Sikkim for raising awareness among the stakeholders. Establishment of Jari Buti Chetna Kendra at State Bio- Diversity Park, Damthang, and Bagwa both in South Sikkim are also completed.

HERBARIUM AND RAW DRUG MUSEUM

The Museum was established for indigenous medicinal and aromatic plants of the State in Forest Annexed Building Complex and collection and display of live herbarium, live specimen, agro techniques and its uses in Indian System of Medicine and Local Health Tradition Practices are under progress.

JARI BUTI KHOSH (HERBAL MEDICINAL PLANTS):

Jari Buti Khosh is being created under State Medicinal Plants Board (SMPB). The Operational Guidelines for implementation Jari Buti Khosh is prepared to ensure smooth technical administrative and financial management. The total budget for Rs. 50.00 lakhs has been sanctioned by the State Government for the development of works under this scheme.

STATUS OF STATE DRUG TESTING LABORATORY:

In the 2ND Annual Meeting of the Governing Body of the SMPB, it was agreed that a state- of –art Drug Testing Laboratory should be established under the State Health Department. This was subsequently approved by the Government and work on the construction of its building has already begun from State resources. However, its final commissioning is expected to take a few years. In view of this crucial time gap, it is opined that for the intervening period the SPMB should identify a suitable existing Drug Testing Facility in any other sector for its usage after strengthening and due adaptation for our level of job for their current Programme. In this context, utilization of the existing small level Drug Testing Facility of the Manipal Institute of Technology, Majitar, East Sikkim has been under consideration.

BOTTLENECK:

The cultivation of medicinal plants is a relatively new field for the farmers and cultivators of the State. It is not easy to convince them because they have been traditionally engaged in food production for their local use. Besides this, due to lack of knowledge of traders in medicinal plant products it will take some time to make them aware of the potential available in the State on account of suitability of climatic condition for production high value herbal products.

Table 32.2

IMPORTANT MEDICINAL PLANTS FOUND IN SIKKIM

SL.No.	BOTANICAL NAME	LOCAL NAME
1.	<i>Aconitum ferox</i> wall. (<i>A.Chasmanthum</i>)	Bikh
2.	<i>Aconitum heterophyllum</i> Wall.	Atees
3.	<i>Acorus Calamus</i>	Bojo
4.	<i>Asparagus Racemosus</i> Willd.	Kurilo
5.	<i>Azadirachita indica</i>	Neem pati
6.	<i>Berberis Aristata</i> DC.	Chutro
7.	<i>Boerhaavia Diffusia</i>	Punarnava
8.	<i>Centella Asiatica</i>	Gora Taprey
9.	<i>Clematis Buchananiana</i>	Kukurdaine
10.	<i>Cordyceps Sinensis</i>	Yarsa Gumba
11.	<i>Costus speciosus</i>	Betlauri
12.	<i>Digitalis purpurea</i>	Foxglove
13.	<i>Emblica officinalis</i> Gaertn <i>Phyllanthus emblica</i> Linn.	Amla
14.	<i>Ephedra gerardiana</i>	Somlata
15.	<i>Gloriosa superba</i> Linn.	Langarey Tarul
16.	<i>Hedychium spicatum</i>	Seto sara
17.	<i>Hippophae</i> spp	Sea buckthorn
18.	<i>Lycopodium elavatum</i>	Naagbeli
19.	<i>Nardostachya jatamansi</i> DC.	Jatamansi
20.	<i>Ocimum sanctum</i> Linn.	Tulsi
21.	<i>Oroxylum indicum</i>	Totola
22.	<i>Panax ginseng</i>	Ginseng
23.	<i>Picrorhiza Kurooa</i> Aut.non.Royle	Kutki
24.	<i>Piper longum</i> Linn	Pipla
25.	<i>Podophyllum hexandrum</i>	Bankakri, Talispatra
26.	<i>Rhododendron anthpogon</i>	Sunpati
27.	<i>Rubia cardifolia</i>	Majito
28.	<i>Solanum nigrum</i> Linn	Kalobehi
29.	<i>Swertia chirayata</i> Buch-Ham	chiraita
30.	<i>Taxus baccata</i>	Dhengre salla, Himalayan yew
31.	<i>Terminalia Blerica</i>	Bahera, Barra
32.	<i>Terminalia Chebula</i>	Harra, Harad
33.	<i>Tinospora cordifolia</i> Miers	Garjo, Gurgau
34.	<i>Viscum articulatum</i>	Harchur
35.	<i>Withania somnifera</i> (Linn) Dunal	Ashwagandha
36.	<i>Woodfordia fruticosa</i>	Dhaiyara

CHAPTER-33
VARIOUS TRAINING ATTENDED BY IFS & SFS
OFFICERS DURING THE LASR THREE YEARS

Table 33.1

Training attended by IFS Officers during 2005

Sl. No	Name	Name of the Training	Venue	Duration	O.O.No.
1	Shri, Anil Mainra	One week Compulsory Training Course on Leadership-Strategies for Success.	Vidya-Vikas Mendals, Instt. Of Management Trg. & Research, Goa.	10-14.1.'05	238/GEN/DOP 9.12.'04
2.	Shri, C.S.Rao,	Forestry issue in Climate Change	Indian Council of Forestry Research & Edn. , Dehradun	30.05.'05- 03.06.'05	162/GEN/DOP 3.5.'05
3	Shri, M.L.Srivastava	Application of Remote Sensing & Geographical Info. System in Forestry.	Forest Survey of India.	9-13.5.'05	162/GEN/DOP 3.5.'05
4	Shri, H.P.Pradhan	Eco-Tourism Assessment & Development.	Bannerghatta Nature Camp, Dehradun.	19- 23.9.'0525- 29.7.'05	228/GEN/DOP 27.06.'05
5.	Shri, M.L.Srivastava	GIS- A decision tool for Working Plan & Wildlife Management.	NIIT, GIS Ltd. New Delhi.	19-23.9.'05	211/GEN/DOP 25.8.'05
6	Shri, Pradeep Kr.	Promotion linked Trg.	IGNFA, Dehradun	25.4.'05- 13.5.'05	118/GEN/DOP 29.3.'05
7	Shri, Anil Mainra	do	do	20.6.'05- 1.7.'05	do
8	Shri, Pempa Dadul	do	do	22.8.05- 2.9.'05	do
9	Shri, Pradeep Kr.	Promotion linked Adv. Forest Management Course.	IGNFA, Dehradun	25.7.'05- 12.8.'05	191/GEN/DOP

10	Shri, Anil Mainra, CCF (WP)	Promotion linked Trg.	IGNFA, Dehradun	17- 28.10.'05	192/GEN/ DOP 10.8.'05
11	Shri, Thomas Chandy, CC(T)	do	Do	do	do
12	Shri, H.P.Pradhan CF(WL)	One week compulsory Trg. On livelihood Enhancement strategies in Forest Fringe village.	Andhra Pradesh Forest Academy, Deelapaly,Hyderabad.	12- 16.12.'05	310/GEN/ DOP 10.11.'05
13.	Ms. Bharati	Env. Impact Assessment; Need and methods for Assessment.	Kerala Forest Research Instt. Peechi Trissur.	1.-2.12.'05	366/P&S/ 8.11.'05
14	Shri, Pradeep Kr.	Off-Campus Course of NIRD-NERC On Management of Watershed Project.	SIRD, Kerfectar,Sikkim.	28.02.'05- 04.03.'05	01/GOS/F 22.2.'05

Table 33.2

Training attended by IFS Officers during 2006

Sl. No.	Name	Name of the Training	Venue	Duration	O.O.No.
1	Shri, H.P.Pradhan,	Methods for Economic Evaluation of Services.	Forest Research Institute, Dehradun.	28-29.6.'06	63/GEN/DOP 5.6.'06
2	Shri, S.D.Pulzer,	Forest Protection-Monitoring, Reporting, Response & Evl. System.	IIFM, Nehru Nagar, Bhopal.	21-22.6.'06	71/GEN/DOP 15.6.'06
3	Shri, M.L.Srivastava, CF(WP)	Promotion linked in-Service Training.	IGNFA, Dehradun	8-19.5.06	27/GEN/DOP 1.5.'064
4	Shri, Bijendra Swaroop, DFO(T) West	Do	Do	5-23.6.'06	do
5	Shri, Sandeep Tambe,	do	do	do	do
6	Shri, C.S.Rao, CF(T)	Awareness for building and environmentally Sensitive and Responsive Society-Need for Comprehensive strategies And programme.	Gujarat Ecological Edn.& research (GEER) Foundation, Gandhinagar.	4-5.10.'06	151/GEN/DOP 29.9.'06
7	Shri, C.Lachungpa, CF(LU)	GIS Application for effective Forestry Planning& Management.	NIIT, GIS Ltd. New Delhi.	24-28.4.'06	472/GEN/DOP 25.3.'06
8	Shri, M.L.Arrawatia, APCCF.	Enhancing the effectiveness for implementation of govt. policies & programmes.	IIM,Bangalore.	21-25.8.'06	92/GEN/DOP 26.7.'06
9	Shri, Manjit Singh, APCCF	do	do	do	do
10	Shri, S.Anbalagan ACF(T),South	Conservation& Dev. of Medicinal Plants.	SMPB, Panchkula, Haryana.	24.11.'06	169/GEN/DOP 16.10.'06
11	Shri, H.P.Pradhan, CF(SF)	Effective leadership & Conflict Resolution.	IIFM, Bangalore.	4-8.12.'06	180/GEN/DOP

12	Shri, S.D.Pulzer, CF	Changing Scenario of Forestry & Wildlife of the Country and the management of change.	Gujarat Ecological Edn. Research (GEER), Gandhinagar	4-8.12.'06	180/GEN/DOP
13	Shri, M.L.Srivastava,	Strategies for Dev. of knowledge management In Forestry Sector.	IGNFA, Dehradun.	11-12.7.'06	69/GEN/DOP 15.6.'06
14	Shri, Thomas Chandy	Integrating Conservation Versus Development.	World wide Fund For nature, New Delhi.	8-9.11.'06	156/GEN/DOP 29.9.'06
15	M.L.Srivastava	Operationalising Role of Forests in Ecological & Economic Security of the Country – current status and future strategies.	RCVP Noronhu Academy of Adm. & Management.	16- 17.11.'06	171/GEN/DOP 20.10.'06
16	Shri, Anil Mainra	One week compulsory Trg. Course on sustainability Of JFM.	IIFM, Bhopal, Madhya Pradesh.	11- 15.12.'06	193/GEN/DOP 28.11.'06
17	Shri,A.K.Ganeriwala	One week Compulsory Trg. On sustainability of JFM.	IIFM, Bhopal, Madhya Pradesh.	11- 15.12.'06	2394/GEN/DO P.

Table 33.3

Various Training attended by IFS Officers during 2007

Sl. No.	Name	Name of the Training Attended	Venue	Duration	OO No.
1	Shri, SBS Bhaduria	Promotion linked in-service Training	IGNFA,Dehradu.	16-27.4.'07	241/GEN/DOP
2.	Shri, A.K.Ganeriwala	do	do	2-13.7.'07	do
3	Shri, S.T.Lachungpa	Three Day's Senior Forester's workshop	Do	23-25.7.'07	Do
4	Shri, N.T.Bhutia	Do	Do	Do	Do
5	Shri,Karma Zimpa Bhutia	Advance Forest Management course for Senior Forest Officers.	IGNFA, Dehradun	28.5.'07-15.6.'07	267/GEN/DOP Dt.7.5.'07
6.	Shri, S.T.Lachungpa	Role of State Forest Deptt.in Conservation,Cultivation Harvesting,Marketing & Benefishing by the communities.	Amity School of Natural Resources University Campus, Noida.	1-2.2.'07	223/GEN/DOP dt.12.1.'07
7	Shri, M.L.Srivastva	Do	Do	Do	Do
8	Shri, SBS Bhadauria	Do	Do	Do	Do
9	Shri, M.Singh	Eco-Tourism Assessment & Dev.	Jungle Lodges & Resorts Ltd., Bangalore.	18-22.6.'07	282/GEN/DOP dt.28.5.'07

10	Shri Thomas Chandy	Promotion-linked In-Service Training of IFS Officers	IGNFA, Dehradun.	215/GEN/D OP dt.5.1.'07	5-16.2.'07
11	Shri, SBS Bhadauria	Promotion linked In-Service Training of IFS Officer	Do	214/GEN/D OP dt.22.3.'7	16-27.4.'07
12.	Shri, A.K.Ganeri wala	Do	Do	do	2-13.7.'07
13	Shri, Sandeep Tambe	Preparing Projects & Schemes & Monitoring & Evaluation.	SIRD, Kerfector Sikkim	42/DESME	9-14.7.'07
14	Mrs. Monalisa Dass	7 days Training on Office rules & Procedure	AATI, New Secretariat Annexure 1 Gangtok	51/P&S/F dt. 25.6.'07	2-6.7.'07
15	Shri, H.P.Pradhan	One Week Compulsory Training Course on Env. Impact Indicators and valuation Technique.	Adm. Staff College of India (ASCI) Hyderabad	309/GEN/D OP dt.02.07.'07	30.07.'07-03.08.'07
16	Shri, H.P.pradhan	Enhancing the effectiveness for Implementation of the Govt. Policies & Programme	IIM, Bangalore	353/GEN/D OP 14.8.'07	3-7.9.'07
17	Shri, Pradeep Kr.	International Forest Standards	Forest Research Institute, Dehradun	Order not received.	28-30.9'07

Table 33.4

Various Training attended by SFS Officer During last three years

Sl. No	Name	Name of the Training	Venue	Duration	O.O.No.
1	Shri, M.K.Pradhan,DFO S/F (W)	Off-Campus course of NIRD-NERC on Management of watershed Project.	SIRD, Kerfectar	28.02.2005- 04.03.2005	1(1-5)/GOS/ F, 22.2.'07.
2..	Shri, Udai Gurung, DFO W/L (W)	do	do	do	do
3.	Shri, B.S.Sharma,DFO,LU (South)	do	do	do	do
4.	Shri, D.S.Chettri,DFO S/F (South)	do	do	do	do
5.	Shri, S.K.Thatal, DFO W/L (South)	do	do	do	do
6.	Shri, R.N.Bhutia,ACF(T) Soreng	Two weeks short term Course for in service SFS/ACF Officers, (Computer Application in Forestry)	SFS College, Burnihat, Assam.	4-15.9.'06	121/GEN/DOP 26.8.'06
7.	Shri, M.K.Koirala, ACF(T),Ravangla.	do	do	do	do
8.	S.B.Parangden, ACF(T),Gyalshing	do	do	do	do
9.	Lakpa Sherpa, ACF KNP, Yuksom	do	do	do	do

10	Shri, C.B.Bhujel, DFO LU,(E)	Seven days training on office Rules & Procedures.	AAIT,New Secretariat annex Gangtok.	2-6.7.'07	51/P&S/GOS/F 25.6.'07
11	Shri, K.B.Gurung,DFO S/F (E)	do	do	do	do
12	Mrs. Rajani Bhandari ACF W/L (E)	do	do	do	do
13	Miss, Urmila Thapa, ACF KNP	do	do	do	do
14	Shri, B.K.Tewari, Addl. Dir.(F)	Meeting on Tribal Bill & Workshop On RVP Scheme.	Shillong, Meghalaya	23.- 26.4.'07	-
15	Shri, D.C.Nepal, J.D, RVP/CAT	do	do	do	-
16	Shri, B.P.Pradhan, J.D, IWDP (E)	Preparing Projects/ Schemes Monito. & Evaluation	SIRD, Kerfectar Sikkim.	9-14.7.'07	42/DESM&E 25.4.'07

CHAPTER - 34

REPORT TO BE PREPARED BY H.O.D. AND TO SUBMIT TO SIKKIM INFORMATION COMMISSION CONSOLIDATED STATEMENT ON THE APPLICATIONS RECEIVED AND DISPOSED OF UNDER THE RTI ACT 2005.

Table 34.1
PERIOD 1ST OCTOBER 2005 TO 31ST MARCH 2006.

Sl. No	Total No. of PIOs in each Districts & Regional / Zonal & HOD.	Total No. of Applications received pending as on the last month	Total No. of Applications received during the month	Total (Cols. 4+5)	Total No. of Applications disposed during the month	Total No. of Applications pending (Col.6-7)	Out of cases disposed shown in Col.7 information furnished	Out of cases disposed shown in Col.7, Deemed refusals u/s 7(2)/18(1)
(1)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	North-5 East-22 South-4 West-5	NIL	NIL	NIL	NIL	NIL	NIL	NIL
2		NIL	1(East)	1	1	NIL	1	NIL
3		NIL	1(East)	1	1	NIL	1	NIL
4		NIL	1(East)	1	1	NIL	1	NIL
5		NIL	2(East)	2	2	NIL	2	NIL
6		NIL	1(East)	1	1	NIL	1	NIL
		NIL	6	6	6	NIL	6	NIL

Table 34.2

PERIOD 1ST APRIL 2006 TO 31ST MARCH 2007.

Sl.No	Total No. of PIOs in each Districts & Regional / Zonal & HOD.	Total No. of Applications received pending as on the last month	Total No. of Applications received during the month	Total (Cols. 4+5)	Total No. of Applications disposed during the month	Total No. of Applications pending (Col.6-7)	Out of cases disposed shown in Col.7 information furnished	Out of cases disposed shown in Col.7, Deemed refusals u/s 7(2)/18(1)
(1)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	North-5 East-22 South-4 West-5	NIL	NIL	NIL	NIL	NIL	NIL	NIL
2		NIL	1(West)	1	1	NIL	1	NIL
3		NIL	NIL	NIL	NIL	NIL	NIL	NIL
4		NIL	NIL	NIL	NIL	NIL	NIL	NIL
5		NIL	3(East)	3	3	NIL	3	NIL
6		NIL	NIL	NIL	NIL	NIL	NIL	NIL
7		NIL	NIL	NIL	NIL	NIL	NIL	NIL
8		NIL	2(North)	2	2	NIL	2	NIL
		NIL	4(East)	4	4		4	
9		NIL	2(East)	2	2	NIL	2	NIL
		NIL	1(South)	1	1		1	
		NIL	1(West)	1	1		1	
10	NIL	1(East)	1	1	NIL	1	NIL	
11	NIL	NIL	NIL	NIL	NIL	NIL	NIL	
12	NIL	1(East)	1	1	NIL	1	NIL	
		NIL	16	16	16	NIL	16	NIL

CHAPTER - 35

NURSERIES UNDER FOREST ENVIRONMENT & WILDLIFE MANAGEMENT DEPARTMENT

Table 35.1

SL No	Name of Division/Circle/scheme	District	Location		Area (in Ha.)	No. of Labors	
1	Non Timber Forest Product	East	1	Tamzey Herbal Garden Nursery	10	2	
			1	Kyongnosla Herbal Garden Nursery	10	2	
			1	Roteychu Herbal Garden Nursery	10	2	
		West	1	Gurensay/Nunthaley Herbal Garden Nursery	10	2	
			1	Khechoperi Herbal Garden	10	Nil	
			1	Barsey Herbal Garden	10	Nil	
		North	1	Dombang Herbal Garden Nursery	10	2	
			1	Thagu Herbal Garden Nursery	10	2	
			1	Zema Herbal Garden Nursery	10	2	
		South	1	Samduptse Herbal Garden Nursery	10	2	
			1	Bio-diversity Herbal Garden Nursery	10	Nil	
			1	Kitam Herbal Garden	10	Nil	
			1	Mauniam Herbal Garden	10	Nil	
	Total			8 Herbal Garden Nursery 5 Herbal Garden		130	16
2	Silviculture		1	Bharikhola Nursery	1.5	6	
			1	Mist Chamber	0.5	1	
	Total			2		2	7
3	Environment & Population Control Division (EPC)		1	Kyongnosla	0.60	2	
			1	Pinetum	0.40	2	
		East	1	J.N. Botanical Garden, Rumtek	40	11	
	Total			3		41	15
4	Land Use	North	6	Nurseries (Not Given)	6.5	38	
		East	3	Nurseries (Not Given)	4.5	22	
		South	1	Nurseries (Not Given)	1	5	
		West	2	Nurseries (Not Given)	2.2	16	
	Total			12		14.20	61
5	Social Forestry (SF)	East1	1	Gaidhara, Lower Martam	2	8	
			1	Salingey Bagey , Bagey Khola	1	5	
			1	Amlatar Nursery, Bhutar	1	4	
			1	Lower Martam Chuba	0.5	3	
			1	Sang Khola Nursery	1.2	6	
			1	Upper Martam Likchu Khola	0.5	3	
			1	Assam Lingzey	1.5	6	
			1	Guarguon	1	3	
			1	Baluakhani	0.5	2	
			1	Burtuk	1	4	
			1	Burtuk-II	2	9	
			1	Lagyap	2.5	13	
			1	Ratsey	1	5	
			Total		1	13	
				1	Sunjring	0.5	-do-
			1	Lachen	0.5	-do-	

6	KNP		1	Nursery (Not Mentioned)	1	4
	Total		1		1	4
7	Green Mission	North	1	Kabi Namsing	1	Not Given
			1	Refom	0.5	-do-
			1	Mensithang	2.5	-do-
			1	Sunjring	0.5	-do-
			1	Lachen	0.5	-do-
8		East	1	Bagey Khola		-do-
9	Jatropha Plantation		1	Balua Khani	0.5	-do-
			1	Gurdun	1	-do-
			1	Burtuk	1	-do-
		South	1	Namchi, Dorong Pani	1.8	-do-
			1	Malli	2	-do-
			1	Baguwa	2	-do-
			1	Rayong	1	-do-
			1	Ralong	1.4	-do-
			1	Due	0.4	-do-
			West	1	Tikjuk	1
		1		Gyalzing	1	-do-
		1		Begha	1.5	-do-
		1		Yoksum	1	-do-
		1		Tikpur	1.5	-do-
		1		Okhery	1.5	-do-
		1		Ridge Park, Soreng	2	-do-
		1	Buriakhap	1.2	-do-	
	Total		23		28.4	-do-
10	Sericulture		1	Hee-Gyathang	2	-do-
			1	Hee- Reingdeim	1	-do-
			1	Lengdong	2	-do-
			1	Pangthang	7	-do-
	Total		12		20.5	-do-
			1	Rorathang	6.4	13
			1	Mamring	4	11
			1	Nagdhara	1.2	7
	Total		3		11.6	31