

FOREWORD

The Himalayas have always held a deep fascination for the foresters all over the world because of the varied nature of flora and fauna found here. Sikkim is a state which is entirely within the Himalayas, has forests ranging from tropical to temperate and alpine zone.

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 is 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 supports 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 houses of the country. While forest cover accounts for over 44% 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. We have set aside 34% of our geographical area 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 our forested areas hitherto unspotted animals like Takin are reappearing. In ex-situ conservation centers wild animals are multiplying. We have successfully bred Red Panda in our Zoological Park.

Although the total tree cover in the state is about 44%, 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

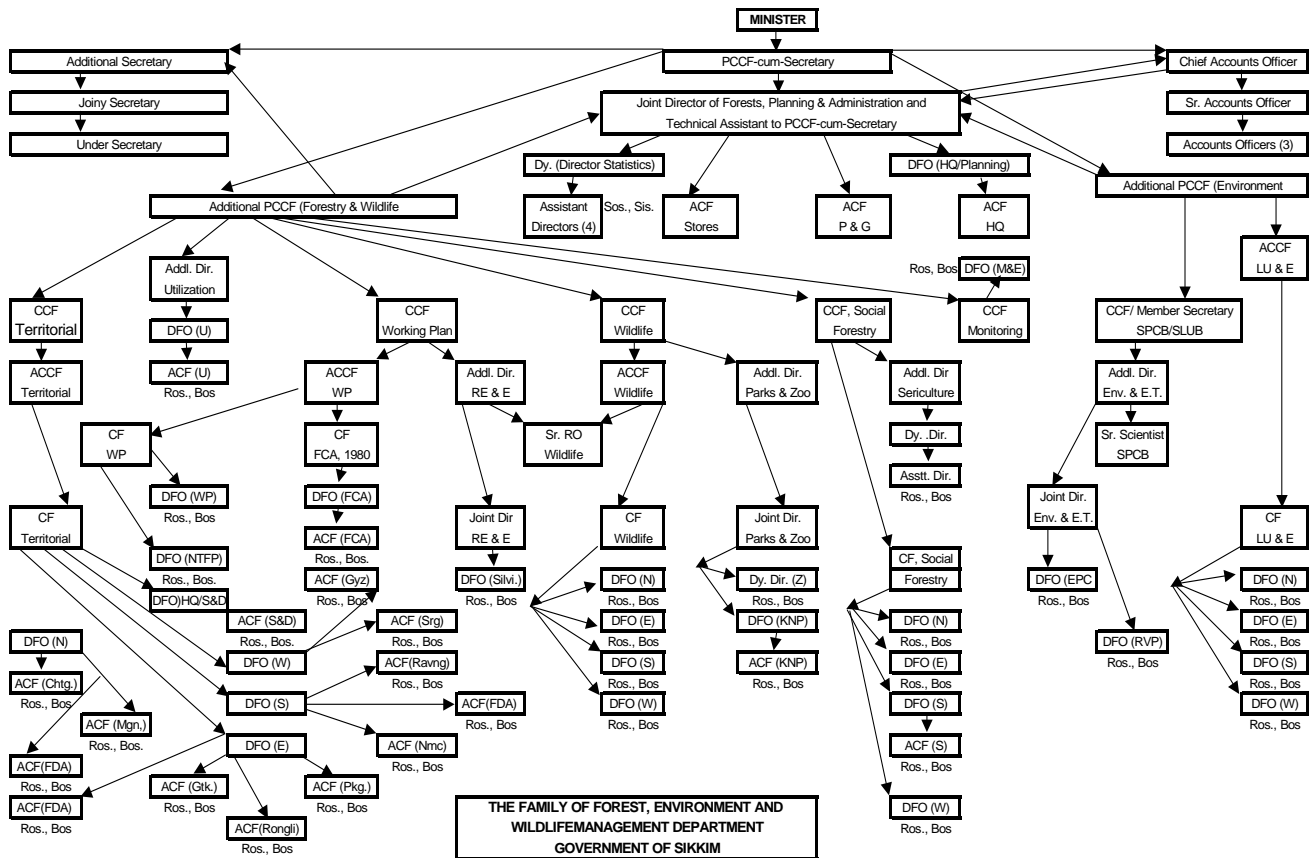
*Forests, Env. & Wildlife Management,
Mines, Minerals & Geology and
Science & Technology Departments*

PREFACE

Forest is one of the richest natural resources of Sikkim. The total land area managed by and under administrative control of Forest Department is above 81% of the total geographical area of the state. Sikkim has unique bio-diversity. The composition ranges from tropical Dry Deciduous Forests with Sal and its associates in the valleys of Teesta and Rangeet to the Alpine Scrub and grassland in high altitude. Sikkim being agriculture-based State, more than 80% of the population depends on agriculture and animal husbandry. 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 target for afforestation under 20-point programme was 7000 hectares of which forest Department has achieved 7387 Ha. by plantation in forest lands. Besides, 1473000 seedlings of fuelwood fodder and timber were distributed to the villagers and voluntary organizations for planting in private lands due to which 2946 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.

T.R. Sharma, IFS

*Principal Chief Conservator of Forests-cum-Secretary
Forest, Environment and Wildlife Management Department.*



All the above officers are supported by Ministerial Staff, Accounts Staff Scientific Staff and M.Roll Staff in office and Head Forest Guards, Forest Guards, Chowkidars, Malis and Muster Roll workers in the field.

1. INTRODUCTION

Sikkim, the tiny and beautiful state of the Indian Union, located in the Eastern Himalayas has an area of 7096 sq. Km. Over one third of the total area of the state remains covered by snow in winter. and a population of 406457 as on 1991, the bulk of which resides in rural areas and is heavily dependent on forest resources. The entire state comprises of hilly terrain with forests on hilltops and valleys. Over 80% of the total geographical area of the state is under the administrative control of the forest department. Sikkim is endowed with a variety of natural flora and fauna and is a paradise of nature lover, botanist, environmentalist, conservationist and trekkers. The state houses over 400 species of flowering plants, 300 species of ferns and its allies, 11species of oaks, 8 species of tree ferns, 40 species of Primulas and 20 species of Bamboo. The faunal wealth of Sikkim comprises of 144 species of mammals, 600 species of birds, 400 species butterflies and moths and many species of reptiles. Several species of medicinal plants and herbs are found throughout the state.

2. CHRONOLOGICAL ORDER OF MAIN EVENTS IN SIKKIM FORESTRY

- 1893 - *Forest Department was constituted.*
- 1902 - *Reserved Forest Demarcated vide C.M.3-3 -1902.*
- 1905 - *Khasmal Forest Demarcated out of R.F.s vide Notification No-2 of 29.3.1905. Issued by Political Officer.*
- 1911 - *Gaucharan Forest demarcated vide notification No. 14 of 22.11.1911 issued by Forest Department.*
- 1956 - *Till 1956 forest were managed by one forest manager , one R.O.& 2/3 of F.G.s post conservator, DFOs \ R.O.s created. Demarcation up to Ranges & Blocks for Administration.*
- 1976 - *Four Territorial Divs ,3 Functional sub-divs. Created. Indian Wildlife Act extended to Sikkim.*
- 1978 - *Sericulture sub-division created.*
- 1987 - *Remote sensing cell created, 1988 - Sikkim forest water conservation and Road Reserve (preservation and protection) Act, enforced.*
- 1989 - *Extension of Indian Forest Act 1927, to Sikkim.
Directorate of Land Use & Env. Merged into Forest Department
Wood working Center handed over to Education Department.*
- 1992 - *Himalayan Zoological Park creation started.*
- 1993 - *New Forest Annexe building construction works started.*
- 1995 - *Joint director fisheries upgraded to director fisheries. Grazing in R.F's and plantation areas in south / west district and in perennial water sources was banned.*
- 1996 - *Sikkim State Forest Service cadre was reviewed and the cadre strength was increased to 75 1 post of Additional Director, 4 posts of Joint Director, 8 posts of Deputy Conservator of Forests and 4 posts of Assistant Conservator of Forests were created.*
- 1997 - *Indian Forest Service Cadre was reduced to 30 from 36.*

1998 - *Joint Forest Management introduced in Sikkim vide Notification No. 202/F dated 22.6.1998.*

3. AIMS AND OBJECTIVES OF FOREST DEPARTMENT

Forest department is one of the pioneer departments of the Government of Sikkim. It is the custodian of over 81% of the total geographical area of the State. Main objectives of the Department are:

Strengthening of infrastructure for protection of forest areas in line with the policy of practicing conservation rather than exploitation through commercial forestry.

Strengthening of forest fire control and management system, institution of modern forest fire control methods to reduce loss of forest cover and emission of green house gases.

Forest boundary demarcation, survey and erection of boundary pillars for checking forest encroachment, institute measures and implement programmes for survey and demarcation of forest areas to consolidate the forest resources and prevent their decimation from encroachment and other forms of biotic interference.

Formation of Joint Forest Management institutions in as yet uncovered areas rapidly in order to broad base peoples participation in management of forests.

Exploration of the possibility of the import of wood products and wood alternatives in order to conserve the forest biodiversity of the Sikkim Himalayas.

Development of Farm Forestry as a means to increase the forest cover as well as to produce biomass for on-farm use. This will help in protecting and conserving the Reserved Forest areas for the intangible benefits that accrue from them.

Identification of wastelands, degraded forests and undertaking programmers for their restocking by afforestation, natural regeneration on watershed basis with active participation of the local people based on micro plan prepared by the Joint Forest Management Committees.

Effective mechanism needs to be developed for promotion of Joint Forest Management for protection and regeneration of forest areas with suitable and agreeable usufruct sharing mechanism to the stakeholders. Programmes are required to be taken up for capacity building, training, awareness generation and empowerment of the Joint Forest Management Committees in keeping with the provisions of different Forest Acts under implementation in the state.

Programmes for eco-development along protected area network, such as, Wildlife Sanctuaries, National Park and Biosphere Reserve are need to be implemented with pace and greater vigour.

In-situ and ex-situ conservation and propagation of rare and endangered medicinal plants and aromatic plants needs to be taken up in mission mode.

Development of post harvesting and value addition techniques for non-timber forest produce for economic upliftment of the people living in the vicinity of forest areas.

Detailed survey and setting up of electronic data base on biodiversity resources of the state for undertaking systematic plans and programmes for their conservation and also for protection of intellectual property rights.

Tree improvement programmes such as, demarcation of seed stands, seed orchards and clonal orchards, study of ethno-botanical survey are required to be taken up in large scale for genetic improvement of the forest crop raised through reforestation.

Improved nursery techniques using organic compost/vermi compost, improved green house and shed house techniques for vegetative and clonal propagation needs to be introduced in large scale.

Tissue culture technique for mass propagation of rare and endangered plants also requires to be initiated.

Programmes for in-situ and ex-situ conservation of rare and endangered fauna needs to be strengthened.

Use of modern techniques of remote sensing, GIS and GPS techniques and information technology for development of effective management information system for management of the forest resources of the state in a more efficient manner.

Setting up of computer network down up to the sub-division level.

Forest inventory, resource survey, forest cover monitoring, habitat mapping of protected areas and detailed stock mapping of the forest cover by using modern techniques.

Preparation of Forest Management Plans/ Working Plans for all the four districts of the state on scientific basis needs to be given priority.

Programmes for protection and management of lakes and wetlands, river conservation action plan for Teesta and Rangit rivers is required to be initiated.

Eco-restoration and rehabilitation of landslides by using modern biotechnological inputs by improving soil nutrient status by planting leguminous and deep rooted colonizers species needs to be given priority.

Promotion of fuel wood saving devices such smokeless chulahs, improved card mom driers, use of LPG and solar energy devices for protection of forests in the state are to be provided first in model villages to be followed by other villages.

Setting up of air and water pollution monitoring units in major towns to control pollution needs to be taken up.

25. Training on modern forestry practices needs to be imparted to the field functionaries of Forests, Environment and Wildlife Department as well as to the members of the Joint Forest Management Committees.

4. RECORDED FOREST LAND AND INCREASE IN FOREST COVER

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> Area in Sq.Km.	<u>% of Total</u> <u>Area.</u>
(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

*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.*

4. INCREASE IN FOREST COVER

<i>Description</i>	<i>Area in Sq. Kms.</i>	<i>% of Total Geographical Area.</i>
a) <i>Recorded forest Area under Tree Cover</i>	2650.00	37.34
<i>Actual Forest Cover Assessment</i>		
(a) 1993	3119.00	43.95
(b) 1995	3127.00	44.07
(c) 1997	3129.00	44.10
<i>Net increase in forest cover till 1997</i>	479.00	6.75
<i>Increase in forest cover as percentage of total geographical area of the state.</i>		6.75 %
<i>Increase in forest cover as percentage of the recorded forest area of the state.</i>		18.08 %
<i>Percentage of total geographical area under forest cover.</i>		44.10

5. DIFFERENT TYPES OF AREA STATEMENT IN SIKKIM (IN HACTARES)

<i>SL.NO</i>	<i>NORTH DISTRICT</i>	<i>EAST DISTRICT</i>	<i>SOUTH DISTRICT</i>	<i>WEST DISTRICT</i>	<i>STATE TOTAL</i>
<i>1. Cultivated</i>	16228.0035	31846.1625	29629.7726	32259.0750	109963.0136
<i>2. Khasmal</i>	21607.2265	10499.5572	9777.5700	9188.8000	51073.1537
<i>3. Gaucharan</i>	1200.1460	902.1300	1081.9640	1086.3530	4270.1530
<i>4. R.Forest</i>	395564.6240	55052.1503	36510.6934	77465.7720	564593.2397
<i>TOTAL</i>	<i>434600.000</i>	<i>98300.0000</i>	<i>77000.0000</i>	<i>120000.000</i>	<i>729900.000</i>

6. (i) AREA STATISTICS FOR SIKKIM- TOTAL STATE (IN SQ. KMS.)

SL. No	CLASS	RESERVE FOREST	REVENUE BLOCK	TOTAL	%OF TOTAL
1.	<i>CROP LAND (TERRACED./SEMI TERRACED)</i>	0.00	604.85	604.85	8.52
2.	<i>FALLOW/ SCRUB IN REVENUE BLOCKS</i>	0.00	155.69	155.69	2.19
3.	<i>SAL DENSE FOREST</i>	5.30	0.77	6.07	0.09
4.	<i>SAL OPEN FOREST</i>	15.93	1.54	70.47	0.25
5.	<i>SAL DEGRADED FOREST</i>	3.32	0.71	4.03	0.06
6.	<i>MIXED DENSE FOREST</i>	464.46	138.88	603.34	8.50
7.	<i>MIXED OPEN FOREST</i>	433.37	333.38	766.75	10.81
8.	<i>MIXED DEGRADED FOREST</i>	194.56	235.06	429.62	6.05
9.	<i>DENSE CONIFER FOREST</i>	351.94	16.14	368.08	5.19
10.	<i>OPEN CONIFER FOREST</i>	340.63	21.55	362.18	5.10
11.	<i>DEGRADED CONIFER FOREST</i>	156.89	16.30	173.19	2.44
12.	<i>OAK-RHODODENDRON FOREST</i>	100.34	26.24	126.58	1.78
13.	<i>SCRUBS IN RESERVE FOREST</i>	101.87	0.00	101.87	1.44
14.	<i>FOREST BLANKS</i>	90.56	0.00	90.56	1.28
15.	<i>ALPINE SCRUB</i>	611.44	27.72	639.16	9.01
16.	<i>ALPINE PASTURES</i>	431.32	0.00	431.32	6.08
17.	<i>ALPINE BARREN</i>	815.80	2.35	818.15	11.53
18.	<i>SNOW</i>	1018.23	5.41	1023.64	14.43
19.	<i>GLACIERS</i>	208.23	0.00	208.23	2.93
20.	<i>LAKES</i>	32.30	0.70	33.00	0.47
21.	<i>RIVERS/MAJOR STREAMS</i>	31.81	32.50	64.31	0.91
22.	<i>DRY RIVER BEDS</i>	31.49	9.10	40.59	0.57
23.	<i>BUILT -UP AREA</i>	0.30	3.24	3.54	0.05
24.	<i>LAND SLIDE AREAS</i>	5.37	5.16	10.53	0.15
25.	<i>MISCELLANEOUS</i>	6.93	6.30	13.23	0.19
	Total	5452.39	1643.59	7095.98	100.00

(ii) AREA STATISTICS FOR SIKKIM- TOTAL STATE (IN SQ KMS)

SL. No.	CLASS	RESERVE FOREST	REVENUE BLOCK	TOTAL	%OF TOTAL
1.	CROP LAND (1+2)	0.00	760.54	760.54	10.72
2.	SAL FORESRT (3+4+5)	24.55	3.02	27.57	0.39
3.	MIXED FOREST (6+7+8)	1092.39	707.32	1799.71	25.36
4.	CONIFER FOREST (9+10+11+12)	949.80	80.23	1030.03	14.52
5.	FOREST BLANKS / SCRUBS (13+14)	192.43	0.00	192.43	2.71
6.	ALPINE SCRUB /PASTURES (15+16)	1042.76	27.72	1070.48	15.09
7.	ALPINE BARREN (17)	815.80	2.35	818.15	11.53
8.	ANOW (18+19)	1226.46	5.41	1231.87	17.36
9.	LAKES /STREAMS/ DRY RIVERS (20+21+22)	95.60	42.30	137.90	1.94
10.	TOWNSHIP (23)	0.30	3.24	3.54	0.05
11.	MAJOR LAND SLIDES (24)	5.37	5.16	10.53	0.15
12.	MISCELLANEOUS (25)	6.93	6.30	13.23	0.19

(iii) AREA STATISTICS FOR SIKKIM - TOTAL STATE (IN SQ KMS)

1.	CROP LAND (1+2)	0.00	760.54	760.54	10.72
2.	DENSE FOREST (3+6+9)	821.70	155.79	977.49	13.78
3.	OPEN FOREST (4+7+10+12)	890.27	382.71	1272.98	17.94
4.	DEGRADED FOREST(5+8+11)	354.77	252.07	606.84	8.55
5.	FOREST BLANKS / SCRUBS(13+14)	192.43	0.00	192.43	2.71
6.	ALPINE SCRUB/ PASTURES(15+16)	1042.76	27.72	1070.48	15.09
7.	ALPINE BARREN (17)	815.80	2.35	818.15	11.53
8.	SNOW (18+19)	1226.46	5.41	1231.87	17.36
9.	LAKES /STREAMS/ DRY RIVERS (20+21+22)	95.60	42.30	137.90	1.94
10.	TOWNSHIP (23)	0.30	3.24	3.54	0.05
11.	MAJOR LAND SLIDES (24)	5.37	5.16	10.53	0.15
12.	MISCELLANEOUS(25)	6.93	6.30	13.23	0.19

SOURCE: INDIAN REMOTE SENSING SATELLITE IA (LISS ii) DATA OF NOVEMBER 1988.

(iv) LAND USE STATISTICS FOR SIKKIM - TOTAL STATE (IN SQ KMS)

SL. NO.	CLASS	RESERVE FOREST	REVCENUE BLOCK	TOTAL	%OF TOTAL
1.	CROP LAND (1+2)	0.00	760.56	760.56	10.72
2.	TOTAL TREE COVER (3 + -- + 12)	2066.74	790.57	2857.31	40.27
3.	FOREST BLANKS / SCRUBS(13+14)	192.43	0.00	192.43	2.71
4.	ALPINE SCRUB/ PASTURES (15+16)	1042.76	27.72	1070.48	15.09
5.	ALPINE BARREN (17)	185.80	2.35	818.15	11.53
6.	SNOW (18+19)	1226.46	5.41	1231.87	17.36
7.	LAKES /STREAMS / DRY RIVERS (20+21+22)	95.60	42.30	137.90	1.94
8.	TOWNSHIP (23)	0.30	3.24	3.54	0.05
9.	MAJOR LAND SLIDES (24)	5.37	5.16	10.53	0.15
10	MISCELLANEOUS (25)	6.93	6.30	13.23	0.19
	TOTAL	5452.39	1643.61	7096.00	100.00

7. FOREST COVER- COMPARATIVE SITUATION (1987-89)

(i) FOREST COVER ASSESMENT(AREA IN SQ .KMS.)

Sl. No.	State/Union Territory	1987 ASSESMENT BASED ON IMAGERY 1981-83	1989 ASSESMENT BASED ON IMAGERY 1985-88	DIFFERENCE IN SQ.KM.	CHANGE
1.	ANDHRA PRADESH	50194	47911	2283	4.55
2.	ARUNCHAL PRADESH	60500	68763	8263	13.66
3.	ASSAM	26386	26058	328	1.24
4.	BIHAR	28748	26934	1814	6.31
5.	GOA (INCL.DAMAN&DIU)	1285	1300	15	1.17
6.	GUJRAT	13750	11670	2080	15.13
7.	HARYANA	644	563	81	12.58
8.	HIMACHAL PRADESH	12882	13377	495	3.84
9.	JAMMU & KASHMIR	20880	20424	456	2.18
10	KARNATAKA	32264	32100	164	0.51
11	KERALA	10402	10149	153	2.43
12	MADHYA PRADESH	127749	133191	5442	4.26

FOREST COVER- COMPARATIVE SITUATION (1987-89)**(ii) FOREST COVER ASSESMENT(AREA IN SQ .KMS.)..... contd.**

13	MAHARASHTRA	47416	44058	3358	7.08
14	MANIPUR	17679	17885	206	1.17
15	MEGHALAYA	16511	15690	821	4.97
16	MIZORAM	19092	18178	914	4.79
17	NAGALAND	14351	14356	5	0.03
18	ORISSA	53163	47137	6026	11.33
19	PUNJAB	766	1151	385	50.26
20	RAJASTHAN	12478	12966	488	3.91
21	SIKKIM	2839	3124	285	10.04
22	TAMIL NADU	18380	17715	665	3.62
23	TRIPURA	5743	5325	418	7.28
24	UTTAR PRADESH	31443	22844	2401	7.64
25	WEST BENGAL	8811	8394	417	4.73
26	ANDAMAN&NICOBAR ISLANDS	7603	7624	21	0.28
27	CHANDIGARH	2	8	6	300.00
28	DADRA&NAGAR HAVELI	237	205	32	13.50
29	DAMAN&DIU	--	2	2	0.00
30	DELHI	15	22	7	46.67
31	LAKSHADWEEP	--	-	0	0.00
32	PONDICHERRY	8	-	0	0.00

8. ADMINISTRATIVE SET-UP

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

Additional Principal Chief Conservator of Forests	2
Chief Conservator of Forests	6
Additional Chief Conservator of Forests	4
Conservator of Forests	6
Additional Director of Forests	4
Joint Director of Forests	5
Additional Secretary	1
Joint Secretary	1

The offices under the above officers are as follows.

I. Additional Principal Chief Conservator of Forests (Forestry): The wings headed by APCCF (Forestry) and headed by Chief Conservator of Forests are as under.

CCF (Territorial)

CCF (Working Plan)

CCF (Social Forestry)

CCF (Wildlife)

CCF (Monitoring and Evaluation)

CCF-cum-Member Secretary, State Pollution Control Board/State Land Use Board

(A). CCF (Territorial): The following Offices are under the Chief Conservator of Forests (Territorial).

Additional CCF Territorial

<u>CIRCLE</u>	<u>DIVISION</u>	<u>RANGE</u>	<u>BLOCK</u>	
<i>CF</i>	<i>DFO</i>	<i>RO</i>	<i>BO</i>	
<i>1.Territorial</i>	<i>1.North</i>	<i>1.Mangan</i>	<i>1.Mangan</i>	
			<i>2.Naga</i>	
		<i>2.Chungthang</i>	<i>1.Chungthang</i>	
			<i>2.Lachen</i>	
			<i>3.Lachung</i>	
		<i>3..Dzongu</i>	<i>1.Dzongu</i>	
		<i>4.Phodong</i>	<i>1.Phodong</i>	
			<i>2.Kabi.</i>	
		<i>2.East</i>	<i>1.Gangtok (Addl R.O)</i>	<i>1.Gangtok</i>
			<i>2.Ranipul</i>	<i>2.Pangthang</i>
			<i>3.Tumin</i>	
			<i>1.Ranipul</i>	
			<i>2.Assam Lingzey</i>	
		<i>3.Rumtek</i>		
		<i>4.Saramsa</i>		
	<i>3.Singtam</i>	<i>1.Singtam</i>		
		<i>2.Sang</i>		
	<i>4.Pakyong</i>	<i>3.Rangpo</i>		
		<i>1.Pakyong</i>		
	<i>5.Rongli</i>	<i>2.Pathing</i>		
		<i>1.Rongli</i>		
		<i>2 Rhenock</i>		
		<i>3.Phadamchen</i>		
	<i>6.Kyongnosla</i>	<i>1.Kyongnosla</i>		
		<i>2.Gnathang</i>		
<i>3.South</i>	<i>1.Namchi</i>		<i>1.Namchi</i>	
			<i>2.Damthang</i>	
			<i>3.Tarku</i>	

<u>CIRCLE</u> CF (contd.)	<u>DIVISION</u> DFO	<u>RANGE</u> RO	<u>BLOCK</u> BO
		2.Melli	1.Melli 2.Majhitar 3.Jorethang
		3.Ravangla	1.Ravangla 2.Kewzing 3.Ralang
		4.Lingmo	1.Lingmo
		5.Namthang	1.Namthang 2.Mamring
	4. West	1.Sombaria	1.Sombaria 2.Hilley
		2.Soreng	1.Soreng 2.Sribadam 3.Nayabazar
		3.Dentam	1.Dentam 2.Bermiok
		4.Gyalshing	1.Gyalshing 2.Legship 3.Pelling
		5.Yuksom	1.Yuksom 2.Tashiding
	5.Survey & Demarcation DFO ACF	R.O-3	B.O..- 1

(B). *CCF Social Forestry and Sericulture: The following Offices are under the Chief Conservator of Forests (Social Forestry)*

<u>CIRCLE</u> CF (contd.)	<u>DIVISION</u> DFO	<u>RANGE</u> RO	<u>BLOCK</u> BO
1.Social Forestry	1.North	1.Mangan	1.Mangan 2.Phodong
	East	2.Chungthang	1.Chungthang
		1.Gangtok	1.Gangtok 2.Tumin
		2.Singtam	1.Singtam 2. Sang
		3.Pakyong	1.Pakyong 2.Assam Lingzey
		4.Rongli	1.Rongli

<u>CIRCLE</u>	<u>DIVISION</u>	<u>RANGE</u>	<u>BLOCK</u>
<i>CF (contd.)</i>	<i>DFO</i>	<i>RO</i>	<i>BO</i>
	3.South	1.Namchi	1.Namchi
			2.Jorethang
		2.Rabongla	1.Rabongla
			2.Lingmo
		3.Namthang	1.Namthang
			2.Melli
	4.West	1.Gyalshing	1.Gyalshing
			2.Yuksom
		2.Soreng	1.Soreng
			2.Sombaria
		3.Dentam	1.Dentam
2.. <i>Sericulture</i> <i>Joint Director</i>	1.Deputy Director <i>Asstt. Director</i>	<i>Inspector-2</i>	<i>Sub-Inspector-3</i>

(C). CCF (Working Plan): Offices under the Chief conservator of Forests (Working Plan) are as under.

Addl. CCF Working Plan

Addl. Director, Research Education & Extension

<u>CIRCLE</u>	<u>DIVISION</u>	<u>RANGE</u>	<u>BLOCK</u>
<i>CF</i>	<i>DFO</i>	<i>RO</i>	<i>BO</i>
1. <i>Working Plan</i>	1. <i>Working Plan</i>	<i>R.Os.-2</i>	<i>B.Os.-2</i>
	2. <i>NTFP</i>	<i>R.Os.-4</i>	<i>B.Os.-8</i>
2. <i>Forest Conservation</i> <i>Act, 1980 Cell</i>	1. <i>FCA</i> <i>ACF</i>		
3. <i>Research,</i> <i>Education &</i> <i>Extension</i> <i>Joint Director</i>	1. <i>Silviculture</i> 2. <i>Sr. R.O.</i>	<i>R.Os.-2</i>	<i>B.Os.-4</i> <i>B.O. -1</i>

(D). CCF (Wildlife) **ACCF (Wildlife)** **CF (Wildlife)**
Addl. CCF, Wildlife

Addl. Director, Parks & Zoo

<u>CIRCLE</u>	<u>DIVISION</u>	<u>RANGE</u>	<u>BLOCK</u>
<i>CF</i>	<i>DFO</i>	<i>RO</i>	<i>BO</i>
1. Wildlife	North	1.North (Lachung)	1.Shingba
	East	R.O. 6	3.Kyongnosla 4. Pangolakha
	South	1.Rabongla	
	West	2. Barsey	
2 .Parks & Zoos Joint Director	1.Deputy Director (Wildlife & Zoo)	R.Os.-2	B.Os.-2
	2.KNP (ACF)	North-2 West -2	North-1

II. Additional Principal Chief Conservator of Forests (Environment)
**CCF/Member secretary, State land Use & Environment Board/
 State Pollution Control Board**
Addl. CCF, Land Use & Environment
Addl Director, Ecology, Environment and Eco Tourism

<u>CIRCLE</u>	<u>DIVISION</u>	<u>RANGE</u>	<u>BLOCK</u>
<i>CF</i>	<i>DFO</i>	<i>RO</i>	<i>BO</i>
1.Land-use	1.North	1.Mangan	1.Mangan 2.Phodong
		2.Chungthang	1.Chungthang
		3.Dzongu	1.Dzongu
		1.Gangtok	1.Gangtok
	2.East	2.Samdong	2.Samdong
		2.Singtam	1.Singtam 2.Sang
		3.Pakyong	1.Pakyong 2.Rhenock
		4.Rongli	1.Rongli 2.Phadamchen
	3.South	1.Namchi	1.Namchi 2.Jorethang
		2.Rabongla	1.Rabongla 2.Lingmo
		3.Namthang	1.Namthang 2.Melli

4. West	1. Gyalshing 2. Soreng	1. Gyalshing 1. Soreng 2. Sombaria 1. Yuksom 2. Tashiding
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**2. Joint Director
Ecology, Environment and Eco Tourism**

1. EPC Sr. Scientist	R.O. -1	B.Os. -1
2. RVP	R.Os. -3	B.Os. -6

1. Parks & Gardens 1. Parks & Garden, Joint Director ACF Supervisors 2

Offices under the PCCF-cum-Secretary

1. Additional Secretary > Joint Secretary > Under Secretary

2. Joint Director. Planning & Administration >

DFO Planning/Headquarters > ACF

DY. Director Statistics > Asstt. Directors (4)

ACF (Parks and gardens)

ACF (Stores)

ACF (Headquarters)

3. Chief Accounts Officer > Sr. Accounts Officer > Accounts Officer (3)

9. DIFFERENT BOARDS UNDER FORESTS, ENVIRONMENT AND WILDLIFE DEPARTMENT.

State Wildlife Advisory Board

State Land-use Board

State Pollution Control Board

State Medicinal Plants Board

10. MANPOWER

Forest, Environment and Wildlife Department is one of the largest departments in terms of manpower strength. There are 89 gazetted officers and 898 regular employees of Group 'B' and 'C' category. This department has provided round the year employment to as many as 935 on muster roll and 11 on work charged employment in the rural areas in the form of nursery labourers 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.

A. NUMBER OF IFS OFFICERS

<u>Name of post</u>	Number in Department (A)	On Central Deputation (B)	On State Deputation (C)
<i>PCCF-cum- Secretary Forests</i>	1	-	-
<i>Addl. Principal Chief Conservator of Forests</i>	2	-	-
<i>Chief Conservator of Forests</i>	6	-	-
<i>Addl. Chief Conservator of Forests</i>	3	1	-
<i>Conservator of Forests</i>	5	3	-
<i>Deputy Conservator of Forests</i>	5	1	1
	Sub-Total of (A) + (B) + (C) = 28		

B. NUMBER OF SFS OFFICERS

<u>Name of post</u>	<u>Number</u>
<i>Additional Director of Forests</i>	4
<i>Joint Director of Forests</i>	4
<i>Deputy Conservator of Forests</i>	21
<i>Assistant Conservator of Forests</i>	32
	Sub-Total 61

C. OTHERS CADRES

1. Sericulture

<i>Additional Director</i>	1
<i>Deputy Director</i>	1
<i>Assistant Director</i>	1

2. SCS Officers

<i>Additional Secretary</i>	1
<i>Joint Secretary</i>	1
<i>Under Secretary</i>	1

3. SSAS Officers

<i>Chief Accounts Officer</i>	1
<i>Senior Accounts Officer</i>	1
<i>Accounts Officer</i>	3

4. State Statistical Service

<i>Deputy Director</i>	1
<i>Assistant Director</i>	4

5. Others

<i>Senior Scientist</i>	1
<i>Senior Research Officer</i>	1
<i>Deputy Director (Wildlife & Zoo)</i>	1

<i>Sr. Private Secretary</i>	2
<i>Private Secretary/OSD</i>	3
<i>Sub-Total of C</i>	<u>24</u>
<i>Total Gazetted Officers (A+B+C)</i>	<u>113</u>
<i>Non-Gazetted Employees</i>	
<i>Range Officers</i>	112
<i>Block Officers</i>	86
<i>Head Forest Guards</i>	60
<i>Forest Guards.</i>	272
<i>Sericulture Inspectors</i>	2
<i>Sericulture Sub-Inspectors</i>	2
<i>Veterinary Compounders</i>	2
<i>Drivers</i>	37
<i>Statistical Officers</i>	2
<i>Statistical Investigator</i>	8
<i>Senior Accountants</i>	2
<i>Accountants</i>	8
<i>Junior Accountants</i>	28
<i>Accounts Clerks</i>	13
<i>Office Superintendent</i>	3
<i>Head Assistants</i>	2
<i>UDCs</i>	26
<i>LDA/LDC</i>	44
<i>Herbarium Assistant</i>	1
<i>Peshkar</i>	1
<i>Steno</i>	4
<i>Sr. Technical Assistant</i>	2
<i>Cartographer</i>	2
<i>Scientific Assistant</i>	1
<i>Lab Assistant</i>	1
<i>Surveyor</i>	1
<i>Tracer</i>	1
<i>Draftsman</i>	1
<i>Mali</i>	20
<i>Peon</i>	29
<i>Chowkidars</i>	25
<i>Cook</i>	1
<i>Bearer</i>	1
<i>Daftary</i>	1
<i>Pipe Fitter</i>	<u>1</u>
<i>Total Non Gazetted Employees</i>	802
<i>Total Regular Establishment</i>	<u>915</u>

Work Charged Employees

a) Chowkidar	4
b) Mali	4
c) Supervisor	<u>3</u>
d) WT Operator	1
e) Office Assistant	1
Total Work Charge Establishment	<u>13</u>
Muster Roll Workers	935
Total Manpower Strength	1863

11. INFORMATION ON PURCHASE OF DESKTOP/LAPTOP COMPUTERS*(Amount Rupees in Lakhs)*

Particulars	Numbers	State Plan		CS Schemes		Remarks.
		No	Value	No	Value	
Desktop	35	9	4.73	26	14.77	
Laptop	4	1	0.94	3	3.67	
Workstations	7	0	0	7	12.44	
Total	46	10	5.67	36	30.88	Total Computers=46 Nos.
						Cost = Rs.36.55 lakhs.

12. ISSUE OF NOTIFICATION AND AMENDMENT OF ACT.

For strengthening the mechanism of protection of the rich biodiversity in the state, The Department of Forests has issued several Notifications for effective implementation of different Forest Acts. Some of the notifications are as follows.

Sikkim Transit of Timber and Forest Produce Rules, 1999.

Sikkim Forests (Compounding of Offences) Rules, 1998.

Sikkim Forest Department Reward Rules, 1998.

4. Sikkim Forests, Water Courses and Road Reserve (Preservation and Protection) Amendment Act, 2000.

Notification for withdrawal of grazing from Reserve Forest, 1995.

6. *Notification empowering the Forest Officers in implementing Indian Forest Act (XVI), 1927.*
7. *Notification empowering the Forest Officers in implementing Sikkim Wildlife (Immunization of Livestock) Rules, 1998.*
8. *Notification on Entry and other related fees in Khangchendzonga National Park and Wildlife Sanctuaries, 1998.*
9. *Notification empowering the Divisional Forest Officer, Environment and Pollution Control and Scientist.*
10. *Rajya Van Sangrakshan Evam Paryavaran Puraskar Notification, 2000.*
11. *Notification for Implementation of Joint Forest Management, 1998*
12. *Notification for creation of Directorate of Sericulture under Forests, Environment and Wildlife Department, 1998*
13. *Sikkim State Subordinate Forest Service Rules, 1998.*
14. *Sikkim State Subordinate Forest Service (Amendment) Rules, 1998.*
15. *Sikkim State Forest Service (Recruitment) Amendment Rules, 1996.*
16. *Government of Sikkim (Forest Department) Allotment of Staff Quarters Rules, 1998*

13. CIRCLE-WISE ACTIVITIES OF THE DEPARTMENT

TERRITORIAL SECTOR

Besides implementation of different forest Acts, the territorial Circle is also responsible for maintenance of nurseries and afforestation activities.

Territorial Circle deals with the implementation of Indian Forest Act, 1927, 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 forest

produce, control and eviction of encroachment, issuing 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 four Territorial Divisions (DFOs), Nine Sub-Divisions (ACFs), Twenty Two Ranges (Range Officers), Fifty four Blocks (Block Officers) and beats (Head Forest Guards & Forest Guards) and the Survey & Demarcation of forest lands and other Territorial Head office works like W/T communication system, Arms/ammunition etc. are looked after by the Divisional Forest Officer(S/D/HQ). The Forest land resource in the State is as under:

AREA STATISTICS FOR SIKKIM - TOTAL STATE (IN SQ. KMS.)

Sl. No	CLASS	RESERVE FOREST	REVENUE BLOCK	TOTAL	%OF TOTAL
1	<i>Crop land Terraced/ Semi Terraced)</i>	0.00	604.85	604.85	8.52
2	<i>Fallow/Scrub in Revenue Blocks</i>	0.00	155.69	155.69	2.19
3	<i>Sal dense forest</i>	5.30	0.77	6.07	0.09
4	<i>Sal open forest</i>	15.93	1.54	17.47	0.25
5	<i>Sal degraded forest</i>	3.32	0.71	4.03	0.06
6	<i>Mixed dense forest</i>	464.46	138.88	603.34	8.50
7	<i>Mixed open forest</i>	433.37	333.38	766.75	10.81
8	<i>Mixed degraded forest</i>	194.56	235.06	429.62	6.05
9	<i>Dense conifer forest</i>	351.94	16.14	368.08	5.19
10	<i>Open conifer forest</i>	340.63	21.55	362.18	5.10
11	<i>Degraded conifer forest</i>	156.89	16.30	173.19	2.44
12	<i>Oak-Rhododendron forest</i>	100.34	26.24	126.58	1.78
13	<i>Scrubs in reserve forest</i>	101.87	0.00	101.87	1.44
14	<i>Forest blanks</i>	90.56	0.00	90.56	1.28
15	<i>Alpine scrub</i>	611.44	27.72	639.16	9.01
16	<i>Alpine pastures</i>	431.32	0.00	431.32	6.08
17	<i>Alpine barren</i>	815.80	2.35	818.15	11.53
18	<i>Snow</i>	1018.23	5.41	1023.64	14.43
19	<i>Glaciers</i>	208.23	0.00	208.23	2.93
20	<i>Lakes</i>	32.30	0.70	33.00	0.47
21	<i>Rivers/major streams</i>	31.81	32.50	64.31	0.91
22	<i>Dry river beds</i>	31.49	9.10	40.59	0.57
23	<i>Built-up area</i>	0.30	3.24	3.54	0.05
24	<i>Land slide areas</i>	5.37	5.16	10.53	0.15

25	Miscellaneous	6.93	6.30	13.23	0.19
	TOTAL	5452.39	1643.59	7095.98	100.00

(Source: Indian Remote Sensing Satellite IA (LISS-II) DATA November 1988)

The recorded forest area in the State is as under:

(Area in sq. kms)

Geographic area	Reserved Forests	Protected Forests (Khasmal)	Protected Forests (Gorucharan)	Recorded Forests of State's Geographic area		Of Country's Forest area
7,096	5,452.39	285	104	5,841.39	82.32%	0.8%

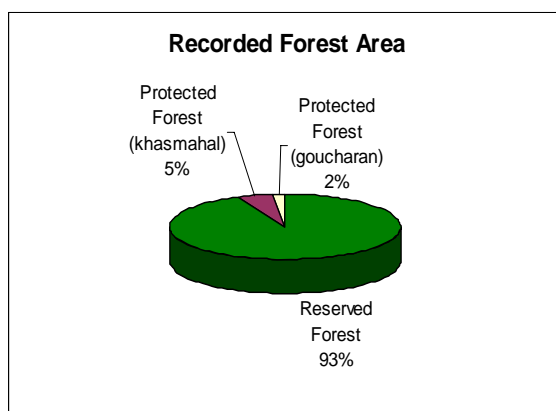
Forest Cover in Different Assessments (1987-2001):

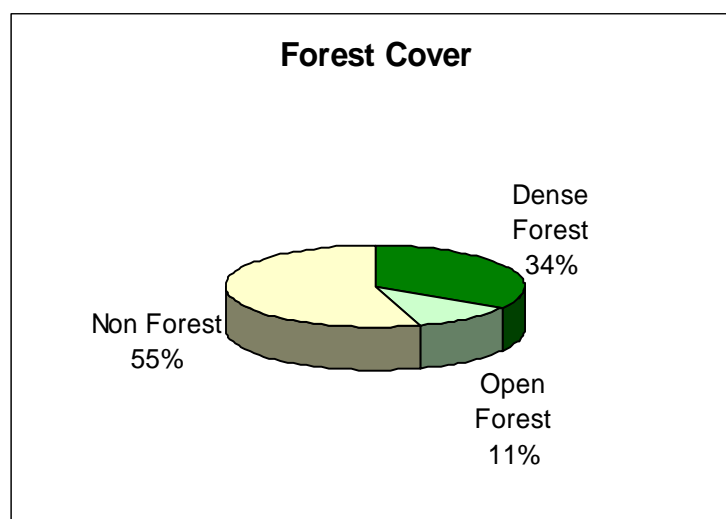
As per the State of Forest Report of the Forest Survey of India, Ministry of Environment & Forest, Government of India, the Forest cover assessment status in different reported year is as under:

(Area in sq. kms)

Year	1987	1989	1991	1993	1995	1997	1999	2001
Forest Cover Assessment	2,756	3,041	3,041	3,119	3,127	3,129	3,118	3,193
Percentage of Geographical area	38.84%	42.86%	42.86%	43.95%	44.06%	44.1%	44%	45%

The 1999 & 2001, Forest Cover Assessment has been done by employing digital interpretation of satellite data at 1: 50,000 scale. By and large, in the earlier assessments since 1989, conventional visual interpretation method at 1: 250,000 scales had been used. Thus, the difference between the forest cover as assessed in 1999 from that assessed in 1997 is not entirely due to change on the ground during the intervening period but may include difference due to these technical factors.





Comparison of 1999 and 2001 Assessments of Forest Cover:

(area in sq. kms.)

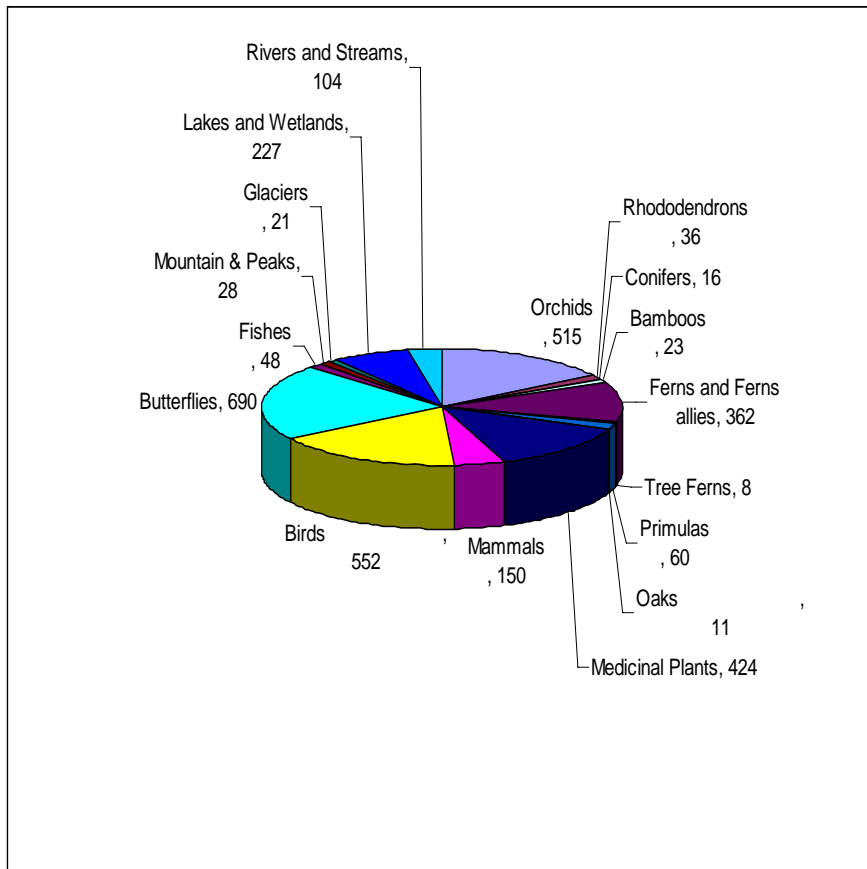
1999 Assessment			2001 Assessment			Net Difference
Dense	Open	Total (a)	Dense	Open	Total (b)	(b-a)
2,363	755	3,118	2,391	802	3,193	+75

District -wise Forest Cover (Assessment year 2001):

Districts	Geographic area	Forest Cover				Scrub
		Dense Forest	Open Forest	Total	Percent	
East Sikkim	954	571	99	670	70.23	85
West Sikkim	1,166	570	142	712	61.06	52
North Sikkim	4,226	836	465	1,301	30.79	204
South Sikkim	750	414	96	510	68.00	0
Total	7,096	2,391	802	3,193	45.00	341

BIODIVERSITY & NATURAL RESOURCES OF SIKKIMAT GLANCE (estimated)

Biodiversity	Nos
<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



Strengthening of Territorial Sector:

Forest Management and Protection are the dual functions of this sector. The Government has addressed these vital issues in recent years than ever before in politically sensitive way. A motivated field staff, sound legal enactment, efficient & effective transport and communication, accommodation facilities, self defence and uniforms, etc. are some of the pre-requisites to accomplish the effective management and protection.

The State Government has brought about vital amendments in the present Sikkim Forest Water Courses and Road Reserve (Preservation and Protection) Act, 1988 (Amendment 2000) to make the specified clause more stringent and harsh in enforcement. Offences such as illegal felling of trees, encroachment and grazing in the Reserve Forest have been made non-bailable. Other important initiatives, measures and actions taken are as follows:

Intensification of Management & Protection:

The overall management of forest land and forestry resources have been intensified by better patrolling, effective forest check posts, check on illegal extraction and transit of forest produce, reporting and recording of all forests offences and other information in Head quarter control room and Division control rooms, registration of forest cases, check on leakage of forest revenue and better communication system.

But, still many more things needs to be done at field forest staff at Forest Guard Level, More Wireless systems, Patrolling vehicles for Ranges, Arms & Ammunition, Office & residential buildings, renovation and up gradation of many existing buildings, Fixed TD/ DA to non Gazetted field staff, Ration allowance to non Gazetted field staff, better facilities in High Altitude and difficult area are required to be considered for further strengthening the system.

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. In the year 2003-04 the Forest details are as under:

<i>Year</i>	<i>Area affected by fire (ha)</i>	<i>No of incidents</i>	<i>Loss due to fire</i>	<i>Casualties (if any)</i>	<i>Type of fire</i>	<i>Reasons</i>
<i>2000</i>	<i>680</i>	<i>53</i>	<i>Most of the cases are of ground fire due to which ground flora, natural regeneration, plantations/ saplings & some of the trees including the wildlife habitat has been damaged & affected.</i>	<i>nil</i>	<i>Manmade/ incidental</i>	<i>For control and immediate action, W/T control room in head office and all the districts has been made operational round the clock and proper recording of data has been taken up.</i>
<i>2001</i>	<i>33</i>	<i>9</i>		<i>nil</i>		
<i>2002</i>	<i>45</i>	<i>14</i>		<i>nil</i>		
<i>2003</i>	<i>37</i>	<i>18</i>		<i>nil</i>		
<i>2004</i>	<i>185</i>	<i>25</i>		<i>nil</i>		

Grazing control:

The Government has imposed a ban on grazing within the Reserve Forest, Plantation areas and Water sources areas with a view to encourage regeneration of forest resources, augment rural water supplies and develop degraded lands. The beneficial effects of this policy are already manifested in the form of improved supplies of water in the villages bordering the Forest areas, regeneration of degraded forest land and enhancement of overall natural resources status. A number of Gots have been removed and the cattle have been impounded & fined along with the wide publicity & awareness.

Infrastructure Development (Buildings):

The Government has been developing infrastructural facilities for the Forest, Environment & Wildlife management staff with Central as well as State assistance in order to modernize its management and protection functions. At Gangtok Transit Hostel, Repair of road, quarter has been completed. Divisional Forest Officer quarters/office(4), Assistant Conservator of Forest quarters(4), RO quarters(6), BO quarters(12), FG quarters(30) and Check posts(3) have been completed during the period 2002-03-04.

Infrastructure Development (Wireless Communication & Arms/ Ammunition):

The wireless communication has been strengthened further. Almost State-wide Wireless Networking has been achieved except a few locations like Lachen, Lachung, Lingmoo and a few other areas which are likely to be covered in the next year. Static sets, hand sets mobile sets have been provided to all the field level functionaries for effective communication. In keeping with the requirements of modern policing functions of forest areas the Government has also inducted arms / ammunition to the field level staff. Arms /ammunition have been provided to selected stations. There is need to procure more which may be done in the current year. Arms training was done at SAP headquarter, Pangthang. At present total (W/T): Repeater sets-5 nos, Static sets-43 nos, Hand sets-73 nos. along with accessories, Total (Arms): .22 Rifle -25nos., .315 Rifle- 6nos. and 9mm auto Pistol -9 nos along with ammunition

Infrastructure Development (Computerization):

Computerizations of important forestry functions have been initiated. Computers have been provided to all the divisions. There is need to provide computer in selected Ranges also. Fax machines have also been provided to all divisions.

Survey & Demarcation:

The government proposes to take up survey and demarcation of forest areas during the Tenth Plan in order to consolidate the forest resources of the State. In the area Survey and Demarcation of the forest land have been initiated in the systematic manner. The forest areas in Sikkim in the first half of the 20th century had been surveyed and demarcated into Reserves, Khasmal and Gorucharan forests. The forest boundaries then had been demarcated by erecting loose stone mounds. These have subsequently vanished due to the burgeoning population leading to sizable forest area encroachment. In order to determine the exact extent of encroachment resurvey was required. Subsequently to establish the forest boundaries and evict the encroachers resurvey & demarcation by erecting new iron post pillars had commenced from 2001. In the initial phase 72 kms of the forest boundaries was surveyed & demarcated by erecting 223 iron pillar posts at a cost of Rs.8.53 lakhs. However while surveying & demarcating 72 kms, three pillars per km was found insufficient to distinctly demarcate the state's forest boundaries due to the difficult and undulating terrain spread over remote hilly areas. Hence after obtaining the necessary approval for erecting ten pillars per km, the resurvey & demarcation activities commenced from 2003 wherein 108 kms of the forest boundaries were surveyed and demarcated during 2003-04 at an expenditure of Rs.24.90 lakhs. Thus 180 kms of the boundaries have been surveyed and demarcated with 1306 nos of iron pillar posts till date. All the forest boundaries so demarcated till date are of RFs. The spillover of 32 kms at Rs.7.32 lakhs are being undertaken during the CFY i.e 2004-05. However due to the late receipt of the sanction letter for 2003-04 and the change in funding pattern from 100%CSS to 75%:25%; the original target of surveying & demarcating 700 kms of forest boundaries are being taken up in the current year.

Transport & Other facilities:

Patrolling vehicle with wireless communication system has been provided to all the four Territorial divisions. There is need to have the more patrolling vehicles in sensitive selected ranges like Lachen, Lachung, Singtam, Namthang, Melli, Nayabazar and one in Gangtok for control room.

Joint Forest Management Committees (JFMC's) & FDA:

The policy of the Government to decentralize powers and functions to the grassroots levels has also been extended to the territorial and wildlife sectors. The Government 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 JFMC's (Under 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 JFMC's have together been formed into a confederation called the Forest Development Agency (FDA). The JFMC's 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.

Catchments Area Treatment and Protection:

The Catchment Area Treatment Programme is an integrated 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 2004 are as under:

(Physical Target in Ha)

Sl. No.	Items	East Division				North Division			
		Target	Ach. 2003-04	Total Ach.	Balance	Target	Ach. 2003-04	Total Ach.	Balance
1.	Afforestation	900	180	360	540	4100	200	670	3430
2.	Natural regeneration	200	17	94	106	500	48	284	216
3.	Med. Plantation	40	-	19.50	20.50	60	-	30	30
4.	Seed sowing	50	-	50	-	150	-	150	-
5.	Pasture Dev.	100	-	98	02	600	150	555	45

Encroachments and Eviction:

The State Government is committed to protect the natural resources as well as the lands under them. All efforts have been made to check the encroachments on forest lands and a massive eviction drive has been taken up to remove encroachments from forest areas. The action is continuing.

Status of encroachment as on 31-3-2004

Name of state	Total Forest Cover FSI (2001) Ha	Encroached Forest Area Ha	Total evicted area Ha	SC	ST	OBC	OTHERS	TOTAL	Figure in column 3 is tentative as the survey & demarcation is required to be done to establish the actual extent of encroachments. This is being done with limited budgetary resources. New cases have been detected & evicted. Several cases are being heard by DFOs prior to eviction as provided for under the Forest Act.
Sikkim	313900	3614.74	117.1823	15	60	102	26	203	

(b). SOCIAL FORESTRY CIRCLE:

The objective of Social Forestry Circle is to promote forestry with participation of the people in the state. This circle has been implementing the 50:50 % centrally sponsored scheme (50% from State Plan and 50% grant from the Ministry of Environment and Forests, Government of India) of Area Oriented Fuel wood and Fodder Project. This circle has also implemented the scheme "Regeneration of Degraded Forests through Participation of Scheduled Tribes and Rural Poor" in North and East Districts during the year 2003-2004. The Circle is also implementing the Catchments area Treatment Plan Teesta Stage V Project. Following are the physical and financial achievements of this circle. Creation of plantation part u under the scheme is over. Only maintenance is continuing.

Further, the North Eastern Council has approved the scheme of Community Bio-diversity conservation for execution at eight locations (Villages or group of villages) with two locations in each district of the State. An amount of Rs.60.00 lakhs has been sanctioned for 2004-2005 by North Eastern Council Secretariat, Shillong. For each location of Rs.7.5 lakhs will be spent as per their approved Micro Plan. The activities are as per the guidelines issued by North Eastern Council Secretariat. The scheme will be expanded to other locations in the State for which suitable procedure for getting approval of NEC is being followed.

AHIEVEMENT UNDER SOCIAL FORESTRY CIRCLE 2003-2004.

Sl.No.	Name of Schemes	Physical (Hac.) Maintenance only	Financial (Rs.in Lakhs)
1	Area oriented fuel wood and Fodder Project 50:50 CSS	1136 Hac.	19.09
2	Regeneration of Degraded Forest by St and RT	356 Hac.	5.90
3	Aesthetic Forestry		10.76
4	CAT	760Hac.+40Km.+3 Km.	120.30
5	Green Belt	50 Hac.+ 19 Km.	37.27
6	Community Bio-Diversity	—	—

Further, Rs.39 Lakhs have been spent on creation of Green Belt in the NHPC (Teesta Stage V) project area. Herbal Park, Garden Children Park, Aesthetic Plantation, Avenue Plantation and Block Plantation have been carried out.

(c). LAND USE AND ENVIRONMENT CIRCLE

This Circle carries out the activities mainly related to soil and water conservation in the state. Afforestation and other soil conservation activities such as vegetative engineering, dry rubble masonry work etc. is being carried out in 42 identified watersheds by Land-use Circle.

During the 10th.plan period afforestation of 962.33 hectares, 103 Hectares of Soil and Moisture Conservation Works through vegetative measures along with 140 cubic metres of engineering works have been achieved in the identified watersheds. The major challenge therefore is to devise suitable location specific solutions so as to accelerate the developmental process and ensure sustainable development of the growing population as well as help maintain the ecology of the hill areas of Sikkim

Activities carried out in the 10th Five Year Plan for the year 2003-2004.

(d). WILDLIFE CIRCLE

Introduction:

Wildlife Circle is headed by Conservator of Forest stationed at Head Office, Gangtok which controls the overall activities of the four Divisions at the District level.

Fuctions:

The Wildlife wing 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:

<i>Sl. No.</i>	<i>Name of Sanctuary.</i>	<i>Area in Sq. Kms.</i>	<i>District.</i>
<i>1</i>	<i>Fambong-Lho Wildlife Sanctuary</i>	<i>51.76 sq.km.</i>	<i>East.</i>
<i>2</i>	<i>Kyongnosla Alpine Sanctuary</i>	<i>31.00 sq.km</i>	<i>East.</i>
<i>3</i>	<i>Pango Lakha Wildlife Sanctuary</i>		<i>East.</i>
<i>4</i>	<i>Barsey Rhododendron Sanctuary</i>	<i>104.00 sq.km</i>	<i>West.</i>
<i>5</i>	<i>Shingba Rhododendron Sanctuary</i>	<i>43.00 sq.km</i>	<i>North.</i>
<i>6</i>	<i>Maenam Wildlife Sanctuary</i>	<i>34.35 sq.km</i>	<i>South.</i>

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.

Future Plans:

The Wildlife Wing is now being strengthened with the improvement of communication networks and increased mobility and arms and ammunitions for the protection of Wildlife and the field staffs. Management plan for each sanctuary is under preparation.

SAILENT FEATURES OF ACTIONS TAKEN BY WILDLIFE CIRCLE IN CONNECTION WITH CONSERVATION & PROTECTION OF WILDLIFE, PURSUINT TO WILDLIFE CONSERCATION ACT (1972) DURING THE YEAR 2003-2004.

There were 264 cases of encroachment detected during the year. The encroachment cases are generally in the form of cardamom cultivation, cattle sheds, and toungyadars inside the sanctuaries. While Shingba Rhododendron Sanctuary has no encroachments inside, in Kyongnosla Alpine Sanctuary the encroachments are in the form of cattle sheds. Most of the

cardamom cultivation and toungyadars are in Maenam Wildlife Sanctuary and Barsey Rhododendron Sanctuary.

1. There were no cases of Wildlife offences brought to record during the year 2003-2004.

Number of eviction cases effected during the year 232. The eviction of encroachments was effected through the assistance of village level Eco-Development Committee. In some cases compensations were given to the evicted persons with the help of the fund received from the Govt.of India. It is expected that the process of eviction ewill be completed by the end of the year 2004-2005.

ACTIVITIES CARRIED OUT FOR WILDLIFE SANCTURIES UNDER MANAGEMENT PLAN.

Management Plan for the sanctuaries are under preparation by the concerned Divisions. At present the development activities are taken up as per the Annual Plan of Operation (APO), submitted by the Department to Govt.of India for funding the proposed items of activities for each Sanctuary.

DEVELOPMENT ACTIVITIES IN WILDLIFE CIRCLE IN 2003-04 UNDER CSS

Barsey Rhododendron Sanctuary.

<i>Sl.No.</i>	<i>Item/Activity</i>	<i>Unit cost</i>	<i>Units</i>	<i>Sanctioned Amount(in Rs.Lakhs)</i>
1	<i>Survey & Demarcation</i>	<i>Rs.30000 per km.</i>	<i>10 km</i>	<i>3.00</i>
2	<i>Awareness, Trg.and capacity building</i>	<i>Rs.10000 Per village.</i>	<i>10 units</i>	<i>1.00</i>
3	<i>Purchase of two wheeler</i>	<i>Rs.50000</i>	<i>One</i>	<i>0.50</i>
4	<i>Purchase of computer and Accessories</i>	<i>Rs.100000</i>	<i>One</i>	<i>1.00</i>
5	<i>Purchase of furniture and furnishings</i>	<i>L.S.</i>		<i>1.00</i>
6	<i>Strengthening of community nurseries.</i>	<i>Rs.30000 per</i>	<i>10 Nrys.</i>	<i>3.00</i>
7	<i>Purchase of patrolling vehicle</i>	<i>Rs.550000</i>	<i>one</i>	<i>5.50</i>
8	<i>Reduction and control of grazing</i>	<i>Rs.10000 per</i>	<i>50 family</i>	<i>5.00</i>
	Total:			20.50

Fambongljo WL Sanctuary.

1	Antipoaching activities(Trap dem.)	L.S.		0.20
2	Const.of water holes	Rs.20000	2 nos.	0.40
3	Soil Cons.Work	Rs.15000 per ha.	10 ha.	1.50
4	Creation of community nursery	Rs.60000	2 nos.	1.20
5	Fodder plantation	Rs.7000 per ha.	20 ha.	1.40
6	Bamboo plantation	Rs.14000 per ha.	25 ha.	3.50
7	Interpretation & documentation	L.S.		0.25
8	Awereness, Trng.& capacity bldg.	L.S.		1.00
9	Interpretation & documentation	L.S.		0.80
10	Survey of resources dependency	L.A.		0.20
	Total:			10.45

Kyongnosla Alpine Sanctuary.

1	Boundary demarcation	Rs.30000 per KM	2 km	0.60
2	Antiooaching activities(Trap dem.)	L.S.		0.20
3	Bamboo plantation	Rs.17000 per ha.	20 ha.	3.40
4	Const.of water Harvesting Str.	Rs.40000	2 nos.	0.80
5	Fodder & Fuelwood plantation	Rs.12000 per ha.	10 ha.	1.20
6	Trng.& capacity building	L.S.		2.10
7	Purchase of T.V.	Rs.100000	1 no.	1.00
8	Distribution of Angora rabbits	Rs.2000 per pair.	6 pairs	0.12
9	Awareness, Trng.& capacity Bldg.	L.S.		2.10
10	Interpretation and documentation	L.s.		0.09
	Total :			11.61

Maenam WL Sanctuary.

1	Survey & Demarcation	Rs.30000 per KM	7 km.	2.10
2	Awar., Trng.& capacity building prog.	Rs.10000 per prog.	10 prog.	1.00
3	Purchase of bike	Rs.50000	one	0.50
4	Strengthening of community nry.	Rs.50000 per Nry.	10 Nry.	5.00
5	Creation of water holes	Rs.20000 each	8 nos.	1.60
6	Field kit for staqff & EDC	Rs.7000 per set	50 sets	3.50
	Total:			13.70

Shingba Rhododendron Sanctuary.

1	Anti-poaching activities, trap Demolition, reward to	L.S.		0.20
2	Purchase of patrolling vehicle	Rs. 5 lakhs.	1 no.	5.60
3	Construction of log bridge	Rs.1.27 lakhs.	2 nos.	2.54
4	Construction of Range Office-cum-Quarter.	Rs. 8 lakhs.	1 no.	8.00
	Total:			16.34

DEVELOPMENTAL ACTIVITIES IN WILDLIFE CIRCLE IN 2003-2004 UNDER CSS.

Barsey Rhododendron Sanctuary. (In Rs.lakhs)

Sl.No	Item / Activity	Unit cost	Units	Sanctioned Amount
1	Survey & Demarcation	Rs.30000 per km	10 km	3.00
2	Awareness, Trg.and Capacity building.	Rs.10000 per village	10 units	1.00
3	Purchase of two wheelers	Rs.50000	one	0.50
4	Purchase of computer and accessories	100000	one	1.00
5	Purchase of furniture and Furnishing	L.S.		1.50
6	Strengthening of Community nurseries	Rs.30000 per	10 nurseries	3.00
7	Purchase of patrolling vehicle	550000	one	5.50
8	Reduction & control of grazing	Rs.10000 per	50 family	5.00
	Total:			20.50

Fambonglho Wildlife Sanctuary. (In Rs.lakhs)

1	Antipoaching activities (Trap dem).	L.S.		0.20
2	Conts.of water holes	Rs.20000	2 nos.	0.40
3	Soil Conservation works.	Rs.15000 per ha.	10 ha.	1.50
4	Creation of community Nry.	Rs.60000	2 nos.	1.20
5	Fodder Plantation	Rs.7000 per ha.	20 ha.	1.40
6	Bamboo Plantation	Rs.14000 per ha.	25 ha.	3.50
7	Interpretation & documentation	L.S.		0.25
8	Awareness, Trg.and capacity building	L.S.		1.00
9	Interpretation & documentation	L.S.		0.80
10	Survey of resource dependency	L.S.		0.20
	Total :			10.45

Kyongnosla Alpine Sanctuary

1	Boundary demarcation	Rs.30000 per km	2 km	0.60
2	Antipoaching activities(Trap.dem)	L.S.		0.20
3	Bamboo Plantation	Rs.17000 per ha.	20 ha.	3.40
4	Cinst.of water harvesting str.	Rs.40000	2 nos.	0.80
5	Fodder and Fuel wood pltn.	Rs.12000 per ha.	10 ha.	1.20
6	Trg.and capacity building.	L.S.		2.10
7	Purchase of TV	Rs.100000	1 no.	1.00
8	Distribution of Angora rabbits	Rs.2000 per pair	6 pairs	0.12
9	Awareness, Trg.& Capacity bdg.	L.S.		2.10
10	Interpretation & documentation	L.S.		0.09
	Total :			11.61

Maenam WL Sanctuary:

1	Survey & Demarcation	Rs.30000 per km.	7 km	2.10
2	Awar. Trg.& capacity bdg.prog.	Rs.10000 per prog.	10 prog.	1.00
3	Purchase of bike	Rs.50000	one	0.50
4	Strengthening of community Nry.	Rs.50000 per Nry.	10 Nry.	5.00
5	Creation of water holes	Rs.20000 each	8 nos.	1.60
6	Field kit for staff & EDC	Rs.7000 per set	50 sets	3.50
	Total :			13.70

Shingba Rhododendron Sanctuary.

1	Antipoaching activities, trap Demolition, regard to	L.S.		0.20
2	Purchase of patrolling vehicle	Rs. 5 lakhs	1 no.	5.60
3	Construction of log bridge	Rs.1.27 lakhs	2 nos.	2.54
4	Const.of Range Officer-cum-Qtr.	Rs.8 lakhs	1 no.	8.00
	Total :			16.34

(e). UTILIZATION CIRCLE

This 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.

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	274599	36	49560	986	57188	381347
1998-1999	1004.75	140665	58	22425	180	18000	181090
1999-2000	1535.52 1872 Nos (Ballies)	222648	157	83830	620	44600	351078
2000-2001	1741.75 1393 Nos (Ballies)	293446	168	82589	245	17500	393535
2001-2002	11869.54 1225 Nos (Ballies)	2230650	95	18110	77	37190	2285950
2002-2003	13421.31 cft.	2013180	379.72	189860	213	27690	2230730
2003-2004	4863.50cft.	1027525	151.82	75910	176	26400	1129835
Total:	36589.87cft. 4490 (ballies)	6202713	2045.54	522284	2497	228568	6963565

(f). WORKING PLAN CIRCLE :

The mandate of the Working Plan division is to prepare the working plans for all the four districts of Sikkim incorporating all the aspects of the scientific management of natural as well as plantation forests of the state. This circle is in the advanced stage of writing the working plan for the state for next 10-20 years. The working plan for the South Territorial Division has been prepared and sent to the government of India for approval and subsequently the government of India has approved its other prescriptions except for harvesting (for harvesting decisions the working scheme has been sent to GOI for approval). The draft-working plan for the West division is also in its final stages and will be submitted to the government of India for approval. Detail enumeration exercise in the forest areas of the West, South and parts of the East Districts were taken up for making harvesting decisions and getting the approval of the government of India as per the directives of the H'ble Supreme Court.

The remote sensing wing is actively involved in remote sensing/GIS activities. A state of art remote sensing lab is being established with latest software (Arc GIS master lab Kit, Eradas Image Processing Software) and hardware(A0 Plotter,A0 Scanner,A0 Photocopying machine, latest workstations etc.). The remote sensing wing of the department is actively involved in the preparation of maps(division), range and block maps for all the four territorial divisions, watershed maps),calculation of altitude wise R.F.area of South & West districts, maps prepared for the BSI, as case study for the community based conservation practices and initiatives, preparation of maps for forest types and density and vegetation types, preparation of maps for various forest clearances under FCA,1980,preparation of maps for 33 micro watershed for the entire state, remote sensing input under micro planning and NWDB,wildlife management plan for national parks and sanctuaries etc. with the approval of the government a research advisory committee has been constituted for guiding the research and technical activities of the remote sensing unit.

The NTFP Division of this circle implements the 100% CS Scheme of Non-Timber Forest Produce including Medicinal Plants in the state.

Division:

Working Plan Division looks after preparation of Working Plans/Working Schemes/Management Plans, which are very vital for scientific and effective management of forests on sustainable and conservation orientation. The division has prepared working plan for South District. Working plan for West District has to be examined by the expert committee constituted in the department. Detailed enumeration of plantation areas in West, East, North and parts of South districts in forest areas have been carried out for taking harvesting decisions. Working schemes for enumerated areas are being prepared for obtaining Government of India's approval for thinning and harvesting.

For preparation of East District Working Plan, the Department has collaborated with Forest Survey of India, Deharadun. Detailed forests inventory works are being taken up from September 2004 by the State Forest Department in collaboration with Forest Survey of India. During this exercise, the FSI will also train our officials and staff for various forest inventory works. This technique will also be applied for preparation of working plan for North District.

Remote Sensing wing under the Working Plan Circle is now fully equipped with modern and latest scientific machineries and instruments for generating very useful outputs for management of forests. In addition to existing Arc GIS master lab kit, ERDAS Image Processing 8.4 software and GIS hardware like AO Plotter, AO Scanner, AO Xerox machine latest workstations, following are added in the Remote Sensing Cell/GIS Lab:

Three nos.of latest HCL server/Workstation with high end specifications Colour Laser Printer 1500 CLJ. Three nos.of latest ERDAS Imagine Processing 8.7 software etc.

(g). FOREST CONSERVATION ACT, 1980 CELL

This Circle mainly deals with obtaining forest clearance for projects related to developmental activities under the Forest (Conservation) Act, 1980. Realization of amount for Crop compensation, Compensatory Afforestation and Net present value (NPV) of forest land being diverted for non-forestry purposes is done by this Circle. The statement of diversion of forest land for non-forestry purpose till 31st.march 2004 is given below.

Sl. No.	Item	North	East	South	West	Total
1	Number of cases approved for diversion	29	37	40	14	120
2	Total Forest land diverted (Ha.)	348.35	196.60	254.77	44.92	844.64
3	Compensatory afforestation (stipulated)					
	(a) In Forest land	1178.66	377.35	475.32	81.60	2112.93
	(b) In Non Forest	64.56	0.89	02.50	08.00	75.95
	(c) Total	1243.22	378.24	477.82	89.60	2188.88
4	Compensatory afforestation (completed)					
	(a) In Forest land	749.064	566.16	423.59	263.00	2001.814
	(b) In Non Forest	02.262	0.89	07.614	08.00	18.766
	Total	751.326	567.05	431.204	271.00	2020.58

(h). ECOLOGY AND ENVIRONMENT CELL

Treatment of the Catchment Area of Rangit Hydro-electric Project in South and West Districts, Monitoring of Environment and Pollution of air and water, Wetland Conservation, Eco-Development of Urban Areas, treatment of catchment areas of rural water supply, maintenance of Jawaharlal Nehru Botanical Garden, Pinatum, Arboratum and Germ Plasm Bank etc. is done by this circle. The Physical and financial achievements during the year 2002-03 are as under.

Physical- Area in Hectares , Financial Rupees in lakhs.

Sl. No.	Items of Work	Achievement	
		Physical	Financial
1	Maintenance of Nursery and Rumtek Botanical garden	-	1.50
2	Prevention of air and water pollution	-	3.00
3	Wetland Conservation	9.00	4.50
4	Treatment of catchment area of Urban Drinking Water Supply	9.00	3.50
5	Eco Development in Urban Areas	3.00	1.00
	Total	21.00	13.50

(i). RESEARCH, EDUCATION AND EXTENSION CELL

This Circle is in charge of all the research oriented activities related to Forestry, wildlife preservation, seed development etc. This circle operates the Centrally sponsored scheme of Seed Development which includes the seed testing laboratory and the mist chamber.

(j) PARKS AND ZOO CELL

(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 captivity 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 its 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 captivity. 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 biodiversity 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 Park, Gangtok is located at an altitude of 5840 ft. (1780m) from msl at Bulbuley 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.

<i>Sl.No</i>	<i>Species</i>	<i>Male</i>	<i>Female</i>	<i>Total</i>
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 harbours 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.

(ii) Khangchendzonga National Park:

The high altitude Khangchendzonga National Park having an area of 1784.00 sq.km. is being maintained by this circle. Besides, this circle is responsible for the management of the National Park.

Activities carried out under KNP Division during the Year 2003-2004.

The following activities were carried out under KNP Division as summarized below. Infrastructure developmental works such as construction of Range Quarter at Chungthang and Sanklang under Chungthang and Dzongu Range.

Anti-poaching activities were carried out at different areas of Park where traps were dismantled.

Awareness camps were organized at Dzongu Range.

Students from different buffer schools were brought to Himalayan Zoological Park, Bulbulley, Gangtok as exposure trips to introduce and let to know Himalayan Fauna.

Piglets were distributed to beneficiaries of buffer villages to augment their incomes.

5. Habitat Management for wild animals and medicinal plantation was carried out.

2. FUND ALLOCATION MADE TO KNP DIVISION DURING THE YEAR 2003-2004 WITH PHYSICAL AND FINANCIAL BREAK UP.

Developmental of national park (100% CSS)

Khangchendzonga National Park total sanctioned accorded for the year 2003-2004 under this Scheme was Rs.46.10 lakhs out of which Rs.32.30 lakhs was utilized due to late received of fund.

S.NO.	ITEM OF WORKS	PHYSICAL (HAC/KMS/NOS.)	FINANCIAL (IN LAKHS)
1.	Habitat Management	65	6.50
2.	Soil and Moisture Conservation	60	7.20
3.	Boundary Demarcation	24	7.20
4.	Anti-poaching activities		0.20
5.	Construction of Range Quarter	2	10.00
6.	Construction of Log Bridge	1	1.20
	Total :		32.30

The balance installment of the financial year 2002-2003 amounting to Rs.26.90 lakhs (Rupees- Twenty-six lakhs ninety thousand) only was released during this financial year 2003-2004 and the achievement made with regard to that amount is tabulated below:

Eco-Development Activities

S.No.	Item	Physical(Fam/Hac./No.)	Financial(Rs.in Lakhs)
A	Eco-Development Activities.		
1.	<i>Piggery Farming</i>	30 fam.	1.20
2.	<i>Cardamom Rejuvenation</i>	50 hac.	2.00
B	Habitat Management		
1.	<i>Medicinal Herbs Plantation</i>	50 hac.	6.00
2.	<i>Gap filling</i>	100 hac.	6.00
3.	<i>Pasture Development</i>	100 hac.	5.30
C	<i>Awareness Camp</i>		2.00
D	<i>Preparation of Signages</i>		0.40
E.	<i>Nature Camps to School Student</i>		1.00
1.	<i>Log Hut</i>	1	3.00
	Total:		26.90

The total sanctioned accorded for the year 2003-2004 was Rs.62.00 lakhs (Rupees Sixty lakhs only out of which Rs.25.00 lakhs (Rupees Twenty Five lakhs) only released and rest amount is yet to receive from Ministry during this year. The physical and financial achievement made with this amount is tabulated below:

<i>Sl.No.</i>	<i>Item of Activities</i>	<i>Physical (Hac/Nos/Fam.)</i>	<i>Financial (Rs.in lakhs)</i>
1.	<i>Bamboo plantation</i>	50 hac.low ait. 50 hac.high alt.	4.00 6.00
2.	<i>Gap filling</i>	50 hac.	2.44
3.	<i>Soil and Moisture conservation</i>	100 hac.	12.00
	TOTAL:		24.44

REVENUE EARNED DURING THE YEAR 2002-2003 AND 2003-2004

2002-2003 ----- Rs.5.19 lakhs.

2003-2004 -----Rs. 5.64,740 lakhs.

(k). SURVEY AND DEMARCATION:

The forest areas in Sikkim in the first half of the 20th.century had been surveyed and demarcated into Reserves, Khasmal and Goucharan forests. The forest boundaries then, had been demarcated by erecting loose stone mounds. These have subsequently vanished due to the burgeoning population leading to sizable forest area encroachment. In order to determine the exact extent of encroachment resurvey and demarcation was required. Hence to establish the

forest boundaries and evict the encroachers resurvey & demarcation by erecting new iron post pillars had commenced from 2001. In the initial phase 72 kms of the forest boundaries was surveyed & demarcated by erecting 223 iron pillar posts at a cost of Rs.8.53 lakhs. However while surveying & demarcating 72 kms, three pillars per km was found insufficient to distinctly demarcate the state's forest boundaries due to the difficult and undulating terrain spread over remote hilly areas. Hence after obtaining the necessary approval for erecting ten pillars per km, the resurvey & demarcation activities commenced from 2003 wherein 108 kms of the forest boundaries were surveyed and demarcated during 2003-04 at an expenditure of Rs.24.90 lakhs. Thus 180 kms of the boundaries have been surveyed and demarcated with 1306 nos of iron pillar posts till date. All the forest boundaries so demarcated till date are of RFs. The spillover of 32 kms at Rs.7.32 lakhs on 75:25 basis are being undertaken during the CFY i.e. 2004-05. However due to the late receipt of the sanction letter for 2003-04 and the change in funding pattern from 100%CSS to 75:25, the activities for the CFY as per the original target is yet to approved vis-à-vis the financial resources. The change in funding pattern has adversely affected the work progress. The HMF and the department officials have highlighted this fact in various forums and meetings.

(l). PLANNING AND STATISTICAL CELL

The main role of this cell is to assist the Principal CCF-cum-Secretary in all matters related to policy to policy matters, 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 central governments. This circle also deals with the works of 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 Co-ordination with the different Ministries in the Government of India, Planning Commission, preparation of Five Year Plan and Annual Plans etc. is being taken care of by this Circle.

(m). SERICULTURE DIRECTORATE:

The Sericulture Directorate is responsible for development of Sericulture in Sikkim. Till the end of the Eighth Five Year Plan, the activities of sericulture were at low profile but has picked up pace from the beginning of the Ninth Five Year Plan. The state government has approved the project for Rs. 5.00 crore for "Development and Extension of Sericulture in Sikkim" in the Ninth Five Year Plan. Although the activities are currently confined to the three districts viz. East, South and West, suitable areas of North District also will be taken in the later stage of the project. 115 villages and 1300 families have been earmarked to be covered

during the project period of five years. The Central Board has also agreed to provide financial assistance for training of sericulture farmers and for infrastructure development of the project. The directorate is maintaining three Sericulture farms, one each in East, South and West District. The main objectives of the Sericulture Directorate are:

- Rearing of improved variety of silkworms.
- Propagation of Mulberry seedlings.
- Distribution of the seedlings to the villagers.
- Providing training, financial assistance, infrastructure and other inputs for silkworm cultivation in the state.
- Organizing awareness camps in the villages.

Training for silkworm cultivation was provided to 12 farmers in the year 1998-99 and to 80 farmers in 2001–2002. Each of the farmer (beneficiary) was given (i) Stipend Rs.500/- with free fooding and lodging,(ii) Rs.1,000/- for plantation of mulberry saplings,(iii) Rs. 5,000/- for low cost rearing house,(iv) Rs.500 for weeding and manuring, (v) Dala & Chandraki worth Rs.3000/- (vi) Subsidy in mulberry saplings Rs.3000/-. Hence each beneficiary was provided with Rs.13,300/- in cash and in kind. The 12 beneficiaries 1998-99 and the 80 beneficiaries of 2000--2001, who adopted sericulture farming, have started earning from silkworm cocoons produced by them. The department purchased cocoons worth Rs.11,828/- from the 12 beneficiaries adopted in the year 1998-99. In the year 2001–2002 Rs.1.56 lakhs was realized by sale cocoons and from the beneficiaries being cost of saplings at subsidized rates.

Beneficiaries Adopted for Sericulture Development in Sikkim.

S. No.	Number of Beneficiaries Adopted for Sericulture Development								
	District	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	Total
1	East	04	32	39	13	05	-	09	102
2	South	06	23	11	28	34	-	12	114
3	West	02	21	12	13	29	-	03	80
	Total	12	76	62	54	68	21	21	296
	Area Covered(Ha)	7.6	32.0	24.8	21.6	27.2	8.40	8.40	130.00

Nature of Silk Industry:

Sericulture practices in Sikkim State remain confined within the few Govt.farms and nurseries, since it was started for the first time in the year 1977-78 under the department of Forest and Wildlife. Over the past two decades, there has been limitations in its Extensions and developmental activities, however in the beginning of 9th five year plan it was break through in its funding sector, subsequently, package of mulberry sericulture are extended to the villages in three district of Sikkim where it is found feasible, on the process required

minimum infrastructures were augmented in the existing govt. farms, excluding the limited number of manpower those were dealing with it till date.

In fact, lurching with new CDP scheme by the CSB, considerable increase in both area of mulberry plantations as well as in silkworm rearing came in to the picture, however due to heavy mortality in plantations, and repeated failure of Silkworm rearings in the climatic adversity particularly in the farmers level, and because of poor marketing facility of cocoon produced in the State still becomes bottleneck, so production figure is far matching to the figure with the area of plantations.

Sl.No.	Name of the District.	Area(Acre)till date.		Total	Dfls.in Hund Nos.	Production of Reeling Cocoons (in kg)		Production of Seed Cocoons.
		Rainfed:	Irrigated			BV	MV	
1.	East.	106	Nil	106	2575	327	-	-----
2.	West.	131	Nil	131	1550	105	-	-----
3.	South.	133	Nil	133	4845	553	-	
	Total:	370		370	8970	985	-	

The district wise area and production of mulberry cocoon (2003-04) is as given below:

NB: The area shown as above may not be all well maintained, or some area may be already neglected.

Productivity Parameters:

Year	Cocoon/100 Dfls.	Dfls.brushed per Acre. (in total)	Reeling Cocoons kg.	Raw silk kg/ Acre.	Renditta.
2000-01	35.70	3000 approx.	1071	N.A.	Not assessed
2001-02	27.68	4000 approx.	1107	N.A.	Not assessed
2002-03	15.62	8000 approx.	1274	N.A.	Not assessed
2003-04	10.99	8970 approx.	985	N.A.	Not assessed

NB: 1. It is not feasible to assess the productivity parameters in acreage, in reasons most of the plantation areas are poorly maintained, or survivality is very poor.

2. The Dfls. Consumptions per family is hardly 40 dfls. Per crop due to high mortality of mulberry plants.

Since the total annual consumption of dfls.in the state has not gone beyond 10000 Nos. so this meagre quantity is being procured from the different CSB agencies therefore, state does not feel to have own seed organization until the demand of seed exceeds at least 20,000 dfls.annually.

Eri Sector:

In the state of Sikkim natural distribution of Eri food plants viz. Castor abundantly available, and Tapioca is also cultivated by every farmers for consumption of its root, one more perennial host plant called **Khanakpa** in local language is also available. Hence, in consideration to its best utility of leaves and seed of castor for economic boost up of our poor farmers, Eri culture has been introduced first time in the year 2003-04, in some of the villages as indicated below:

Area and Production Statue:

Year	Area under Food plants (Acre)	Production of			Remarks.
		Dfls.in Nos.	Cut cocoons in kg.	Raw Silk in kg.	
2002-03	Nil	Nil	Nil	Nil	Not started
2003-04	30	Nil	Nil	Nil	Rearing not Started yet
Total:	30	Nil	Nil	Nil	Not started

Muga Sector:

Augmentation of Muga food plants was introduced in 2003-04 in Sikkim, under the CDP, identified host plant called Kutmero in local language (*Litsea polyantha*) abundantly available in natural conditions needs only systematic plantation. In the same year nearly 12 acres has been brought under muga host plant plantations in South and West Sikkim. This may be seen under the tab given below:

Year	Area under Food plants (Acre)	Production of			Remarks.
		Dfls.in Nos.	Cut cocoons in kg.	Raw Silk in kg.	
2002-03	Nil	Nil	Nil	Nil	Not started
2003-04	12	Nil	Nil	Nil	Rearing starts From 2004-09-09 onwards.

Marketting:

Actual problem being faced by the state is marketing of cocoons, out the four crops only last crop harvested in the month of October had been disposed off to the private granures as Seed cocoon, that too is at very low price.

However, there is chances of better co-ordination between the two states of Sikkim and West Bengal in marketing the all three types of cocoons produced in this state, which shall be operated symbiotically in near future.

Infrastructure:

Infrastructures required for the Sericulture industry in the state is very limited, as per the area and volume of activities even though, minimum required facilities have been arranged in the Govt. sectors. However, private entrepreneurs in the sericulture sector is yet to come.

Sericulture Villages.	Sericulture farmers.			Total	No.of silk Handlooms.	No. of Reelers	No. of Weavers	Reeling Devices.	
	SC	ST	Others						
50 Nos.	11	76	183	370	NOT APP	LICAB	LE	N.	A.

Employment:

Out of the 370 families those have taken up mulberry plantations in their own land, vary few of them are continuing it as part time work and majority of the farmers have started neglecting since they could not gain confidence out of it due to (i) Higher mortality of plantations (ii) Regular failure in rearing (iii) Less remuneration or lack of marketing and (iv) and other reasons. The villagers doing part time sericulture in the state is given in subsequent page:

District	No. of Villages	No.of Family Involved in Rearing	Average No. of Crops.	Avg.No.of Dfls.consumption Per crop/per Family.	Avg.Cocoon Harvested In 100 Dfls.	Remarks.
East.	02	09	05	25	23 kg.	Dfls.consumption per crop is very Less.
South.	04	12	04	20	20 kg.	
West.	03	10	03	15	15 kg.	

Suggestion:

People are attracted towards the scheme, but after some time they start loosing Interest.

More exposures and confidence building programmes is required.

Regular and active follow up actions is required.

Prompt action in every respect is necessary.

Required infrastructure/manpower and appropriate technology transfer is Necessary.

Other Informations

It has been a joint venture between state government and Central Silk Board to make the sericulture practices flourish in this non-traditional zone of Sikkim State. In this regard continuous efforts are being made by the Board also through the Regional Extension Centre situate at Rangpo. Various programmes are being launched like TAR, despite of financial assistance on subsidy to the farmers and up-gradation of Govt. establishments under the CDP. And in ispite of every efforts from the govt. participating people are found quite irresponsible also, which could also be overcome in the near future for making this scheme a great success in the regions like Sikkim State.

State Plan and Programme(Allocation and Expenditure over the Plan.)

<i>Plan</i>	<i>Year</i>	<i>Allocation: Rs.in lakh.</i>	<i>Expenditure: Rs.in lakh.</i>	<i>Remarks.</i>
<i>VIII Plan</i>	<i>1992-97</i>	<i>60.00</i>	<i>60.00</i>	<i>No. of provision for extension. Extension in the villages were under taken, under the CDP and maximum Infrastructures have been augmented. But manpower remains same.</i>
<i>IX Plan</i>	<i>1997-2002</i>	<i>210.00</i>	<i>210.00</i>	
<i>X Plan</i>	<i>2002-2003</i>	<i>40.00</i>	<i>40.00</i>	

All three types of sericulture has ample scope for its growth in this region, desperately requires serious thought in exercising technology and financial input. Financial input is not only the factor for its promotion, however technology, manpower and infrastructure plays equal role in the process of development.

(14). STATE POLLUTION CONTROL BOARD

Brief notes on activities carried out during the year 2003-04 by SPCB, Sikkim.

National Air Quality Monitoring Programme (NAMP)

The CPCB sponsored the NAMP programme for setting up of two air quality monitoring stations for the State of Sikkim (i) White Hall Complex as (sensitive zone)&(ii) Hospital Point (Commercial zone). Under the scheme three nos. APM 460(NC) machines for air pollutant monitoring and two micro metro monitoring WM 251 for metrological monitoring were procured and installed at Hospital Point & White Hall Complex.

Grant-in-Aid to State Land Use & Environment Board:

The grant in aid was used for meeting the office, expenses of Chairman, SLUB including salary component of MR employees engaged in the office of the Chairman, vehicle maintenance, monthly HSD for Chairman and donations made by Chairman, SLUB.

3. National Water Quality Monitoring Programme:

Under the programme the water quality of Teesta river and its tributaries is monitored on monthly basis and the report submitted to CPCB regularly. Nine sampling points for the NWQM has been identified and sanctioned for the State of Sikkim.

4. Public Hearing of Municipal Solid Waste Treatments Plant:

The UD & HD sponsored public hearing programme, which was conducted by SPCB, Sikkim for setting up of Solid Waste Treatment Plant at Lower Martam.

5. Abatement of Pollution through Cleaning of Jhoras in and around Gangtok.

The programme was funded by CPSB New Delhi. Under the programme different jhoras encompassing Gangtok town were cleaned, this was a joint venture by the SPCB, Sikkim along with UD & HD, which received wide publicity & Public participation.

6. Public Hearing of Rolep Hydro-electric project:

The public hearing of Rolep Hydro-electric project was conducted by SPCB, Sikkim.

7. Grant-in-Aid to SPCB, Sikkim:

The grant in aid to Sikkim was made by State Govt. to conduct awareness camp, plays, prepare videos on environment conservation, etc.

The SPCB, Sikkim utilized the fund for the propose for which the fund was sanctioned.

8. Air & Water Quality of Namchi:

The project is being implemented for monitoring the air & water quality of Namchi, South district headed quarter.

9. Water Quality Monitoring of Gurudongmar Lake:

The project is under implementation for generation of base line data on the water quality and biomapping of Gurudongmar Lake, North Sikkim.

10. Conservation of River Ranichu under NRCP:

The CPCB funded the project for the conservation of river Ranichu under National River Conservation Programme and the fund was transferred for implementation of the said project to Public Health Engineering Department.

Statement of Work Carried Out Under SPCB, Sikkim for the Year 2003-2004.

<i>SL .NO.</i>	<i>NAME OF SCHEME</i>	<i>PHYSICAL TARGET</i>	<i>FINANCIAL TARGET</i>	<i>REMARKS.</i>
1	National Air Quality Monitoring Programme.	(a) Purchase of APM (460 NL) 3 nos.(b) Micro metro monitoring WH251 2 nos. @ Fabricating Structure etc.	7.10	Fully achieved.
2	Grant-in-Aid State Land Use & Env.Board (SLUB)	Office establishment Of Chairman (SLUB)	2.50	Fully achieved.
3	National Water Quality Monitoring Programme	Water quality Monitoring of River Teesta	3.20	Fully achieved.
4	Municipal Solid Waste Treatment Plant UD&HD Lower Martam	To conduct Public hearing	0.60	Fully achieved.
5	Abatement of Pollution through Cleaning of Jhoras in and around Gangtok.	Cleaning of different jhoras encompassing Gangtok.	5.20	Fully achieved, The Work was done in Collaboration with UD & HD.
<i>SL .NO.</i>	<i>NAME OF SCHEME</i>	<i>PHYSICAL TARGET</i>	<i>FINANCIAL TARGET</i>	<i>REMARKS.</i>
6	Rolep Hydroelectric Project (Public Hearing)	To conduct Public Hearing	1.40	Fully achieved.
7	Grant-in-Aid to SPCB, Sikkim	Conducting Awareness Campaign, play Video shows on Environment	5.0	Fully achieved.
8	Air & Water Quality Monitoring of Namchi	Air & Water Quality monitoring	6.0	Work under progress.
9	Water Quality monitoring of Gurudongmar Lake	Water Quality Monitoring of Gurudongmar Lake, North Sikkim	2.40	Work under progress.
10	Conservation of River Ranichu under NRCP	Air & Water Quality monitoring	3.50	Fund transferred to Public Health Engineering Deptt.

15. AFFORESTATION WORK CARRIED OUT IN THE YEAR 2003-2004

Afforestation was the major activity of the department. About 6537.00 Hectares of forest and 2483.24 Hectares in non-forest land was covered by plantation during the year 2001-2002. Afforestation work carried by different circles /wings of the Department are as follows. Besides, educational institutions, voluntary organizations and individuals carried out afforestation and tree planting activities during World Environment Day throughout the state. The villagers were also provided with timber, fuelwood and fodder seedlings free of cost for planting in their private holdings and agricultural fallows to meet their own requirements of fodder fuelwood and timber for constructional purposes. Afforestation carried out by the Department is given below.

<u>Sl.No.</u>	<u>Name of Circle/Scheme</u>	<u>Area in Ha.</u>	<u>Length in Km.</u>
1.	<i>Territorial Circle</i>		
	<i>State Plan Scheme</i>	126.00	-
	<i>Catchment Area Treatment Plan of Teesta</i>		
	<i>Stage V Project</i>	620.50	5.70
	<i>(c) Natural Regeneration under BADP</i>	73.00	
	<i>(d) Plantation under FDA</i>	372.00	
			<i>contd.</i>

<u>Sl.No.</u>	<u>Name of Circle/Scheme</u>	<u>Area in Ha.</u>	<u>Length in Km.</u>
2.	<i>Social Forestry Circle</i>		
	<i>Fuelwood Plantation (50:50 CSS)</i>	72.50 (West)	
	<i>(a) Rehabilitation of Degraded Forest by Scheduled Tribes & Rural Poor in Usufruct Sharing basis (100% CSS)</i>	433.00	-
	<i>(b) Catchment Area Treatment Plan of Teesta</i>		
	<i>Stage V Project</i>	450.00	33*
		27.00	<i>*(30 Km Avenue Pltn) 3Km Fencing)</i>
3.	<i>Land-Use Circle</i>		
	<i>(a) State Plan Scheme(Soil Conservation)</i>	156.50	
	<i>(b) Catchment Area Treatment Plan of Teesta</i>		
	<i>Stage V Project</i>	184.50	1
4.	<i>Ecology & Environment-Conservation Programmes)</i>	21.00	-
5.	<i>Sericulture</i>	8.40	-

6.	<i>Catchment Area Treatment of Rangit Hydro-Electric Project.</i>	-	-
7.	<i>Compensatory Afforestation</i>	145.00	-
8.	<i>Integrated Afforestation and Eco-Development Project in Rangpochu Watershed</i>	-	-
9.	<i>IWDP in Lachen- Lachung watershed</i>	-	-
10.	<i>Herbal Gardens 13 Nos. (10 Ha. Each)</i>	130.00	-
	<i>Plantation of fruit & fodder species</i>		
	<i>At Himalayan Zoological Park</i>	13.00	-
12	<i>South West Wildlife FDA</i>	252.00	-
13.	<i>Soil & Moisture Conservation through Vegetative measures in Wildlife Sanctuaries And National park</i>	142.50	
14.	<i>Plantations under IWDP Scheme(North)</i>	1214.00	
	Sub-Total	4440.90	39.50
15.	<i>Plantation on private and community land by Villagers, schools, Panchayats, NGOs & others</i>	2946.00	-
	Total	7386.90	39.50

16. "SMRITIVAN" - PEOPLES PROGRAMME OF AFFORESTATION

*The Hon'ble Chief Minister Shri Pawan Chamling evolved the concept of Smritivan with a noble idea of "planting trees in memory of near and dear ones". Smritivan is a mass voluntary effort to generate active involvement of the people in planting trees in the drive for **GREEN SIKKIM**. The programme was launched by the Hon'ble Chief Minister Shri Pawan Chamling on the occasion of World Environment Day i.e. 5th June 1999 at Bulbuley Smritivan in East District which was followed in other districts. So far, 40 Smritivans have been created all over the state of which 35 are at Bulbuley in East Districts, Tagore Smritivan at Rinchenpong and Sakyong Smritivan in West District, Guru Padmasambhawa Smritivan at Tendong, Namchi, and Rabongla Smritivan in South Sikkim, and Yumthang Valley Smritivan in North Sikkim are some of them.*

Over 60,000 seedlings have been planted under this programme till September 2002 in the state. This programme will be taken to the doorstep of the people and every panchayat unit in the state will be motivated to create Smritivan in every village/ revenue block.

Till September 2002, 17 voluntary organizations, 7 government organizations, 3 Literary organizations, 3 religious associations, 3 schools, 2 trusts, VIPs, many tourist and a large number of individuals have planted 51,800 seedlings at Bulbuley Smritiva in East Sikkim. 2550 seedlings have been planted by NGOs, Panchayats and local people in Tagore Smritivan, Rinchenpong and 1550 seedlings at Sakyong Smritivan in West Sikkim. Local people, Border Roads Organisation and Army personnel have planted 550 seedlings at Yumthang

Smritivan in North Sikkim. In South Sikkim, local people, NGOs and Panchayats, have planted 1000 seedlings at Guru Padmasambhawa Smritivan at Tendong, Namchi and 2500 seedlings at Rabongla Smritivan.

17. BIODIVERSITY RESEARCH (WILDLIFE) ACTIVITIES 2002-03

Regular office duties and maintenance of State Forest Herbarium were carried out. Data gathered from Tso Lhamo Cold desert was also entered in the computer., Articles written for publicity, awareness talks and lectures delivered. Field work was concentrated in the proposed Tso Lhamo Cold Desert Conservation Reserve. Papers were presented at annual research seminar of BNHS.

New color monitor was purchased to replace old damaged one, videos shot in field were transferred to computer using newly installed Dazzle video capture device. Selected photographs were enlarged and displayed in a wall cabinet in the office.

2003-2004:

Maintenance of State Forest Herbarium, Regular office duties, Data gathered from Tso Lhamo cold desert was translated from Tibetan and also entered in the computer, Articles were written for publicity in newspapers, awareness talks and lectures delivered at SGMI, etc. Field work was concentrated in the Proposed Tso Lhamo Cold Desert Conservation n Reserve. Papers were presented at annual research seminar of BNHS, Centenary Journal Seminar and International Galliformes Symposium, Dehradun.

BIODIVERSITY RESEARCH, EXTENSION AND EDUCATION WORKS: 2001-2004

***Maintenance of State Forest Herbarium (SFH):** Valuable plant specimens collected over 80 years (since 1923) are being maintained in the SFH in the Forest Annexe Building at Deorali, Gangtok. One Regular Staff Ms. Shanti Rai oversees the collection by regular maintenance of these valuable specimen sheets using various hazardous chemicals. The data has also been computerized. It now needs the attention of a suitable plant taxonomist to regularize the collection either scientifically family-wise after filling in the gaps or management oriented, protected area-wise.*

***Monitoring of Wildlife on the proposed Tso Lhamo Cold Desert Conservation Reserve:** Special Data Sheets were prepared and data collected in Tibetan language by the Wildlife Watcher based in the Cold Desert as and when he recorded important sightings and events. This data is then translated, compiled and computerized. It now needs proper statistical treatment for realistic interpretation.*

Alpine Grassland Ecology Project (GEP): In the collaborative wildlife project with Bombay Natural History Society extensive field studies, liaisoning with Army, public, civil administration, etc. were carried out in the proposed Tso Lhamo Cold Desert Conservation Reserve (TLCDCR). During the Annual Research Seminar of Bombay Natural History Society a presentation was made on the work progress. A detailed Conservation Strategy has been formulated for the cold desert. As one of the first initiatives in this regard, a proposal for legal declaration of the **Tso Lhamo Cold Desert Conservation Reserve** has been made and a Stakeholders' consultation planned in Tsunghang, North Sikkim.

Report on Pilot Survey of Red Panda for WWF: The survey report of work done in 1998-99 was finalized and submitted through department to World Wide Fund for Nature, India. This was subsequently printed in their publication which was handed over to PCCF/CWLW, Government of Sikkim.

Bird Census-Techniques Workshop by BNHS: A 2-day Bird Census Techniques Workshop was organized in June 2002 in the Department of Forest, Environment and Wildlife Management for field staff, students and NGOs involving illustrated lectures by Dr. Asad Rahmani, Director BNHS and Mr. Zafar-ul-Islam Project Coordinator, IBA programme, followed by field visit to the Himalayan Zoological Park, Bulbuley, Gangtok. Sr. Research Officer (WL) was designated as State Representative for IBA project of BNHS.

Important Bird Areas (IBAs) program of BNHS: All important areas for birds in Sikkim were identified using the various categories defined by the IBA project of BNHS and a detailed write-up prepared. This was sent to BNHS for editing and including as a State Chapter in the national document. The final write-up has been proof-read and sent back to BNHS who will be assisting us in producing a separate **Sikkim IBA document** for possible publication by Department of IPR. Eleven (11) IBAs have been identified across the State and the same have been approved by the Government of Sikkim. An Office Order regarding this has been prepared for dissemination.

Sikkim Biodiversity Strategy and Action Plan (SBSAP): National BSAP process was initiated in September 2000 after state government approval. State Forest Department reached out to all sections of public across the State by a publicity blitzkrieg through newspapers, A.I.R., Cable TV media followed by public hearings and Biodiversity Festivals deep in rural areas in a massive participatory effort to formulate the SBSAP. The 1st state level steering committee (SSC) meeting was held at Gangtok in August 2001. The 2nd SSC meeting was held in December 2001 to finalize the Government SAP (GSAP). Community SAP (CSAP), (public hearings in 40 locations) was then condensed through informal brain storming sessions involving all the stakeholders to synergize the CSAP and GSAP into one holistic SAP. CSAP+GSAP led to Sikkim State BSAP. The Draft SBSAP was widely circulated on CDs and in four local languages, Nepali, Limboo, Bhutia and Lepcha (printed and released officially on occasion of State Biodiversity Park inauguration by HCM at Damthang, South Sikkim on 29th

April 2003). Final comments from NBSAP authorities, local informal brain storming with villagers as well as experts from the department (APCCF Mr. T. R. Poudyal IFS, CCF Mr. M. L. Arrawatia IFS and CF (T) Mr. S. B. S. Bhadauria IFS) and other agencies were all incorporated in the Final Draft. This document has just been printed and awaiting release during an appropriate function in 2004.

Reconnaissance for EIA & EMP for Pakyong Airport Project: Final Report has been compiled based on field visit (with Addl. Directors Research and Ecotourism Mr. Bejoy Gurung SFS and Mr. S. Z. Lucksom SFS respectively), appropriate references from the Sikkim IBA document and other biodiversity related information from this area, in as detailed manner as possible under the circumstances. Appropriate assessment and mitigation measures have been proposed. The document has been handed over to the senior forest officials namely Mr. Thomas Chandy IFS and Dr. Anil Mainra IFS for formulation and compilation of the Pakyong Airport Environment Impact Assessment and Environment Management Plan.

WPA Biomass Extraction ('Bush-Meat') Survey, Rongli, East Sikkim: A collaborative survey of 10 remote villages and 21 households in East Sikkim bordering the Pangolakha Wildlife Sanctuary was carried out in May 2004 with World Pheasant Association's South Asia Regional Office (WPA-SARO) scientists Mr. Hilaluddin and Dr. John Taylor, a local school teacher Mr. Sanjay Acharya and his ex-student from Sudunglakha School, for information on the extent of dependence of the local people on natural resources of the area. (The WPA scientists also conducted a census of the birds of proposed Kitam Wildlife Sanctuary.) The final report by WPA is awaited.

Scientific Papers / Posters presented:

BNHS Journal Centenary Seminar 2003, IIT, Powai, Mumbai: Conservation Strategy for the Alpine Grasslands of Sikkim.

3rd International Galliformes Symposium 2004, WII, Dehradun and Corbett National Park, Uttaranchal: (i) An Overview of Galliformes Conservation in Sikkim, (Oral Presentation) (ii) Tibetan Snowcock in Sikkim: Conservation and Management Concerns in proposed Tso Lhamo Cold Desert Conservation Reserve (Poster Presentation).

Biodiversity Articles published:

(2002): Biodiversity Strategy & Action Plan (BSAP) Process in North Sikkim. South Asia Perspectives on Ecotourism & Conservation 2002: 141-152. Edited by A. P. Krishna, P. D. Rai & J. Subba. Ecotourism & Conservation Society of Sikkim

(2002): Eurasian Eagle-Owl *Bubo bubo tibetanus* Bianchi at 2100m in North Sikkim. J. Bombay nat. Hist. Soc. 99 (2): 305-306

(2002) Ganguli-Lachungpa, U. and Bishnu Kumar Sharma: Himalayan marmot *Marmota bobak* (Muller) resighted after eight years at Kyongnosla Alpine Sanctuary, East Sikkim J. Bombay nat. Hist. Soc. Vol. 99 (2): 288

(2003) Ganguli-Lachungpa, U. and Bishnu Kumar Sharma (2003): *Common Coot Fulica atra* from Kyongnosla in East Sikkim. *J. Bombay nat. Hist. Soc.* Vol 100 (1): 121

Sharma, T. and Usha Lachungpa (2003): *Alpine Grasslands in North Sikkim*. *Sikkim Akademi Annual Journal 2002-2003*. Pp. 122-128. Ed. Dr. Vatshagopal. Publisher Sikkim Akademi, Old Council House, Gangtok 737 101

A. Sanjoy and Usha Lachungpa (in press): *Traditional Standing-Crop Protection Techniques of Selected Villages of Rongli, East Sikkim, India*. Accepted for *Sikkim Akademi Annual Journal 2004*

12. State Representative of IUCN's Equid Specialist Group and Pheasant Specialist Group (2 years): Sr. Research Officer (WL) was State Representative of IUCN's Equid Specialist Group and Pheasant Specialist Group for 2 years

13. Conservation and Sustainable Utilization of Medicinal Plants of Sikkim (CSUMPS): Coordinated for 4-language translation and printing of Call For Participation for medicinal plant action plan project through Education Department officials, conducted field work in North Sikkim and assisted in drafting Action Plan with DFO Mr. Sandeep Tambe IFS and Mr. M. L. Arrawatia IFS.

B. Extension & Education:

a Awareness articles: *Rare and Endangered Animals of Sikkim, Feathered Songsters, Glass Snake, Kinnow Orange, Flying Squirrel, Dokpas, Tibetan Mastiff, Yarcha Gombuk, Vanishing Legume, Yaks, Stray Dogs, Alpine Grasslands, Himalayan Bullfrog, Dragonflies, Singing Tree, Dying Lake Gyam Tsona, Migratory Birds, Vanishing Vultures, Wildlife Trophy Collection banned, 3rd International Galliformes Symposium, Sikkim Snow Toad, Last Lynx, Cold Desert Conservation Reserve.*

b) Talks, Slide-shows, Lectures at SGMI-Gangtok, AIR-Gangtok, HDFS Children's Village Rongnek, Deorali Girls' SSS, Biodiversity & Cultural Mapping: Culture Dept., Rolep village; Workshop on documentation of Historical monuments at SLAssembly, Sudunglakha Secondary School, PNGSS School, TAAS trainees, Police trainees

c) Publications: Edited brochure on Barsey Rhododendron Sanctuary, Ecotourism Booklet, Assisted with Nepali Bird Book project of CEE, Bird, Mammal, Flower Posters on KBR by TMI

d) Photographs: Re-printing of all old print negatives, filing/documentation of prints, enlargements of wildlife / habitat prints and Display in wall cabinet in forest Annexe Building, Deorali

Articles in Media:

(2001): *Rare and Endangered Animals of Sikkim and their Conservation Status today*. *Gangtok Times* Vol. 5(2): 4

(2001): *Feathered Songsters*. *Weekend Review 2001: Vol. 2(49): 7*

(2001): *Sikkim's Feathered Songster-II: Gone cuckoo*. *Weekend Review 2001 Vol. 2(15): 7*

- (2001): *The Snake That Blinked: Weekend Review* 2001 Vol. 3(5): 7
- (2001): *Yak or The 'Grunting Ox'. Sikkim Today* 2001: 72-73
- (2001): *Yaks in Sikkim. Wichar* 2001 Vol. 6(16): 4
- (2002a): *Dying Dokpas of North Sikkim: Gangtok Times* 2002 Vol.6 (3): 6
- (2002b): *Dying Dokpas of North Sikkim-II: The Lhonak tragedy. Gangtok Times. Vol. 6(4): 6*
- (2002): *The last of 'Dokhyi' or 'Phyu-ki', (The Tibetan Mastiff) Sheep- Dog. Sikkim Express Vol.26 (3): 1, 4 and in Weekend Review. Vol. 3(27): 19*
- (2002) *One more exotic species finds foothold in Sikkim Weekend Review Vol. 1(5): 6*
- (2002) *Flying Squirrel Sighted in Gangtok. Weekend Review Vol. 1(6): 12*
- (2002) *The Little Studied Caterpillar Fungus 'Yarcha Gombuk' in Sikkim. Weekend Review Vol. (14): 11*
- (2002): *Sikkim's Vanishing Legume, the giant Lachung Tibi Phaseolus coccineus. Weekend Review Vol. (22): 8*
- (2002) *The Last Tibetan Mastiff is no more. Now! Vol. 1(14): 12*
- (2002) *Yak without Passports in Shangrila. Now! Vol. 1(15): 9*
- (2002) *Did Non-Locals Feast on the Last Surviving Tibetan Mastiff. Now! Vol. 1 (16): 12*
- (2003): *Stray Talk. Now! Vol. 1 (31): 5; February 4th*
- (2003): *A Study of Alpine Grasslands in North Sikkim. Weekend Review. Vol. 1 (9): 7; Feb 7-13th; Sikkim Herald Vol. 47(5): 7; February 7th*
- (2003): *Our Frog Laid eggs. Now! Vol. 1(37): 5; March 18th. Weekend Review Vol. 1 (45) : 20; March 21-27th*
- (2003): *Tigers of the Air. Now..... And in Weekend Review Vol. 1 (51): 8; May 2-8th*
- (2003) *Singing tree. Now! Vol. 1 (32): 6; Feb 5-11th*
- Sikkim's Dying Ocean Gyam Tsona**
- (2004) *Take Time, Look Up. Now. Vol.2 (45):2; March 20th and in Sikkim Herald. Vol.48 (13):4; March 25th*
- (2004) *Our Vanishing Vultures. Now. Vol. 2 (46):2; March 21st*
- (2004) *No Collecting Nyen anymore. Now. Vol. 2 (47): 3; March 22nd*
- (2004): *No chickening out on protection of Galliformes: Sikkim at the 3rd International Galliformes Symposium. Now! Daily. Vol. 3 (35): 6; May 5th and in 'Third International Galliformes Symposium 2004'. Sikkim Herald. Vol. 48 (20): 4; May 14th*
- (2004) *Sikkim Snow Toad, World's Highest Amphibian? Now! Daily. Vol.3 (77): 2; June 20th and in Sikkim Today (A quarterly magazine of Sikkim) Vol. IV. (1) 40 July-September 2004 and in Sikkim Herald. Vol. 48 (26): 2; June 24th*
- (2004) *Last Lynx? A Sad New Record for Sikkim. Now. Vol. 3 (101): 8; July 17th and in Sikkim Herald. Vol. 48 (31): 6; July 29th*
- 29.(2004) *A Cold Desert Conservation Reserve in Sikkim. Sikkim Express. Vol. XXVIII (205): 2; August 24th and in Now! Daily Vol. 3 (130): 2&6; Aug 24th*

18. STATE MEDICINAL PLANT BOARD

A National Level Body as Medicinal Plant Board was set up vide Resolution No. 18020/19/97 dated 24 November 2000 by the Department of Indian System of Medicine & Homeopathy, Ministry of Health and Family Welfare, Government of India to look after formulation of Policy, Overall coordination and to ensure sustained availability of medicinal plants, their in-situ and exsitu conservation and to harness their export potential.

Subsequently, the State Government of Sikkim constituted the State Medicinal Plants Board vide Notification No. 100/FEWD dated 10.06.2002 under the chairmanship of the Chief Minister and the Minister, Forests, Environment and Wildlife as Vice Chairman, members drawn from departments like Health and Family Welfare, Science and Technology, Agriculture, Horticulture, Forest, members from Regional Research Centre (Ayurvedic), Botanical Survey of India and two non official members. The Principal CCF-cum-Secretary Forests was appointed as the Chief Executive Officer and Member Secretary of the Board. Standing Finance Committee and Technical Advisory Committee were constituted under the chairmanship of the Principal CCF-cum-Secretary forests under the State Medicinal Plants Board.

The State Medicinal Plant Board has been constituted oversees formulation of projects/schemes related to medicinal plants, implementation of such schemes for cultivation of medicinal plants, their collection, storage and marketing, research, protocol for cultivation and quality control and protection of Intellectual Property Rights and other issues related to the medicinal plants.

The National Medicinal Plant Board under the Ministry of Health and Family Welfare, Department of Indian System of Medicine & Homeopathy has 13 project proposals submitted by Forests, Environment and Wildlife Department, Government of Sikkim with total financial outlay of Rs. 274.00 lakhs out of which Rs. 115.00 lakhs has been released for taking up the project for the year 2002-2003. Project locations, project cost and amount released by Government of India for first year's operation are as follows.

Sl. No.	Project Location	Project Cost (Rupees in Lacs)	Project Duration	Amount Released by Govt. of India (Rupees in Lacs)
1	Dombang, North Sikkim	20.00	3 years	08.00
2	Thangu Forest, North Sikkim	25.00	3 years	08.00
3	Zema Forest, North Sikkim	25.00	3 years	08.00
4	Rateychu Forest, East Sikkim	21.00	3 years	08.00
5	Tamze Forest, East Sikkim	23.00	3 years	08.00
6	Pangolakha Forest, East Sikkim	20.00	3 years	08.00
7	Tendong Biodiversity Park, South Sikkim	20.00	3 years	08.00

Sl. No.	Project Location	Project Cost (Rupees in Lacs)	Project Duration	Amount Released by Govt. of India (Rupees in Lacs)
8	Rabongla Forest, South Sikkim	20.00	3 years	09.00
9	Kitam South Sikkim	20.00	3 years	10.00
10	Menam Wildlife Sanctuary, South Sikkim	20.00	3 years	10.00
11	Guransey/Nunthaley, West Sikkim	20.00	3 years	10.00
12	Khechoperi/Chhangey, West Sikkim	20.00	3 years	10.00
13	Barsey Rhododendron Sanctuary, West Sikkim	20.00	3 years	10.00
	Total	274.00		115.00

In addition to above, the National Medicinal Plant Board has sanctioned Rs. 10.00 lacs for strengthening the State Medicinal Plant Board.

State Medicinal Plant Board has approved the proposal for creation of herbal gardens at 13 specified locations all over the state and first phase of works are already under progress. Once these herbal gardens are established, the people of Sikkim especially farmers can also cultivate these medicinal plants by obtaining planting materials from these herbal gardens.

Sikkim harbours over 1200 medicinal plants out of which only 424 species have been identified and documented. Identification and documentation of the remaining species will also be taken up on priority.

The financial progress of the project till 31st march 2003 (First Year) is as follows.

Financial Rupees in lakhs

Sl. No	Project Location	Project Cost	Project Duration (2002-05)	Amount released till 31.3.2003	Spent upto 31.3.2003
1	Dombang/Zyakuphuyak North Sikkim	20.00	3 years	14.50	8.32
2	Thangu Forest, North Sikkim	25.00	3 years	16.00	8.10
3	Zema Forest, North Sikkim	25.00	3 years	16.00	8.10
4	Rateychu Forest, East Sikkim	21.00	3 years	15.00	7.87
5	Tamze Forest, East Sikkim	23.00	3 years	16.00	7.85
6	Pangolakha Forest, East Sikkim	20.00	3 years	14.00	7.89
7	Tendong Biodiversity Park, South Sikkim	20.00	3 years	13.00	7.47
8	Rabongla Forest, South Sikkim	20.00	3 years	14.00	8.45
9	Kitam South Sikkim	20.00	3 years	15.00	7.14
10	Menam Wildlife Sanctuary, South Sikkim	20.00	3 years	15.00	7.14
11	Guransey/Nunthaley, West Sikkim	20.00	3 years	15.00	9.47
12	Khechoperi/Chhangey, West Sikkim	20.00	3 years	15.00	7.48
	Total	254.00		178.50	95.28

Status Report on Development of Medicinal Plants under State medicinal Plants Board

The Government of India, Ministry of Health and Family Welfare, Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy (AYUSH), National Medicinal Plants Board, has conveyed sanction of 13 (Thirteen) Nos. of Project Proposal submitted by the Forest, Env. & Wildlife, Department, Government of Sikkim, for Rs. 274.00 lakhs in respect of Ex-situ and In-situ Cultivation of Medicinal Plants and Rs. 10.00 lakhs for strengthening of Nucleus Centre. The detail of receipt of fund by the State Medicinal Plants Board, Sikkim for the year 2001 - 2003 and 2003 - 2004. The detail statement of receipt of fund, expenditure and proposed amount to be sanction by the Board for 13 (Thirteen) Nos. of Project Proposal & establishment of Nucleus Centre (SMPB) have been workout and enumerated as under.

SL NO	Project NO.	TITLE OF PROJECT (Herbal Gardens)	Project Period Years	Total Amt. Sanctioned (Rs. in lakh)	Amount released in Ist & 2nd Installment (Rs. in Lakh)	Expenditure as on 31st March, 2004 (Rs. In lakh)
1	2	3	4	5	6	7
1	104/2002	Ex situ conservation of medicinal plants and other activities in Dombang Valley/Ziakhuphyak forests in N. Sikkim	2002-03 TO 2004-05	20.00	14.50	14.32
2	105/2002	Ex situ conservation of medicinal plants and other activities in Thangu forests in N. Sikkim	DO	20.00	16.00	16.10
3	106/2002	Ex situ conservation of medicinal plants and other activities in Zema forests in North Sikkim	DO	20.00	16.00	16.10
4	107/2002	Ex situ conservation of medicinal plants and other activities in Rateychu forests in East Sikkim	DO	20.00	15.00	14.87
5	108/2002	Ex situ conservation of medicinal plants and other activities in Tamze forests in East Sikkim	DO	20.00	16.00	15.85
6	109/2002	Ex situ conservation of medicinal plants and other activities in Kyongnosla forests in East Sikkim	DO	20.00	14.00	13.89
7	115/2002	Ex situ conservation of medicinal plants and other activities in State Biodiverssity Park South Sikkim	DO	20.00	13.00	12.47
8	116/2002	Ex situ conservation of medicinal plants and other activities in Samduptse forests in S. Sikkim	DO	20.00	14.00	13.45

<i>SL NO</i>	<i>Project NO.</i>	<i>TITLE OF PROJECT</i> (Herbal Gardens)	<i>Project Period Years</i>	<i>Total Amt. Sanctioned (Rs. in lakh)</i>	<i>Amount released in Ist & 2nd Installment (Rs. in Lakh)</i>	<i>Expenditure as on 31st March, 2004 (Rs. In lakh)</i>
9	117/2002	<i>Ex situ conservation of medicinal plants and other activities in Kitam forests in South Sikkim</i>	DO	20.00	15.00	11.00
10	118/2002	<i>Ex situ conservation of medicinal plants and other activities in Menem Wildlife Sanctuary in South Sikkim</i>	DO	20.00	15.00	11.00
11	119/2002	<i>Ex situ conservation of medicinal plants and other activities in Gurasey/Nunthaley forests in West Sikkim</i>	DO	20.00	15.00	14.00
12	120/2002	<i>Ex situ conservation of medicinal plants and other activities in Yuksom/Khechoperi forests in West Sikkim</i>	DO	20.00	15.00	12.48
13	121/2002	<i>Ex situ conservation of medicinal plants and other activities in Barsey Rhododendron Sanctuary in West Sikkim</i>	DO	20.00	15.00	12.14
		<i>B) Nucleus Centre</i>			10.00	7.57

(I) Status including demand and supply position of identified species in the State:

1. The Sikkim Himalaya represents extremely unique eco-system rich in medicinal plant wealth associated with Ayurveda, Folk, Homeopathy, Siddha, Amchi (Tibetan) and Unani system of medicines. It is reported to have more than 424 species of various medicinal plants, which have strong traditional system of medicines in Sikkim. As such the medicinal plants have traditionally occupied an important position in the socio-cultural, spiritual and medicinal arena of the people in the State. Due to the growing demand and importance of medicinal plants and their wide spread in the revitalization of local health tradition, it has become rather imperative to undertake thorough study, identification, survey, documentation and research. This could be achieved by conducting extensive field surveys of their availability of in the forest and outside forest areas. This endeavor, interalia, involves a fairly accurate and precise assessment of their demand & supply position including their markets and pricing. A comprehensive study has been conducted by the SMPB to assess the commercial potential of various medicinal plants, to gather a reliable data on the existing demand and supply position and price mechanism duly involving existing growers, primary collectors, traders and user networks; thereby covering the entire conceivable value chain.

(a) The following mechanism was adopted by the SMPB for assessment of demand and supply of medicinal plants:

Initially, a baseline data register with different formats for catering to the needs of inventory enumeration records and collection of data from different stakeholders, through effective consultative process was prepared and adopted. The following stake holders were consulted during the process of collection of data base for identification of economically important species of medicinal plants with regards to potency and consequent value of the plants in terms of its value in usages and marketing potentials, demand and supply situation and pricing:

Forest Department Officials including the forest guards, nursery malies, watch and wards having proven good knowledge in the field.

Members of Joint Forest Management Committees (JFMCs), Eco-Development Committees (EDCs), Self-Help Groups (SHGs), Watershed Development Committees (WDCs).

Panchayats through distribution of Bio-diversity registers to enable them to identify and record every species of medicinal plants resources found and located in their respective areas and to record details of people practicing in local health tradition.

Traditional medical practitioners, institutions & associations of codified & folk system of medicine like Ayurvedic, Amchies, Folk Healers like traditional berth attendants, local bone setters, snake/ scorpion/poison healers, herbal healers engaged in providing relief to rural people suffering from common ailments like cold & cough, diarrhea, bronchitis, routine skin and eye irritations, veterinary healers etc.

NGOs and local growers with proven aptitude for promotion of traditional medicine through cultivation and domestication of medicinal plants.

Herbal manufacturers and community based herbal collectors.

Traders associated with medicinal plants trade.

Research organizations, R&D centers,

All 13 Principal and Co-Principal Investigators of Herbal gardens, Territorial Divisional Forest Officers, concerned Forest Range officers attached with Non-Timber Forest Produce Division, other personnel of SMPB, members of the Self-help groups; Panchayats, JFMCs, EDCs, WDCs; enthusiastic farmers, collectors, traders, manufacturers.

Assessment and preparation of database for inventory of prioritized species of medicinal plants, its usages, demand and supply was undertaken through an effective and intensive consultation with the different stake holders as categorized above.

Traditional health knowledge data was collected on the basis of preventive, promotive and curative practices reflected in local home remedies, health related customs etc.

Field level surveys and identification of the economically important species in consonance with the demand and supply data were carried out in all four districts of the State. In this

exercise, practically all the villages where farmers, collectors, traders and local health practitioners operating in the field in question were contacted and consulted.

References received from herbal drug manufacturers like Zandu Pharmacy, Good Health (P) Ltd, Dabur Ltd., etc. for supply of identified raw drugs from the State through the SMPB have also been taken into account.

(II) Registration mechanism of cultivators, traders and manufacturers in Sikkim state under SMPB:

The SMPB has broadly followed the mechanism formulated and issued by the National Medicinal Plants Board (NMPB) pertaining to registration of all type of stakeholders, viz, farmers, collectors, traders and manufacturers of medicinal plants with a view to regulate, organize and develop the medicinal plants sector in the State. The broad procedure adopted in this regard is as under:

Finalization of application format to be filled up by the applicants/ stake holders and Registration Certificate for use by the SMPB. One copy each of the above is enclosed for reference.

The completed application forms in four copies have to be submitted in the office of the SMPB.

The request for registration with SMPB by the stake holders in the above referred format are received by the SMPB. The DFO (NTFP) & Nodal Officer, SMPB gets the information and other details indicated in the application form verified by the respective Territorial Forest Divisions or the nearest Principal/Co-Principal Investigator of Herbal Garden of SMPB duly involving the JFMCs, EDCs, WDCs and local Panchayat. The applicants are also required to make available requisite identification certificate and land holding ownership document pertaining to the project land duly authenticated by the respective District Collect orate.

The applications are then scrutinized by the SMPB in the light of observations, comments and recommendations of the concerned authorities referred as above. In the event of their being found in order, the Nodal Officer, SMPB forwards the same with his comments/ recommendation to the Chief Executive Officer - cum - Member Secretary, SMPB for his consideration and approval.

After obtaining the approval of the CEO/ M.S., SMPB, the applicant is registered with SMPB and a formal Registration Certificate is thereafter issued by the Nodal Officer, SMPB.

Registration fee of Rs.50/- per year with renewal charges of Rs.25/- is charged from the applicants for the same by the SMPB.

(III) Potential areas for project formulation:

a) Growth and development of medicinal plants sector in the state to tie up cultivators with traders and manufacturers with assured buy-back arrangements.

As on date, a total of 225 farmers/ growers/ collectors/ traders and manufacturers have been registered with the SMPB. Most of the farmers/ growers are keen on cultivation of medicinal plants in their lands. 8 farmers have already submitted their project proposal of contractual farming to the NMPB for seeking admissible financial assistance. In this regard, based on the response of other many farmers, it is hoped that about 50 of them would come forward for assistance under the contractual farming scheme. The SMPB has assisted the farmers in tying up with the traders and manufacturers for assured buy back arrangement who have submitted their proposals under the contractual farming scheme. The future growth in this regard greatly depends on the outcome of this initiative of the first set of applicants.

Good Health (P) Ltd, a leading herbal drug and cosmetics manufacturer, has recently established their small scale unit at Bordang, East Sikkim. The unit has approached the SMPB for additional supply of raw material on regular basis for their unit. Considering the unprecedented success in their endeavor, the promoters are actively considering to expand their unit and operations in the State.

Enquiries received from large herbal drug manufacturers, pharmaceutical industries like Zandu Pharmacy, Dabur Ltd., etc. for establishment of drug processing units in the State are under active consideration of the SMPB/ State Government. This initiative would not only provide an assured market/ buy back arrangement on commercial basis for the cultivators and traders of locally produced medicinal plants and herbs but also help in their value addition. The SMPB is in the process of contacting other medium and major herbal traders and manufacturers for establishing their units/ sub units in the State. In this regard, the SMPB is particularly hopeful of establishment of a medium sized processing unit of Zandu Pharmacy very shortly. There are few manufacturers in neighboring State of West Bengal who are keen to set up their Drug Processing units in Sikkim with assured buy-back arrangement.

(b) Extension activities.

8. *The development of medicinal plants sector with a view to utilize it on commercial lines on sustainable basis in a State like Sikkim is neither feasible nor viable without massive public involvement and willing support. This process also ensures protection of natural habitat by local communities and its accelerated coverage on their lands as alternative cash crops. In order to ensure this aspect including successful domestication and farming of medicinal plants on*

private land areas as alternative cash crops as a movement the SMPB has organized and conducted 17 extension and awareness programmes at Gangtok, Kyongnosla, Zema, Thongoo, Damthang, Karfectar, Bagua, Barsey, Khechhiphery, Mainam, Guransay, etc. for the benefit of various individuals/ agencies villagers/ farmers of neighboring areas/ Panchayats. Following inputs were the central theme of these programmes.

To convince them on good financial returns on medicinal plants cultivation on their private lands and to adopt this practice as an alternate cash crop cultivation.

To encourage them to establish herbal farms for commercial cultivation of indigenous species of medicinal plants in their private lands duly utilizing the expertise and guidance of the SMPB.

To motivate them for providing reliable and accurate information for incorporation in the "Base Line Data Register" and "Panchayat Bio-diversity Register" available with the Panchayats/ Field Officials.

To utilize better agro techniques in consultation with the SMPB with a view to obtain optimum output.

To intimate SMPB on out break of plant pests and other diseases, if any.

To freely consult the SMPB for any technical input required for production of quality planting material, cultivation techniques its maintenance.

c) Training of Stakeholders:

The success of development of medicinal plants mission primarily depends on the effective & vibrant involvement and initiative of stakeholders. Duly realizing this, the SMPB has organized several training programmes and workshops to promote technology and knowledge to the stakeholders like field functionaries of the state forest department, training of community based Para-taxonomists, tribal and other forests dwellers. These programmes were primarily focused on:

Identification, selection and availability of prioritized medicinal plants of their areas.

Cultivation techniques of high and low altitude medicinal plants including creation of nursery by adopting improved technologies for production of quality planting materials, techniques for raising medicinal plants in different agro-climatic zones. Developed printed reading materials in local language.

Raising awareness among the stake holders through 13 Herbal Gardens established by the SMPB and Medicinal Plants Awareness Center (Jari Buti Chetna Kendra).

Training for maintenance, harvesting, post-harvesting and storage of medicinal plants.

Exposing them through Herbarium and Raw Drug Museum, printed material, photographs, live specimen material developed for agro-techniques.

Motivating them for their willing cooperation and active involvement in creation of Home Herbal Gardens in every Panchayats unit.

Explaining the need, importance and requirement of proper preparation and periodic updating of Bio-diversity Register and Base Line data Register.

(IV) 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-the-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 SMPB 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 programmes. 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. However, to make this facility tuned to the requirements of SMPB, the same would need further strengthening duly recognizing it to be a centre of excellence.

19. NATIONAL AFFORESTATION PROGRAMME

Implementation of National Afforestation Programme funded by the Ministry of Environment and Forests, Government of India, through Forest development Agencies, Joint Forest Management Committee and Eco-Development Committees.

The Ministry of Environment and Forests, Government of India has sanctioned seven projects in Sikkim under Integrated Afforestation Scheme. These projects are being implemented by Joint Forest Management Committees and Eco-Development Committees under seven Forest Development Committees. The physical and financial targets of the projects are given in following table. Three of the seven projects are being implemented in the fringe villages of the protected areas for a period of five years at a cost of Rs. 840.88 lakhs by the following Eco-Development Committees in an area of 5200 hectares.

FDA Projects Under Wildlife Circle

PHYSICAL AND FINANCIAL TARGETS OF FDA PROJECTS IN SIKKIM (Wildlife)

No.	Name of FDA	2002-2003		2003-2004		2004-2005		2005-2006		2006-2007		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Noth-East Wildlife FDA												
	Low Altitude	0	48.50	425	55.27	375	44.62	275	36.72	275	21.94	1350	207.05
	High Altitude	0	38.20	285	38.06	145	29.12	120	24.48	100	12.68	650	142.54
	Sub-Total	0	86.70	710	93.33	520	73.74	395	61.20	375	34.62	2000	349.59
2	South-West Wildlife FDA												
	Low Altitude	0	140.93	210	116.27	0	24.10	0	17.48	0	10.24	2100	309.02
	High Altitude	0	0	0	0	0	0	0	0	0	0	0	0
	Sub-Total	0	140.93	210	116.27	0	24.10	0	17.48	0	10.24	2100	309.02
3	Khangchendzonga National Park FDA												
	Low altitude	0	0	0	24.00	300	35.24	300	25.34	100	12.44	700	97.02
	High Altitude	0	0	0	14.00	100	40.05	300	23.42	0	7.78	400	85.25
	Sub-Total	0	0	0	38.00	400	75.29	600	48.78	100	20.22	1100	182.27

<i>Sl.No.</i>	<i>Name of the Protected Area</i>	<i>Name of FDA</i>	<i>Name of EDC</i>
	<i>Khangchendzonga National Park</i>	<i>KNP FDA</i>	<i>Formation of EDC under process.</i>
	<i>Shingba Rhododendron Sanctuary</i>	<i>North-East Wildlife FDA</i>	<i>1. Singhba Faka</i>
	<i>Fambonglho Wildlife Sanctuary</i>	<i>North-East Wildlife FDA</i>	<i>1. Sumik 2. Tumin 3. Samdong 4. Rakdong 5. Martam 6. Sang 7. Ranka 8. Ray 9. Rumtek</i>
	<i>Kyongnosla Alpine Sanctuary</i>	<i>North-East Wildlife FDA</i>	<i>1. Kyongnosla 2. Changu</i>
	<i>Pangolakha Wildlife Sanctuary</i>	<i>North-East Wildlife FDA</i>	<i>1. Dalapchan 2. Regu 3. Phadamchen 4. Singaneybans</i>

- | | | | |
|----|--------------------------------------|--------------------------------|--|
| 6. | <i>Maenam Wildlife Sanctuary</i> | <i>South-West Wildlife FDA</i> | <ol style="list-style-type: none"> 1. Sada Phamtam 2. Borong 3. Ralang 4. Rabongla 5. Pathing 6. Yangang 7. Lingmo 8. Sokpey |
| 7. | <i>Barsey Rhododendron Sanctuary</i> | <i>South-West Wildlife FDA</i> | <ol style="list-style-type: none"> 1. Ribdi 2. Sombaria 3. Soreng 4. Bermiok 5. Hee Patal 6. Dentam 7. Uttarey 8. Sribadam |

4126 families of the above villages are being involved in afforestation and other activities around the protected areas.

FDA Projects Under Territorial Circle

Four projects under Territorial Circle are being implemented in North, East, South and West districts of the state by 155 Joint Forest Management Committees for regeneration of the degraded forests adjacent to the villages. 10360 hectares of degraded forests in 250 revenue blocks has been earmarked for afforestation through these JFM Committees

PHYSICAL AND FINANCIAL TARGETS OF FDA PROJECTS IN SIKKIM (Territorial)

No.	Name of Project	2002-2003		2003-2004		2004-2005		2005-2006		2006-2007		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
4	<i>North (T) FDA</i>												
	<i>LA</i>	0	33.53	425	43.66	400	39.69	200	28.87	200	15.66	1225	161.41
	<i>HA</i>	0	71.13	600	76.44	375	62.98	250	52.12	250	29.77	1475	292.44
	<i>S-Total</i>	0	104.66	1025	120.10	775	102.67	450	80.99	450	45.43	2700	453.85
5	<i>East (T) FDA</i>												
	<i>LA</i>	0	56.00	475	57.21	415	51.81	365	44.29	345	25.65	1600	234.96
	<i>HA</i>	0	78.25	540	93.58	340	73.35	240	54.64	180	30.26	1300	330.09
	<i>S-Total</i>	0	134.25	1015	150.04	755	125.16	605	98.93	525	55.64	2900	565.05
6	<i>South (T) FDA</i>												
	<i>LA</i>	0	47.30	375	55.50	475	50.71	350	37.48	250	21.51	1450	212.50
	<i>HA</i>	0	54.30	340	61.38	230	54.84	225	44.51	155	22.50	950	237.52
	<i>S-Total</i>	0	101.60	715	116.88	705	105.55	575	81.99	405	44.01	2400	450.02
7	<i>West (T) FDA</i>												
	<i>LA</i>	0	34.59	400	44.29	350	34.23	175	26.19	175	15.14	1100	154.44
	<i>HA</i>	0	57.02	475	71.87	325	58.88	225	47.25	225	26.49	1250	261.51
	<i>S-Total</i>	0	91.61	875	116.16	675	93.11	400	73.44	400	41.63	2360	415.95
	<i>Total (T)/WL</i>	Adv w.	659.75	6440	750.78	3830	599.62	3025	462.81	2255	251.79	15560	2725.57

Formation of Joint Forest Management Committees (JFMCs)

Joint Forest Management Committees have been constituted in all the four FDAs under Territorial Circle. District wise JFMCs are as follows.

<u>District</u>	<u>No. Of JFMCs</u>	<u>Villagers Involved</u>
North	32	5180
East	49	15625
South	36	16889
West	<u>38</u>	<u>9515</u>
Total	155	47209

Fund for execution of the field work has been transferred to the Account of the respective JFMCs. All the field work is being executed by the JFMC members. Out of the total amount of Rs. 1884.87 lakhs approved by the Ministry of Environment and Forests, Government of India, 734.71 lakhs has been released for implementation of FDA Projects under Territorial Circle out of which, Rs. 373.29 lakhs has been spent and the remaining balance is being spent for field activities.

With 70% enhancement in the rate of daily wages from 1st April 2004, the projects under FDA have been revised and the proposal has been forwarded to the Ministry of

Environment and Forests, Government of India. The revised proposal is for Rs. 2709.81 lakhs as against the previous Rs. 1884.87 lakhs which is under consideration of the Ministry.



GOVERNMENT OF SIKKIM
FORESTS, ENVIRONMENT AND WILDLIFE MANAGEMENT DEPARTMENT
FOREST SECRETARIAT, DEORALI, GANGTOK, SIKKIM - 737102

No. 01/GOS/FEWMD.

Dated, 14th July 2004.

NOTIFICATION

To oversee and monitor the implementation of the projects under Forest Development Agencies by Territorial and Wildlife Circles of Forest, Environment and Wildlife Management Department, in the State of Sikkim sponsored by the Ministry of Environment and Forests, Government of India under national Afforestation Scheme (100% CSS), the Governor is pleased to constitute a State Level Committee comprising of the following.

1. Principal Chief Conservator of Forests-cum-Secretary : Chairman
2. Additional Principal Chief Conservator of Forests : Vice Chairman
3. Chief Conservator of Forests (Wildlife) : Member
4. Chief conservator of Forests (Territorial) : Member
5. Conservator of Forests (Wildlife) : Member
6. Conservator of Forests (Territorial) : Member Secretary

The Additional Principal Chief Conservator of Forests will be the Nodal Officer to co-ordinate with the Ministry of Environment and forests, Government of India and the respective Chief Conservators of Forests implementing National Afforestation Scheme in the State.

By Order.

(T.R.Sharma, IFS)
Principal CCF-cum-Secretary

Memo No. GOS/FEWMD.

Dated the 14th July 2004.

Copy to:

1. Addl. PCCF
2. Addl PCCF (Environment)
3. All CCFs
4. All ACCFs
5. All CFs.
6. All DFOs

Joint Secretary, Home Department for publication in the Official gazette.

P.S. to the Minister, Forest, Environment and Wildlife management, Mines & Minerals, Geology and Science & Technology for kind information of the Minister

(T.R.Sharma, IFS)
Principal CCF-cum-Secretary

20. Statement of revenues realised during last seven years.

Sl.No.	Financial Year	Estimated (in lakhs)	Realised (in lakhs)	Percentage	Remarks
1	1997-1998	170.00	137.76	81.04	Shortfall
2	1998-1999	140.70	159.63	113.45	Excess
3	1999-2000	145.00	411.63	283.61	Excess
4	2000-2001	145.00	639.32	440.91	Excess
5	2001-2002	200.00	664.77	332.39	Excess
6	2002-2003	438.00	7129.72	164.32	Excess
7	2003-2004	550.00	723.4	131.53	Excess

21. TRAINING AND EXTENSION

Refresher courses, short-term trainings and compulsory trainings are being attended by the officers of this Department regularly. 6(six) State Forest Service Officers attended various refreshers' Courses in Wildlife Institute of India, Dehradun, Nanda Devi Biosphere Reserve in Garhwal Hills, SFS College, Dehradun and Burnihat. 9 (nine) officers of the IFS cadre attended Compulsory Trainings in different Institutes in outside the state. One IFS and one SFS officer attended training abroad.

22. 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	1,317.00	8780.00
2.	1980-85	3332.65	676.35	4009.00
3.	1985-86	1,666.25	558.75	2225.00
4.	1986-87	1,470.00	490.00	1960.00
5.	1987-88	1,511.25	503.75	2015.00
6.	1988-89	1,616.25	538.75	2155.00
7.	1989-90	1,852.50	617.50	2470.00
8.	1990-91	3,416.25	1,138.75	4555.00
9.	1991-92	4,622.47	1,580.82	6203.29
10.	1992-93	5,484.00	1,828.00	7312.00
11.	1993-94	5,786.70	1,928.90	7715.60

<i>Sl. No.</i>	<i>Afforestation</i>	<i>Area in Hectares</i>		<i>Total Area</i>
		<i>Government land</i>	<i>Private land</i>	
12.	1994-95	6,900.00	2,300.00	9200.00
13.	1995-96	7,189.50	2,398.50	9588.00
14.	1996-97	7,500.00	2,500.00	10000.00
15.	1997-98	6,356.56	2,610.30	8966.86
16.	1998-99	7,537.00	500.00	8037.00
17.	1999-2000	6,923.00	4,183.00	11,106.00
18.	2000-2001	8,048.00	3,031.00	11,079.00
19.	2001-2002	6,217.00	2,483.24	8,600.24
20.	2002-2003	3,696.00	2,946.00*	6,618.00
21.	2003-2004	6125.19	1,732.00	7,857.19
Total :		1,04,713.57	35,838.61	1,40,552.18

* 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.

23. PLAN BUDGET ALLOCATION UNDER FORESTS, ENVIRONMENT AND WILDLIFE DEPARTMENT. (Amount Rs. In Lakhs).

<i>SN</i>	<i>FORESTRY AND WILDLIFE</i>	<i>10th Plan</i>	<i>2002-2003</i>	<i>2003-2004</i>
1	Direction & Administration	885.00	91.60	
2	Research	190.00	37.50	
3	Survey & Utilization of Forest Resources	300.00	80.35	
4	Statistics	150.00	21.75	
5	Forest Conservation Dev. & Regeneration	145.00	54.50	
6	Social and Farm Forestry	825.00	161.50	
7	Forest Produce (Logging)	10.00	8.00	
8	Extension & Training	30.00	6.00	
9	Other Expenditure	00.00	7.00	
10	Wildlife Preservation	265.00	50.70	
11	Development of HZP	200.00	51.10	
12	Public gardens	320.00	70.00	
4406- Capital Outlay on Forestry and Wildlife				
13	Communication & Building	180.00	39.50	
2501- Special programme of Rural Development				
14	Grants in aid to Zilla Panchayat	00.00	9.20	
TOTAL		3500.00	688.70	

(Amount Rs. In Lakhs).

<i>Sl.No</i>	<i>SOIL AND WATERCONSERVATION</i>	<i>10th Plan</i>	<i>2002-2003</i>	
<i>1</i>	<i>Direction & Administration</i>	<i>250.00</i>	<i>17.00</i>	
<i>2</i>	<i>Soil Conservation Measures</i>	<i>722.00</i>	<i>65.50</i>	
<i>3</i>	<i>Other expenditure</i>	<i>28.00</i>	<i>2.50</i>	
	<i>Total</i>	<i>1000.00</i>	<i>85.00</i>	

(Amount Rs. In Lakhs).

<i>Sl.No</i>	<i>ECOLOGY AND ENVIRONMENT</i>	<i>10th Plan</i>	<i>2002-2003</i>	
<i>1</i>	<i>Direction and administration</i>	<i>100.00</i>	<i>16.50</i>	
<i>2</i>	<i>Conservation Programmes</i>	<i>257.00</i>	<i>9.00</i>	
<i>3</i>	<i>Research and Ecological Regeneration</i>	<i>74.00</i>	<i>1.50</i>	
<i>4</i>	<i>Prevention of Air and Water Pollution</i>	<i>69.00</i>	<i>3.00</i>	
	<i>Total</i>	<i>500.00</i>	<i>30.00</i>	

24. RIVER VALLEY PROJECT DIVISION.

INFORMATION ON PROJECT UNDER IMPLEMENTATION.

- 1. Name of the Project= Reshi Khola Watershed Development, 100 % C.S.S.*
 - 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 Resources Management Divisions, Ministry of Agriculture and Cooperation, Government of India.*
 - 4. Funded from = Macro Management Mode in Agriculture.*
 - 5. Project Period = 2003-04 to 2007-08 (Approved in 2003)*
 - 6. Commencement = Financial Year 2003-04.*
 - 7. Water Shed Name = Sub-Watershed Code Tb3g of Teesta Catchment (Classified as High Priority Water Shed by AISLUS)*
 - 8. Total Project Cost= Rs.510 Lakhs.*
 - 9. Annual outlay approved for 2003-04 = Rs.58 lakhs.*
 - 10. Total fund provided for 2003-04 = Rs.20 lakhs.*
- Fund Channeled through= Agriculture Department, Government of Sikkim.*
- 13. Villages Covered = Boom Busty, reshi busty near Kaluk, West Sikkim.*
 - 14. Total no of Beneficiaries involved =*

<i>Agro Forestry</i>	<i>=78 persons</i>
<i>Horticulture Plantation</i>	<i>=82 persons</i>

Planting/Maintenance

Cost paid to beneficiaries=Agro Forestry=Rs.1000/-Each (1 unit of 250 plants for each Person)

Horticulture Plnt.=Rs.750/-each (1 unit of 300 plants for Each person)

16. *Species planted = Agro forestry = Kimbu (Mulberry)
Horticulture Pltn = Large Cardamom
Sowing & Planting = Rani Champ, Phusrey Champ,
Panisaj,Nevara, Acer, Lapsi, Tooni, Lampatey,
Arupatey, Neem,
Bakaina, Khamari, Pipli, Kainjal, Kawla etc.*
17. *Project Headquarter = Office of the Divisional Forest Officer,
River Valley Project Division,
Forest, Environment & Wildlife Management
Department,
P.S.Road, Gangtok, Sikkim.*

Activities Undertaken in 2003-2004(RVP Division).

I. Project Activities.

<i>Sl. No</i>	<i>Land Types</i>	<i>Items of Work</i>	<i>Location</i>	<i>Area covered</i>	<i>Rate per unit</i>	<i>Expenditure</i>
<i>A</i>	<i>FOREST LAND</i>	<i>1.Demarcation</i>	<i>Samdong R.F. Rishung R.F. Boom khasmal in West Sikkim</i>	<i>110 Hects.</i>	<i>Rs.110.00</i>	<i>Rs.12, 000.00</i>
		<i>2.Composite Nursery</i>		<i>110 Hects.</i>	<i>Rs.1, 950.00</i>	<i>Rs.2, 14,500.00</i>
		<i>3.Sowing and planting</i>	<i>Ratamatey(Samdong R.F.)Rishung R.S.and Boom khasmal</i>	<i>110 Hects.</i>	<i>Rs.3, 575.00</i>	<i>Rs.3, 57,500.00</i>
<i>B</i>	<i>AGRI LAND</i>	<i>4.Horticulture Plantation</i>	<i>Boom Busty, Reshi Busty</i>	<i>100 Hects.</i>	<i>Rs.3, 000.00</i>	<i>Rs.3, 00,000.00</i>
		<i>5.Afforestation /Agro Forestry.</i>	<i>Boom busty, Rishi Busty</i>	<i>280 Hects.</i>	<i>Rs.1, 200.00</i>	<i>Rs.3, 36,000.00</i>
			<i>TOTAL:</i>	<i>490 Hects.</i>		<i>Rs.12, 20,000.00</i>

II. Other Activities.

No	Sub Heads	Items of Works/expenditure	Work/expenditure details	Location	Expenditure
A	WORKS	1.Survey & demarcation, field investigation	Survey for preparation of project Report	Reshi Khola Sub Watershed in West Sikkim	Rs.40,000.00
		2.Entry Point Activities	Plantation of water retaining species	Natural water sources in Boom & Reshi Busty	Rs.20,000.00
B	Infra-Structure	3.Pay & Allowances i/e Head Quarters	a. Salary of M/Roll Staffs like LDC, Peons, Sweeper, Driver, Watchmen, Supervisor b. Purchase of Stationeries, furniture s for Div.office and its repair & renovation. c. Maintenance of vehicles and POL d. T.A.for field staffs.		Rs.5,00,000.00
		4.contingencies	a.Construction/ Laying of approach Paths b. Carriage/ Transportation of Seedlings	Plantation Sites in Samdong R.F. ,Rishung R.F.& Boom Khashmalin West Sikkim	Rs.80,000.00
		5.Hydrologic & Sediment Monitoring	Site development for establishing of sediment Monitoring Station	River bank at 2 points along Reshi LKhola	Rs.60,000.00
		6.Construction of Stores, Lab.Camps/h uts.	Construction of labourer's sheds, 5 nos.	Ratomatey RF, Rishung RF & Boom Khas	Rs.20,000.00
		7.Transfer of Technology, Training/ Workshop for staffs & Beneficiaries, Demonstrations, field Visits & services to NGOs.	a.Organising/ Video recording of meetings with villagers, beneficiaries, Panchayats. b. Purchase of gifts for NGOs.	Kaluk Sec. School, West Sikkim and Boom busty.	Rs.60,000.00
				Total:	Rs. 7, 80, 000.00

25. NURSERIES MAINTAINED BY FORESTS, ENVIRONMENT AND WILDLIFE DEPARTMENT DURING THE YEAR 2003-2004.

<i>Sl. No.</i>	<i>Name/Location of Nursery</i>	<i>Circle/ Division</i>	<i>District</i>	<i>Area in Hectare</i>	<i>Number of Labourers</i>	<i>Scheme under which engaged</i>
1	Labarbotey	SF(North)	North	1.00	5	CAT, TS V Project
2	Gnon Marsom	SF(North)	North	1.00	5	"
3	Gnon Sangdong	SF(North)	North	1.00	5	"
4	Gaidhara	SF(East)	East	2.00	8	"
5	B-II	SF(East)	East	2.00	9	"
6	Raksey	SF(East)	East	1.00	5	"
7	Tumin	SF(East)	East	1.00	5	"
8	Salingey	SF(East)	East	1.00	5	"
9	Dhanbari	LU&E East	East	2.50	12	CAT, TS V Project
10	Dipu Dara	LU&E East	East	1.00	5	"
11	Namprikdang	LU&E North	North	1.00	5	"
13	Gnon Sangdong	LU&E North	North	1.00	5	"
14	Phidang	LU&E North	North	1.00	5	"
15	Tanek	LU&E North	North	1.00	5	"
16	Chawang	LU&E North	North	1.00	5	"
17	Kyongnosla	EPC	East	1.00	5	EPC
18	Gangtok, Pinatum	EPC	East	0.40	2	EPC
19	Bulbulay	FCA	East	2.00	10	Comp. Afforestn.
20	Bharikhola	Silviculture	South	1.00	6	Research
21	Lingdok	Terri. (East)	East	6.00	13	CAT, TS V Project
22	Kabi	Terri. (North)	North	1.00	5	CAT, TS V Project
23	Chawang	Terri. (North)	North	1.00	5	CAT, TS V Project
24	Lingdong	Terri. (North)	North	2.00	10	CAT, TS V Project
25	Hee Gyathang	Terri. (North)	North	2.00	10	CAT, TS V Project
26	Mangan/Pakshap	Terri. (North)	North	2.00	10	CAT, TS V Project
27	Tingchim	Terri. (North)	North	1.00	4	CAT, TS V Project
28	Dara Chok	Terri. (North)	North	1.00	4	CAT, TS V Project
29	Hee Ringdem	Terri. (North)	North	1.00	5	CAT, TS V Project
30	Mom	Terri. (North)	North	1.50	7	CAT, TS V Project
31	Mirik Lakha	Terri. (North)	North	1.50	8	CAT, TS V Project
32	Rakdong/Burul	LU&E, East	East	2.60	13	State Watershed

Nurseries contd.

<i>Sl. No.</i>	<i>Name/Location of Nursery</i>	<i>Circle/ Division</i>	<i>District</i>	<i>Area in Hectare</i>	<i>Number of Labourers</i>	<i>Scheme under which engaged</i>
33	Gyalshing	LU&E, West	West	2.00	10	State Watershed
34	Bop	LU&E, North	North	1.50	7	"
35	Mamring	LU&E, South	South	2.00	10	"
36	Zaluk	IWDP East	East	1.00	5	IWDP CSS.
37	Rorathang	IWDP East	East	1.00	5	IWDP CSS.
38	Yumthang	Terri. North	North	0.60	3	State Plan
39	Karthok	Terri. East	East	1.00	5	State Plan
40	Sang	Terri. East	East	2.00	8	State Plan
41	Bagey Khola	Terri. East	East	1.60	6	State Plan
42	Sangkhola	SF(East)	East	1.50	5	FDA
43	Likchu Khola	SFEast)	East	1.00	4	FDA
44	Lower Martam	SFEast)	East	0.60	3	FDA
45	Salingey/Bagey	SFEast)	East	1.00	5	FDA
46	Assam Lingzey	SFEast)	East	1.50	7	FDA
47	Rorathang	SFEast)	East	0.80	4	FDA
48	Gurdum	SFEast)	East	1.00	3	FDA
49	Baluwakhani	SFEast)	East	0.40	2	FDA
50	Burtuk	SFEast)	East	1.00	4	FDA
51	Bagey	Terri (East)		1.50	6	FDA
52	Sang Herbal Nry	NTFP	East	2.50	11	FDA
53	Baluwakhani	NTFP	East	1.00	3	FDA
54	Kyongnosla	NTFP	East	2.60	6	FDA
55	Singtam	NTFP	East	2.00	10	FDA
56	Lachen Nursery	NTFP	North	0.80	3	FDA
57	Zegupeck/Lachen	NTFP	North	1.00	5	FDA
58	Rajay	NTFP	North	1.00	5	FDA
59	Kabi Namsing	NTFP	North	1.00	5	FDA
60	Munsithang	LU&E, North	North	2.50	13	FDA
61	Singring	LU&E, North	North	0.50	3	FDA
62	Rafom	LU&E, North	North	1.50	7	FDA
63	Pipaley	Terri North	North	1.00	5	FDA
64	Herbal garden	NTFP	South	0.40	2	FDA

Nurseries contd.

<i>Sl. No.</i>	<i>Name/Location of Nursery</i>	<i>Circle/ Division</i>	<i>District</i>	<i>Area in Hectare</i>	<i>Number of Labourers</i>	<i>Scheme under which engaged</i>
65	Dorali	NTFP	South	1.60	7	FDA
66	Sagbari	NTFP	South	1.00	6	FDA
67	Kamdaley	NTFP	South	2.40	12	FDA
67	Dorongpani	NTFP	South	1.90	9	FDA
68	Bhanjyang	NTFP	South	1.00	3	FDA
69	Melli	NTFP	South	2.00	10	FDA
70	Chirbireytar	NTFP	South	1.20	6	FDA
71	Bharikhola	NTFP	South	1.00	6	FDA
73	Tinkitam	NTFP	South	1.00	5	FDA
74	Tirchey	NTFP	West	1.00	5	FDA
75	Nunthaley	NTFP	West	2.00	6	FDA
76	Hee-Yangthang	NTFP	West	1.00	5	FDA
77	Rumbuk	NTFP	West	1.00	6	FDA
78	Yuksom	Terri.(West)	West	1.00	4	FDA
79	Tikjuk	Terri.(West)	West	1.00	5	FDA
80	Bega	Terri.(West)	West	1.50	5	FDA
81	Okhrey	Terri.(West)	West	1.20	7	FDA
82	Srithang	SF(West)	West	1.00	5	FDA
83	Kaluk	SF(West)	West	1.00	5	FDA
84	Burikhop	SF(West)	West	1.00	5	FDA
85	Baingtar	SF(West)	West	1.00	5	FDA
86	Simphu	SF(West)	West	1.20	5	FDA
87	Daramdin	LU&E(West)	West	1.50	7	FDA
88	Tikpur	LU&E(West)	West	1.50	7	FDA
	<i>Total</i>			<i>117.30</i>	<i>532</i>	

26. NATURAL RESOURCES OF SIKKIM AT A GLANCE

Fauna

- | | | |
|----|--------------------|---------------------|
| 1. | <i>Mammals</i> | <i>150+ species</i> |
| 2. | <i>Birds</i> | <i>550+ species</i> |
| 3. | <i>Butterflies</i> | <i>650+ species</i> |
| 4. | <i>Reptiles</i> | <i>33+ species</i> |
| 5. | <i>Frogs</i> | <i>16 + species</i> |

Flora

- | | | |
|----|---------------------------------------|----------------------------------|
| 1. | <i>Orchids</i> | <i>550 species (95 genera)</i> |
| 2. | <i>Rhododendron</i> | <i>36 species (45 varieties)</i> |
| 3. | <i>Flowering Plants</i> | <i>4000 species</i> |
| 4. | <i>Conifers</i> | <i>9 species</i> |
| 5. | <i>Ferns & Allies</i> | <i>300 species</i> |
| 6. | <i>Medicinal Plants
and herbs</i> | <i>Plenty (Not enumerated)</i> |

Mountains etc.

- | | | |
|----|--------------------------------|-------------------|
| | <i>Mountains and
Peaks</i> | <i>28 Number</i> |
| 2. | <i>Glaciers</i> | <i>21 Number</i> |
| 3. | <i>Lakes</i> | <i>180 Number</i> |
| 4. | <i>Rivers and
Streams</i> | <i>104 Number</i> |

RESTRICTED TREES (not notified)

Dar
Juniper
Mel
Bahuni Kath
Rani Champ
Jat Katus (Musurey
Khamari
Tooni
Panisaj
Sisum
Juniper
Mel
Bahuni Kath
Rani Champ
Jat Katus (Musurey)

PROTECTED TREES (not notified)

Malagiri

Yew Tree

Chimal (all kinds)

Gurans (all kinds)

Chewri

Tamala (Cinnamomum zylanicum)

Kimbu

Sinkauli

Amala

Harra

Barra

Bar (Ficus bengalensis)

Pipal (Ficus religiosa)

Labar (Ficus elastica)

Siltimbur and any other species, which may be included from time to time.

LIST OF HIGH ALTITUDE ALPINE TIBETAN MEDICINAL PLANTS

Cupressus torulosa

Sophora florescens

Rhodendron cephalanthum

Savina recurva

Pterocarpus hookeri

Rhododendron campanulatum

Aristolochia saccata

Melothria heterophylla

Setaria glauca

Meconopsis sp.

Gentiana tibetica

Lancea tibetica

Gentiana dahurica

Rhodiola saera