

# **GREEN STATE- POLICIES, VISION, PROGRAMME & INITIATIVES FOR SUSTAINABLE DEVELOPMENT IN SIKKIM**

**\* Under the able leadership of Dr. Pawan Chamling Chief Minister Sikkim, India\***

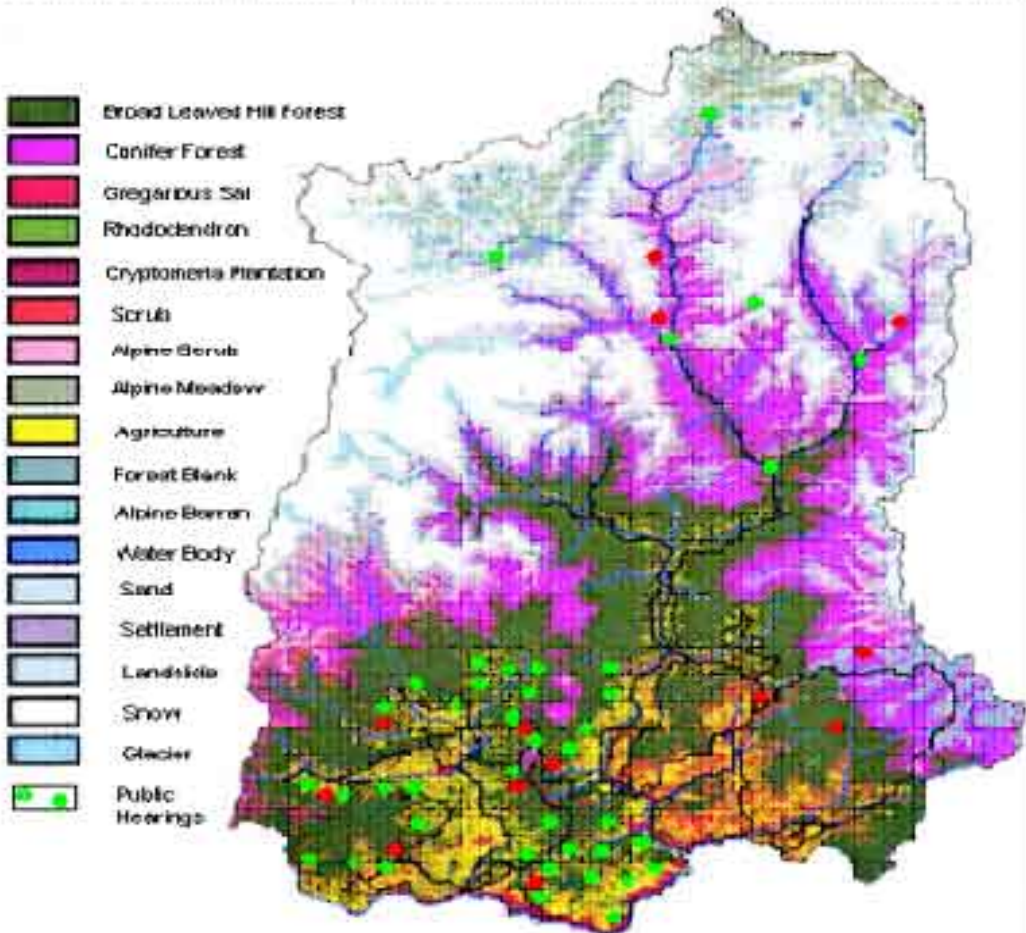
**Greenest Chief Minister 1999**



**Compiled by:  
S.B.S. Bhadauria  
Chief Conservator of Forest,  
Government of Sikkim, Gangtok,  
Sikkim, India**



# OUR STATE – SIKKIM “HOTSPOT OF BIODIVERSITY”



Regional Remote Sensing Service Centre  
Kharappur

# Area Statistics Sikkim-I

Total Geographical area = 7096 Sq. km.  
( 0.22 % of the Country)

- Recorded forest land:

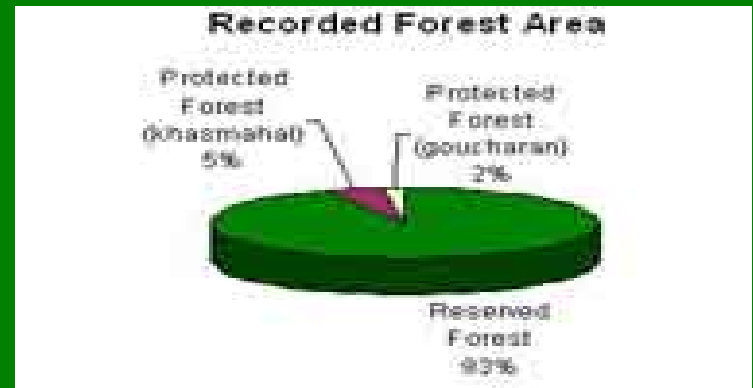
Reserved Forests = 5452.39 sq km  
( Alpine Pasture & Scrub: 1024 Sq. km i.e. 14.14%)  
( Perpetual Snow Cover: 2091 Sq. km i.e. 29.50 %)

Protected Forest

Khasmal Forests = 285 sq km

Gorucharan Forests = 104 sq km

**The total recorded forest land : 5,841.39 Sq. km.  
i.e. 82.31% of the total geographical area &  
0.8 % of the Country's Forests Area.**



Forest & Tree Cover (2003)	Area
Total Forests & Tree Cover	3284 Sq.km.
Of State's Geo Area	46.28 %
Of Country's Forests & tree Cover	0.42%
Per Capita Forests & Tree Cover	0.61 Ha

Tree Cover (2003)	Area
Culturable Non- Forest Area (CNFA)	322 Sq.km.
No. of Trees / ha of CNFA	20.30
Tree Cover	22 Sq.km.
Of State's Geo Area	0.31%
Of CNFA	6.83 %

Forest Cover in Different Assessments (1987-2003): Area in Sq. Km.

Year	1987	1989	1991	1993	1995	1997	1999	2001	2003
Forest Cover	2756	3041	3041	3119	3127	3129	3118	3193	3262
% of Geo Area	38.84	42.86	42.86	43.95	44.06	44.10	44.00	45.00	46.00

# Wildlife -Protected Area Network (PAN)

Sl.No	Name	Area in Sq km.	Altitude
1	Barsey Rhododendron Sanctuary	104.00	2200-4100m
2	Fambonglho Wildlife Sanctuary	51.76	1524-2749
3	Kyongnosla Alpine Sanctuary	31.00	3292-4116m
4	Maenam Wildlife Sanctuary	35.34	2300-3263m
5	Pangolakha Wildlife Sanctuary	128.00	
6	Shingba Rhododendron Sanctuary	43.00	3048-4575m
7	Khangchendzonga National Park	1784.00	Temperate
	Total area	2177.10	to
	Total Geo.area	7096.00	Alpine
8	Khangchendzonga Biosphere Reserve	2620.00	Temperate
	National Park	1784.00	to
	Buffer area	836.00	Alpine

**Total area under Protected Area Network of State is 2177.10 sq. km.**

**i.e. 30.68% of the total area)**

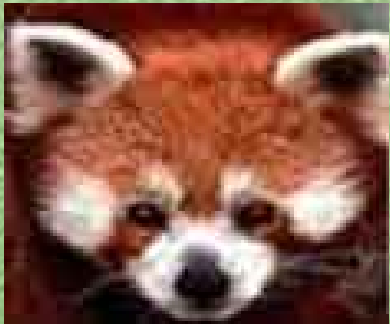
**i.e. 42.46% of the total area – Protected Area and Biosphere Reserve**

# SIKKIM - RICH BIO-DIVERSITY

Eastern Himalaya is the richest phytogeographic region of India. Lying on western flank of the Eastern Himalaya, Sikkim is phytogeographically interesting and was first botanically explored by Josph Dalton Hooker. Himalaya has a very high % of Indian endemics i.e. about 50 %

State Animal - Red Panda (*Ailurus fulgens*)  
State Bird - Blood Pheasant (*Ithaginis cruentus*)

<u>No. of Species.</u>		<u>Types</u>
Mammals	-	150
Birds	-	552
Butterflies	-	690
Fish	-	48



# SIKKIM - RICH BIO-DIVERSITY



State Flower - Nobile Orchid (*Dendrobium nobile*)

State Tree - Rhododendron (*Rhododendron niveum*)



<u>No of Species</u>	<u>Types</u>
● Flowering plants	- 4500
● Rhododendrons	- 36
● Medicinal Plants	- 424
● Ferns & Fern allies	- 362
● Tree Ferns	- 8
● Primulas	- 60
● Oaks	- 11
● Orchids	- 515
● Conifers	- 16
● Bamboos	- 23

# SIKKIM - RICH BIO-DIVERSITY

- **Glaciers** > **38**
- **Mountains & Peaks** - **28**
- **Rivers and streams** - **104**
- **Lakes and Wetlands** - **227**
- **Forestry cover 2003 Assessment** - **46%**
- **Recorded Forest area ( in sq. km) - 5841.40**

**i.e. 82.32% of total Geo. Area of State**

- **Glacier Complexes:**
  - Rel Glacier Complex**
  - Rathang Glacier Complex**
  - Talung Glacier Complex**
  - Zemu Glacier Complex**
  - Langpo Glacier Complex**
  - Chhombu Glacier Complex**
  - Yumthang Glacier Complex**

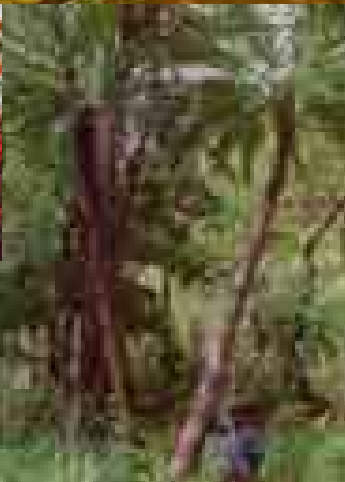
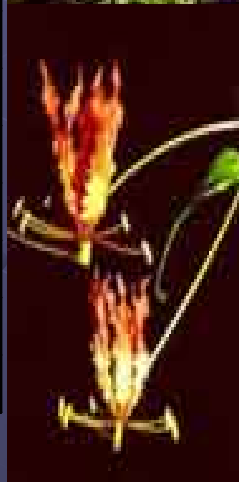
- **Wetlands:**

<b>Wetland Category</b>	<b>Wetland Class</b>	<b>No.</b>
<b>Natural &gt;2.25 ha</b>	<b>Lakes</b>	<b>160</b>
<b>Natural &lt; 2.25 ha</b>	<b>Lakes</b>	<b>67</b>
<b>Total</b>		<b>227</b>

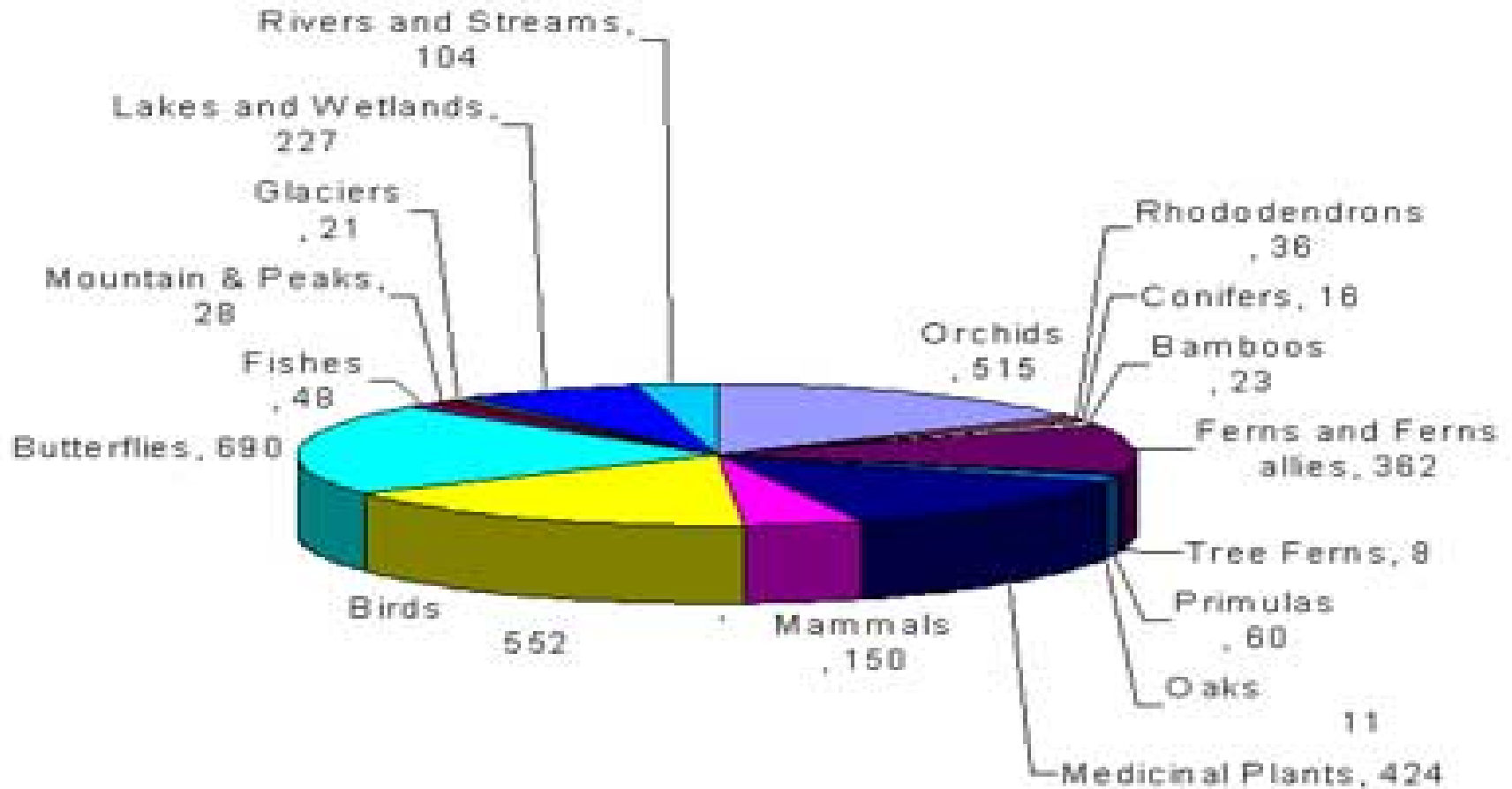


# Some Important Medicinal Plants

Amla
Ashwagandha
Bikh, Atish
Bel
Chiraita
Garjo, Gurgau
Chutro
Ishabgol
Jatamansi
Langarey Tarul, Bikhful
Kapisful, Kuth
Kutki
Jethimadhu
Pipla
Kalobehi
Sarpagandha
Kurilo
Tulsi



# Biodiversity & Natural Resources



## Policies –Vision- Programme - Initiatives for Sustainable Development in Sikkim-I

1. State Government passed and announced a Comprehensive State Policy on Forest, Environment and Land Use 2000 based on the basic principle of conservation and sustainability.
2. Introduced the Compulsory Environmental Education for schools in 2000.
3. Mandatory Environmental Impact Assessment (EIA)/ Environment Management Plan (EMP) and Catchment Area Treatment (CAT) Plan for all Hydro-Electric Projects (HEP) & Other Projects as well.
4. Ban smoking & Pan Parag in 2001.
5. The State Government demanded the Status of “ Environmentally & Ecologically Fragile Protected State ” from the Central Government.
6. Abandoned and closed the Rathang Chhu Hydro Electric Project in West and Firing Range “G” in North Sikkim
7. To preserve the Heritage and fragile ecology, notified in 2001 sacred peaks, caves, rocks, lakes, chhorten & hot springs and banned scaling of important peaks including Mt. Khangchendzonga (8598m) for mountaineering expeditions, etc., Conservation of unique terrestrial & aquatic eco-system of wetlands/lakes by prohibiting the commercial activities.



# Policies –Vision- Programme - Initiatives for Sustainable Development in Sikkim-II

8. By legislation banned the use of non-biodegradable materials like plastic, poly-bags, Bio-medical / chemical waste in 1997
9. Eco-governance has been strengthened by launching “ CM online Website”



10. In 2000 directed all the Government Department & Institutions to keep all compounds green & pollution free. No land shall be left fallow or barren.
11. In 1995 banned the Green felling in forests & no clear felling, only dead, dying and diseased trees allowed to be removed for the *bona fide* use.
12. In 1998 imposed ban on Grazing in reserved forest areas, plantation areas and water sources areas ; fodder collection allowed on sustainable basis
13. Year 1995-96 declared as "*Harit Kranti*" year and period 2000-2010 as '*Harit Kranti Dashak*' for Green Sikkim through people's participation.
14. Till March 2007, minimum diversion of forest land for non-forestry purposes (approx. 934 ha in last 27 years) and compensatory Afforestation (approx. 2200 ha.) completed.

# Policies –Vision- Programme - Initiatives for Sustainable Development in Sikkim-III

15. For Community participation in Forest, Environment & Wildlife and Natural resources Protection & Management has been institutionalized through the creation of network of **JFMCs ( in 1998) / EDCs ( in 2001) & WDCs** alongwith the involvement of / NGOs / Panchayats with emphasis on women's participation.

16. Integrated Watershed Development Program (IWDP) for Non-forest areas through the Jilla Parishad with more emphasis on fuel wood and fodder plantation to reduce pressure on natural forests and to enhance the productivity of land.



17. On 5<sup>th</sup> June 1999 launched "*Smriti Van*" program "A People's Programme" to bring people close to the nature and this programme has been taken up in the 166 Panchayats. In the Year 2007 "Sanjeevani Smriti Van" at Hanuman Tok Forest area is being started. The concept of "RUKH BHAI TIKA" also initiated.

18. In the year 1998 the State award "*Rajya Van Samrakshan Evam Paryavaran Puraskar*" was constituted.

## Policies –Vision- Programme - Initiatives for Sustainable Development in Sikkim-IV

19. For Perspective planning State Forestry Action Plan & State Forestry Research Plan were formulated in co-ordination with Government of India.
20. A network Protected Area Network (PAN) of National Parks, Sanctuaries, Himalayan Zoological Park and Biosphere Reserve created for conservation of bio-diversity [PAN-30.69% (42.46% including Biosphere Reserve) of the Geographical Area]. By notification 2001 imposed ban on tourists carrying plastic bags & containers in PAN area.
21. Sikkim State Biodiversity Strategy and Action Plan (SBSAP) formulated under the National Biodiversity Strategy and Action Plan (NBSAP).
22. A State Biodiversity Park at Tendong first of its kind was created in 2001.
 
23. To protect Patenting and Intellectual Property Rights (IPRs) a State Level Apex Committee has been constituted in 2001.
24. In 2000 imposed ban on lopping of Dhupi tree ( *Cryptomeria japonica*) and collection of Nagbeli & Mosses.



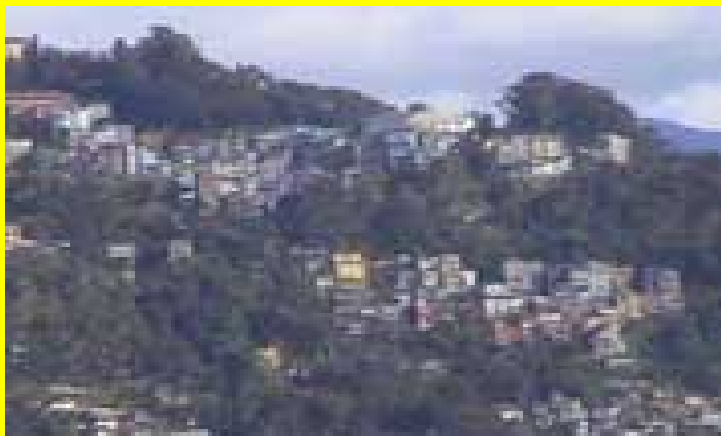
# Policies –Vision- Programme - Initiatives for Sustainable Development in Sikkim-V

25. In 2000 all agencies in the State were directed to use the alternatives of wood in construction to conserve the forests & ecology.
26. A State Medicinal Plants Board (SMPB) was established in June 2002 for conservation and development of medicinal plants sector. Many Herbal Gardens created in various representative areas along with creation of mass awareness for cultivation. A JARI BUTI KOSH has also been created. A Sanjeevani Herbal Garden ( about 50 ha area) has been planned at Hanuman Tok, near Gangtok. There are restriction for commercial exploitation of medicinal plants from the wild areas.
27. Modern tools for forest protection like Wireless communication network, Arms and Ammunition, Global Positioning System (GPS), Fire Fighting Equipments have been introduced since 2001.
28. **State Forest Act has been Amended in 2000 & related rules made with Strong legal provision for forest resources offences. Number of illegal encroachers from forests and protected areas evicted.**
29. To avoid the Land slides/slips/erosion of areas, treatments and reclamation has been made an integrated part of project planning.
30. For Tourism Development “ Tourism Master Plan” has been developed on the committed principle of Eco-tourism and Nature tourism with strict measures.



# Policies –Vision- Programme - Initiatives for Sustainable Development in Sikkim-VI

31. In Urban and Semi-Urban areas the concept of Urban Forestry, Eco-cities & Eco-village has been developed and is under implementation.
32. As per State Industrial Policy 1996, only eco-friendly, pollution free and Green industries would be encouraged.
33. The Sikkim Human Development Report 2001 and Sikkim People's Vision 2001 documents prepared for perspective and sustainable development of State.



34. Organic State – no use of chemicals, pesticides & insecticides etc. and only the use of bio-manure shall be encouraged.
35. 70 % of the State budget outlay has been earmarked and shall be used for the Integrated development of rural areas
36. The concept of “ Model Village” implemented in each constituency.

## Policies –Vision- Programme - Initiatives for Sustainable Development in Sikkim-VII

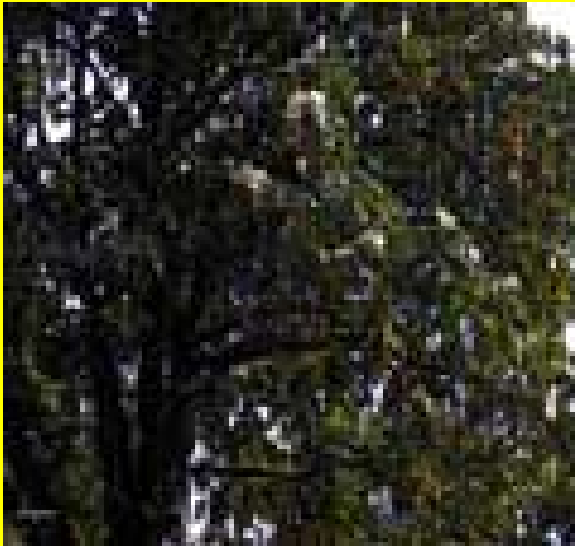
37. In the ruling Sikkim Democratic Front (SDF) Party's decadal conference held in March 2002, a numbers of resolutions were passed for protection and conservation of natural resources, Environment, biodiversity, glaciers, lakes/ wetlands, Wildlife, Medicinal plants and culture/heritage/traditions as well.
38. Election Manifesto: In the manifesto of General Election for Parliament & Assembly and for Panchayats election major emphasis has been given by including the area of concerns for Preserving Environment, Pollution free, Biodiversity, Medicinal plants, Water Resources, traditional knowledge, wildlife, heritage sites, Participatory Afforestation, Plantation, Smriti Van Programme, Herbal gardens and Protection of Forests & Forest lands.
39. To reduce the dependence of villages on firewood and forests, Free LPG connection for people below poverty line and economically weaker section of society are being provided since 15<sup>th</sup> August 2002.



40. Constitution of High Level Task Force (Environment Commission) for Environment and Natural Resources.
41. Sikkim Green Mission 2006 – To Integrate the People with Nature & Invoke Mass Support for the cause. All road projects to have green/plantation components. 2% budget of SPWD(R&B) and RMDD and 1 % of all other Departments have been earmarked for the Green Mission.
42. Sikkim State Biodiversity Board constituted in 2006 and Sikkim State Biological Diversity Rules 2006 formulated.

# Policies –Vision- Programme - Initiatives for Sustainable Development in Sikkim-VIII

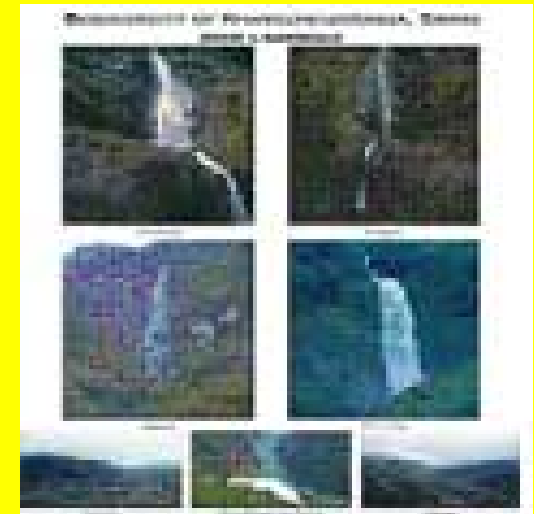
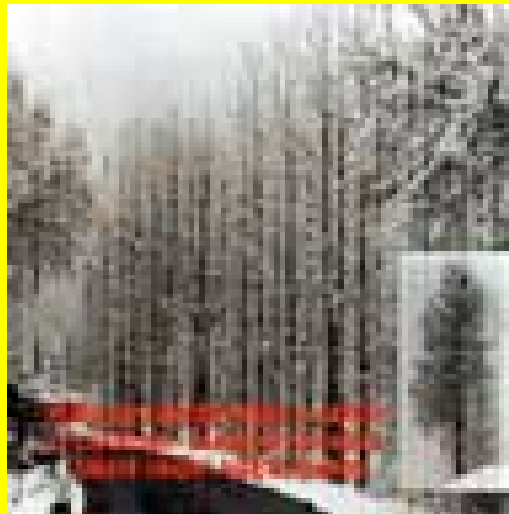
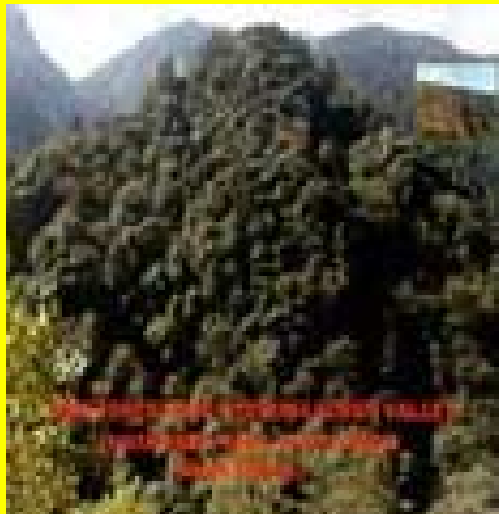
43. Green Roads: All the Road construction agencies have been directed that the construction of road and their stabilization works along with plantation must go together.
44. Continue Increase in Forests Cover: In 1987 it was 38.84% and in 2003 it has gone to 46.28% which is the best example of sustainable development in the world.



45. Highest Green Protection Index: Sikkim ranks highest on India's Green Protection Index (0.903) by the protection of its natural resources as per *Green Indicators 2004*, a report by NOIDA, India based NGO Group "INSCRIPTION" in Down TO Earth May 2004.
46. Capacity Building Programme: The State Government has given special emphasis on capacity building of all levels of employees and public as well. 2 % budget of each department is earmarked for the purpose.
47. Eco-Club, Green Funds created in a number of schools & colleges
48. Gangtok- MG Marg declared as "Spit Free Zone" to minimize the pollution.
49. Sikkim Wildlife( Regulation of Trekking) Rules, 2005, Guidelines for Appointment of Himal Rakshak, 2006, Pokhari Samrakshan Samiti 2006, State Environment Agency 2006, Guidelines for Lake Conservation in partnership with Gram Panchayats and Pokhari Samrakshan Samiti's in Sikkim 2006, formulated.

# Policies –Vision- Programme - Initiatives for Sustainable Development in Sikkim-IX

50. Construction Projects: No final bills of executing agency or contractor shall be released until the Environment & Forestry measures are taken along with the clearances.
51. The State Government has decided that Every family shall have FOUR DUSTBINS for disposal of different kinds of waste materials.
52. Glaciers Study & Action Plan: to take the timely action on the affect of Global Warming on our water resources, the State Government has decided to constitute a Expert Group for the purpose.
53. Ban on killing of Wildlife and aquatic animals has been imposed by the Government.
54. In the MOU/ Agreement signed with Power Projects Proponents, sufficient provisions has been made for Rehabilitation & Resettlement Plan, Environment Cess @ One paise per unit of electricity sold, Catchment Area Treatment (CAT) Plan, EIA/EMP studies with State Government & Maintaining Ecological balance etc.
55. Sikkim Ecology Fund and Environment Cess Act,2005 and the Sikkim Ecology Fund & Environment Cess Rules, 2007 enforced from 1st April 2007.
56. National Bamboo Mission programme launched in the State for Development Bamboo Sector from 2007.
57. Wetland Conservation Programme for protection, conservation & management lakes and wetlands is being implemented from 2007.
58. The Regeneration and Plantation of rear, threatened and endangered species shall be taken up on priority.



**Guru Padama Sambhava  
Statue, Samdruptse, Sikkim**



**In The True Nature**

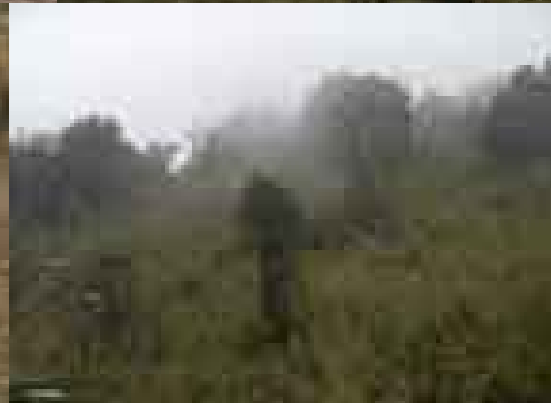
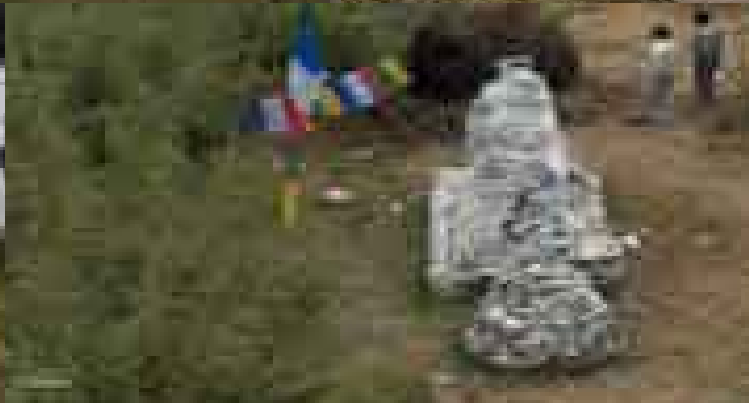
# State Bio-diversity Park, Tendong, South Sikkim



# State Bio-diversity Park, Tendong, South Sikkim



**Tendong Peak GUMPA, South Sikkim  
HMF TOUR 31/03/2207**

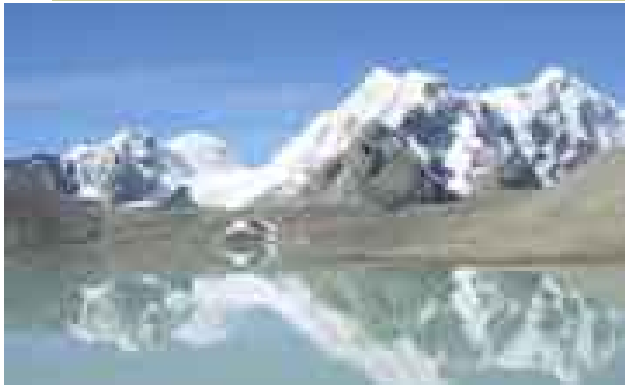




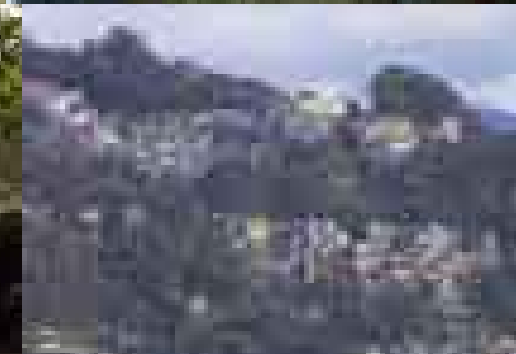
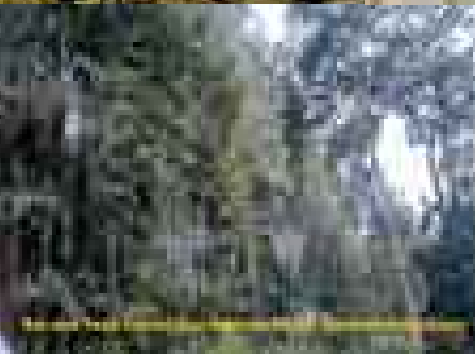
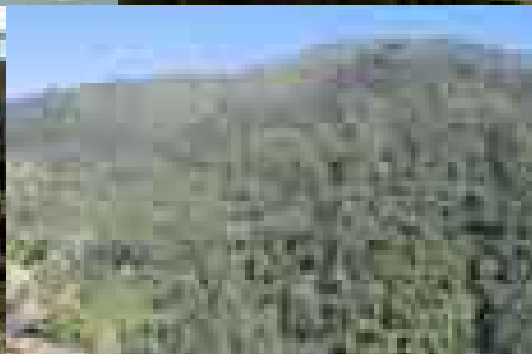
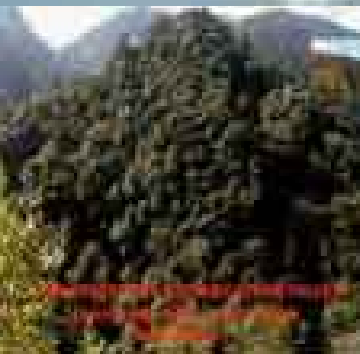
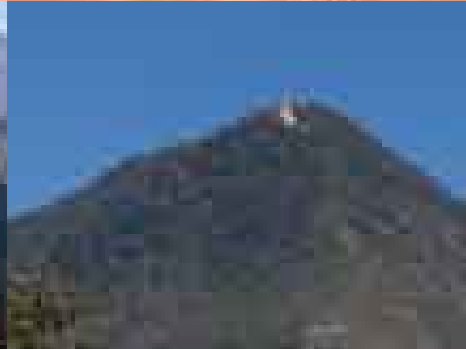
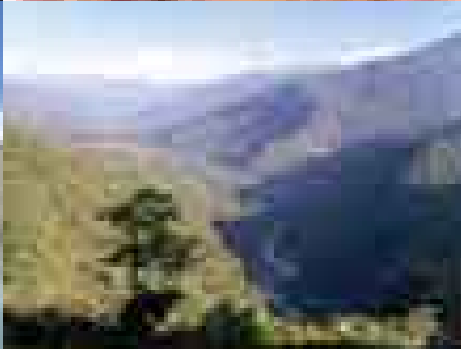
# Location & Introduction

- 22<sup>nd</sup> STATE OF INDIA
- North- Eastern Himalaya
- Surrounded by Tibetan Plateau in North, Chumbi valley & Kingdom of Bhutan in the East, Kingdom of Nepal in West and Darjeeling District of West Bengal in the South.
- Highest Mountain: Mt. khanchendzong -28156 ft.
- Geographical Area: 7096 Sq Km
- Total Population: 5,40,851 (2001)
- Population Density: 76 Persons per Sq Km

**GOD'S OWN GARDEN**



# SIKKIM LANDSCAPE



# BULBULEY- SMRITI VAN AREA- HMF WITH PadmaShri Chandi Prasad Bhata & Others from UTTRAKHAND



# GOD'S OWN GARDEN



Thank You...

