

7.24 SIKKIM

7.24.1 Introduction

Sikkim is the least populous State in India and the second-smallest in area after Goa. The thumb-shaped State shares its borders with Nepal in the west, the Tibet to the north and the east and Bhutan in the southeast. The State of West Bengal borders Sikkim to its south. The geographical area of the State is 7,096 km² and lies between latitude 27° 04' to 28° 07' N and longitude 88° 00' to 88° 55' E.

Despite its small area, Sikkim is geographically diverse due to its location in the Himalayas. The climate ranges from subtropical to high alpine. Kangchenjunga, the world's third-highest peak, is located on the border of Sikkim with Nepal. Sikkim is a popular tourist destination owing to its culture, scenic beauty and biodiversity. The main river of the State is Teesta. Annual rainfall varies from 2,700 mm to 3,200 mm. The temperature in the State ranges from sub-zero during winter to 28°C during summer.

As per Census 2001, the total population of the State is 0.54 million of which the rural population is 88.9%. The population density is 76 persons per km². The Scheduled Tribes constitute 20.6% of the population. The projected population of the State is 0.60 million (as projected by the Office of RGI for 2009). The livestock population of the State is 0.34 million (Livestock Census 2003), which has decreased by nearly 14% since the census of 1992. Of the total

geographical area, about 30% is under permanent snow cover, glaciers and steep rocks where tree growth is not possible due to physical and climatic limitations.

Land use pattern of the State is given in Table 7.24.1.

7.24.2 Recorded Forest Area

The recorded forest area of the State is 5,841 km² which constitutes 82.31 % of State's geographical area. Reserved Forests constitute 93.34% and Protected Forests 6.66% of the total forest area.

7.24.3 Protected Areas

Sikkim has 1 National Park and 7 Wildlife Sanctuaries covering an area of 2179.1 km² which constitutes 30.70% of the State's geographical area. Sikkim is known for orchids as it has more than 400 species. Over 600 species of butterflies are found at various altitudes of the State. High altitude areas above 10,000 ft support over 30 species of rhododendrons. The area is home to snow leopard. Other fauna of Sikkim include leopard, red panda, Himalayan black bear, musk deer and flying squirrel.

7.24.4 Joint Forest Management

The JFM started in the State in 1998. There are 155 JFM Committees managing about 10,000 ha of

Table 7.24.1: Land use pattern

Land Use	Area in '000 ha	Percentage
Total geographical area	710	
Reporting area for land utilization	728	100.00
Forests	319	43.82
Not available for cultivation	250	34.34
Permanent pastures and other grazing lands	4	0.55
Land under misc. tree crops & groves	5	0.69
Culturable wasteland	2	0.27
Fallow lands other than current fallows	30	4.12
Current fallows	5	0.69
Net area sown	112	15.38

Source: Land Use Statistics, Ministry of Agriculture, GOI, 2006.

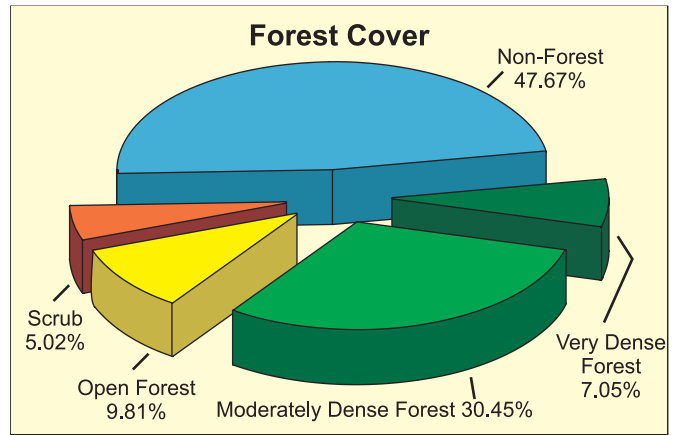
forest area. More than 46,000 families are involved in this programme, of which around 17,000 families belong to the Scheduled Tribes.

Source: MoEF, 2005.

7.24.5 Forest Cover

The forest cover in the State, based on interpretation of satellite data of Dec 2006, is 3,357 km², which is 47.31% of the State's geographical area. In terms of forest canopy density classes, the State has 500 km² very dense forest, 2,161 km² moderately dense forest and 696 km² open forest. The distribution of forest cover of the State is shown in Fig. 7.24.

Comparison of the current forest cover (satellite data of Dec 2006) with the previous assessment (satellite data of Dec 2004) shows that there is no



change in forest cover and its density, hence no change matrix is given.

District wise forest cover in different canopy density classes and scrub is given in the Table 7.24.2.

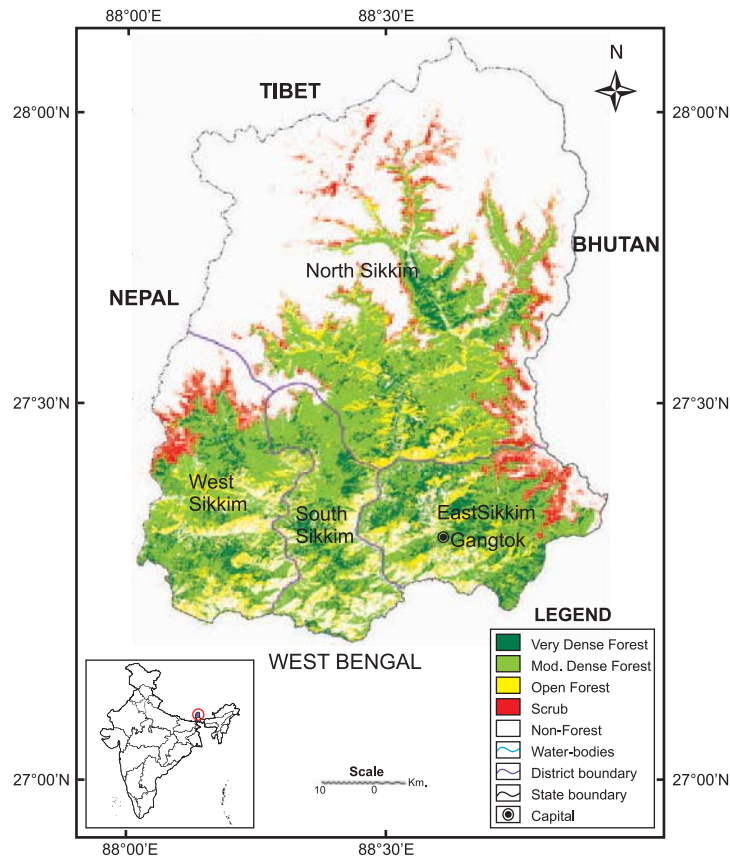


Fig. 7.24 : Forest cover map of Sikkim

Table 7.24.2: District-wise forest cover in 2007

Number of districts: 4

(area in km²)

District	Geographical area	Very dense forest	Mod. dense forest	Open forest	Total	% of G.A.	Change*	Scrub
East Sikkim TH	954	162	411	126	699	73.27	0	70
North Sikkim TH	4,226	135	890	290	1,315	31.12	0	202
South Sikkim TH	750	93	371	107	571	76.13	0	3
West Sikkim TH	1,166	110	489	173	772	66.21	0	81
Total	7,096	500	2,161	696	3,357	47.31	0	356

* Change compared to 2005 assessment (revised).

7.24.6 Altitude Zone wise Forest Cover

Forest cover of the State in different altitude zones is given in Table 7.24.3.

Table 7.24.3: Altitude zone wise forest cover

(area in km²)

Altitude Zone	VDF	MDF	OF	Total
0-500m	2	16	15	33
500-1000m	16	141	80	237
1000-2000m	206	552	354	1,112
2000-3000m	210	755	136	1,101
>3000m	66	697	111	874
Total	500	2,161	696	3,357

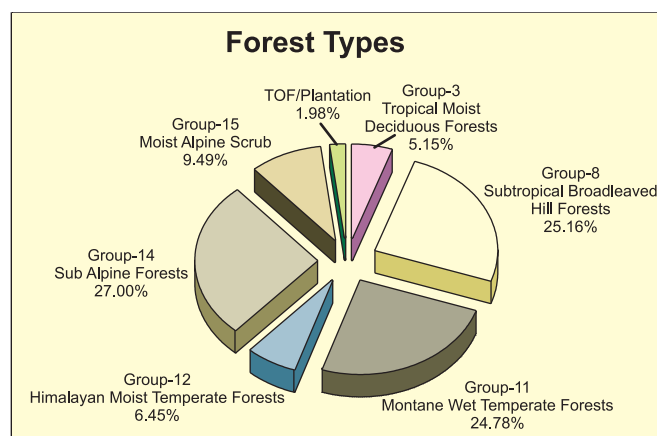
(based on SRTM Digital Elevation Model)

7.24.7 Forest Cover in different Forest Types

As per Champion & Seth Classification, the State has 11 forest types which belong to 6 forest type groups viz Tropical Moist Deciduous, Subtropical Broadleaved Hill, Montane Wet Temperate, Himalayan Moist Temperate, Sub Alpine Forests and Moist Alpine Scrub. Distribution of forest cover in different forest type groups found in the State is given in the pie diagram.

7.24.8 Tree Cover

Tree cover of the State has been estimated using sample data of TOF inventory collected over a period of six years i.e. 2002-08. The estimated tree cover in the State is 20 km² which is 0.28% of the geographical area of the State. Two districts (East Sikkim



and North Sikkim) of the State have been inventoried. The forest and tree cover of the State is presented in the Table 7.24.4.

Table 7.24.4: Forest & tree cover

(area in km²)

Category	Area	% of Geographical area
Tree Cover	20	0.28
Forest Cover	3,357	47.31
Forest & Tree Cover	3,377	47.59