

## 7.7 GOA

## 7.7.1 Introduction

Goa, the popular tourist destination in the country, is located on the west coast nestled between the States of Maharashtra and Karnataka and lies on Coastal plains between Western Ghats and Arabian Sea. It lies between latitude 14°53' to 15°40' N and between longitude 73°40' to 74°21' E with a geographical area of 3,702 km<sup>2</sup>. Mandovi and Zuari are two major rivers which are lifelines of Goa originating from Western Ghats and flowing towards southern boundary to join the Arabian Sea. The land use pattern of the State is shown in Table 7.7.1.

The mean temperature in the State ranges from 16.2°C to 36.7°C. The average annual rainfall is 3,790 mm.

The total population of the State is 1.35 million (Census 2001). Of this, rural population is 50.24% and urban 49.76%. The population density is 427 persons per km<sup>2</sup>. The projected population of the State by the Office of RGI, for the year 2009 is 1.66 million. The livestock population is 212,000 (Livestock Census 2003).

## 7.7.2 Recorded Forest Area

The recorded forest area in the State is 1,224 km<sup>2</sup>, which is 33.06% of the geographical area. Of this, the Reserved Forests constitute 20.67%, Protected Forests 69.04% and Unclassed Forests 10.29% of the total forest area.

## 7.7.3 Protected Areas

The State has one National Park (Mollem) and 6 Wildlife Sanctuaries covering an area of 107 km<sup>2</sup> and 648 km<sup>2</sup> respectively. Thus a total of 755 km<sup>2</sup> area constituting 20.4% of the geographical area of the State is under protected area network.

## 7.7.4 Joint Forest Management

The Government of Goa started Joint Forest Management in 2003. There are 26 JFM committees managing 10,000 ha of forest area where 336 families are involved. As per JFM notification of Goa, sharing of benefits is not based on harvested forest produce but on the value addition to the forests being protected by the JFM committees.

Source: MoEF, 2005.

## 7.7.5 Forest Cover

The forest cover in the State, based on interpretation of satellite data of January 2007, is 2,151 km<sup>2</sup>, which is 58.10% of the State's geographical area. In terms of forest canopy density classes, the State has 511 km<sup>2</sup> very dense forest, 624 km<sup>2</sup> moderately dense forest, and 1,016 km<sup>2</sup> open forest. The distribution of forest cover of the State is shown in Fig.7.7.

Comparison of the current forest cover (satellite data of Jan 2007) with the previous assessment (satellite data of Dec 2004) shows a loss of 5 km<sup>2</sup> of

Table 7.7.1 : Land use pattern

Land Use	Area in '000 ha	Percentage
Total geographical area	370	
Reporting area for land utilization	361	100.00
Forests	125	34.63
Not available for cultivation	37	10.25
Permanent pastures and other grazing lands	1	0.28
Land under misc. tree crops & groves	1	0.28
Culturable wasteland	53	14.68
Fallow lands other than current fallows		0.00
Current fallows	7	1.94
Net area sown	137	37.95

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

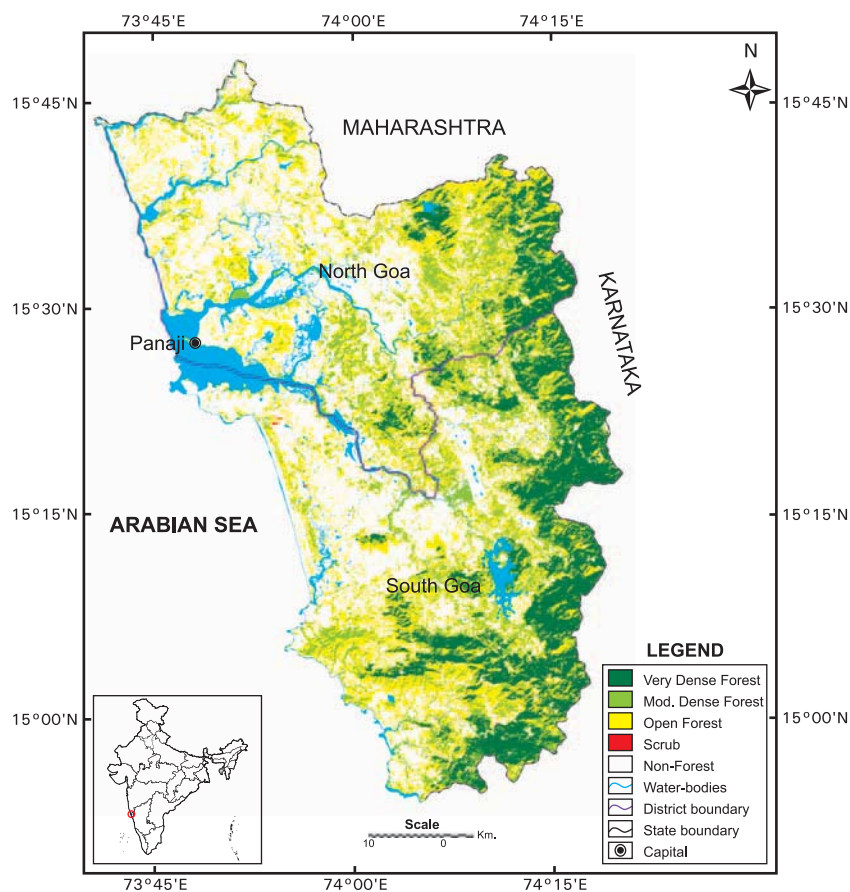
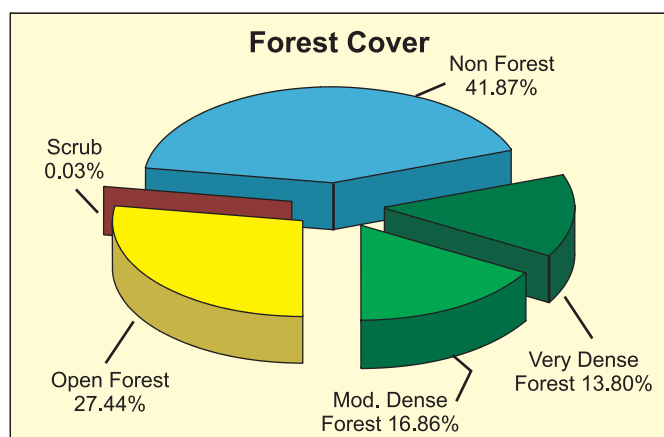


Fig 7.7 : Forest cover map of Goa



moderately dense forest and 3 km<sup>2</sup> in open forest.

On the basis of ground truthing by the officials of FSI and the information gathered from the State Forest Department, main reasons for the decrease in forest cover in the State is loss in TOF area.

District wise forest cover in different canopy density classes and scrub along with the changes compared to 2005 assessment is given in the Table 7.7.3.

forest cover.

The change matrix, given in Table 7.7.2, reveals that there has been a decrease of 2 km<sup>2</sup> in the

**Table 7.7.2: Forest cover change matrix**

(area in km<sup>2</sup>)

2005 Assessment (Data of Dec 2004)	2007 (Data of Jan 2007)					Total of 2005
	VDF	MDF	OF	Scrub	NF	
Very Dense Forest	511	0	0	0	0	511
Moderately Dense Forest	0	624	0	0	2	626
Open Forest	0	0	1015	0	4	1,019
Scrub	0	0	0	1	0	1
Non-Forest	0	0	1	0	1,544	1,545
<b>Total of 2007</b>	<b>511</b>	<b>624</b>	<b>1,016</b>	<b>1</b>	<b>1,550</b>	<b>3,702</b>
Net Change	0	-2	-3	0	5	

**Table 7.7.3: District-wise forest cover in 2007**

Number of districts: 2

(area in km<sup>2</sup>)

District	Geographical area	Very dense forest	Mod. dense forest	Open forest	Total	% of G.A.	Change*	Scrub
North Goa	1,736	119	247	499	865	49.83	-3	0
South Goa	1,966	392	377	517	1,286	65.41	-2	1
<b>Total</b>	<b>3,702</b>	<b>511</b>	<b>624</b>	<b>1,016</b>	<b>2,151</b>	<b>58.10</b>	<b>-5</b>	<b>1</b>

\* Change compared to 2005 assessment (revised).

## 7.7.6 Altitude Zone wise Forest Cover

Forest cover of the State in different altitude zones is given in Table 7.7.4.

**Table 7.7.4: Altitude zone wise forest cover**

(area in km<sup>2</sup>)

Altitude Zone	VDF	MDF	OF	Total
0-500m	431	593	975	1,999
500-1000m	80	31	41	152
<b>Total</b>	<b>511</b>	<b>624</b>	<b>1,016</b>	<b>2,151</b>

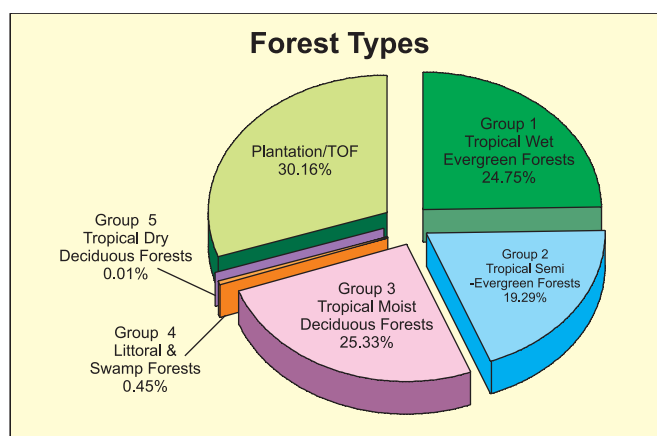
(based on SRTM Digital Elevation Model)

## 7.7.7 Forest Cover in different Forest Types

As per Champion & Seth Classification, the State has 5 forest types which belong to 5 forest type groups viz Tropical Wet Evergreen, Tropical Semi Evergreen, Tropical Moist Deciduous, Tropical Dry Deciduous Forests and Littoral & Swamp forests. Distribution of forest cover in different forest type groups found in the State is given in the pie diagram.

## 7.7.8 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 286 km<sup>2</sup> which is 7.73 % of the geographical area of the State. North Goa district of the

State has been inventoried. The forest and tree cover of the State is presented in the Table 7.7.5.

**Table 7.7.5: Forest & tree cover**

(area in km<sup>2</sup>)

Category	Area	% of Geographical area
Tree Cover	286	7.73
Forest Cover	2,151	58.10
<b>Forest &amp; Tree Cover</b>	<b>2,437</b>	<b>65.83</b>