8.29 WEST BENGAL

8.29.1 Introduction

Located in the eastern part of India, bordering Bangladesh, Nepal & Bhutan, the geographic area of West Bengal is 8.88 million ha. The State lies between lat 21°29' and 27°13' N and long 85°50' and 89°52' E. The State has two natural divisions: the North Himalayan and the South Alluvial Gangetic Plain. The three main rivers in the northern part of the State namely Teesta, Torsa and Jaldhaka drain into Brahmaputra. The other two important rivers passing through the central part of the State are the Ganges and the Hooghly, which drain into the Bay of Bengal forming the famous delta of Indian Sunderbans.

Climate varies from moist tropical in the southeast to dry tropical in the southwest and from subtropical to temperate in the mountains of north. Annual rainfall varies from 900 mm in southwest to about 5000 mm in parts of the north. The temperature range is from sub zero in the hills during the winter to about 46°C in southern parts during the summer.

The population of West Bengal is 80.18 million *(Census 2001)* of which, rural population is 72% and urban 28%. The Scheduled Tribes population in the State is 5.5%. West Bengal has the highest population density (903 persons per km^2) in the country. The livestock population is 41.62 million *(Livestock Census 2003)*,

The land use pattern of the State is given below in Table 8.29a.

8.29.2 Forest Resources

The recorded forest area is 11,879 km^2, which is 13.38% of the geographic area of the State. By legal status, Reserved Forests constitute 59.38%, Protected Forests, 31.75%, and Unclassed Forests, 8.87%.

Major forest types occurring in the State are Northern Tropical Wet Evergreen Forests, Northern Sub Tropical Semi Evergreen Forests, North India Moist Deciduous Forests, Littoral and Swamp Forests (Mangroves), Northern Tropical Dry Deciduous Forests, Northern Sub Tropical Broad Leaved Wet Hill Forests, Northern Montane Wet Temperate Forests, East Himalayan Moist Temperate Forests and Sub Alpine Forests.

8.29.3 Protected Areas

There are 5 National Parks and 15 Wildlife Sanctuaries covering an area of 0.29 million ha which is 3.26 % of the geographic area of the State. The State has 2 Tiger Reserves, namely, Sundarbans and Buxa. Sundarbans Biosphere Reserve located in the State has an area of 0.96 million ha. Sundarbans National Park is also a World Heritage site. In addition, 2 Elephant Reserves namely Eastern Duars Elephant Reserve and Mayur Jharna have been formed in the northern and southern parts respectively of the State.

8.29.4 Joint Forest Management

The State of West Bengal pioneered the Joint Forest Management in Arabari of Midnapore District in 1971 though the relevant Government resolution was issued in 1989. There are 4,096 JFM Committees managing about 0.63 million ha of forest area as on March 2005, which is about 53% of the forest area of the State. More than 0.48 million families are involved in this programme, of which around 0.11 million families belong to the Scheduled Tribes. *Source: Proceedings of the National Workshop on JFM, MoEF, 2005.*

Table 8.29a: Land use pattern

Land Use	Area in '000 ha	Percentage
Total geographical area	8,875	
Reporting area for land utilization	8,688	100.00
Forests	1,190	13.70
Not available for cultivation	1,594	18.35
Permanent pastures and other grazing lands	4	0.05
Land under misc. tree crops & groves	57	0.66
Culturable wasteland	37	0.43
Fallow lands other than current fallows	29	0.33
Current Fallows	358	4.12
Net area sown	5,417	62.35

Source: Land Use Statistics, Ministry of Agriculture, GOI, 2005.

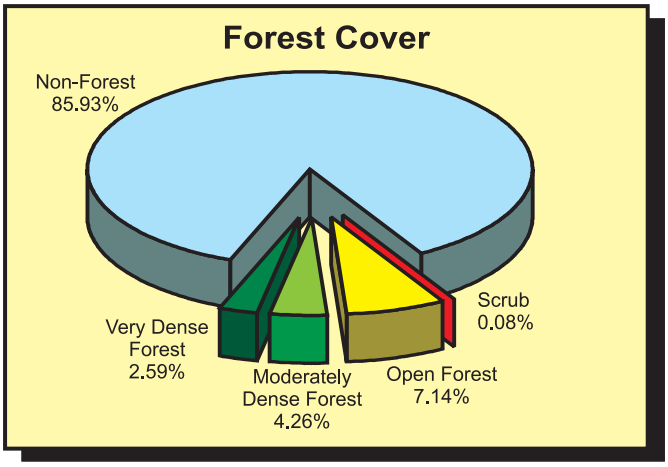
8.29.5 Forest Cover

The forest cover of the State, based on satellite data of November-December 2004, is 12,413 km^2, which is 13.99 % of the geographic area. Very dense forest accounts for 2,302 km^2, moderately dense forest is 3,777 km^2, and open forest, 6,334 km^2. The forest cover of the State is shown in Fig 8.29.

An increase of 24 km^2 of forest cover has been assessed in the present assessment as compared to the previous assessment (based on satellite data of November-December 2002).

The change matrix, given in Table 8.29b reveals that there has been an increase of 3 km^2 in moderately dense forest, and an increase of 21 km^2 in open forest.

The increase in forest cover mainly in Jalpaiguri district is due to improvement of tree cover in tea garden areas, whereas in other districts the increase is due to protection and plantation of Acacia auriculiformis and Eucalyptus spp as observed by FSI officials during field verification and also corroborated by the State Forest Department.



The district wise details of very dense forest, moderately dense forest, open forest and scrub, along with the changes compared to 2003 assessment, have been provided in Table 8.29c.

8.29.6 Tree Cover

Tree cover of West Bengal has been estimated

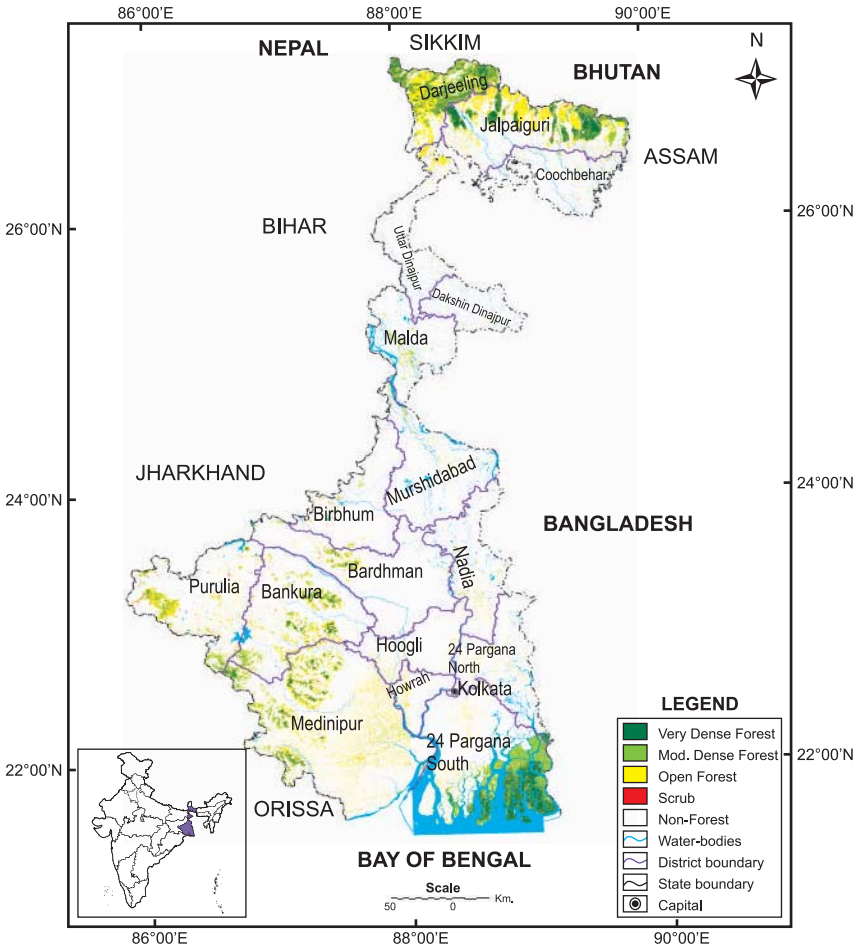


Fig. 8.29 : Forest Cover Map of West Bengal

Table 8.29b: Forest cover change matrix

(area in km^2)

2003 Assessment(Data of Nov. - Dec. 2002)	2005 Assessment (Data of Nov. - Dec. 2004)					Total 2003
	VDF	MDF	OF	Scrub	NF	
Very Dense Forest	2,302	0	0	0	0	2,302
Moderately Dense Forest	0	3,772	1	0	1	3,774
Open Forest	0	0	6,309	0	4	6,313
Scrub	0	0	2	68	5	75
Non Forest	0	5	22	0	76,261	76,288
Total 2005	**2,302**	**3,777**	**6,334**	**68**	**76,271**	**88,752**
Net Change	0	3	21	-7	-17	

Table 8.29c: District-wise forest cover

Number of Districts: 18

(area in km^2)

District	Geographic area	2005 Assessment				Percent of G.A.	Change	Scrub
		Very dense forest	Mod. dense forest	Open forest	Total			
Bankura[T]	6,882	100	315	612	1,027	14.92	2	13
Bardhman[T]	7,024	16	80	143	239	3.40	2	4
Birbhum[T]	4,545	0	18	50	68	1.50	2	7
Kolkata	185	0	0	0	0	0.00	0	0
Coochbehar	3,387	0	25	62	87	2.57	0	1
Dakshin Dinajpur[T]	2,219	0	2	13	15	0.68	0	0
Darjeeling[TH]	3,149	472	893	856	2,221	70.53	0	0
Howrah	1,467	0	5	75	80	5.45	0	0
Hoogli	3,149	0	2	67	69	2.19	0	0
Jalpaiguri[T]	6,227	607	573	1,233	2,413	38.75	14	13
Malda[T]	3,733	0	59	58	117	3.13	0	0
Medinipur[T]	14,081	186	571	1,798	2,555	18.15	-1	3
Murshidabad[T]	5,324	0	25	60	85	1.60	0	0
Nadia	3,927	1	24	70	95	2.42	0	0
North 24 Pargana	4,094	16	34	72	122	2.98	0	0
Purulia[T]	6,259	34	239	499	772	12.33	5	27
South 24 Pargana[T]	9,960	870	908	505	2,283	22.92	0	0
Uttar Dinajpur	3,140	0	4	161	165	5.25	0	0
Total	**88,752**	**2,302**	**3,777**	**6,334**	**12,413**	**13.99**	**24**	**68**

following a sampling based approach. A separate exercise was carried out where high resolution satellite data (5.8m) has been used for identification of tree patches for field inventory. Field inventory has been carried out on 810 sample plots spread over 5 districts of the State between 2002-06 and the estimated tree cover in the State is 2,269 km^2.

The forest and tree cover of the State is presented in the Table 8.29d.

Table 8.29d: Forest & tree cover

(area in km^2)

Category	Area	% of Geographical Area
Tree Cover	2,269	2.56
Forest Cover	12,413	13.99
Forest & Tree Cover	**14,682**	**16.55**