



West Bengal

9.30.1 Introduction

West Bengal State is covering an area of 88,752 sq km which is 2.7% of the geographical area of the country. The state can be divided into three major regions physiographically, the northern mountainous terrain, the south western peninsular tract exhibiting rolling topography and low lying alluvial Gangetic plains to the south. West Bengal has a diverse climate, varying from moist tropical in the southeast to dry tropical in the southwest and from subtropical to temperate in the mountains in the north. The average annual rainfall varies from about 900mm to about 5,000mm and the average annual temperature ranges between sub-zeros in the hills during the winters to about 46°C in southern parts during the summer. The state is drained by a number of rivers which includes Damodar, Hooghly, Mayurakashi, Teesta and Torsa. The state has 19 districts, among which 12 are tribal districts and one is a hill district. As per the 2011 census, West Bengal has a population of 91.28 million accounting to 7.54 percent of India's population. The rural and urban population constitutes 68.13% and 31.87% respectively. The population density of the state is 1028 per sq km which is higher than the national average of 382 persons per sq km. The 19th Livestock census 2012 has reported a total livestock population of 30.35 million.

Table 9.30.1 Land Use Pattern

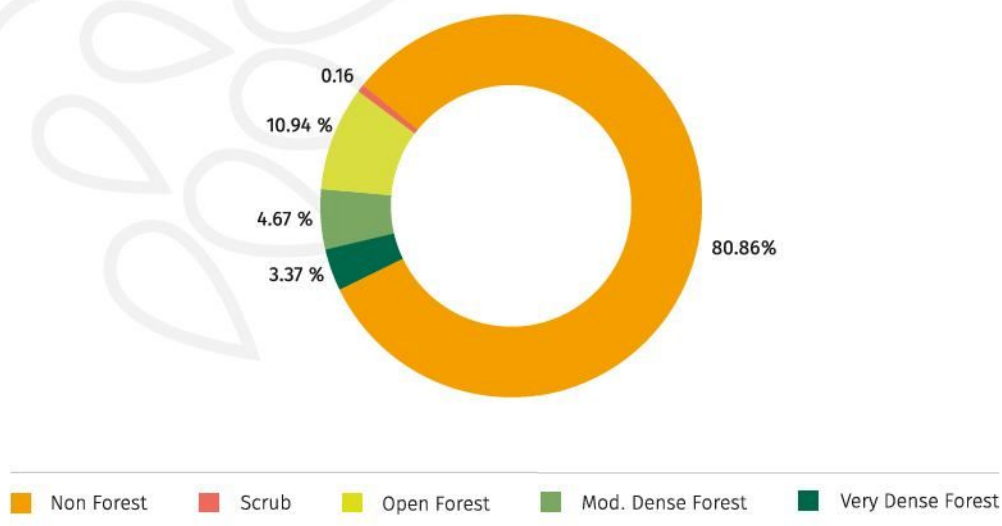
Land Use Types	Area (in 000' ha)	Percentage
Total Geographic Area	8,875	
Reporting area for land utilization	8,684	100
Forests	1,174	13.52
Not available for land cultivation	1846	21.26
Permanent pastures and other grazing lands	2	0.02
Land under misc. tree crops and groves	49	0.56
Culturable wasteland	18	0.21
Fallow land other than current fallows	12	0.14
Current fallows	349	4.02
Net area sown	5,234	60.27

Source: Land Use Statistics, Ministry of Agriculture, GOI, 2013-14.

9.30.2

Forest Cover

Based on interpretation of satellite data pertaining to Oct-Dec 2015, the forest cover in the State is 16,847 sq km which is 18.98% of the State's geographical area. In terms of forest canopy density classes, the state has 2,994 sq km under very dense forest, 4,147 sq km under moderately dense forest and 9,706 sq km under open forest.



Forest cover of West Bengal

Pie Chart showing forest cover of West Bengal

9.30.3

Forest Cover within and outside Recorded Forest Area

The recorded forest area of the state is 11,879 sq km which is 13.38% of its geographical area. The Reserved, Protected and Unclassed Forests are 59.38%, 31.76% and 8.86% respectively, of recorded forest area. However, as the digitized boundary of recorded forest area from the State covers 13,625 sq km, the analysis of forest cover within and outside this area is depicted below.

Table 9.30.2 Forest Cover within and outside Recorded Forest Area

Forest Cover within Recorded Forest Area (Area in sq km)

Very Dense Forest (VDF)	2,603
Moderately Dense Forest (MDF)	2,387
Open Forest (OF)	2,144
Total	7,134

Forest Cover outside Recorded Forest Area

Very Dense Forest	391
Moderately Dense Forest	1,760
Open Forest	7,562
Total	9,713

Table 9.30.2 Forest Cover within and outside Recorded Forest Area

Total Forest Cover	16,847
Tree Cover	2,136
Total Forest & Tree Cover	18,983
Of State's Geographical Area	21.39%
Of India's Forest & Tree Cover	2.37%
Per capita Forest & Tree Cover	0.02 ha

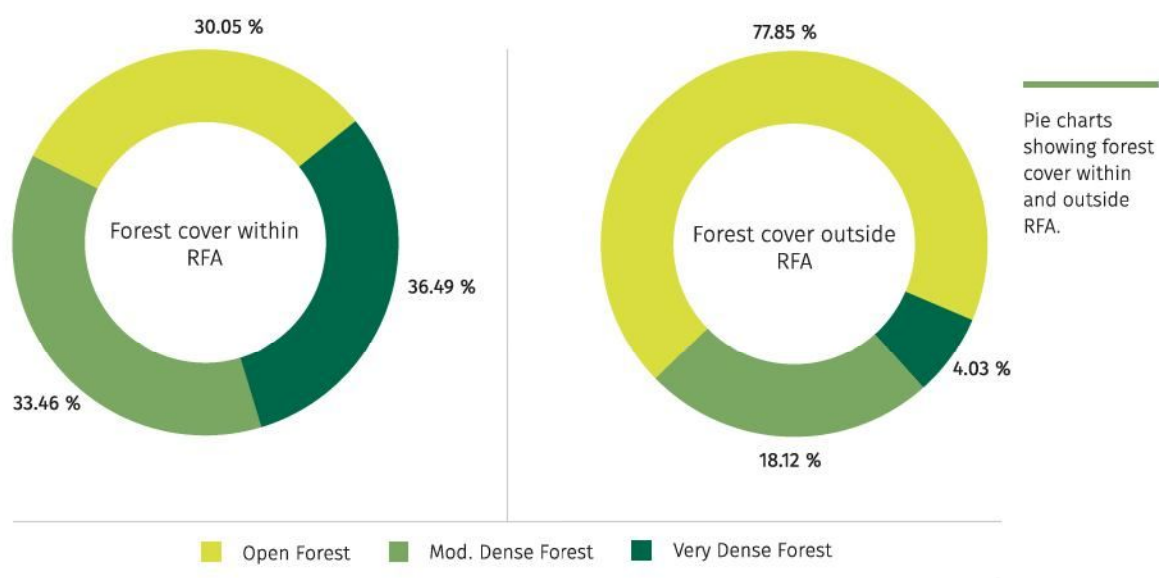


Table 9.30.3 Altitude-wise Forest Cover (area in sq km)

Altitude Zone(m)	Geographical Area	VDF	MDF	OF	Total
0-500	86,650	2,362	3,607	9,011	14,980
500-1000	807	142	270	264	676
1000-2000	970	268	222	389	879
2000-3000	292	196	44	40	280
>3000	33	26	4	2	32
Total	88,752	2,994	4,147	9,706	16,847

(Based on SRTM, Digital Elevation Model)

Table 9.30.4 Forest Cover in different Patch Size Classes

S. No.	Patch Size Range(sq km)	No. of Patches	Area (sq km)	%age
1.	$\geq 0.01 \leq 1.0$	66,713	4,583	27.20
2.	$> 1.0 \leq 10$	1,151	3,089	18.33
3.	$> 10 \leq 100$	194	5,025	29.83
4.	$> 100 \leq 500$	7	1,155	6.86
5.	$> 500 \leq 1000$	1	517	3.07
6.	$> 1000 \leq 5000$	2	2,478	14.71
	Total	68,068	16,847	100.00

Table 9.30.5 Growing Stock

	Growing Stock	% Contribution to country
Growing Stock in Recorded Forest Area	76.634 m cum	1.82
Growing Stock in TOF	38.100 m cum	2.38
Potential Production of industrial wood from TOF	2.06 m cum	2.77
Bamboo bearing area within forest area of the state	942 sq km	0.60
Total number of culms	464 millions	1.65
Total green weight equivalent of culms	948 (000' tonnes)	0.50

9.30.4

Carbon Stock

The total Carbon stock of forests in the State is 163.201 million tonnes (598,404 million tonnes of CO₂ equivalent) which is 2.30% of total forest carbon of the country.

9.30.5

Decadal Change in water bodies within Forest Cover

An increase of 22 sq km has been observed in the water body coverage within Forest compared to 2015. The graphical and tabular comparison is depicted below.

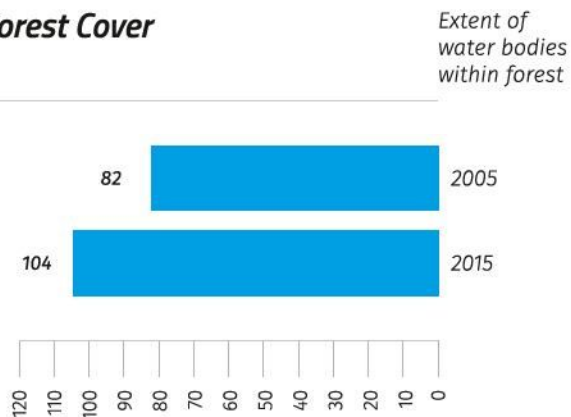


Table 9.30.6 Water bodies within Forest for the years 2005 and 2015

Area/Coverage	2005	2015
Extent of water bodies (sq km) within Forest	82	104
% of water bodies to Forest Cover	0.63	0.62

Table 9.30.7 District- wise Forest Cover

(area in sq km)

District	Geo-graphical Area	2017 Assessment				% of GA	Change*	Scrub
		Very Dense Forest	Mod. Dense Forest	Open Forest	Total			
Bankura ^T	6,882	220	388	662	1,270	18.45	8	29
Bardhaman ^T	7,024	58	91	186	335	4.77	18	7
Birbhum ^T	4,545	1	32	144	177	3.89	1	11
Dakshin Dinajpur ^T	2,219	0	5	82	87	3.92	-1	0
Darjiling TH	3,149	722	648	995	2,365	75.1	-11	10
Haora	1,467	0	50	254	304	20.72	0	0
Hugli	3,149	0	14	146	160	5.08	0	0
Jalpaiguri ^T	6,227	715	441	1,701	2,857	45.88	2	35
Koch Bihar	3,387	0	27	322	349	10.3	0	0
Kolkata	185	0	0	1	1	0.54	0	0
Maldah ^T	3,733	0	209	282	491	13.15	-11	0
Murshidabad ^T	5,324	0	53	293	346	6.5	-3	0
Nadia	3,927	1	160	319	480	12.22	0	0
North Twenty Four Parganas	4,094	13	185	525	723	17.66	-1	0
Paschim Medinipur ^T	9,368	239	591	1,321	2,151	22.96	-19	20
Purba Medinipur ^T	4,713	2	198	620	820	17.4	-4	2
Puruliya ^T	6,259	37	306	561	904	14.44	33	21
South Twenty Four Parganas ^T	9,960	986	745	1,061	2,792	28.03	9	1
Uttar Dinajpur	3,140	0	4	231	235	7.48	0	0
Grand total	88,752	2,994	4,147	9,706	16,847	18.98	21	136

*Change compared to updated 2015 assessment.

Table 9.30.8 Forest Cover Change Matrix

(area in sq km)

Class	2017 Assessment					Total ISFR 2015 updated
	VDF	MDF	OF	Scrub	NF	
Very Dense Forest	2,915	12	12	1	3	2,943
Moderately Dense Forest	75	4,058	22	3	18	4,176
Open Forest	3	69	9,511	14	110	9,707
Scrub	0	1	16	104	12	133
Non Forest	1	7	145	14	71,626	71,793
Total ISFR 2017	2,994	4,147	9,706	136	71,769	88,752
Net Change	51	-29	-1	3	-24	

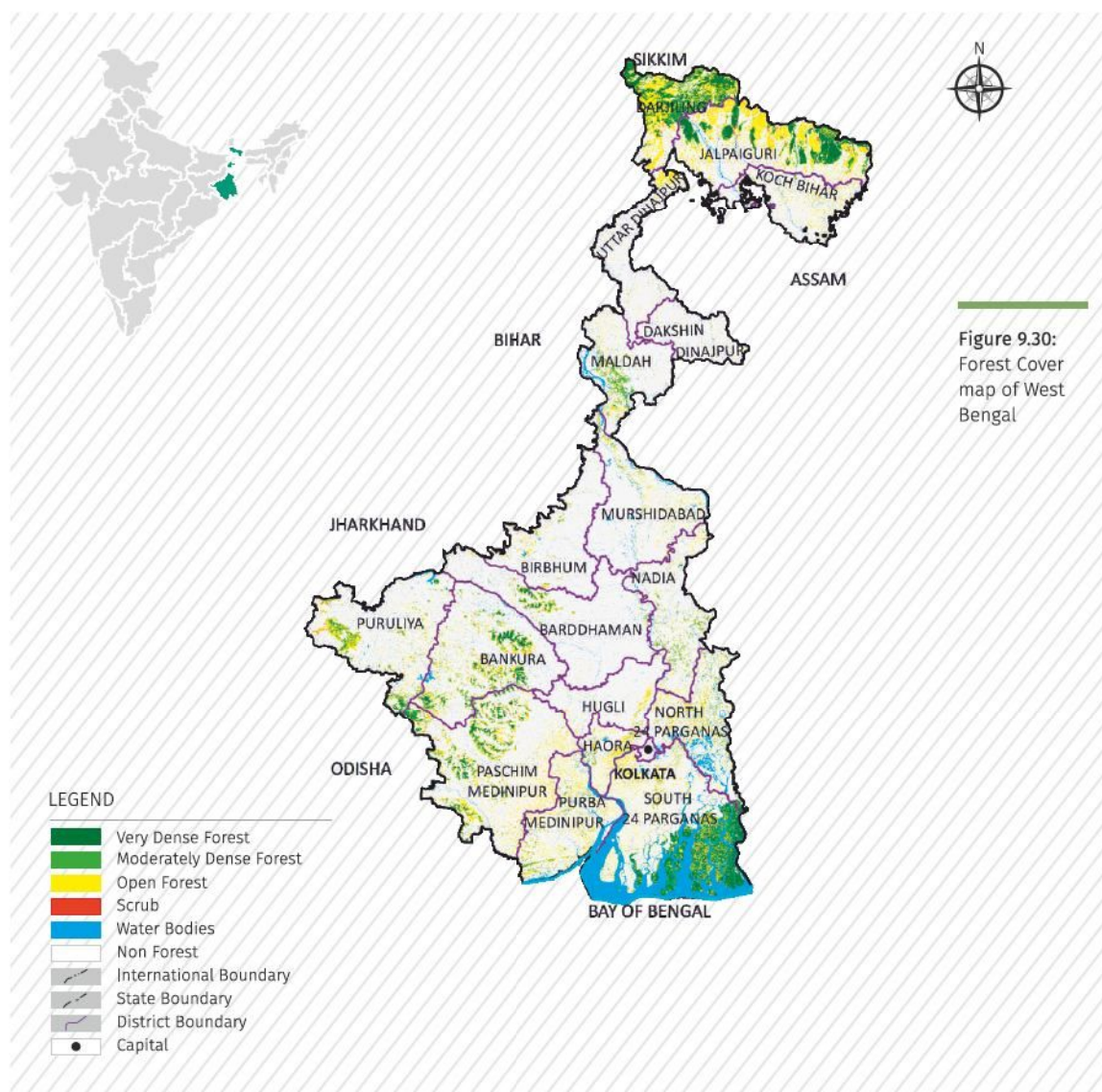


Figure 9.30:
Forest Cover
map of West
Bengal

9.30.6

Reasons for change detected in 2017 assessment

A net increase of 21 sq km has been observed in the State which can be attributed to plantation activities mostly outside recorded forest areas as well as due to conservation of mangroves.