



Assam

9.3.1 Introduction

Assam is a State in northeastern India covering an area of 78,438 sq km which is 2.39% of the geographical area of the country. The state can be broadly divided into 3 physiographic domains viz. Brahmaputra valley, Central Assam Hills comprising of Mikir Hill in Karbi Anglong and North Cachar Hill districts and Barak valley. Assam has a subtropical climate. The average annual rainfall varies from about 1,500 mm to 3,750 mm and the average annual temperature ranges from 5°C to 32°C. Brahmaputra is a major river draining the State. The state has 27 districts, among which 19 are tribal and 3 are hill districts. As per the 2011 census, Assam has a population of 31.21 million accounting to 2.58% of India's population. The State has urban, rural and tribal population of 14.10%, 85.90% and 12.45% respectively. The average population density of the state is 398 persons per sq km. The Livestock population of the State as per 19th Live Stock Census-2012 is 19.08 million.

Table 9.3.1 Land Use Pattern

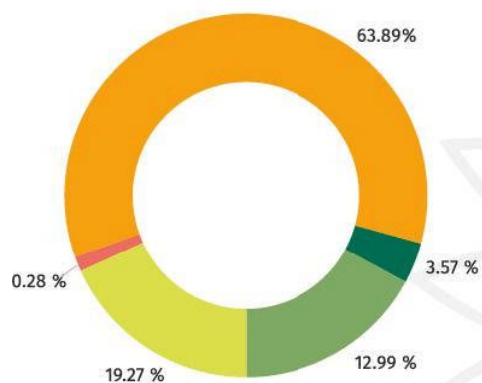
Land Use Types	Area (in 000' ha)	Percentage
Total Geographic Area	7,844	
Reporting area for land utilization	7,844	100
Forests	1,853	23.62
Not available for land cultivation	2,466	31.43
Permanent pastures and other grazing lands	168	2.14
Land under misc. tree crops and groves	222	2.83
Culturable wasteland	144	1.84
Fallow land other than current fallows	85	1.08
Current fallows	87	1.11
Net area sown	2,820	35.95

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

9.3.2

Forest Cover

Based on interpretation of satellite data pertaining to Oct - Dec 2015, the Forest Cover in the State is 28,105 sq km which is 35.83% of the State's geographical area. In terms of Forest canopy density classes, the State has 2,797 sq km under Very Dense Forest, 10,192 sq km under Moderately Dense Forest and 15,116 sq km under Open Forest.



*Forest cover
of Assam*

Pie Chart
showing forest
cover of Assam

Non Forest Scrub Open Forest Mod. Dense Forest Very Dense Forest

9.3.3

Forest Cover within and outside Green Wash Area

The State has reported a recorded forest area of 26,832 sq km which is 34.21% of its geographical area. The reserved and unclassified forests are 66.58% and 33.42% respectively, of the recorded forest area. Due to non-availability of digitized boundary of recorded forest area from the State, the updated green wash which is 27,560 sq km has been used and the analysis of forest cover within and outside this area is depicted below.

Table 9.3.2 Forest Cover within and outside Green Wash

Forest Cover within Green Wash (Area in sq km)	
Very Dense Forest (VDF)	2,553
Moderately Dense Forest (MDF)	8,775
Open Forest (OF)	8,686
Total	20,014
Forest Cover outside Green Wash	
Very Dense Forest	244
Moderately Dense Forest	1,417
Open Forest	6,430
Total	8,091
Total Forest Cover	28,105
Tree Cover	1,496
Total Forest & Tree Cover	29,601
Of State's Geographical Area	37.74 %
Of India's Forest & Tree Cover	3.69 %
Per capita Forest & Tree Cover	0.09 ha

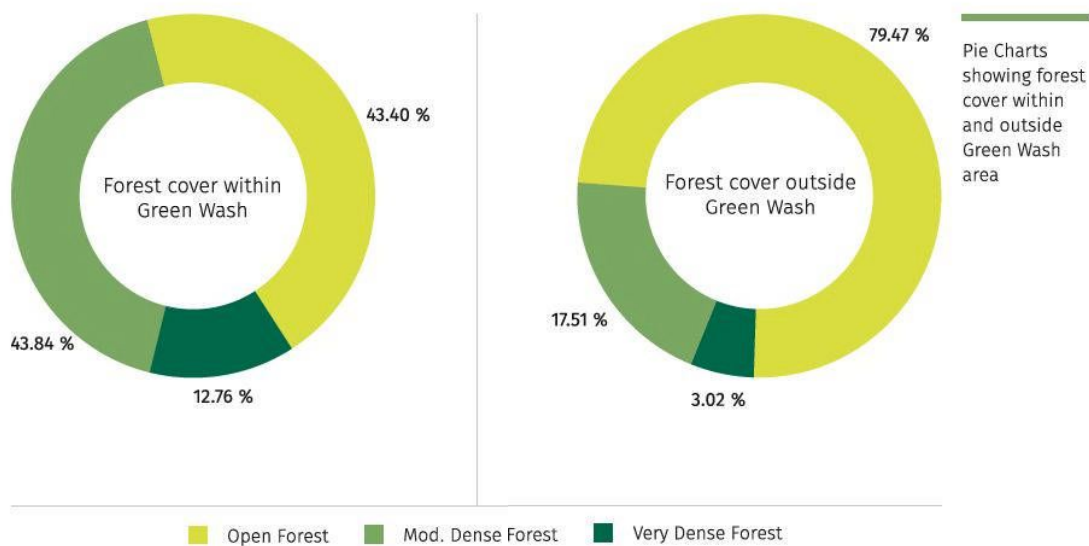


Table 9.3.3 Altitude-wise Forest Cover (Area in sq km)

Altitude Zone (m)	Geographical Area	VDF	MDF	OF	Total
0-500	72,348	2,289	7,787	12,680	22,756
500-1000	5,315	362	2,110	2,156	4,628
1000-2000	775	146	295	280	721
Total	78,438	2,797	10,192	15,116	28,105

(Based on SRTM, Digital Elevation Model)

Table 9.3.4 Forest Cover in different Patch Size Classes

S.No.	Patch Size Range (sq km)	No. of Patches	Area(sq km)	%age
1.	>=0.01 <=1.0	47,610	3,423	12.18
2.	> 1.0 <= 10	764	2,090	7.44
3.	> 10 <= 100	111	3,247	11.55
4.	> 100 <= 500	22	5,005	17.81
5.	> 500 <= 1000	1	637	2.27
6.	> 1000 <= 5000	1	2,150	7.65
7.	> 5000 <= 10000	0	0	0.00
8.	> 10000	1	11,553	41.10
	Total	48,510	28,105	100

Table 9.3.5 Growing Stock

	Growing Stock	% Contribution to country
Growing Stock in Recorded Forest Area	133.128 m cum	3.15
Growing Stock in TOF	30.195 m cum	1.88
Potential Production of industrial wood from TOF	0.87 m cum	1.17
Bamboo bearing area within forest area of the state	8,955 sq km	5.71
Total number of culms	2,452 millions	8.73
Total green weight equivalent of culms	14,912 (000' tonnes)	7.90

9.3.4

Carbon Stock in forest

The total Carbon stock of forests in the State is 176,852 million tonnes (648,457 million tonnes of CO₂ equivalent) which is 2.50% of total forest carbon of the country.

9.3.5

Decadal Change in water bodies within Forest

An increase of 87 sq km has been observed in the water body coverage within Forest as compared to 2005. The graphical and tabular comparison is depicted below.

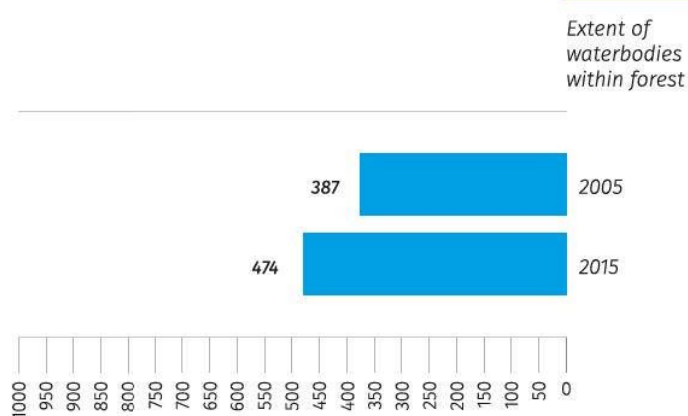


Table 9.3.6 Water bodies within Forest for the years 2005 and 2015

Area/Coverage	2005	2015
Extent of water bodies (sq km) within Forest	387	474
% of water bodies to Forest Cover	1.39	1.69

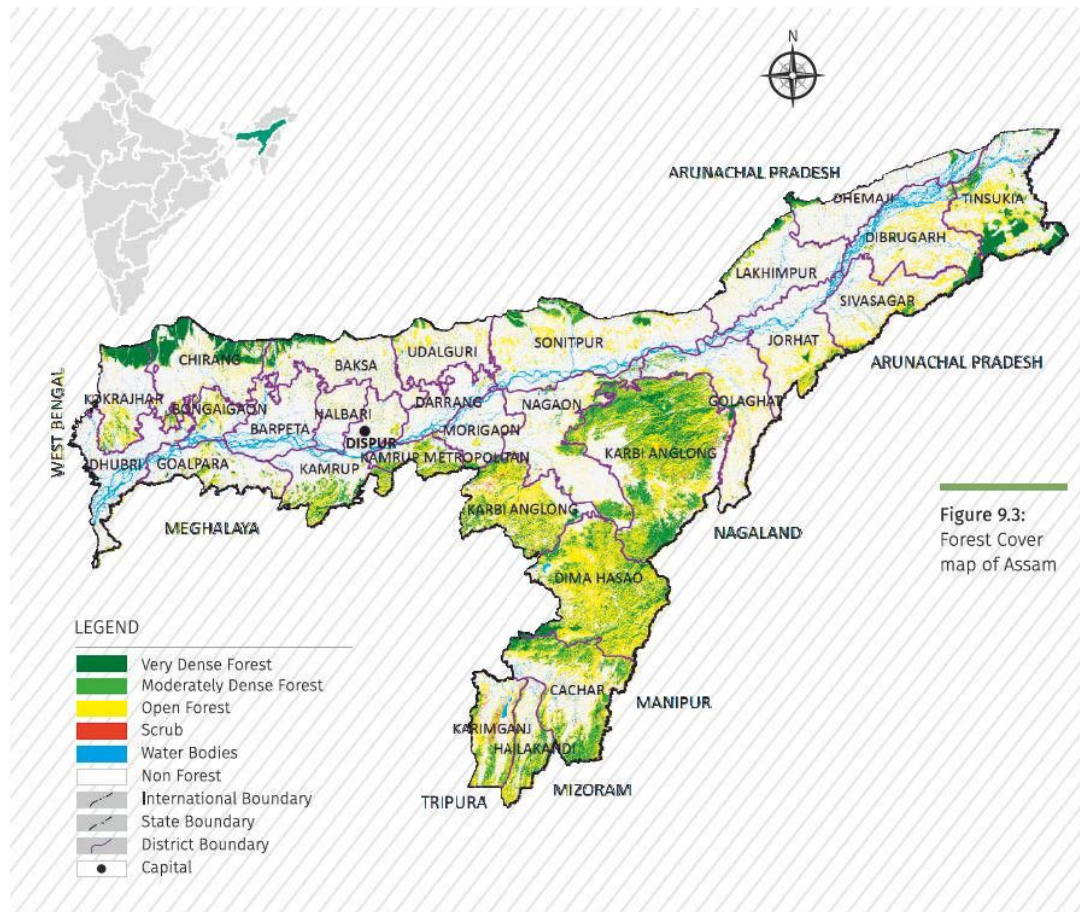


Figure 9.3:
Forest Cover
map of Assam

Table 9.3.7 District- wise Forest Cover

(area in sq km)

District	Geo-geographical Area	2017 Assessment				% of GA	Change *	Scrub
		Very Dense Forest	Mod. Dense Forest	Open Forest	Total			
Baksa ^T	2,457	156	127	273	556	22.63	39	6
Barpeta ^T	2,282	0	24	81	105	4.60	11	1
Bongaigaon	1,093	0	54	182	236	21.59	59	0
Cachar ^T	3,786	93	1,077	1,053	2,223	58.72	-5	19
Chirang	1,923	402	108	184	694	36.09	56	3
Darrang ^T	1,585	0	11	75	86	5.43	12	1
Dhemaji ^T	3,237	68	125	145	338	10.44	26	4
Dhubri ^T	2,176	1	19	70	90	4.14	14	4
Dibrugarh ^T	3,381	106	68	583	757	22.39	1	1
Dima Hasao ^H	4,888	209	1,519	2,482	4,210	86.13	-45	4
Goalpara ^T	1,824	14	94	190	298	16.34	-21	2

District	Geo-graphical Area	2017 Assessment				% of GA	Change *	Scrub
		Very Dense Forest	Mod. Dense Forest	Open Forest	Total			
Golaghat	3,502	21	119	511	651	18.59	95	4
Hailakandi	1,327	13	366	394	773	58.25	-2	5
Jorhat ^T	2,851	12	103	439	554	19.43	11	4
Kamrup ^T	3,105	50	421	448	919	29.60	4	3
Kamrup Metropolitan ^T	955	0	225	235	460	48.17	5	1
Karbi-Anglong ^H	10,434	586	3,801	3,596	7,983	76.51	15	76
Karimganj	1,809	3	300	513	816	45.11	-1	47
Kokrajhar ^T	3,296	438	267	453	1,158	35.13	-44	1
Lakhimpur ^T	2,277	29	86	180	295	12.96	33	1
Morigaon ^T	1,551	10	42	122	174	11.22	37	4
Nagaon ^H	3,973	50	363	497	910	22.90	130	9
Nalbari ^T	1,052	0	19	75	94	8.94	7	0
Sivasagar ^T	2,668	9	153	526	688	25.79	-11	3
Sonitpur ^T	5,204	109	259	687	1,055	20.27	120	3
Tinsukia ^T	3,790	410	356	813	1,579	41.66	6	10
Udalguri ^T	2,012	8	86	309	403	20.03	15	1
Total	78,438	2,797	10,192	15,116	28,105	35.83	567	217

*Change compared to updated 2015 assessment.

Table 9.3.8 Forest Cover Change Matrix						(area in sq km)
Class	2017 Assessment					Total ISFR 2015 updated
	VDF	MDF	OF	Scrub	NF	
Very Dense Forest	1,102	234	9	0	80	1,425
Moderately Dense Forest	1,590	9,058	451	2	155	11,256
Open Forest	105	788	13,253	17	694	14,857
Scrub	0	24	102	171	71	368
Non Forest	0	88	1,301	27	49,116	50,532
Total ISFR 2017	2,797	10,192	15,116	217	50,116	78,438
Net Change	1,372	-1,064	259	-151	-416	

9.3.6

Reasons for change detected in 2017 assessment

An increase of 567 sq km in the forest cover is mainly due to the plantations mostly outside forest areas. The decrease in forest cover in some districts is mainly due to rotational felling in tea gardens, shifting cultivation and developmental activities.