

13.17

MEGHALAYA

Geographical Area
22,429 sq km

Geographical Coordinates
Latitude- 24° 58' N to 26° 07' N
Longitude-89° 48' E to 92° 51' E

Population (as per Census 2011)
2.96 million
Urban 0.59 million (20.07 %)
Rural 2.37 million (79.93 %)
Tribal 2.56 million (21.09 %)

Average Population Density
132 per sq km

Livestock population
(as per 19th Live Stock Census)
1.95 million

No. of Districts
7

No. of Hill Districts
7

No. of Tribal Districts
7

Table 13.17.1 Land Use Pattern

Land Use Types	Area (in '000 ha)	Percentage
Geographical Area	2,243	
Reporting area for land utilization	2,196	100.00
Forests	929	42.30
Not available for land cultivation	254	11.57
Permanent pastures and other grazing lands	-	-
Land under misc. tree crops and groves	165	7.51
Culturable wasteland	384	17.49
Fallow land other than current fallows	153	6.97
Current fallows	58	2.64
Net area sown	253	11.52

Source: Land Use Statistics, Ministry of Agriculture, GOI, (2017-18)

13.17.1 Forest Cover

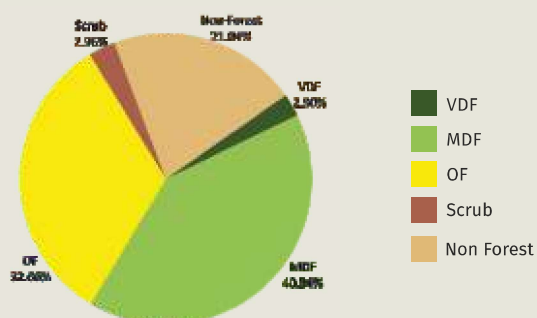


Figure 13.17.1
Forest Cover
of Meghalaya

Table 13.17.2 Forest Cover of
Meghalaya (in sq km)

Class	Area	% of GA
VDF	560.16	2.50
MDF	9,159.89	40.84
OF	7,326.02	32.66
Total	17046.07	76.00
Scrub	662.89	2.96

Table 13.17.3 District- wise Forest Cover in Meghalaya

(in sq km)

District	Geo-geographical Area (GA)	2021 Assessment				%of GA	Change wrt 2019 assessment	Scrub
		Very Dense Forest	Mod. Dense Forest	Open Forest	Total			
East Garo Hills TH	2,603	62.81	1,072.48	1,120.63	2,255.92	86.67	-32.04	90.31
East Khasi Hills TH	2,748	21.85	965.82	728.54	1,716.21	62.45	4.02	110.88
Jaintia Hills TH	3,819	126.36	1,424.63	980.01	2,531.00	66.27	-6.89	106.86
Ribhoi TH	2,448	127.38	1,095.66	915.27	2,138.31	87.35	0.97	59.25
South Garo Hills TH	1,887	74.50	977.40	640.02	1,691.92	89.66	-10.28	21.41
West Garo Hills TH	3,677	0.00	1,251.83	1,580.62	2,832.45	77.03	-27.77	76.33
West Khasi Hills TH	5,247	147.26	2,372.07	1,360.93	3,880.26	73.95	-0.73	197.85
Grand Total	22,429	560.16	9,159.89	7,326.02	17,046.07	76.00	-72.72	662.89

13.17.1.1 Forest Cover Inside and Outside Recorded Forest Area (or Green Wash)

The Forest Cover inside and outside Recorded Forest Area (RFA) has been analysed in different categories and presented in Table given below.

Table 13.17.4 Forest Cover Inside and Outside Recorded Forest Area or (Green Wash) in Meghalaya

(in sq km)

Forest Cover Inside the Recorded Forest Area (or Green Wash)				Forest Cover Outside the Recorded Forest Area (or Green Wash)			
VDF	MDF	OF	Total	VDF	MDF	OF	Total
512	7,652	6,634	14,798	48	1,508	692	2,248
3.46%	51.71%	44.83%		2.14%	67.08%	30.78%	

*in case of Meghalaya, GW boundaries have been used.

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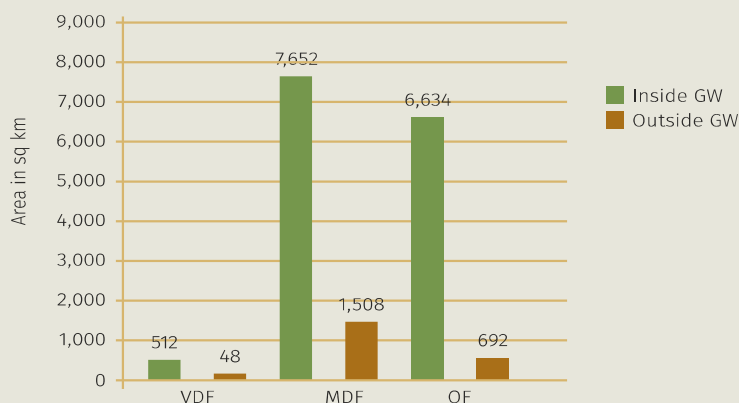


Figure 13.17.2
Forest Cover
Inside and Outside
of GW in
Meghalaya

Table 13.17.5 Forest Cover Change Matrix for Meghalaya

(in sq km)

Class	2021 Assessment					Total ISFR 2019
	VDF	MDF	OF	Scrub	NF	
Very Dense Forest	487	2	0	0	0	489
Moderately Dense Forest	73	9,112	37	6	39	9,267
Open Forest	0	33	7,244	27	59	7,363
Scrub	0	1	18	576	5	600
Non Forest	0	12	27	54	4,617	4,710
Total ISFR 2021	560	9,160	7,326	663	4,720	22,429
Net Change	71	-107	-37	63	10	

Table 13.17.6 Altitude-wise Forest Cover in Meghalaya

(in sq km)

Altitude Zone (m)	Geographical Area	VDF	MDF	OF	Total	Scrub
0-500	10,152	269	4,241	4,070	8,580	229
500-1000	6,239	236	2,622	2,289	5,147	316
1000-2000	6,038	55	2,297	967	3,319	118
Total	22,429	560	9,160	7,326	17,046	663

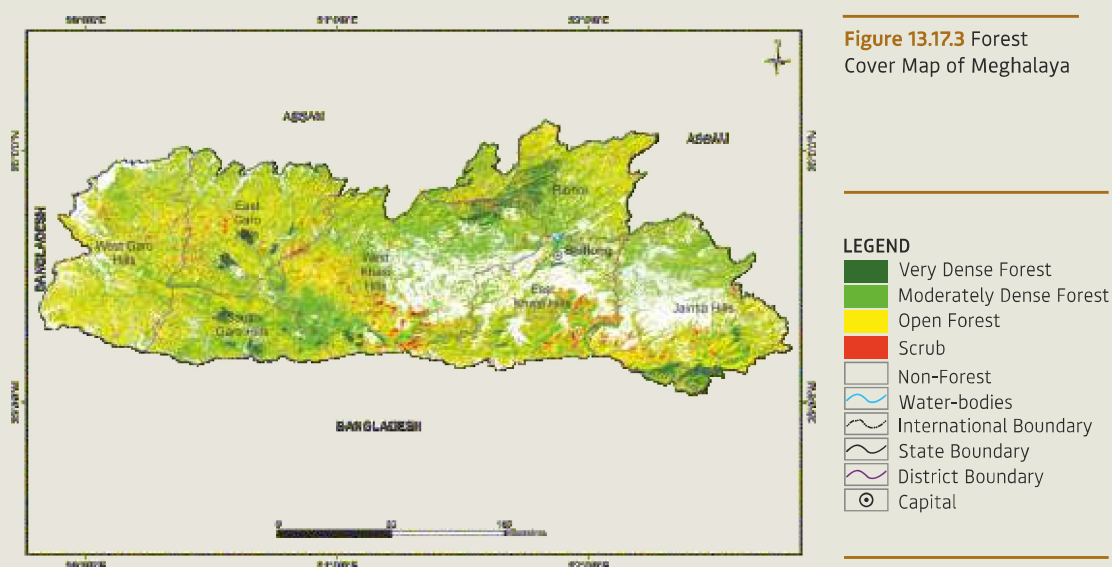
(based on SRTM, Digital Elevation Model, 30 m, 2016)

Table 13.17.7 Forest Cover in different slope classes in Meghalaya

(in sq km)

Slope (in degrees)	Geographical Area	VDF	MDF	OF	Total	Scrub
0-5	6,169	120	1,896	1,622	3,638	154
5-10	6,115	120	2,459	2,095	4,674	180
10-15	4,403	101	1,965	1,602	3,668	137
15-20	2,670	83	1,278	964	2,325	89
20-25	1,488	61	751	517	1,329	57
25-30	806	38	416	272	726	39
>30	778	37	395	254	686	7
Total	22,429	560	9,160	7,326	17,046	663

(based on SRTM, Digital Elevation Model, 30 m, 2016)



13.17.2 Forest Types

The area under different forest types of Meghalaya as per the Champion & Seth classification (1968), according to the Atlas Forest Types of India 2020 are presented in the following Table.

Table 13.17.8 Area statistics of the Forest Types found in Meghalaya

(in sq km)

Sl. No.	Forest Type	Area	% of the total mapped area*
1.	1B/C3 Cachar tropical evergreen forest	1,515.18	8.22
2.	1/2S1 Pioneer Euphorbiaceous scrub	485.43	2.63
3.	2B/C1a Assam alluvial plains semi-evergreen forest	129.03	0.70
4.	2/2S1 Secondary moist bamboo brakes	375.66	2.04
5.	3C/C1a(ii) <i>Khasi</i> hill sal	1,176.82	6.38
6.	3C/C3b East Himalayan moist mixed deciduous forest	8,692.38	47.14
7.	8B/C2 <i>Khasi</i> subtropical wet hill forest	3,593.38	19.49
8.	9/C2 Assam subtropical pine forest	1,169.30	6.34
	Sub Total	17,137.18	92.94
9.	TOF/Plantation	581.44	3.15
	Total (Forest Cover & Scrub)	17,718.62	

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(in sq km)

Sl. No.	Forest Type	Area	% of the total mapped area*
Grassland forest type (outside forest cover)			
10.	9/C2/DS1 Assam subtropical pine savannah	719.70	3.91
Sub Total		719.70	3.91
Grand Total		18,438.32	100.00

*Forest Types have been assigned to the natural forest formations under forest cover and scrub categories shown in forest cover mapping (ISFR, 2019). Grassland forest type outside forest cover has also been mapped. The total mapped area, therefore, is sum of forest cover, scrub and grassland forest types (found in non-forest).

Table 13.17.9 Forest Fire Prone Classes (in sq km)

Sl. No.	Forest Fire Prone Classes	Forest Cover	% of Total Forest Cover
1.	Extremely fire prone	1,588.24	9.32
2.	Very highly fire prone	3,505.49	20.56
3.	Highly fire prone	3,716.73	21.80
4.	Moderately fire prone	2,900.24	17.02
5.	Less fire prone	5,335.30	31.30
Total		17,046.00	100.00

13.17.3 Fire Prone Forest Areas

Forest Cover under different classes of forest fire proneness is given in following table.

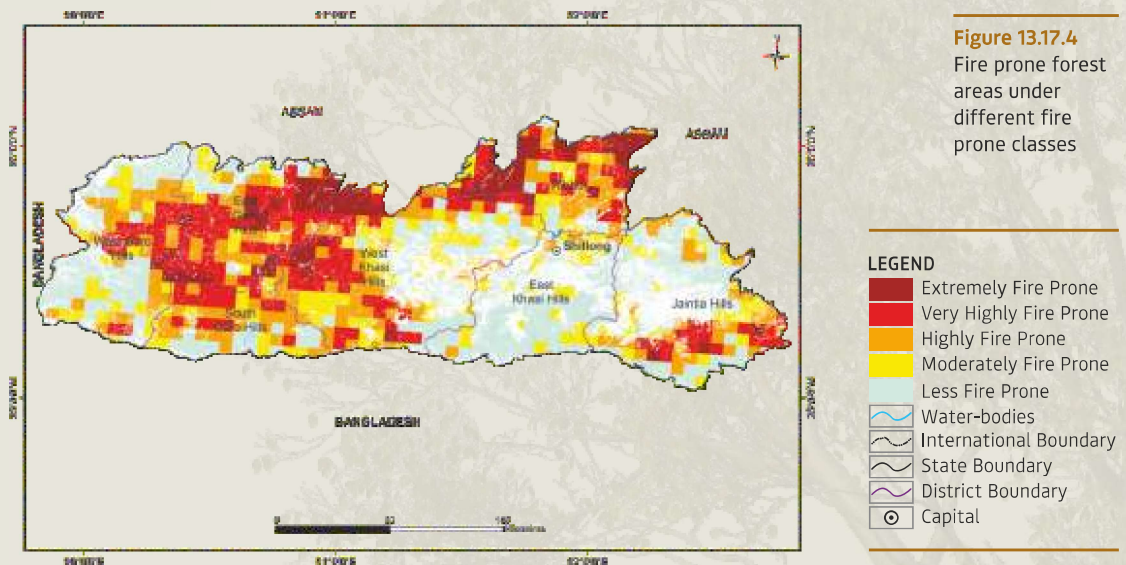


Figure 13.17.4 Fire prone forest areas under different fire prone classes

- LEGEND**
- Extremely Fire Prone
 - Very Highly Fire Prone
 - Highly Fire Prone
 - Moderately Fire Prone
 - Less Fire Prone
 - Water-bodies
 - International Boundary
 - State Boundary
 - District Boundary
 - Capital

13.17.4 Tree Cover

Tree cover is defined as all tree patches of size less than 1 ha occurring outside the recorded forest area. Tree cover includes trees in all formations including scattered trees. Tree cover in Meghalaya has been estimated as given in following table.

Table 13.17.10 Tree Cover in Meghalaya

(in sq km)

2019 Assessment	2021 Assessment	Change wrt 2019 Assessment
710	698	-12

11.17.5 Extent of Trees Outside Forest (TOF)

Trees outside Forests (TOF) refer to tree resources found outside the forests as defined in the Government records. Forest Cover outside the recorded forest area is derived using boundaries of RFA or Green Wash. Extent of TOF therefore may be estimated as the sum of extent of forest cover outside the recorded forest areas (RFA) and tree cover as given in following table.

Table 13.17.11 Extent of TOF in Meghalaya

(in sq km)

Forest Cover outside the RFA/GW	Tree Cover	Extent of TOF
2,248	698	2,946

13.17.6 Growing Stock in Forest

Growing stock in the recorded forest areas (RFA) in Meghalaya is given in the Table 13.17.12. Diameter class-wise distribution of top 5 species in numbers derived from the forest inventory data is presented in the table 13.17.13.

Table 13.17.12 Growing Stock in Meghalaya

(in m cum)

Sl. No.	Growing Stock (GS)	2019 Assessment	2021 Assessment	Change wrt 2019 Assessment	% of Country's GS
1.	Growing Stock in Recorded Forest Area	31.28	35.54	4.26	0.81
2.	Growing Stock in TOF	18.84	20.82	1.98	1.17

Table 13.17.13 Diameter class distribution of top five tree species inside RFA in Meghalaya

(in '000)

Sl. No.	Species	Dia class (cm)		
		10-30	30-60	>60
1.	<i>Schima wallichii</i>	16,460	1,701	73
2.	<i>Pinus kesiya</i>	6,802	1,511	121
3.	<i>Shorea robusta</i>	2,894	429	0
4.	<i>Ficus</i> spp.	1,935	143	70
5.	<i>Artocarpus heterophyllus</i>	855	400	32

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13.17.7 Dominant tree species in Trees Outside Forests (TOF)

Top five species in numbers in Trees Outside Forests in Meghalaya in Rural and Urban areas are given in the Table 13.17.14 and Table 13.17.15 respectively.

Table 13.17.14 Top five tree species in TOF (Rural) in Meghalaya

Sl. No.	Species	Relative Abundance (%)
1.	<i>Pinus kesiya</i>	23.45
2.	<i>Pinus roxburghii</i>	17.09
3.	<i>Schima wallichii</i>	11.59
4.	<i>Areca catechu</i>	6.79
5.	<i>Pinus pectula</i>	5.71

Table 11.17.15 Top five tree species in TOF (Urban) in Meghalaya

Sl. No.	Species	Relative Abundance (%)
1.	<i>Pinus kesiya</i>	37.98
2.	<i>Pinus pectula</i>	14.18
3.	<i>Pinus roxburghii</i>	8.15
4.	<i>Areca catechu</i>	4.47
5.	<i>Schima khasiana</i>	3.99

13.17.8 Carbon Stock in Forest

The total Carbon stock of forest in the State including the TOF patches which are more than 1ha in size is 183.39 million tonnes (672.43 million tonnes of CO₂ equivalent) which is 2.55 % of total forest carbon of the country. Pool wise forest carbon in Meghalaya is given in the following table.

Table 13.17.16 Forest Carbon in Meghalaya in different pools (in '000 tonnes)

Sl. No.	Carbon Pools	Forest Carbon
1.	AGB	55,241
2.	BGB	15,820
3.	Dead wood	1,238
4.	Litter	3,075
5.	SOC	1,08,014
Total		1,83,388

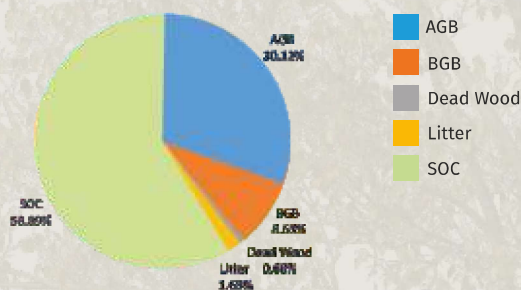


Figure 13.17.5 Forest Carbon in Meghalaya

13.17.9 Growing Stock of Bamboo

Bamboo bearing area and growing stock inside the recorded forest area (RFA)/ Green Wash which include culms of 1 year age and above are given in the following table.

Table 13.17.17 Growing Stock of Bamboo in Meghalaya

Growing Stock (GS)		% of Country's GS of Bamboo
Bamboo bearing area inside RFA/Green Wash (in sq km)	5,007	3.35
Total number of culms (in millions)	2,199	4.12
Total equivalent green weight (in '000 tonnes)	24,745	6.16

13.17.10 Major NTFP and Invasive Species

Major NTFP and invasive species as assessed from forest inventory data are presented in the Table 13.17.18 and Table 13.17.19 respectively.

Table 13.17.18 Major NTFP species in Meghalaya

Sl. No.	Species	Plant Type	Relative Abundance (%)
1.	Thatch Grass	Herbs	25.99
2.	<i>Careya arborea</i>	Tree	19.49
3.	<i>Terminalia belerica</i>	Tree	15.52
4.	<i>Bauhinia variegata/Phanera varigeta</i>	Tree	11.91
5.	<i>Embilica officinalis/Phyllanthus</i>	Tree	10.11

Table 13.17.19 Major invasive species in the State inside the RFA/Green Wash in Meghalaya

(in sq km)

Sl. No.	Species	Estimated Extent
1.	<i>Chromolaena odorata</i>	73
2.	<i>Lantana camara</i>	21
3.	<i>Mikania micrantha</i>	21
4.	<i>Microcystis aeruginosa</i>	1

Major NTFP species are given in terms of relative abundance whereas invasive species are given in terms of their estimated extent.

