



## Haryana

### 9.9.1 Introduction

The State of Haryana, having an area of 44,212 sq km, constitutes 1.34% of the geographical area of the country. Haryana physiographically falls in the Indo Gangetic plain although some of the areas fall in Shiwalik hills as well. Climate of the state varies from moist sub-tropical in north bordering Himachal Pradesh to arid in southern part bordering Rajasthan. The average annual rainfall varies from about 213mm to 1,400mm and the average annual temperature ranges between 1°C to 45°C. The Yamuna and the Ghaggar are the important rivers of the state. The state comprises 21 districts and none of which are hill or tribal. As per the 2011 census, Haryana has a population of 25.35 million accounting to 2.1 percent of India's population. The rural and urban population constitutes 34.87% and 65.13% respectively. The population density of the state is 573 per sq km. The 19<sup>th</sup> Livestock census 2012 has reported a total livestock population of 8.82 million

Table 9.9.1 Land Use Pattern

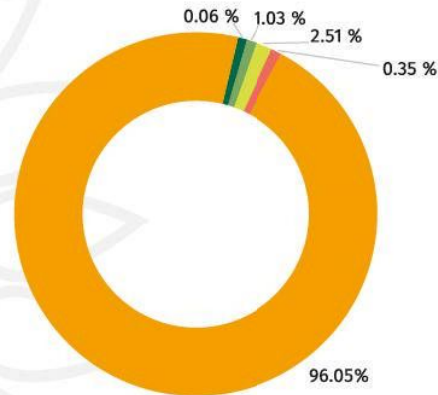
Land Use Types	Area (in 000' ha)	Percentage
Total Geographic Area	4,421	
Reporting area for land utilization	4,371	100.00
Forests	39	0.89
Not available for land cultivation	662	15.14
Permanent pastures and other grazing lands	26	0.59
Land under misc. tree crops and groves	7	0.16
Culturable wasteland	18	0.41
Fallow land other than current fallows	22	0.50
Current fallows	101	2.31
Net area sown	3,497	80.00

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

### 9.9.2

#### Forest Cover

Based on interpretation of satellite data pertaining to Oct-Dec 2015, the forest cover in the state is 1,588 sq km which is 3.59% of the state's geographical area. In terms of forest canopy density classes, the state has 28 sq km under very dense forest, 452 sq km under moderately dense forest and 1,108 sq km under open forest.



### Forest cover of Haryana

Pie Chart showing forest cover of Haryana

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

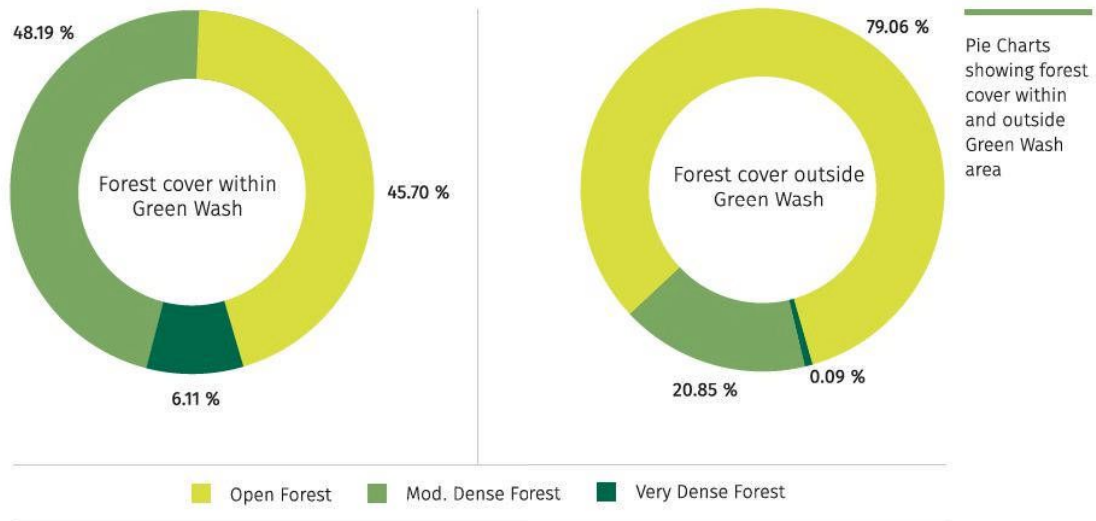
#### 9.9.3

### Forest Cover within and outside Green Wash Area

The recorded forest area of the state is 1,559 sq km which constitutes 3.53% of its geographical area. The Reserved, Protected and Unclassed Forests constitute 15.97%, 74.28% and 9.75% 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 524 sq km has been used and the analysis of forest cover within and outside this area is depicted below.

Table 9.9.2 Forest Cover within and outside Green Wash Area

Forest Cover Within Green wash (Area in sq km)	
Very Dense Forest	27
Moderately Dense Forest	213
Open Forest	202
<b>Total</b>	<b>442</b>
Forest Cover Outside Green wash	
Very Dense Forest	1
Moderately Dense Forest	239
Open Forest	906
<b>Total</b>	<b>1,146</b>
<b>Total Forest Cover</b>	<b>1,588</b>
<b>Tree Cover</b>	<b>1,415</b>
<b>Total Forest &amp; Tree Cover</b>	<b>3,003</b>
Of State's Geographical Area	6.79%
Of India's Forest & Tree Cover	0.37%
Per capita Forest & Tree Cover	0.01 ha



**Table 9.9.3 Altitude-wise Forest Cover (Area in sq km)**

Altitude Zone (m)	Geographical Area	VDF	MDF	OF	Total
0-500	43,838	16	337	954	1,307
500-1000	330	12	94	133	239
1000-2000	44	0	21	21	42
<b>Total</b>	<b>44,212</b>	<b>28</b>	<b>452</b>	<b>1,108</b>	<b>1,588</b>

(Based on SRTM, Digital Elevation Model)

**Table 9.9.4 Forest Cover in different Patch Size Classes**

S.No.	Patch Size Range in (sq km)	No. of Patches	Area (sq km)	%age
1.	≥ 0.01 ≤ 1.0	5,822	557	35.08
2.	> 1.0 ≤ 10	104	235	14.80
3.	> 10 ≤ 100	12	466	29.34
4.	> 100 ≤ 500	2	330	20.78
	<b>Total</b>	<b>5,940</b>	<b>1,588</b>	<b>100.00</b>

Table 9.9.5 Growing Stock

	Growing Stock	% Contribution to country
Growing Stock in Recorded Forest Area	5.405 m cum	0.13
Growing Stock in TOF	15.490 m cum	0.97
Potential Production of industrial wood from TOF	1.46 m cum	1.96
Bamboo bearing area within forest area of the state	21 sq km	0.01
Total number of culms	-	-
Total green weight equivalent of culms	-	-

9.9.4

### Carbon Stock in forest

The total Carbon stock of forests in the State is 12.411 million tonnes (45.507 million tonnes of CO<sub>2</sub> equivalent) which is 0.18% of total forest carbon of the country.

9.9.5

### Decadal Change in water bodies within Forest

A decrease of 5 sq km has been observed in the water body coverage within Forest compared to 2005. The graphical and tabular comparison is depicted below.

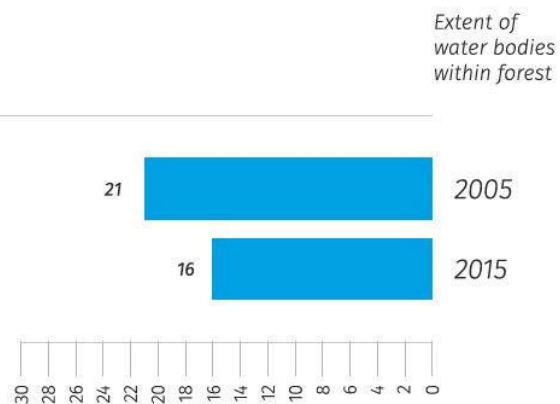


Table 9.9.6 Water bodies within Forest for the years 2005 and 2015

Area/Coverage	2005	2015
Extent of water bodies (sq km) within Forest	21	16
% of water bodies to Forest Cover	1.31	1.01

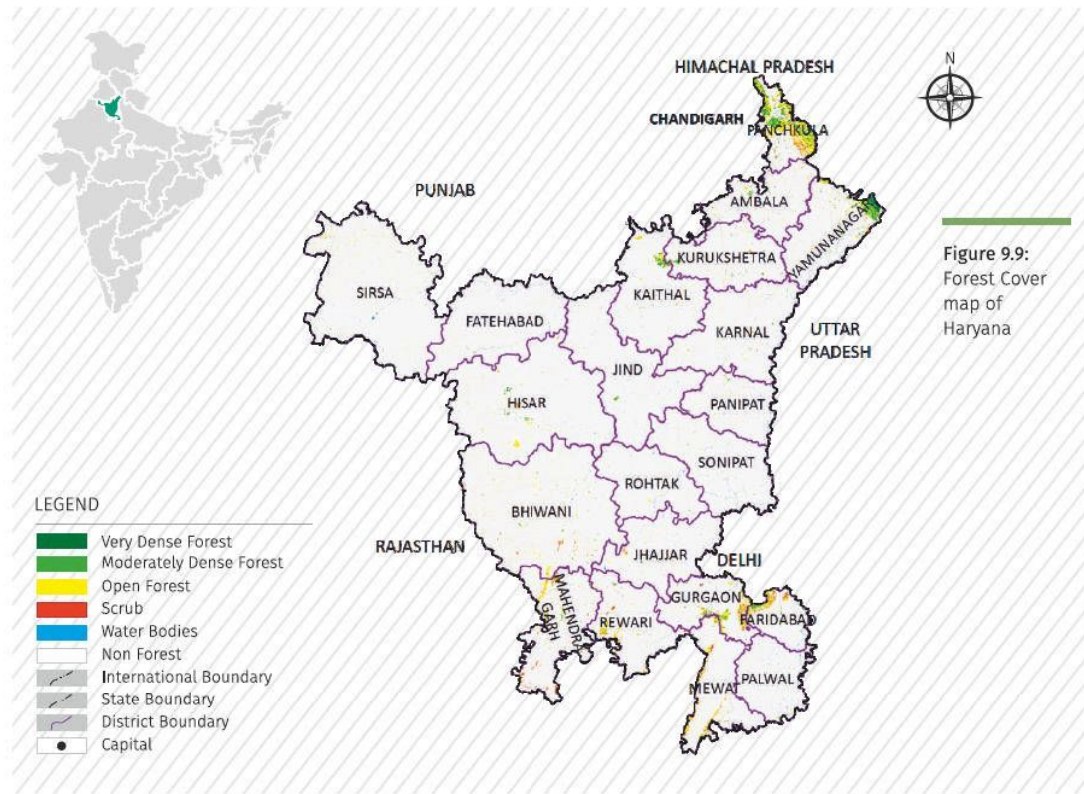


Figure 9.9:  
Forest Cover  
map of  
Haryana

Table 9.9.7 District wise Forest Cover		(area in sq km)						
District	Geographical Area	2017 Assessment				% of GA	Change *	Scrub
		Very Dense Forest	Mod. Dense Forest	Open Forest	Total			
Ambala	1,574	0	18	34	52	3.30	0	1
Bhiwani	4,778	0	8	104	112	2.34	0	11
Faridabad	741	0	26	54	80	10.80	5	17
Fatehabad	2,538	0	3	15	18	0.71	1	0
Gurgaon	1,258	0	34	83	117	9.30	1	17
Hisar	3,983	0	12	45	57	1.43	3	4
Jhajjar	1,834	0	0	24	24	1.31	0	4
Jind	2,702	0	5	16	21	0.78	0	0
Kaithal	2,317	0	24	33	57	2.46	0	0
Karnal	2,520	0	4	28	32	1.27	-2	1
Kurukshetra	1,530	0	18	21	39	2.55	-2	1
Mahendragarh	1,899	0	22	77	99	5.21	-1	34
Mewat	1,507	0	14	96	110	7.30	2	26
Palwal	1,359	0	2	12	14	1.03	-1	0
Panchkula	898	6	151	234	391	43.54	-1	24
Panipat	1,268	0	3	13	16	1.26	0	1

**Table 9.9.7 District wise Forest Cover** (area in sq km)

District	Geographical Area	2017 Assessment				% of GA	Change *	Scrub
		Very Dense Forest	Mod. Dense Forest	Open Forest	Total			
Rewari	1,594	0	10	49	59	3.70	0	11
Rohtak	1,745	0	3	16	19	1.09	0	0
Sirsa	4,277	0	3	54	57	1.33	2	0
Sonipat	2,122	0	3	17	20	0.94	0	1
Yamunanagar	1,768	22	89	83	194	10.97	1	1
<b>Total</b>	<b>44,212</b>	<b>28</b>	<b>452</b>	<b>1,108</b>	<b>1,588</b>	<b>3.59</b>	<b>8</b>	<b>154</b>

\*Change compared to updated 2015 assessment.

**Table 9.9.8 Forest Cover Change Matrix** (area in sq km)

Class	2017 Assessment					Total ISFR 2015 updated
	VDF	MDF	OF	Scrub	NF	
VDF	25	2	1	0	0	28
MDF	3	345	75	5	16	444
OF	0	79	857	31	141	1,108
Scrub	0	4	30	89	27	150
Non Forest	0	22	145	29	42,286	42,482
<b>Total ISFR 2017</b>	<b>28</b>	<b>452</b>	<b>1,108</b>	<b>154</b>	<b>42,470</b>	<b>44,212</b>
Net Change	0	8	0	4	-12	

### 9.9.6

#### ***Reasons for change detected in 2017 assessment***

A net increase of 8 sq km in forest cover observed is mostly due to increase in tree cover outside recorded forest area. The decrease in forest cover in certain pockets is due to rotational felling.

