

11.34

DAMAN & DIU

11.34.1 Introduction

Daman & Diu is a Union Territory on the western coast of India. Prior to 1987, it was part of the union territory of Goa, Daman & Diu. Daman is located in the Gulf of Cambay and Diu is an Island located in the same Gulf. The geographical area of Daman & Diu is 111 sq km which constitute 0.003% of the total area of the country. The Daman lies between 20°22'N to 20°28' N latitude and 71° 46' E to 72° 55' E longitude and Diu lies between 20°42'N to 20°48'N latitude and 70°00'E to 71°10'E longitude. The average annual rainfall ranges between 2,300 mm to 4,800 mm and the mean annual temperature ranges between 25°C to 28°C. The UT has two districts of which one is tribal. As per Census 2011, the population of the UT is 0.24 million which constitutes 0.02% of the country's population. The urban & rural population constitute 75.17% and 24.83% respectively. The population density is 2,191 per sq km. According to the 19th Livestock Census, 2012, the UT has 0.004 million livestock.

TABLE 11.34.1 Land Use Pattern

Land Use Types	Area (in 000' ha)	Percentage
Geographical Area	11	
Reporting area for land utilization	3.15	100
Forests	-	0
Not available for land cultivation	0.18	5.85
Permanent pastures and other grazing lands	-	-
Land under misc. tree crops and groves	0.06	1.78
Culturable wasteland	0.06	1.78
Fallow land other than current fallows	0.01	0.25
Current fallows	0.12	3.66
Net area sown	2.73	86.68

Source: Land Use Statistics, Ministry of Agriculture, GOI, (2014-15)



11.34.1.1 A Brief Overview of Forestry Scenario

As per the Champion & Seth Classification of Forest Types (1968), the forests in Daman & Diu belong to the Type Group 'Littoral & Swamp Forests. Diu is an important tourist destination on the west coast of India. The mangroves in the 'Fudam Bird Sanctuary' forms the spawning ground for fishes and acts as feeding ground for several species of avifauna. The UT Forest Department under takes plantation activities on available land. The department implements various schemes and activities such as distribution of seedlings to public free of cost, creation and maintenance of urban gardens/parks/road side plantations and awareness programmes.

Recorded Forest Area (RFA) in the Union Territory is 8 sq km all of which is Unclassed Forest. In Daman & Diu, no forest land has been diverted for various non-forestry purposes under the Forest Conservation Act, 1980 in the last four years (MoEF&CC, 2019).

The Protected Area network in the State has one Wildlife Sanctuary, which covers 1.96% of geographical area of the Union Territory.

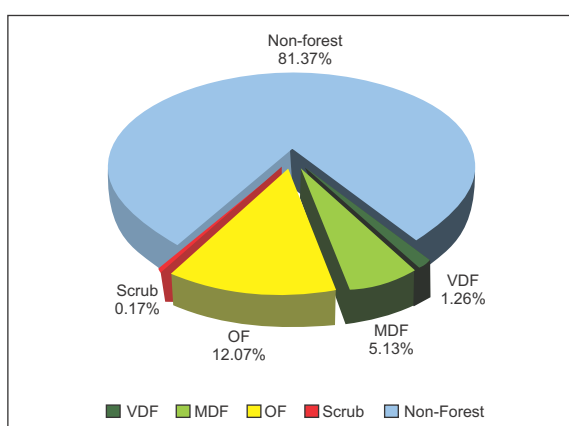
11.34.2 Forest Cover

Based on the interpretation of IRS Resourcesat-2 LISS III satellite data of Oct 2017, the Forest Cover in the UT is 20.49 sq km which is 18.46 % of the UT's geographical area. In terms of forest canopy density classes, the UT has 1.40 sq km under Very Dense Forest (VDF), 5.69 sq km under Moderately Dense Forest (MDF) and 13.40 sq km under Open Forest (OF).

TABLE 11.34.2 Forest Cover of Daman & Diu

(in sq km)		
Class	Area	% of GA
VDF	1.40	1.26
MDF	5.69	5.13
OF	13.40	12.07
Total	20.49	18.46
Scrub	0.19	0.17

FIGURE 11.34.1 Forest Cover of Daman & Diu

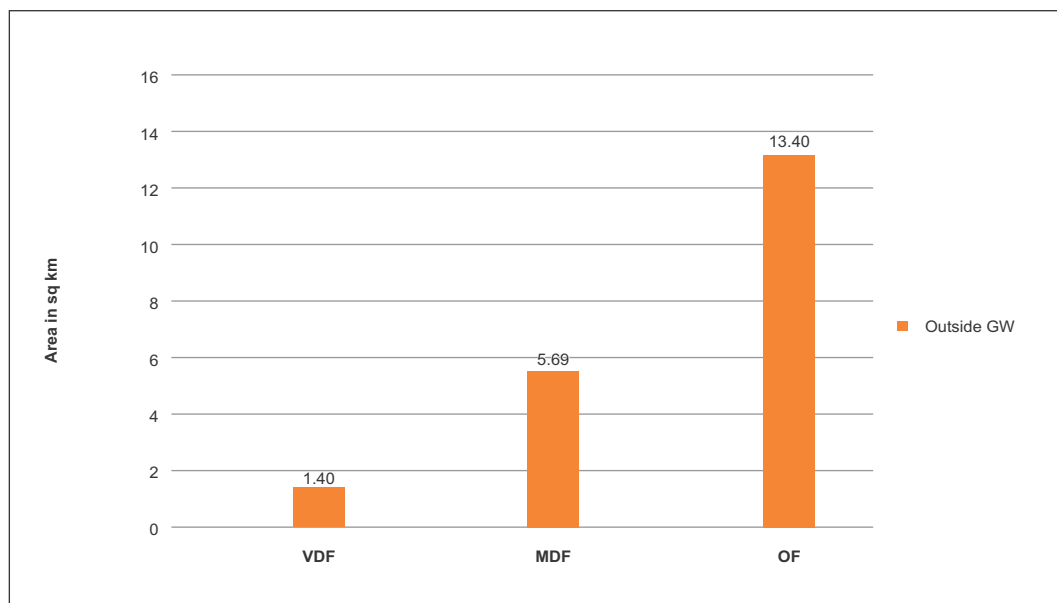


11.34.2.1 Forest Cover inside and outside Recorded Forest Area (or Green Wash)

The recorded forest area of UT is 8 sq km all of which is unclassified and constitutes 7.21% of its geographical area. There are no Green wash areas in the UT as per Survey of India toposheets. Therefore, all forest cover fall outside green wash area.

TABLE 11.34.3 Forest Cover inside and outside Recorded Forest Area or (Green Wash)

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
0.00	0.00	0.00	0.00	1.40	5.69	13.40	20.49
0.00%	0.00%	0.00%		6.83%	27.77%	65.40%	

FIGURE 11.34.2 Forest Cover Outside Green Wash in Daman & Diu**TABLE 11.34.4** District-wise Forest Cover in Daman & Diu

(in sq km)

District	Geographical Area (GA)	2019 Assessment				% of GA	Change wrt 2017 assessment	Scrub
		Very Dense Forest	Mod. Dense Forest	Open Forest	Total			
Daman ^T	72	0.00	1.93	8.98	10.91	15.15	-0.05	0.19
Diu	39	1.40	3.76	4.42	9.58	24.56	0.05	0.00
Grand Total	111	1.40	5.69	13.40	20.49	18.46	0.00	0.19

TABLE 11.34.5 Forest Cover Change Matrix for Daman & Diu

(in sq km)

Class	2019 Assessment					Total ISFR 2017
	VDF	MDF	OF	Scrub	NF	
Very Dense Forest	1.40	0.00	0.00	0.00	0.00	1.40
Moderately Dense Forest	0.00	5.69	0.00	0.00	0.13	5.82
Open Forest	0.00	0.00	13.20	0.00	0.07	13.27
Scrub	0.00	0.00	0.00	0.19	0.08	0.27
Non Forest	0.00	0.00	0.20	0.00	90.04	90.24
Total ISFR 2019	1.40	5.69	13.40	0.19	90.32	111.00
Net Change	0.00	-0.13	0.13	-0.08	0.08	

TABLE 11.34.6 Altitude-wise forest cover in Daman & Diu

(in sq km)

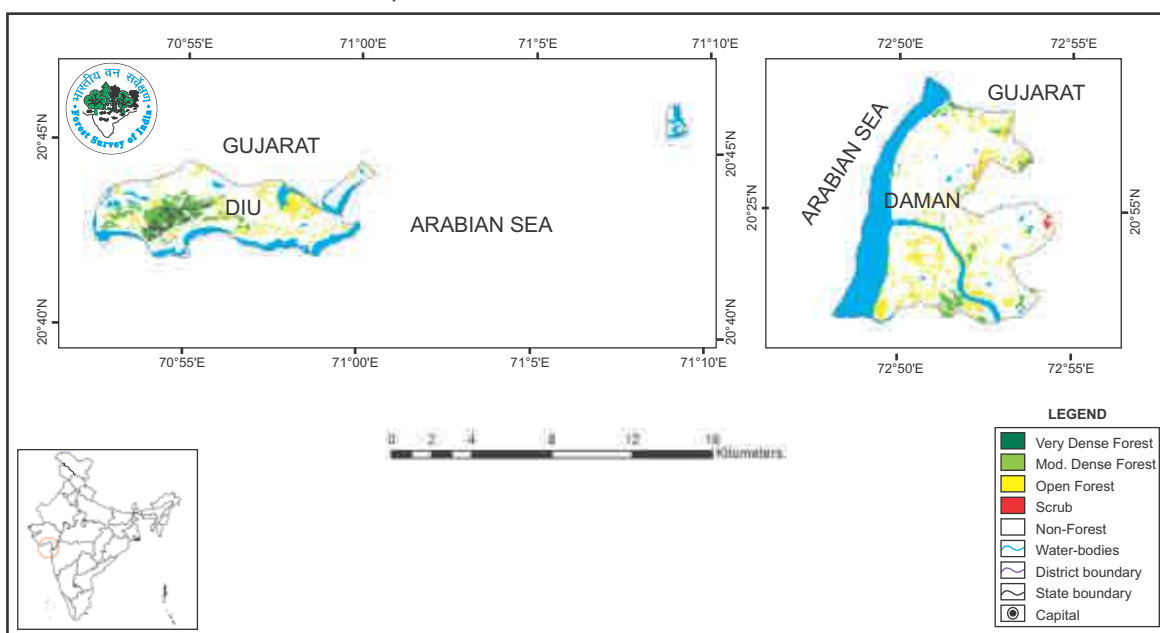
Altitude Zone (m)	Geographical Area	VDF	MDF	OF	Total	Scrub
0-500	111	1.40	5.69	13.40	20.49 (100%)	0.19
Total	111	1.40	5.69	13.40	20.49	0.19

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

TABLE 11.34.7 Forest Cover in different slope classes in Daman & Diu (in sq km)

Slope (in degrees)	Geographical Area	VDF	MDF	OF	Total	Scrub
0-5	106	1.39	5.54	12.86	19.79 (96.58%)	0.11
5-10	4	0.01	0.14	0.47	0.62 (3.03%)	0.04
10-15	1	0.00	0.01	0.04	0.05 (0.24%)	0.03
15-20	0	0.00	0.00	0.03	0.03 (0.15%)	0.01
Total	111	1.40	5.69	13.40	20.49	0.19

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

FIGURE 11.34.3 Forest Cover Map of Daman & Diu

11.34.3 Forest Types & Biodiversity

Forest Type Maps of 2011 have been refined in the recently completed exercise by FSI. Percentage area under different forest types of Daman & Diu as per the Champion & Seth classification (1968), according to the latest exercise are presented in the following table.

TABLE 11.34.8 Percentage area under different forest types in Daman & Diu

Sl.No.	Forest Type	% of Forest cover
1.	4A/L1 Littoral Forest	6.69
2.	4B/TS2 Mangrove Forest	14.79
3.	5A/C3 Southern Dry Mixed Deciduous forest	1.30
4.	5/DS1 Dry Deciduous Scrub	1.35
5.	6B/C1 Desert Thorn forest	14.45
6.	TOF/Plantation 61.42 Total	100.00

11.34.4 Tree Cover

Forest cover presented in the section 11.34.2 accounts for tree patches of size 1 ha and more having canopy density more than 10%. However, trees occurring in patches of size less than 1 ha including scattered trees are assessed through sampling based methodology. Tree cover in Daman & Diu has been estimated as given in table 11.34.9.

TABLE 11.34.9 Tree Cover in Daman & Diu
(in sq km)

Tree Cover	Area
	5

Tree cover of Daman & Diu has decreased by 5 sq km as compared to the previous assessment reported in ISFR 2017

11.34.5 Extent of Trees Outside Forest (TOF)

Trees outside Forests (TOF) refer to tree resources found outside the forests as defined in the Government records. FSI maps forest cover using satellite data and assesses tree cover outside forests using sampling based method. 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 the preceding section.

TABLE 11.34.10 Extent of TOF in Daman & Diu
(in sq km)

Forest Cover outside the RFA/GW	Tree Cover	Extent of TOF
20.49	5	25.49

11.34.6 Growing Stock in Forest

Growing stock in the recorded forest areas (RFA) in Daman & Diu is given in the table 11.34.11. Diameter class-wise distribution of top 5 species in numbers, derived from the forest inventory data is presented in the table 11.34.12

TABLE 11.34.11 Growing Stock in Daman & Diu
(in m cum)

Growing Stock (GS)		% of Country's GS
Growing Stock in Recorded Forest Area	0.09	0.002
Growing Stock in TOF	0.15	0.01

TABLE 11.34.12 Diameter class distribution of top five species inside RFA in Daman & Diu
(in '000)

Sl. No.	Species	Dia class (cm)		
		10-30	30-60	>60
1.	<i>Casuarina equisetifolia</i>	242	34	1
2.	<i>Prosopis juliflora</i>	144	3	0
3.	<i>Acacia arabica</i>	59	3	0
4.	<i>Azadirachta indica</i>	8	3	0

11.34.7 Carbon Stock in Forest

The total Carbon stock of forests in the UT including the TOF patches which are more than 1 ha in size is 0.15 million tonnes (0.55 million tonnes of CO₂ equivalent) which is 0.0021% of total forest carbon of the country. Pool wise forest carbon in Daman & Diu is given in the following table

TABLE 11.34.13 Forest Carbon in Daman & Diu in different pools
(in '000 tonnes)

AGB	BGB	Dead wood	Litter	SOC	Total
35	10	0.27	2	105	152

11.34.8 Dominant tree species in Trees Outside Forests (TOF)

Top five species in numbers in Trees Outside Forests in Daman & Diu in Rural and Urban areas are given in the table 11.34.14 and table 11.34.15 respectively.

TABLE 11.34.14 Top five tree species in TOF (Rural) in Daman & Diu

Sl. No.	Species	Relative Abundance (%)
1.	<i>Mangifera indica</i>	29.78
2.	<i>Manihot utilissima</i>	12.80
3.	<i>Phoenix sylvestris</i>	11.89
4.	<i>Cocos nucifera</i>	11.55
5.	<i>Casuarina equisetifolia</i>	9.29

TABLE 11.34.15 Top five tree species in TOF (Urban) in Daman & Diu

Sl. No.	Species	Relative Abundance (%)
1.	<i>Cocos nucifera</i>	20.00
2.	<i>Moringa species</i>	16.67
3.	<i>Leucaena leucocephala</i>	13.33
4.	<i>Zizyphus jujuba</i>	6.67
5.	<i>Ficus virene</i>	6.67

