

Executive Summary

Forest Survey of India (FSI) carries out assessment and monitoring of forest cover of the country on a two-year cycle and publishes the findings in the form of 'State of Forest Report' (SFR) on biennial basis. The first SFR was brought out in 1987 and SFR 2003 is the ninth in the series. The forest cover is assessed and monitored by interpreting the latest satellite data procured from National Remote Sensing Agency (NRSA), Hyderabad. The SFRs provide valuable information for policy formulation and planning both at national and state levels. The National Forest Policy (1988) sets out a definite quantitative stipulation for the forest and tree cover for the country and the periodical information provided by SFRs keeps the nation informed of gaps between the actual status and the goals set.

SFR 2003 has been enriched by the incorporation of many new features. The most prominent one is the introduction of one more density class in the classification of forest cover. Upto SFR 2001, any forest cover with a canopy density more than 40% was classified as 'Dense Forest' (DF). There have been suggestions from many quarters that the density class from 40 to 100% was too broad and therefore, SFR 2003 shows the forest cover with a canopy density over 70% as 'Very Dense Forest' (VDF); and that with canopy density between 40 to 70% as 'Moderately Dense Forest' (MDF). The same category has been introduced in mangrove cover assessment too.

Another newly incorporated highly useful feature is the Chapter on the growing stock of wood. The chapter provides information on volumes of growing stock of wood not only in forest areas but also outside it. Sound statistical techniques of stratification, sampling, field inventory and data processing have been used for this estimation which is valuable for planning and management decisions.

SFR 2001 was the first report based on figures of forest cover arrived at using digital image processing (DIP) technique at the scale of interpretation of 1:50,000. Earlier, the forest cover assessment was made using visual interpretation technique and the scale of interpretation was 1:1 million to 1:250,000 and therefore it was not proper to make a valid comparison of results of SFR 2001 with those of earlier SFRs. SFR 2003 provides the direct comparison of forest cover figures with those of SFR 2001 as similar digital methodology and same scale of interpretation have been used in both the assessments. Since the SFR 2001 did not have the class VDF in its figures; change matrices have been made giving the comparison only for the classes described in SFR 2001. The classes VDF and MDF have been clubbed as Dense Forest for this purpose. It may be mentioned that the changes indicated in forest cover may still comprise two components: one, due to actual change on the ground during the intervening period, and two, because of interpretational differences.

As in SFR 2001, in SFR 2003 also, forest cover has been taken as comprising all lands more than one hectare in area, with a tree canopy density of more than 10 per cent, irrespective of land use and ownership. All perennial woody vegetation (including

bamboos, palms, coconut, apple, mango, neem, peepal, etc.) has been treated as tree in this report. Thus, all lands with tree crops, such as agro forestry plantations, fruit orchards, tea and coffee estates with trees, etc. have been included in forest cover.

Another new feature is the introduction of a new methodology based on remote sensing to estimate the tree cover which is below 1 ha and can not be discerned using LISS III data used for forest cover assessment. In the new methodology, high resolution PAN data has been used along with LISS III data to stratify the districts into three strata, viz. block plantation, linear plantation and scattered trees. By this method one can identify a tree vegetated land as small as 0.1 ha on the ground. Ground inventory is carried out in desired number of sample plots in each strata and data obtained is processed to generate a notional tree cover at 70 percent canopy density. Thus, as done in last report, a complete picture of forest and tree cover in the country has been provided in the SFR 2003.

The salient features of the SFR 2003 are summarized below:-

- i. The forest cover in the country is 678,333 km² and constitutes 20.64 percent of its geographical area. Of this, the very dense forest (VDF) constitutes 51,285 km², (1.56%) moderately dense forest (MDF) constitutes 339,279 km² (10.32%) and open forest constitutes 287,769 km² (8.76%). Madhya Pradesh with 76,429 km² of forest cover has the maximum forest cover among all the States/UTs, followed by Arunachal Pradesh (68,019 km²) and Chhattisgarh (55,998 km²).
- ii. There are 123 districts in the country that are categorized as hill districts where the total forest cover is 274,383 km² (average forest cover 38.77 % of geographical area).
- iii. There are 187 districts in the country categorized as tribal districts. The total forest cover is estimated as 407,298 km² (average forest cover 36.91% of geographical area).
- iv. In addition, water bodies inside forest cover has also been assessed and found to occupy 17,396 km²
- v. Shifting cultivation prevalent in seven North-Eastern States affects forest cover adversely in this region. The loss of forest cover due to shifting cultivation is also assessed and it is found that between 2001 and 2003 assessments an area of 5,476 km² with forest cover has been affected by shifting cultivation. The maximum effect of shifting cultivation has been found in Nagaland (1,332 km²) and minimum in Tripura (384 km²).
- vi. A comparison with the forest cover assessment of 2001 reveals an overall increase of 2,795 km² or 0.41 percent in forest cover of the country. There is a decrease in dense forest cover to the tune of 26,245 km² (6.30%) and the open forest cover has increased by 29,040 km² (11.22 %).
- vii. Assessment of forest cover at district level reveals that out of the total 593 districts in the country, 199 districts have less than 5% of their geographic area under forest cover including 59 districts that have less than 1% forest cover. In case of only 146 districts, the forest cover exceeds 33% of their geographical area.
- viii. The mangrove cover in the country occupies an area of 4,461 km² (0.14 % of geographic area) of which 1,162 km² is very dense, 1,657 km² is moderately

- dense and 1,642 km² is open mangrove. A comparison with the 2001 assessment shows a decrease of 41 km² in the dense mangrove cover and an increase of 20 km² in the open mangrove cover. Overall there is a decrease of 21 km² in mangrove cover of the country.
- ix. The total tree cover of the country (notional area with 70% canopy density) has been estimated as 99,896 km² or about 3.04 percent of the country's geographic area which is 18,424 km² more than what was assessed in 2001.
 - x. The total forest and tree cover of the country so estimated comes out to be 778,229 km² constituting 23.68 % of its geographic area against 757,010 km² constituting 23.03% of geographic area in 2001 assessment. Thus, there is an increase of forest and tree cover by 21,219 km², which is 0.65% of geographical area as compared to 2001 assessment. The per capita forest and tree cover in the country is 0.07 ha.
 - xi. The total growing stock of wood in the country is estimated to be 6,414 million cubic meter (m.cu.m.) that includes 4,782 m.cu.m. inside forest area and 1,632 m.cu.m. of TOF (Trees Outside Forests).
 - xii. The average growing stock in the forest per hectare of recorded forest area works out to be 61.72 cu.m.