

EXECUTIVE SUMMARY

Assessment and monitoring of forest cover in the country and publication of findings in the State of Forest Reports (SFRs) on biennial basis is the most important mandate of Forest Survey of India (FSI). Since the beginning in 1987, the SFR 2001 is the eighth report in this series. For each of these reports, the forest cover has been assessed by interpreting the most up-to-date satellite data obtained from NRSA Hyderabad. SFRs provide valuable inputs for policy formulation and planning at national as well as state levels. These reports also keep the nation informed periodically about the gap that exists between the actual status of forest cover and the goal set in the National Forest Policy.

SFR 2001, the first one in the new millennium, has a number of new features. FSI, in its endeavour to continually update itself technically, has assessed, for the first time, the forest cover of the whole country by employing digital interpretation of satellite data at 1:50,000 scale. In 1999 assessment, forest cover of only fourteen states was assessed digitally. By and large, in the earlier assessments since 1989, conventional visual interpretation method at 1:250,000 scale had been used. With the adoption of digital method of interpretation, FSI has been able to delineate and record all the forest areas down to 1 ha in extent. In the visual method of assessment, this limit was 25 ha. Thus, in the present assessment, forest cover consists of all lands, more than one hectare in area, with a tree canopy density of more than 10 percent, 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 agroforestry plantations, fruit orchards, tea and coffee estates with trees, etc., have been included in forest cover. In addition, forest cover in nearly all the districts of the country (589 out of 593) has been estimated. This has not

only resulted in improvement in assessment of forest cover but has also provided a new base line data for monitoring changes in future assessments.

Regarding change in forest cover with respect to 1999 assessment, any direct comparison of 2001 assessment with 1999 assessment would be invalid since technique (digital, in place of visual) and scale (1:50,000 in place of 1:250,000) of interpretation were different. Besides, certain additional areas with tree canopy, hitherto excluded from forest cover, have been included. Thus, the difference between forest cover as assessed in 2001 from that assessed in 1999 is not entirely due to change on the ground during the intervening period but may include difference due to these technical factors.

Mangrove cover has been classified into dense and open mangrove cover. The area of mangrove cover so assessed has been merged in the respective area figures of dense and open forest cover. A separate chapter is devoted to mangroves where information on mangrove cover at national, state/UT and district level has been provided.

The National Forest Policy (1988) has set a goal that 33 percent of country's geographical area should be under forest and tree cover. It is therefore imperative that tree cover that cannot be assessed by the remote sensing satellites (used for forest cover assessment) should also be estimated to obtain a complete picture of forest and tree cover in the country. Substantial tree wealth exists in the country that cannot be discerned by the remote sensing satellites. These include plantations and woodlots that occupy blocks of less than 1 ha in extent or linear plantations along roads, canals, etc, or trees growing in scattered manner in homesteads, farmlands and urban areas. FSI has assessed such tree cover also by using appropriate stratification, sampling and field inventory methods. The notional

area under tree cover has been estimated at 70 percent canopy density. Thus, for the first time, complete picture of forest and tree cover in the country has been provided in the SFR.

It is important to measure the accuracy of forest cover classification and assessment of tree cover so as to know the probability of error in the final output statistics. For the first time, an "error matrix" has been generated by comparing classified forest cover with the actual forest cover on the ground at 3,608 locations spread throughout the country to arrive at the accuracy of the forest cover classification. Also, standard errors of tree cover estimates have been computed for each strata (physiographic zones) and the whole country.

With this background, certain highlights of the information contained in SFR 2001 are summarized below:

- The forest cover in the country is 675,538 km² and constitutes 20.55 percent of its geographical area. Of this, dense forest constitutes 416,809 km² (12.68%) and open forest 258,729 km² (7.87%). Madhya Pradesh with 77,265 km² of forest cover has the maximum forest cover among all the States/UTs, followed by Arunachal Pradesh (68,045 km²) and Chhattisgarh (56,448 km²).
- There are 123 districts in the country that are categorized as hill districts where the total forest cover is 271,326 km² (average forest cover of 38.34%).
- In 187 districts in the country classified as tribal districts, the total forest cover is estimated as 404,087 km² (average forest cover of 36.62%).
- A comparison of forest cover assessment of 2001 with that of 1999 reveals that there is an overall increase of 38,245 km² or 6.0 percent. This constitutes an increase of 1.16 percent of the country's geographical area.
- The increase in dense forest cover with respect to 1999 assessment is 34,580 km² (9.0 percent) and increase in open forest cover is 3,665 km² (1.4 percent).
- Assessment of forest cover at district level reveals that out of 589 districts, 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 geographic area.
- The present assessment shows that mangrove cover in the country occupies an area of 4,482 km² (0.14% of geographic area) of which 2,859 km² is dense mangrove and 1,623 km² is open mangrove.
- The total tree cover for the country (notional area with 70% canopy density) has been estimated as 81,472 km² or about 2.48 percent of the country's geographical area. Andhra Pradesh (9,011 km²) has the maximum area under tree cover followed by Maharashtra (8,269 km²), Uttar Pradesh (7,545 km²) and Karnataka (7,446 km²).
- The total forest and tree cover of the country so estimated comes out to be 757,010 km² constituting 23.03% of its geographic area. The current per capita forest and tree cover in the country is 0.074 ha.
- The overall accuracy of forest cover classification, as assessed by creation of "error matrix", is 95.9 percent. The standard error of countrywide estimation of tree cover is 1.83 percent.