

FORESTRY & LOGGING

Coverage

- 10.1 Forests play a vital role in social, cultural, historical, economic and industrial development of the country and in maintaining its ecological balance. They are the resource base for sustenance of its population and a storehouse of biodiversity. Forestry and agriculture are the two most important land uses in the country, the latter competing with the former under relentless pressure of an ever increasing population. Gross Domestic Product (GDP) from Forestry and logging sector is roughly 1% of the total GDP of the country.
- 10.2 In the national accounts, The economic activities covered under this sector include (i) forestry (e.g., planting and conservation of forests, gathering of forest products, charcoal burning carried out in the forests), (ii) logging (e.g., felling and rough cutting of trees, hewing or rough shaping of poles, blocks etc.) and transportation of forest products to the sale depots/assembly centres and, (iii) farmyard wood (industrial wood and fuel wood collected by the primary producers from trees outside regular forests). The forest products are classified into two broad groups viz., (a) major products comprising industrial wood (timber, Round wood, match and pulpwood) and fuel wood (firewood and charcoal wood) and (b) minor products comprising a large number of wild growing forest material such as bamboo, fodder, lac, sandalwood, honey, resin, gum, tendu leaves, cork, balsams, vegetable hair, eelgrass, acorns, horse chestnuts, mosses, lichens etc. Production of field crops (Jhum cultivation etc.) and extraction of minor and major minerals in forests are included in agriculture and mining sectors respectively.
- 10.3 According to the National Industrial Classification (NIC)-1998, the activities that are covered in the forestry sector are (i) Growing of standing timber: planting, replanting, transplanting, thinning and conserving of forests and timber tracts. Operation of tree nurseries, (ii) Logging: logging camps and loggers primarily engaged in felling timber and producing wood in the rough such as pitprops, split poles, pickets, hewn railway ties or fuel wood, (iii) Gathering of tendu leaves, (iv) Gathering of other wild growing forest materials (balatta and other rubber-like gums; cork; lac, resins and balsams; vegetable hair and eel grass; acorns and horse-chestnuts; mosses etc.) including fuel/fire wood, (v) Forestry service activities: timber cruising, timber evaluation, fire fighting and forest management including afforestation and re-forestation, and (v) Logging service activities: transport of logs in association with logging chiefly within the forest. These activities are covered under NIC 020.
- 10.4 **Methods of Estimation of Gross Value Added**
The GDP from this sector can be estimated by following either the production approach through gross value added (GVA), or the income approach. The production approach involves the estimation of the total value of output at factor cost and deducting therefrom, the various inputs at purchasers' prices, which are used in the process of production. The income approach involves the estimation of the factor incomes, namely, compensation of employees, operating surplus and the consumption of fixed capital. Since the forests are generally under the administration of Government, data on production and prices are not difficult to obtain. For the private forests, if any, detailed data could be obtained from the concerned enterprises. For estimating the production of forest produce, which is lifted by the people living in surrounding areas either with permission or through unauthorized means (like minor forest products and firewood), household consumer expenditure surveys and/or type studies in the habitations around the forests could give the necessary data. The inputs in the form of expenditure on transportation, water, electricity, fuel, normal repairs and maintenance of the fixed assets and purchase of services could be estimated from the detailed data collected from the concerned enterprises or adopting a fixed input-output ratio, which could be estimated through a benchmark type study or analysis of government budget documents.
- 10.5 In the national accounts, the estimation of GVA from the forestry and logging sector is carried out by the production approach. It aims at estimating the value of output at factor cost in the first instance and then deducting the value of various inputs at purchasers' prices. The estimates are prepared first at the State level which are then consolidated to obtain the estimate at the national level.

Sources of Data

10.6 The data on production and prices of industrial wood and that on minor forest products, as well as on prices of fuel wood are supplied by the State Forest Departments (SFDs). The data on production of industrial wood generally relates to the quantities sold/auctioned at the assembling centres by the SFDs. In the case of minor forest products, the information on their production is generally not available. However, information is built up on the basis of royalty received (in value terms) from those authorised to exploit these minor forest products from the forests. The value of minor forest products could be the royalty figures or economic value derived from the royalty figures. The estimates of production of fuel wood are prepared on the basis of five-yearly consumer expenditure surveys of the National Sample Survey Organisation (NSSO) of the Ministry of Statistics and Programme Implementation. The survey also records in addition to total consumption of firewood, consumption from market purchases and own sources of production.

Estimates at Current Prices

OUTPUT

10.7 **Industrial Wood:** The estimates of value of output at current prices are prepared by multiplying the category-wise production figures with their respective average annual prices (at the assembling centres), both of which are supplied by the SFDs. However, this information relates only to the authorised produce of Government forests. In addition to the production of industrial wood from these Government forests, there would be (i) authorised (but unrecorded) and unauthorised removals of timber from reserved/protected forests and (ii) unrecorded production from private owned forests and non-traditional forest areas (e.g., trees in village common fields, ridges, canal sides, road sides, fruit trees no longer productive etc.). The authorised removals are those done by the right holders staying in the periphery of natural forests and are generally not recorded in the official records of production. In order to account for the production of industrial wood, a norm of 10 per cent of recorded production (as reported by the SFDs) is adopted.

10.8 **Minor Forest Products:** Data on quantity and producer prices of most of the minor forest products (MFPs) are available from the SFDs. The items of MFPs vary from state to state. The agencies/arrangements for gathering the MFPs are also different from state to state, although data on MFPs is provided by the

SFDs have limitations. For some states, data on production and prices are available in respect of some of the important MFPs, whereas for some other states only the royalty value realised is available. The royalty value refers to the collections from the people/right holders staying in the periphery of natural forests, who have access to the forests to exploit forest produce.

10.9 **Fuel wood:** It constitutes an important basic need for large segment of the population in India. Fuel wood demand in rural areas varies with the climate, availability of other fuels, proximity to the source of fuel wood, living standards, size of the family, food habits, etc. The quantity/output of fuel wood is estimated through consumption approach, as reliable estimates on production of fuel wood are not directly available. Data on prices are available from state DESs. The estimated production of fuel wood is based on three components, namely (i) household fuel wood consumption, (ii) agricultural by-products used as fuel wood (this amount is to be subtracted from the total consumption of fuel wood by the households, as it is already accounted for in the agriculture sector as by-products) and (iii) fuel wood consumed by industries and on funerals. The estimated value of output of fuel-wood is based on (a) the estimation of fuel wood consumption as available from the Quinquennial Surveys of Consumer Expenditure, conducted in the NSS 43rd (1987-88), 50th (1993-94) and 55th (1999-2000) Rounds (b) subtracting from the household total consumption of fuel wood estimated from NSS data, the actual estimates of value of output of agricultural products, namely, cotton sticks, arhar sticks and jute sticks, and whose value of output is already taken into account in the agriculture sector (this gives the total firewood consumption from forest sources) and (c) estimating afresh the consumption of firewood in the industry and on funerals as given below:

(i) The estimate of consumption of firewood in the industries for the base year was obtained on the basis of the results of the Enterprise Surveys conducted on various activities by the CSO and the NSSO, and as used in the Input Output Transactions Tables (IOTT). The various industries that consume fuel wood are broadly grouped into 7 industry groups, namely, food products, beverage, tobacco and related products, textiles, paper and paper products, structural clay products, hotels and restaurants and others. The consumption of firewood

by these industries is estimated for the base year from the IOTT 1993-94 and 1998-99.

(ii) The consumption of firewood on funerals was estimated making use of the information on (a) distribution of population by different age groups, (b) mortality rates of different age groups and different religions, (c) population projections, and (d) consumption of firewood per funeral. Estimated annual deaths of only relevant religion and age groups were used for deriving the estimated consumption of firewood on funerals.

10.10 It is observed that the total firewood consumption under (i) and (ii) above accounts for 6% in value terms of the total consumption of firewood by households from forest sources (net of total household consumption of firewood, estimated from NSS consumer expenditure surveys' data) and agricultural by-products used as fuel by households (cotton sticks, arhar sticks and jute sticks) whose value of output has already been taken into account in the agriculture sector. This ratio built up for the base year is adopted to account for firewood consumed by industries and in funerals, is adopted for subsequent years.

10.11 The Appendix 10.1 shows the estimated consumption of firewood and chips by the households per months, according to various consumer expenditure surveys of NSSO.

INPUTS

10.12 Material inputs in the forestry sector include expenditure on transportation, water, electricity, fuel, normal repairs and maintenance of the fixed assets etc. In the case of forest areas exploited by the contractors, no separate data on material and non-material inputs are available. However, information on purchases of commodities and services for the upkeep of Government forests and for its exploitation by themselves are available from the budgets of State Governments and Union Territories. On the basis of the analysis of this information, the average ratio of expenditure on the purchase of goods and services and on repairs and maintenance of fixed assets to the total value of output of this sector for a number of years has been found to be around 10 per cent. This norm is utilised for estimating the material inputs in this sector.

Estimates at Constant Prices

10.13 In the case of major forest products (industrial wood and fuel wood) for which information on physical output is available, statewise estimates of the value of output are obtained by using the corresponding base year (1999-00) prices. For minor forest products for which data on the value of output only are available, the relevant wholesale price index is used as deflator. The same proportion of inputs to the total value of output as for estimates at current prices are used to obtain the estimates of gross product at constant prices.

Quality and limitations of data base

10.14 The main drawback in the compilation of forestry statistics is the delay in the availability of data. Data on unrecorded production of industrial wood is based on discussions with the forest officials, and is generally considered to be quite an underestimate. The forestry products have a lot of variability with regard to their quality and the prices even vary within the same species. Depending upon the climatic and other factors, trees belonging to the same species may belong to different quality classes. The products of these various quality classes may also fetch prices which are largely varying from one quality class to another. Thus, for proper evaluation of forestry products, it is necessary to have the production as well as price data, not only species-wise but also quality/class-wise for the same species. However, under the present system of reporting of forestry statistics, many SFDs are reporting a single figure for production and a single price against that volume.

10.15 The data on firewood is estimated through indirect methods from consumption approach, which is not really scientific. The price data reported by the States on firewood, also shows considerable variance among the states, which may not be realistic.

10.16 The information available from the SFDs on minor forest products is also considered to be an underestimate, being based on royalty values. That there is no way to check its completeness. The data availability position on the minor forest products needs considerable improvement. As far as possible, the State Governments should collect data on production as well as prices of all such products which are important for their states so that economic value of the MFPs can be worked out. There is no realistic price deflator for minor forest products in the item basket of wholesale price index (WPI),

as such proxy price deflators are used for this item to obtain constant price estimates. The ongoing study by the Indian Council for Forest Research and Education (ICFRE), funded by the CSO, may provide some useful information on minor forest products.

- 10.17 The input rates for the forestry sector is estimated at 10 per cent of value of output, based on analysis of state governments' budget documents in respect of forest departments. However, realistic data on

inputs in terms of material inputs and repair and maintenance of fixed assets, is not available. The Forest Survey of India faces the problem of delayed transmission of data by the States, which tend to accord low priority to the reporting work. Several States do not furnish the statistics in time, which delays the compilation of the estimates. Finally, there is also a data gap with reference to the production of forest products from social forestry, etc.

Appendix 10.1

ESTIMATED CONSUMPTION OF FIREWOOD AND CHIPS From the NSS Consumer Expenditure Surveys

NSS Round	Consumption per person per 30 days	
	Rural (Kg.)	Urban (Kg.)
27 th (1972-73)	21.87	12.42
32 nd (1977-78)	17.89	10.02
38 th (1983-84)	15.74	8.79
43 rd (1987-88)	16.24	7.40
50 th (1993-94)	17.27	6.09
55 th (1999-2000)	17.70	5.34

Appendix 10.2

GDP FROM FORESTRY SECTOR

Item	Estimate, 1999-00 (Rs. Crore)	(% of value of output)
1. Industrial wood	1818	9.13
2. Firewood	16038	80.57
3. Minor forest products	2051	10.30
4. Value of output	19906	100.0
5. Inputs	1991	
6. GDP	17916	
