

Chapter 2

THE FORESTRY SECTOR IN RESOURCE AND INCOME ACCOUNTING

2.1 INTRODUCTION

This chapter shall examine resource accounts for the forestry sector as they have developed in the last decade or so. Alternative methodologies used to set up these accounts are viewed. It shall also look at the manner in which the forestry sector is treated in the SNA in India and provide a brief study of the contribution of forestry sector across countries. Finally, it shall also take a view on the location of the forestry sector within the sectoral classification of SNA and study the nature of production activity in this sector, when it is viewed from the perspective of national income accounting sectors.

2.2 ACCOUNTING FOR FORESTS AND NATURAL RESOURCES: COUNTRY EXPERIENCE

Satellite accounts for the forestry sector have been conducted in a large number of countries. The FAO in a survey conducted in 1996 identified 30 forest accounting studies in more than 20 countries since the late 1980's. A large number of them are piece-meal studies that select one aspect of forests and make ad-hoc justifications for the adjustments they propose.

The net price method has formed the basis for a large number of studies with regard to the forestry sector. Among them is a case study on Indonesian Forest Resources. It is a part of the actual study done by Repetto (et al., 1991), covering forest, oil, gas and soil resources of Indonesia. The results of this study are based on Green accounting of Indonesia from the period 1978 to 1984, indicate a lower growth rate of 4 % as opposed to the conventionally measured rate of 7.1% per annum. Preliminary accounts in physical and value terms for Indonesian timber resources were estimated as per Repetto's method described earlier.

Net pricing is defined as the average net price per unit of resource, which is the current per unit revenue less per unit production costs, which includes felling charges transportation charges, wages, interest payment to capital and any other cost that has to be incurred for production. This concept is similar to the concept of economic rent and in case of natural resources the concept of scarcity rent is all-important.

An initial careful estimate of the stock of resources was carried out and an estimate of the physical growing timber stock was essential for one benchmark year during the period of accounting. Stocks for the rest of the years were estimated from the annual reduction and addition rate, for which estimates of varying quality was available. The study concentrated on using the net price method for the valuation of timber extraction from Indonesian forests. Growth and production rates were often difficult to get and estimates of these had to be used, e.g. dipterocarp forests were estimated to have an annual growth rate of 1 to 2 m³/hectare for certain commercial species. An estimate of annual increase in plantation timber volume was developed from the plantation species' growth rates (expressed as mean annual increment at rotation age) and the distribution of industrial plantation areas by species reported by the FAO. Harvesting rates were taken from report by the Directorate General of forest in the annual report on Indonesian forest statistics. The economic rent on timber, corresponding to stumpage value had to be estimated by net pricing method. Here the costs of production were subtracted from the export value of timber.

This study refrained from accounting a huge portion of NTFPs (non-timber forest products), while the estimated value from these resources were about \$120 million in 1982 as export turnovers. Further it does not impute any value to the ecological functions of forest. In other words, it looked at forests as producers of timber and attempted to account for true economic rent on that activity.

An extensive study of the forests mineral and fishery resources in Philippines, over the period 1989 to 1994 was carried out by the Environmental and Natural Accounting Sub-programme National Statistical Coordination Board. It covered a number of species such as dipterocarps, pines, sub marginal, mossy, and mangrove forests. The study used net pricing method for this purpose. The sketch of the accounts they prepared was a bit more elaborate than Repetto's method and followed the UNESSEE framework as summarized in Table 2.1 below.

The net pricing method was used for valuation of resources. Multiplying the volume accounts by the stumpage value of the forest derived the economic or monetary accounts. Stumpage value here is equal to the price of the product less the cost of harvesting, cost of transportation and margin for normal returns for capital, which is assumed to be 30 % of logging cost. This

also accommodated for normal profit and risks associated with the production activity and is approximated by the opportunity cost of capital or what the operator could earn from an alternative investment. The opening stock is multiplied by the stumpage value of the previous year and all the items in the asset accounts, for the given year is multiplied by the stumpage value of the current year.

This accounting for forest stocks falls in the category of satellite accounts that use the net price method.

TABLE 2.1 Accounting For Changes in Forest Stocks

| | |
|--|--|
| Changes due to Economic Activity | |
| Depletion | |
| Logging/Harvesting | |
| Illegal logging | |
| Other Accumulations (+/-) | |
| Forest conversions due to economic activities (non-forest use) | |
| Forest conversion due to forest use. | |
| Other Volume changes | |
| Additions | |
| Natural growth | |
| Regeneration | |
| Reductions | |
| Standard mortality | |
| Insect infestation | |
| Forest fires | |
| Natural calamities | |
| Other (statistical discrepancy) changes | |
| Change in stock | |
| Closing stock | |

Satellite accounting for the forestry sector with extensions in one or the other methodological direction has been attempted by a large number of countries. Norway (Alfensen and Torstein, 1990), Sweden (Hultkranz, 1992) the Netherlands (NCBS1993) among others have gone ahead with partial forest resource accounting. Several scholars agree that this kind of satellite

accounting is the right approach. Peskin (1989), for example, maintained that stock and flow changes in forest and other environmental resources be treated in a separate table, leaving the basic income accounting table unchanged. Vincent (1999) also opines that it may not be possible or even appropriate to make annual adjustments to national income accounts for all aspects. He suggests that satellite accounts to take into consideration the most important aspects of forest resources for a particular economy be setup once in four/five years.

Within the category of forest accounts, studies focusing on non-timber forest products such as fuel-wood, fodder and fruit, resin etc. are few in number even though it has been conceded that forests have amenity values and at times these amenity values are higher than timber and non-timber values. Hulkrantz(1993) included both timber and other forest environment resources in his study for Sweden.

Eco-system services are another neglected area though carbon sequestration values of forests have received some attention. Hassan's (2000) study covers a larger range of issues in the context of South Africa (SA). It finds change in the standing value of the stock of forests and also estimates the value of carbon sequestered. In this study the Carbon sink function of the forest is treated as a stock variable. It tries to find out the extent of damage to the industries that are affected by climatic changes. Then it uses the same value to measure the benefits of carbon sequestration activity, which prevents this damage of the forest. This is then added to NDP. There is no evidence of any recreational benefits from the SA forests and so no adjustments have been made on this account.

Forest plantations compete indirectly with down stream users of water resources.

Other than fall in productivity of agricultural land there is also a hike in expenditure like building Dams developing new water sources etc due to water abstraction from afforestation. The ecosystem with all its wild life is also under threat from the water scarcity arising out of afforestation. So water abstraction account has to reflect all the costs. Hassan's study for South Africa considers reduction in runoff (stream flow) in excess of the original natural vegetation cover (grassland) due to afforestation to be an externality measured as opportunity cost of water foregone to down stream users. The impact of water abstraction is realized as increased output in cultivated timber and as reduced potential production in down stream uses. To avoid double counting, the value of this externality is not added to GDP but considered a soil gain.

2.3 ACCOUNTING FOR THE FORESTRY SECTOR IN INDIA: RECENT STUDIES

In India, there now exist some case studies that attempt to set up accounts for the forestry sector. Some use the net-price method for valuing forest resources mainly timber and non-timber in a region. Haripriya (2000) for example, constructs forest resource accounts for the state of Maharashtra in India and incorporate the value of depletion and degradation of forest resources into the system of national accounts (SNA).

On the lines of the UNSEE, she distinguishes between four types of depletion and degradation of natural resources.

- i. Depletion: reduction in quantity of assets due to economic uses e.g. timber harvesting.
- ii. Degradation: positive or negative changes in the quantity of asset due to economic decision e.g. productivity loss of forest due soil erosion.
- iii. Other accumulations: additions or reduction in quantity of assets, due to economic decision e.g. transfer of forestland to non-forest uses like agriculture or afforestation, etc.
- iv. Other volume changes: quantitative or qualitative changes in assets not caused by economic decision e.g. destruction of forest by natural fires etc.

Haripriya's method is an extension of Robert Repetto's (1991) methodology to fit into region specific additions. Verma (2000) and Chopra and Kadekodi (1997) estimate dimensions of the value of flow of goods and services from forests in Himachal Pradesh. Stock changes are also recorded to the extent possible. Chopra and Kadekodi (1997) estimate values of timber, non-timber, tourism and watershed function benefits on the basis of alternative valuation methods. The scope of the functions of forests attempted to be covered is wide and valuation methods vary from market prices to travel cost methods to contingent valuation. This raises the question of additivity, referred to at length by the authors. It also leaves open the issue of integration with the system of national income accounts.

TERI (2001) attempted accounting for forests in the state of Goa. It has also used the net price method and not gone much beyond a revaluation of forest stocks and changes in them. The contentious issue of eco-system services provided by forests has not been explored.

It must be mentioned however, that a large number of valuation studies throw considerable light on the magnitude of intangible benefits or eco-system services accruing from forests. Manoharan (2000) reviews these studies, the methods they use and the results that they arrive at. Eco-tourism and watershed functions, have been estimated by different studies for certain regions. Tourism benefits have been studied for areas in Maharashtra, Rajasthan and Sikkim (Hadker, Chopra and Rana, respectively) Of late, carbon sequestration benefits have been estimated by Ravindranath and Kadekodi (1997) and by Haripriya and Parikh (1999). We shall in the next chapter, attempt to use all these region and problem specific studies to estimate the contribution of the forestry sector to GDP in India.

2.4 CONTRIBUTION OF FORESTRY SECTOR TO GDP IN DIFFERENT COUNTRIES

The percentage contribution of any sector to the Gross Domestic Product is determined by the absolute contribution of that sector and the contribution of the other sectors as well. Most developing countries witness a process of growth in which, the relative share of primary sector decreases and that of the manufacturing sector rises. Simultaneously, the percentage contribution of the services sector is also seen to increase. The contribution of the forestry sector to GDP in different countries is then partly a function of the level of development that they are at and is not comparable in a strict sense. Further, some of the difference in the magnitude of contribution of the forestry sector may be due to differences in methodology followed for setting up the national income accounts of that country as well.

Table2.2: Percentage contribution of Forestry Sector to Primary sector and GDP for the year 1992 at current prices.

| Countries | Percentage contribution of Forestry sector to GDP | Percentage contribution of Primary sector to GDP | Percentage contribution of Forestry sector to Primary sector |
|-----------|---|--|--|
| Finland | 2.41 | 5.5 | 43.81 |
| US | NA | 2.4 | NA |
| Sweden | 1.47 | 2.1 | 70 |
| India | 1.40 | 32 | 4.37 |
| Hungary | 1.32 | 9.82 | 13.52 |
| Denmark | 0.10 | 4.9 | 2.0 |
| Cyprus | 0.06 | 5.76 | 1.06 |

Source: National Accounts Statistics: Main Aggregates and Detailed Tables, UN (1992 and 1994) and National Income Accounts Statistics, CSO (1998-99)

Notes: Primary sector refers to the aggregate of Agricultural Sector, Forestry, Fishing (and Hunting for some countries).

India tops the list with a 32 % contribution of Primary sector to GDP where as developed countries like Finland, US and Sweden registers a mere 5.5%, 2.4% and 2.1 % contribution. Further, In Finland the primary sector contributes about 5.5% and the Forestry sector contributes 2.41 % to GDP. This implies that the percentage contribution of the forestry sector to primary sector is 43.81%. This sector is as important as agriculture and other related activities. For Sweden the contribution of the forestry sector to the primary sector is again 70% and for Hungary it is 13.52%. For India, the corresponding figure is only 4.37%. A part of this variation is due to the nature of the forestry sector itself. In countries where the major output of the forestry sector is in the form of timber, the sector becomes highly visible. In other countries, in particular tropical countries, where forests contribute to economic activity and livelihoods in more indirect ways, the accounting of forestry sector's contribution to GDP is inadequate.

2.5 THE SYSTEM OF NATIONAL INCOME ACCOUNTS IN INDIA WITH REFERENCE TO THE FORESTRY SECTOR.

This section will deal with the existing system of national accounts in India, with reference to the accounting of forestry sector. In the tables below all the data relating to the forestry sector available either singly or jointly with some other accounts like agriculture is provided. An explanation of the existing system of measuring forest resources as per the new rules implemented since 1980-1981 will be provided later. The system of measurement of capital and what is meant by capital consumption in the forestry sector is however not very clear and the figures used in the Indian National Income Accounts is admitted to be estimated ones rather than actual figures due to lack of proper methods.

Table 2.3: Domestic product from Forestry and Logging at current prices.

(Rs. Crores.)

| Year | At current prices | | | | | | |
|------------------------------------|-------------------|---------|---------|---------|---------|---------|---------|
| | 1993-94 | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-00 |
| 1. Value of output = (1.1+1.2+1.3) | 12727 | 14420 | 14878 | 16103 | 18054 | 20637 | 22129 |
| 1.1 Industrial wood | 1928 | 2227 | 2126 | 2210 | 2160 | 2636 | 2879 |
| 1.2 Fire wood | 9312 | 10428 | 11056 | 12198 | 14211 | 16017 | 17194 |
| 1.3 Minor forest products | 1487 | 1765 | 1696 | 1695 | 1683 | 1984 | 2056 |
| 2. Less: (2.1+ 2.2 + 2.3) | 1273 | 1442 | 1488 | 1610 | 1805 | 2064 | 2213 |
| 2.1 Repair | | | | | | | |
| 2.2 Maintenance | | | | | | | |
| 2.3 Other operational cost | | | | | | | |
| 3. Gross domestic prod = (1 – 2) | 11454 | 12978 | 13390 | 14493 | 16249 | 18573 | 19916 |
| 4. Less: (4.1 + 4.2) | 288 | 331 | 391 | 451 | 513 | 581 | 638 |
| 4.1 Consumption of fixed | | | | | | | |
| 4.2 Capital consumption | | | | | | | |
| 5. Net domestic product (3 – 4) | 11166 | 12647 | 12999 | 14042 | 15736 | 17992 | 19278 |

Source: National Income Statistics 2001, CSO.

In Figure 2.1 below the value of output is provided and Figure 4 shows the changes in composition of value output of the forestry sector over the years (expressed in percentages).

Figure2.1

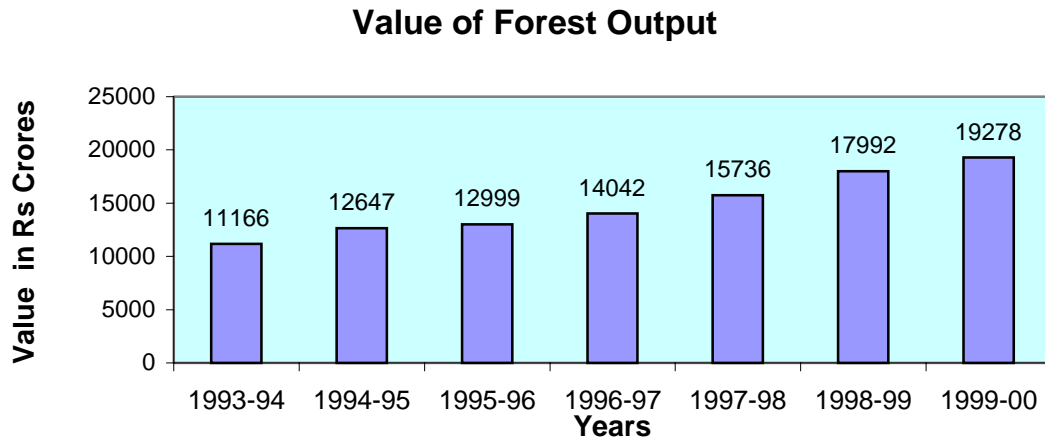
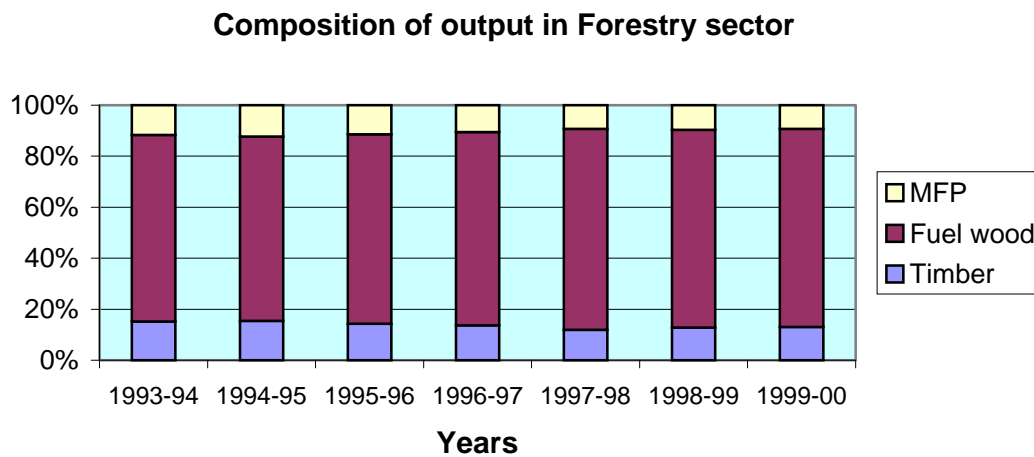


Figure 2.2



The methodology followed in compiling National Income Accounts in India with reference to the Forestry Sector is based on 1989-90, CSO publication of National Income Accounts Statistics 1989 Sources and methods.

2.6 METHODOLOGY, COVERAGE AND SOURCE MATERIAL

The economic activities covered include

- i. Forestry (e.g. Planting and Conservation of Forest, gathering of uncultivated forest products, charcoal burning carried out in the forest and the like¹ and
- ii. Logging (felling and rough cutting of trees, hewing and rough shaping of poles, blocks etc.) and transportation of the logs up to the permanent lines of transport.

The forest products are classified into two broad groups viz. (a) Major products comprising industrial wood (timber, rounded wood, match and pulpwood) and firewood (firewood and charcoal wood) and (b) minor forest products, comprising a large number of heterogeneous items such as bamboo, sandalwood, charcoal, lac, resin, gum, tendu leaves etc.

The estimation of the gross value added from the forestry and logging section 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 then deducting the value of various inputs at the purchasers' prices.

Major Source of Data

The MOEF is responsible for coming up with data on forests of India, collecting, compiling and disseminating them etc. other than this at the National level there is 'India's Forests' published by the Central Forest commission, Ministry of Agriculture, which has been compiled by looking at the returns obtained from the Forest departments of the states governments.

State wise data on major products: both Quantitative and Royalty values are obtained from the forest is obtained from the DESAg's annual releases.

A few ad-hoc publications such as 'The timber trends study for the Far East country report for India' are also used. This study is based on a study undertaken in 1957-58 by the IGF on behalf of the FAO. This report gives information on :-

- i. Logging operation, wastes and losses incurred during logging and

- ii. Production costs at the different stages of forest exploitation such as stumpage prices, felling costs, transportation charges from stump to permanent lines of transport.
- iii. Supply and consumption of Rounded wood, fuel wood and charcoal, bamboo and palm oil species.
- iv. State wise movement of pulp wood and round wood and
- v. Future supplies from indigenous sources etc.

Another publication named 'Timber trends and prospects in India (1960-75) is also very useful for knowledge of costs involved in extraction of forest.

It is fairly understood that none of these are to be used for data, but only for the methodology that are well described in them.

2.7 TWO TIME FRAMES FOR ESTIMATION: CURRENT PRICES AND CONSTANT PRICES.

Estimation at Current Prices:

Official publication for any data relating to the forestry sector comes with a great time lag. So the CSO has been collecting data on outturn of forest products and prices thereof directly from the assembling centers directly from the State Forest Departments on financial year basis.

It is admitted that the data on the major forest products may be satisfactory but the same for the NTFP is not. There exist huge amounts of transactions which are either illegal or are unrecorded due to other reasons. It is felt that earlier when there was private ownership of forest then a huge production flow coming out of these areas went unrecorded but after nationalisation of Forests this value has gone down. In fact the CSO used 10 % of the value of recorded production to be the estimate for the unrecorded production. This estimate is based on Timber trends study (1957-58) and is in need of revision. This 10% estimate has been challenged a number of times and studies by some DESs viz. Himachal Pradesh, Jammu & Kashmir, Tamil Nadu etc. have successfully arrived at some more realistic estimates. For industrial wood production the unrecorded data is valued to be not more than 2.5% of the total records, for Tamil Nadu this estimate is about 5%. A part of this decrease can be attributed to the fact that a number of forests previously under private ownership has been nationalised and

¹ It is not clear what are the items under word 'like'.

programmes have been undertaken to curb illegal transactions in timber and other forest products. Another reason behind the reduced estimates for illegal felling can be found out in the advent of a number of substitute products of timber, steel and plastic being the two major competitors in the realm of furniture making.

However there is an opposite picture obtained when we look at the estimates of unrecorded fire wood production. For the same areas mentioned above the estimates were found to be much higher than 10%. The figures range from 17 to 20 times the present estimates. So for the whole range of products there was a balanced rate fixed by the CSO. It was decided in an Expert Committee meeting in the year 1987, based on 'Improvements in methods of estimating domestic products in forestry and logging', at CSO, New Delhi that the estimate for unrecorded fire wood would be taken as 10 times the recorded production but the 5% estimate for industrial wood as not implemented awaiting a reconfirmation. However the wood produces in the farmyard were no more to be taken into account because they would be taken account of in the agricultural production then on. There has been a series of checking and rechecking of the estimated for the unrecorded. Comparison of the household consumption data for fuel wood and production figures was also used to fathom the extent of missing data.

The other area of some misspecification is in the MFP and NTFP. Due to data in availability on the production side it was decided to consider the total value of produce to be ten times of the amount received as royalty. But it was realized through the meeting in CSO, Feb 1987 that the royalty values does not reflect the true economic value of the products but there is no other alternative to it. However in some states the actual values of the MFPs are available and they are evaluated separately and then the total is calculated.

Due to paucity of data the CSO uses a uniform norm of 25% of the total value of outputs as trade and transport margin. Ideally the trade and transport margins are very likely to differ between states and this is due to the geophysical conditions existing in the states. However due to the considerable change in the forest operation technology the new estimates for which the CSO has decided is 10%. Thus the value of recorded production of industrial wood and fuel wood sold at the places other than the Government sales depot is reduces by 10% to arrive at the output of the forestry sector.

2.8 INPUTS

Material inputs in the forestry sector include expenditure on: -

1. Transport
2. Water
3. Electricity
4. Fuel
5. Normal repairs
6. Maintenance of fixed assets.

Data on separate accounts for material and non-material assets are not available other than for the Government's own forest exploitation exercises. So the same average figures, as a rule is being applied for all non-government and contractual jobs assigned for forest exploitation. Usually based on earlier experiences 10 % provision is kept for operational costs, repairs and maintenance of fixed assets. The 10% figure is still maintained after a lot of meetings at the CSO. Consumption of fixed capital is set at 1 % of the total value of MFP. These figures were raised from 4% to 10% in the new estimation methods in 1989-90 after 1970-71.

Estimation at Constant Prices

1980-81 prices were used to deflate the value of major and minor products for arriving at constant price estimates. The final value is an aggregated one and the index used is a weighted average measure, where the weights are as per production mix figures. The state wise annual weighted average prices per unit of industrial wood and fuel wood are worked out given the data on industrial wood and fuel wood production and value of output. The same proportions as spelt earlier were used to arrive at net value added from gross value added.

Prices

Data on prices are collected from the chief conservator of forests, however their data provide prices prevailing in the market and not producers prices always. In order to come round this problem a deflator is used to arrive at the producers' prices from the Market prices. This

deflator is estimated from the data given in the Timber Trend Study in the Far East Country Report for India. But the deflating factor is quite old and based on 1953-54 data. No actual figure for the deflator is however provided by CSO.

2.9 TREATMENT OF CAPITAL FORMATION IN THE FORESTRY SECTOR.

Gross capital formation refers to aggregates of gross additions to fixed assets (i.e. fixed capital formation) and addition in stocks during period of accounts. Fixed assets comprise of: -

1. Machinery and equipment, including transport equipment and breeding stock, drought animals dairy cattle and like)
2. Additions to non-reproducible tangible assets such as land, minerals and the natural growth of standing timber or crops have NOT been included in Gross-Capital formation. In the same way the depletions to them are also not included, and this seems to be our main point of inquiry.
3. However outlays on improvement of land and development or extension of mining sites, timber tracts and plantation are taken as a part of capital formation.
4. Capital goods under the head of construction includes items like land improvement, plantation and cultivation of new orchards, tea coffee and rubber plantation, afforestation projects.

Methodology and Source Material for Evaluating Domestic Capital formation at the Current Prices by type of Assets.

The estimates of domestic capital formation by the type of assets are prepared for construction, machinery and equipment and change in stocks of these. The commodity flow approach is followed for preparing the annual estimates of these categories of construction works, which are undertaken with the issue of the specified construction materials as well as for machinery and equipment. By definition, the total value of new construction, constituting domestic capital formation is the aggregate of the values of both material input and factor payments in the form of payments to labour as well as capital (i.e. rent, profit, interest etc.). But expenditure should

be calculated net of similar kinds of expenses for current repairs and maintenance, to obtain the construction component of domestic capital formation.

In the case of public sector such labour activities or labour intensive production relate to afforestation and reforestation and data are available from the annual budget documents. In the case of private corporate sector, such constructions cover tea, coffee, rubber and annual data on extension, replacements and replantations are available independently. Because of the limitation of data, these estimates have to be prepared first for a benchmark year for different categories using expenditure approach and for other years thereafter using relevant indicators.

The Commodity Flow approach

The commodity flow approach envisages estimation of domestic production of commodities used in construction and adjusting them for inputs in the other industries, change in stocks, imports and exports for obtaining estimates of the net availability for construction purposes. For evaluating the commodities used for construction at prices paid by the builders at the site of construction, information on prices, transport costs, dealers' margins and indirect taxes are all made use of. For measurement by commodity flow approach the value at site in each accounting year, of five basic constructions inputs, Cement, Bricks, Tiles Permanent Fixtures and Fittings Iron-Steel, Timber and Rounded logs are considered in details.

Timber and Rounded wood

Direct data on production of timber or rounded wood is not available separately (now it is available for some states though); instead data on production of industrial wood comprising mainly timber and rounded wood is available. Data on product mix for years in which it is not available is projected from the trends in wood production and use. A huge amount of timber used to be required for railway sleepers and data for consumption of timber by Railways used to be obtained directly from the Railways. Average prices for timber used in construction was also obtained from the average NBO's quarterly data (National Buildings Organization). For the years in which prices are not available, it is projected by using the E.A.'s Index of wholesale prices. However the total value thus is adjusted for trade and transport margin.

Sometimes the timber prices are also taken directly from the dealers this is perhaps due to the fact that the trend study of 1958 is quite old now. However from time to time a fresh study has been undertaken e.g. in 1970-71.

Domestic Fixed capital formation by type of assets.

The estimates of gross domestic capital formation in construction and machinery and equipment are aggregated to arrive at the estimates of gross domestic fixed capital formation by type of assets. Using the estimates for public sector built up separately, the private sector estimates are obtained as residuals. However keeping in mind that there are only 5% privately owned forests now a days the public sector figure are marked up by 5% to account for the private sector.

The table provided below gives us an estimate of how the forestry sector was accounted. The figures in percentages put in parentheses at the statements are the estimated percentage figures that are used to decompose aggregate data in to the particular categories. To recapitulate, these are obtained from the Timber Trend study of 1958 or after collecting information from direct dealers of these items.

Table 2.3 : Value of timber and rounded wood used in construction.
(At current prices) **1980-81.**

| | |
|---|--------|
| 1. Production of industrial wood ('000 cu.m.) | 8713 |
| (a) Pulp and match wood (0.19% of 1.) | 16 |
| (b) Timber (91.86% of 1.) | 8004 |
| (c) Rounded wood (7.95% of item 1.) | 693 |
| 2. Timber used in railway sleepers ('000 cu.m.) | 299 |
| 3. Timber available for uses other than railways sleepers in ('000 cu.m.) 1 (a) - 2 | 7705 |
| 4. Timber used in construction (48.5% of item 3.) | 3737 |
| 5. Price of timber used in construction (Rs. Per cu.m.) | 2602.7 |
| 6. Value of timber (items 4 × 5) (Rs. Lacs) | 97263 |
| 7. Trade & transport charges (7% of item 6) | 6808 |
| 8. Total value (at site) of timber used in construction (6 + 7) (Rs.Lacs.) | 104071 |
| 9. Value of railway sleepers (Rs.Lacs.) | 4102 |
| 10. Trade transport and other charges (5% of item 9) (Rs.Lacs.) | 205 |
| 11. Total value of railway sleepers (9 + 10) (Rs.Lacs.) | 4307 |
| 12. Rounded used in construction (38.3% of item 1 (c) ('000 cu.m.) | 265 |
| 13. Price of rounded wood used in construction (Rs. Per cu.m.) | 746 |
| 14. Value of rounded wood used in construction (12 × 13) (Rs.Lacs.) | 1977 |
| 15. Trade & transport charges (50% of item 14) (Rs. Lacks) | 989 |
| 16. Total value of rounded wood used in construction (14 + 15) (Rs. Lacs) | 2966 |
| 17. Value of veneer and plywood and their products | 9538 |
| 18. Excise duty on Veneer and their products | 1558 |
| 19. Ex-factory Value of Veneer and plywood used in construction and their products (17+18) (Rs. Lakhs) | 11096 |
| 20. Value of Veneer and plywood used in construction (1/3 rd of item 20) (Rs. Lakhs) | 3699 |
| 21. Trade and Transport charges (25% of item 20) (Rs. Lakhs) | 925 |
| 22. Value of Veneer and plywood at site (Rs.Lakhs) | 4624 |
| 23. Total value of timber used including railway sleepers and rounded wood used in construction (8+11+16+22) (Rs. Lacs) | 115968 |

Source: National Income Accounts Statistics Sources and Method. **1989-90.**