CHAPTER 1

INTRODUCTION

Brief Background

1.1 The first Input-Output Transactions Table (IOTT), consistent with the National Accounts Statistics (NAS) related to the year 1968-69, was published for the first time by the Central Statistical Organisation (CSO), in the publication "National Accounts Statistics, 1978". This table was jointly compiled by the CSO and the Planning Commission. Subsequent to its completion, the CSO undertook the preparation of IOTT for the year 1973-74 at its own and decided to continue the work relating to the preparation of IOTT on a regular basis and publish them once in every five years. The IOTT 1973-74, in the aggregated 60 sectors form, was published in the NAS, 1981, but a separate publication entitled "Input-Output Transactions Table, 1973-74" was also released in September 1981. Thereafter, the Reports on IOTT for the reference years 1978-79, 1983-84, 1989-90 and 1993-94 were published in June 1989, September 1990, November 1997 and July 2000, respectively. The present publication contains the IOTT for the year 1998-99.

Structure of the Report

1.2 This Chapter describes the basic approach adopted in the compilation of IOTT and other important issues like the scheme of sectoral classification, valuation of transactions and overall balancing between total Gross Domestic Product (GDP) and its final expenditures. Chapter 2 gives the method of estimation of inputs and outputs for various sectors of the economy and the underlying assumptions, besides the sources and methods adopted for the generation of various components of final demand and indirect taxes. In Chapter 3, a brief analysis of the IOTT 1998-99 has been included along with a comparative picture from the results of earlier IOTTs.

1.3 Appendix I of the Publication describes the details of the procedures followed in the preparation of the input flow (*commodity x industry*) matrix and the output (*industry x commodity*) matrix. The method of generation of input flow matrix at factor cost from the matrix at purchasers' price, has also been detailed in this Appendix. Appendix II presents, in brief, the theoretical background for the construction of four quadrants of the pure *commodity x commodity* and *industry x industry* tables, under different technology assumptions. The specifications of the scheme of detailed sectoral classification (115 sectors) adopted in the IOTT are given in Appendix III. Appendix IV gives the aggregated 60 sector classification and the linkages of the detailed 115 with aggregated 60 sector classification adopted in the earlier IOTTs, which has been included for the benefit of users for comparative studies with the earlier IOTTs.

1.4 Detailed 115 sector absorption (commodity x industry) matrix for the Indian economy for the year 1998-99, the accompanying make (industry x commodity) matrix and other associated/subsidiary matrices are included in this Publication as Matrices 1 to 5. The 115 sector commodity x commodity table under industry technology assumption, and the Leontief Inverse Matrix are included as Matrices 6 and 7 respectively. The matrices included in the publication are the following:

Matrix-1: Input Flow (or Absorption) Matrix as the *commodity x industry* matrix;

Matrix-2: Output (or Make) Matrix as the *industry x commodity* matrix;

Matrix-3: Input-Output Coefficient Matrix;

Matrix-4: *Product Mix* Matrix;

Matrix-5: *Market Share* Matrix;

Matrix-6: *Commodity x Commodity* Matrix under the *industry technology* assumption;

Matrix-7: *Leontief Inverse* Matrix for commodities;

1.5 The input-output table gives the inter-industry transactions in value terms at factor cost presented in the form of *commodity x industry* matrix where the columns represent the industries and the rows as group of commodities, which are the principal products of the corresponding industries. Each row of the matrix shows in the relevant columns, the deliveries of the total output of the commodities to the different industries for intermediate consumption and final use. The entries read down industry columns give the commodity inputs of raw-materials and services, which are used to produce outputs of particular industries. The column entries at the bottom of the table give net indirect taxes (NIT) (indirect taxes – subsidies) on the inputs and the primary inputs (income from use of labour and capital), i.e., Gross Value Added (GVA).

1.6 As the IOTT is in the form of *commodity x industry* matrix, the row totals do not tally with the column totals. The difference between each column and the corresponding row totals is due to the inclusion of secondary products, which appear particularly in the case of manufacturing industries. This is so because by-products are also manufactured by industries in addition to their main products. Thus, while determining the entries in the rows, a by-product of an industry is transferred to the sector (commodity row) whose principal product is the same as the by-product under reference. The columns, however, show the total of principal products and by-products of each industry.

Sector Classification Adopted

1.7 The scheme of sector classification adopted in the present Table has been the same as that of the previous four Tables, viz., IOTT 1978-79, IOTT 1983-84, IOTT 1989-90 and IOTT 1993-94, but marginally different from the sector classification adopted for the earlier Tables. The changes made in the sector classification of IOTT 1978-79 from that of previous IOTTs were that the communication and electronic equipment were made separate sectors and that the manufacture of air-craft was merged with the miscellaneous manufacturing activity. Due to these two changes the ordering of the sectors of the IOTT, 1978-79 onwards had undergone slight change and users should take due care while comparing the results of subsequent tables with the results of 1973-74.

1.8 The first 32 sectors in the sector classification (Appendix III) represent primary production, the next 66 sectors relate to manufacturing industries and the remaining 17 sectors deal with the tertiary activities. In the primary production, 17 categories belong to agriculture, 3 to animal husbandry and 1 each to forestry and fishing and the remaining 10 to mining. The level of dis-aggregation adopted for manufacturing industries

generally correspond to 4-digit level of National Industrial Classification (NIC), 1998. Tertiary activities include services like construction, electricity, gas, water supply, railway transport, other transport, storage and warehousing, communication, trade, hotels & restaurants, banking, insurance, ownership of dwellings, education, medical and health and other services. All transport activities other than railways are clubbed under a single sector termed as 'other transport'. Being a non-producing sector, public administration and defence has neither any intermediate flows nor any input, but appears as a sector in gross domestic product of the economy, its contribution being in the form of compensation of employees. This sector is included to take complete account of total gross value added (GVA) by all sectors of the economy. The final uses have been distinguished under six categories (i) Private Final Consumption Expenditure (PFCE), (ii) Government Final Consumption Expenditure (GFCE), (iii) Gross Fixed Capital Formation (GFCF), (iv) Change in Stocks (CIS), (v) Exports of goods and services (EXP) and (vi) Imports of goods and services (IMP).

Valuation of Transactions

1.9 All the entries in the IOTT are at factor cost, i.e. excluding trade and transport charges and NIT. The IOTT, to begin with, is prepared at original purchasers' price, i.e. at the price at which actual transactions take place. The entries at factor cost are arrived thereafter by removing the components of trade and transport margins and net indirect taxes. These have been shown in separate rows in the table. The row of net indirect taxes thus depicts the taxes paid by the industries on intermediate inputs used in the process of production of industry's output.

Secondary Products

1.10 Manufacturing industries often produce secondary products either as joint products or as by-products apart from the primary products. For preparing the *industry x industry* and *commodity x commodity* matrices, the secondary products are transferred to the industries where they are principally produced following the procedures recommended in the UN System of National Accounts (SNA).

Overall Balancing between total Product and Expenditure

1.11 The estimates of GDP and expenditure used for the present IOTT are from the NAS, 2003. In the NAS, aggregates according to two approaches obtained independently do not balance and the discrepancies are shown separately in the individual accounts of the Consolidated Accounts of the Nation. For a balanced IOTT, however, it is essential that adjustments are made for these discrepancies before the overall balancing of row and column totals is undertaken. The overall discrepancy (about 4.2 per cent of the total GDP) has been absorbed in various categories of final demand (on the basis of the discrepancies in each of the aggregates) during the course of manual balancing of supply and disposition of each of the sectors. As a result, the totals of categories of final use presented in the table are marginally different from the corresponding estimates in the Consolidated Accounts of the Nation presented in the NAS.