



सत्यमेव जयते

NATIONAL  
ACCOUNTS  
STATISTICS

SOURCES AND  
METHODS

2012

CENTRAL STATISTICS OFFICE  
MINISTRY OF STATISTICS AND PROGRAMME IMPLEMENTATION  
GOVERNMENT OF INDIA

## FOREWORD

The Central Statistics Office (CSO) of the Ministry of statistics and Programme Implementation annually publishes the National Accounts Statistics (NAS). This publication is the key source-material for all macroeconomic data of the country. It presents the estimates of National Product and its utilization in the form of consumption and capital formation; accounts of the public sector and consolidated accounts of the nation. It is possibly the most widely used data source in the country, both in the public and private domains.

The official estimates of national income with base year 1948-49 were first compiled according to the methodology recommended by the National Income Committee headed by Prof. P.C. Mahalanobis. Since then the national accounts compilation has undergone major changes with the availability of more detailed and disaggregated data, which resulted in incorporation of additional macro-economic aggregates like saving, capital formation, consumption expenditure, public sector transactions, consolidated sets of accounts, factor incomes, input-output tables and estimates of quarterly Gross Domestic Product.

Over the years, the base years of NAS series have also undergone changes - from 1948-49 to 1960-61 in August 1967, from 1960-61 to 1970-71 in January 1978, from 1970-71 to 1980-81 in February 1988, from 1980-81 to 1993-94 in February 1999, from 1993-94 to 1999-2000 in January 2006 and from 1999-2000 to 2004-05 in January 2010. Each series of NAS incorporates improvements in methodology, coverage and quality of the national accounts over the previous series.

It has been the practice of CSO to bring out a publication outlining the sources and methods adopted in the compilation of National Accounts Statistics as and when the base year of national accounts series is changed. Continuing with this practice the present publication is being brought out to incorporate the changes adopted in the new series of NAS with base year, 2004-05. As the Indian economy grows in size and complexity, it becomes increasingly necessary to understand the manner in which key data are compiled. I am sure the users of national accounts statistics will find this publication very useful.

I would like to place on record my deep appreciation for the efforts of all officers and staff of National accounts Division (NAD), CSO in bringing out this publication under the guidance and supervision of Shri Ashish Kumar, Additional Director General.

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New Delhi,  
March 2012.

## INTRODUCTION

This publication describes the sources and methods of estimation of macro-economic aggregates, domestic product, consumption expenditure, saving, capital formation, capital stock, accounts of the public sector and consolidated accounts of the nation, which are presented in the Central Statistical Office (CSO)'s annual publication 'National Accounts Statistics' (NAS). The publication is organized in five parts covering 35 Chapters.

The background and methodological issues relating to 'Development of National Accounts Statistics' and 'Basic Concepts of National Accounts Aggregates' are covered in Part - I of the publication. Besides discussing the methodology of compiling net factor income from the rest of the world and consolidated Accounts of the nation, this part includes a chapter on workforce estimates used in the compilation of estimates of gross value added in unorganized sectors. Chapters dealing with Regional Accounts and Sequence of Accounts according to the System of National Accounts 2008 (SNA 2008) have also been included. The write up in respect of chapters on Sequence of Accounts and Domestic Products has been extracted from the SNA 2008.

Each chapter in Parts II to V, by and large, follows a uniform format providing details of the coverage of the sector to which the chapter refers, methodology and source material for estimation of domestic product and quality and limitations of database used in preparing the estimates.

Part –II, which consists of fourteen chapters, covers the sources and methods adopted in the estimation of domestic products, in terms of gross value added for each industrial sector of the economy, i.e., agriculture, forestry, fishing, etc. The estimates of Gross Domestic product (GDP) compiled by industry, are treated as firmer estimates of GDP. The discrepancy between this estimate and the GDP by expenditure aggregates, namely, final consumption expenditure, gross fixed capital formation, change in stocks, and net exports, is separately recorded.

Part-III includes five chapters on estimates of private & government final consumption expenditure, saving, capital formation, capital stock and consumption of fixed capital. These chapters provide details of the methodology adopted in preparing estimates of private consumption by items of expenditure, saving by institutions and by instruments, and capital formation by assets, by institutions and by industry of use. While the estimates of capital formation by assets and institutions, and by industry of use tally with each other, 'errors and omissions' is separately recorded between this estimate and the estimate of capital formation compiled as sum of saving and net capital inflow from abroad, which is treated as firmer estimate.

Transactions of public sector are dealt with in Part-IV. The public sector chapter has been divided in two parts: part A dwells on the estimation of macroeconomic aggregates and accounts of the Administrative Departments of the Government and Departmental Commercial undertakings (DCUs) while Part-B discusses the same for Non-Departmental Commercial undertakings (NDCUs).

Part-V provides eight chapters covering the methodology of compiling Input-output Transaction Tables; Quarterly and Advance estimates of GDP; Estimation of Rural-Urban Income and Net Factor Income. A glossary of commonly used concepts and definitions is given in Chapter 34 for ready reference. Abbreviations used in the publication are listed in Chapter 35, A bibliography of the source material used in the compilation of the estimates of various macro-economic aggregates, accounts of the public sector and consolidated accounts of the nation, is also provided in the (last) chapter 36.

## DEVELOPMENT OF NATIONAL ACCOUNTS STATISTICS

### Introduction

1.1 The national accounts provide a comprehensive, conceptual and accounting framework for analyzing and evaluating the performance of an economy. As the national accounts are designed to account for all economic transactions, their compilation is a major exercise, which draws information from several diverse data sources. The sources consist of data generated as a by-product of public administration system, such as land records, collection of direct and indirect taxes, as well as data collected directly through censuses and sample surveys conducted by official agencies of the Central and State Governments. For certain newly emerging activities such as software, information available from selective non-official sources is used in the compilation of national accounts statistics (NAS). While the underlying concepts and methodology of compilation has been mostly standardized under the System of National Accounts (SNA) of the international agencies, procedures and approximations are shaped by the country-specific data collection system. For making the estimates comparable internationally and over time, the Central Statistical Organization (CSO) maintains detailed, well documented methods and procedures unchanged till the revision of the base year. Normally, major methodological changes and incorporation of data from new surveys and censuses are made at the time of revision of base year. Other changes in sources of data and methodology are indicated in the Chapter on "Notes on Methodology and revisions in estimates" in the publication National Accounts Statistics.

### Historical Perspectives

1.2 The CSO associates technical experts and representatives of central economic Ministries and State/Union Territory Directorates of Economic and Statistics (DES) with the compilation of National Accounts Statistics (NAS). This is in the form of Advisory Committee on National Accounts (ACNA), which is a permanent standing committee and is reconstituted from time to time. Professor Moni Mukherjee, who was the Secretary to the first National Income Committee after independence, Professor V.M. Dandekar, Prof. Y.K. Alagh, Dr. Rakesh Mohan and Prof. S.D. Tendulkar have chaired the ACNA in the past.

### The Beginning

1.3 In India, prior to the development of national accounting system, which started in sixties, the main focus was on computing nation's income. Before independence several attempts were made to compute nation's income by individual economists and research workers. But all these efforts were based essentially on macro-level data and involved a number of assumptions for want of requisite data and adequate resources. Notwithstanding the limitations, these studies provided the base for post-independence work on the subject. After Independence, due attention was given to the development of official estimates of national income and related aggregates to meet the requirements for planning and policy purposes. Recognizing the need for providing estimates of national income on a regular basis, the Government of India set up an Expert Committee in 1949 known as "National Income Committee" under the chairmanship of Prof. P.C. Mahalanobis with Prof. D.R. Gadgil and Prof. V.K.R.V. Rao as members, to make recommendations regarding the compilation of estimates of national income, the improvement of the statistical data on which the estimates were to be based and to suggest measures to promote research in the field of national income. To assist the Committee a 'National Income Unit (NIU)' was set up. It was for the first time that this Committee provided the estimates of national income for the entire Indian Union. The estimates and details of methodology adopted were published in the first and final reports of the National Income Committee brought out by the Ministry of Finance in 1951 & 1954 respectively. The Committee recommended preparation of national income estimates on a regular (annual) basis. Accepting this recommendation, the Government of India transferred the entire establishment of NIU, then working for the National Income Committee, to the Ministry of Finance to take charge of the work on a regular basis. The work of estimation was later transferred to the Central Statistical Organization (CSO) and a full-fledged National Income Division was created which is now designated as National Accounts Division (NAD) in conformity with the expansion in its activity.

### Conventional Series

1.4 As per the methodology and the pattern of presentation recommended by the National

Income Committee, the first official estimates of national income were prepared by the CSO with base year 1948-49 at constant prices. These estimates at constant (1948-49) prices along with the corresponding estimates at current prices and the accounts of the Public Authorities were published in the publication, "Estimates of National Income" in 1956. This series, commonly known as the "conventional series" was continued to be published till 1966 under the same title.

### First revision of the base year (Base 1960-61)

- 1.5 With the gradual improvement in the availability of basic data over the years, a review of methodology for national income estimation and its extension to other fields of macro- economic aggregates was undertaken with a view to update the data base and to shift the base year from 1948-49 to a more recent year. Special efforts in this regard were made for a comprehensive review of all available data, both published and unpublished. The first results of these efforts were presented in the "National Income Statistics - Proposals for a Revised Series for National Income Estimates, 1955-56 - 1959-60(CSO, 1961)". These proposals were discussed at a Seminar specially organized for the purpose. In the light of the views expressed in the Seminar, several follow-up studies were undertaken. The 'proposals' as improved/amended on the basis of the studies along with estimates as per the revised series of national income with 1960-61 as new base for estimates at constant prices were published in the "Brochure on the Revised Series of National Product, 1960-61 to 1964-65 (CSO, 1967)" replacing the earlier series with base 1948-49. Simultaneously, work on the estimation of related aggregates like "capital formation" and "saving" for the years 1960-61 to 1965-66 was also undertaken. These estimates were published along with the methodology in two special brochures, (i) "National Income Statistics-Estimates of Capital Formation in India, 1960-61 to 1965-66" and (ii) National Income Statistics-Estimates of Saving in India, 1960-61 to 1965-66 (CSO, 1969). With the introduction of this series with base 1960-61 (hereafter referred to as 1960-61 series), the title of the annual publication was changed to "Estimates of National Product". The coverage of the NAS was extended gradually from time to time to incorporate the estimates of private consumption expenditure, saving, capital formation,

factor incomes, consolidated accounts of the nation and detailed accounts of the public sector. The title of the publication was, therefore, again changed to the present title 'National Accounts Statistics' (NAS) with effect from January 1975 to depict the expanded scope of the publication.

- 1.6 Further, to meet the demand of the users a special supplement, "National Accounts Statistics, 1960-61 to 1972-73-Disaggregated Tables (CSO, 1975)" was brought out. This publication included disaggregated tables on output, input, value added, private consumption expenditure, saving and capital formation. While the publication presented the estimates at current prices for the years 1960-61 to 1972-73, those at constant (1960-61) prices were presented for the entire period of 1950-51 to 1972-73. From the subsequent issue, the NAS 1976, all those tables presented in the special supplement became regular features of the NAS.

### Second revision of the base year (Base 1970-71)

- 1.7 The base year of the revised series was subsequently changed from 1960-61 to 1970-71 (hereafter referred to as 1970-71 series) and the estimates according to 1970-71 series were published in NAS, January, 1978. These estimates had the same scope, coverage and methodology as the earlier estimates included in NAS, October, 1976 and were based on the latest available data from various sources, like population census, livestock census, various sample surveys and ad-hoc studies undertaken in the NAD. Both 1960-61 series and 1970-71 series are known as "revised series". The detailed methodology of estimation used in the revised series was published in the special publication known as "National Accounts Statistics: Sources & Methods, April 1980" (CSO, 1980). The revisions/ changes in the methodology/data base made have been described in the 'Notes & Methodology' in various issues of NAS as also in a special article in the Monthly Abstract of Statistics, in its October, 1985 issue. In order to have comparable series of macro-economic aggregates resulting from the change of base year to 1970-71, the estimates for the back years up to 1950-51 at 1970-71 prices were prepared and published in 1979 and 1980 issues of NAS.

### Third revision of the base year (Base 1980-81)

- 1.8 The CSO revised the 1970-71 series of national account aggregates with 1980-81

as base year (hereafter referred to as 1980-81 series) in February, 1988. This series was introduced after a comprehensive review of the database as well as the methodology employed in the estimation of various aggregates. It also involved a number of revisions arising out of the conceptual and methodological improvements as well as use of the latest available data. The revisions brought about for the 1980-81 series were the result of a large number of studies including those for the estimation of consumption of fixed capital based on the estimates of fixed capital stock using perpetual inventory method (PIM) carried out by the NAD since 1983, in collaboration with the Reserve Bank of India (RBI), the Directorate of Economics & Statistics (DESAg) of the Ministry of Agriculture & Directorates of Economics & Statistics (DESs) of the State Governments. The coverage of the series was enlarged to include the State of Sikkim. The improvements proposed for the 1980-81 series were also considered in depth at the Pune Seminar and Conference of the Indian Association for Research in National Income & Wealth (IARNIW) held in December, 1984 and November, 1985 respectively. These proposals and the consequential changes were discussed in detail by the Advisory Committee on National Accounts at two meetings specially convened for this purpose in April 1986 and June 1987. The CSO also benefited from the suggestions received from many other experts in the field of national accounts.

#### **Fourth revision of the base year (Base 1993-94)**

- 1.9 The CSO revised the 1980-81 series of national account aggregates with 1993-94 as base year (hereafter referred to as 1993-94 series) in February, 1999. In the past, National Accounts Statistics were mostly revised decennially changing the base to a Year synchronizing with the year of decennial Population Census. It was primarily because in the base year estimates, the information on workforce played an important role and workforce estimates were obtained from the Population Census, which is conducted decennially in the years ending with 1. As a sequel to this sequence, this series of National Accounts Statistics should have been with the base year 1990-91. However, it was observed that the data on worker participation rate (WPR) captured by the National Sample Survey Organisation (NSSO) was better than the one estimated through the Population Census. Accordingly,

the CSO used the workforce estimates based on National Sample Survey (NSS) workforce participation rates from the NSS 1993-94 (50<sup>th</sup> Round) survey results, and revised the base year of national accounts to 1993-94. Of the various changes/methodological improvements effected in the new series, mention may be made of the estimation of working force by economic activities using the worker-population ratio and the workforce participation rates estimates based on the quinquennial survey on employment and unemployment conducted by the NSSO, 1993-94 (50<sup>th</sup> Round) and the total population as obtained from the 1991 Population Census, using the database on horticultural statistics released by the National Horticulture Board (NHB) of the Ministry of Agriculture, coverage of the agricultural production in the fore/backyard, floriculture, deep sea fishing, valuation of the output of prawns and shrimps separately, data on which is available from the Ministry of Agriculture, estimation of the contribution of tailoring services, public services in the quasi-government bodies and the contribution of Employees Provident Fund Organization in the GDP. In the 1980-81 series imputed banking charges (financial intermediation services indirectly measured – FISIM) were being allocated to only few organized segments of the user industries and final consumers. In the 1993-94 series, however, FISIM was allocated to all user industries in line with the recommendations of the 1993 SNA (which came into existence in this period and was prepared under the auspices of the Inter Secretariat Working Group on National Accounts comprising of the European Communities (EUROSTAT), International Monetary Fund (IMF), Organization for Economic Cooperation and Development (OECD), United Nations and World Bank). Further, methodology for estimating the output of insurance services was revised in this series, as per the recommendations of 1993 SNA. The 1993-94 series involved a number of revisions arising out of conceptual and methodological improvements as well as use of latest available data. The comprehensive revisions in this series were based on few studies initiated by the CSO. Particular mention may be made of the three Groups (separately for agriculture, industry and services) comprising representatives of the Ministries and outside specialists to examine the issue relating to the under estimation of the GDP. The suggestions of these groups were helpful in the base revision exercise particularly in locating areas of



underestimation and in identifying the alternative sources of data for the purpose. Some of the proposals leading to the changes employed in the new series were discussed in the Golden Jubilee Seminar of the Indian Association for Research in National Income and Wealth (IARNIW) held at the Institute of Economic Growth, University of Delhi during 24 - 26 July 1998 and also at the joint International Conference of the IARNIW and International Association for Research in Income and Wealth held at New Delhi during 16-20 November 1998. The changes effected in the new series in terms of methodology, use of alternative data sources and the consequential changes in the estimates were also deliberated upon in detail by the Advisory Committee on National Accounts under the chairmanship of Dr. Rakesh Mohan, in its meetings held on 19th August 1998, 6th November 1998, 19th January 1999 and 27<sup>th</sup> January 1999.

### **Fifth revision of the base year (Base 1999-2000)**

- 1.10 The CSO revised the 1993-94 series of national account aggregates with 1999-2000 as base year. The three major components influencing the present revision exercise include (i) revision of base year to a more recent year (for meaningful analysis of the structural changes in the economy), (ii) complete review of the existing data base and methodology employed in the estimation of various macro-economic aggregates including choice of the alternative databases on individual subjects and (iii) to the extent feasible, implementing the recommendations of 1993 SNA. In continuation with the practice of adopting NSS employment and unemployment survey data, the new series of national accounts released on 31<sup>st</sup> January, 2006 adopted 1999-2000 as the base year, as it has used the data on WPR from the NSS 55<sup>th</sup> Round Quinquennial survey on Employment and Unemployment, conducted in 1999-2000. In the new series, the WPR data has been used in conjunction with population data of the Population Census, 2001. In addition to using the results of above surveys and censuses, the CSO entrusted a number of studies to the State Governments, the Directorate of Economics and Statistics, Department of Agriculture and Cooperation, Ministry of Agriculture (DESAg) and the Socio-Economic Research Centre (SERC), a Delhi based NGO, for updating the rates and ratios used in the compilation of national accounts. The improvements in terms of coverage in the new series in the GDP

estimates have mainly been inclusion of production of salt through seawater evaporation, betel leaves (for States of Assam & West Bengal), toddy, goat milk (in 16 States/UTs), buffalo milk (in 5 States/UTs) and camel milk having economic value and not presently covered in the production data, duck eggs (in 15 States/UTs), and meat production from unregistered slaughtering in the States where the same is presently not covered in the production estimates. Also capital expenditures incurred on seven new tree crops during the gestation period, and installation of wind energy systems, are included in the estimates of output of construction sector, as well as in the capital formation. A new category of 'valuables', covering the expenditures made on acquisition of valuables namely gold, Jewellery, etc. has been included in the gross capital formation, but as a separate category outside the Gross Fixed Capital Formation (GFCF) and Change in Stocks, in line with the recommendations of 1993 SNA.

In addition to the above, economic activities like other private communication, (ii) renting of machinery and other equipment without operator, computer related activities in unorganized segment, coaching centers, social work with accommodation, and recreation and cultural and supporting activities, have been taken into account as per the latest available data from the NSS 55<sup>th</sup> and NSS 57<sup>th</sup> Rounds. The important procedural changes made in the new series are (i) use of the production data provided by the National Horticulture Board (NHB) for all horticultural crops (with the exception of those covered under principal crops) and the price data provided by the State Directorates of Economics and Statistics (State DESs) for all crops; (ii) introduction of a new basic material, 'fixtures and fittings' in the construction sector in addition to the existing 4 basic materials for estimating the value of output of construction sector; (iii) netting the retained reserves and dividends paid from the property income of mutual funds for the purpose of estimating the output of banking sector; (iv) aligning the estimates of capital formation by industry of use with those of assets/institutions; (v) adjusting for reinvested earnings in India of foreign companies in the estimates of saving of private corporate sector and the consequential changes in the external transactions account; (vi) including in the private corporate sector's GFCF, the domestic consumption of software (net of public sector purchases) and the



expenditures incurred on construction of assets by the newly set up companies before they commence production; and (vii) treating the operating losses of departmental commercial undertakings as imputed subsidies, in line with the practice currently followed for irrigation departments. While undertaking the new base year exercise, efforts were also been made to implement the recommendations of the 1993 System of National Accounts (1993 SNA) to the extent data are available.

### **Current Series of National Accounts (Base 2004-05)**

- 1.11 **The CSO revised the 1999-2000 series of national account aggregates with 2004-05 as base year (hereafter referred to as new series) in January , 2010, to take into account the structural changes in the economy.**

#### **Guiding Principles for New Series**

- 1.12 The existing data base and methodology employed in the estimation of various macro-economic aggregates were reviewed and, to the extent possible, the recommendations of SNA 1993 and 2008 were implemented.
- 1.13 CSO started using the work force estimates from the results of Quinquennial Employment and Unemployment Surveys of National Sample Survey Organisation (NSSO), which are conducted once in every five years, and consequently started revising the base years of national accounts statistics once in every five years coinciding with the years for which the NSSO conducts the Quinquennial Employment and Unemployment Surveys.
- 1.14 In continuation with this practice, the new series of national accounts has been released with base year 2004-05 on 29<sup>th</sup> January, 2010 using the work force data from the results of NSS 61<sup>st</sup> round (2004-05) on Employment and Unemployment Survey.
- 1.15 In the new series, efforts have been made to make use of as much current data as possible. Further, the results of latest available surveys have also been made use of. Some of the important sources of data, which have been used in the new series, are as follows:
- (i) NSS 61<sup>st</sup> round (2004-05) on employment and unemployment and consumer expenditure;

- (ii) NSS 62<sup>nd</sup> round (2005-06) on unorganized manufacturing;
- (iii) NSS 63<sup>rd</sup> round (2006-07) on services sectors;
- (iv) All India Livestock Census, 2003;
- (v) NSS 59<sup>th</sup> round (2002-03) on All India Debt and Investment Survey;
- (vi) Population Census, 2001; and
- (vii) Fourth All India Census of Micro, Small and Medium Enterprises, 2006-07.

- 1.16 Further, the results of various studies undertaken by the CSO through the Ministry of Agriculture, Ministry of Environment and Forestry and State Governments and also the CSO's input output transactions tables and the Ministry of Agriculture's Cost of Cultivation Studies have been used in the new series for updating the rates and ratios used to estimate the production/consumption of fodder, market charges paid by the farmers, yield rates of meat, meat products and meat by products for different categories of animals, input rates for agriculture and forestry and the trade and transport margins.

#### **Improvements in coverage and procedures of Compilation**

- 1.17 The improvements in terms of coverage have been mainly the inclusion of production of industrial wood from trees outside forests (TOF), fodder from forest sources and output of wind power generation in the GDP estimates.
- 1.18 The important procedural changes made in the new series are the incorporation of data on (i) area and production of crops as finalized by the States/UTs for the final estimates of GDP; (ii) consumption of fertilizers in agriculture, as provided by the Fertilizer Association of India in lieu of data on dispatches of fertilisers being used at present from the same source in the estimation of inputs of agriculture sector; (iii) results of the CSO's Annual Survey of Industries (ASI) in place of the index of industrial production (IIP) for estimating the GDP of registered manufacturing; (iv) labour input on the basis of work-place as against the present practice of using labour input data on the basis of location in respect of estimation of GDP of unorganized manufacturing and services; and (v) labour input for the organized sector from the NSS Employment and Unemployment Surveys in place of the present source, namely, the Annual Employment Market Intelligence (EMI) of the Directorate General of Employment and Training (DGET), Ministry

of Labour.

- 1.19 Other procedural changes in the new R&D expenditures in series include (i) treating R&D expenditures in public sector as capital expenditures in line with the recommendations of 2008 SNA; (ii) adopting the declining balance (of life of assets) method for estimating the consumption of fixed capital and capital stock; (iii) adopting the user cost approach for estimating the services of owner occupied dwellings in rural areas as against the present practice of imputing these services on the basis of rent per dwelling; (iv) estimating the output of communication in nominal terms on the basis of data available on average revenue per user (ARPU); and (v) improvements in the estimation of output, consumption expenditure, saving and capital formation of autonomous government bodies and local bodies by analyzing their accounts on a sample basis.

### **Implementation of 1993 and 2008 SNA**

- 1.20 While undertaking the new base year exercise, efforts have also been made to implement the recommendations of the System of National Accounts (SNA) 1993 and 2008 to the extent data are available. It may be mentioned here that the compilation of national accounts in India are on 1993 SNA basis. Some of the recommendations which presently form part of the new series are:

- (i) Treating public sector as capital expenditures in line with the recommendations of 2008 SNA;
- (ii) Adopting the declining balance (of life of assets) method for estimating the consumption of fixed capital and capital stock;
- (iii) Adopting the user cost approach for estimating the services of owner occupied dwellings in rural areas as against the present practice of imputing these services on the basis of rent per dwelling;
- (iv) Treating the construction component and machinery/transport outlay of Defence capital account as capital formation, which was earlier being treated as intermediate consumption.

### **Consultation with Expert Bodies**

- 1.21 The new series incorporates several conceptual and methodological improvements as well as use of latest available data. The comprehensive revisions in the new series are also the results of a number of studies initiated by the CSO in

the recent past and also the outcomes of the Committee on "Issues in the Estimation of GDP of Forestry Sector". This committee was constituted under the Chairmanship of Shri Ramesh Kolli, ADG, CSO to identify and address some of the data gaps in the sector. The members of the committee included representatives from the Forest Survey of India, Indian Council for Forestry Research & Education, Ministry of Environment & Forests, State Governments of Himachal Pradesh, Meghalaya, Madhya Pradesh and Punjab. Based on the discussions held in the meetings of the Committee, the industrial wood produced from Trees Outside Forests and fodder from forest sources have been included in the coverage of GDP estimates in the new series.

- 1.22 Some of the proposals leading to the changes employed in the new series were discussed in the two Conferences of the Indian Association for Research in National Income and Wealth (IARNIW) held jointly with (i) Institute for Social and Economic Change (ISEC), Bangalore in November 2008 and (ii) Centre for Development Studies (CDS), Thiruvananthapuram in January, 2010. The changes effected in the new series in terms of methodology, use of alternative data sources and the consequential changes in the estimates were also deliberated upon in detail in the meetings of the Advisory Committee on National Accounts Chaired by Prof. K. Sundaram and having eminent economists/statisticians and representatives of Ministry of Agriculture, Finance, Planning Commission, Reserve Bank of India, State Governments as members, held on 12th September, 2007, 20th August, 2008, 9th October, 2009 and 5th January, 2010. The changes effected in the new series are in accordance with the advice and recommendations of the Advisory Committee.

### **Changes in GDP Estimates, by Industry**

- 1.23 In this section, changes made in the new series in terms of methodology and sources of data used in compiling estimates of gross domestic product by economic activity, are discussed.

### **Agriculture Value of Output - Crops**

- 1.24 Keeping in view the need to incorporate fully revised crop production data for achieving consistency between supply and use of output of the economy, the CSO has taken into account the fully revised

estimates of area and production of crops as provided by the States/UTs in the new series, in consultation with the Advisory Committee on national accounts which also has representation from the DESAg. Regarding by-products, the latest data on cost of cultivation studies available from the DESAg, has been used in the new series.

### **Value of Output – Livestock Products**

- 1.25 In the new series, the value of meat by-products (excluding hides & skins) has been estimated as a percentage of the total value of meat production, in place of the earlier procedure of estimating each and every by-product using certain ratios of meat production for different categories of animals.

### **Inputs of agriculture including livestock**

- 1.26 Major changes in the new series under this are in the items, (i) seed, (ii) organic manure, (iii) chemical fertilizers, (iii) feed of livestock, (iv) Market charges, (v) pesticides and insecticides and (vi) diesel oil.

#### **Seed and Diesel oil**

- 1.27 Revision of seed rates and the consumption of diesel oil per tractor/ oil engine are based on the latest data from Cost of Cultivation Studies (CCS).

#### **Chemical fertilizers**

- 1.28 In the old series, the estimates of consumption of chemical fertilisers were based on the material-wise distribution (dispatches) of chemical fertilisers to States/UTs by the Central Fertilizer Pool, Indian Potash Ltd., and the domestic manufacturers. In the new series, consumption figures, as available from the Fertilizer Association of India, have been used in lieu of the dispatch figures for purpose of evaluating the chemical fertilisers.

#### **Feed of livestock**

- 1.29 In the new series, feed of livestock has been estimated using the data on feed as available in the Cost of Cultivation Studies. The estimates of feed of livestock as available from the CCS have also been corroborated by the studies undertaken on feed of livestock by the State DESs of Maharashtra and Himachal Pradesh.

- 1.30 In addition to this, it has been observed that there is some consumption of fodder by the cattle from forest sources. An estimate of consumption of fodder by the cattle

grazing from forest area has been provided by the Forest Survey of India, Dehradun. This estimate has been included as output in the forestry sector and as input in agriculture and livestock sector, for the first time in national accounts compilation, in the new series.

### **Market charges**

- 1.31 For estimating the market charges in the crop sector, the CSO conducts a study through the DESAg, Ministry of Agriculture at the time of revising the base year. Based on the results of a study conducted by DESAg during 2004-05 for fifteen crops, the market charges paid by the farmers have been estimated

### **Pesticides & Insecticides**

- 1.32 The estimates of pesticides and insecticides have been revised using the data on quantity and prices of pesticides obtained from the Directorate of Plant Protection, Quarantine & Storage, under the Ministry of Agriculture, as against the earlier source of Crop Care Foundation of India.

### **Forestry**

- 1.33 In the national accounts, production of firewood is estimated indirectly from the consumption side. The data on consumption of firewood is available from the 5-yearly consumer expenditure surveys of NSSO. For the new series, the results available from the NSS 61<sup>st</sup> round (2004-05) on consumer expenditure, have been used.

As regards inputs, in the earlier series inputs in the sector were estimated as 10% of the value of output. Based on an analysis of budget documents of the State Forest Departments for the year 2004-05, input rate in forestry has been revised to 15.6% of the value of output.

### **Fishing**

- 1.34 No changes have been made in the sources and methods of compiling the gross value added (GVA) of fishing.

### **Mining and quarrying**

- 1.35 There are no changes in sources and methods in this sector.

### **Manufacturing**

#### **Registered manufacturing**

- 1.36 The estimates of GDP for the year 2004-05 in the new series have been compiled from the results of ASI, 2004-05. In the previous NAS series, the ASI results were used only for the year 1999-2000. For other years, the data of Index of Industrial Production

(IIP) was used to extrapolate the base year estimates. Thus, in the old series, the GVA of registered manufacturing for a year beyond 1999-2000 was the extrapolated estimate of 1999-2000 ASI based estimates with the IIP numbers. In the new series ASI results are used in this annual accounts

### Unregistered manufacturing

1.37 The GVA estimates for the new series for the base year 2004-05 have been prepared separately for two segments of the unregistered manufacturing, namely (i) the segment of micro, small and medium enterprises (MSMEs) (other than those covered under the ASI), and (ii) the rest of unorganized manufacturing, i.e. the manufacturing activity which is not covered under either the ASI or the MSME.

1.38 The GVA for the MSME segment in the new series has been estimated using the value of output data available from the results of Fourth All India Census on Micro, Small and Medium enterprises, 2006-07 released by the Office of the Development Commissioner, Micro, Small and Medium enterprises and the GVA/GVO ratios available from the Directory Manufacturing Enterprises (DME) (i.e. those employing 6 and above workers) results of NSS 62<sup>nd</sup> round survey on unorganized manufacturing. Due adjustments have been made to bring the estimates of GVA of the SSI segment to the price levels of 2004-05.

1.39 The estimates of other unregistered manufacturing units, i.e. the units not belonging to MSMEs group mentioned above, have been compiled using information on GVA per worker from the integrated surveys of enterprises and households excl. MSME cases in the 62<sup>nd</sup> round (2005-06). The GVA per worker from the 62<sup>nd</sup> round of NSS that relates to the year 2005-06 has suitably been deflated to arrive at the GVA per worker estimate for 2004-05. The estimates of workforce for this portion of unregistered manufacturing i.e. for the units neither belonging to ASI nor to MSMEs, have been obtained from the total work force on manufacturing activities by subtracting the workforce relating to ASI and MSME (non-ASI) segments.

### Electricity, Gas and Water supply Electricity

1.40 In the new series, the coverage of this activity has been expanded to include the output of wind energy.

### Water supply

1.41 **Public Sector:** The estimates of NVA consists of compensation of employees as obtained from budget expenditure on salaries and wages Central and State governments as well as local bodies.

1.42 **Private Sector:** The estimates of compensation of employees for the new series for this part have been prepared using the estimates of workforce and average compensation of municipal workers engaged in water supply services.

### Construction

1.43 The construction sector comprises two components namely (i) accounted construction (pucca construction) and (ii) unaccounted construction (kutchha construction). The GVA of former is measured through the commodity flow approach, while the later is through the expenditure approach. The broad methodology adopted in the new series for working out the total output, gross value added and the Gross Fixed Capital Formation from construction sector is more or less same as the one used in 1999-00 series except for some minor modifications.

### Accounted construction

1.44 The estimates of accounted construction for the entire economy are compiled first through the commodity flow approach on the basis of availability of basic construction materials and factor inputs. This forms the control figure of overall output of accounted construction for the country. From this estimate, output of construction in public sector, private corporate sector and household sector (compiled independently utilizing the data sources of budget documents, profit and loss accounts, balance sheets and results of AIDIS) is separately estimated.

1.45 In respect of household sector, the estimates of new construction and repair and maintenance for (i) rural residential buildings (RRB), (ii) rural non-residential and other construction works (RNRB and OCW), (iii) urban residential buildings, and (iv) urban nonresidential and other construction works are prepared initially for the benchmark years using the results of All India Debt and Investment (AIDIS). These benchmark estimates are extrapolated with various indicators such as norms derived from various housing censuses and other survey results, and composite price indices, for compiling the estimates for subsequent years. The above said estimates are further

apportioned to accounted and unaccounted construction using the norms derived from the results of relevant NSSO surveys.

#### Unaccounted construction

1.46 In the new series, the coverage under unaccounted (kutchra) construction includes 7 additional plantation crops (banana, papaya, apple, litchi, pineapple, guava, and pomegranate) under cultivated assets based on data available from National Horticulture Board for the year 2004-05. The capital expenditure incurred on cultivation of plantation crops during the gestation period is treated as output under kutchra construction of the 'Construction Industry' for that year. Using the information available in the agricultural census 2000-01 regarding crop-wise information on percentage of institutional holdings in the total area under plantation, estimates of GFCF in plantation for organized sector and unorganized sector have been worked out. In respect of wind energy, 8.7 per cent of the total capital expenditure incurred in constructing the wind energy systems, which include wind mills, aero-generators and wind turbines, has been treated as new construction in un-accounted (kutchra) construction, based on the cost structures of the projects undertaken as in the old series.

1.47 The costs of new construction, repair and maintenance of public and private corporate sectors have been estimated independently from the budget documents/ annual reports. For the household sector, the results of AIDIS, 2002-03 have been used for compiling the estimates of construction in rural - urban residential and non-residential buildings, and other construction works by the households both in farm and non-farm business. The norms used for apportioning the rural residential buildings into accounted and unaccounted constructions are 79:21 and for urban residential buildings, they are 97:3 as in the old series. These norms have been adopted on the basis of results of NSS 58<sup>th</sup> Round survey on housing conditions. Other construction works taken up by households engaged in farm business has been treated as unaccounted construction and that in non farm business as accounted construction.

#### Trade, hotels and restaurants Trade

1.48 In the new series also as in the old series, the estimates of GVA for trade sector have been prepared separately for the following five categories, as per NIC 1998 classification:

- (i) 502+50404, "Maintenance and repair of motor vehicles"
- (ii) 50-502-50404, "Sale of motor vehicles"
- (iii) 51+74991, "Whole sale trade except of motor vehicles + Auctioning activities"
- (iv) 526, "Repair of personal and household goods"
- (v) 52-526, "Retail trade (except motor vehicles)."

1.49 Further, the GVA estimates have been prepared in the new series separately for:

- (i) Public sector having units engaged in retail and whole sale trade (except of motor vehicles) + Auctioning activities;
- (ii) Private Organised sector consisting of (a) Private Corporate units engaged in retail and wholesale trade + Auctioning activities, (b) Trading Co-operative units engaged in retail and wholesale trade (except of motor vehicles) + Auctioning activities, (c) Maintenance and repair of motor vehicles and (d) Repair of personal household goods
- (ii) Private Unorganised sector having units engaged in all the five categories.

1.50 The revision in GVA estimates of public, private and unorganized components in 2004-05 in the new series has been due to the availability of latest data from different source agencies. For public sector trading units, GVA estimates have been compiled by analyzing the annual accounts of public trading enterprises and budget documents. Estimates for private organized part comprising private corporate sector and co-operative societies engaged in trade have been prepared for 2004-05 using the results for the RBI study on company finances, total paid-up capital of companies available from Department of Company Affairs and information available from the NABARD publication entitled "Statistical statements relating to the Co-operative movement in India 2003-04".

1.51 The contribution of the unorganized segment has been estimated as a product of workforce and value added per worker. As Trade has not been covered in the 63<sup>rd</sup> round of NSSO on Service Sector, the GVA of each of the five categories of unorganized trade sector for the year 1999-2000 has been moved to 2004-05 using the growth in Gross Trading Income (GTI) of the sector which takes into account the growth in output as well as workforce.



**Hotels and restaurants**

- 1.52 This activity comprises categories 551 and 552 of NIC, 1998. The methodology followed for estimating GDP of public, private organized and private unorganized in the new series is the same as that of 1999-2000 series. The revision in GDP estimates of public, private and unorganized components is due to latest data made available by different source agencies. For public sector, the estimates are based on analysis of annual accounts of public enterprises and budget documents. Estimates for private organized part have been prepared for 2004-05 using the results for the RBI study on company finances, total paid-up capital of companies available from Ministry of Company Affairs. For the unorganized sector in new series, GVA per worker from Enterprise survey conducted during 63<sup>rd</sup> round (2006-07) of NSS and workforce estimates from Employment Unemployment Survey, 2004-05 along with Population Census 2001 have been considered but could not be used due to certain inconsistencies in the data.

**Transport by means other than railways and storage**

- 1.53 The economic activities covered in this sector are: (i) Mechanized road transport (NIC 98 codes-6021+60221+60231); (ii) Non-mechanized road transport (NIC 98 codes-60222+60232); (iii) Air transport (NIC 98 code-62); (iv) Water transport (NIC 98 code-61); and (v) Supporting & Auxiliary transport activities (NIC 98 code-63-6302).
- 1.54 For mechanized road transport, public sector GVA estimates have been compiled by analyzing the annual accounts of State Road Transport Corporations. While for Private corporate and Un-organised sector, the estimates of GVA in respect of mechanized and non-mechanized road transport have been compiled for the base year as a product of GVAPW of 63<sup>rd</sup> round of NSSO and workforce estimates based on Employment-Unemployment Survey of 61<sup>st</sup> round & Population Census 2001 of the respective NIC codes. In the case of private corporate, the GVAPW of "establishments" is used whereas for unorganized sector the GVAPW of "all enterprise" has been used.
- 1.55 For Air transport, the GVA estimates of air transport have been prepared in two parts i.e. public and private organized by analyzing the budget documents and annual accounts of Airlines both public and private.

- 1.56 For water transport, the Public sector GVA estimate has been prepared by analyzing the budget documents and annual accounts of Public Shipping Companies and Inland Water Shipping Companies. The GVA of Private Corporate sector has been prepared by analyzing the annual accounts of sample Companies and adjusted by the Gross Registered Tonnage for the total registered companies. The GVA estimates for unorganised sector have been prepared as a product of GVAPW of 63<sup>rd</sup> round of NSSO and workforce estimates based on Employment-Unemployment Survey of 61<sup>st</sup> round & Population Census 2001 of the respective NIC codes.

- 1.57 For supporting services to transport, the Public sector estimates of GVA have been prepared by analyzing the light houses and light ships part of the budget documents and annual accounts of companies engaged in services incidental to water and air transport like Port Trusts, Inland Water Authority, Dredging Corporation and Airport Authority of India. For Private corporate and Un-organised sector, the estimates of GVA for the year 2004-05 have been prepared as a product of GVAPW of 63<sup>rd</sup> round of NSSO and workforce estimates based on Employment-Unemployment Survey of 61<sup>st</sup> round & Population Census 2001 of the respective NIC codes.

**Storage and Warehousing**

- 1.58 The economic activities covered in this sector are: (i) Warehousing Corporations (ii) Cold Storage corporate (covered under ASI) (iii) Storage not elsewhere classified (n.e.c).
- 1.59 For Warehousing Corporations, the public sector GVA estimate is based on the analysis of annual accounts of state and central warehousing corporations. For Cold Storage corporate, GVA estimate for the cold storage is based on the results available from Annual Survey of Industries (ASI) and for Unorganized Storage not elsewhere classified (n.e.c) the estimates of GVA for the year 2004-05 have been prepared as a product of GVAPW of 63<sup>rd</sup> round of NSSO and workforce estimates based on Employment-Unemployment Survey of 61<sup>st</sup> round & Population Census 2001.

**Communication****Private Communication Services**

- 1.60 The economic activities covered under this are (i) Courier activities (NIC-98, code-64120), (ii) Activities of the cable operators (NIC-98, code-64204) and (iii) Other

communication (NIC-1998, code- 642 (-) 64204). Activity-wise methodology of estimation of GVA for the new series is given below.

### **Courier Services**

- 1.61 In the new series, the estimates of GVA for courier services have been compiled for private corporate and unorganized sector by using the estimates of value added per worker (VAPW) from the results of NSS 63<sup>rd</sup> round survey on services sectors and workforce estimates from Employment-Unemployment Survey, 2004-05 along with Population Census 2001. The private corporate sector workforce estimates have been used as obtained from Employment Unemployment survey, 2004-05 against DGE&T employment data in the old series. The estimates have been compiled separately for Rural/Urban/Private Corporate and un-organized segments.

### **Activities of cable operators**

- 1.62 In the new series, the estimates of GVA for cable operators have been compiled for private corporate and unorganized sector by using the estimates of value added per worker (VAPW) from the results of NSS 63<sup>rd</sup> round survey on services sectors and workforce estimates from Employment – Unemployment Survey, 2004-05 along with Population Census 2001. The private corporate sector workforce estimates have been used as obtained from Employment Unemployment survey, 2004-05 against DGE&T employment data in the old series. The estimates have been compiled separately for Rural/Urban/Private Corporate and un-organized segments.

### **Communication services other than those of couriers and cable operators**

- 1.63 The activities covered under this compilation category are all communication activities in the private sector other than those of couriers and cable operators. This sub-sector covers the activities of cellular and basic telecom services, and the activities of public call offices (PCOs). In the new series, the estimates of GVA for unorganized sector for other communication services for the year 2004-05 have been compiled using the estimated VAPW from NSS 63<sup>rd</sup> round survey results and the estimated workforce in the activity, separately for Rural/Urban segments. The GVA estimates of private corporate sector have been prepared as a product of the average revenue per user (ARPU) per month and number of subscribers. The GVO/GVA ratio of sample private cellular companies has been applied on the revenue so obtained to get the GVA

for this activity. The details of GVO to GVA ratio of sample private corporate companies are obtained from their annual accounts.

### **Banking and insurance**

- 1.64 There are no Changes in methodology

### **Real estate, ownership of dwellings, legal and business services**

- 1.65 The estimates of Value added for the base year (2004-05) from these services in the new series have been prepared using the estimates of VAPW from NSS 63<sup>rd</sup> round and the estimated workforce of NSS 61<sup>st</sup> round separately for rural / urban / private corporate and unorganized sectors.

### **Renting of machinery and equipment without operator**

- 1.66 The estimates of GVA for these activities have been compiled separately in the new series by using the estimated VAPW and workforce in the activity, from the results of NSS 63<sup>rd</sup> round and NSS 61<sup>st</sup> round, respectively.

### **Computer and related activities in private sector**

- 1.67 In the new series, data of VAPW from 63<sup>rd</sup> round and work force estimates from 61<sup>st</sup> round for the unorganized sector and the latest NASSCOM's data for the private corporate sector have been taken. The estimates have been prepared separately for rural and urban areas.

### **Legal activities**

- 1.68 In the new series, data of VAPW from 63<sup>rd</sup> round and work force estimates from 61<sup>st</sup> round for the unorganized and the private corporate sector have been taken

### **Accounting, book-keeping and related activities in private sector**

- 1.69 In the new series, the GVA estimates have been prepared using data of VAPW from 63<sup>rd</sup> round and work force estimates from 61<sup>st</sup> round respectively separately for rural and urban areas for the unorganized and the private corporate sector.

### **Research and development, market research and public opinion polling, business and management consultancy, architectural, engineering and other technical activities, advertising and business activities n. e. c. excluding auctioning**

- 1.70 The estimates of GVA for these services in the new series for the year 2004-05 have been prepared by using the data on workforce and VAPW from the results of 61<sup>st</sup> round and NSS 63<sup>rd</sup> rounds, respectively,



also separately for rural / urban/private corporate/un-organized sectors.

### **Ownership of dwellings**

1.71 The economic activities covered in this sector are ownership of dwellings (occupied residential houses) including imputed value of owner occupied dwellings also. Services rendered by non-residential buildings are considered to be a subsidiary activity of the industries, which occupy the buildings and therefore, are not included in this sector.

1.72 In the new series, the data on dwellings and rent per dwelling for urban areas has been taken from the Population Census, 2001 and the results of NSS 61<sup>st</sup> round on consumer expenditure respectively. However, the methodology for estimating value added from rural dwellings has been changed in the new series to that based on user cost approach, as per latest international guidelines. In the user cost measure, the net operating surplus is imputed using the opportunity cost principle; i.e., the net operating surplus is imputed on the basis of what owner occupiers could have earned on alternative investments. Then, the dwelling costs are added to the imputed net operating surplus to obtain the imputed rent. These costs include: consumption of fixed capital (CFC) for dwellings, expenditures on ordinary maintenance and repair of dwellings and net premiums on insurance for dwellings. Thus the user cost approach consists of estimating each of the expenditure that owners of dwellings would need to take into account in fixing a market rent if they decided to rent their dwellings to other people rather than to live in them themselves. These expenditures for estimation at factor cost are: Intermediate consumption, Consumption of fixed capital Net operating surplus.

### **Other services**

1.73 The economic activities covered under this sector are (i) coaching and tuition (NIC-98 codes 80903 and 80904), (ii) education excluding coaching and tuition (NIC-98 code 80 (-) 80903 (-) 80904), (iii) human health activities including veterinary activities, (iv) sewage and refuse disposal, sanitation activities (nic-98 code 90), (v) activities of membership organizations (+) social work (NIC-98, code 91+ 853), (vi) recreational cultural and sporting activities (NIC-98, code 92), (vii) washing and cleaning of textiles and fur products (NIC-98, code-9301), (viii) hair dressing and other beauty treatment (NIC-98, code 9302) (ix) funeral and related activities (NIC-98 code 9303+9309), (x) private households with

employed person (NIC-98 code 95), (xi) custom tailoring (NIC-98, code 18105), and (xii) extra territorial organizations and bodies (NIC-98 code 99).

### **Coaching and tuition**

1.74 The activities covered under this compilation category are the activities of coaching centres and individuals providing tuitions. In the new series, the estimates of GVA for coaching and tuition activities have been prepared for the year 2004-05 following the labour input method using the results of NSS 61<sup>st</sup> round on employment and unemployment and NSS 63<sup>rd</sup> round on services sectors.

### **Education excluding coaching and tuition**

1.75 The activities covered under this compilation category are the activities of private education institutions, excluding those of coaching centres and individuals providing tuitions. In the new series, the GVA for public sector is taken to be equivalent to the budget expenditure on salaries and wages of teaching and non-teaching staff of educational services. The estimates of private Corporate (proxy for recognized institutions) and unorganized sector ( proxy for un-recognized institutions) have been prepared following the labour input method using the data on workforce from 61<sup>st</sup> round and the estimated VAPW from the NSS 63<sup>rd</sup> round.

### **Human health activities and veterinary activities**

1.76 The activities covered under this compilation category are the activities of human health and veterinary services. In the new series, the GVA for the public sector has been taken to be equivalent to the budget expenditure on salaries and wages of medical personnel obtained from the analysis of the budget documents. The GVA for private corporate sector and unorganized sector have been estimated using work force estimates from NSSO, 61<sup>st</sup> Round and VAPW estimated from the results of NSS 63<sup>rd</sup> round survey on services sectors.

### **Sewage and refuse disposal, sanitation activities**

1.77 The activities covered in this category are the sewage and refuse disposal, sanitation and similar activities. In the new series, the GVA estimates for these activities have been prepared separately for public, private corporate and un-organized sectors. Public sector estimates are derived as the sum of budget expenditure on salaries and wages of activities covered under government. The

GVA for private corporate sector and unorganized sector have been estimated using work force estimates from NSSO, 61<sup>st</sup> Round and VAPW estimated from the results of NSS 63<sup>rd</sup> round survey on services sectors

#### **Activities of membership organizations and social work**

- 1.78 This sector includes the activities of associations of writers, painters, lawyers, doctors, journalists and other similar organizations, activities of trade unions, interested chiefly in the representation of their views concerning their work situation, activities of other membership organizations, activities of religious organizations, activities of political organizations, activities of other membership organizations, social work with accommodation, and social work without accommodation. In the new series, the GVA for private corporate sector and unorganized sector have been estimated using work force estimates from NSSO, 61<sup>st</sup> Round and VAPW estimated from the results of NSS 63<sup>rd</sup> round survey on services sectors.

#### **Recreational, cultural and sporting activities**

- 1.79 The activities covered in this category are recreational, cultural and sporting activities. In the new series, the estimates of GVA for this activity have been compiled for the base year 2004-05, separately for public, private corporate and un-organized segments. The estimates of GVA for the Public Sector are from the annual reports of PRASHAR BHARTI. The GVA for private corporate sector and unorganized sector have been estimated using work force estimates from NSSO, 61<sup>st</sup> Round and VAPW estimated from the results of NSS 63<sup>rd</sup> round survey on services sectors.

#### **Washing and cleaning of textiles and fur products**

- 1.80 The activities covered in this category are washing and dry cleaning of textile and fur products. In the new series, the GVA for private corporate sector and unorganized sector have been estimated using work force estimates from NSSO, 61<sup>st</sup> Round and VAPW estimated from the results of NSS 63<sup>rd</sup> round survey on services sectors.

#### **Hair dressing and other beauty treatment**

- 1.81 The activities covered in this category are hairdressing and other beauty treatment. In the new series, the GVA for unorganized sector have been estimated using work force estimates from NSSO, 61<sup>st</sup> Round and

VAPW estimated from the results of NSS 63<sup>rd</sup> round survey on services sectors.

#### **Custom tailoring**

- 1.82 In the new series, the GVA for private corporate and unorganized sector have been estimated using work force estimates from NSSO, 61<sup>st</sup> Round and extrapolated VAPW of NSS 56<sup>th</sup> round survey on services sectors.

#### **Funeral and related activities**

- 1.83 The activities covered in this category are funeral and related activities (NIC-98, code 9303) and other service activities, n. e. c. (NIC-98, code 9309). In the new series, the GVA for private corporate and unorganized sector have been estimated using work force estimates from NSSO, 61<sup>st</sup> Round and extrapolated VAPW of NSS 63<sup>rd</sup> round survey on services sectors.

#### **Private households with employed person**

- 1.84 There are no changes in sources and methodology.

#### **Extra territorial organizations and bodies**

- 1.85 Sources and methodology are the same as 1999-2000 base

#### **Consumption of fixed capital**

- 1.86 SNA 1993 mentions that inputs into production obtained from the use of a given fixed asset tend to diminish over time. The rate at which the efficiency declines may vary from one type of asset to another and suggests three possible profiles for measuring depreciation: Constant decline in efficiency until the asset disintegrates; a linear decline in efficiency; the service life ends when efficiency declines to zero; a constant geometric, or exponential, decline in efficiency. However, it further states that by using a geometric or declining balance formula the absolute value of capital consumption declines from year to year, so that at some point it falls below the corresponding figure that would be obtained using straight-line depreciation. The method of declining balance involves applying the depreciation rate against the non-depreciated balance. Instead of spreading the cost of the asset evenly over its life, this system expenses the asset at a constant rate, which results in declining depreciation charges each successive period.

- 1.87 In the new series, method of declining balance has been adopted which takes into account the decline in efficiency or loss of

productivity of the assets during its life time. If the depreciation cost for the first year of the asset is  $V*(1/L)$ , where  $V$  is the GFCF and  $L$  represents the average service life of the asset. Then for the next year the depreciation would be

$$V_1 = (V - V*(1/L)) * 1/L \\ = V*(1/L)(1 - (1/L)) \\ V_2 = V*(1/L)(1 - (1/L))^2$$

$V_n = V*(1/L)(1 - (1/L)^n)$  at the end of  $n$  years of service life.

- 1.88 As the declining balance will never exhaust the full value of the asset during its life time, in the method adopted the scrap value has been reduced to about 10% of the value of the asset. Further, on the basis of latest availability of data, the ages of different categories of assets have been modified. Also, the changes made in the coverage of capital formation have a bearing on the estimates of capital stock and CFC in the new series.

- 1.89 Following is the step-wise description of the methodology in the new series:

- (i) Rebasing of the price indices at 2004-05, i.e., making it 100 for the year 2004-05;
- (ii) Review and revision of average life of assets, due to changes in technology or some other reasons;
- (iii) Incorporating the latest estimates of Gross Fixed Capital Formation for the year 2004-05 as per the new series;
- (iv) Estimating the GFCF for the back years using splicing techniques. The splicing is suitably done upto the year from which the change has taken place;
- (v) Calculation of CFC and NFCS following the declining balance formula.

#### EXPENDITURE AGGREGATES AND SAVING

- 1.90 The expenditure aggregates of GDP comprise consumption expenditure (government final consumption expenditure and private final consumption expenditure) gross fixed capital formation, change in stocks, valuables, and net exports (exports minus imports). These estimates are compiled at market prices. The GDP at factor cost by economic activity discussed in the previous section is adjusted by adding indirect taxes net of subsidies to arrive at the estimate of GDP at market prices, so that it equals the expenditure on gross domestic product. As the expenditure components of the GDP, namely, consumption expenditure and capital

formation are measured at market prices, the discussion in the following paragraphs is in terms of market prices.

#### Private Final Consumption Expenditure (PFCE)

- 1.91 The basic data on output and prices utilized in the estimation of private final consumption expenditure (PFCE) are mostly the same as those used in the preparation of GDP estimates and as such the improvements/changes in data sources and coverage etc. in GDP estimates are included in the estimates of PFCE.

#### Marketable surplus ratios

- 1.92 The marketable surplus ratios for agricultural commodities were based on provided by the Directorate of Economics and Statistics (DESAG), Ministry of Agriculture. In the new series, the quantity retained by producer has been estimated first and the average of the marketable surplus ratio is estimated subsequently. The average per capita quantity retained by the producer based on 2003-04, 2004-05 and 2005-06 is estimated for each commodity. For subsequent years, average per capita quantity retained by the producer is multiplied with the population to obtain quantity retained by producer for different agricultural commodities.

#### Government Final Consumption Expenditure

- 1.93 In order to estimate the net availability of each item of private final consumption, item wise details of Government Final Consumption Expenditure (GFCE) are required, as compilation of PFCE is mostly through the commodity flow method, in which estimates of PFCE are compiled as residual from the total output of each item by subtracting from it, the estimated inter-industry utilization and other final uses. The item-wise estimates of GFCE are compiled at the time of preparation of 5-yearly Input Output Transactions Tables (IOTT) for the Indian economy. While preparing the IOTTs, item-wise expenditure data, which is otherwise not available in the budget documents, is collected from a sample of departments of Central and State Governments. For the new series, the item-wise GFCE data has been compiled using the norms of IOTT 2003-04

#### Manufactured goods used for PFCE

- 1.94 Database for the preparation of estimates of PFCE for the majority of manufactured items, is the same as that used for estimating the domestic product. The data

on output according to products and industries is available from the Annual Survey of Industries (ASI) every year. Detailed results of Annual Survey of Industries (ASI), 2004-2005 have been analyzed to identify the items of final consumption. Once the value of output of manufacturing sector is estimated at item/group level, it is necessary to know the extent of PFCE out of this output. For the unregistered manufacturing sector the base year ratio between the output of registered and unregistered manufacturing for the corresponding industry groups have been used. The total output has been adjusted for excise duty, import/import duty, trade and transport margins. Finally, the adjustment for government consumption, capital formation and inter-industry consumption has been done using IOTT 2003-04 ratios to arrive at PFCE. These ratios have been used for estimating PFCE for subsequent years in respect of manufactured goods.

#### **Food, beverages and tobacco**

- 1.95 For most food items, PFCE is estimated by the commodity flow approach. Two major changes have been introduced in this group. First, the market surplus ratio has been estimated using a different approach as mentioned earlier in Para 1.93. Second, inter industry consumption has been introduced in pulses, oil and oil seeds, meat fish and egg, tea & coffee. This has resulted in decrease in the PFCE for the group 'cereals and bread', 'oil and oil seeds', 'meat fish and egg' and 'tea & coffee'

#### **Clothing and footwear**

- 1.96 The item-wise data on value of output at NIC (National Industrial Classification, 1998) 3-digit level available from the ASI 2004-05 has been analyzed for estimating the PFCE in the new series for this group as mentioned in Para 1.95

#### **Gross rent, fuel and power**

- 1.97 The PFCE for this group is estimated as a percentage of output/GDP.

#### **Furniture, furnishing appliances and services**

- 1.98 The procedure has been explained in Para 1.95

#### **Medical care and health services**

- 1.99 The PFCE for subsequent years has been estimated using growth rate in the private expenditure during 2004-05 and 2005-06 as given in the Nation Health Account of India 2004-05. Further, estimates of PFCE have been prepared in consultation with the

Ministry of Health and Family Welfare and the World Health Organisation, who were also engaged at the same time in compiling the National Health Accounts for the country. Thus, it has been ensured that the consumption data for this group appearing in the National Health Accounts and the PFCE are consistent. As a result of using the latest NSS data, which showed lower consumption expenditure of households under this group as compared to the earlier extrapolated series, the estimated PFCE for this group for the year 2004- 05 is lower .

#### **Transport and communication**

- 1.100 The major variation in the PFCE estimates between the old and new series is in the case of (i) personal transport equipments, (ii) operation of transport services and (iii) purchase of transport services. Regarding item (i), the PFCE estimates are based on ASI 2004-05 and unregistered manufacturing data . The procedure has been explained in para 1.95.

#### **Recreation, education and cultural services**

- 1.101 Procedure as per para 1.95

#### **Capital Formation**

- 1.102 The methodology adopted for compilation of estimates of saving and capital formation of various institutional sectors in the new series, is mainly based on reports of 'Capital Formation and Saving in India: 1950-51 to 1979-80' (Raj Committee) and 'Saving and Capital Formation in India 1950-51 to 1994-95' (Chelliah Committee), High level committee on savings and Capital Formation and on the changes suggested in concepts and methodology by the Advisory Committee on National Accounts Statistics from time to time in accordance with the framework of System of National Accounts 1993.

#### **Gross Capital Formation**

- 1.103 Gross Capital Formation (GCF) refers to the aggregate of gross additions to fixed assets (fixed capital formation), increase in stocks of inventories or change in stocks (CIS) and valuables. Gross Fixed Capital Formation (GFCF) comprises two main components, (i) construction, and (ii) machinery and equipment. Only new 'Construction' forms part of GFCF from construction. The GFCF from machinery and equipment includes the ex-factory value of capital goods produced in the registered and unregistered manufacturing sectors and the excise duties paid on them, net imports of capital goods and TTMs, software production, fixed assets



in livestock, Installation of wind energy systems and Research and Development expenditure. Besides the above, 'valuables' which covers the expenditures made on acquisition of valuables, has been included in accordance with the recommendations of 1993 SNA. The estimates of gross capital formation are compiled separately by type of assets and by industry of use. Under type of assets, the estimates in respect of (i) construction and (ii) machinery and equipment are derived at the aggregate level through the commodity flow approach. The estimates of GFCF and change-in-stocks by industry of use, on the other hand, are prepared by expenditure approach, separately for each of the institutional sectors.

### **GCF by type of assets**

#### **Construction**

- 1.104 The broad methodology adopted in the new series for working out the total output and gross fixed capital formation from construction sector is more or less same as the one used in 1999-00 series. However, some modifications in norms, inclusion of recycled bricks, and use of ASI 2004-05 results on basic materials and 62<sup>nd</sup> round of Enterprise Survey (ES) on unorganized manufacturing sector in 2005-06 etc., have been made in the case of accounted (pucca) construction. The coverage in un-accounted (kutcha) construction has been further extended to include 7 more additional plantation crops in cultivated assets. The revised norms used are based on studies on cost structure received from the states, IOTT 2003-04 as discussed in the compilation of GDP of construction sector. From the total estimated GFCF of construction, the GFCF in respect of public and private corporate sectors (construction part) is subtracted to obtain the GFCF of the households, as residual.

#### **Machinery and equipment**

- 1.105 The main changes that have been made in the new series under this are (i) preparation of a revised capital goods item basket using the detailed results of ASI 2004-05 based on NIC 2004 classification and (ii) use of results of NSS 62<sup>nd</sup> round unregistered manufacturing survey, 2005-06 results. The data on ex-factory value of products and by products at detailed five digit level of Annual Survey of Industries Classification Code (ASICC) along with NIC 2004 have been obtained for ASI, 2004-05. By this approach of estimation of GFCF, all the machinery items produced in the economy irrespective of the principal economic

activity classification of the establishments are captured. After allocation of ASI output in terms of PFCE, Inter industry use, net exports etc, consistent with IOTT norms, the estimates of GFCF in ME is obtained at NIC-2004 four and two digit levels and then finally at the broad category levels as non-electrical (NE), electrical (E), transport equipment (TE) and other (O). In addition to NIC codes 29 and 30(NE), 31 and 32(E) 34 and 35(TE) and 20, 21, 22, 25, 27, 28, 33, 36, 37(Others) covered in the old series additional GFCF in ME have been identified in the 15 to 19, 23, 24, 26 and 40 to 74. These additional items have been included in the broad category 'other'. For GFCF in ME from the unorganized manufacturing sector, the ratio between the estimated GFCF in ME and ex factory value of products and by products at NIC 2 digit level for ASI items, have been applied on the value of output at two digit level of NIC obtained from 62<sup>nd</sup> round survey on unorganized manufacturing sector. The estimates at 2 digit level of NIC have been clubbed accordingly to get the estimates at the broad category level. The addition in stock of capital goods in terms of finished and semi finished materials at NIC 4 digit level have been obtained from ASI 2004-05 and the same have been clubbed to get the estimates at the at NIC 2 digit level and at the broad category level. Thus the estimates of ex-factory value of capital goods at the broad category level are obtained. To these ex factory value of capital goods, the net import, import duty, excise duty are added to get the domestic availability of GFCF in ME. Finally, Trade and Transport Margin as obtained from IOTT 2003-04 are added at the broad category level to get the estimate of GFCF in ME. Besides the ex-factory value of capital goods produced in registered and unregistered manufacturing sectors, GFCF in respect of machinery and equipment includes excise duties, net imports of capital goods and trade and transport margins (TTM) on capital goods, expenditures made on the purchases of software, fixed assets in livestock. In the new series research and Development expenditure has also been included.

#### **Valuables**

- 1.106 Data on expenditures made on net acquisition of valuables on precious items like gold, gems, ornaments and precious stones etc, has been included under GCF, as a separate category under "produced fixed assets" (separately from the GFCF and Change in Stocks) as in the old series. In the new series, valuables include the

precious articles with HS codes 7102 (diamonds), 7103 (other gems and stones), 7106 (silver), 7108 (gold), 7110 (platinum), 7113 and 7114 (gold and silver ornaments). Thus the coverage is same as in the old series.

### **Gross capital formation by industry of use**

- 1.107 The Gross capital formation estimates have been prepared for each industry group by aggregating the GFCF and CIS estimates, which are prepared separately. Broadly, for each industry, institution wise estimates of GFCF are prepared wherever possible and aggregated to arrive at the industry level estimate. The estimates of GFCF have been prepared separately for each of the three institutional sectors, namely, public sector, private corporate sector and household sector. While the estimates for the public sector are from the budget documents, those of private corporate sector are on the basis of data provided by the RBI from a sample of joint stock companies and also the data provided by NABARD on cooperatives. However, for the household sector for some specified items, bench mark results obtained from various NSSO surveys (especially the capital output ratios) and growth rates in GVO, GVA etc are used to obtain the GFCF estimates (by extrapolating the benchmark capital stock data with the growth observed in GVO/GVA and taking the difference between two years' capital stock data). The GFCF estimates of construction and machinery equipments obtained from commodity flow approach for the entire economy have been taken as firmer estimates and the industry wise GFCF estimates for Private Corporate and Household Sectors compiled by the expenditure method, have been adjusted proportionately with the estimates compiled by institutions through the commodity flow approach (separately for construction and machinery components).

### **Methodology followed for the household sector: Agriculture**

- 1.108 In the new series, estimates of the GFCF in machinery and equipment (ME) for agriculture is estimated by using the data available from Annual Survey of Industries (ASI) 2004-05 and IOTT ratios for agricultural implements. Applying the ratio observed between the construction and ME from AIDIS 2002-03 on the estimate of GFCF in ME in agriculture, the estimate of GFCF in construction in agriculture is arrived at. The coverage of plantation crops has

been extended to seven more crops instead of ten crops in the earlier series.

### **Mining and quarrying**

- 1.109 For compiling the estimates of GFCF under Household Sector for minor minerals, the capital output ratio has been estimated from the Enterprise Survey results for the year 1992-93 and the same ratio has been applied on the estimate of GVO of minor minerals at 2004-05 prices to get the estimate of stock at 2004-05 prices. Taking the difference between two successive year's stock data, the estimate of GFCF at 2004-05 prices has been obtained. Applying the proportion of stock of construction and machinery equipments as observed from the enterprise survey, the total GFCF estimate has been bifurcated into GFCF of construction and GFCF of ME for this industry in the household sector. The 2004-05 price estimates have been inflated by using the index of general pucca construction and WPI for machinery and transport equipment respectively to get the estimates of GFCF of construction and ME at current price.

### **Registered manufacturing**

- 1.110 The estimate of GFCF at 2004-05 prices for the household sector is compiled from the data of Annual Survey of Industries (ASI) in respect of units under individual proprietorship, joint family and partnership factories in the year 2004-05. The estimate for 2004-05 is extrapolated with the growth rate observed in the output of registered manufacturing sector. Applying the proportion of GFCF of construction and machinery equipments as observed from the ASI 2004-05, the total GFCF estimate has been bifurcated into GFCF of construction and GFCF of ME for this industry in the household sector. The 2004-05 price estimates have been inflated by using the index of general pucca construction and WPI for machinery and transport equipment respectively to get the estimates of GFCF of construction and ME at current price.

### **Unregistered manufacturing**

- 1.111 For unregistered manufacturing sector, the capital output ratio has been estimated from the 1999-2000 series and applied on the VO of unregistered manufacturing sector at 2004-05 prices to get the estimates of stock of fixed assets at 2004-05 prices. Taking the difference between two successive year's stock data, the estimate of GFCF at 2004-05 prices has been obtained. Applying the proportion of stock of construction and machinery equipments as observed from the

62<sup>nd</sup> round of enterprise survey on unorganized manufacturing sector conducted by NSSO, the total GFCF estimate has been bifurcated into GFCF of construction and GFCF of ME for this industry in the household sector. The 2004-05 price estimates have been inflated by using the index of general pucca construction and WPI for machinery and transport equipment respectively to get the estimates of GFCF of construction and ME at current price.

### **Electricity, gas and water supply**

- 1.112 The capital investment made in the bio-gas plants has been continued to be covered in the new series by estimating the same with the data available from the Ministry of New and Renewable Energy.

### **Construction**

- 1.113 In absence of any survey data on investment in this specific industry, the capital output ratio for central non-departmental undertaking construction companies has been applied on the GVO of construction in the household sector to get the estimate of stock of fixed assets at 2004-05 price in the industry. Then following the same methodology as in mining and quarrying the estimates of GFCF have been arrived at.

### **Trade**

- 1.114 For trade sector, the ratio between stock of fixed assets and GVA has been estimated from the survey on informal sector conducted by NSS in 1999-2000. Applying the ratio on the GVA of trade at 2004-05 price of the private unorganized sector, the estimates of stock of fixed assets for trade at 2004-05 prices are obtained. Taking the difference between two successive year's stock data, the estimate of GFCF at 2004-05 prices has been obtained. Applying the proportion of stock of construction and machinery equipments as observed from the same survey data for trade, the total GFCF estimate has been bifurcated into GFCF of construction and GFCF of ME for this industry in the household sector. The 2004-05 price estimates have been inflated by using the index of general pucca construction and WPI for machinery and transport equipment respectively to get the estimates of GFCF of construction and ME at current price.

### **Hotels and restaurants, other transport, storage, real estate and business services, communication, other services:**

- 1.115 For these industries, the ratios between stock of fixed assets and GVA have been estimated from the 63<sup>rd</sup> round enterprise survey on service sector conducted by NSS in 2006-07. Applying the ratio on the GVA of the respective industries at 2004-05 price of the private unorganized sector, the estimates of stock of fixed assets for the respective industry at 2004-05 prices are obtained. Taking the difference between two successive year's stock data, the estimate of GFCF at 2004-05 price has been obtained. Applying the proportion of stock of construction and machinery equipments as observed from the same survey data for the specific industry, the total GFCF estimate has been bifurcated into GFCF of construction and GFCF of ME for the respective industry in the household sector. The 2004-05 price estimates have been inflated by using the index of general pucca construction and WPI for machinery and transport equipment respectively to get the estimates of GFCF of construction and ME at current price.

### **Ownership of dwellings**

- 1.116 The data obtained from AIDIS, 2002-03 in respect of 'Ownership of dwellings' is used. The governments' capital transfers to the households under this sector have also been taken into account.

### **Change in stocks by industry of use**

- 1.117 The estimates of change in stock (CIS) at current prices (CP) and constant prices (KP), and of inventory at CP and KP are being compiled for all three institutional sectors (public sector, private corporate sector and household sector) and for each industry, separately. These are estimated first for each of the three institutional sectors separately within the industry activity and the industry level CIS and inventory estimates are obtained by combining them.
- 1.118 For the public sector, the data on CIS/book value of the inventory for the current year are obtained from budget documents and books of accounts. For private corporate sector, the data on CIS estimates are obtained from the RBI which in turn compiles the same through detailed analysis of profit and loss accounts and balance sheets of the selected companies. For cooperative sector, the data is obtained from the NABARD. For the Household Sector, the bench mark level data is collected from various surveys conducted by the NSSO on working capital, GVA, GVO etc. The GVO/ GVA ratios with the inventory are



used to arrive at the current years estimates of inventory/CIS. Appropriate price indices are also used for constant price estimation.

- 1.119 For some institutional sub sectors, namely government administration, DCUs and NDCUs, only book value estimates of inventory for the current year are obtained and using the concerned inventory estimate of the previous year and relevant WPI estimates, the inventory estimates and CIS estimates are prepared both at KP and CP for the current year. For some other institutional sub sectors, CIS estimates at CP are directly available and inventory estimates and CIS estimates both at CP and KP are prepared. WPI index for the appropriate industry group is used to convert CP estimates to KP estimate and vice versa in a specific industry. Wherever, a specific WPI is not available, WPI of all commodities is used.

- 1.120 In the current series there was no major change effected in the methodology for compilation of change in stock estimates of public sector and private corporate sector. But for household sector the following changes have been incorporated in the methodology.

#### **Agriculture**

- 1.121 In the household sector for livestock, for poultry and piggery, the entire change in population has been taken as CIS whereas for remaining 12 species only that proportion of the species which is not used as capital asset (breeding, dairying and as draught animal) is considered for compilation of the CIS estimate. These proportions have been revised based on latest livestock census data of 2003.

#### **Mining and Quarrying**

- 1.122 The ratio between inventory and output for minor minerals has been obtained for the year 2005 from Indian Minerals Year Book, 2005, IBM. This ratio has been applied on VO of minor minerals at current price to get the inventory at current price. Deflating the current price estimates of inventory by the WPI for minor minerals, the 2004-05 price estimate of inventory is obtained and taking the difference between two successive years' inventory estimates at 2004-05 prices, the estimate of CIS at 2004-05 prices is arrived at. Then again inflating the 2004-05 price s of CIS by the WPI for minor minerals, the current price estimate of CIS in mining and quarrying is arrived at.

#### **Registered Manufacturing**

- 1.123 The ratio between the inventory and output for this industry in the household sector (individual proprietorship, joint family and partnership) has been obtained from ASI, 2004-05 and the same has been applied on the GVO of registered manufacturing sector at current price to get the inventory at current price. Deflating the current price estimates of inventory by the WPI for manufacturing, the 2004-05 price estimate of inventory is obtained and taking the difference between two successive years' inventory estimates at 2004-05 prices, the estimate of CIS at 2004-05 prices is arrived at. Then again inflating the 2004-05 price estimates of CIS by the WPI for manufacturing, the current price estimate of CIS in registered manufacturing is arrived at.

#### **Unregistered Manufacturing**

- 1.124 The ratio between the inventory and output for this industry has been obtained from 62<sup>nd</sup> round enterprise survey on unorganized manufacturing sector conducted by NSSO in 2005-06 and the same has been applied on the GVO of unregistered manufacturing sector at current price to get the inventory at current price. Deflating the current price estimates of inventory by the WPI for manufacturing, the 2004-05 price estimate of inventory is obtained and taking the difference between two successive years' inventory estimates at 2004-05 price, the estimate of CIS at 2004-05 price is arrived at. Then again inflating the 2004-05 price estimate of CIS by the WPI for manufacturing, the current price estimate of CIS in unregistered manufacturing is arrived at.

#### **Trade**

- 1.125 The latest report of survey on trade conducted by NSS from which the information on inventory as on date is available is Report no. 403 of NSS 46<sup>th</sup> round on small trading units 1990-91. Using this information the estimate of inventory of capital for trade separately for food items and non-food items have been prepared for the survey year. Using the indicator variables "outstanding credit by schedule commercial banks (SCB) to household for trading" for inventory of non-food items for household sector trade and "food credit by schedule commercial banks" for inventory of food items for household sector trade, the benchmark estimates of have been moved to further years to get the current price estimates of inventory for this industry. Deflating the current price estimates of

inventory by the WPI for all commodities, the estimates of inventory at 2004-05 prices have been obtained. Taking the difference between two successive years' estimates of inventory at 2004-05 prices the estimates of CIS at 2004-05 prices have been obtained. Then the CIS estimates at 2004-05 prices have been inflated to current price estimates of CIS by applying the WPI for all commodities.

### **Hotel and Restaurants**

- 1.126 For this industry the latest information on inventory is available only from the Enterprise Survey Report on Hotel and Restaurants, 1993-94, CSO. From this report the per entries inventory formation at constant price is obtained from and the household sector number of enterprises are obtained from the Enterprise surveys on service sector conducted in 57<sup>th</sup> round, 2001-02 and 63<sup>rd</sup> round, 2006-07 by NSSO. Multiplying the per enterprise estimated inventory at 2004-05 price with the number of enterprises, the estimate of inventory at 2004-05 price for this industry is arrived at. Inflating the 2004-05 price estimate of inventory by the WPI for all commodities, the estimate of inventory at current price is arrived at. Taking the difference between the two successive years' inventory at current price, the estimate of CIS at current price is arrived at.

### **Transport by other means**

- 1.127 For this industry the latest information on inventory is available only from the Enterprise Survey Report on transport sector, 1988-89. From the report, the inventory is estimated to be of 2.33% of the stock of fixed assets of type transport equipment. It has also been seen that the inventory is mainly in terms of tyres and tubes etc. Using the same ratio on 2004-05 price estimate of stock of fixed assets of transport equipment in the household sector for mechanized road transport, the estimate of inventory for household sector at 2004-05 prices is obtained. Then applying the WPI for tyres on the 2004-05 price estimate of inventory, the current price estimates of inventory are obtained. Taking the difference between the two successive years' inventory at current prices, the estimate of CIS at current prices is obtained. Then again applying the WPI for tyres on the CIS for current estimates, the constant price estimate of CIS are obtained.

### **Saving**

- 1.128 The estimates of domestic saving are prepared separately for three institutional

sectors namely, household, private corporate and public. In the new series, only the saving in provident fund has undergone revision due to revision of data in respect of provident fund contributions of local authorities.

- 1.129 The saving of public sector has also been revised due to treatment of R&D expenditure as capital expenditure which was being treated as current expenditure in the old series. The savings of Public authorities have been revised due to due to the inclusion of construction and machinery (which has been included in commodity flow estimates) component of capital account head 4076 from Defence Service Budget estimates as capital expenditure instead of current expenditure as was treated in the old series. The revision is also due to the inclusion of estimates of GFCF based on analysis of accounts of sample autonomous institutions instead of the labour input method followed in the old series.

### **TRANSACTIONS OF PUBLIC SECTOR**

#### **Non-departmental commercial undertakings (NDCUs)**

- 1.130 In the new series, changes in NDCUs are mainly due to treating R&D expenditures in Non-financial NDCUs as capital expenditures in line with the recommendations of 2008 SNA. The same is discussed below:

#### **Non-financial NDCUs**

- 1.131 The increase in the macro-economic aggregates occurred as a result of treating R&D expenditures as capital expenditures & revised FISIM.

#### **Administrative departments, departmental enterprises, and quasi-government bodies**

- 1.132 Estimates in this sector are mainly based on the analysis of Central and State Government's budget documents. The expenditures on various items are reckoned according to economic and purpose classification. Significant improvements brought out in the new series are as follows:
- 1.133 Three issues namely, classification issue in Defence Services, methodological issue in autonomous institutions (quasi-government bodies) and improvements in local body accounts based on sample data, have been included in the new series in pursuance of the recommendations of the High Level Committee (HLC) on Estimation of Saving and Investment under the chairmanship of Dr. C. Rangarajan.

### Defence Capital Expenditure

- 1.134 The 1968 System of National Accounts excluded from gross fixed capital formation almost all capital expenditures except those on construction or alteration of family dwellings for armed forces personnel. The 1993 System of National Accounts treats gross fixed capital formation as all capital expenditures by the defence forces on fixed assets of a kind that could be acquired by civilian users for purposes of production and that the military use in the same way: this would include airfields, docks, roads, hospitals and other buildings or structures. On the other hand, military weapons, and vehicles and equipment whose sole purpose is to launch or deliver such weapons, are not to be treated as gross fixed capital formation but as intermediate consumption. It is also mentioned in 1993 SNA, 'if it is not feasible to separate expenditures on such equipment from expenditures on weapons and their support systems, all expenditures on equipment for the military have by default to be treated as intermediate consumption'.
- 1.135 However, SNA 2008 emphasizes that all expenditure by the military which meets the definition of being used in production over a period in excess of one year will be treated as capital formation, regardless of the nature of the expenditure or the purpose intended for it. All equipment will be treated as fixed capital formation except for consumables which will be treated as inventories.
- 1.136 It has been a practice in the Indian national accounts to treat the capital expenditures of Defence, except for the ordinance factories, as current expenditures. However, the major account head "4076" on Defence Capital Expenditure in the Central Government Budget documents shows detailed information on expenditure made towards various capital equipments such as buildings, machinery, transport equipment, land etc.
- 1.137 The current NAS treatment of defence capital outlay as current expenditures, results in reduction in the net savings as well as in capital formation of Government Administrative Departments. This issue of treating the defence capital expenditure as capital was placed before Sub-Committee on Estimation of Savings in the Public Sector with its implications in public sector savings and in public sector capital formation. Subsequently, this issue with revised estimates and purpose classification was

discussed in the Advisory Committee on National Accounts for their consent to incorporate in the base year revision. The Committee deliberated upon this issue at length and suggested that only construction component of capital account head 4076 could be treated as gross fixed capital formation. They further added that care should be taken to consider machinery /transport outlays as a part of fixed assets from this account. The entire defence expenditure is presently marked as "Defence", in the new series, the expenditures on medical and education establishments are given 'health' and 'education' respectively in the purpose classification.

### Methodological changes in Autonomous Institutions

- 1.138 In the new series macro-economic estimates for Quasi-Government Bodies (Autonomous Institutions) are included with an alternative methodology. A large number of autonomous institutions have been set up by various Ministries/Departments to achieve some objectives without day to day interference of government for which substantial grants are released to them every year. The grants in aid are generally released to these Autonomous Institutions besides Non-Government Organizations and individuals and they account for a significant contribution in the government current expenditure. Such grants are reflected in income and outlay account of Government Administrative Departments as current transfers to autonomous institutions or private institutions or individuals. In addition to the grants, the recipient institutions generate own resources of funds to meet their expenditure for payment of salaries, pension, office expenses and for acquisition of fixed assets. In the absence of these details in the budget documents, the expenditure of government could not be exactly classified as it was spent on salaries or office expense or for capital asset. As a result, the government macro economic estimates like NDP, GFCE and GFCF are underestimated. Moreover the analysis of financial accounts of all autonomous institutions receiving grants in-aid is a gigantic task. Grants released by Human Resource Development, Health & Family Welfare, Agriculture, Science & Technology, Communication & Information Technology, and Finance constitute 75% of the total grants given by all central ministries to these institutions. Therefore, for the base year revision, it is confined to analyse some of the annual financial accounts of important

autonomous institutions like Kendriya Vidyalaya Sangathan (KVS), UGC, CSIR, ICAR, Department of Atomic Energy, IGNOU etc to work out the ratios of own funds, compensation of employees, (COE), Intermediate Consumption and Gross Fixed Capital Formation from the total grants released to these sample institutions. These ratios have been applied on the total grants released to these institutions by the Central Government during 2004-05 to 2008-09RE to compile the estimates of own resources, NDP, GDP, GFCE and GFCF of autonomous institutions to replace the corresponding existing estimates in Quasi-Government-Bodies from Public Sector. At present the GVA of these quasi-Government Bodies are compiled by using the workforce in NIC 903 multiplied by the value added per worker of such autonomous institutions. Other estimates like capital formation, saving and GFCE from Quasi-Government Bodies are compiled by applying benchmark ratio estimates on the GVA.

### **Local Bodies**

- 1.139 The third issue relates to working out the impact of local bodies on macroeconomic estimates compiled by considering the accounts of all urban local bodies (ULBs) on

census basis and using the accounts of rural local bodies (RLBs) on sample basis. The local bodies have started raising substantial income from their own resources besides the grants received from State and Central Governments. This, therefore, has resulted in an increase in the estimates of NDP, GDP, GFCE, GFCF and savings. For this, CSO devised a simple schedule circulated to all the States and advocated them to collect the data from Grama Panchayats on sample basis for compiling rural body accounts. Besides sample data from some State DESs, data on local bodies available on the C A & G website was also used to compile estimates of Local Bodies for new series. These estimates have been presented to the Advisory Committee on National Accounts for their concurrence. The committee accorded its approval for the improvements in compilation procedure and data sources for compilation of local body accounts.

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## BASIC CONCEPTS OF NATIONAL ACCOUNTS AGGREGATES

### Introduction

- 2.1 The basic concepts and definitions of the terms used in national accounts largely follow those given in the UN System of National Accounts (SNA). It is intended to give in the following paragraphs the major concepts used in National Accounts Statistics and the inter relationship particularly of those relating to macro-economic aggregates of gross domestic product, consumption, saving and capital formation.

### Domestic Product

- 2.2 Gross Domestic Product (GDP) is a measure of production activity. **The procedure adopted for compilation of GDP is to measure the production activity in each producer unit by means of what is called, Gross Value added (GVA) by the unit, where GVA is the value of output less the value of input used up in the process of production.** Hence GDP is defined as the sum of GVA of all resident producer units of the economy during the reference period.

- 2.3 The technical term used in national accounts for denoting the input consumed in the production process is Intermediate Consumption. **The reduction in value of the fixed capital due to its use in production is called Consumption of Fixed Capital (CFC).** The net contribution of production activities is given by Net Domestic Product (NDP) which is nothing but GDP less CFC. In all the economic aggregates in the national accounts, the net value is derived from the gross value by deducting the corresponding CFC. The term resident unit involved in the definition of GDP denotes the unit having predominant economic interest in the economic territory of the country for one year or more irrespective of the nationality or legal status.

- 2.4 In the compilation of GDP, if the output is measured at factor cost without adding any tax and subtracting any subsidy, then the GDP obtained thus is called GDP at factor cost. If output is valued by including tax less subsidy on production but not on products, we obtain GDP at basic price. To the basic price GDP if we add taxes less subsidies on products including those relating to import/export we get GDP at market price. GDP at factor cost is called so because it represents the total cost of labor, capital and entrepreneurship. GDP measured at

current prices is called GDP at current prices or nominal GDP. If it is measured using prices that prevailed in a particular year called base year, it is known as GDP at constant prices or real GDP.

- 2.5 GDP covers all production activities recognized by SNA called the production boundary. The production boundary covers production of almost all goods and services classified in the National Industrial Classification (NIC) which has been prepared in conformity with the International Standard Industrial Classification (ISIC). Production of agriculture, forestry and fishing which are used for own consumption of producers is also included in the production boundary. Similarly, account is also taken of the rentals of buildings which are owned and occupied by the owners themselves. Own account construction activities are also similarly included. However, service production in the households by the household members for their own consumption is excluded.

### National Income

- 2.6 GDP measures production activities in terms of GVA which is nothing but the sum of income for the employees and the producer unit. Therefore as an alternative method, GDP can be obtained by adding up the income earned by the employees, taxes less subsidies paid to the government and the operating surplus held by the producer unit. However, there is some income received by the economy from the rest of the world on account of salaries and wages (called compensation of employees) of residents working abroad and property income. Similarly, there is some outflow of income to the rest of world due the income earned by the non-residents in the economy. A measure of the overall income of the economy obtained by adding net compensation of employees and property income received from the rest of the world is termed as Gross National Income (GNI). GNI and GDP are coterminous in a closed economy. The term National Income is nothing but the Net National Income (NNI).

- 2.7 Compensation of employees, operating surplus and taxes less subsidies on products are called primary incomes which accrue by way of factor income and income due to ownership of assets. Incomes in the forms



of old age pensions, education grants, unemployment benefits, gifts, direct taxes, life insurance premium etc., are not payments for current services or production. They are paid out of the primary income. These are called transfer incomes. Receipts for which nothing is paid in return are transfer incomes. These are secondary incomes obtained as a result of distribution of primary income.

### **Expenditure**

- 2.8 The total availability of goods and services during the reference period is the sum of initial stock ( $S_i$ ), production ( $P$ ) and import ( $I$ ). These are used as intermediate consumption ( $IC$ ), final consumption ( $FC$ ), gross fixed capital formation ( $GFCF$ ), export ( $E$ ) and remaining ends up as final stock ( $S_f$ ). This leads to the identity,
- $$S_i + P + I = IC + FC + GFCF + E + S_f$$
- All measured at market price. Re-writing the above equation, we get

$$P - IC = FC + GFCF + (S_f - S_i) + (E - I)$$

Or

GDP = Final Consumption + Gross Fixed Capital Formation + Change in Stock + Net export

Hence, GDP can also be measured by adding up the use or expenditure components.

### **Production/Income/Expenditure**

- 2.9 It may be noted from the above discussion that GDP of a country can be measured in three different ways:
- (i) From the angle of production
  - (ii) Income generation
  - (iii) Final utilization. These three forms are circular in nature. It begins at the production stage where the productive units engage capital and labour and turn out goods and services, the total measure of which gives the GDP. This production process generates a given amount of money income which is distributed by the productive units to capital and labour. The measure of income this way indicates the share of GDP to the employees and the entrepreneurs. The income thus received by the factors of production is then spent either by the employees in their capacity as households in terms of acquisition and consumption of goods and services or by the entrepreneurs in acquiring more capital and thus increasing the physical assets of their production units. GDP is the same whether it is measured at the point of production or at the point of income generation or at the point of final utilization. In other words,

value of production, income flows and final expenditure will be identical. The significance of each arises from the fact that they reflect total operations of the economy at the levels of three basic economic functions, namely, production, distribution and disposition.

### **Production**

- 2.10 Although national income can be measured in any one of the three alternative approaches, if a complete analysis of the economy is the objective then it should be measured by all the three different approaches. For measurement of national income at the point of production, the method generally followed is to divide the whole economy into a given set of economic activities and to estimate the total value of output and the corresponding value of inputs of raw materials and services used for production and then arrive at the value added of each sector as a total value of output minus the value of inputs of raw materials and services. In the case of services the value added is measured in terms of the total amount of money paid in return for the services received minus the cost of inputs like expenditure on transport, advertisement, and other miscellaneous services used up for production of the service.

### **Forms of income**

- 2.11 The net value added available for each unit of production is equal to the amount of income generated by the unit in the process of production. This income is distributed between the two primary factor inputs, namely, capital and labour. In other words, income is distributed in the form of either capital income to the owner of the capital or labour income to the labour employed. The distinction between employment income and profits (operating surplus) cannot be made in the case of incomes of persons working on their own account. Such incomes are, therefore, separately classified as mixed income of the self employed.
- 2.12 The labor income takes the form of either wages or salaries including commission, pension contribution, bonus, etc., or supplementary contribution of the employers towards payments in kind.
- 2.13 Some portion of operating surplus is retained by the producer which remains undistributed and is partly used for further investment and balance is distributed. The distributed capital income is mainly in the form of dividends, interest and rent. The

rent in the Indian context includes not only rent on land but also rentals on buildings and structures. The capital income other than profit retained by enterprises distributed to the owners of capital who are either individuals or enterprises in the form of dividends. The mixed income generally accrues to the self-employed people who employ their own capital and labour for production. This income consists partly of profits of unincorporated enterprises and partly of labour income of the self employed. Thus the total income generated in the form of factor shares consists of (i) wages & salaries (ii) interest, (iii) rent, (iv) dividends, (v) undistributed profits and mixed income of self employed.

### Categories of expenditure

- 2.14 The total income available to the individuals in the form of labour income, capital income and retained income of the producer unit is the GDP. This income gets utilized as (a) household consumption, (b) government consumption, (c) capital formation comprising fixed capital formation and stock accumulation and (d) net export.

### Household consumption expenditure

- 2.15 The household consumption expenditure referred to as private final consumption expenditure (PFCE) in National Accounts Statistics (NAS), consists of expenditure by households on goods and services (both durable and non-durable) acquired for consumption but not for use in production. PFCE includes final consumption of Non-Profit institutions serving households as well. However, land and buildings purchased by households are not part of PFCE.
- 2.16 The durable goods are defined as those whose life time are more than one year and consist of items such as furniture, radios, televisions, automobiles, etc. Expenditure on residential buildings purchased or constructed is not treated as consumption expenditure of the households but are included in the gross capital formation. In the case of owner occupied buildings, the imputed rent is included in the final consumption expenditure. Similarly, the value of primary products of sectors like agriculture, forestry, fishing etc., which are produced for own consumption by the households will form part of consumption expenditure because these are included in the production boundary for compilation of GDP. Payments for domestic services which one household renders to another, such as services of maid servants, cooking, child

nursing and gardening are also included under consumption. However, as in the production measurement, activities such as cooking meals, scrubbing floor and minding children undertaken by household members fall outside the production boundary and are, therefore, excluded from consumption expenditure.

### Government final consumption expenditure

- 2.17 The concept of government consumption expenditure has been debated by economists for a long time. The role of the government in the economy is essentially different from that of enterprises and households. To cite a few examples, the government offers services both to entrepreneurs and consumers and in most cases it receives no payment for that or even if it does receive payment, the same is likely to bear little or no relation to the value of the services to the user. In the course of organizing collective services such as defence, justice, health and education, government purchases the services of its officials and also many non-durable goods and other services from other suppliers. These collective services do not appear in the household consumer expenditure. These services are not only of economic value, but also create real final consumption value to the people. It is, therefore, necessary to reckon them in the national expenditure. Once it is agreed to include government services as part of national expenditure it would be necessary to find methods for valuing the services. Since these collective services are not sold, they can be valued in money terms only by adding up the money spent by the government in the production of these services. This total expenditure is the consumption expenditure of the government.

### Capital formation

- 2.18 Gross Capital Formation (GCF) consists of the Gross Fixed Capital Formation (GFCF) and changes in stocks of inventories. GFCF is measured by the total value of a producer's acquisitions, less disposals, of fixed assets during the accounting period plus certain specified expenditure on services that adds to the value of non-produced assets such as land. Changes in stock of inventories are in the form of changes in stock of raw materials, fuels, finished goods and semi finished goods awaiting final stage of completion. Thus gross capital formation is that part of country's total expenditure which is not



consumed but added to the nation's fixed assets and stocks.

### **Saving**

- 2.19 Saving represents the excess of current income over current expenditure of various sectors of the economy. For the closed economy savings equals capital formation during the year whereas for the open economy savings equals capital formation plus net capital inflow from abroad during the year.

### **Private Income**

- 2.20 Some of the national income accrues to the government in the form of property income of government departments and profits of government enterprises. The government also makes transfer payments to private sector in the form of grants, social security payments, gifts, etc. The government pays interest on national debt which accrues to the private sector. Private income is a measure of the income derived from national income by adding the sum of government transfer payments and interest on national debt and subtracting the property income of government departments and profits of government enterprises.

- 2.21 Transfer payments result from transactions which do not give rise to the exchange of commodities or factor services. A payment of money is made without a corresponding flow of goods and services in the opposite direction. Transfer payments are not shown in the major accounts as an addition to total product. The value of transfer payments to households is included in the income aggregate of private income.

### **Personal Income**

- 2.22 Personal income is the income accruing to the Household sector including Non-Profit Institutions Serving Households. This income is a measure of the actual current income receipt of persons from all sources. It differs from private income in that it excludes the undistributed profits which accrue to Private Sector but are not received by persons. It also excludes the expenditure tax paid to government by the Private Corporate Sector. It is derived from private income by subtracting the savings of the private corporate sector and the corporation tax.

### **Personal Disposable Income**

- 2.23 Even the above subtractions are not sufficient to derive personal income which is actually available for spending. Disposable

personal income is derived from personal income by subtracting the direct taxes paid by individuals and other compulsory payments made to the government. It is a measure of amount of the money in the hands of the individuals that is available for their consumption or savings.

### **Domestic Product at Factor Cost / Market Prices**

- 2.24 The production and income approach measures the domestic product as the cost paid to the factors of production and is known as domestic product at factor cost. However, the various forms of final output when considered from the point of expenditure are valued at market prices i.e., the actual price which either the consumers or producers pay for purchase of goods and services whether for consumption or for investment. This measurement is called the expenditure at market prices. When valued in this way, this measure will be different from the product or income measure at factor cost. The market value of the goods and services will include the product taxes like excise duties, customs, sales tax, service tax etc., levied by the government on goods and services and other taxes on production, factory, license fee, pollution tax which is unrelated to the quantum of production. These taxes are known as indirect taxes. Similarly, the market price is lower by the amount of subsidies on products and production which the government pays to the producer. Hence, the market value of final expenditure would exceed the total obtained at factor cost by the amount of product and production taxes reduced by the value of similar kinds of subsidies. Domestic or national product can, therefore, be measured either at market prices or at factor cost one differing from the other by the amount of net product and other production taxes paid by the producer.

- 2.25 Product and production taxes are taxes assessed in respect of production, sale, purchase or use of goods and services of producers which they charge to the expenses. The main taxes in this category are excise duties, Value added tax, sales tax, import and export duties, entertainment tax etc. Their effect is to make the prices paid in a transaction higher from the actual receipts of the factor of production involved. Direct taxes do not have the same effect since they do not impinge directly on transaction but are levied directly on the income. Indirect taxes net of subsidies are, therefore, added to

obtain estimates at market price from that at factor cost.

- 2.26 Subsidies include all grants on current account which industries obtain from the government. As a matter of long-standing convention, subsidies are regarded as payments necessary to elicit factor services. Accordingly they are included in the sum of factor incomes. They must, therefore, be subtracted if the estimates are required at market prices.

### **Current versus Constant Prices**

- 2.27 National income regardless of the concept is obviously measured at prices prevailing during the period or in other words at current prices. When calculated over a number of years, the changes in national income would, therefore, include implicitly not only the effect of the changes in production but also the changes in prices. This estimate compared over the period would not, therefore, give a proper measure of the overall real increase in production of the country or the economic welfare of the people or growth of the economy. Therefore, it would be necessary to eliminate the effect of prices, or in other words to recompute the whole series at given prices of one particular base year.

National income thus computed is termed as national income at constant prices or in real terms.

- 2.28 The national income in real terms provides a measure of the growth of the economy. When available by industry of origin, these estimates give a measure of the structural changes in the pattern of production in the country which is vital for economic analysis. The distribution of national income by factor shares measures the changes in the shares of either labour or capital or individual partly owning capital and partly contributing labour. This reflects not only the variation in the productivity of these groups but also changes in their respective ownership position. Finally, at the point of utilization, the change in the shares of either consumption expenditure or capital formation give an idea of the common welfare of the people and changes therein as well as the extent by which the capital assets of the country are either increasing or decreasing.
- 2.29 There are several other terms which need to be defined in the context of national accounts. For ready reference the Glossary of Main Terms used in NAS given in this publication may be referred to.

**The production identities**

Gross value added (GVA) at factor cost = Output – Intermediate consumption

Gross Domestic Product (GDP)

At factor cost ... = Sum of GVA at factor cost

GDP at Market Prices ... = GDP at factor cost  
+ (taxes – subsidies) on production and export/import

= final consumption expenditures  
+ Changes in inventories  
+ Gross fixed capital formation  
+ acquisition less disposals of valuables  
+ exports of goods and services  
– Imports of goods and services

= compensation of employees  
+ operating surplus / mixed income  
+ Consumption of Fixed Capital (CFC)  
+ (taxes – subsidies) on production and export/import

Net Domestic Product at factor cost/market price = GDP at factor cost/market price – CFC

**Income and saving identities**

Gross National Income (GNI) at market prices = GDP at market prices  
+ (taxes – subsidies) on production and imports  
+ Compensation of Employees  
(Net receivable from abroad)  
+ Property income (Net receivable from abroad)

Net National Income (NNI) at market prices = GNI at market prices – CFC

Net National Disposable Income (NNDI) = NNI + net taxes on income and wealth receivable  
from abroad + Net social contributions and  
benefits  
receivable from abroad

Net saving ... = NNDI – final consumption expenditure  
+ Net equity of households on pension funds  
receivable from abroad + net capital transfers  
available

Changes in net worth due to savings and capital transfers = Net Saving + Capital transfers receivable

**Saving and investment identities**

Net saving + net capital transfers receivable = gross fixed capital formation – CFC  
+ Changes in inventories  
+ Acquisitions less disposals of valuables and  
Non-produced non-financial assets  
+ net lending/ net borrowing

Net lending (+)/borrowing (-)  
of = net acquisitions of financial assets less net incurrence  
financial liabilities

**Economic performance indicators**

Indicators	Interpretation
GDP rate of growth	The performance of the economy
GDP per capita	The level of economic development in comparison to other countries
Compensation of employees per work hour	Labour cost
Compensation of employees/gross value added	Income share of employees in GDP
Operating surplus/ gross value added	Income share of capital in GDP
Gross fixed capital formation / GDP	Share of investment in capital goods in GDP
Saving/GDP	Saving rate of the nation
Saving/gross fixed capital formation	Domestic funding of investment
Saving of an institutional sector/ total saving	Contribution of each sector to total saving
Saving of households/disposable income of households	Saving rate of households

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## NET FACTOR INCOME FROM REST OF THE WORLD

### Introduction

- 3.1 In the system of national accounts, the accounts relating to the resident institutional sectors portray various facets of economic activity, i.e., production, generation, distribution and redistribution of income, consumption and accumulation. The relevant accounts capture both transactions taking place between the resident institutional sectors of the economy and transactions with non-resident units. Statistics on these transactions with non-resident units are compiled by the Reserve Bank of India (RBI) and published under tables relating to India's overall balance of payments.

### Coverage

- 3.2 The net factor income from rest of the world consists of (i) net compensation of employees, and (ii) net income from property and entrepreneurship (i.e., interest, rent, dividend and profit) including reinvested earning of foreign companies. Here the term 'net' stands for receipts of current income by residents abroad minus disbursements of current income to non-residents in India.
- 3.3 The factor incomes are reckoned in terms of factor incomes of residents abroad and non-residents living in the country. Factor incomes of residents are to be considered as inflows while factor incomes of non-residents are to be considered as outflows. The data for factor incomes from abroad are provided by the Balance of payments (BoP) statistics compiled by the RBI. For BoP purposes, the term 'resident' is defined as a person or entity who may be expected to consume goods and services, participate in production or engage in other economic activities in the territory, on other than 'temporary basis' and whose 'centre of interest' lies in the country's economy. The rule of thumb adopted for determining the resident status of an individual is the stay of one year or more. Thus, residents cover Indian nationals and non-nationals residing in the country for one year or more, government agencies (comprising all departments, establishments and bodies of its Central and State Governments and Embassies and Consulates and other entities of the Government located abroad), business enterprises and non-profit organizations. International agencies are regarded as residents of an international area and not of any country. Embassies,

Consulates and other entities of a foreign government are not treated as residents of the country in which they are physically located, but of the country to which they belong.

### Methodology and source of data

- 3.4 The estimates of net factor income from abroad are based on the balance of payments statistics compiled (on a quarterly as well as annual basis) by the RBI based on the foreign exchange records supplemented by information furnished by the Government, its agencies and other organisations etc. The data on the transactions of (i) property and entrepreneurial income including reinvested earning of foreign companies and (ii) compensation of employees, which constitute net factor income from abroad, are obtained from BOP records compiled by the RBI

### Estimates at constant prices

- 3.5 In the new series, estimates at constant (2004-05) prices have been prepared using single deflation method by adopting Implicit price deflators of service sector on the current price estimate of net factor income from abroad.

### Quality and limitations of database

- 3.6 The data available from foreign exchange records have some limitations. Economic transactions which do not get routed through authorized dealers in foreign exchange are not covered in the data reported by the Foreign Exchange Department. Thus, transfers of goods and services which do not give rise to monetary flows are not included in the foreign exchange records. This is made good by obtaining the relevant data (for example, foreign aid transactions on a direct settlement basis and foreign exchange transaction of Government agencies abroad) from the Government and Government agencies as also from financial institutions and companies (i.e., commercial borrowings).
- 3.7 The RBI faces some difficulties in classification of the details under receipts reported in the foreign exchange records. On the receipts side beneficiaries of inward remittances of individual amounts of less than Rs. 5, 00,000 are not required to

indicate purpose wise details of the receipts. In order to correctly classify these amounts in the balance of payments statistics, RBI conducts surveys of unclassified receipts (i.e. receipts below Rs. 5, 00,000) from time to time and the results of these surveys are

used to allocate these amounts among different items of balance of payments data. On the payments side, as the remitter has to give full details of the transaction, such problems do not normally arise.

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## CONSOLIDATED ACCOUNTS OF THE NATION

- 4.1 The Consolidated Accounts of the Nation are compiled for a comprehensive picture of the macro-economic behaviour of the country. The different estimates are put together in the form of a set of national accounts for presentation of the overall picture of the economy. This system consists of:  
 Account 1: Gross Domestic Product and Expenditure;  
 Account 3: National Disposable Income and its Appropriation;  
 Account 5: Capital Finance Account; and  
 Account 6: External Transactions.
- 4.2 The independent estimates for the different macro-aggregates are used for constructing the national accounts. Because of the independent nature of the estimates, it is not always possible for the accounts to balance. No attempt is made to adjust the estimates to achieve balance; instead the extent of difference between the receipts and the expenditure total is shown separately.
- 4.3 Account 1 presents the overall consolidated picture of total GDP at market prices and the expenditure on the same. Statistical Discrepancy shown in this Account, taking the GDP from the production approach as the control total, gives the measure of the overall difference between the production approach and the expenditure approach followed for estimation. The disaggregation of this discrepancy between the levels contributed by the two measures of capital expenditure and current expenditure are shown in Accounts 5 & 3 respectively. In Account 5 'errors and omissions' give the difference between Gross Domestic Capital Formation (GDCF) and gross domestic saving plus net inflow from abroad, taking the gross domestic saving as the control total. Similarly, in Account 3, the 'statistical discrepancy' gives the extent of difference between disposable income and consumption expenditure plus saving. In addition the adjustments made for exports and imports in Account 6 are also included in the discrepancy in Account 1. Discrepancy in Account 1 is, therefore, the sum of 'statistical discrepancy', 'errors and omissions' in Accounts 3 & 5 respectively and the net adjustments made for exports and imports in Account 6.
- 4.4 The entries in all the Accounts are obtained from different aggregates otherwise presented in the NAS and also from the Balance of Payments Statements (RBI) and Foreign Trade Statistics (DGCI&S). The correspondence of items of Consolidated Accounts of the Nation with items of other statements in NAS and the relationship between Balance of Payment categories and those of the External Transactions Account of the SNA are given in Appendices 4.1 and 4.2 respectively. Appendix 4.2 summarises the correspondence between the categories of Account 6 of the Consolidated Accounts of the Nation and those of the Balance of Payments (BoP) Statements.

### Appendix 4.1

#### CORRESPONDENCE OF ITEMS OF CONSOLIDATED ACCOUNTS OF THE NATION WITH ITEMS OF OTHER STATEMENTS IN NAS

Items of Consolidated Accounts (Statements 5 to 8)	Items of Other Statements
1.1 & 3.6 Net domestic product at factor cost	Item 10, statement 12
1.2 & 5.6 Consumption of fixed capital	Item 5, statement 19
1.6 & 3.1 Government final consumption expenditure	Item 5, statement 29
1.7 & 3.2 Private final consumption expenditure	Item 8, statement 16
1.8 & 5.1.1 Gross fixed capital formation	Item 2, statement 19
1.9 & 5.1.2 Change in stocks	Item 3, statement 19
1.10 & 6.1 Exports of goods and services	Item 6.1, statement 75
1.11 & 6.7 Imports of goods and services	Item 6.7, statement 75
3.3 & 5.5 Saving	Item 6, statement 18
3.7 & (6.2-6.8) Compensation of employees from rest of the world, net	Item 6.2 less item 6.8, statement 75
3.8 & (6.3-6.9) Property and entrepreneurial income from rest of the world, net	Item 6.3 less item 6.9, statement 75
3.11 & (6.4-6.10) Other current transfers from rest of the world, net	Item 6.4 less item 6.10, statement 75



**Relationship between categories of balance of payments and external transactions account**

- A4.1 The Table 4.1 summarises the correspondence between the categories of Account 6 (and detailed statement 75) of the Consolidated Accounts and the BoP statistics in the Indian context.
- A4.2 The items included in Account 6 of the Consolidated Accounts reappear at different places in Accounts 1, 3 and 5. These items cannot be estimated independent of the BoP statistics and, therefore, there are no cross checks of these items between the first three accounts and Account 6. In spite of uniformity in concepts, there may not be exactly one to one correspondence among the items of external transactions included in the SNA and the BOP statements. The external Transaction Account is based on Balance of Payments Statistics published by RBI. The transactions in BoP are recorded on the basis of ownership (legal title) of the goods and services. This is also the treatment used in the National Accounts. However, for preparing the estimates of Private Final Consumption Expenditure (PFCE) and capital formation, data on imports and exports, based on foreign trade statistics compiled by DGCI&S, are used. These data, being based on trade statistics, generally precede the physical movements of goods across the boundaries of the country. In order to maintain consistency with these estimates the exports and imports of merchandise in the External Transaction Account are based on Foreign Trade Statistics provided by the DGCI&S. To keep the overall BOP on current account undisturbed, the difference in the two sets of data (RBI & DGCI&S) has been shown as an additional entry in Account 6, that is, adjustment of merchandise imports and exports for change of ownership basis.
- A4.3 The entries in Account 6 and Statement 75 are obtained by slightly regrouping the items included in the BOP categories of (i) Travel, (ii) Transportation and (iii) Government, not included elsewhere.
- A4.4 Direct purchases in the domestic market by extra-territorial bodies and direct purchases abroad on current account, Government services, as specified in the detailed External Transaction Account (Statement 75), are mostly included under the BoP category "*Government not included elsewhere*" (*g.n.i.e.*). Direct purchases in the domestic market by non-resident households and direct purchases abroad by resident households appear under BoP categories of "Travel".
- A4.5 Transfer payments are classified in Account 6 as current or capital transfers depending upon the nature and purpose of the transaction. The BOP system, however, does not use the criteria of Account 6 for classification of transfers. Since some of the international transfer payments are in the nature of inter-governmental grants that cannot be classified as current or capital, the BOP system includes all transfers in the current account and classifies them as private transfers and official transfers. Remittances by migrants or inheritances are personal transfers and are categorised as private transfers, while inter-governmental transfers are made on economic considerations that affect the whole country, are categorised as Government transfers. In the SNA, transfers on Government account may be current or capital. Social assistance grants, unilateral shipments of food, clothing etc., grants to finance military outlays, are some of the examples of current transfers on official account. It is, however, difficult to decide whether the transfer is current or capital in nature when large-scale transfers from diverse sources are involved. Account 6 for India, therefore, treats all transfer payment on official account given in the BOP statements as capital transfers and those on private account as current transfers.
- A4.6 The capital transactions of Account 6 have three items, namely the net purchase of intangible assets from rest of the world not elsewhere classified, net acquisition of foreign financial assets and net incurrence of foreign liabilities. Intangible assets include exclusive rights to exploit natural resources, leases, patents, copyrights, trade mark etc., and exclude financial claims. While periodic income by way of fees, royalties etc., from such assets is included under investment (property) income, only the outright purchases/sales of such assets are included under the net purchase of intangible assets. Foreign financial assets/liabilities are classified according to the type of instrument, degree of liquidity and the institutional structure of the debtor/creditor. Conceptually the coverage and valuation of changes in foreign financial assets/liabilities are identical in the SNA and the BoP system. Account 6 for India, however, shows only a

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single entry against each of "net acquisition of foreign assets" and "net incurrence of foreign financial liabilities". These include trade credits, advances etc. Acquisition of

assets is netted against their dispositions while the incurrence of liabilities is netted against their redemption and they are valued at cost, i.e., value of sale/purchase.

**TABLE 4.1: IDENTIFICATION OF THE BoP CATEGORIES WITH THE EXTERNAL TRANSACTIONS ACCOUNT CATEGORIES**

External Transactions Account categories	BoP categories
<b>A. Current Account Transactions</b>	
1. exports of goods & services(6.1)	1. merchandise-credit* plus a part of invisibles-credit
2. imports of goods & services (6.7)	2. merchandise-debit* plus a part of invisibles-debit
3. compensation of employees from/to the rest of the world (6.2/6.8)	3. compensation of employees (credit /debit)
4. property and entrepreneurial income from/to the rest of the world (6.3/6.9)	4. investment income (credit /debit)
5. other current transfers from/to the rest of the world (6.4/6.10)	5. transfer-private (credit/ debit)
6. adjustment of merchandise exports/imports for change of ownership basis (6.5/6.11)**	
<b>B. Capital Account</b>	
1. net incurrence of foreign liabilities (6.16)	
<i>plus</i>	
2. surplus of the nation on current account (6.12)	
<i>plus</i>	
3. capital transfers from the rest of the world, net (6.15)	

\* Source: DGCI&S and for other items, RBI.

\*\* shows the difference between the figures of merchandise exports/imports from the two sources viz. RBI & DGCI&S.

Note: Figures in the parentheses in column 1 refer to the items in 'Statement 8: External Transactions' as published in the National Accounts Statistics.

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## Sequence of Accounts in 2008 System of National Accounts- An overview

### Introduction

- 5.1 The System of National Accounts (SNA) consists of a coherent, consistent and integrated set of macroeconomic accounts; balance sheets and tables based on a set of internationally agreed concepts, definitions, classifications and accounting rules. It provides a comprehensive accounting framework within which economic data can be compiled and presented in a format that is designed for purposes of economic analysis, decision-taking and policy-making. The accounts provide a comprehensive and detailed record of the complex economic activities taking place within an economy and of the interaction between the different economic agents, and groups of agents that takes place on markets or elsewhere. The SNA provides information not only about economic activities, but also about the levels of an economy's productive assets and the wealth of its inhabitants at particular points of time.
- 5.2 All the UN member countries are expected to prepare and present their National Accounts Statistics (NAS) as per the accounting structure and framework recommended in the latest revision, viz. 2008 SNA which is an updated version of 1993 SNA. One of the major recommendations of SNA relates to presentation of sequence of accounts by institutional sectors into which the economy has been divided, namely, (i) non-financial corporations, (ii) financial corporations, (iii) general government, (iv) non-profit institutions serving households (NPISH) and (v) households. Some important concepts given in the 2008 SNA document in respect of institutional sectors and sequence of accounts are discussed in the following paragraphs.
- 2008 SNA FRAMEWORK**
- 5.3 **Rules of accounting:** The SNA utilizes the term *resources* for the right side of the current accounts, transactions which add to the economic value of a unit or a sector; and the left side of the accounts, which relates to transactions that reduce the economic value of a unit or sector, is termed *uses* in a T shape of the account presentation.
- 5.4 **Double entry principle:** Each transaction must be recorded twice:
- once as use (or change in assets); and
  - once as resources (or change in liabilities),
- Similar to the principle of double entry as in business accounting.
- 5.5 **Accounts:** 1993 SNA is built around a sequence of interconnected flow accounts linked to different types of economic activity taking place within a given period of time, together with balance sheets that record the values of the stocks of assets and liabilities held by institutional units or sectors at the beginning and end of the period.
- Each flow account relates to a particular kind of activity such as production, or the generation, distribution, redistribution or use of income.
  - Each account is balanced by introducing a balancing item defined residually as the difference between the total resources and uses recorded on the two sides of the account.
  - The *balancing item* from one account is carried forward as the first item in the following account, thereby making the sequence of accounts an articulated one, as a whole.
  - The balancing items typically encapsulate the net result of the activities covered by the accounts in question and are therefore economic constructs of considerable interest and analytical significance - for example, value added, disposable income and saving.
- 5.6 The sequence of accounts recommended in 1993 SNA can broadly be classified into three categories:
- I. **Current accounts:** These accounts record the production of goods and services, the generation of incomes by production, the subsequent distribution and redistribution of incomes among institutional units, and the use of incomes for purposes of consumption or saving;
  - II. **Accumulation accounts:** These are flow accounts that record the acquisition and disposal of financial and non-financial assets and liabilities by institutional units through transactions or as a result of other events; and
  - III. **Balance sheet:** The balance sheets show the values of the stocks of assets and liabilities held by institutional units or sectors at the beginning and end of an accounting period.

- 5.7 **Production account (Account I):** Production account shows output as resources and intermediate consumption as use, and value added is balancing item which is measured both as gross & net. The broad structure may be seen at *Appendix 5.1 (Table-1)*.
- 5.8 **Distribution of income account (Account II):** The distribution of income is decomposed into three main steps:
- Primary distribution further sub-divided into:
    - Generation of income account.
    - Allocation of primary income account.
  - Secondary distribution: and
  - Redistribution in kind.
- 5.9 **Generation of income Account (Account II.1.1):** The generation of income account records, from the view of producers, distributive transactions which are directly linked to the process of production. The structure of the account may be seen at *Appendix 5.1 (Table-2)*.
- 5.10 **Allocation of Primary Income Account (Account II.1.2):** The allocation of primary income account [*Appendix 5.1 (Table-3)*] shows the remaining part of the primary distribution of income and it records:
- Property income receivable and payable for each sector and Compensation of employees receivable by households.
  - Taxes on production and imports less subsidies receivable by the government.
  - This account has operating surplus as resources and balance of primary income as balancing item.
  - Balance of primary income corresponds to national income for the total economy.
- 5.11 **Secondary Distribution of income Account (Account II.2):** Following transactions figure in this account [*Appendix 5.1 Table-3*]:
- Current taxes on income, wealth etc., and other current transfer except social transfers in kind are recorded as resources along with balance of primary income in this account. On the use side the same type of transfers are also recorded. Since these are resources for some sector and uses for others, their precise contents vary from one sector to another.
  - The balancing item of this account is disposable income. This is the income which can be used for Final consumption expenditure and saving.
- 5.12 **Redistribution of income in kind account (Account II.3):** This account [*Appendix 5.1 Table-4*] is significant only for government, households and NPISHs. Because of the nature of transactions involved.
- 5.13 **Use of income account (Account II.4):** The use of income account shows, how disposable income or adjusted disposable income is allocated between final consumption and saving for those sectors which have some final consumption. In the System, only government, NPISHs and households have final consumption. This account is divided in two sub-accounts-
- Use of disposable income account (Account II.4.1); and
  - Use of adjusted disposable income account (Account II.4.2)
- [*Appendix 5.1 Tables 6 & 7*]
- 5.14 **Accumulation accounts (Account III)** Salient features of these accounts are:
- Because the accounting system is fully integrated, accumulation accounts cover all changes in assets, liabilities and net worth (the difference for any sector between its assets and liabilities);
  - Saving, being the balancing items of all current transactions/accounts is, of course, the starting element of accumulation accounts;
  - Accumulation accounts are structured in a way which permits various types of changes in assets, liabilities and net worth to be distinguished;
  - A first group of accounts covers transactions which would correspond to all changes in assets/liabilities and net worth if saving and voluntary transfers of wealth were the only sources of changes in net worth. A second group of accounts relates to changes in assets, liabilities and net worth due to other factors; and
  - The first group of accumulation accounts contains the capital account and the financial account. These two accounts are distinguished in order to show a balancing item which is useful for economic analysis, that is, net lending/net borrowing.
- 5.15 **Capital Account (Account III.1):** The capital account (*Appendix 5.1 Table-8*) records transactions linked to acquisitions of non-financial assets and capital transfers involving the redistribution of wealth. The right side includes saving, net, capital

transfers receivable and capital transfers payable (with a minus sign) in order to arrive at that part of changes in net worth due to saving and capital transfers. This Account includes among uses the various types of investment in non-financial assets. Because consumption of fixed capital is a negative change in fixed assets, it is recorded, with a negative sign, on the left side of the account.

5.16 **Financial Account (Account III.2):** The financial account (Appendix 5.1 Table-9) records transactions in financial instruments for each financial instrument. These transactions in the System show net acquisition of financial assets on the left side or net incurrence of liabilities on the right side. The balancing item is again net lending (+) or net borrowing (-), which appears this time on the right side of the account.

5.17 **Other Changes in Volume of Assets Account and Revaluation Account (Account III.3.1 and III.3.2):** The second group of accumulation accounts (Appendix 5.1 Tables 10 & 11) covers changes in assets, liabilities and net worth which are due to factors other than the accumulation transactions recorded in the previous group of accounts. Examples are discoveries or depletion of subsoil resources, destruction by political events, such as war, or by natural catastrophes, such as earthquakes.

5.18 **Balance Sheets (Account IV):** The opening and closing balance sheets (Appendix 5.1 Table-12) display assets on the left side, liabilities and net worth on the right side. Assets and liabilities are valued at the prices of the date a balance sheet is established. Net worth, the difference between assets and liabilities, is the balancing item of balance sheets. It is equivalent to the present value of the stock of economic value a unit or a sector holds. In more detailed presentations of balance sheets, the various types of assets and liabilities are shown using the more detailed classification of assets and liabilities.

### Major heads of the accounts

5.19 The main items used the sequence of accounts are discussed in the following paragraphs

**P1. Output:** Goods or services produced as outputs are disposed of by their owners in one or more of the following ways, apart from certain service producers, such as

financial intermediaries and wholesale and retail traders whose outputs have special characteristics, during the period in which they are produced:

- These may be sold (only goods or services sold at economically significant prices are included here);
- These may be bartered in exchange for other goods, services or assets, provided to their employees as compensation in kind, or used for other payments in kind;
- These may enter the producer's inventories prior to their eventual sale, barter or other use: incomplete outputs enter the producer's inventories in the form of additions to work-in-progress;
- These may be supplied to another establishment belonging to the same enterprise for use as intermediate inputs into the latter's production;
- These may be retained by their owners for own final consumption or own gross fixed capital formation;
- These may be supplied free, or sold at prices that are not economically significant, to other institutional units, either individually or collectively.

5.20 In case of **non-financial enterprises** gross output is compiled as:

- value of sales of manufactured goods in manufacturing and trading enterprises;
- sale of coal and other minerals in mining enterprises;
- traffic revenue of transport enterprises;
- storage charges in warehousing;
- rent as well as income from property dealings in real estate;
- service charges in services sector;
- goods manufactured for own use and transferred departmentally to fixed assets;
- miscellaneous income originating from the associated activities like repair and other services rendered to others;
- net increase in stocks i.e. closing stock - opening stock; etc.

5.21 In case of **financial enterprises**, the output is calculated as under:

- The banking enterprises render services to their customers in the form of maintaining their accounts and advising them on financial matters. In return for these services, customers are charged a nominal amount which is substantially smaller than the expenses of the enterprises. On the other hand, the banks provide loans and advances and the returns on such transactions are

much higher than the payments made to depositors. This net return accruing to banks is large enough to meet their expenses and to earn a profit.

- If the financial enterprises are treated like any other productive enterprise, their income in the production account would only be limited to the charges made on customers which would mean that the banks would have a negative operating surplus and most likely negative value added. To circumvent this difficulty, an imputed income equivalent to interest and dividend receipts of banking and financial enterprises net of interest paid to depositors is defined as Financial Intermediation Services Indirectly Measured – FISIM (income earned in return for services rendered) and is entered as a receipt item in the output of the financial enterprises.
- The output of the financial enterprises thus includes interest received which was paid by the producing industries. As the interest paid by the industries is already accounted for in the GDP of the respective industries, its inclusion in the GDP of banking industry amounts to duplication. To avoid this duplication FISIM is allocated to the user industries as intermediate input (and thereby the GDP of the industries is reduced) and to the final consumers.
- In the institutional classification adopted by the CSO for the NAS, the RBI accounts are divided into those pertaining to the Issue Department and those pertaining to the Banking Department. The activities of the Issue Department are classified as an administrative department and are included under government administration, while those of the Banking Department are classified as corporate financial sector.
- Consequently, output of Issue department is measured on cost basis i.e. sum of intermediate consumption, compensation of employees and CFC as done for public administration (on the basis of data provided by RBI), Output of Issue department so measured is accounted as the output of Public Administration and gets disposed of as Government Final Consumption Expenditure (GFCE).
- The GDP of the Banking Department of RBI is accordingly measured as a sum of

actual income net of output of the Issue department + imputed income (interest and discount received less interest paid by RBI) - intermediate consumption.

- Output of financial corporations include financial intermediation charges and other miscellaneous income received by way of discount, commissions, locker rent etc., where Financial intermediation charges are measured according to the concept of Financial Intermediation Services Indirectly Measured (FISIM) prescribed by SNA-2008.
- **Output of life insurance corporations** includes insurance service charges and other miscellaneous income. Insurance service charges are equal to actual premium + interest and other property income received on life fund less claims paid, bonus to policy holder paid and net increase in accruing liabilities to policy holders.
- **Output of non-life insurance corporations** includes insurance charges + miscellaneous income. Insurance charges are equal to premium received + property income received less insurance claims paid.
- Provisions for contingencies, shown as one of the items of expenditure of banks, include provisions made towards non-performing assets, excess or less provisions made for depreciation on investment, provisions for income tax/ wealth tax/ interest tax and others. For SNA accounts these items are duly classified on the basis of information available in the annual accounts of the respective banks.

5.22 The output is further subdivided as:

- P.11. Market output;
- P.12 Output for own final use; and
- P.13 Other Non-Market output.

5.23 **P.11. Market output** Market output is output that is sold at prices that are economically significant or otherwise disposed of on the market or intended for sale or disposal on the market.

5.24 **P.12 Output for own final use:** The value of output produced for own final use is given by the sum of the values of the following items for the period in question:

- The total value of goods and services produced by household enterprises and consumed by the same households;



- The total value of the fixed assets produced by an establishment that are retained within the same enterprise for use in future production (own-account gross fixed capital formation); and
  - The total value of changes in inventories of finished goods and work-in-progress intended for one or other of the above uses.
- 5.25 **P.13 Other Non-Market output** This consists of goods and individual or collective services produced by non-profit institutions serving households (NPISHs) or government that are supplied free, or at prices that are not economically significant, to other institutional units or the community as a whole.
- 5.26 **P.2 Intermediate Consumption** Intermediate consumption consists of the value of the goods and services consumed as inputs by a process of production, excluding fixed assets whose consumption is recorded as consumption of fixed capital. The goods or services may be either transformed or used up by the production process.
- 5.27 **K1. Consumption of fixed capital:** Consumption of fixed capital is a cost of production. It may be defined in general terms as the decline, during the course of the accounting period, in the current value of the stock of fixed assets owned and used by a producer as a result of physical deterioration, normal obsolescence or normal accidental damage. It excludes the value of fixed assets destroyed by acts of war or exceptional events such as major natural disasters which occur very infrequently. Such losses are recorded in the System in the account for "Other changes in the volume of assets".
- 5.28 **B.1 Gross Value added** Value added is the balancing item in the production account for an institutional unit or sector, or establishment or industry. It measures the value created by production and may be calculated either before or after deducting the consumption of fixed capital on the fixed assets used.
- Gross value added is defined as the value of output less the value of intermediate consumption;
  - Net value added is defined as the value of output less the values of both intermediate consumption and consumption of fixed capital.

- 5.29 **D.1 Compensation of employees:** it is subdivided as:  
D11.Wages & Salaries; and  
D12.Employers' social contributions.
- 5.30 **D.12 Employers' social contributions** An amount equal to the value of the social contributions incurred by employers in order to obtain social benefits for their employees needs to be recorded as compensation of employees. Employers' social contributions may be either actual or imputed.
- **D.121 Employers' actual social contributions:** These consist of social contributions payable by employers for the benefit of their employees to social security funds, insurance enterprises or other institutional units responsible for the administration and management of social insurance schemes. Although they are paid by the employer directly to the social security fund or other scheme, the payments are made for the benefit of the employees. Accordingly, employees are treated as being remunerated by an amount equal to the value of the social contributions payable. This imputed remuneration is recorded in the generation of income account as a component of compensation of employees. Employees are then recorded as paying social contributions of equal value as current transfers to social security funds, other schemes, etc., in the secondary distribution of income account.
  - **D.122 Employers' imputed social contributions:** Some employers provide social benefits themselves directly to their employees, former employees or dependants out of their own resources without involving an insurance enterprise or autonomous pension fund, and without creating a special fund or segregated reserve for the purpose. In this situation, existing employees may be considered as being protected against various specified needs or circumstances, even though no payments are being made to cover them. Remunerations are thus imputed for such employees equal in value to the amount of social contributions that would be needed to secure the de facto entitlements to the social benefits they accumulate. These amounts depend not only on the levels of the benefits currently payable but also on the ways in which employers' liabilities under such schemes are likely to evolve in the future as a result of factors such as

expected changes in the numbers, age distribution and life expectancies of their present and previous employees. Thus, the values that should be imputed for the contributions, in principle, to be based on the same kind of actuarial considerations that determine the levels of premiums charged by insurance enterprises.

5.31 **D.2 Taxes on Production and Imports** Taxes are compulsory, unrequited payments, in cash or in kind, made by institutional units to government units. They are described as unrequited because the government provides nothing in return to the individual unit making the payment, although governments may use the funds raised in taxes to provide goods or services to other units, either individually or collectively, or to the community as a whole.

- Taxes on production and imports consist of taxes on products payable on goods and services when they are produced, delivered, sold, transferred or otherwise disposed of by their producers; they include taxes and duties on imports that become payable when goods enter the economic territory by crossing the frontier or when services are delivered to resident units by non-resident units; when outputs are valued at basic prices, taxes on domestically produced products are not recorded in the accounts of the System as being payable by their producers **plus**
- other taxes on production, consisting mainly of taxes on the ownership or use of land, buildings or other assets used in production or on the labour employed, or compensation of employees paid.

5.32 **D.3 Subsidies** Subsidies are current unrequited payments that government units, including non-resident government units, make to enterprises on the basis of levels of their production activities, or the quantities or the value of the goods or services, which they produce, sell or import. These are given to influence their levels of production, the prices at which their output are sold. These do not include grants that governments may make to enterprises in order to finance their capital formation or compensate them for damage to their capital assets. Such grants are treated as capital transfers.

5.33 **B.2/B.3 Operating Surplus/Mixed Income:** Operating surplus and mixed income are two alternative names for the same balancing item used for different types of

enterprises. Operating surplus or mixed income is the balancing item in the generation of income account it is defined as:

*"Value added minus compensation of employees payable minus taxes on production payable plus subsidies receivable".*

Mixed income is the term reserved for the balancing item of the generation of income account of unincorporated enterprises owned by members of households, either individually or in partnership with others, in which the owners, or other members of their households, may work without receiving any wage or salary.

5.34 **D.4 Property Income** It is the income receivable by the owner of a financial asset or a tangible non-produced asset in return for providing funds to, or putting the tangible non-produced asset at the disposal of, another institutional unit. It is defined as:

Interest  
Distributed income of corporations  
Dividends  
Withdrawals from income of quasi Corporations  
Reinvested earnings on direct foreign Investment  
Property income attributed to insurance Policy holders  
Rent.

5.35 **D.44 Property income attributed to insurance policyholders:**

- The technical reserves held by insurance enterprises consist of the actuarial reserves against outstanding risks in respect of life insurance policies, including reserves for with-profit policies which add to the value on maturity of with-profit endowments or similar policies, prepayments of premiums and reserves against outstanding claims.
- Although held and managed by insurance enterprises, the technical reserves are held in trust for the benefit of policyholders, or beneficiaries in the case of reserves against outstanding claims. The reserves are, therefore, considered to be assets of the policyholders or beneficiaries and liabilities of the insurance enterprises. In the financial accounts, the claims of holders of both life and non-life insurance policies over the insurance enterprises are described as the net equity of households on life insurance reserves

and on pension funds and prepayments of insurance premiums and reserves for outstanding claims.

- As the technical reserves are assets of the insurance policyholders, the investment income receivable by insurance enterprises are shown in the accounts as being paid by the insurance enterprises to the policyholders. The income payable by insurance enterprises

to policyholders in this way is described as property income attributed to insurance policyholders. However, this income is retained by the insurance enterprises in practice. It is therefore treated as being paid back to the insurance enterprises in the form of premium supplements that are additional to actual premiums payable under the terms of the insurance policies.

### Appendix 5.1

**Table-1: Production Account**

Uses	Resources
P.2: Intermediate consumption B. lg: Value added, gross K.1: Consumption of fixed capital B.1n: Value added net	P.1: Output P.11: Market output P.12: Output for own final Use

**Table 2: Generation of income Account (Account II.1.1)**

Uses	Resources
D.1: Compensation of employees D.11: Wages & Salary D.12: Employer's Social Contributions D.2: Taxes on production & imports D.3: Subsidies on production(-) B.2n: Operating surplus/mixed income	B.1n: Value added, net

**Table 3: Allocation of Primary Income Account (Account II.1.2)**

Uses	Resources
D.4: Property income D.41: Interest D.42: Dividends D.44: Property income attributed to insurance policy holders D.45: Rent/Royalty B.5n: Balance of Primary Income, net/National Income(for total economy)	B.2n: Operating surplus D.4: Property income D.41: Interest D.42: Dividends D.44: Property income attributed to insurance policy holders D.45: Rent/Royalty

**Table 4: Secondary Distribution of income Account (Account II.2)**

Uses	Resources
D.5: Current taxes on income and wealth D.61: Social contribution D.62: Social benefit other than social transfers in kind D.7: Other current transfers B.6n: Disposable income, net	B.5n: Balance of primary income, net D.5: Current taxes on income and wealth D.61: Social contribution D.62: Social benefit other than social transfers in kind D.7: Other current transfers

**Table 5: Redistribution of income in kind account (Account II.3)**

Uses	Resources
D.63: Social transfers in kind	D.63: Social transfers in kind
B.7: Adjusted Disposable income	B.6: Disposable income

**Table 6: Use of disposable income account (ACCOUNT II.4.1)**

Uses	Resources
P.3 Final Consumption Expenditure	B.6: Disposable income
D.8: Adjustment for the change in net equity of house holds on pension funds	D.8: Adjustment for the change in net equity of house holds on pension funds
B.8: Saving	

**Table 7: Use of adjusted disposable income account (ACCOUNT II.4.2)**

Uses	Resources
P.4 Actual Final Consumption	B.7: adjusted disposable income
D.8: Adjustment for the change in net equity of house holds on pension funds	D.8: Adjustment for the change in net equity of house holds on pension funds
B.8: Saving	

**Table 8: Capital Account(Account III.1)**

Change in assets	Change in liabilities and net worth
P.51: Gross fixed capital formation	B.8.n: Saving net
K.1: Consumption of fixed capital	D.9: Capital transfer receivable(+)
P.52: Change in Inventories	D.9: Capital transfer payable(-)
P.53: Acquisition less disposable of valuables	D10.1: Change in net worth due to saving and capital transfer
K.2: Acquisition less disposable of non-produced non-financial assets	
B.9: Net lending(+)/net borrowing(-)	

**Table 9: Financial Account (Account III.2)**

Change in assets	Change in liabilities and net worth
F: Net acquisition of financial assets	B.9: Net lending(+)/net borrowing(-)
F.1: Monetary gold and SDR's	F: Net incurrence of liabilities
F.2: Currency and deposits	F.2: Currency and deposits
F.3: Security other than shares	F.3: Security other than shares
F.4: Loans	F.4: Loans
F.5: Share and other equity	F.5: Shares and other equity
F.6: Insurance technical reserve	F.6: Insurance technical reserve
F.7: Other account receivable	F.7: Other account payable

**Table 10: Other Changes in volume and Assets Account (Account III.3.1)**

Change in assets	Change in liabilities and net worth
<p><b>AN: Non-financial assets</b></p> <p>AN.1: <i>Produced Assets</i></p> <p>K.4: Economic Appearance of produced Assets</p> <p>K.7: Catastrophic Losses</p> <p>K.8: Uncompensated seizures</p> <p>K.9: Other volume changes in non-financial assets n. e. c</p> <p>K.12: Changes in classifications and structure</p> <p>AN.2: <i>Non-produced Assets</i></p> <p>K.3: Economic Appearance of non-produced Assets</p> <p>K.5: Natural growth of non-cultivated biological resources</p> <p>K.6: Economic disappearance of non-produced Assets</p> <p>K.7: Catastrophic Losses</p> <p>K.8: Uncompensated seizures</p> <p>K.9: Other volume changes in non-financial assets n. e. c</p> <p>K.12: Changes in classifications and structure</p> <p><b>AF: Financial Assets</b></p> <p>K.7: Catastrophic Losses</p> <p>K.8: Uncompensated seizures</p> <p>K.10: Other volume changes in financial assets and liabilities n. e. c</p> <p>K.12: Changes in classifications and structure</p>	<p><b>AF: Liabilities</b></p> <p>K.7: Catastrophic Losses</p> <p>K.8: Uncompensated seizures</p> <p>K.10: Other volume changes in financial assets and liabilities n. e. c</p> <p>K.12: Changes in classifications and structure</p> <p>B.10.2 <i>Changes in net worth due to other changes in volume of assets</i></p>

**Table 11: Revaluation Account (Account III.3.2)**

Change in assets	Change in liabilities and net worth
K.11: Nominal holding gains (+)/ losses(-)	K.11: Nominal holding gains (-)/losses(+)
AN: Non-financial assets	AF: Liabilities
AN.1: Produced Assets	B.10.3 <i>Changes in net worth due to</i>
AN.2: Non-produced Assets	<i>Nominal holding gains/losses</i>
AF: Financial Assets	

**Table 12: Balance Sheets (Account IV)**

<b>Assets</b>	<b>Liabilities and net worth</b>
<b>IV.1: Opening balance sheet</b>	
AN: Non-financial assets AN.1: Produced Assets AN.2: Non-produced Assets AF: Financial Assets	AF: Liabilities  B. 90: <i>Net worth</i>
<b>IV.2: Changes in balance sheet</b>	
<i>Total Changes in assets</i>	<i>Total changes in liabilities</i>
AN: Non-financial assets AN.1: Produced Assets AN.2: Non-produced Assets AF: Financial Assets	AF: Liabilities  B. 10: <i>Changes in Net worth, Total</i> B. 10.1: <i>Changes in net worth due to saving and capital transfers</i> B. 10.2: <i>Changes in net worth due to other changes in volume of assets</i>  B. 10.3: <i>Changes in net worth due to nominal holding gains/ losses</i>
<b>IV.3: Closing balance sheet</b>	
<b>Assets</b>	<b>Liabilities and net worth</b>
AN: Non-financial assets AN.1: Produced Assets AN.2: Non-produced Assets AF: Financial Assets	AF: Liabilities  B. 90: <i>Net worth</i>

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## REGIONAL ACCOUNTS

### Introduction

- 6.0.1 The system of regional accounts helps in providing an integrated database for compilation of income and other macroeconomic aggregates for taking important decisions at a level smaller than the country. It helps us to understand in nutshell the innumerable transactions taking place in the regional economy right from the production of goods and services to their final disposal. Though, a region can be northern, southern, part of the country, or it can be a state or province or it can be a district or even tehsil or panchayat, but for the development of regional accounts in India, regions have been considered as co-terminus with the geographical boundaries of the states and sub-regions as districts. Attempts were made, before independence and after independence, by research workers and research organizations to compile the regional level estimates of income by the method of allocation or by direct estimation on the basis of the data collected at the local level or by a combination of the two different approaches depending upon the availability of data.
- 6.0.2 In India, the work on compilation of *official* estimates of state income started as early as in 1948-49 in the states of Bihar, Uttar Pradesh and West Bengal but the first estimates on state income for the year 1948-49 were published for the erstwhile Bombay State in January 1949 followed by the estimates of Uttar Pradesh and Bihar. Uttar Pradesh was the first state to publish its state income estimates both at current and constant prices as well as with rural and urban break-up. On the recommendations of National Income Committee (NIC) in early fifties, a few other states including Madhya Pradesh, Assam and West Bengal also came out with their first estimates on state income. Method of compilation of these estimates has been more or less uniform like, value added (Production Approach) for commodity producing sectors and Income Approach for other sectors. Following these initiatives, at the Fifth Joint Conference of Central and State statisticians held at Jaipur in 1956, it was recommended that all states should make efforts to prepare their state income estimates, broadly following the method recommended by the NIC for the preparation of such estimates at all-India level. At the same conference, it was also suggested that at the first instance, states might prepare estimates only for commodity producing sectors and publish them accordingly along with the concepts, definition and methodology. Then, at the Preliminary Conference on Research in National Income in 1957, it was recommended to constitute a Working Group consisting of the workers engaged in the state income estimation from central and state statistical organizations and other agencies to review the work done on the subject in different states, and establish standard concepts, definitions and method of estimation of state income, keeping in view the nature of statistics/data available in each state. The Working Group, so established by the Central Statistical Organisation (CSO), studied the estimates prepared by different states at that time, and gave recommendations for improvement in the procedure and to locate new sources of data. It recommended 'farm management studies' for improvement of the data on input structure of the agriculture sector and collection of basic data in sectors like unregistered manufacturing, construction, trade, transport by means other than railways and other services. Working Group also suggested standard methodologies for estimation of state income for nearly all the sectors of the economy. Most of the states followed the standard methodologies for the six commodity producing sectors, viz. agriculture, animal husbandry, forestry, fishing, mining & quarrying and manufacturing (registered). However, due to unsatisfactory data position in many states, only a few states prepared estimates for other sectors following the standard methodology. The issue of regional accounting and preparation of regional macro-economic aggregates was also discussed in depth at the Mahabaleshwar seminar of Indian Association for Research in National Income & Wealth (IARNIW) held in 1971.
- 6.0.3 On the recommendations of the First & Second Conference of Central and State Statistical Organizations (COCSSO) held at Bhopal in September 1971 and in New Delhi in February 1975, two Working Groups on Regional Level Statistics were constituted who while submitting their reports recommended development of a strong infrastructure for collection of statistics at District and lower level statistical organizations.

## CHAPTER 6

- 6.0.4 As a follow-up of the recommendations of the COCSSO, the Government of India in May 1972 set up a Committee on Regional Accounts (RAC) with the following terms of reference:
- (i) to consider and advise on the levels (state, district or other regions) at which accounts should be prepared;
  - (ii) to devise a system of regional accounts and standard supporting and supplementary tables for adoption by all the states;
  - (iii) to suggest measures for building up regional accounts in the country taking into consideration the availability of data and requirements of Central and State Governments; and
  - (iv) to examine the concepts, definitions, and classifications for preparation of regional accounts and to lay down guidelines.
- 6.0.5 The Committee submitted its First Report to the Government in November 1974, and the Second/Final Report in September 1976. In its report, the Committee recommended a System of Regional Accounts (SRA), which consists of consolidated accounts for the region, accounts for the household sector and accounts relating to the public sector. It also described the concepts, coverage and method of estimation of various aggregates appearing in the Accounts and Standard Tables. Further the report dealt with the major gaps in the data system and made recommendations for collection of essential statistics required for satisfactory measurement of regional income and related aggregates and construction of the recommended system of Regional Accounts. The Committee felt that an accounting frame-work for the states could be recommended but there was little point in recommending one for regions smaller than states, like district.
- 6.0.6 The committee in its recommendations had also suggested compilation of state level input-output tables, district level estimates for, at least, commodity producing sectors and comparable estimates based on purchasing power parity of the rupee in different states on the lines of the United Nations project on International Comparison of National Accounts aggregates to remove the price differentials in different regional estimates.
- 6.0.7 The RAC in its First Report recommended a set of Standard Tables for recording and presenting information for the states and possibly for other geographical regions/areas smaller than the country. During its first report, the Committee did not present a set of regional accounts primarily because the regional accounts raised some conceptual as well as data problems which were different from those connected with the preparation of accounts at the national level and had to be resolved prior to the preparation of regional accounts. The main problem, which the Committee identified during its earlier deliberations, were in respect of savings, change in stocks and external trade and finances. The Committee had felt that without the availability of relevant data and the clarification of the conceptual problems involved it would be futile to recommend a system of accounts at the regional level.
- 6.0.8 The standard tables recommended by the Committee in its first report cover all aspects of economic transactions other than those mentioned above. The Committee had recommended the preparation of these tables at the regional level with the hope that this exercise would generate sufficient interest at the regional level in the form of collection of data and preparation of fresh estimates and the time would then be ripe for considering the system of regional accounts, which could be recommended for adoption. In its first report, the committee also published the results of an exercise undertaken by the State/UT Directorates of Economics & Statistics (DESSs), Maharashtra for filling up the recommended tables with data pertaining to Maharashtra. Later, the Committee recommended a set of regional accounts in its final report submitted to the Government of India in September 1976.
- 6.0.9 The SRA recommendations in the final report of the Committee consisted of a set of three consolidated accounts for each region relating to (i) production, (ii) income and outlay, and (iii) capital finance; two accounts giving the transactions of the households (defined to include un-incorporated enterprises) and the population in the form of income, outlay and expenditure; and the public sector accounts separately for administrative departments, departmental enterprises and non-departmental enterprises. No system of accounts is complete without the supporting tables which give further details on the transactions covered in the accounts.
- 6.0.10 Summary of recommendations of the Committee on Regional Accounts have been reproduced in Appendix-6.1.

## Section 1

### State income

6.1.1 With the progress of time, the work on estimation of state income has improved and expanded in different states. At present, practically all the States and Union Territories (UTs) of India compute state income estimates and are preparing district level estimates as well. These estimates are prepared by the State Income Units of the respective State Directorates of Economics and Statistics (DESSs). The Central Statistical Organisation assists the States in the preparation of these estimates by rendering advice on conceptual and methodological problems.

#### Concepts and methodology

6.1.2 State Income or Net State Domestic Product (NSDP) is a measure in monetary terms of the volume of all goods and services produced in the state within a given period of time (generally a year) accounted without duplication. The estimates of NSDP are net of Consumption of Fixed capital (CFC) and are obtained by subtracting the CFC from Gross State Domestic Product (GSDP). The estimates of CFC are compiled at the national level using the estimates of asset wise Net Fixed Capital Stock (NFCs) and average life of asset, following the procedure of perpetual inventory method (PIM). The national level estimates of CFC are allocated to states using appropriate indicators. For example, in the case of agriculture sector, the indicators of (i) public part, (ii) plantation and (iii) private part are the (a) capital assets and capital outlay of irrigation departments, (b) area under crops and (c) fixed assets of cultivator households (from AIDIS), respectively. In the case of forestry and logging, fishing, mining & quarrying, and construction sectors, the indicators are the respective sectors' estimates of GVA. For electricity, gas & water supply sector, the indicator is the fixed assets, and for trade, transport by other means and other services, the indicators are the state-wise fixed assets of respective services, as available from NSS 57<sup>th</sup> Round survey. For the manufacturing (registered) and manufacturing (unregistered) sectors, the indicators are state-wise fixed assets data available from the ASI and NSS 56<sup>th</sup> Round survey, respectively.

6.1.3 Conceptually, the estimates of State Income can be prepared by adopting two approaches, namely, income originating and income accruing. In the income originating

approach, the measurement corresponds to income originating to the factors of production physically located within the geographical boundaries of the state and represents gross/net value of goods and services produced within the state. On the other hand, the income accruing approach relates to the income accruing to the normal residents of a state. Since this measures the income that become available to the residents of a state, it provides a better measure of welfare of the residents of the state. However, for compiling the State Domestic Product (SDP) estimates by income accruing approach one needs data on flows of factor incomes to/from the boundaries of state i.e. on inter-state flows as well as flows to/from abroad. Due to lack of availability of these data, presently, the estimates of SDP are compiled by the respective Directorates of Economics & Statistics (DES) in the States (state agencies responsible for the regional statistics), following the income originating approach. Thus the current concept of compiling the GSDP/NSDP is similar to that of compiling the GDP/NDP of the entire economy i.e., measuring the volume in monetary terms, the total value of goods and services produced within the geographical boundary of the state.

6.1.4 Per Capita State Income is obtained by dividing the NSDP (State Income) by mid-year projected population of the state and is in contrast to the Per Capita National Income which is obtained by dividing the Net national Product (NNP) by the mid-year population of the country. Thus compilation of Per Capita State Income is based on income originating approach whereas compilation of Per Capita National Income is based on income accruing approach.

6.1.5 The general methodology for compiling the estimates of state income is to first compile the estimates at disaggregated level for each economic activity and then aggregating them for the whole region/state. The estimates for commodity producing sectors like agriculture, forestry, fishing, mining & quarrying, manufacturing, etc. are prepared using the production approach i.e. measuring the value of output and deducting there from the cost of material inputs used in the process of production. In the services sectors (non-public segment) like trade, transport, hotels & restaurants etc., the estimates are prepared by income approach,

specifically, by multiplying the value added per worker by the number of workers, for the benchmark estimates and extrapolating these benchmark estimates with suitable indicators for the annual estimates. The information on value added per worker is obtained from the relevant Enterprise Surveys conducted for the purpose. The estimates of workforce are obtained using the results of large-scale sample surveys on employment & unemployment conducted by National Sample Survey Organisation (NSSO) and decennial population census carried out in the country by the Office of Registrar General of India (RGI) and Census Commissioner.

- 6.1.6 In the preparation of state income estimates, certain activities cut across state boundaries, and thus their economic contribution cannot be assigned to any one state directly. Such activities are Railways, Communications, Banking & Insurance and Central Government Administration, and are known as the *Supra-regional sectors* of the economy. The estimates for these supra regional activities are compiled for the economy as a whole and allocated to the states on the basis of relevant indicators. In the case of railways, the indicators are based on the track length and passenger/goods carried where as in other supra regional sectors it is the number of employees posted/allocated in the state. Certain activities like, defence, Para military, border security force, high seas drilling etc. are still kept outside the purview of the state income estimation. The details of estimation of GVA for these sectors are described in Section 3 of the Chapter.
- 6.1.7 The following paragraphs give in brief the methodology for preparation of state-wise estimates from these sectors, although there could be deviations in methodology in some states, owing to availability of data.

#### **Agriculture and Allied activities**

- 6.1.8 The sector comprises agriculture proper, livestock and livestock products and operation of irrigation system. The economic activities included in agriculture proper are (i) growing of field crops, fruits, nuts, seeds and vegetables, (ii) management of tea, coffee and rubber plantations, (iii) agricultural and horticultural services on a fee or on contract basis such as harvesting, baling and thrashing, preparation of tobacco for marketing, pest control, spraying, pruning, picking and packing and (iv) ancillary activities of cultivators such as gur making, transportation of own produce to

primary markets, activities yielding rental income from farm buildings and farm machinery. Livestock and livestock products include breeding and rearing of animals and poultry besides private veterinary services, production of milk, slaughtering, preparation and dressing of meat, production of raw hides and skins, eggs, dung, raw wool, honey and silk worm cocoons etc. Operation of irrigation system comprises supply of water through various Government channels to the agricultural producers. Agriculture and livestock activities go together as it is not always feasible to segregate the various inputs like livestock feed, repairs and maintenance costs, CFC etc., into those used in agricultural and livestock production.

- 6.1.9 **Agriculture Output:** The estimates of GVA for this activity are compiled by the production method except for the operation of government irrigation system, for which the income method is followed. As mentioned earlier, the value of output is estimated for agriculture and livestock separately but the value-added estimates are prepared for the combined activity. The value of output of each crop is obtained as the product of area, yield & price or output & price as the case may be.
- 6.1.10 The estimates of area and production of principal crops are provided by the State Directorates of Agriculture / State Directorates of Economics and Statistics (DES), depending upon whichever agency is declared as the State Agricultural Statistics Authority (SASA). In respect of horticultural crops, the information on area and production is taken from the State Directorates of Horticulture/SASAs/National Horticulture Board (NHB), depending upon the data availability. In the case of sugarcane, output excluding the quantity converted into gur by the cane growers, is estimated and output from gur is evaluated separately.
- 6.1.11 Valuation of crop production is done by multiplying the quantities of production by the corresponding producer's prices. The source of data used in the preparation of the value of output is as under:
- (i) The estimates of outturn for principal crops are based on the results of the crop estimation surveys conducted annually by the State Government Agencies. These are compiled and published annually by the Directorate of Economics and Statistics, Ministry of Agriculture (DESAG) in their annual publication captioned 'Estimation of Area

- and Production of Principal crops in India'. The fully revised estimates of area and production provided by the state have been taken instead of the final estimates provided by the DESAg in new series 2004-05. For evaluation purposes of these crops, the producers' prices correspond to average wholesale prices ruling in the primary markets during the peak marketing periods and are compiled by the State Directorates of Economics and Statistics (DESS).
- (ii) In respect of coffee, rubber and opium, the statistics of production and prices are available from the Coffee Board, Rubber Board and Central Bureau of Narcotics, respectively. In case of tea, the estimates of output available from Tea Board relate to production of processed tea, instead of raw tea leaves. The production of tea leaves has been estimated as 4.44 times the processed tea, the source of which is the Tea Board.
  - (iii) In respect of unspecified and miscellaneous crop and crop groups viz. (a) other cereals, (b) other oil seeds, (c) other sugars, (d) other fibres, (e) dyes and tanning material, (f) other drugs and narcotics, (g) other condiments and spices, (h) other fruits and vegetables and (i) miscellaneous crops (fodder, grass, misc. food and non food crops), the out turn estimates are not directly available for all these crops. To the extent possible, data on related crops are utilized. The value of output in respect of these crops or crop groups is estimated by utilizing the area estimates under these categories or crop groups as available from the annual publication, 'Land Utilization Statistics (LUS)' of DESAg. By applying an appropriate value of yield per hectare to the total estimated area under each of these groups/crop groups, the estimates of value of output are obtained.
  - (iv) For estimating the value of by-products, viz. straw and stalks of various crops, annual data on value of yield per hectare as available from the cost of cultivation studies coordinated by the Ministry of Agriculture, are used.
  - (v) In respect of fruits and vegetables crops and floriculture, a complete database, state-wise, is published annually in the publication "Indian Horticulture Data Base" of National Horticulture Board (NHB), Ministry of Agriculture.
  - (vi) For estimating the production of crops in foreyard/backyard of houses, information available in the report "Operational Land Holdings in India, 1991-92, Salient Features" March 1997 and Livestock Holdings, 1991-92, NSS (48<sup>th</sup> Round) has been used to estimate the total area under the kitchen garden. Using the results of this survey, it is estimated that the total area under kitchen garden works out to be 0.21 per cent of the total rural area operated at all-India level. The same norm of 0.21 per cent of the rural area operated is used in the states. For deriving the value of output of crops in foreyard/backyard, the YPH of fruits and vegetables crops is used.
- 6.1.12 The Livestock sector for the purpose of estimation of value of output has been divided into 7 broad groups. The groups are:
- i) Milk
  - ii) Meat
  - iii) Eggs
  - iv) Wool
  - v) Dung
  - vi) Silk Worm cocoons and Honey
  - vii) Increment in stock
- 6.1.13 Valuation of Livestock production is done by multiplying the quantities of production by the corresponding producer's prices. The source of data used in the preparation of the value of output is as under: -
- i) The State Animal Husbandry Departments compile the estimates of milk, eggs and wool based on the results of Integrated Sample Surveys (ISS) and the 5-yearly livestock censuses. These production estimates are used for estimating value of output from these products.
  - ii) Meat group comprises of Meat (Beef, mutton, pork including edible offals and glands and poultry meat), meat products (fats, heads, legs) and by-products comprising hides (cattle and buffalos hides), skins (goat & sheep skin) and other products (guts, blood, bones, horns, hoofs, tail stump, useless meat and oesophagus). The State Animal Husbandry Departments and State's Directorate of Economics and Statistics (DES) maintain these data.
  - iii) The estimates of other meat products and by-products are based on number of slaughtered animals and fallen animals wherever applicable and the corresponding yield rates. The estimates of poultry meat are prepared using the information on utilization of eggs and chicken survived. These data are collected through ISS in some of the states. Indian Agricultural Statistics Research Institute (IASRI) and some of



the State Animal Husbandry departments also conducted poultry surveys and collected these data. Poultry meat is estimated in terms of number of adult fowls & chickens killed.

- iv) The estimates of goat hair and pig bristles are prepared on the basis of information on yield per animal collected through the studies carried out by the CSO.
- v) The estimates of production of dung are prepared on the basis of information available through ISS. Dung is used as manure as well as fuel. The utilization rates of dung a) used as manure and b) used as fuel are based on past studies of the Ministry of Agriculture/ ISS.
- vi) The estimates of production of silkworm cocoons by types (viz. mulberry, tasar, ericot and muga) obtained from Central Silk Board and Khadi and Village Industries Commission (KVIC) respectively are the source.
- vii) The annual net increase in the population in each state is estimated respectively for each category of livestock on the basis of livestock population projections. The population is projected on the basis of inter censal population growth of animals.
- viii) The prices of livestock products are collected by State DESs.

6.1.14 The following is the sources and procedures followed by States for estimating the value of inputs in agriculture sector.

- (i) Seed: Seed rates are supplied to the states by the CSO based on the cost of cultivation studies (CCS) conducted by the Directorate of Economics & Statistics, Ministry of Agriculture, Government of India, through the Agricultural Universities. Average seed rate using the last five years (2002-2006) data of the Cost of Cultivation Studies (CCS) have been used. The seed have been kept constant for the new series.
- (ii) Fertilizer/Manure: The estimates of consumption of chemical fertilisers in different States are published by the Fertilizer Association of India (FAI). The estimates of organic manure, is the same as the output of dung manure included under the livestock output.
- (iii) Feed: It consists of Roughages and Concentrates. The entire value of cane trash, fodder and grass and 95 per cent of value of stalks and straw are

considered as value of Roughages. The estimates of concentrates are based on the results of CCS studies.

- (iv) Irrigation Charges: The information on receipts from water rates which include payments made by the agricultural producers to the government in lieu of water supplied to them from Government owned canals and other means of irrigation is compiled from the State Government budget documents. Similar information in respect of irrigation system from Government tube wells operated by District Panchayats and State Water Resources Development Corporation Ltd. is also used while estimating the value of irrigation charges.
- (v) Market charges: It comprises of both (i) Agriculture and (ii) Livestock. (i) The estimates of market charges paid by agricultural producers for various commodities are prepared by the CSO and are made available to states. These are estimated using the data available from the survey on market margins on major crops, which is conducted by the DESAg, at the time of revising the base year of national accounts series. The rate of market charges to total value of output is derived from these studies and is applied on the value of output at State and Central level, each year till the rate is revised again at the time of next base year. The present rate used for market charges is 3.22 as against 2.358 used in 1999-2000 series. (ii) Market charges in respect of meat are estimated on the basis of MR on meat as prevailing in the base year. The charges per animal are Rs.25/- for cattle/ buffalo, Rs. 5/- for goat/sheep and Rs. 7/- for pig.
- (vi) Pesticides and insecticides: The Estimates of pesticides and insecticides have been revised using the data on quantity and prices of pesticides obtained from the Directorate of Plant Protection, Quarantine & Storage, under the Ministry of Agriculture, as against the earlier source of Crop Care Foundation of India / Pesticides Association of India.
- (vii) Electricity: Electricity supplied to agriculture sector is taken as input, information for which is available from the Annual Accounts of State Electricity Boards.



(viii) **Diesel Oil**: The estimates are prepared by the States based on consumption of diesel oil per engine and per tractor as collected through the Cost of Cultivation Studies. The data on number of diesel engines and tractors, at State level, is available from the Indian Livestock Census (ILC) and the State Transport Departments.

(ix) **Repairs and Maintenance**: The estimates are prepared by CSO using the results of 'All India Debt & Investment Surveys' conducted every 10 years, and supplied to states.

(x) **FISIM**: The imputed bank charges or FISIM for the agriculture sector are taken in proportion to the GVA of this sector.

### Forestry and Logging

6.1.15 The economic activities under this 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 centers 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) & fuel wood (firewood and charcoal wood) and (b) minor products comprising a large number of heterogeneous items such as bamboo, fodder, lac, sandalwood, honey, resin, gum, tendu leaves etc.

6.1.16 Estimates of GVA are prepared following the production method. Gross value of output is estimated separately for (a) Industrial wood, (b) Fuel wood and (c) minor forest products.

6.1.17 Estimates of industrial wood from recorded forests are based on data received from the office of the Principal Chief Conservator of Forest (PCCF) in the state. For estimating the value of output of industrial wood, prices as available from forest sale depots and supplied by PCCF are used. Since the value of unrecorded production (i.e. authorized (but unrecorded) removals of timber from reserved/protected forests) is not available, 10% of the value of recorded production is taken as the value of unrecorded production. The data on output of industrial wood from "trees outside forests" (i.e. private owned forests and nontraditional forest areas like

village commons, field ridges, canal sides, road sides, fruit trees no longer productive etc.) has been provided by Forest Survey of India (FSI). Prices for the same have been derived from industrial wood prices of SFDs.

6.1.18 The value of fuel wood is estimated from the consumption side using the results of NSSO consumption expenditure surveys during 55<sup>th</sup> (1999-2000) and 61<sup>st</sup> (2004-2005) rounds. The estimates so derived are reduced by the actual value of agriculture by-product, namely, cotton sticks, arhar sticks, jute sticks and bagasse, which is taken into account in the agriculture sector (to avoid double counting) since these by-products are also consumed as fuel by the households. These estimates are then inflated by 6 per cent (estimated from input-output tables) to account for consumption of fuel wood by the industries and on funerals. Estimates of minor forest products are based on data directly available from the office of the PCCF. Fodder from Forest sources has been included in the National Accounts Compilation. This item has been included in consultation with Ministry of Environment and Forests as part of Non-Timber Forest Products. The estimates of fodder are based on the study done by Forest Survey of India (FSI).

6.1.19 15.6 per cent of the value of output is taken as inputs.

### Fishing

6.1.20 The activities covered in the fishing are (i) commercial fishing in (a) ocean, coastal and offshore waters and (b) inland waters, that include catching, tackling and gathering of fish from rivers, irrigation and other canals, lakes, tanks, fields inundated tracts etc., (ii) subsistence fishing in inland waters and artificial ponds, (iii) gathering of sea weeds, sea shells, pearls, sponges and other ocean and coastal water products and (iv) fish curing viz., salting and sun-drying of fish.

6.1.21 Estimates of GVA of this sector are prepared by following the production method. Gross value of output is estimated from output and prices of inland, marine fish (including deep sea fishing) and prawns/shrimps (sold in raw form), sun dried fish, salted fish, frozen and smoking fish as furnished by the State Commissionerate/Directorate of Fisheries. Estimates of subsistence fishing are also included in the GSDP of the state. The value of inputs and operational costs is taken as 22.5%, 10%, 22.5%, 1% and 1% of the value of output for the items, marine fish,

inland fish, prawns, subsistence fish and salted fish respectively.

### **Mining and Quarrying**

6.1.22 The economic activities covered in this sector comprise extraction of minerals which occur in nature as solids, liquids or gases; underground and surface mines, quarries and oil wells, with all supplementary operations for dressing and beneficiating ores and other crude minerals such as crushing, screening, washing, cleaning, grading, milling, floatation, melting, pelletizing, topping and other preparations needed to render the material marketable. All these activities are covered to the extent they are carried on at the mine site or up to the first point of sale. Salt production by solar evaporation of sea water is considered under mining sector. Large expenditure on preparing mining sites, prospecting and boring activities are not included here as they are included under the 'construction' sector.

6.1.23 Estimates of GVA in this sector are compiled following the production method by calculating the value of output of each mineral in the state and deducting there from the value of corresponding inputs. State wise and mineral wise data on output (production & prices) of all minerals (except minor minerals, crude petroleum & natural gas) are obtained from the publication of Indian Bureau of Mines (IBM), Nagpur. Production in respect of minor minerals is collected from State Directorate of Geology and Mining. The production data in respect of crude petroleum & natural gas, as obtained from the Ministry of Petroleum and Natural Gas, are supplied by the CSO to the states. The deductible rates (i.e. inputs) in respect of all minerals, except fuel minerals are obtained from IBM. Input rates for coal, are obtained by analyzing the reports of Coal India Ltd. and its subsidiaries. These for lignite and petroleum, are obtained from Neyveli Lignite Corporation and Oil and Natural Gas Corporation (ONGC), and supplied by the CSO to the States.

### **Manufacturing (registered)**

6.1.24 A 'manufacturing process', in general, is defined as any process for making, altering, repairing, finishing, packing, oiling, washing, cleaning, breaking up, demolishing or otherwise treating or adapting any article or substance with a view to its use, sale, transport, delivery or disposal. Railway workshops are included under manufacturing and not under railways. Conversion of sugarcane into indigenous gur, slaughtering

of animals and dressing of meat carried out by farmers and individuals are excluded from the scope of manufacturing activities, as these are included under agriculture activities. Production in defence establishments is included under manufacturing.

6.1.25 For the purposes of estimation of GSDP, the entire manufacturing activities are classified into two broad segments, namely, manufacturing – registered and unregistered. The registered manufacturing segment covers all manufacturing factories registered under sections 2m(i) and 2m(ii) of the Indian Factories Act, 1948 which respectively refer to the factories employing 10 or more workers and using power or those employing 20 or more workers but not using power on any day of the preceding 12 months and bidi and cigar establishments registered under Bidi and Cigar Workers (Condition of Employment) Act, 1966 and employing 10 or more workers using power or 20 or more workers and not using power.

6.1.26 Estimates of GSDP for registered manufacturing are prepared by following the production method. The industry-wise estimates are prepared on the basis of results of Annual Survey of Industries.

6.1.27 For the years for which ASI results are not available, the growth observed in the Index of Industrial Production (IIP) of either the State IIP or the all India IIP of the CSO, is used at compilation category level. These estimates, as prepared by State, undergo changes as soon as ASI results become available.

### **Manufacturing (unregistered)**

6.1.28 The unregistered manufacturing segment - being complementary to registered manufacturing segment - covers all those units which are not covered under the registered manufacturing segment. In other words, the unregistered manufacturing segment covers all the manufacturing, processing, repair & maintenance services units employing less than 10 workers and using power or less than 20 workers and not using power. It, by implication, also covers own account enterprises (OAE) engaged in the manufacturing activities.

6.1.29 Estimates for manufacturing (unregistered) are first compiled for the base year and are extrapolated to later years using relevant indicators. The estimates of GSDP from manufacturing (Unregistered) for the base year are compiled by multiplying the

workforce engaged in manufacturing unregistered with the value added per worker (VAPW) (compiled at compilation category level, separately for rural and urban areas). The base year estimates are also compiled separately for the units belonging to the Micro, Small and Medium Enterprises (MSME) segment (other than those covered under the ASI), and other non-MSME segment of unregistered manufacturing sector. The estimates for the units belonging to MSME sector for the 2004-05 base year series are based on the state wise results of Fourth All-India Census on MSME, 2006-07 published by Development Commissioner, Micro, Small and Medium Enterprises (MSME) and the value added ratios of unorganized manufacturing sector estimated from NSS 62nd (2005-06) survey. The estimates for the non-MSME segment have been compiled, at compilation category level using the value added per worker estimates from NSS 62nd Round results and the corresponding estimates of workforce from the results of EUS, NSS 61<sup>st</sup> (2004-05) Round and Population Census 2001. Suitable adjustments are made to bring the estimates to the price levels of 2004-05, in respect of data pertaining to the years other than 2004-05. Estimates for subsequent years are first worked out at constant prices and the constant price estimates are then inflated by relevant price indices to obtain the current price estimates for the corresponding years. The estimates at constant prices for the subsequent years are compiled by moving forward the industry wise estimates for the year 2004-05 with the help of either all-India IIP or the State level IIP, if available, at the compilation category level.

### **Electricity, Gas and Water Supply**

- 6.1.30 The economic activities relating to generation, transmission and distribution of electric energy are covered under the electricity sub-sector, the manufacture of gas in gas works including gobar gas and distribution through mains to household, industrial, commercial and other users are covered under the gas sub-sector and the activities associated with collection, purification and distribution of water excluding the operation of irrigation system are covered under water supply sub-sector. The production of LPG has been included under manufacturing and only supply of gas through pipelines, where it cannot be alienated from the activity of its manufacturing, is included in the gas sub-sector.

- 6.1.31 **Electricity:** The GVA estimates for this sub-sector are prepared using the income method. The estimates are based on the analysis of annual accounts of State Electricity Boards and other electricity undertakings located in the State. The value added estimates of central undertakings, viz. National Thermal Power Corporation, National Hydro Power Corporation and Power Grid Corporation made available by the CSO, are also added.

- 6.1.32 **Gas:** The Gas sub-sector comprises Gobar Gas and other Gas. The estimates of Gobar Gas are compiled using data available from the Ministry of New and Renewable Energy Sources and Khadi & Village Industries Commission (KVIC). In the absence of input structure, the gross value of output of Gobar Gas is treated as value added, on the assumption that the value of Gobar used in manufacturing of Gas also results in equivalent value of by products in the form of indigenous fertilizers (manure). The estimates of GVA in respect of Gobar Gas are prepared on the basis of value of production per plant (estimated on the basis of KVIC data) multiplied by total number of plants installed up to the current year, as furnished by Ministry of New and Renewable Energy Sources. The estimates of GVA in respect of 'other gas' compiled by the CSO, using the data supplied by Gas Authority of India Limited (GAIL), Indraprastha Gas Ltd (IGL), Gujarat Petronet, and Maharashtra Natural Gas (MNG), are also added.

- 6.1.33 **Water Supply:** The estimates of SDP for water supply are compiled for the public and private sectors separately following the income method. The estimates of public sector in respect of State Government are compiled from the Budget documents where as those for Local Bodies are based on the information obtained from District Panchayats, Municipalities, Corporations and State Water Supply & Sewerage Boards. The estimates of private sector are prepared separately for rural and urban areas using NSS workforce and average compensation of municipal workers engaged in Water Supply services. The average compensation of all the 5 type of municipalities i.e. with population (i) 5 lakhs and above, (ii) 1 lakh up to 5 lakhs, (iii) 75000 to 1 lakh, (iv) 50000 to 75000, and (v) below 50000, are used for urban areas whereas the average compensation of the smallest municipality (below 50000) are used for rural areas. The smallest slab of municipalities is taken as the proxy for rural segment on the assumption that these municipalities are close to the

rural areas. The private sector workforce is obtained after subtracting the public sector workforce from the corresponding total workforce of the water supply services. This exercise is done for the base year only. However, for subsequent years the workforce is projected using the growth observed in employment of municipal workers of water supply.

### Construction

- 6.1.34 The construction activity as per the International Standard Industrial Classification (ISIC) adopted in the System of National Accounts (SNA) consists of contract construction by general builders, civil engineering contractors and special trade contractors. Also included is own account construction carried out by independent units of enterprises or other organizations, which are not part of the construction industry proper. But, owing to the problems of availability of data separately for units carrying out construction work, construction industry, for the purpose of estimating domestic product, is taken to include the whole of construction activity (contractual as well as own account) including construction work connected with planting and cultivating of new forests, plantations and orchards. Due to lack of data, demolition activities have, however, been excluded.
- 6.1.35 The estimates of value added from construction activity are prepared independently for the following categories by adopting expenditure method.
- (i) Public sector (inclusive of supra-regional sector): covering (1) state government administrative departments, local bodies, all state departmental enterprises both of states and local bodies; (2) central government administrative departments and departmental enterprises and repair and maintenance expenditure in respect of Defence Services; (3) Banking and Insurance and (4) non-departmental commercial undertakings excluding air and water transport.
- (ii) Household Sector: covering (1) Rural residential buildings, (2) Urban residential buildings, (3) Rural non-residential buildings, (4) Urban non-residential buildings, (5) Rural and urban other construction works in the household sector (6) plantation and (7) other household which comprises remaining portion of households as derived by the commodity flow approach at All India Level.
- (iii) Residual: comprising of construction undertaken by private corporate sector, other private un-incorporated enterprises and private non-profit institutions, besides part of public sector namely, air and water transport, public non-profit institutions, govt. kutcha construction, autonomous bodies, repair and maintenance expenditure in respect of Defence Services and the entire repair and maintenance expenditure in respect of non-departmental commercial undertakings.
- 6.1.36 The data on expenditure on new construction and repair and maintenance of the state government administrative departments and their departmental enterprises are directly available from the analysis of the relevant budget documents. In case of local bodies, the data are directly collected from the local bodies in the state whereas the data on capital expenditure for Non Departmental Commercial Undertakings (NDCUs) is allocated across States on the basis of the Building Outlay in different states.
- 6.1.37 The data on expenditure on new construction and repair and maintenance of the Central Government Administrative Departments (except of Defence Services), local bodies and their departmental enterprises except railways and communication, as available from the analysis of the central govt. budget documents, are prepared by the CSO and made available to the States. Also, for railways, communication and banking and insurance, the statewise estimates are prepared based on the statewise expenditure on construction activity in each of the industry.
- 6.1.38 The state-wise estimates of expenditure on new construction and repairs and maintenance in rural and urban residential buildings are available in the latest All India Debt & Investment Survey (AIDIS-2002-03), brought out by NSSO. These estimates of expenditure on new construction and repairs & maintenance as available from this survey results are moved to later years with the help of geometric growth rate of rural and urban census dwellings based on 1991 and 2001 Population Census data. Price changes are superimposed with the help of the index of cost of construction of rural/urban buildings to obtain the estimates at current prices.
- 6.1.39 The state-wise estimates of new construction and repairs and maintenance in respect of rural non-residential buildings, urban non residential buildings and other construction



works for benchmark year are also available from the aforesaid results of AIDIS 2002-03. The estimates of base year are moved to later years with the help of weighted index of value of output from 'agriculture excluding livestock' and 'registered manufacturing'.

- 6.1.40 The state-wise estimates of gross value of output from residual category are prepared using production/consumption of the different commodities used in construction.

### **Trade, Hotels and Restaurants**

- 6.1.41 The Trade sector includes wholesale and retail trade in all commodities whether produced domestically, imported or exported. It covers activities of purchase and selling agents, brokers and auctioneers. Wholesale trade covers units, which resell without transformation, new and used goods generally to the retailer and industries, commercial establishments, institutional and professional users or to other wholesalers. Retail trade covers units, which mainly resell, without transformation, new and used goods for personal or household consumption. This sector also comprises of maintenance and repair of motor vehicles and repair of personal household goods. As per NIC 2004 classification, this sector consists of following five categories:

- i) Maintenance and repair of motor vehicles (502+50404);
- ii) Sale of motor vehicles (50-502-50404);
- iii) Whole sale trade except of motor vehicles + Auctioning activities (51+74991);
- iv) Repair of personal household goods (526); and
- v) Retail trade (except motor vehicles) (52-526).

- 6.1.42 The estimates of GSDP for this segment of activities are prepared separately for public, private organized and private un-organized parts.

*(i) Public Sector:* The state-wise estimates of GSDP for public part are prepared by the CSO on the basis of analysis of the budget documents of central/state/local governments and annual accounts of NDCUs, by allocating the national estimates to the States using suitable indicators.

*(ii) Private organized segment:* Estimates for private organized part are first prepared at national level using RBI studies of company finances of a sample of companies and information available from NABARD on cooperative societies. Then,

the national level GVA estimates are allocated among states/UTs in proportion to respective labour input obtained from Employment Unemployment Survey of NSSO.

*(iii) Private un-organized segment:* The base year estimates are prepared as a product of VAPW and labour input. The base year GVA is usually estimated as a product of estimates of labour input and value added per worker. Since Trade was not covered in the Enterprise survey 2006-07, the base year estimate was retained as that of the previous series. In the case of hotels and restaurants, the estimates of VAPW and labour input as obtained from the NSS 63rd Round survey and NSS 61st Round survey results are used respectively. For subsequent years, the base year estimates of trade, and hotels & restaurants are moved with the help of Index of State Gross Trading Income (GTI) of commodity producing sectors. The GTI is computed using the marketable surplus of the commodities produced and the trade margins in respect of these commodities.

### **Transport, Storage, Communication**

- 6.1.43 The economic activities covered in this sector are (i) transport by railways, (ii) transport by other means, namely, road transport (mechanised and non-mechanised), water transport (coastal, ocean and inland), air transport and supporting & auxiliary transport activities, (iii) storage, and (iv) communication services. The budgets of the railways and communication services which are integral part of Central Government budget documents include allied activities which according to standard industrial classification should belong to respective sectors. Following this principle, railway workshops and railway manufacturing establishments like Chittaranjan Locomotive Works, Integral Coach Factory, Diesel Locomotive Works and Wheel & Axle Plant are excluded from railway transport and included under the 'manufacturing' activities. Construction activity of the railways is also excluded and taken into account in the 'construction' sector. Expenditure on education, medical & health services are also excluded here and included in 'other services'. Similarly, the activities relating to post office savings bank, postal life insurance and telecommunication workshops are excluded from communication and included in banking, insurance and manufacturing sectors, respectively.

6.1.44 Estimates of GVA for railways and communications are considered as part of supra-regional sectors and the national level estimates are allocated to States by the CSO. The methodology for compiling the estimates for other activities under this group is discussed in Section 3 of this Chapter.

### **Transport (other than Railways)**

6.1.45 *Mechanised road transport (Public sector):* The estimates of GVA for this segment are obtained through economic analysis of annual reports/accounts for non-departmental transport undertakings in the state.

6.1.46 *Mechanised road transport (Private sector):* The estimates of GVA for this segment are worked out separately for the compilation categories, by multiplying labour input with respective VAPW. The data on VAPW is from the results of NSS 63<sup>rd</sup> Round survey on services sectors. For subsequent years, the total labour input for the base year is moved using the index of number of vehicles registered in the state and the estimates of VAPW are moved with the help of CPI (IW) for the urban areas and CPI (AL) for rural areas.

6.1.47 *Water transport:* The estimates of GVA for organized inland water transport in respect of a state are prepared by respective DESs by analysing the annual accounts of state inland water transport companies. The all-India estimates of gross value added from the shipping companies in public and private segments are prepared by the CSO and allocated to the States using suitable indicators. Similarly, the state-wise estimates of gross value added from ports and pilotages are also prepared by the CSO by analysing relevant reports/budget documents and made available to the States. The state-wise estimates of gross value added generated from lighthouses and ships handled by the Centre and Dredging Corporation of India and Inland Water Authority too are prepared by the CSO and made available to the states.

6.1.48 *Air Transport:* The gross value added for this part is being estimated by CSO at national level and apportioned to the states based on relevant indicators. The estimates thus prepared by CSO are made available to the states.

6.1.49 *Unorganized transport:* It covers non-mechanised road transport, supporting

services to land transport, unorganized water transport and services incidental to transport. The estimates of gross value added for the base year are prepared category-wise using labour input and corresponding estimates of VAPW obtained from NSS 61<sup>st</sup> and 63<sup>rd</sup> Round survey results respectively. The estimates of gross value added for subsequent years are worked out by carrying forward the base year estimates with the help of index of gross value of output of commodity producing sector at current prices.

### **Storage**

6.1.50 The estimates in respect of public warehousing (other than Central Warehousing Corporation) are based on the analysis of annual accounts of state warehousing corporations. These are prepared by the CSO and made available to states. The value added from Central Warehousing Corporation are also prepared by the CSO and allocated to the states in proportion to the share of State warehousing Corporations in various states. All India estimates of GDP from cold storage and storage n.e.c. are allocated to different states by the CSO in proportion to the number of workers as in the base year.

### **Real Estate, Ownership of Dwellings, Business Services and Legal Services**

6.1.51 *Real estate:* This sub-sector includes buying, selling, renting and operating of self-owned or leased real estate such as apartment building and dwellings, non-residential buildings, developing and subdividing real estate into plots, etc. Also included are developments and sale of land and cemetery lots, operating of apartment hotels and residential mobile home sites. Purchase, sale, letting and operating of real estate – residential and non-residential buildings, developing and subdividing real estate into lots, lessors of real property, Real estate activities with own or leased property, real estate activities on a fee or contract basis.

6.1.52 The estimates of Value Added for the base year (2004-05) from these services are prepared using the estimates of VAPW from NSS 63<sup>rd</sup> Round and the labour input from NSS 61<sup>st</sup> Round, separately for rural / urban /organized /unorganized sectors.

6.1.53 *Renting of machinery and equipment without operator:* The activities covered under this compilation category are the activities of renting of machinery and equipment without operator and personal and household goods.



The estimates of GVA for these activities are compiled separately by using the estimated VAPW and labour input in the activity, from the results of NSS 63<sup>rd</sup> Round and NSS 61<sup>st</sup> Round, respectively.

6.1.54 *Computer and related activities in private sector:*

The activities covered under this compilation category are hardware consultancy, software consultancy and supply, data processing, database activities, maintenance and repair of office/accounting/ computing machinery and other computer related activities. The estimates of GVA are compiled for organized and unorganized segments, separately. The GVA estimates for organized sector are prepared using NASSCOM's data on production of software services and the value added ratio estimated from the analysis of annual reports of few software companies. The national level estimates are allocated to the states on the basis of workforce in the activity at state level. The estimates of GVA for the year 2004-05 for the unorganized segment are prepared using the data on labour input and VAPW from the results of NSS 61<sup>st</sup> Round and NSS 63<sup>rd</sup> rounds, respectively.

6.1.55 *Legal activities:* The activities covered in this category are legal services such as those rendered by advocates, barristers, solicitors, pleaders, mukatians, etc. The estimates of GVA for legal services for the year 2004-05 are prepared using the data on labour input and VAPW from the results of NSS 61<sup>st</sup> Round and NSS 63<sup>rd</sup> rounds, respectively, also separately for rural / urban / organized / un-organized sectors. For subsequent years, the inter-survey growth rate for workforce and the CPIs for VAPW are adopted.

6.1.56 *Accounting, book-keeping and related activities in private sector:* The activities covered under this compilation category are accounting, book-keeping and auditing activities and tax consultancy services. The estimates of GVA for accounting and book-keeping services etc. in the private sector in the new series for the year 2004-05 are prepared following the labour input method by using the data on labour input and VAPW from the results of NSS 61<sup>st</sup> Round and NSS 63<sup>rd</sup> rounds, respectively, separately for rural and urban areas. For subsequent years, the inter-survey growth rate for labour input and the CPIs for VAPW are adopted.

6.1.57 *Research and development, market research and public opinion polling, business and*

*management consultancy, architectural, engineering and other technical activities, advertising and business activities n. e. c. excluding auctioning:* The estimates of GVA for this compilation category are prepared separately for organized and unorganized segments and for rural and urban areas for the base year in the new series by using the data on labour input and VAPW from the results of NSS 61<sup>st</sup> Round and NSS 63<sup>rd</sup> rounds, respectively. For annual estimates, the labour input is projected with growth in population and the VAPW with the CPI (AL)/CPI (IW) for rural and urban areas.

6.1.58 *Ownership of dwellings:* The economic activities covered in this sector are ownership of dwellings (occupied residential houses) including imputed value of owner occupied dwellings also. For urban areas, GVA estimates for the ownership of dwellings were estimated as the gross rental (actual rent paid and imputed rent for owned dwellings) of the residential houses less the cost of repairs and maintenance. In the new series, the data on dwellings and rent per dwelling for urban areas has been taken from the Population Census, 2001 and the results of NSS 61<sup>st</sup> Round on consumer expenditure. For subsequent years, inter census growth rate in dwellings and the increase in rent component of CPIs is used. However, for the rural areas, the methodology for estimating value added from rural dwellings has been changed to that based on user cost approach because according to the international recommendations, when few dwellings are rented, the output of dwelling services should be estimated by the user cost approach. The All India estimates of rural dwellings are allocated to the States/UTs in proportion to base year estimates of rural dwellings.

## Public Administration

6.1.59 The estimates of value added in respect of Central Government Administration, being a supra-regional activity, are prepared by the CSO by undertaking the analysis of Central Government Budget documents and are supplied to states. The estimates relating to State Government are prepared by respective states by undertaking an economic analysis of the State Government budget documents. The estimates of income in respect of local authorities are based on the information on compensation of employees obtained by the DESs in respect of the local authorities. These are added to the state-wise estimates of Central Government Administration to obtain the state-wise estimates of public administration.

The estimates at current prices are deflated by CPI (IW) to obtain the estimates at constant prices.

### Other Services

6.1.60 The economic activities covered under this sector are (i) coaching and tuition (NIC-2004 codes 80903 and 80904), (ii) education excluding coaching and tuition (NIC-2004 code 80 (-) 80903 (-) 80904), (iii) human health activities including veterinary activities, (iv) sewage and refuse disposal, sanitation activities (NIC-2004 code 90), (v) activities of membership organizations (+) social work (NIC-2004, code 91+ 853), (vi) recreational cultural and sporting activities (NIC-2004, code 92), (vii) washing and cleaning of textiles and fur products (NIC-2004, code-9301), (viii) hair dressing and other beauty treatment (NIC-2004, code 9302) (ix) funeral and related activities (NIC-2004 code 9303+9309), (x) private households with employed person (NIC-2004 code 95), (xi) custom tailoring (NIC-2004, code 18105), and (xii) extra territorial organizations and bodies (NIC-2004 code 99).

6.1.61 The method generally followed for estimation of value added for different categories of services in the non-public segment is the labour input method (labour input multiplied by the average value added per person in the activity). For the public sector part, estimates are compiled by analyzing the budget documents of central and state governments and annual reports of public undertakings. For the private organized part and unorganized part, estimates of labour input are from the NSS 61<sup>st</sup> Round and the VAPW from the NSS 63<sup>rd</sup> Round in respect of the enterprises recorded as companies. Generally, for the public sector segment, estimates at current prices are prepared by analyzing the budget documents. Following are the major data sources used for the compilation of estimates of GVA in the new series:

- i) NSS 61<sup>st</sup> Round (2004-05) EUS
- ii) Population Census, 2001
- iii) NSS 63<sup>rd</sup> Round (2006-07) on services
- iv) Budget documents and annual reports for data relating to activities of these services under public sector
- v) Consumer price indices of agricultural labourers and industrial workers

6.1.62 *Educational services: Coaching and tuition:* The activities covered under this compilation category are the activities of coaching centres and individuals providing tuitions.

For the private sector segment, the base year estimates are prepared as a product of labour input and VAPW, using the results of NSS 61<sup>st</sup> Round on employment and unemployment and NSS 63<sup>rd</sup> Round on services sectors. For annual estimates, the indicator used for projecting the workforce is the inter survey growth rate observed between 55<sup>th</sup> and 61<sup>st</sup> Round of NSS Employment and Unemployment Surveys and for VAPW, it is the index of CPI (AL) and CPI (IW) respectively for rural and urban areas.

6.1.63 *Education excluding coaching and tuition:*

The activities covered under this compilation category are the activities of educational institutions, excluding those of coaching centres and individuals providing tuitions. The GVA estimates are prepared separately for recognized and non-recognized institutions. The GVA for the recognized institutions under public sector is taken to be equivalent to the expenditure on salaries and wages of teaching and non-teaching staff of educational services as available from the budget documents of centre and states and consumption of fixed capital (CFC). For the private corporate covering recognized educational institutions and private unorganized covering non-recognized educational institutions, the estimates of GVA have been prepared by using labour input from NSS 61<sup>st</sup> Round EUS and VAPW estimates of from NSS 63<sup>rd</sup> Round Enterprise survey (ES) 2006-07 (corporate sector part/unorganized sector part).

6.1.64 *Human health activities and veterinary activities:*

The activities covered under this compilation category are the activities of human health and veterinary services. Estimates of GVA in human health and veterinary services are prepared separately for public, private organized and private unorganized sectors using the labour input method. The GVA for the public sector is taken to be equivalent to the expenditure on salaries and wages of medical personnel obtained from the analysis of the budget documents plus the consumption of fixed capital. The GVA for private organized and unorganized sectors have been prepared by using labour input from NSS 61<sup>st</sup> Round EUS and VAPW estimates of from NSS 63<sup>rd</sup> Round Enterprise survey (ES) 2006-07 (corporate sector part/unorganized sector part).

6.1.65 *Sewage and refuse disposal, sanitation*

*activities:* The activities covered in this category are the sewage and refuse disposal, sanitation and similar activities. The GVA

estimates for these activities for are prepared separately for public and private sectors. Public sector estimates are the sum of expenditure on salaries and wages of activities covered under government and consumption of fixed capital. The GVA for private organized/unorganized sector is prepared using labour input from NSS 61<sup>st</sup> Round Survey results and VAPW of corporate sector/unorganized sector estimated from NSS 63<sup>rd</sup> Round Survey results.

**6.1.66 Activities of membership organizations and social work:** This sub-sector includes the activities of associations of writers, painters, lawyers, doctors, journalists and other similar organizations, activities of trade unions, interested chiefly in the representation of their views concerning their work situation, activities of other membership organizations, activities of religious organizations, activities of political organizations, activities of other membership organizations, social work with accommodation, and social work without accommodation. The GVA estimates in the new series for the base year 2004-05 from these services have been compiled separately for rural/ urban/ organized/ unorganized sectors using NSS 63<sup>rd</sup> Round (2006-07) survey results for estimating the VAPW and NSS 61<sup>st</sup> Round EUS survey results for estimating the labour input.

**6.1.67 Recreational, cultural and sporting activities:** The activities covered in this category are recreational, cultural and sporting activities. The estimates of GVA for the Public Sector are obtained by analyzing the report of the Prasar Bharati Broadcasting Corporation at All India level. For regional estimates, the All India estimates are allocated among the States/UTs in proportion to the State wise workforce in these activities. The estimates of private organized and private unorganized have been compiled following the labour input method, with labour input data from NSS 61<sup>st</sup> Round EUS and the estimates of VAPW for these two segments from the NSS 63<sup>rd</sup> Round survey results.

**6.1.68 Washing and cleaning of textiles and fur products:** The activities covered in this category are washing and dry cleaning of textile and fur products. The GVA estimates for the base year (2004-05) in the new series in respect of these services have been prepared using NSS 63<sup>rd</sup> Round (2006-07) survey results for the estimates of VAPW and the NSS 61<sup>st</sup> Round EUS results for labour input, separately for rural/ urban/corporate/unorganized areas.

**6.1.69 Hair dressing and other beauty treatment:** The activities covered in this category are hairdressing and other beauty treatment. The GVA estimates for the base year (2004-05) in the new series from these services have been prepared separately for rural and urban areas following the labour input method using NSS 63<sup>rd</sup> Round (2006-07) survey results for VAPW and NSS 61<sup>st</sup> Round EUS results for the labour input.

**6.1.70 Custom tailoring:** The GVA for these services in the base year is estimated using NSS 62<sup>nd</sup> Round (2005-06) data on VAPW and labour input, separately for rural and urban areas.

**6.1.71 Funeral and related activities:** The activities covered in this category are funeral and related activities (NIC-98, code 9303) and other service activities, n. e. c. (NIC-98, code 9309). The GVA estimates for the base year (2004-05) in the new series in respect of these services have been prepared using NSS 63<sup>rd</sup> Round (2006-07) results for the VAPW estimates and NSS 61<sup>st</sup> Round (2004-05) EUS results for labour input, following the labour input method, separately for rural/ urban/corporate/unorganized areas.

**6.1.72 Private households with employed persons:** The activities covered in this category are private households with employed persons. Data on private households with employed persons was not collected in the NSS 63<sup>rd</sup> Round survey on services sectors, as it was not found to be feasible to identify such households as enterprises. The value added generated by this activity relates to wages paid to 'employed persons' by the households. Therefore, the VAPW for this activity in the new series for 2004-05 has been estimated on the basis of wage data collected in the NSS 61<sup>st</sup> Round Employment Unemployment Survey. The total daily earnings of the workers falling under this category have been divided by the number of workers to arrive at daily wages/salaries adjusting for annual wages separately for rural and urban areas for the base year 2004-05.

**6.1.73 Extra territorial organizations and bodies:** The activities covered in this category (NIC-2004, Code 99) are extra territorial organizations and bodies including the activities of international organizations such as United Nations and its agencies, regional bodies etc., and of International Monetary Fund, World Bank, European Commission, etc. The All India estimates of GVA of these services are prepared using the results of NSS 61<sup>st</sup> Round and thrice the VAPW of Public Administration and Defence (as a

proxy), separately for rural and urban areas. For regional estimates, the All India estimates are allocated amongst the States/UTs in proportion to the State wise workforce in these activities.

## **GSDP estimates at Constant (2004-05) Prices**

6.1.74 The totals GVA for Railways, Banking & Insurance and Communication at constant prices are allocated amongst the states according to their share in current price estimates.

### **Section 2**

## **DISTRICT DOMESTIC PRODUCT (DDP)**

6.2.1 The information / statistics / indicators on economic activities at levels lower than state are often required by the central and state authorities as well as research institutions for planning and policy purposes to know the development as well as levels of living of the people etc. at that level. Districts have well been recognized as the areas for such requirements. Estimates of income of a district (DDP) is thought to be one of the most important indicator/barometer to measure the economic growth/development of a district, vis-à-vis, other districts and the estimates of per capita income in the district is considered to be the indicator / barometer to measure the level / standard of living of the inhabitants of the district. Preparation of DDP estimates has recently gained added importance, as it is one of the three indicators to construct a composite Human Development Index (HDI) for inclusion in the Human Development Report being prepared by some of the states of India. Other two indicators forming part of HDI are life expectancy and educational attainment.

6.2.2 The Regional Accounts Committee (RAC) recognized the need of the estimates at a level lower than state as early as in 1974. Two more important groups set up for the purpose were (1) working group on regional level statistics set by the CSO in 1975; and (2) working group on district planning set up by the Planning Commission in 1982. The Seventh Conference of Central and State Statistical Organizations held at Hyderabad in December 1985 also discussed the issues relating to the preparation of the income at district and rural/urban levels. Keeping in view the demand from the Planning Commission and the state governments for the income estimates at the district and rural/urban levels the Conference recommended constitution of a Technical Group to examine the requirements of data and recommend appropriate methodology for compilation of these estimates. In pursuance of this recommendation the then Department of Statistics constituted a Technical Group for Estimation of Income at District and

Rural/Urban Levels in January 1987 under the Chairmanship of Shri Jagdish Kumar, the then Director, National Accounts Division, Central Statistical Organization, Department of Statistics, New Delhi. The Group in its Report submitted in September 1988 recommended that:

- (i) To start with, attempts should be made to compile the district income estimates following the standard methodology, based on the income originating approach, as used for compilation of state income estimates. Due to the free flow of goods and services across the borders of the districts and the non-availability of net factor income earned by the residents from other districts/states/countries, the income accruing approach was not feasible.
- (ii) Even to compile the estimates by following the income originating approach a lot of additional data, as detailed in the Report, need to be collected.
- (iii) For district income estimates, tremendous amount of information would need to be collected and compiled at the district as well as at state levels. The Group felt that the state governments should assess the precise requirements of additional resources for implementing the recommendations of the Group and make necessary provisions in their core schemes.
- (iv) Since the estimates at the district level would be utilized for the purpose of determining the backwardness/development of a district, and as consequence for allocation of resources, it would be necessary to make necessary adjustments in these estimates in regard to significant flow of income from and to across the territories of typical districts which are rich in minerals and/or forest resources or where flow of daily commuters, migration of labour and cattle are involved.
- (v) With the present availability of data at the district level it would be sufficient to



compile these estimates at an interval of five years.

6.2.3 Further, on the recommendations of Second Regional Conference on Statistical Matters, the Government of Karnataka and Uttar Pradesh jointly prepared a draft methodology for compiling the estimates of District Domestic Product and submitted the report to CSO in August, 1996. This draft methodology prepared jointly by the Governments of Karnataka and Uttar Pradesh was circulated among State Directorates of Economics & Statistics for their comments in order to prepare a standard methodology for compiling the DDP estimates and implement the system of District Domestic Product in States.

6.2.4 The National Statistical Commission (NSC) under the chairmanship of Dr. C. Rangarajan, the then Governor of Andhra Pradesh, also recognized the need for the estimates of DDP in the context of calculating district level human development index. The NSC noted that (a) the DDP estimates, wherever currently available, cover mostly major agricultural crops only, or at best commodity producing sectors covering agriculture and industry because of problems of data availability at the district level; (b) available DDP estimates are calculated by income-originating (by sector of origin) method; (c) conceptually, for HDI, what are needed are DDP estimates by the income accruing method in order to reflect district-level living standards; and (d) currently available data do not permit calculation of DDP by the income-accruing method. It would be desirable to develop some appropriate indicators of the living standards at the village / block / district level. NSC has suggested that the techniques of small area statistics may be used to estimate these indicators on the basis of State/regional level statistics capabilities. Also, a National Workshop on "State Human Development Reports and the Estimation of District Income and Poverty" sponsored by Planning Commission and UNDP, New Delhi was organized in Bangalore during July 20-21, 2001.

6.2.5 The estimation of income at district level is beset with the problems of availability of data, collection and analysis of information etc. Nevertheless, all these Committees, Groups and Workshops have recommended the compilation of the estimates of DDP, which is the need of the hour for planning and policy making at a level lower than state. Further, DDP is considered to be one of the important indicators to construct a composite Human Development Index (HDI). They have

strongly recommended the compilation of the estimates of DDP for commodity producing sectors, for which most of the data is readily available, with immediate effect. For other sectors / activities, they have recommended allocating the State Level Estimates among districts using relevant indicators.

### Concepts and Definitions

6.2.6 The estimates of District Income can conceptually be prepared by adopting two approaches, namely, income originating and income accruing. In the Income originating approach, the measurement corresponds to income originating to the factors of production physically located within the geographical boundaries of district and represents net value of goods and services produced within the district. It is the income originating as a result of the utilization of the physical assets and the labour force of the region, even though some of the income might flow to residents outside the region. The income accruing approach relates to the income accruing to the normal residents of a district. In other words, it is the income received by the residents of a region, even though some of it might have originated outside the region. Since this measures the income that becomes available to the residents of a district, it provides a better measure of the welfare of the residents of the region. Therefore, for a realistic measurement of income received, account needs to be taken of net inflow/outflow of income between districts. But in an open economy like that of a district in this country, it is very doubtful whether such an estimate can be prepared unless special effort is made for the collection of this data.

6.2.7 Presently, most states are compiling DDP estimates by following the income originating approach. For estimating the District Domestic Product, the economy is divided into various economic activities like agriculture, forestry fishing, mining, manufacturing, construction, electricity, transport, communication, trade etc. In the commodity producing sectors like agriculture, forestry, fishing, mining and manufacturing (registered), the estimates of DDP are prepared using the production approach i.e., gross value added = value of output *minus* value of inputs used in the process of production. In the services sectors like trade, transport, hotel and restaurants etc., the estimates for the public sector are prepared by income approach, i.e., gross domestic income = compensation of employees *plus* gross operating surplus. For the unorganized sectors like manufacturing unregistered and

the unorganized segments of the remaining sectors of the economy i.e. unorganized trade, unorganized hotels and restaurant, unorganized road transport, unrecognized educational institutions, unorganized medical and health services, etc. the estimates of GVA are compiled as a product of work force and gross value added (GVA) per worker. While the GVA per worker is derived from the follow-up surveys of economic censuses carried out by the NSSO, the work force is estimated from the quinquennial surveys of employment and unemployment of the NSSO and the population censuses.

6.2.8 **Supra regional sectors:** There are certain activities which are supra regional in nature i.e. they cut across the boundaries of the states/districts, for example, the activities of railways, communication, banking and insurance and central government administration. The estimates for these supra regional activities are compiled for the economy as a whole and allocated to the states and further to the districts on the basis of relevant indicators. Details are given in Section-3 of this chapter.

6.2.9 The estimates of district domestic product are prepared by the State DESs broadly by compiling the actual estimates for the agriculture, forestry, fishing, mining and registered manufacturing sectors, and the public sector component of all other sectors, from the district level available data; and by allocating the state level estimates to the districts on the basis of work-force data for other sectors.

### Sources and Methods of DDP Compilation

6.2.10 The agencies/personnel responsible for collecting district level data are mainly District Statistical Office (DSO), District Forest Officer, District Fisheries Deptt, etc. It has been observed that the availability of district-wise basic data required for estimation of income at the district level is still not satisfactory in most of the States. The data in respect of commodity producing sectors viz. Primary Sectors and Manufacturing (regd.) sector are available but in respect of remaining sectors, it is very scanty. As such, wherever district-wise basic data are available, the same are utilised to compute the direct district income estimates following the state level methodology. In case of non-commodity producing sectors, where district-wise basic data are not available, the state level estimates are allocated to the districts on the basis of suitable district-wise indicators. Further, in some of the commodity producing

sectors, though district-wise production data are available, the corresponding prices are not available. In such cases, district-wise production and state average prices are utilised for preparation of District Income estimates. Similarly, wherever, certain ratios/norms, yield rates, etc. are used for the State estimates and which are normally not available at the district level, the State level ratios/yield rates, etc. are utilised for district income estimates also.

6.2.11 Broadly the methodology of computation of sectoral estimates is the same as adopted for estimates of State Domestic Product (SDP).

### Agriculture including Animal Husbandry Value of Output

6.2.12 **Agriculture (Proper):** As in the case of state level estimates, the estimates at district level are compiled by 'production approach'. But district level data on production and prices are generally not available uniformly for all the crops. Hence, for estimation purpose, crops are classified in different categories as follows:-

6.2.13 **Crops for which reliable district-wise data on area, production and prices are available:** In such cases district-wise value of output for each crop are compiled by using district-wise production and prices. The wholesale prices of primary market during peak marketing period are used in this context.

6.2.14 **Crops for which though district-wise production is available, corresponding district-wise prices are not available:** For this category of crops, district-wise value of output is computed by using district-wise production and neighboring district prices, if available. In case neighboring district prices are also not available, regional prices are used. If these are also not available, the state prices are utilized.

6.2.15 **Crops for which district-wise data, both on production and prices, are not available but area figures are available:** In such cases, district-wise value of output of these crops are compiled by allocating the state level value of output on the basis of district-wise area under the crops.

6.2.16 **Miscellaneous and unspecified crops for which production and price data are not available even at the State level but district-wise area is available:** In such cases, the value of output is worked out by multiplying the district-wise area by the state level value per hectare of similar crops.



- 6.2.17 *By-products or miscellaneous type of products*, wherever possible, cost of cultivation studies (CCS) data is used, otherwise data from latest studies is used. In case such data are not available, state level ratios, whether in relation to output or in relation to area as used in current series of estimates of SDP, are adopted uniformly for all the districts. The type of by-products may vary from state to state or even district to district.
- 6.2.18 For the quantity of food grains, which are procured on Government account, the prices are different from the prevailing market rates. As such, adjustments are made in the value of such agricultural produces by evaluating separately the quantity procured and sold in primary market by their respective prices.
- 6.2.19 **Animal Husbandry:** Similar procedure as adopted at the state level is followed at the district level also. District-wise estimates of number of different categories of animals and poultry is worked out from the results of latest two livestock census assuming linear/compound growth rates and utilised along with relevant yield rates to obtain the estimates of production of various livestock products and by-products and poultry meat.
- 6.2.20 The results of Integrated Sample Survey (ISS) conducted by State Animal Husbandry Department provide State/District level data on production of milk, meat, wool and egg. It also provides estimates of category wise number of slaughtered animals. Wherever, ISS results are available only for the State, the estimates for district are obtained by allocating the same to the districts on the basis of relevant livestock population. To estimate district-wise production of all other items (i.e. other than milk, meat, egg and wool), state level yield rates and ratios are utilized along with district estimates of number of relevant population of animals/poultry.
- 6.2.21 District-wise value of output is estimated by evaluating the production obtained as above, by the corresponding district prices, wherever available. In the absence of district level prices, the state prices are utilized for evaluating the district production. The totals of the value of output thus worked out are then adjusted to the state level estimates.
- 6.2.22 In case of other animal products, the state level estimated value is distributed between the districts in proportion to the number of animals in each category separately.
- 6.2.23 District-wise increment in stock for each category of animal/poultry is estimated as at the State level and these are evaluated by corresponding district prices.
- 6.2.24 The value of silkworm cocoons arrived at the state level, after adjusting the cost of rearing silkworm cocoons, are allocated to districts in proportion to the area under Mulberry in each district.
- Value of Inputs**
- 6.2.25 As at the state level estimates, to arrive at the district-wise Gross Value Added (GVA) from agriculture including Animal Husbandry sector, value of various input items are to be first deducted from the Gross Value of Output of these sectors and then the gross product from operation of Government Irrigation System is added to that. The deductible inputs are same as used at the State level viz. i) Seed, ii) Organic manure (Cattle and Buffalo dung), iii) Chemical Fertilizers iv) feed of livestock, v) Pesticides & Insecticides, vi) Diesel oil consumption vii) electricity, viii) Irrigation charges, ix) market charge, x) Repairs and Maintenance of fixed assets and other operational costs and (xi) FISIM.
- 6.2.26 To work out the value of these input items at the district level, the state level estimates arrived at independently under the Current series of state income estimates are distributed to various districts on the basis of certain proportions as indicated below:-
- 6.2.27 **Seed:** The district-wise value of seed is estimated as follows:
- In proportion to the products of district area under the crop and the district price of the product, where seed rate used in State Income Estimates is on the basis of quantum per hectare, and
  - In proportion to the district value of output of the crop (evaluated at district price), where seed rates used is taken as some percentage of the value of output.
- 6.2.28 **Organic Manure:** The district-wise estimates of value of output of dung manure as estimated in Animal Husbandry sector are used.
- 6.2.29 **Chemical Fertilizers:** State level value is distributed to districts in proportion to total quantity of chemical fertilizers distributed as obtained from the Agriculture Department.
- 6.2.30 **Feed of livestock:** District-wise value of roughages is estimated by adopting the same methodology as followed for estimating the

roughage for State Domestic Product. For estimating the quantity of concentrates consumed, the rates of concentrates as adopted for State level estimates for different types of animals and poultry is used for working out district level estimates also.

- 6.2.31 **Pesticides and Insecticides:** The State level value is distributed to the districts in proportion to area treated by chemical pesticides in different districts.
- 6.2.32 **Diesel Oil Consumption:** State level value of consumption of diesel oil by tractors and oil engines is distributed to districts in proportion to the district weighted totals of no. of tractors, oil engines/oil engine pump used for irrigation as per latest livestock census with weights appropriate for each state/district.
- 6.2.33 **Electricity:** The state level value is distributed on the basis of district-wise no. of private and Government electric tube-wells and energized pump-sets.
- 6.2.34 **Irrigation Charges:** The district-wise irrigation charges, as collected from the district administration (D.C.'s) are used for this purpose. In the absence of such data, the state level value is distributed to the districts in proportion to the area irrigated by Government canals.
- 6.2.35 **Market Charges:** The state level norms in respect of Agriculture (Proper) and Animal Husbandry sectors are used for district income estimates also.
- 6.2.36 **Repair and Maintenance of fixed assets and operational cost:** District-wise data on fixed assets as available from latest AIDIS/Livestock Census are used.
- 6.2.37 **FISIM:** State level value of FISIM is distributed on the basis of total value of output of the district.
- 6.2.38 **Gross Product from Operation of Government Irrigation System:** This is added to the gross value of output of Agriculture after deducting the value of inputs. The state level value of contribution by Government Irrigation system is distributed among the districts in proportion to the district-wise area irrigated by Government canals.

### Forestry and Logging

- 6.2.39 **Major Forest Products:** The district-wise value of output of timber is worked out using the district-wise production and prices for different varieties. In case of firewood, (wherever NSSO results on consumption data

are utilized) the district value of output is obtained by allocating state level estimates to the district in proportion to district-wise rural population.

- 6.2.40 **Minor Forest Products:** The district-wise value of output is worked out using the district-wise production and prices of different varieties. In the absence of district-wise data the state level value of minor forest produce is allocated to districts in proportion to the forest area in different districts.
- 6.2.41 **Repairs, Maintenance and other Operational Costs:** State level ratio is utilised for working out district-wise estimates of repair, maintenance and other operational costs.

### Fishing

- 6.2.42 In the case of Marine fishing, the district-wise value of output is estimated by multiplying the district-wise production by corresponding district prices. Similar procedure is followed in estimating district-wise value of output of inland fish also. The district wise production of marine and inland fish is likely to be available through district fishery officer. But, if the district-wise prices are not available, then district-wise value is worked out using district-wise production and state level prices. To work out the value of subsistence fish and operational costs including repairs and maintenance, the state level norm/ratios are used for district income estimates also.

### Mining and Quarrying

- 6.2.43 For major minerals including petroleum (crude) and natural gas (utilized), the district-wise value of output as collected from Indian Bureau of Mines, Nagpur, are used. District wise value of production of coal is also be obtained from Coal India Ltd. and that of natural gas and crude oil from ONGC. For minor minerals, the district-wise value of output is collected from the State Mines and Geology Department. If the data are not available, the value of output of minor minerals is worked out in proportion to the royalty value. For working out input costs, the state level input rates are adopted for district estimates also.

### Manufacturing

- 6.2.44 **Manufacturing (Registered):** The district wise estimates of value added from registered manufacturing sector are available from Annual Survey of Industries (ASI) in respect of some smaller States/UTs, for which ASI covers the factories on census basis. Some major states are also canvassing the ASI schedule for the part of the sample sector left out by NSSO and hence district-wise

information are compiled for these States. In other cases, the state level value is distributed in proportion to the district-wise no. of workers available in the ASI frame. To work out FISIM, state level proportion to GVA is adopted.

- 6.2.45 **Manufacturing (Un-registered):** For this sub-sector, the district-wise projected working force and the value added per worker from the latest NSS surveys are used to estimate the GVA of the sector. From the total of GVA, FISIM is deducted using the state level ratio of FISIM to GVA.

### **Electricity, Gas and Water Supply**

- 6.2.46 **Electricity:** The state level value added from this sub-sector is distributed to districts in proportion to district-wise working force.
- 6.2.47 **Gas:** State level value added from bio-gas is distributed according to number of Bio-Gas plants in each district. For remaining gas sector, the state level estimates are allocated to the districts on the basis of working force.
- 6.2.48 **Water supply:** State level value added is allocated to districts in proportion to the district-wise salaries and wages collected from local bodies located in the district.

### **Construction**

- 6.2.49 The estimate of state income from this sector is allocated to the districts on the basis of working force for public (except local bodies) and private sector separately. In respect of local bodies, direct district-wise data as available is utilized.

### **Transport, Storage and Communication**

- 6.2.50 **Railways:** State level estimates, as provided by CSO, is allocated to districts in proportion to the working force engaged in Railways at district level.
- 6.2.51 **Transport by other Means- Mechanised Road Transport - Public Sector:** The value added from this sub-sector at the state level is allocated to districts on the basis of district-wise working force (public) in this activity.
- 6.2.52 **Transport by other Means- Mechanised Road Transport - Private Sector:** The value added from private sector is allocated to districts on the basis of district wise working force in private sector.
- 6.2.53 **Water Transport:** State level estimates are allocated to the districts in proportion to the working force.

- 6.2.54 **Air Transport:** The state income from this sub-sector is allocated to the districts on the basis of district wise working force.

- 6.2.55 **Non Mechanised road Transport and Un-Organized Transport:** The state level estimate is allocated to districts in proportion to gross value of output of commodity producing sectors.

- 6.2.56 **Storage: Warehousing (State and Central):** State level estimates are allocated to districts on the basis of average storage capacity.

- 6.2.57 **Cold Storage:** State level estimates are allocated on the basis of district wise working force.

- 6.2.58 **Storage not elsewhere classified:** State level estimates are allocated to districts on the basis of working force.

- 6.2.59 **Communication:** State level estimates are allocated to districts in proportion to the working force.

### **Trade, Hotels and Restaurants**

- 6.2.60 The domestic product relating to 'Trade, Hotels and Restaurants' is estimated district wise separately for public and private sector. SDP relating to public sector is allocated to districts on the basis of district wise working force in the public sector. SDP relating to the private segment of the economy relating to this sector is allocated by district in proportion to the gross value of output of commodity producing sectors in each district. In case the estimates of SDP of this sector are not computed separately for public and private sectors, then the gross value added at State level is allocated to districts in proportion to the gross value of output of commodity producing sectors in each district.

### **Banking and Insurance**

- 6.2.61 The state income estimates of this sector are allocated to the districts on the basis of district wise working force.

### **Real Estate, Ownership of Dwellings and Business Services**

- 6.2.62 **Real Estate and Business services:** State level estimates from these sub-sectors are allocated to districts in proportion to the working force in these activities.

- 6.2.63 **Ownership of Dwellings:** State level estimates may be allocated to districts in proportion to number of dwellings (Rural/Urban) in each district based on census data.

### **Public Administration**

## CHAPTER 6

6.2.64 The state income estimates of Central Government Administration, as provided by CSO and those of state government administration are distributed in proportion to the number of central/state government employees in each district. In case of local bodies district wise data is collected from local bodies and used.

### Other Services

6.2.65 *Education, Research and Scientific Services:* State level estimates are allocated to districts on the basis of number of employees (Teaching and Non-Teaching) in each district.

6.2.66 *Medical and Health Service-Public Sector:* State level estimates are allocated to districts on the basis of public sector working force in medical and health profession.

6.2.67 *Medical and Health Service-Private Sector:* State level estimates are allocated to the districts on the basis of private sector working force which is obtained by deducting public sector working force from working force engaged in these activities.

6.2.68 *Legal Services:* State level estimate is allocated to the districts in proportion to district wise number of advocates registered in Bar Council. In case the data from Bar Council is not available district wise, working force engaged in legal services is used for allocation purpose.

6.2.69 *Sanitary Services:* District wise data (Rural/Urban) is collected from local bodies and used.

6.2.70 *Rest of Other Services:* State level estimates are allocated to the districts on the basis of working force.

### Consumption of Fixed Capital

6.2.71 Sector wise ratio of consumption of fixed capital to Gross value added is adopted for the district level estimates.

### Estimates at Constant Prices

6.2.72 The methodology for working out estimates at constant prices is more or less the same as that for current prices in the sectors of Agriculture and Animal Husbandry, Forestry and Logging, Fishing, Mining and Quarrying, Manufacturing (unregistered), Construction, Real Estate, Ownership of dwellings and Business services and Trade, Hotels and Restaurants. In the sectors where estimates are worked out by 'Production approach' the current year production is evaluated on the basis of base year prices to obtain the value of output at base year prices.

6.2.73 For the remaining sectors, the District Income estimates at constant prices are worked out using the state level deflator of current to constant prices. In Mining and Quarrying sector, the district prices differentials are introduced by multiplying the district wise gross value added at current prices by the ratio between the wages of non-agricultural and rural labour for the base year and for current year. Depending on the availability of data this procedure is adopted.

6.2.74 The above methodology takes into account the available data at the district level for the commodity producing sectors and the results of the surveys, both relating to socio-economic aspects and unorganized sectors of the economy, conducted by the National Sample Survey Organisation (NSSO) and states DESs. For many of the sectors of the economy, the methodology purposely avoids allocation of state estimates to districts in proportion to the district-wise work force, as allocation does not take into account the income disparity at the district level.

## Section 3

### GVA - Supra Regional Sectors

6.3.1 Certain economic activities like Railways, Banking & Insurance, Communication, and Central Government Administration, cut across state boundaries. Their economic contribution cannot be assigned to any one state directly. Such activities are included in supra-regional sectors of the economy. The estimates for these activities are compiled for the economy as a whole and allotted to the states on the basis of relevant indicators.

6.3.2 State-wise estimates of Gross/Net Value Added (GVA/NVA) in respect of supra-regional sectors are prepared by the Central Statistics Office (CSO) and supplied to State Directorates of Economics and Statistics (DESs) for incorporating the same in their estimates. State-wise estimates of GVA/NVA for supra-regional sectors are prepared at both current and constant (2004-05) prices.

### Methodology for preparing the GVA/NVA estimates from supra regional sectors

#### Railways

- 6.3.3 GVA estimates at current prices are compiled by analyzing the accounts and other relevant data available in the Annual Reports of the Railway Zones and Indian Railways Annual Statistical Statements (IRASS). The GVA estimates, in terms of Compensation of employees, interest and surplus (including rent & depreciation) are compiled at the national level. These all India GVA estimates are then distributed amongst the different zones of Railways based on (i) Compensation of employees in proportion to total cost of staff excluding the cost of staff engaged in railway workshops (manufacturing) and artisans (construction); and (ii) Interest and Surplus (including rent & depreciation) in proportion to capital at charge of the respective zones. A share of wages and salaries attributed to Railway Board and other offices of Railways obtained from the IRASS of Railways is first subtracted from the all-India wages and salaries and is distributed in the share of respective state where these Railway Boards and other offices are actually located. In the absence of direct availability of Head Office (HO) share in wages and salaries, an amount of 5% of salary and wages is presumed to be the share attributed to HO and subtracted from zonal salary and wages.
- 6.3.4 The value added for each railway zone is distributed into two parts, namely, value added from passenger traffic and value added from goods traffic on the basis of zone-wise data on passenger and goods earnings respectively (available in the IRASS). These estimates of value added from passenger traffic/goods traffic in each zone are then re-allocated amongst the states falling within each zone on the basis of information on vehicle (four wheeler) kilometer per route per day/net tonne kilometer per route per day (available from Railway Board).
- 6.3.5 The GVA from private railway (Konkan Railway) is directly distributed among the three states where actually the Konkan Railway runs viz. Maharashtra, Goa and Karnataka on the basis of track length passing through these states.

#### Banking & Insurance

- 6.3.6 The GVA estimates for this sector are prepared separately for (i) Commercial Banks, (ii) Non-banking financial companies /corporations, (iii) Post Office Saving Bank, (iv) Co-operative Credit Societies, (v) Life Insurance, (vi) Postal Life Insurance, (vii)

Non-life insurance, Corporation (viii) Employees State Insurance (ix) Banking Department of Reserve Bank of India (RBI), and (x) Employees Provident Fund Organisation.

(i) **Commercial Banks:** All-India estimates of wages & salaries and rent are distributed among the states in the ratio of number of employees received from RBI. Similarly All-India estimate of Director's fee is distributed in the ratio of state wise Director Fees received from RBI. Surplus is distributed in the ratio of credit of scheduled commercial banks obtained from the RBI annual publication 'Statistical Tables relating to Banks of India'.

(ii) **Non-banking financial companies:** The all-India estimates of total GVA of the sector are allocated among states using their paid-up capital as received from Ministry of Corporate Affairs.

(iii) **Non-banking financial corporations:** Allocation for the non-banking financial corporation's is done as follows:

(a) **IFCI (Industrial Finance Corporation of India):** The all-India estimates of wages & salaries, rent and surplus are allocated on the basis of state wise wages & salaries, rent & taxes, and loan outstanding received from IFCI.

(b) **SFC (State Financial Corporations):** The GVA is compiled state-wise.

(c) **UTI AMC (Unit Trust of India Asset Management Company):** The all-India estimates of compensation of employees are allocated on the basis of wages and salaries of UTI staff in each state and surplus is distributed in the ratio of financial disbursement of states obtained from UTI. In some cases, UTI provides the financial disbursement in respect of a group of states instead of individual states. In such situations, the surplus of the group of states is distributed among the states on the basis of number of employees in each state in the group.

(d) **IIBI (Industrial Investment Bank of India), NABARD (National Bank of Agriculture and Rural Development), SIDBI (Small Industries Development Bank of India) & IDBI (Industrial Development Bank of India):** The total GVA is allocated on the basis of state wise disbursement available in their annual report.



- (e) **OIDB (Oil Industry Development Board):** The total GVA is allocated on the basis of state-wise loan outstanding.
- (f) **NCDC (National Cooperative Development Corporation):** The total GVA is allocated on the basis state wise loan released for central and corporation sponsored schemes.
- (g) **EXIM (Export and Import Bank of India) & ECGC (Export Credit and Guaranteeing Corporation):** The total GVA is allocated on the basis of state wise value of export and re-export obtained from DGCIS, Calcutta.
- (h) **NHB (National Housing Bank):** The total GVA is allocated on the basis of the share of each state in total for all the above seven categories.

The estimates of GVA of National SC/ST Finance & Development Corporation and Punjab SC Land Development & Finance Corporation are allocated to Delhi and Punjab respectively.

- (iv) **Post Office Savings Bank:** The total GVA is allocated in the ratio of state wise gross collections under small saving schemes obtained from M/o Finance.
- (v) **Co-operative Credit Societies:** All India factor incomes (namely: wages & salaries, rent, depreciation & profit) are allocated in the ratio of state wise wages & salaries, rent, profit and depreciation received from Registrar, Co-operative Societies.
- (vi) **Life Insurance:** All India wages & salaries and rent are distributed in the ratio of state-wise number of employees and surplus and commission to agents are distributed in the proportion of state wise net premium income.
- (vii) **Postal Life Insurance (PLI):** The total GVA is distributed in the proportion of wages & salaries of PLI staff.
- (viii) **Non-life Insurance:** The estimation is subdivided as under:
  - (a) **Fire Insurance:** The total GVA is distributed in the ratio of state wise income from business and property assessed to income tax as obtained from the Income Tax Department.

- (b) **Marine Insurance:** The totals GVA is distributed in the ratio of value of export and re-export.
- (c) **Deposit Insurance:** The total GVA is allocated on the basis of state wise deposits of scheduled commercial bank.
- (d) **Agriculture Insurance:** The total GVA is allocated on the basis of state wise premiums collected during the year.
- (e) **Misc. Insurance:** The total GVA is allocated on the basis of state wise number of registered vehicles obtained from the Ministry Shipping, Road Transport and Highways.
- (ix) **Employees State Insurance Corporation (ESIC):** All India wages & salaries are allocated among states in the proportion of state-wise wages & salaries of ESIC and all-India operating surplus is distributed among the states in the ratio of state-wise revenue expenditure excluding wages & salaries as supplied by ESIC.
- (x) **Banking Department of RBI and Employees Provident Fund Organisation (EPF):** The total GVA of Banking Department of RBI and EPF are allocated on the basis of share of each state in the total for all above categories.

## Communication

### Public communication

6.3.7 GVA estimates for public communication sector are compiled separately on the basis of data received from Department of Posts, Department of Telecommunication, Mahanagar Telephone Nigam Limited (MTNL) and Bharat Sanchar Nigam Limited (BSNL). All-India estimates at current prices for post & telecom, MTNL and BSNL distributed in the form of compensation of employees, interest, rent and surplus (profit & depreciation) are further distributed/ allocated to different states and UTs based on certain indicators.

- (i) **Post and Telecommunication:** Data on indicators for Post and Telecommunication is taken from the Annual Publication "Book of Information" of Department of Posts. The all India estimates of compensation of employees for post and telecom are distributed amongst the postal circles on the basis of disbursement of wages and salaries of P & T staff. Rent is allocated in proportion to state wise total number of post offices. Generally, the postal circles are co-terminus with the



state boundaries. In those cases where the circle covers more than one state, allocation to the states is done on the basis of the number of workers within each state.

- (ii) **MTNL and BSNL:** Data on indicators for distribution of GVA components (compensation of employees and operating surplus) for both MTNL & BSNL are obtained from their head offices. Compensation of employees is distributed among states in the ratio of wages and salaries. In case of MTNL, operating surplus is distributed on the basis of the difference of gross receipt and gross expenditure, while in the case of BSNL, it is distributed on the basis of net operating income.

#### Private Communication

- 6.3.8 The estimates of GVA for private communication are prepared by the states on the basis of labour input and GVAPW methodology.

#### Central Government Administration

- 6.3.9 Estimates of Net Value Added (NVA) for Central Government Administration are prepared using the income approach, the compensation of employees being the only factor income. For current price estimates, the salary & wages of (i) Defence employees,

(ii) Offices abroad (iii) Para Military Forces (iv) UT covered under Home Ministry Budget (v) Issue Department of RBI and (vi) Atomic Energy are subtracted from the total salary & wages of Central Government Administration for all-India and the balance is distributed among the states & UT in the ratio of state-wise number of Central Government employees. To these estimates, salary & wages in respect of Issue Department of RBI and Atomic Energy as available state wise from RBI & Budget Documents of Atomic Energy Department are added to get the state wise estimates of salary & wages for Central Govt. Administration. The estimates of Gross Value added are obtained by adding the CFC estimates for Central Government Administration. The current price estimates of NVA are deflated by CPI(IW) to obtain estimates at constant prices.

- 6.3.10 The CFC estimates for Central Govt. Administration are obtained from the CFC of Public Administration & Defence by applying the same ratio as the all India NVA of Central Govt. Administration to the NDP of Public Administration & Defence. The CFC estimates for Central Government Administration at all India level is distributed to different states in the same ratio as net estimates. This process is used for preparing estimates at current prices as well as at constant price.

## Section 4

### State wise estimates of Gross Fixed Capital Formation for supra-regional sectors

- 6.4.1 As in the case of state income estimates, estimates of Gross Fixed capital formation (GFCF) in respect of supra-regional sectors are prepared by the Central Statistics Office (CSO) and supplied to State Directorates of Economics and Statistics (DESSs) for incorporating the same in their estimates. The GFCF estimates of Supra-regional sectors are prepared at current prices only.

#### Railways

- 6.4.2 This sector covers the activities of the railways including railway workshops and factories and also construction including major repairs undertaken by the railways. The capital expenditure during the year are derived as the difference in the outlays expected up to the end of the current and preceding years given in the publication of Railway Board "Works, Machinery and Rolling Stock Programme of Railways (Detailed Programme)". The estimates of state-wise GFCF are prepared for (a) buildings, (b)

constructions, including construction of new lines, doubling of lines, track renewals, cables route, electrification and (c) Machinery & Equipment including expenditure on computerization, signaling and telecommunication works and other electrical installations. As per the recommendation of the Committee on Regional Accounts (RAC), the rolling stock of the railways is not allocated to the states.

- 6.4.3 The expenditure on buildings, construction and machinery & equipment is distributed among various states on the basis of the location of projects mentioned in the source documents. However, the expenditure on new lines, track renewals and other items of machinery is allocated to different states on the basis of section-wise data given in the source documents. If a section covers more than one state, the allocation to different states is done on the basis of new lines, track renewal and other items of machinery falling

within the concerned states. This is done on the basis of railway map of India. The difference between the national level GFCF (excluding rolling stock) and the estimates prepared by the above method is allocated on the pro-rata basis.

### Banking & Insurance

6.4.4 The state wise estimates of GFCF from Banking and Insurance sector are discussed below:-

- (a) **Public & Private Sector Banks:** State wise data on construction and machinery & equipment of public banks are collected from these banks through correspondence. In order to complete the coverage, the fixed capital expenditure of private banks has been distributed on the prorata basis of state wise data of the public banks and the GFCF of non-responding public banks has been distributed on the basis of the state-wise number of branches of the particular bank.
- (b) **Financial Investment Companies(FIC):** All India estimates of FIC, including all non-banking non-government companies, are distributed in the proportion of state wise data on paid up capital as received from Ministry of Corporate Affairs.
- (c) **Central/State Finance Companies:** The state wise estimates on construction and Machinery & Equipment of Central Finance Companies i.e., REC, HUDCO, LIC Housing, PFC, FCI, EPFO, and others are added to the data received from State Finance Companies to obtain the consolidated state wise estimates.
- (d) **State Financial Corporation:** Estimates of GFCF from State Financial Corporation are being compiled from annual reports of these corporations directly.
- (e) **Insurance Corporations:** State wise data on construction and machinery & equipment of public Sector Insurance Corporations are collected from these Corporations through correspondence. In case of non-response, the fixed capital expenditure is distributed on the basis of the State-wise number of employees.
- (f) **Other Sub-Sectors:** These sub-sectors include Banking Department of RBI, Regional Rural Banks, Cooperative Credit Societies (including Co-operative

banks, Grain Banks, etc) and Central Financial Corporations. Data in respect of Regional Rural Banks and Cooperative Credit Societies are supplied by NABARD. For others, the estimates are based on the state wise data on construction and Machinery & Equipment made available by the respective institutions.

### Communication

#### Public communication:

- 6.4.5 This sector covers the activities of Post & Telecommunication. The source of data for Posts is Department of Posts and for telecommunication –Department of Telecommunication, BSNL and MTNL. For posts & telecom, circle-wise data on capital expenditure in respect of building, construction and machinery & equipment during the year is obtained from Department of Post. Postal circles are generally co-terminus with the states. Where circle comprises of more than one state, capital expenditure is allocated among different States/UTs using the number of Post offices in different States/UTs within that circle. The All-India capital expenditure for post & telecom is distributed among states in the ratio of capital expenditure among states as compiled above. For BSNL, circle wise data for capital expenditure is obtained separately for construction and machinery from BSNL, New Delhi. All India capital expenditure of BSNL is distributed among circles in the ratio of circle-wise capital expenditure. Where circle comprises of more than one state, capital expenditure is allocated among different States/UTs within that circle in the ratio of Telecom/BSNL Plan Investment. For MTNL, total GFCF is allocated in states in the proportion of actual state wise capital expenditure obtained from MTNL, New Delhi.

#### Private Communication:

- 6.4.6 The estimates of GVA for Private sector of Communication at revised base 2004-05 are allocated on the basis of the estimates of year-wise changes in the GVA, base 2004-05, of Private Communication sector.

### Central Government Administration

- 6.4.7 The State/UT wise fixed capital expenditure for different type of assets is extracted from 'Demands for Grants' documents received from all Central Govt. Ministries/Departments for each financial year. In the "Works Annexure" of these documents, the probable capital expenditure of the projects costing Rs. 50 lakh and above, by type of assets and location, for the previous year are given. However, in case of some of the

Ministries/Departments, the details are available only for the probable capital expenditure costing Rs. 5 crores and above. Besides, in these Annexures, a large amount of money is earmarked under the category 'collective all other works', the identification of which by type of assets and location are not available from these documents.

- 6.4.8 In addition to this, (i) the data for capital formation in respect of 'Border Roads Development Boards' meant for North-Eastern states are distributed among North Eastern States viz., Arunachal Pradesh, Assam, Meghalaya, Nagaland, Mizoram, Manipur and Tripura in proportion to their NVA compiled

from the respective State Govt. Budgets; (ii) the additional capital formation data for Union Territories is also obtained from Home Ministry's Demands for Grants, and (iii) the data relating to Coast Guard Ships/Vessels. Defence Wireless, Machinery for Para Military Forces, Ocean Development, and Satellites etc. is un-allocable data and remains undistributed among the states. The remaining amount of fixed capital formation for central government administration [i.e. Total – (i) – (ii) – (iii)] has been distributed among all States/UTs in the ratios of the state wise amount of fixed capital formation extracted from the available Works Annexure of all Ministries/Departments as detailed in previous paragraph.

### RECOMMENDATIONS OF COMMITTEE ON REGIONAL ACCOUNTS

- A6.1 The Committee emphasized that improvement of estimates at the regional level and filling up data gaps for the purpose would automatically lead to improvement of the estimates at the national level. It would, therefore be desirable that co-coordinated efforts are made to improve the data position in all the states simultaneously so that the fruits of such labour can also benefit and improve the estimates prepared at the centre.

- A6.2 The reliability of the estimates can be broadly grouped into three main categories according to data base:

(i) where data are collected every year (e.g. production of principal crops, mining, registered factories, etc.)

(ii) where 'bench-mark' estimates can be worked out reasonably satisfactorily every few years and the estimates for the intervening years can be worked out by moving the bench mark estimates by means of appropriate indicators of physical output and prices (e.g. livestock products, unregistered manufacturing, construction, trade, services etc.) and

(iii) where national totals are allocated among states by the use of some meaningful indicators (e.g. banking, insurance, railways, central government administration. etc.).

- A6.3 The improvement in the quality of estimates will have to be brought about by improving the data base and priorities will have to be assigned in the task so that a coordinated and planned performance of data improvement can be taken up in accordance with the importance of the sectors or sub-sectors where the reliability of estimates is at present

weak. It is recognized that all the three types of estimates (a), (b) and (c) mentioned above may have to continue for quite some time and in the case of some sub-sectors no change may be possible in the foreseeable future. However, even here, improvements will be necessary. For instance, in regard to estimates listed under (a) above, time-lags can be reduced to a minimum; in regard to those under (b), better 'bench-mark' period estimates can be made and their frequencies might be increased. Also the appropriateness of the indicators used may be improved, whereas for the estimates under (c), allocation methods may need improvement.

- A6.4 It may be, that, in course of time, some of the sectoral estimates of (b) type may have to be upgraded to (a) type estimates and wherever possible, this type of improvement will have to be brought about. One would, for instance, desire that, considering their importance, the estimates of income from construction, or registered trade establishments are worked out through (a) type data base. These factors will have to be taken into account while working out the priorities in the programme of improving the data base.

- A6.5 Each regional economy may be divided broadly into (i) public sector and (ii) the private sector. The latter can be further classified into (i) private organized sector and (ii) private unorganized sector. The private organized sector can be defined to include those enterprises or establishments owned by non-government economic agents, which are registered or covered under one or the other of the widely applied Acts. It is assumed

that, in the manufacturing sector, establishments which are registered under the Indian Factories Act belong to the organized sector. In the trade sector, such establishments or business which are registered under the Sales Tax Act (which are prevalent in almost all the states in one form or another) and in the mining sector, mines registered under the Mineral Conservation and Development Rules may be considered as falling under the organized sector. The rest of the economic entities or establishments can be considered as falling under the unorganized sector. The division is purely one of convenience since the establishments classified as 'organized' enable one to set up a frame for sampling or a frame for identification of the establishments and have, generally speaking, better records and readily available annual accounts.

A6.6 The problems of data improvement are, however, not necessarily related to the organized or unorganized parts of any given sector. For instance, income estimates from registered trade rest today on weak data base, whereas agriculture which definition ally belongs to the unorganized part of the private sector has much better data base at least for the principal crops. But, by and large, the unorganized parts of the economy will need much better data base than the one they have now.

A6.7 The specific steps to be taken for improving the data base in each sector or sub-sector for estimating regional incomes, expenditures, etc., are recommended here. It must, however, be underlined that the Committee has recommended a set of accounts and supporting tables which would involve compilation of additional information. Saving of the region, mixed income of the self-employed in the region and income due to free or reduced cost services furnished by government, private non-profit bodies and by industries, are some instances. Estimation of such additional items increases the magnitude of the task on hand. Here also, priorities will have to be assigned to the construction of accounts and tables. It may be that Account 5 on total consumption and income of the population will have to be given low priority. Another feature of the regional accounts and tables is the conceptual framework which one will have to grasp before the work can be started, and the figures, properly understood and interpreted.

### **Agriculture and livestock**

A6.8 Regular annual estimates of yield rates based on crop cutting experiments are available only for the principal crops. We recommend that

crop cutting experiments may be extended to cover all important minor crops in each state. This list of such minor crops may differ between regions. In the case of unspecified crops, other products and by-products, we feel that surveys should be undertaken at least once in three years to estimate the yield rates and input structure apart from conducting type studies at shorter intervals.

A6.9 Data on livestock population become available once in five years through quinquennial livestock censuses. Yield rates of various livestock products are available only from occasional or ad-hoc surveys conducted by IARS or DMI and are not uniform between states in terms of reference period, etc. There is a requirement of annual estimates of yield rates for providing figures or estimates of livestock products year by year. The Committee recommends that a set of annual surveys be undertaken furnishing estimates of livestock numbers and yield rate of major livestock products in all the states. Surveys may be conducted less frequently for estimating the average yield rates of various other items of livestock products including the subsequent processed products as well as the input structure of different products. The NSSO survey on livestock and livestock products undertaken in the 30<sup>th</sup> Round if repeated at regular intervals would meet the latter requirement.

A6.10 For agricultural and livestock products, it is necessary to collect prices for more items and from more markets, the selection of markets being reviewed periodically. Collection of prices of livestock products, particularly in rural areas, should be intensified. For livestock products, producer prices are usually not available and in order to obtain the estimates of gross output at producer prices, adjustments for trade and transport margins become necessary. This could be avoided by collecting prices regularly from producers.

A6.11 Data on intermediate consumption in respect of agricultural crops and livestock products are inadequate. Recently a comprehensive survey of studying the cost of cultivation or principal crops has been launched by the Ministry of Agriculture on a continuing basis and the requisite data are to be collected for different crops by rotation. The results in respect of individual crops as and when available should be put to use. Each state should examine the crops which are important to their economy and left out of this programme, and organize surveys to collect for such crops data on intermediate consumption and consumption of fixed

capital. All such surveys on cost of cultivation or livestock should collect data on fixed capital formation as well.

### **Forestry and logging**

- A6.12 Output of major forest products by varieties and out-turn and prices of minor forest products have to be collected on a regular basis by state forest departments and the time-lag in the availability of data should be reduced. Studies may be conducted, say once in five years, to estimate the unauthorized/recorded production. Surveys to collect data on intermediate consumption, consumption of fixed capital as well as fixed capital formation need be conducted at least once in five years.

### **Fishing**

- A6.13 Surveys to estimate the catch of inland fishing and subsistent fishing may be conducted by all the states through the collecting agencies in the states. Wherever two sets of estimates of production are available (e.g. CMFRI, Mandapam and state agency), efforts should be made to bring about reconciliation to the extent possible. This is essential as often widely divergent figures are reported. It is also necessary to get data on inputs, repair and maintenance, consumption of fixed capital and addition to capital during the year for both inland and marine fishing. Such information may be collected periodically at least once in five years. For the evaluation of output at 'producer prices' wholesale prices have to be adjusted for trade and transport margins. Attempt therefore should be made to collect producer prices at least from a small sample.

### **Mining and quarrying**

- A6.14 Data on output of all minor minerals as well as the details about intermediate consumption and consumption of fixed capital are not available. Information on inputs and consumption of fixed capital has to be collected in the case of the two major products as well, viz., coal and petroleum. The IBM or state departments of mining and geology may collect such information annually.

### **Other organized sectors**

- A6.15 For manufacturing, while ASI data are available to the states, both for the census and the sample sectors, it is necessary that the states develop their own index number series for industrial production and prices similar to the All-India series. This would provide an appropriate indicator to the states to move the latest available estimates based

on ASI data to obtain current year estimates on a provisional basis.

- A6.16 Although a part of the trade sector belongs to the organized part, hardly any data are available. Available estimates of various aggregates like the value added, capital formation, total turnover and input costs, etc., are very weak. It is necessary that the establishments registered under Sales Tax Act is used as a frame and the turnover figures, also collected in this context, are used to stratify the various establishments covered under the Act. It is generally observed that a very small proportion of the trading establishments account for a large proportion of the total turnover. From the sampling point of view this is a great advantage. It should therefore be possible to organize an all-India survey of distributive trade at the interval of every five years through an appropriate agency. The state statistical agencies will need to co-operate in this matter by updating the frame, and also maintaining turnover figures on an annual basis for estimating figures of value added, etc. for inter-survey years. Similar surveys should also be undertaken for organized transport and professions. Registration under the appropriate act and similar other provisions may supply the appropriate frames.
- A6.17 For construction, the feasible approach would be through the agencies making outlays rather than from institutions like construction companies. For example, in manufacturing, the ASI returns should provide the necessary information.

### **Unorganized sector**

- A6.18 In the case of manufacturing, construction, transport, trade, hotels, etc., and services, some information on the organized/ corporate components will be available.
- A6.19 In the case of the unorganized components of these sectors, it would be necessary to collect comprehensive information on various aspects for a bench-mark year. These bench-mark data are to be supplemented by current data on major indicators of trends of each of the transactions/macro-aggregates for each of the activities on an annual basis for estimation for the intervening years. Till now it has not been possible to organize collection of annual data in these sectors.
- A6.20 As the Committee has observed country-wide periodic censuses/ surveys covering all these economic activities simultaneously will help in obtaining the bench-mark information. It is



understood that the CSO has already initiated action for conducting the first economic census in the country to be followed by sample surveys by types of activities. Considering the magnitude of the sectors to be covered, the collection of data has been planned in two stages. The first stage consists of listing of all establishments, both household and non household, collecting information on some basic characteristics at the listing stage. The sample surveys at the second stage would provide detailed information on inputs, outputs, employment capital formation, sources of finances, factor incomes, etc., on individual economic activities. The project would be comprehensive to the extent of covering all non-agricultural establishments in the unorganized sector and activities like wholesale and retail trade barring public and private corporate enterprises. The Committee hopes that the scheme will be expeditiously implemented and thus the major data gap in these sectors filled to a large extent.

- A6.21 It is also important to ensure that both household and non-household enterprises are covered in the course of data collection both for the census as well as the sample surveys. In other words, the household and non-household surveys should be tied up in such a way that the same set of economic activities are covered at the same time in the household and non-household sectors and the complete results for any particular economic activity are obtained for the same period. Such economic censuses and surveys should be repeated periodically so that adequate bench-mark information relating to the unorganized sectors of the economy flows continuously.
- A6.22 Obviously, however, this programme will not provide the annual output indicators, and these can best be obtained by freezing a fraction of the NSSO and the Economic Census samples and canvassing the same would provide estimates of a limited set of variables that could serve as surrogates of gross output for the unorganized sector. Once there is an agreement about this plan the Committee feels confident that the CSO in consultation with the SSBs could work out the relevant variable or their surrogates.
- A6.23 It will be observed that all private activities except construction have been covered above. The analysis of balance sheets and annual accounts is not likely to prove useful for state level estimates in these sectors. The best way to estimate value added, capital formation etc. is to use information available

from the ASI for organized manufacturing. For other establishments covered under sales tax registration, shop establishments, etc. It should be possible to obtain regularly information on output, input etc. For construction activity the most satisfactory answer for data on output, capital formation etc., may be organization of sample surveys on the basis of area sampling and details available from ASI etc. For non-registered manufacturing as well as other non-registered establishments which are not so covered, it will be necessary to organize large scale sample surveys at least once in five years giving details of output, input, capital formation etc. The estimates for inter-survey years should be built up with suitable indicators based on information on important inputs.

- A6.24 In the municipal areas, there is usually a system of approving building plans and issuing commencement and/or completion certificates. These records also provide a suitable frame for conducting sample surveys in urban areas. In the rural areas, surveys will be necessary to estimate the various aggregates related to the construction sector. These surveys can cover households and unorganized factories, trading establishments, etc., in the private sector.

### **Public sector**

- A6.25 For the public sector, the most outstanding gap in information is with respect to local authorities. Detailed information on income and expenditure of local authorities needs to be collected regularly on an annual basis. The number of local bodies within a region is likely to be large depending upon its size and tiers of local administration. However, the collection of data alone will not suffice and economic analysis of the details would be necessary. The task of analysis would require considerable resources and the problem is enhanced as the presentation of the budget is not uniform and does not provide information in sufficient details. The Committee therefore feels that a uniform system of presentation and classification of accounts of the local bodies is necessary as in the case of state government budgets. The question of collection of the minimum necessary information in a specially devised form for the purpose might facilitate the collection of relevant data as well as their analysis.
- A6.26 At present CSO, besides analyzing the central government budgets, is also engaged in the analysis of budgets of all state governments and local bodies and accounts of non-departmental enterprises for the preparation



of the public sector accounts. Once all the state governments undertake the analysis of the budgets of administrative departments and non-departmental commercial undertakings falling within their jurisdiction within a specified time schedule following uniform classificatory system, the CSO can make use of these results for consolidation thus avoiding the present duplication of work. The CSO can, in turn, concentrate in preparing more detailed analysis of the corresponding counterparts at the centre providing the detailed break-up of various aggregates of the central government, the administrative departments as well as departmental and non-departmental enterprises located in the various states.

### **Private final consumption expenditure**

- A6.27 According to the present long-term programmes of the NSSO, the household consumer expenditure surveys are to be carried out once every five years. The major gaps in the data system in this respect would therefore be relating to the annual indicators which would be needed to carry forward the bench-mark estimates of private consumption expenditure which would be built up in the basis of the NSS data. The SSBs may have to make special efforts in carrying out surveys on a smaller scale in order to build up indicators of consumption of at least the major commodities or built up series of net availability of such commodities to the households for current consumption. However, if the NSSO uses a frozen sample recommended by the Committee, the sample could throw annual estimates of size distribution of an important segment of household consumption. Also surveys should be organized to obtain size distribution of income suitably defined.

### **Capital formation**

- A6.28 Wherever a producing sector is studied in detail through a census/survey, the Committee recommends that the query should cover all capital outlays of the enterprise. This has been mentioned in some of the above sections also, but this specific mention should be considered as the general recommendation of the Committee for all producing sectors.

### **Problems of inter-state comparability**

- A6.29 In the past, the Planning Commission, the Finance Commission and the Ministry of Finance have been handicapped in the use of SDP estimates, not merely, due to conceptual and methodological non-comparability

between the estimates prepared by SSBs but also due to the price differentials that exist between the states. The conceptual and methodological problems have received good deal of attention and have been resolved to some extent. But the problem of differential prices and its effect on the inter-state comparability has not yet received the attention it deserves. The United Nations project on International Comparison of National Accounts aggregates and purchasing power of currencies is devoted to the problem corresponding to price differentials between various countries and the associated question of comparability of per capita incomes. The method used is suitable for a realistic inter-state comparison. India happens to be a participating country of this Project. In view of this, the Committee recommends that the CSO should pursue the project, already initiated, to study the purchasing power parities of the rupee in different states for a more meaningful comparison of domestic product between states. The Committee feels that to pursue this point, it would be desirable to have final outlays on consumption and capital formation by states at intervals more frequent than five year.

### **The co-ordinating function of the CSO**

- A6.30 The SSBs and the CSO in the past have played distinctive roles in the development of regional income studies in the various states. The CSO assisted by a Working Group on State Income which included several Directors of SSBs evolved standard methodologies whose adoption by SSBs has helped in achieving comparability in the estimates prepared by individual states. However, the present expanded work on the subject, as recommended by the Committee in its two Reports, would call for much more important role to be played by CSO and SSBs mainly because of the broader coverage and scope of the work involved. The methodologies suggested, though, broadly conforming to the standard methodologies adopted earlier provide enough flexibility for the states to use better available data. This will call for examination of the methodologies from the point of view of uniformity of concepts as well as representativeness of the data used at the state level. Moreover, the preparation of regional accounts is an entirely new experience for the state. Estimation of the aggregates like capital formation, consumption expenditure and household income is likely to present both conceptual and methodological problems and some SSBs may require guidance from the CSO at least in the initial stages. The preparation of SRA

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and the supporting tables will also necessitate collection of fresh data through sample surveys and type studies at the local level and unless these are enthusiastically pursued by SSBs and co-coordinated by the CSO by providing guidelines at the technical level as well as ensuring their simultaneous implementation, it is unlikely that comparable estimates for all the states will become available soon.

- A6.31 It would be clear from the report that for a large number of items of the accounts and tables the sources of data lie beyond the ambit of the SSBs. Apart from this some of

the estimates to be entered in these accounts are to be based on notional calculations and certain uniformity in these calculations is necessary so that their allocation to all states add up to what in aggregate was allocated initially. This points, therefore, to the necessity of a central agency securing the necessary data, making the calculation of allocation and communicating them to the state. The CSO would thus have to take up this additional role if the SRA is to be put into practice. Without its active participation in this endeavor the states would not be able to prepare the accounts.

Source: *Final report of the Committee on Regional Accounts, Central Statistical Organisation, Department of Statistics, Ministry of Planning, Government of India, September, 1976.*

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## WORKFORCE ESTIMATES IN NATIONAL ACCOUNTS

### Introduction

7.1 In the absence of annual enterprise surveys, the GVA estimates in respect of (i) unorganized segments of manufacturing and services sectors, and (ii) for some segments of private organized services sectors, are compiled indirectly through labour input method using the benchmark-indicator procedure. In this procedure, the benchmark GVA estimates are initially prepared at detailed activity level for the base year of national accounts series using the estimated labour input engaged and the value added per worker (VAPW) in the activity. For subsequent years, the GVA estimates are extrapolated with appropriate proxy indicators relevant to the economic activity. Therefore, for estimating the GVA for these segments of economy, data on labour input and VAPW are required for the base year. It is pertinent to mention here that the labour input used in the national accounts relates to the number of jobs performed in the economic activities, rather than the number of persons employed. This means that a person performing two jobs is counted twice in the labour input procedure adopted in the national accounts. This labour input corresponds conceptually to the labour input used in estimating the value added per worker from the NSS enterprise surveys.

7.2 In the national accounts statistics, the estimates of value added are compiled at detailed activity level, known as 'compilation categories'. These compilation categories are determined by regrouping the economic activities at 4 and 5 digit level described in the National Industrial Classification (NIC), 1998, which, in turn, follows the International Standards Industrial Classification of All Economic Activities, Rev.3 (ISIC Rev.3) of the United Nations. As per the recommendations of the Advisory Committee, the same compilation categories of 1999-2000 series have been used for the base year 2004-05 as well for the sake of comparability of the data between the two series.

### Sources for Estimates of Workforce

7.3 For the new series of NAS, the estimates of Labour Input (LI) for the public, private corporate and unorganized sectors, separately for rural and urban areas, have

been derived compilation category-wise from the results of NSS 61st round (2004-05) of Employment Unemployment Survey (EUS) and population projections as on 1.10.2004 of the Office of the Registrar General of India (RGI). The estimates of LI for the public, private corporate and unorganized sectors have been derived on the basis of place of work in rural and urban areas rather than on the basis of place of residence of the workers. However, while adopting this decision, it was observed that a number of workers had no fixed place of work. Therefore, these workers who had no fixed place of work were redistributed on the basis of their place of residence. Yet another change made in the procedure of estimation of labour input in the new series relates to the source of data for estimating the labour input in the private corporate sector. Previously (till the 1999-2000 NAS series), the labour input for this sector was estimated from the data provided by the Directorate General of Employment and Training (DGET) through their Annual Employment Market Intelligence (EMI) survey. In the new series, the labour input data for the private corporate sector has also been estimated from the results of NSS Employment and Unemployment Survey.

7.3 The estimates of overall labour input adopted in the new series for the compilation categories have been presented in **Appendix 7.1**. For the compilation categories relating to manufacturing sector, labour input for registered sector is available from the data of Annual Survey of Industries (ASI) in 2004-05. The estimates of labour input for unregistered manufacturing segment covered under MSME have been derived from the 'Fourth All India Census of Micro, Small and Medium Enterprises (MSME), 2006-07'. The labour input for the unregistered manufacturing sector (not covered under MSME definition) has been derived by subtracting the labour input in ASI and MSME from the total labour input in the manufacturing activity. For all other compilation categories, the labour input has been estimated separately for private corporate and unorganized sectors from the results of NSS 61<sup>st</sup> round (2004-05) on Employment and Unemployment.

**Estimates of Labour Input as on 1<sup>st</sup> Oct 2004 (as used in NAS 2004-05 series)**

Sl. No.	Nic'98	Description	Rural	Urban	Total
1.	01405	Cotton ginning, cleaning and baling	33762	60737	94499
2.	151	Production, processing and preservation of meat, Fish, fruit vegetables, oils and fats	316025	396175	712200
3.	152	Manufacture of dairy product	189306	179409	368715
4.	153	Manufacture of grain mill products, etc. and animal feeds	2038443	593288	2631731
5.	154	Manufacture of other food products	1405678	1011100	2416777
6.	155	Manufacture of beverages	262377	119368	381745
7.	16	Manufacture of tobacco products	3773963	1269271	5043234
8.	171+172+173	Spinning, weaving and finishing of textile+ Other textiles+ Knitted and crocheted fabrics and articles	4766476	5657319	10423795
9.	181-18105	Wearing apparel, except fur apparel and tailoring	1324467	2418328	3742795
10.	182+19	Dressing and dyeing of fur; manufacture of articles of fur and tanning and dressing of leather; manufacture of luggage, handbags saddlery, harness and footwear	324519	1252199	1576718
11.	20	manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw And plating materials	4673856	1297893	5971749
12.	361	Manufacture of furniture	703836	767065	1470901
13.	21+22	Manufacture Of Paper And Paper Products and publishing, printing and reproduction of recorded media	357967	1339765	1697731
14.	23+25	Manufacture of coke, refined petroleum products and nuclear fuel and rubber and plastic products	288011	692086	980096
15.	24	Manufacture of chemical and chemical products	897379	1354025	2251404
16.	26	manufacture of other non-metallic mineral products	4356349	1036135	5392484
17.	271+2731	Manufacture of Basic Iron & Steel+ Casting of iron and steel	268169	486532	754701
18.	272+2732	Manufacture of basic precious and non-ferrous metals + Casting of non-ferrous metals	108351	203812	312163
19.	371+372	Recycling of metal waste and scrap + non-metal waste and scrap	18965	67848	86813
20.	28	Manufacture of fabricated metal products, except machinery and equipments	1071734	1744159	2815893
21.	29+30	Manufacture of machinery and equipment n.e.c + office, accounting and computing machinery	464305	1053847	1518152

Sl. No.	Nic'98	Description	Rural	Urban	Total
22.	31+32	Electrical machinery and apparatus n.e.c. + radio, television and communication equipment and apparatus	222561	782568	1005129
23.	33+369	Manufacture of medical, precision and optical instruments, watches and clocks+ Manufacturing n.e.c	1213382	2352203	3565584
24.	34+35	Manufacture of motor vehicles, trailers and semi-trailers + manufacture of other transport equipment	297207	827013	1124220
25.	502+50404	Maintenance and repair of motor vehicles and motor cycles	631708	1390383	2022091
26.	50-502-50404	Sale of motor vehicles	133064	624791	757855
27.	51+74991	Whole sale trade except of motor vehicles + Auctioning activities	1955013	3967667	5922680
28.	526	Repair of personal and household goods	1666559	1782476	3449035
29.	52-526	Retail trade (except motor vehicle)	17144333	18298253	35442586
30.	551	Hotels; camping sites etc.	119802	341170	460972
31.	552	Restaurants, bars and canteens	2527803	3516228	6044031
32.	601	Transport via railways			
33.	6021	Scheduled passenger land transport	1218209	1836990	3055199
34.	60221	Non-scheduled passenger land transport by motor vehicles	2751553	4141663	6893216
35.	60231	Freight transport by motor vehicles	3888953	3654691	7543644
36.	60222	Other non-scheduled passenger land transport	1085285	1161339	2246624
37.	60232	Freight transport other than by motor vehicles	1292133	941022	2233155
38.	603	Transport via pipelines			
39.	61	Water Transport	48728	58931	107659
40.	62	Air transport	16972	63045	80017
41.	6302	Storage and warehousing	58345	97129	155474
42.	63-6302	Supporting & auxiliary transport activities	58590	402328	460918
43.	6411	National post activities			
44.	6412	Courier activities	19367	205395	224762
45.	64204	Cable operator	39729	81102	120831
46.	642-64204	other communication	382594	797067	1179661
47.	70	Real Estate Activities	89568	477044	566612
48.	71	Renting of machinery & equipment without operator, personal / household goods	326331	329692	656023
49.	72	Computer and Related activities	50959	857887	908846
50.	7411	Legal activities	120466	505803	626269
51.	7412	Accounting, book-keeping	49966	383416	433382

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Sl. No.	Nic'98	Description	Rural	Urban	Total
52.	73+7413+7414+742+743+749-74991	Research and development+ market research and public opinion polling+ business and management consultancy activities+ architectural, engineering and other technical activities+ advertising+ business activities n.e.c (-) auctioning activities	354211	1475955	1830166
53.	80903+80904	Coaching centres, (+) Activities of the individuals providing tuition	717488	1192383	1909871
54.	80-80903-80904	Education-(Coaching centres,(+) Activities of the individuals providing tuition	5040918	4874932	9915850
55.	851+852	Human health activities+ Veterinary activities	1250156	2289510	3539666
56.	90	Sewage And Refuse Disposal, Sanitation And Similar Activities	228159	335118	563277
57.	91+853	Activities Of Membership Organisations n.e.c. + Social work with accommodation	705982	835671	1541653
58.	92	Recreational, cultural and sporting activities	413251	754800	1168051
59.	9301	Washing and cleaning of textile and fur products	1713157	982972	2696129
60.	9302	Hair dressing and other beauty treatment	1399466	657197	2056663
61.	18105	Tailoring	2186217	1925817	4112034
62.	9303+9309	Funeral and related activities	2232749	2177483	4410232
63.	95	Private Households With Employed Persons	304686	2060702	2365388
64.	99	Extra Territorial Organizations And Bodies	224	23691	23915

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## GROSS DOMESTIC PRODUCT(GDP)-AN OVERVIEW

- 8.1 Domestic product is an indicator of overall production activity. GDP is a measure of production. The level of production determines how much a country can afford to consume and it also helps to assess and understand the level of employment. The concept of GDP in the SNA framework has been briefly discussed in the following paragraphs.
- 8.2 GDP is not intended to measure the production taking place within the geographical boundary of the economic territory only. Some of the production of a resident producer may take place abroad, while some of the production taking place within the geographical boundary of the economy may be carried out by non-resident producer units. For example, a resident producer may have teams of employees working abroad temporarily on the installation, repair or servicing of equipment. This output is an export of a resident producer and the productive activity does not contribute to the GDP of the country in which it takes place. Thus, the distinction between resident and non-resident institutional units is crucial to the definition and coverage of GDP. In practice, of course, most of the productive activity of resident producers takes place within the country in which they are resident. However, producers in service industries which typically have to deliver their outputs directly to their clients wherever they are located are increasingly tending to engage in production in more than one country, a practice which is encouraged by rapid transportation and instantaneous communication facilities.
- 8.3 There are three equivalent approaches to measure the GDP, namely the production, income, and expenditure. The production approach GDP measures the sum of value added of all economic activities within the country's territory (sum of output minus intermediate consumption) plus indirect taxes minus subsidies on products. The expenditure approach GDP depicts the final use (demand) of the output and comprises (i) Government Final Consumption Expenditure (GFCE) (ii) Private Final Consumption Expenditure (PFCE) (iii) Gross Fixed Capital Formation (GFCF), (iv) Change in Stocks (CIS), and (v) Net Export of Goods & Services. The income (value added) generated through the production activity is distributed between the two factors of production, namely, labour and capital, which receive respectively the salaries and the operating surplus/mixed income of self employed. Thus the income approach GDP is the sum of compensation of employees, gross operating surplus and gross mixed income plus taxes net of subsidies on production. In the National Accounts Statistics of India, the production approach GDP is considered to be firmer; and the NAS presents the discrepancy with the expenditure approach GDP explicitly.
- Production approach GDP**
- 8.4 GDP is a concept of value added. It is the sum of gross value added of all resident producer units (institutional sectors, or industries) plus that part (possibly the total) of taxes, less subsidies, on products which is not included in the valuation of output. Gross value added is the difference between output and intermediate consumption.
- 8.5 The underlying rationale behind the concept of GDP for the economy as a whole is that it should measure the total gross values added produced by all institutional units resident in the economy. However, while the concept of GDP is based on this principle, GDP as defined in the System may include not only the sum of the gross values added of all resident producers but also various taxes on products, depending upon the precise ways in which *outputs, inputs and imports* are valued.
- 8.6 **Output:** Output is a concept that applies to a producer unit- an establishment or enterprise- rather than a process of production. Output has to be defined in the context of a production account and production accounts are compiled for establishments or enterprises, and not for processes of production. Output therefore consists only of those goods and services; that are produced within an establishment that becomes available for use outside that establishment. When an enterprise contains more than one establishment, the output of the enterprise is the sum of the outputs of its component establishments.
- 8.7 The output of most goods or services in majority of the cases is recorded when their production is completed. However, when it takes a long time to produce a unit of output, it becomes necessary to recognize that output is being produced continuously and to record it as "work-in-progress". For

example, the production of certain agricultural goods or large durable goods such as ships or buildings may take months or years to complete. In such cases, it would distort economic reality to treat the output as if it were all produced at the moment of time when the process of production happens to terminate. In any case, whenever a process of production, however long or short, extends over two or more accounting periods, it is necessary to calculate the work-in-progress completed within each of the periods in order to be able to measure how much output is produced in each period.

8.8 Goods or services produced as outputs may be used in several different ways. Apart from certain service producers, such as financial intermediaries and wholesale and retail traders whose outputs have special characteristics, goods or services produced as outputs must be disposed of by their owners in one or more of the following ways during the period in which they are produced. Output may:

- be sold: only goods or services sold at economically significant prices are included here;
- be bartered in exchange for other goods, services or assets, provided to their employees as compensation in kind, or used for other payments in kind;
- enter the producer's inventories prior to their eventual sale, barter or other use: incomplete outputs enter the producer's inventories in the form of additions to work-in-progress;
- be supplied to another establishment belonging to the same enterprise for use, as intermediate inputs into the latter's production;
- be retained by their owners for own final consumption or own gross fixed capital formation;
- be supplied free, or sold at prices that are not economically significant, to other institutional units, either individually or collectively.

8.8 A fundamental distinction is drawn between market output, output produced for own final use and other non-market output.

8.9 **Market output:** Market output is output that is sold at prices that are economically significant or otherwise disposed of on the market or intended for sale or disposal on the market. Prices are said to be economically significant when they have a significant influence on the amounts the producers are willing to supply and on the

amounts purchasers wish to buy. Apart from certain service industries for which special conventions are adopted, the value of the market output of a producer is given by the sum of the values of the following items for the period in question:

- (a) The total value of goods and services sold (at economically significant prices);
- (b) The total value of goods or services bartered;
- (c) The total value of goods or services used for payments in kind, including compensation in kind;
- (d) The total value of goods or services supplied by one establishment to another belonging to the same market enterprise to be used as intermediate inputs;
- (e) The total value of changes in inventories of finished goods and work-in-progress intended for one or other of the above uses.

8.10 **Output produced for own final use:** Such output consists of goods or services that are retained for their own final use by the owners of the enterprises in which they are produced. As corporations have no final consumption, output for own final consumption is produced only by unincorporated enterprises: for example, agricultural goods produced and consumed by members of the same household. The output of domestic and personal services produced for own consumption within households is not included, although housing services produced for own consumption by owner-occupiers and services produced on own account by employing paid domestic staff are included under this heading.

8.11 Goods or services used for own gross fixed capital formation can be produced by any kind of enterprise, whether corporate or unincorporated. They include, for example, the special machine tools produced for their own use by engineering enterprises, or dwellings, or extensions to dwellings, produced by households. A wide range of construction activities may be undertaken for the purpose of own gross fixed capital formation in rural areas, including communal construction activities undertaken by groups of households.

8.12 The value of output produced for own final use is given by the sum of the values of the following items for the period in question:

- (a) The total value of goods and services produced by household enterprises and consumed by the same households;

- (b) The total value of the fixed assets produced by an establishment that are retained within the same enterprise for use in future production (own-account gross fixed capital formation);
- (c) The total value of changes in inventories of finished goods and work-in-progress intended for one or other of the above uses.
- 8.13 Additions to work-in-progress on structures intended for own uses are treated as acquisitions of fixed assets by their producers. They are therefore recorded under (b) instead of (c) above.
- 8.14 **Other non-market output:** It consists of goods and individual or collective services produced by non-profit institutions serving households (NPISHs) or government that is supplied free, or at prices that are not economically significant, to other institutional units or the community as a whole. Such output may be produced for two reasons:
- (a) It may be technically impossible to make individuals pay for collective services because their consumption cannot be monitored or controlled. The pricing mechanism cannot be used when transactions costs are too high and there is market failure. The production of such services has to be organized collectively by government units and financed out of funds other than receipts from sales, namely taxation or other government incomes;
- (b) Government units and NPISHs may also produce and supply goods or services to individual households for which they could charge but choose not to do so as a matter of social or economic policy. The most common examples are the provision of education or health services, free or at prices that are not economically significant, although other kinds of goods and services may also be supplied.
- 8.15 A price is said to be not economically significant when it has little or no influence on how much the producer is prepared to supply and is expected to have only a marginal influence on the quantities demanded. It is thus a price that is not quantitatively significant from the point of view of either supply or demand. Such prices are likely to be charged in order to raise some revenue or achieve some reduction in the excess demand that may occur when services are provided completely free, but they are not intended to eliminate such excess demand. Once a decision has been taken on administrative, social or political grounds about the total amount of a particular non-market good or service to be supplied, its price is deliberately fixed well below the equilibrium price that would clear the market. The difference between a price that is not economically significant and a zero price is, therefore, a matter of degree. The price merely deters those units whose demands are the least pressing without greatly reducing the total level of demand.
- 8.16 The value of the non-market output of a producer (other than output produced for own final use) is given by the sum of the values of the following items for the period in question:
- (a) The total value of goods and services supplied free, or at prices that are not economically significant, to other institutional units, either individually or collectively;
- (b) The total value of goods or services supplied by one establishment to another belonging to the same non-market producer to be used as intermediate inputs;
- (c) The total value of changes in inventories of finished goods and work-in-progress intended for one or another of the above uses.
- 8.17 As prices that are not economically significant may reflect neither relative production costs nor relative consumer preferences, they do not provide a suitable basis for valuing the outputs of goods or services concerned. The non-market output of goods or services sold at these prices is, therefore, valued in the same way as goods or services provided free, i.e., by their costs of production. Part of this output is purchased by households, the remainder constituting final consumption expenditures by government units or NPISHs.
- 8.18 **Intermediate consumption:** In the system of national accounts, the intermediate inputs are recorded and valued at the time they enter the production process, while outputs are recorded and valued as they emerge from the process. Intermediate inputs are normally valued at purchaser's prices and outputs at basic prices, or alternatively at producer's prices if basic prices are not available. The increase between the value of

the intermediate inputs and the value of the outputs is the gross value added against which the consumption of fixed capital, taxes on production (less subsidies) and compensation of employees must be charged. The positive or negative balance remaining is the net operating surplus or mixed income. The definition, measurement and valuation of outputs and inputs are, therefore, fundamental to the system. Intermediate consumption consists of the value of the goods and services consumed as inputs by a process of production, excluding fixed assets whose consumption is recorded as consumption of fixed capital. The goods or services may be either transformed or used up by the production process. Some inputs re-emerge after having been transformed and incorporated into the outputs; for example, grain may be transformed into flour which in turn may be transformed into bread. Other inputs are completely consumed or used up; for example, electricity and most services.

8.19 Intermediate consumption does not include expenditures by enterprises on valuables consisting of works of art, precious metals and stones and articles of jewellery fashioned out of them. Valuables are assets acquired as stores of value: they are not used up in production and do not deteriorate physically over time. Expenditures on valuables are recorded in the capital account. Intermediate consumption also does not include costs incurred by the gradual using up of fixed assets owned by the enterprise: the decline in their value during the accounting period is recorded as consumption of fixed capital. However, intermediate consumption does include the rentals paid on the use of fixed assets, whether equipment or buildings, that are leased from other institutional units, and also fees, commissions, royalties, etc., payable under licensing arrangements.

8.20 Intermediate consumption includes the value of all the goods or services used as inputs into ancillary activities such as purchasing, sales, marketing, accounting, data processing, transportation, storage, maintenance, security, etc. The goods and services consumed by these ancillary activities are not distinguished from those consumed by the principal (or secondary) activities of a producing establishment even though the levels at which ancillary activities are carried out do not usually vary proportionately with the level of the principal activity.

8.21 The intermediate consumption of a good or service is recorded at the time when the good or service enters the process of production, as distinct from the time it was acquired by the producer. In practice, the two times coincide for inputs of services, but not for goods, which may be acquired some time in advance of their use in production. A good or service consumed as an intermediate input is normally valued at the purchaser's price prevailing at the time it enters the process of production; that is, at the price the producer would have to pay to replace it at the time it is used.

8.22 In practice, establishments do not usually record the actual use of goods in production directly. Instead, they keep records of purchases of materials and supplies intended to be used as inputs and also of any changes in the amounts of such goods held in inventory. An estimate of intermediate consumption during a given accounting period can then be derived by subtracting the value of changes in inventories of materials and supplies from the value of purchases made. Changes in inventories of materials and supplies are equal to entries less withdrawals and recurrent losses on goods held in inventory.

8.23 When goods or services produced within the same establishment are fed back as inputs into the production within the same establishment, they are not recorded as part of the intermediate consumption or the output of that establishment. On the other hand, deliveries of goods and services between different establishments belonging to the same enterprise are recorded as outputs by the producing establishments and must, therefore, be recorded as intermediate inputs by the receiving establishments.

8.24 The following types of goods and services provided to employees must be treated as part of intermediate consumption:

- (a) Tools or equipment used exclusively, or mainly, at work;
- (b) Clothing or footwear of a kind which ordinary consumers do not choose to purchase or wear and which are worn exclusively, or mainly, at work; e.g., protective clothing, overalls or uniforms. However, uniforms or other special clothing which employees choose to wear extensively off-duty instead of ordinary clothing should be treated as remuneration in kind;

- (c) Accommodation services at the place of work of a kind which cannot be used by the households to which the employees belong - barracks, cabins, dormitories, huts, etc.;
- (d) Special meals or drinks necessitated by exceptional working conditions, or meals or drinks provided to servicemen or others while on active duty;
- (e) Transportation and hotel services provided while the employee is traveling on business;
- (f) Changing facilities, washrooms, showers, baths, etc. necessitated by the nature of the work;
- (g) First aid facilities, medical examinations or other health checks required because of the nature of the work.
- 8.25 Employees may sometimes be responsible for purchasing the kinds of goods or services listed above and be subsequently reimbursed in cash by the employer. Such cash reimbursements must be treated as intermediate expenditures by the employer and not as part of the employee's wages and salaries. The provision of other kinds of goods and services, such as meals, ordinary housing services, the services of vehicles or other durable consumer goods used extensively away from work, transportation to and from work, etc. should be treated as remuneration in kind.
- 8.26 **Valuation of output, Intermediate Consumption and Value Added:** More than one set of prices may be used to value outputs and inputs depending upon how taxes and subsidies on products, and also transport charges, are recorded. Moreover, value added taxes, (VAT), and similar deductible taxes may also be recorded in more than one way.
- 8.27 **Basic and producers' prices:** The System utilizes two kinds of output prices, namely, basic prices and producers' prices:
- (a) The basic price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any tax payable, and plus any subsidy receivable, on that unit as a consequence of its production or sale. It excludes any transport charges invoiced separately by the producer;
- (b) The producer's price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any VAT, or similar deductible tax, invoiced to the purchaser. It excludes any transport charges invoiced separately by the producer.
- 8.28 The amounts charged by non-market producers when they sell output at prices that are not economically significant do not constitute basic or producers' prices as just defined. Prices that are not economically significant are not used to value the output sold at such prices: instead, such output is valued by its costs of production. Neither the producer's nor the basic price includes any amounts receivable in respect of VAT, or similar deductible tax, invoiced on the output sold. The difference between the two is that to obtain the basic price any other tax payable per unit of output is deducted from the producer's price while any subsidy receivable per unit of output is added. Both producers' and basic prices are actual transaction prices which can be directly observed and recorded. When output produced for own final consumption, or own gross fixed capital formation, is valued at basic prices, it is valued at the estimated basic prices that would be receivable by the producer if the output were to be sold on the market.
- 8.29 When output is recorded at basic prices, any tax on the product actually payable on the output is treated as if it were paid by the purchaser directly to the government instead of being an integral part of the price paid to the producer. Conversely, any subsidy on the product is treated as if it were received directly by the purchaser and not the producer. The basic price measures the amount retained by the producer and is, therefore, the price most relevant for the producer's decision-taking.
- 8.30 **Gross value added at basic prices:** Gross value added at basic prices is defined as output valued at basic prices less intermediate consumption valued at purchasers' prices. Although the outputs and inputs are valued using different sets of prices, for brevity the value added is described by the prices used to value the outputs. From the point of view of the producer, purchasers' prices for inputs and basic prices for outputs represent the prices actually paid and received. Their use leads to a measure of gross value added which is particularly relevant for the producer.
- 8.31 **Gross value added at producers' prices:** It is defined as output valued at producers' prices less intermediate consumption valued at



purchasers' prices. As already explained, in the absence of VAT, the total value of the intermediate inputs consumed is the same whether they are valued at producers' or at purchasers' prices, in which case this measure of gross value added is the same as one which uses producers' prices to value both inputs and outputs. It is an economically meaningful measure that is equivalent to the traditional measure of gross value added at market prices. However, in the presence of VAT, the producer's price excludes invoiced VAT, and it would be inappropriate to describe this measure as being at "market" prices.

8.32 Thus in both the cases measure of gross value added and that described in the previous section use purchasers' prices to value intermediate inputs. The difference between the two measures is entirely attributable to their differing treatments of taxes or subsidies on products payable on outputs (other than invoiced VAT). By definition, the value of output at producers' prices exceeds that at basic prices by the amount, if any, of the taxes, less subsidies; on the output so that the two associated measures of gross value added must differ by the same amount.

8.33 **Gross value added at factor cost:** It is not a concept used explicitly in either 1993 or 2008 SNA. Nevertheless, it can easily be derived from either of the measures of gross value added presented above by subtracting the value of any taxes, less subsidies, on production payable out of gross value added as defined. For example, the only taxes on production remaining to be paid out of gross value added at basic prices consist of "other taxes on production". These consist mostly of current taxes (or subsidies) on the labour or capital employed in the enterprise, such as payroll taxes or current taxes on vehicles or buildings. Gross value added at factor cost can, therefore, be derived from gross value added at basic prices by subtracting "other taxes, less subsidies, on production".

8.34 The conceptual difficulty with gross value added at factor cost is that there is no observable vector of prices such that gross value added at factor cost is obtained directly by multiplying the price vector by the vector of quantities of inputs and outputs that defines the production process. By definition, "other taxes or subsidies on production" are not taxes or subsidies on products that can be eliminated from the input and output prices. Thus, despite its traditional name, gross value

added at factor cost is not strictly a measure of value added.

8.35 Gross value added at factor cost is essentially a measure of income and not output. It represents the amount remaining for distribution out of gross value added, however defined, after the payment of all taxes on production and the receipt of all subsidies on production. It makes no difference which measure of gross value added is used because the measures considered above differ only in respect of the amounts of the taxes or subsidies on production which remain payable out of gross value added

8.36 Claims on gross value added, other than payments of taxes, less subsidies, to government used to be described as "factor incomes". While the concept of factor income is no longer used in the 1993 SNA, gross value added at factor cost could be interpreted as measuring the value of the fund out of which so-called "factor incomes" can be paid: it follows that it is equal to the total value of the "factor" incomes generated by production.

### Income Approach GDP

8.37 GDP can also be obtained by adding together the income components that make up value added. GDP by income approach covers only the incomes generated within the domestic economy.

8.38 **Components of value added:** In principle, GDP can be computed by adding together the components of value added and taxes less subsidies on products. Value added includes:

- a) **Compensation of employees:** Compensation of employees is the total remuneration in cash or in kind payable by employers to employees for the work done. Direct social transfers from employers to their employees or retired employees and their family, such as payments for sickness, educational grants and pensions that do not set up an independent fund, are also imputed to compensation of employees;
- b) **Other taxes less subsidies on production:** Other taxes less subsidies on production are taxes payable by employers to carry out production, irrespective of sales or profitability. They may be payable as license fees or as taxes on the ownership or use of land, buildings or other assets used in production or on the labour employed or on the compensation of employees paid.

They are not taxes paid on values of sales or produced outputs, which are called taxes on products;

- c) **Consumption of fixed capital:** Consumption of fixed capital is the cost of fixed assets used up in production in the accounting period; and
- d) **Gross operating surplus:** Gross operating surplus is the residual obtained by deducting the above components from value added. Thus, gross operating surplus includes interest payable to lenders of financial assets, or rent payable to rentiers of non-produced assets, such as land and sub-soil assets.

### **Expenditure Approach GDP**

8.39 **Household final consumption expenditure:** consists of expenditure incurred by resident households on consumption goods or services. Final consumption expenditure excludes expenditure on fixed assets in the form of dwellings or on valuables. Dwellings are goods used by their owners to produce housing services. Expenditure on dwellings by households, therefore, constitutes gross fixed capital formation. When dwellings are rented by their owners, rentals are recorded as output of housing services by owners and final consumption expenditure by tenants. When dwellings are occupied by their owners, the imputed value of the housing services enters into both the output and final consumption expenditure of the owners. Valuables are expensive durable goods that do not deteriorate over time, are not used up in consumption or production, and are acquired primarily as stores of value. They consist mainly of works of art, precious stones and metals and jewellery fashioned out of such stones and metals. Valuables are held in the expectation that their prices, relative to those of other goods and services, will tend to increase over time, or at least not decline. Although the owners of valuables may derive satisfaction from possessing them, they are not used up in the way that household consumption goods, including consumer durables, are used up over time.

8.40 **Consumption expenditures incurred by general government and NPISHs:** The treatment of consumption expenditures incurred by general government and non-profit institutions serving households (NPISHs) is the same. Expenditures on a wide range of consumption goods and services are incurred by general government or by NPISHs, either on collective services or on selected individual goods or services. The government expenditures are

financed principally out of taxation or other government revenues while those of the NPISHs are financed principally out of subscriptions, contributions or donations or property income. Expenditures on the outputs of non-market producers that are provided free, or at prices that are not economically significant, to individual households or the community account for most of the final consumption expenditure by governments and NPISHs. It is important to distinguish between expenditures made by general government or NPISHs on the outputs of non-market producers - i.e., the goods, individual or collective services they actually produce - and the intermediate expenditures and other costs incurred by non-market producers owned by general government or NPISHs in the course of producing those goods or services. The distinction between the inputs to, and outputs from, non-market processes of production needs to be emphasized because the final consumption expenditure made by general government or NPISHs must be incurred on the outputs. The values of these expenditures are equal to the imputed values of the non-market outputs less the values of any receipts from sales. These receipts may be derived from sales of some goods or services at prices that are not economically significant or from sales of a few goods or services at prices that are economically significant (sales of secondary market output).

8.41 **Saving:** Saving is the balancing item in the use of income account. Saving represents that part of disposable income that is not spent on final consumption goods and services. It may be positive or negative depending on whether disposable income exceeds final consumption expenditure, or vice versa. Assuming that saving is positive, the unspent income must be used to acquire assets or reduce liabilities. In so far as unspent income is not used deliberately to acquire various financial or non-financial assets, or to reduce liabilities, it must materialize as an increase in cash, itself a financial asset. If saving is negative, some financial or non-financial assets must have been liquidated, cash balances run down or some liabilities increased. Thus, saving provides the link between the current accounts of the System and the subsequent accumulation accounts. If saving is zero, i.e., if final consumption expenditure equals disposable income, the institutional unit is not obliged to liquidate any assets or change any of its liabilities. Therefore, disposable income can, therefore, be interpreted as the

maximum amount that an institutional unit can afford to spend on final consumption goods and services in the accounting period without having to reduce its cash, liquidate other assets or increase its liabilities. Non-financial and financial corporations have no final consumption expenditure or actual final consumption. Their net saving is equal to their net disposable

- 8.42 **Gross capital formation** is measured by the total value of the gross fixed capital formation, changes in inventories and acquisitions less disposals of valuables. Gross fixed capital formation is measured by the total value of a producer's acquisitions, less disposals, of fixed assets during the accounting period plus certain additions to the value of non-produced assets realised by the productive activity of institutional units. Fixed assets are tangible or intangible assets produced as outputs from processes of production that are themselves used repeatedly or continuously in other processes of production for more than one year. There is substantial diversity in the different types of gross fixed capital formation that may take place. The following main types may be distinguished:

- (a) Acquisitions, less disposals, of new or existing tangible fixed assets, subdivided by type of asset into: (i) Dwellings; (ii) Other buildings and structures; (iii) Machinery and equipment; (iv) Cultivated assets - trees and livestock that are used repeatedly or continuously to produce products such as fruit, rubber, milk, etc.;
- (b) Acquisitions, less disposals, of new and existing intangible fixed assets, sub-divided by type of asset into: (i) Mineral exploration; (ii) Computer software; (iii) Entertainment, literary or artistic originals; (iv) Other intangible fixed assets;
- (c) Major improvements to tangible non-produced assets, including land;
- (d) Costs associated with the transfers of ownership of non-produced assets.

### Main identities

- 8.43 Given the general explanations of the previous section, the main identities connecting the aggregates of the SNA 1993 are summarized in this section: GDP at market prices is defined from the expenditure side as:

Household final consumption expenditure at purchasers' prices

- + NPI final consumption expenditure at purchasers' prices
- + Government final consumption expenditure at purchasers' prices
- + Gross fixed capital formation at purchasers' prices
- + Acquisition less disposals of valuables at purchasers' prices
- + Changes in inventories
- + Exports at purchasers' prices at the frontier (f.o.b.)
- Imports valued f.o.b.

- 8.44 Given this definition of GDP, the following summations are taken over all resident identities hold when the producers:

- (a) GDP = the sum of the gross values added at producers' prices
  - + taxes, less subsidies, on imports
  - + non-deductible VAT;
- (b) GDP = the sum of the gross values added at basic prices
  - + all taxes, less subsidies, on products
- (c) GDP = the sum of the gross values added at factor cost
  - + all taxes, less subsidies, on products
  - + all other taxes, less subsidies, on production.

In cases (b) and (c) the item taxes, less subsidies, on products includes taxes and subsidies on imports as well as on output

### Volume measures

8.45 The SNA emphasizes calculation at constant prices, that is, use of the system(s) of prices which prevailed in a past period(s). The changes over time in the current values of flows of goods and services and of many kinds of assets can be decomposed into changes in the prices of these goods and services or assets and changes in their volumes. Flows or stocks at constant prices take into account the changes in the price of each item covered. They are said to be in volume terms. However, many flows or stocks do not have price and quantity dimensions of their own. Their current values may be deflated by taking into account the change in the prices of some relevant basket of goods and services

#### **Gross and net concept**

8.46 Gross domestic product (GDP) at market prices represents the final result of the

production activity of resident producer units.

8.47 GDP is also equal to the sum of the final uses of goods and services (all uses except intermediate consumption) measured in purchasers' prices, less the value of imports of goods and services.

8.48 Finally, GDP is also equal to the sum of primary incomes distributed by resident producer units.

8.49 Net domestic product (NDP) is obtained by deducting the consumption of fixed capital from GDP.

8.50 The concept of value added should conceptually exclude the counterpart of consumption of fixed capital. The latter, in effect, is not newly created value, but a reduction in the value of previously created fixed assets when they are used up in the production process.

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**Coverage**

- 9.1 The sector comprises agriculture proper, livestock and livestock products and operation of irrigation system. The economic activities included in agriculture proper are (i) growing of field crops, fruits, nuts, seeds and vegetables, (ii) management of tea, coffee and rubber plantations, (iii) agricultural and horticultural services on a fee or on contract basis such as harvesting, baling and thrashing, preparation of tobacco for marketing, pest control, spraying, pruning, picking packing, and (iv) ancillary activities of cultivators such as gur making, transportation of own produce to primary markets, activities yielding rental income from farm buildings and farm machinery and interest on agricultural loans. Livestock and livestock products include breeding and rearing of animals and poultry besides private veterinary services, production of milk, slaughtering, preparation and dressing of meat, production of raw hides and skins, eggs, dung, raw wool, honey and silk worm cocoons etc. Operation of irrigation system comprises supply of water through various Government channels to the agriculturists. Agriculture and livestock activities go together and it is not always feasible to segregate the various inputs like livestock feed, repairs and maintenance costs, CFC etc., into those used in agricultural and livestock production.
- 9.2 According to NIC-2008, the agriculture sector includes agriculture, hunting and related service activities. The economic activities included in the sector are (i) growing of cereals and other crops n. e. c; growing of vegetables, horticultural specialties and nursery products; growing of fruit, nuts, beverage and spice crops. (ii) farming of cattle, sheep, goats, horses, asses, mules and hinnies; dairy farming (includes stud farming and the provision of feed lot services for such animals); other animal farming; production of animal products n.e.c.. (iii) growing of crops combined with farming of animals (mixed farming). This class includes crop growing in combination with farming of animals such as sheep or meat cattle at mixed activity units with specialization ratio in either one of less than 65 percent. (Mixed cropping or mixed livestock units are classified according to their main activity). (iv) Agriculture and animal husbandry service activities, except veterinary activities. (This class includes specialized activities, on a fee

or contract basis, mostly performed on the farm). (v) Hunting, trapping and game propagation including related service activities. These are covered under NIC 2008 codes, 011, 012, 013, 014 and 015. The livestock and livestock products include breeding and rearing of animals and poultry besides private veterinary services, production of milk, slaughtering, preparation and dressing of meat, production of raw hides and skins, eggs, dung, raw wool, honey and silk worm cocoons and increment in livestock. Although the production of meat and meat products, by-products are covered under the manufacturing sector in the ISIC, these are included under this sector, as these are all considered primary activities. Farming of animals is covered under NIC 2008 code 012.

**Methodology of GVA estimation**

- 9.3 The contribution of this sector to the gross domestic product (GDP) is estimated in terms of gross value added (GVA) using the production approach. The estimation of GVA involves valuation of the products and by-products and ancillary activities at the prices received by the producers and deducting there from the value of inputs of raw materials and services consumed in the process of production at purchasers' prices. In respect of operation of irrigation system by government sources, income approach is used. The gross factor income generated as a result of providing irrigation services is estimated. The operation of irrigation system by the agriculturists is not separately taken into account as its output gets reflected in the value of output of crops and the expenditure on its operation in the overall input costs.

**Sources of data  
OUTPUT****Agriculture production**

- 9.4 Directorate of Economics & Statistics, Agriculture (DESAg), in the Ministry of Agriculture is the prime source for agricultural statistics used for the estimation of GVA. The information used for purposes of building up the estimates are (a) the Land Use Statistics (LUS), (b) Area and Out turn of Principal Crops, and (c) Cost of Cultivation Studies.



- 9.5 **Land Use Statistics:** Statistics on land utilisation flow as by-product of a normal activity of the State Revenue Departments, collecting various data for administrative needs of land revenue collection. DESAg publishes these statistics in their annual publication entitled "Agriculture Statistics in India". Detailed statistics of land utilisation which mainly give classification of land put to various uses are continuously available since 1884, though over the period, scopes as well as geographical coverage of statistics have been gradually expanding. Complete LUS are available at present for about 93 per cent of the geographical area. Out of the total geographical area of 328.7 million hectares of the country, complete LUS are available at present for 305.67. Statistics for nearly 86 per cent of the reporting area are based on complete enumeration, 9 per cent of the area on sample surveys and the remaining 5 per cent of the area on ad-hoc basis. DESAg releases estimates of area in mimeographed form under the titles (i) "Land Use Classification and Irrigated Area", (ii) "Area Irrigated Source-wise and Crop-wise", and (iii) "Area under Crops". However, these are released with a time lag of one year. The latest release pertains to the year 2008-09.
- 9.6 **Area and Outturn of Major and Minor Crops:** Periodic estimates of area and outturn of major crops generally known as forecast crops initially prepared by the State agencies are consolidated by the DESAg and issued in the form of crop estimates. For major crops, before the final forecast giving the estimates of area and production, four advanced estimates are issued on the basis of condition of the crop at various stages etc. These forecasts are designed to indicate the main features of the crop at various stages of its growth. The estimates for these purposes are derived from variety of sources, which include Timely Reporting Scheme (TRS), advance estimates given by the States and the reports furnished by the marketing intelligence offices of the DESAg located in different States. In arriving at the level of anticipated production, consideration is given to (i) rainfall and weather conditions, (ii) consumption/off-take of fertilisers, credit etc., (iii) expansion in area under high yielding varieties, (iv) condition factor which indicates the yield expectation, and (v) reports received from the Inspecting Officers in the States. The final forecast estimates containing both area and production for the entire Major and Minor crops are released by the DESAg with a time lag of 4 to 5 months after close of the agricultural year. Revised estimates of production, based on complete coverage of area and yield through Crop Cutting Experiments (CCE) conducted by the respective State Governments, of the preceding year are released along with the final forecast estimates of the year.
- 9.7 The DESAg has divided crops into two groups viz., major and minor crops. Major crops (25) are: Paddy, Wheat, jowar, bajra, maize, ragi, barley, small millets, gram, tur, other kharif pulses, other Rabi pulses, groundnut, sesamum, rapeseed and mustard, linseed, castor seed, safflower, niger seed, soybean, sunflower, cotton, jute, mesta and sugarcane. Minor crops (17) are non-forecast crops. These are potato, onion, banana, tapioca, sweet potato, pepper, ginger, garlic, chillies, turmeric, arecanut, coriander, cardamom, sun hemp, tobacco, guar seed and coconut. The estimates of forecast and non-forecast crops are available at the State level. For forecast crops, four advance estimates, final and fully revised estimates are available whereas for non-forecast crops, only one estimates final estimates is available since 2007 by DESAg. The fully revised estimates of area and production provided by the state have been taken instead of the final estimates provided by the DESAg in new series 2004-05.
- 9.8 Data on wholesale and retail prices collected on weekly basis by the DESAg are published in their (a) Bulletin of Agricultural Prices (weekly), (b) Wholesale Prices of Food grains (weekly), (c) Agricultural Prices in India (annual), and (d) Agricultural Situation in India (monthly). These prices are mostly collected under their marketing intelligence schemes. The centres selected for collection of wholesale prices are distributed all over the country.
- 9.9 **Cost of Cultivation Studies (CCS):** For the purpose of obtaining estimates of cost of cultivation of major & minor crops, a comprehensive scheme was initiated by

DESAg in 1970-71. The scheme envisaged collection of representative data on inputs and outputs in physical and monetary terms and estimating there from the cost of cultivation per hectare and cost of production per quintal of the major crops. The important items for which data is collected through the CCS are (i) Quantity of seed rate by crops per hectare (ii) Value/quantity of by-products by crops per hectare, (iii) Consumption of diesel, mobile oil and grease per tractor/pump set in quantity and value terms, (iv) Utilisation of milk & milk products including details on conversion, (v) Electricity consumed both in value and quantity terms, (vi) Fodder fed to animals (green as well as dry), (vii) Concentrate fed to draught animals, (viii) Cost of insecticides & fertilisers, (ix) Repairs & maintenance expenses of farm machinery, and (x) Marketing expenses including transportation costs to the nearest market/mandi. Data available in respect of items like electricity, insecticides, fertilisers etc., are not utilised as better and more reliable data on such items are available from sources like Central Electricity Authority (CEA), Fertiliser Association of India (FAI), Pesticides Association of India (PAI) etc.

- 9.10 **Other sources:** These are Tea Board, Coffee Board, Rubber Board, Directorate of Arecanut and Spices Development, Directorate of Cashewnut and Cocoa Development, Central Bureau of Narcotics, Directorate of Marketing and Inspection (DMI), National Horticulture Board (NHB), National Sample Survey Organisation (NSSO), Directorate of Sugar and Department of Food and Public Distribution of Ministry of Consumer Affairs, Food and Public Distribution, apart from various studies conducted by the Agro Research Centers and State's Directorate of Economics and Statistics (DES) and Central Statistical Organisation. The use of these data is discussed in the estimation of output at current prices.

### **Livestock Production**

- 9.11 **Integrated Sample Survey:** Recognising the need and importance of reliable and comprehensive data on various aspects of livestock including production of livestock products on a regular basis, the Government of India initiated a centrally

sponsored scheme during the Fifth Five Year Plan called Integrated Sample Survey (ISS). The scheme envisaged establishing the statistical cells in the Animal Husbandry Directorates of various States and Union Territories for the purpose of conducting sample surveys for the estimation of livestock products and carrying out other statistical activities. State-wise sample surveys on estimation of production of major livestock products were taken up in 1976. The detailed data collected include recording of milk yield of the selected animals, feed consumption of bovines, particulars such as breed, number of lactations completed, production and disposal of milk and milk products; production and disposal of dung and study of bovine practices; production, purchase and disposal of eggs, feed supplied to poultry birds, their diseases, deaths and disposals and breed composition etc., and study of poultry practices; sheep number and wool production in the selected flocks, pattern of disposal of wool, feeding and grazing practices of sheep and their diseases, deaths and disposals and study of sheep practices; and number of animals slaughtered according to species, breed and age on the day of visit, live weight and carcass weight after slaughter in the case of meat production.

- 9.12 The Government of India also constituted a Technical Committee of Direction (TCD) for improvement of animal husbandry and dairying statistics in the country. The committee has on it, members representing various statistical organisations at the Centre and in the States, besides subject specialists in the field of animal husbandry. The objective of the committee is to (i) identify the important data gaps, (ii) propose relevant statistical schemes for collection, analysis and dissemination of information, (iii) evolve suitable statistical methodologies, and also (iv) provide approval from time to time for the release of results at the State/National level. The TCD is responsible for finalisation of production estimates of milk, meat egg, and wool. The production estimates of these items available State wise through the ISS are examined rigorously by the TCD for their consistency over the years and by taking into consideration the other aspects like climatic factors etc., which contribute

towards their production. However, for any particular state, if the survey results are not available then the ad-hoc estimates of production prepared by the State Animal Husbandry Departments are substituted.

9.13 With the introduction of ISS and with the efforts of the TCD, the Ministry of Agriculture releases regularly state-wise and all India production estimates of milk, meat, egg and wool. However, still there are problems with regard to the meat production estimates from unregistered sector. The data is published in annual publication titled 'Basic Animal Husbandry Statistics' of the Department of Animal Husbandry and Dairying, Ministry of Agriculture.

9.14 **Indian Livestock Census:** Indian livestock census (ILC) conducted quinquennially is the main source of data on livestock. This provides age-wise and sex-wise data at the district level on a number of different categories of animals separately for urban and rural areas. The estimates for inter-censal and post-census years are arrived at on the basis of compound growth rate observed for each category between two consecutive censuses. The latest i.e., 18<sup>th</sup> Indian livestock census (ILC), was conducted in 2007 and the summary results were made available in December 2010.

9.15 **Other sources:** The data is also collected by different agencies like State Animal Husbandry Departments, Directorate of Marketing and Inspection (DMI), NSSO, Central Silk Board, Khadi and Village Industry Commission (KVIC) and ad-hoc surveys. The information culled from these sources is used for preparing the estimates of production of poultry meat, meat by-products, silk worm cocoons, honey etc.

### INPUTS

9.16 **Fertiliser Statistics:** Fertiliser Association of India (FAI) is publishing data pertaining to state wise dispatches of fertilisers made by the Central Fertiliser Pool, Indian Potash Ltd. and other domestic manufacturers both material wise and nutrient wise in the publication "Fertiliser Statistics". Figures pertaining to pool dispatches are collected by the FAI from the Departments of Agriculture of the various states and mainly relate to imported nitrogenous and complex

fertilisers. However, as regards non-pool fertilisers, the data relate to indigenous material. The total figures of dispatches to various states are arrived at after combining the figures from the pool and non-pool handling agencies. The estimates of state-wise consumption of chemical fertilisers are also published nutrient wise, which are collected by the FAI from the State Agriculture Departments. These consumptions are used for preparing the estimates of fertilizers in new series.

9.17 **Other sources:** The CCS provides information on different inputs. In addition, data from different sources are used to estimate the value of other inputs. These include NSSO, Indian Agricultural Statistics Research Institute (IASRI), All India Debt and Investment Survey (AIDIS), DMI, Integrated Sample Survey (ISS), Pesticide Association of India (PAI), Central Electricity Authority (CEA), State Revenue/Irrigation Departments, etc.

### Estimates at current prices Outturn of agricultural crops

9.18 **Classification:** The valuation of agricultural crops are divided into 11 groups, the first ten crop groups are made according to classification of area under crops of Land Use Statistics. It matches with the classification followed for principal crops by Ministry of Agriculture. The last group is by-products of agricultural crops, covered under 10 crop groups. These groups are: (1) Cereals, (2) Pulses, (3) Oilseeds, (4) Sugar, (5) Fibers, (6) Drugs and Narcotics, (7) Dyes and Tanning, (8) Condiments and Spices, (9) Fruits(fresh and dry) and Vegetables (including floriculture and Kitchen garden), (10) Miscellaneous crops, and (11) By-products. The groups (1) to (10) is classified on the basis of Land Use Classification, the last group i.e., by products includes Gur production and bagasse also, as these activities are performed in farms; whereas straw and stalks and sticks are the remnants of the crops. The list of crops under each of these groups is given in Appendix 9.1

9.19 **Outturn of crops:** The estimates of area and outturn of 42 crops (25 major crops and 17 minor crops) covered in crop groups: (1) Cereals, (2) Pulses, (3) Oil seeds, (4) Sugar, (5) Fibers (6) Drugs and Narcotics, (8)

Condiments and Spices (9) Fruits and Vegetables and (10) Miscellaneous crops, at State level are regularly obtained from the DESAg. The estimates of area and outturn of Fruits and Vegetables, not covered by DESAg are obtained from National Horticulture Board (NHB). The estimates of area and outturn of plantation crops viz., Tea, Coffee, Rubber, Arecanut, Cashewnut and Coca are obtained from their respective commodity boards and area and outturn of opium is obtained from Central Bureau of Narcotics. However, in the case of sugarcane, outturn excluding the quantity converted into gur by the cane growers is taken and gur is evaluated separately. In the case of tea, the estimates of output available from Tea Board relate to production of processed tea instead of raw tea leaves. Since processing is the activity outside the scope of agriculture, the output of raw tea leaves alone is to be taken into account in the agriculture sector and this is taken to be equal to the input of raw tea leaf in the tea processing industry. Data on total quantity of raw tea leaf together with its value are obtained from the Annual Survey of Industries (ASI). However, in the absence of the ASI results the production of tea leaves is estimated as 4.44 times of the processed tea. This norm of 4.44 has been estimated by the Tea Board on the basis of Techno-Economic Surveys. These norms are consistent with the recent study conducted by the DES, Assam. The crops which do not have significant contribution in each of the groups are clubbed under 'other....' of each category. The data on area under such crops is available from Land Use Statistics. Such information is obtained through state DESs and DESAg.

- 9.20 *Toddy*: Toddy crop, a beverage, has now been included. NSSO Publication entitled "Consumption of some important commodities in India 2004-05" (National Sample Survey, 61<sup>st</sup> round), provides monthly per capita quantity and value of consumption for non-food items for each state and UT (with rural and urban break up) and Toddy (in litre) is one of the items (item No.331). The value of Toddy production is estimated by multiplying the value of Toddy consumption in rural and urban area in a State by respective rural and urban population.

- 9.21 *Betel Leaf*: In Assam, the arecanut consumption to betel leaves is 1:4; and about 20% of arecanut production is used for dying purposes. On the basis of this rate, Betel leaf production is estimated for Assam in the 1999-2000 series of National Accounts. For rest of the States production approach is adopted.

- 9.22 *Foreyard and Backyard farming (Kitchen garden)*: This production of crops in foreyard/backyard of houses was taken into account for the first time in the national accounts in the 1993-94 series. The information available in the Report "Operational Land Holdings in India, 1991-92 Salient Features" March, 1997 and Livestock Holding Survey, 1991-92, NSS (48<sup>th</sup> round)" was used to estimate the total area under kitchen garden. The report provides the percentage distribution of operational holdings reporting different types of agricultural production for broad size class of operational holdings, separately for "agricultural production in homestead only" and "outside homestead raising field crops". Under the category "agricultural production in homestead only" the items covered in the Table are (i) poultry (ii) livestock with or without poultry, (iii) kitchen garden and (iv) any other combination. It has also been clarified in the Report that "Homestead may constitute only a part of a plot. Sometimes, gardens orchards or plantations, though adjacent to the homestead and lying within the boundary walls, may be located on a clearly distinct piece of land. In such cases, land under garden, orchard or plantation was not considered as homestead land". For deriving the value of output from kitchen garden, the data available on (iii) above only has been used, although a part of (iv) may also being used as kitchen garden. Since the operational holding used for kitchen garden includes the area occupied by the residential building, an area of 0.01 ha. per holding has been subtracted from the total area estimated to be used for kitchen garden. The estimates of value of output on account of production of crops in foreyard/backyard were made using these area estimates and the value per hectare of fruits and vegetable crops. Since the Report covers only rural sector, the estimated value of output on account of kitchen garden also refers to the kitchen garden in rural areas only. Since the Survey is conducted only once in 10 years, estimates of area under kitchen garden are not available on annual basis. Therefore, for the subsequent years, the ratio of total area under kitchen garden

to the total rural area operated at all-India level (0.21 per cent) as observed in 1991-92, has been assumed to be constant for the subsequent years. As no data under kitchen garden was compiled during Livestock Holding Survey, NSS (59<sup>th</sup> round), old norm i.e., '0.21 per cent of the net sown area' has been used for estimating area under kitchen garden for the new series.

9.23 **Floriculture:** Data on area, production of loose flowers in quintals and spikes in numbers along with respective prices are available annually in the publication titled 'Indian Horticulture Database' of NHB. In the 2004-05 series production is taken from NHB and the prices from the respective State DESs.

9.24 **Miscellaneous crops:** Miscellaneous crops are non-food crops not classified elsewhere. Direct outturn estimates are not available. The estimates of output for these crops are obtained by applying an appropriate average value of yield per hectare to the total area under these crops.

9.25 **Fodder and Grass:** The rates used for estimating production of fodder in the old series were 7.0 Tonne/Hectare for Karnataka and Rajasthan, 2.82 tonne/hectare for Maharashtra and 9.34 Tonne/Hectare for other states. These rates were based on NSS 1955-56 report. The value of these rates and ratios used by the National Commission on Agriculture (NCA, Vol II, 1976) and Feed & Fodder Committee of the Ministry of Agriculture (1974) were adopted. For the New series, these rates are revised on the basis of the recent study conducted by the Socio-Economic Research Centre, which are as under:

*Yield of cultivated Green Fodder*

- 50 tonne/hec. for Irrigated Land
- 25 tonne/hec. for Un-irrigated Land

9.26 Grass is estimated on the basis of the combined area under permanent pasture land, miscellaneous tree crops, fallow lands and net areas sown (using the appropriate weights for different types of areas), which is based on NSS 1955-56 report. Fodder and grass are evaluated at producer prices received from DESs.

9.27 **Sugarcane and Gur:** Conversion of sugarcane into gur is an activity undertaken by the agriculturists. The total sugarcane

production is divided into two parts viz., sugarcane utilised as such and the sugarcane converted into gur. While the former is evaluated at sugarcane prices, the latter is evaluated at corresponding gur prices. Estimates of gur production are not directly available. The estimates are built up using information on quantity of sugarcane used for various purposes. The information on utilisation of sugarcane for seed, chewing, juice making etc., is gathered from the State Agricultural Departments, DMI and the CCS. The quantity of sugarcane crushed by the factories for the manufacture of crystal sugar is obtained from the Directorate of Sugar & Vanaspati, Ministry of Agriculture. The consumption of sugarcane for the production of khandsari, bura etc., is estimated separately for the registered and unregistered establishments from the ASI and NSSO respectively. Out of the total sugarcane, the quantity of sugarcane left over after allowing for the above uses is assumed to be converted into gur.

9.28 The conversion rates from sugarcane to gur are taken from the production estimates of sugarcane in terms of gur, released by the DESAg. Bagasse obtained as a by-product during conversion of sugarcane into gur was estimated as 22.5 per cent of gur production. Socio Economic Research Centre (SERC) in a study obtained the quantity of bagasse production in 100 kg. of gur production from Sugarcane Breeding Institute, Coimbatore. The institute has informed that the ratio of production of bagasse is 30-40 percent of gur production. The rate used for estimating production of bagasse was 22.5% of gur production in old series. Now it has been revised to 35% of Gur production in new series.

9.29 **By-products:** In the process of cultivation of crops and their processing by indigenous methods, several by-products are also produced. However, for the estimation of GVA only those by-products which are readily identifiable and have some definite economic value are considered. The value estimates of these by-products are based on the results of CCS. The value per unit area of the by-products available from the CCS is directly utilised for arriving at the value of output. The Appendix 9.2 (S.No.11) shows the by-products.



### Output of livestock and livestock products

- 9.30 **Classification:** For purpose of estimation of value of output, the livestock products are divided into 7 broad groups viz., (i) milk, (ii) meat group, (iii) eggs, (iv) wool and hair, (v) dung, (vi) silk worm cocoons & honey, and (vii) increment in livestock. The list of products under each of these groups is given in the Appendix 9.3.
- 9.31 **Milk group:** The milk group comprises of milk consumed or sold in fluid form, ghee, butter and lassi produced by the producer households. It has been observed, during discussions with the DES that the quantity of milk used for conversion into ghee, butter and lassi by the producer households was quite minimal and the products converted are consumed mostly by the households themselves. Thus the evaluation of milk has been done as though it is consumed and sold in the fluid form itself. The milk production estimates released by the Department of Animal Husbandry, Dairying and Fisheries (DAHDF), Ministry of Agriculture are used for working out the value of output. The main source of data for milk production is the Integrated Sample Survey (ISS) as mentioned earlier. In some States goat and buffalo milk are not estimated by DAHD. Production of milk, in such cases, is estimated by using yield rate prevalent in the neighbouring States and the production so estimated is added to the production estimated by DAHD. Production of camel milk is also estimated by using the yield per camel in Gujarat.
- 9.32 **Meat group:** Meat group comprises of meat (including edible offals & glands and poultry meat), meat products (fats, heads, legs, etc.) and by-products comprising hides (cattle and buffalo hides), skins (goat and sheep skin) and other products like guts, blood, bones, horns, hoofs etc. The States estimate the total production of meat both from registered and unregistered slaughter houses and furnish the same to the CSO.
- 9.33 **Meat products and by products:** The estimates of meat products and by products are based on the number of slaughtered animals and fallen animals, wherever applicable and the corresponding yield rates. In the new series the value of meat by products (guts , blood , bones , horns , hoops , etc.) excluding hides and skins has been estimated as a percentage of the total value of meat and meat production , in place of the earlier procedure of estimating each and every by product using certain ratios of meat production for different categories of animals. The ratios used for estimating the value of meat by products of different animals to value of meat and meat production are 13.2% for cattle , 13.3% for buffalo , 2.4% for goat , 2.5% for sheep and 5% for pig.
- 9.34 **Eggs & poultry meat:** The data on production of egg is estimated through ISS and is furnished by the Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture. The estimates of poultry meat are prepared using the information on utilisation of eggs and chickens survived. The data are collected through ISS in some of the States. IASRI and some of the State Animal Husbandry Departments also conduct poultry surveys and collect these data. Poultry meat is estimated in terms of number of adult fowls and chickens slaughtered. Poultry meat production equals 50 per cent of the total adult fowls plus chickens & ducklings killed. The latter is worked out as estimated number of chickens during the year plus chickens survived during the year plus 50 per cent of adult fowls minus estimated number of total fowls of the following year.
- 9.35 **Wool and Hair:** In the new series of NAS, SERC has suggested that average yield rate of hair from single humped camel as 700 gm./animal/year and that of a double humped camel as 3.0 kg./animal/year. For revising the yield rates of pig bristles, CSO conducted a Study during Pig Fair at Bhongaon, District Mainpuri (UP). Average yield rates of pig bristles are estimated as 155 gm per pig per year.
- 9.36 **Dung:** The estimates of production of dung are prepared on the basis of information on population and evacuation rates supplied by the Department of Animal Husbandry, Dairying and Fisheries (DAHDF), Ministry of Agriculture. The evacuation rates and population estimates are based on the ISS. For the remaining States, for which estimates are not available, the rates pertaining to the adjoining States along with the annual estimated animal population are

used for arriving at the dung production estimates. Dung is used as manure as well as fuel. The utilisation rates of dung for (i) dung used as manure and (ii) dung used as fuel is supplied by the (DAHDF), Ministry of Agriculture.

9.37 *Silk worm cocoons and honey*: The annual outturn estimates of silk worm cocoons by types (viz., mulberry, tasar, ericot and muga) and honey are obtained from Central Silk Board and KVIC respectively on a regular basis.

9.38 *Increment in stock*: The annual net increase in the population in each state is estimated separately for each category of livestock on the basis of the projected population is intercensal growth rates between Livestock Census (LC) 2003 and LC 2007.

### Valuation of Output

9.39 Conceptually the farm-output needs to be evaluated at a price which measures, as accurately as possible, the income which accrues to the producer. For this purpose either the average price of a commodity at the point of production or at the first point of sale by the producer could be used. The price at the point of production is the average wholesale price at which the commodity is disposed off by the producer at the village site during the specified peak marketing period, i.e., the period immediately following the harvesting of a crop wherein the bulk of the produce is disposed off. Ideally the portion of the produce which is disposed off during a specified marketing period, at the farm site itself should be valued at farm harvest prices and that which is disposed off in the primary markets should be valued at the wholesale prices prevailing in the primary markets with due adjustments for market charges and transport expenses wherever necessary.

9.40 In the case of relatively developed states where the producers have capacity to hold back a substantial portion of their produce and dispose it off at higher prices during the off-season, the use of prices prevailing during the peak marketing period may result in serious under-estimation of the income accruing to the agriculture sector. In such cases, ideally, there should be a system of using the weighted average of the

season and off-season prices for evaluation purposes. It may be observed that the farm harvest prices are collected on a regular basis only in the case of few states. The data for other states are collected only from a few selected centres. However, a reassessment of the current condition indicates that the bulk of the transactions actually take place during the peak marketing period rather than during the harvest period, there being a time lag of 1 to 2 months between the two periods. Due to these considerations, crop wise average wholesale prices prevailing in the primary markets during the peak marketing periods are being used for valuing crop outputs at the state level.

9.41 The wholesale prices are collected by the agricultural produce marketing committees, State Agricultural Departments or by the State DESs under the market intelligence scheme of DESAg. For averaging the weekly wholesale prices available from the selected primary markets, the following procedure is adopted:

- Arithmetic averaging of the prices at the various centers within a district is done to get the weekly district prices.
- Average price for a district is worked out as the arithmetic average over the "peak marketing period" of weekly prices obtained above.
- State average price is obtained as a weighted average of the district wise prices, with weights being the district wise production of the corresponding crops.

9.42 The average prices are used along with the production estimates available from DESAg for obtaining the value of output. In the absence of current price for any crop in a state, the trend observed in the prices of the crop in the adjoining state is used to estimate the current price. The portion of the production retained by the producer for self consumption, seed, livestock feed etc., is evaluated at the average prices arrived at above. However, the quantity procured by the central and state government agencies is evaluated at procurement prices obtained from the Ministry of Consumer Affairs, Food and Public Distribution.

- 9.43 For some principal crops and most of the minor crops, the corresponding district level production and prices are generally not available. The source material and the methodology followed in such cases are discussed in subsequent paragraphs.
- 9.44 For small millets, the average price is taken as 75 per cent of the weighted average prices of jowar, bajra, barley, maize and ragi. This relationship between the prices of small millets and cereal crops has been observed from the price situation available in the case of Madhya Pradesh and Uttar Pradesh which are the principal producing states for small millets and where detailed price data for most of the crops falling under this group are available. The average price for 'other pulses' is taken as 85 per cent of the weighted average prices of arhar, Urad, Moong, Masoor and Horse-gram on the basis of data on production and prices available for Bihar and Madhya Pradesh States.
- 9.45 For crops like banana, mango, citrus fruits and grapes no production data at the district level are available. Therefore, a simple average of the district prices is taken as the state average price. In the case of Arecanut, wholesale prices obtained from the Directorate of Arecanut & Spices Development are deflated by 20 per cent to obtain the producer price of raw Arecanut.
- 9.46 For opium, prices paid to the growers are obtained from the Central Bureau of Narcotics. For raw rubber, the price of sheet rubber prevailing in the Kottayam market of Kerala is used after deflating the same by 28 per cent on the basis of information contained in the Plantation Enquiry Commission Report on Rubber. This allowance is towards the processing charges which are involved in the production of sheet rubber.
- 9.47 As mentioned earlier, for unspecified crop groups, the estimates of outturn are not available. The value of output of unspecified crop groups is obtained by applying an appropriate average value of yield per hectare to the total estimated area under each of these crop groups. The average value of yield per hectare for each unspecified crop group is arrived at from the weighted average value of yield per hectare of crops contained in that group. For example the average value of yield per hectare of 'other cereals' (other than small millets) is worked out as the weighted average value of yield per hectare of jowar, barley, bajra, maize and ragi.
- 9.48 The value of by-products is estimated directly from the results of the CCS.
- 9.49 The prices of livestock and livestock products are obtained from the same source as those for agricultural commodities. Wherever possible, special returns are obtained by State DESs to ensure a reasonable coverage of statewide prices of important livestock/livestock products. The statewide prices are worked out as the simple arithmetic average of all available price observations. As in the case of agriculture, if, in any year price of a product is not available for a given state, the price trend/actual price prevailing in an adjoining state is adopted. Since these wholesale prices relate mostly to urban centres, these are adjusted to conform to the rural prices using the urban/rural price differentials.
- Inputs**
- 9.50 For arriving at the GVA from agriculture and livestock sector, necessary deductions are made from the value of output for intermediate consumption. The various items that are considered as items of intermediate consumption i.e., inputs in this sector are (i) seed, (ii) chemical fertilizers, organic and inorganic manure (iii) livestock feed, (iv) irrigation charges (payable to the government), (v) market charges, (vi) electricity, (vii) pesticides and insecticides, (viii) diesel oil, (ix) current repairs & maintenance of fixed assets and other operational costs, and (x) financial services indirectly measured (FISIM) or imputed bank charges.
- 9.51 **Seed:** Data on seed rates (quantity per hectare) are available from the CCS organised by the DESAg as well as from the State Agricultural Departments for principal crops and some minor crops. These data are supplemented wherever necessary by data contained in the relevant Marketing Reports and other sources. Prices used for the evaluation of output are used to arrive at the value of seed used as input. Average seed rate using the last five years (2002-

2006) data of the Cost of Cultivation Studies (CCS) have been used. The seed rates have been kept constant for the new series.

9.52 **Manure:** The manure consists of dung (organic) manure and inorganic manure viz., chemical fertilisers. No separate estimates of consumption of organic manure are prepared except that of dung manure. It is assumed that the output of dung (other than that used for making dung cakes for fuel purposes) of the animal husbandry is used as input in the agriculture sector. The estimates of consumption of chemical fertilisers are based on the material wise distribution of chemical fertilisers to States by the Central Fertiliser Pool, Indian Potash Ltd., and the domestic manufacturers. Pool distributes imported nitrogenous and complex fertilisers and domestic manufacturers market the indigenous material. These data do not include the stocks with the traders. Hence, there is an implied assumption that the consumption of chemical fertilisers in a particular year is equivalent to the quantity distributed. The consumption of chemical fertilisers is evaluated at retail prices available from the same source.

9.53 **Livestock feed:** The feed consumption of animals used for cultivation activities as well as production of livestock and livestock products, is considered as input. Livestock feed comprises of (i) roughages, (ii) concentrates including salt, medicines and other miscellaneous feed. Roughages include cane trash, grass, fodder, stalks, straw etc., while concentrates are made up of oil cakes, crushed pulses, grains, grams, rice bran, husk, oil seeds, gur etc.

9.54 As regards roughages, the entire production of fodder, cane trash and grass and 95 per cent of production of stalks and straws in the agriculture sector are considered to be consumed by entire livestock population. An adjustment is made for the consumption of these items by animals which are not used in agriculture sector viz., bullocks, horses, and camels etc., mainly used for transportation purposes. Stalks and straws and cane trash are the by-products of the corresponding food grain crops and sugarcane.

9.55 In the new series, feed of livestock has been estimated using the data on feed as available in the cost of Cultivation Studies. The estimates of feed of livestock as available from the CCS have also been corroborated by the studies undertaken on feed of livestock by the State DESs of Maharashtra and Himachal Pradesh. The value of concentrates fed per animal per year for Cattle/ Buffalo is Rs. 685.26, for Sheep, Goat, Pigs is Rs.66.00, and for Poultry is Rs. 121.38 for the base year 2004- 2005.

In addition to this, it has been observed that there is some consumption of fodder by the cattle from forest sources. An estimate of consumption of fodder by the cattle grazing from forest area has been provided by the Forest survey of India, Dehradun. This estimate has been included as output in the forestry sector and as input in agriculture and livestock sector, for the first time in national accounts compilation, in the new series.

In old series, the estimates of concentrates fed to livestock were largely based on the feed rates collected under the 30<sup>th</sup> Round of NSSO, 1975-76. The NSS Report No. 281 "Some Aspects of Production of Livestock Products and Related Characteristics", 30<sup>th</sup> round, 1975-76 provides statewide estimates of quantity of concentrates consumed per day per cow & buffalo in milk for the year 1975-76. From the NSS Report No. 288 "A Note on Some Characteristics of Household Dairy Enterprises", 30<sup>th</sup> round, 1975-76, it has been possible to obtain statewide estimates of the quantity and hence the percentage of the different components of concentrates fed to cattle and buffaloes in milk. These data used in conjunction with the relative consumption rates of other categories of cattle and buffaloes as provided by the results of the studies/surveys undertaken by IASRI/State Animal Husbandry Departments make it possible to estimate the rates of consumption of concentrates fed to all the categories of bovines used for cultivation and livestock purposes for the year 1975-76. The NSS Report No. 288 also provides data on value of different components of concentrates for the year 1975-76. The information on value and quantity provided by this report is used to

estimate corresponding prices. The corresponding prices for the subsequent years are obtained with the help of movement of prices of the relevant agricultural crops.

- 9.56 A small percentage of the total concentrates fed to livestock relates to other animals like goats, sheep, pigs etc. The consumption of concentrates fed to goats and sheep are estimated from the IASRI study "Cost of Production of Sheep Wool in Himachal Pradesh". From this report it is possible to derive the annual consumption of concentrates for goats and sheep. The same norms are assumed for all states in the absence of any other data. Concentrates consumed by goats and sheep for the current year are estimated by projecting the bench mark estimates on the basis of the number of animals projected from the ILCs. The total consumption of concentrates is then split up into different components according to the details available in the above mentioned IASRI study. In the case of pigs no survey results are available and in the absence of such data, the overall average value of consumption relating to goats and sheep is taken.
- 9.57 In old series Poultry feed was estimated from the consumption norms derived from the data available from studies/surveys of egg production and poultry practices carried out in Gujarat, Maharashtra, Punjab and Uttar Pradesh. The concentrates in the case of poultry include grains and ready-made feed. The overall consumption norm based on the surveys referred to above is being used for all other states. The total consumption of concentrates is estimated by using the estimated number of poultry from the ILCs. The quantity thus estimated is split-up into grains and ready-made feed on the basis of the above mentioned reports. The quantity of grains are valued at prices used in the estimation of value of output and the value of ready-made feed is moved to later years using wholesale price index.
- 9.58 **Irrigation charges:** Annual data on irrigation charges payable to the government in lieu of water supplied to the farmers from government owned canals and other means of irrigation are received from the DESs' which are collected by them from the

respective irrigation departments. The items on which information is being collected are (i) sale of water for irrigation purposes, (ii) irrigation cess, (iii) local cess on water charges, (iv) Betterment levy, and (v) other items. However, if a state fails to provide this information, estimates based on budget analysis are substituted which include other receipts also which do not form part of the irrigation charges viz., sale of water for domestic purposes, sale of water for other purposes, sale proceeds from canal plantation, navigation etc.

- 9.59 **Market charges:** The estimates of market charges are prepared separately for agriculture and livestock production. In the revised series no change has been made in the methodology of market charges of livestock production. Market charges in respect of meat are estimated on the basis of Municipal rate on meat, where the charges per animal are available. The charges per animal are Rs.25/- for cattle/buffalo, Rs. 5/-for goat/sheep and Rs. 7/- for pig.
- 9.60 The study of marketing margins is based mainly on two types of data viz. (a) data on price at successive stages of marketing and (b) data on transportation, processing, storage etc. Market Margin study was conducted for 15 crops i.e., paddy, wheat, maize, gram, ginger, mango, potato, onion, arhar, gram, tobacco, gur, groundnut, kapas, apple and tea during 2004-05, by the Directorate of Economics and Statistics(DES), Ministry of Agriculture.
- 9.61 It has been found that the percentage of market margins and market costs to the total value of output of 15 crops is 3.22 as against 2.358 used in 1999-2000 series. The percentage of market charges to the value of output thus obtained is assumed to remain constant over the years until it is revised.
- 9.62 **Electricity:** Data on electricity consumed for agricultural purposes and its corresponding price per unit are obtained from the CEA on an annual basis, at state level.
- 9.63 **Pesticides and insecticides:** The Estimates of pesticides and insecticides have been revised using the data on quantity and prices of pesticides obtained from the directorate of plant protection, Quarantine & Storage, under the Ministry of Agriculture, as against the earlier source of crop care



foundation of India / pesticides association of India.

9.64 **Diesel:** The data on consumption of diesel is estimated from the number of tractors and diesel engines in use and per unit consumption of diesel. The data on the number of tractors and diesel engines used in agriculture is estimated through the ILC. The norms of consumption of diesel per tractor/diesel engine are based on the information collected from the schedules of CCS available annually.

9.65 **Repairs and maintenance and operational costs:** Fixed assets employed in this sector for the purpose of production can be classified into (i) agricultural implements, machinery and transport equipments, (ii) farm houses, barns (grain golas) and cattle sheds, (iii) orchards and plantations, (iv) bunding and other land means, (v) wells, (vi) other irrigation resources etc. The estimates of expenditure on current repairs and maintenance for all these categories except for agricultural implements and machinery have been prepared both for rural and urban areas for the year 1991-92 using the data from AIDIS. The expenditure so obtained has been moved to the preceding and subsequent years by the index of cost of rural/urban 'other construction works', prepared specially for this purpose for getting the estimates at current prices. In the case of agricultural machinery and implements, the point estimate on expenditure on repairs and maintenance for the year 2002-03, obtained from AIDIS, has been moved backward and forward with the help of value of products and by-products of this group.

9.66 The operational costs of livestock products cover current expenditure on production of milk, hides & skins, eggs & poultry, wool & hair, honey and silk worm cocoons. Based on the limited data available on such expenditure, operational costs of production of these products are estimated at the rate of 0.25 per cent of corresponding value of output.

### **Gross value added**

9.67 The estimates of GVA are arrived at by deducting the total value of intermediate consumption from the value of output of this sector and then adding to it the GVA from

government irrigation system. The GVA from the Operation of Government Irrigation Systems (OGIS) is obtained by income approach method i.e. by taking the sum of compensation of employees, operating surplus gross of provision for CFC, the details of which are available from the Central and State Government budgets. Appendix 9.7, 9.8 & 9.9 give the value of output from agriculture, the value of output from livestock and the GVA from the sector as a whole respectively.

### **Estimates at Constant Price**

9.68 For estimation of value added at constant prices, the double deflation method is used wherein various items of output and input are estimated at the base year prices. In a given year, the base year price data viz., the state average price, value of yield per unit of area etc., are used wherever applicable and a method similar to that at current prices is followed to obtain the value of output at constant prices.

9.69 In the case of inputs where quantity data are available, these are evaluated at base year prices. In the case of pesticides and insecticides for which only value estimates are available, the constant price estimates are arrived at by deflating the current price estimates using the relevant index number of wholesale prices of pesticides. The estimates of irrigation charges at the constant price are obtained by projecting the base year estimates by the trend in area irrigated by government sources. In the case of operation of irrigation system, area under irrigation by government canals has been used as an indicator to carry forward the component of the wages and salaries of the staff of the base year to obtain the corresponding estimates at constant prices.

### **Quality and limitations of data base**

9.70 Periodic estimates of 42 (Major and Minor crops) crops are issued by the DESAg in the form of Final Forecast, which are available 4-5 months after the close of the agriculture year. Along with final forecast figures, revised estimates for the preceding year are also published. However, for some of the crops in some states, final forecast figures are not available in time, as such there are revisions in the output data when the fully revised estimates are released one year later. For horticulture crops, periodic

estimates are issued by National Horticulture Board (NHB), which are at variance with those released by State DESs / State Departments of Agriculture/Horticulture. For unspecified crops like 'other oilseeds', 'other cereals', 'other fruits and vegetables' and 'other condiments and spices' etc., only area figures are available on an annual basis. The value of output of these crop groups are, therefore, estimated on the basis of area and output of related major crops/crop groups. DESAg supplies the final LUS with a time lag of 1 to 2 years. The estimates for these crop groups are, therefore, comparatively less reliable. However, it may be mentioned that their contribution in the value of output is quite small. The estimates of production of plantation crops like tea, coffee, cardamom, arecanut, cashew nut, cocoa and rubber are directly obtained from the respective Boards on an annual basis. These are estimated by the Boards on the basis of the returns received from the growers.

- 9.71 Wholesale prices prevailing in the primary markets averaged over the peak marketing period are used for evaluating the production. These prices are usually collected by Agricultural Produce Market Committees and the State Agriculture Departments as well as the State DESs. The data on prices collected by the state governments become available from the State DESs to the CSO with a time lag of about 1-2 years. Usually, state average price data for the crops is not available at the time of compilation of Quick Estimates of national income, as such these estimates are prepared only at national level, using the trends observed in the wholesale price index of respective crops. However, the price data available from the State DESs cover almost all crops which form about 95 per cent of the total output and are considered to be reliable.
- 9.72 The farm output should conceptually be evaluated at prices which accrue to the producer at the first point of transaction. In practice, however, this is not possible as the producer disposes the product at different stages. The more important of these are (i) sales at village farm site, (ii) sales at nearby and distant markets at different points of time, and (iii) retentions for consumption

and other uses like seed, feed etc., in the producer households. The ideal way would be to evaluate transactions at each stage of disposal, at the corresponding price but little information is available to make this possible. Studies, however, show that the disposal of product by producer households is largely in the primary markets during peak marketing periods. Evaluation of output at state average prices worked out as weighted average of district level prices during peak marketing period is, therefore, considered to be the most appropriate under the present circumstances. Further, the produce retained by farmers need to be valued at farm harvest prices conceptually. However, due to lack of data these retained produce are also valued at the state weighted average prices.

- 9.73 Results of ILC 2007 provide age-wise, sex-wise and breed-wise population at the district level for different categories of animals. However, annual data on livestock population is estimated using inter-censal growth rates, which may not take into the conditions, such as drought, floods, etc. prevailing in either of the census years. The estimates of main products viz., milk, egg and wool are obtained from Ministry of Agriculture. These estimates are based on yield rates as well as population evolved through ISS, scientifically planned sample surveys, conducted by the State Animal Husbandry Departments. These surveys are conducted in an objective manner and provide reliable estimates of yield rates. Production of meat of different categories of animals is prepared using the data obtained from the State Animal Husbandry Departments. These estimates suffer from inherent limitations as these do not cover unregistered sector. More over these do not estimate poultry meat, which is estimated through indirect methods.
- 9.74 The estimates of the value of inputs are prepared by using the various sources like CCS, FAI, NSSO, IASRI, State/UT DES, DESAg, CEA, PAI, State Animal Husbandry Departments and AIDIS. The estimates of seed, diesel oil and by-products of agriculture crops are based on the results of the CCS. CCS data are based on 9000 agriculture holdings. The results of such studies may be representative for all India but using the same at state level may not

be correct. In the case of chemical fertilisers, it is assumed that whatever is distributed by the pool and non-pool agencies is consumed. This assumption may not be true but in the absence of any data on stocks there seems to be no other alternative. The concentrates used in the livestock feed are estimated from the NSSO survey results of the 30<sup>th</sup> round. These results pertain to the year 1975-76 and may not be relevant for the later years. In respect of grass, the estimates of livestock feed are based on the NSSO report which pertains to 1955-56. The data on consumption of organic manure are not available and so the output of dung manure in animal husbandry sector is taken as input of agriculture sector. AIDIS form the main

source of information for preparing estimates of repairs and maintenance charges. These surveys are, however, conducted once every ten years and then the annual estimates suffer due to the non-availability of satisfactory annual indicators. The CSO updated a number of rates and ratios in the current series through conduct of type studies in various states. However, few rates and ratios are still old.

- 9.75 The estimates of hunting, trapping and game propagation are found to be insignificant with the available data. However, hunting and trapping is a banned activity, therefore, reliable data are not available on the same.

**LIST OF AGRICULTURAL CROPS**

<b>Crops classification</b>		
<b>Agricultural crops</b>		
<i>Group</i>	<i>Principal crops</i>	<i>Crops covered in LUS</i>
1. Cereals	Paddy, wheat, jowar, bajra, barley, maize, ragi and small millets	Paddy, wheat, jowar, bajra, barley, maize, ragi, small millets and other cereals and millets
2. Pulses	Gram, arhar, other kharif pulses and other rabi pulses	Gram, tur and other pulses
3. Oilseeds	Linseed, sesamum, groundnut, rapeseed & mustard, castor seed, coconut, safflower, Niger seed, soyabean, and sunflower.	Linseed, sesamum, groundnut, rapeseed & mustard, castor seed, coconut, safflower, Niger seed, soyabean, sunflower and other oilseeds.
4. Sugars	Sugarcane	Sugarcane and other sugar
5. Fibres	Kapas, jute, sun hemp, mesta	Kapas, jute, sun hemp, mesta other fibres
6. Drugs & Narcotics	Tobacco, tea and coffee	Opium, tobacco, tea coffee, rubber (classified under misc. crops) and others
7. Condiments & Spices	Cardamom, dry chillies, garlic, black pepper, dry ginger, turmeric, coriander and Arecanut	Cardamom, chillies, garlic, black pepper, ginger, turmeric, Arecanut and others
8. Fruits & Vegetables	Banana, potato, sweet potato, cashew nut, tapioca, and onion	Mango, citrus fruits, banana, grapes, pome fruits, papaya, other fresh fruits, cashew nut, other dry fruits, potato, tapioca, sweet potato, onion, other vegetables
9. Dyes and tanning material		Indigo and others
10. Miscellaneous and unspecified crop groups	Guar seed	Fodder crops, green manure crops and other non food crops
11. By products		

**VALUE OF OUTPUT OF AGRICULTURAL CROPS-DATA SOURCES**

S.NO	GROUPS	SOURCES OF DATA
1	Cereals: Paddy, Wheat, Jowar, Bajra, Barley, Maize, Ragi & Small Millets and other cereals	Production and Area: Directorate of Economics and Statistics (DES), Ministry of Agriculture (M/o Ag) & State DESs in respect of principal crops. Area under other crops is obtained from LUS and state DESs. Prices: State DESs
2	Pulses: Gram. Moong, Tur, Moth, Horse Gram, Masoor, Urad, peas etc. and other pulses	Stated at (1) above.
3	Oil Seeds: Linseed, Groundnut, Rapeseed and Mustard, Sesamum, Castor seed, Coconut, Safflower, Niger seed, Soyabean, Taramira Sunflower and other oilseeds	- do -
4	Sugar: Sugarcane, palmyra, Gur other sugar	Gur production= 9 to 10% of sugarcane used for gur making (total sugarcane production-cane crushed by factories-used for seed-used for chewing-cane used for khandsari)
5	Fibres: Kapas, Jute, Sunhemp, Mesta, other fibres	Stated at (1) above.
6	Indigo dyes and tanning material: Indigo, other dyes and tanning material	State DES of Tamilnadu and Rajasthan for production and prices, LUS for area under other dyes etc.
7	Drugs & Narcotics: Tobacco, Tea, Coffee, Opium, Betel leaves, Isabgol, Saffron, Coca, other drugs & narcotics.	Tea Board, Coffee Board, Cashewnut & Coca Development Board, Central Bureau of Narcotics - for area and production  Prices: DES and respective Boards.
8	Condiments & Spices: Cardamom, Dry chilies, Black pepper, Dry ginger, Turmeric, Garlic, Fennel, Cumin, Ajwain, Methi, Tamarind, Nut meg, Cloves, Cinnamon, Coriander, Arecanut and other condiments and spices	Stated at (1) above.
9	Fruits and Vegetables: Banana, Mango, Grapes, Cashewnut, Papaya, Apple, Mosambi, Lemon, Orange, Lichi, Pineapple, Sapota, Guava, Potato, Sweet potato, Tapioca, Brinjal, Cabbage, Cauliflower, Okra, Tomato, Green peas, mushroom, other vegetables, Onion, Cherry, Almonds, Walnut, Pear other temperate fruits, Subtropical fruits, Other citrus fruits, Jack fruit, Drumstick, floriculture, backyard farming	Area and Production: (1) Land use statistics (LUS), DES/ M/o Ag. (2) National Horticulture Board (NHB), M/o Ag (3) NSS Reports  Prices: State DES
10.	Other Misc. crops: Rubber, Fodder, Mulberry, Guar Seed, Grass, Misc. Food & Misc. Non-food crops	Production: LUS Prices: State DES
11.	By products: Straw, Stalks and sticks of cereals and pulses cane trash, bagasse, poppy seed and poppy husk	Production: 1) CCS Reports 2) State/UT DES's Prices : State/UT DES



**VALUE OF OUTPUT OF LIVESTOCK AND LIVESTOCK PRODUCTS-DATA SOURCES**

Sl. No.	Categories	Item	Sources of Data
1.	Milk	Milk	Integrated Sample Survey (ISS), Dept. of Animal Husbandry, Dairying and Fisheries, M/o Agriculture) for production data. Prices: State DES
2.	Meat Group (i) Meat  (ii) Meat Products (iii) By-products	Beef, Mutton, Pork, Poultry Meat and glands  Fats, heads and legs  Hides, skin, guts, blood, bones, horns, hoofs, tail stump, useless meat and Oesophagus	Production : State DESs Yield rates of CSO studies Prices: State DES  (ii) and (iii)  Production: CSO studies Prices : State DES
3.	Eggs	Eggs	Production : ISS Prices: State DESs.
4.	Wool & Hair (i) Wool (ii) Hair and Bristles	Sheep Wool Goat hair, Camel hair and Pig bristles	Prod. : ISS; Prices : State DESs Prod. : CSO Studies Prices: State DESs
5.	Dung	Dung Fuel and Dung Manure	Prod. : ISS Prices : State DESs
6.	Silk worm, Cocoons and Honey	Silk worm (Mulberry, Tussar, Ericot and Munga), Honey	Silk worm: Central Silk Board for prodn. and prices; Honey: KVIC for production and prices
7.	Increment in Stock	Increment in livestock of all categories of all animals	Population : 17 <sup>th</sup> all India Livestock Census (15 Oct. 2003) and 18 <sup>th</sup> Live stock Census (15 <sup>th</sup> Oct.2007), Prices : State DES

**VALUE OF INPUTS: AGRICULTURE AND LIVESTOCK SECTORS***(Data sources & Methodology)*

S.No.	Inputs	Data Sources	Methodology
1.	<b>Seed</b>	Area: DESAg Consumption: CCS Price: State DESs	Production: Area * Consumption (per ha.) Value: Prod * price
2.	<b>Organic manure</b>	Production: ISS, DAHDF Prices: State DESs Utilisation of Dung for manure purpose – rate provided by DAHDF	Production: Evacuation rate * population (bovine animals);
3.	<b>Chemical Fertiliser</b>	Prod. & Price: Fertiliser Association of India (FAI)	Value= Prod * Price
4.	<b>Pesticides &amp; Insecticides</b>	Production: Crop Care Foundation of India (CCFA) & M/Agriculture Prices : WPI	Method: Prod. * Price
5.	<b>Irrigation Charges</b>	Budget documents of State Governments	Budget Heads used,
6.	<b>Electricity</b>	Production: Central Electricity Authority(CEA) Price: WPI	Prod (Electricity consumed by Agriculture) * Price
7.	<b>Market charges</b>	Adhoc surveys (Market Intelligence Unit of DESAg), 2004-05 for market charges of agriculture	Agriculture: 3.22% of GVO Livestock : Cattle & Buff (Rs. 25), Goat and Sheep (Rs. 5 ), Pig (Rs. 7)
8.	<b>Diesel Oil</b>	Prices: Indian Oil Corporation Prod: No. of tractors and Diesel Engines from the ILC and consumption rates from CCS	<ul style="list-style-type: none"> <li>Total consumption of High Speed Diesel(HSD) by tractors * Price of HSD</li> <li>ii) Total consumption of Low Speed Diesel(LSD) by Diesel Engines * Price of LSD</li> </ul>
9.	<b>Current repairs, Maintenance of fixed assets &amp; Operation Cost</b>	AIDIS(2002-03) (Decennial)+surveys	0.25% of value of output of Milk, hides & skin, Eggs & Poultry Meat, Wool & Hair, Honey & Silk worm cocoons. +Repair & Maintenance of fixed assets of Agriculture
10.	<b>Feed of livestock</b>	Roughages: as estimated in crop production Concentrates: ILC(population), CCS Studies for consumption rates, Prices: WPI	Production.: Consumption rate * population (Bovine & Ovine)
11.	<b>FISIM</b>	As estimated in the banking sector of national accounts statistics	

**AVERAGE YIELD RATES OF PRODUCT AND BY PRODUCTS OF MEAT (K.G.)**

S.No.	Product/ By-Products	Average Yield Rates 2004-05 Series		
		Cattle Buffalo	Goat/ Sheep	Pig
1	Edible offals & glands	4.444/ 5.094	0.706/ 0.708	1.741
2	Heads	5.889/ 7.313	0.792/ 0.811	3.485
3	Legs	4.889/ 6.094	0.455/ 0.539	1.042
4	Fats	4.806/ 8.97	0.286/ 0.219	2.670

**CONTRIBUTION OF EACH GROUP IN THE VALUE OF OUTPUT OF AGRICULTURAL SECTOR**  
(2004-05)

Sl. No.	Group	Share (%)	Items
1.	Cereals	21.9	Cereals: Paddy, Wheat, Jowar, Bajra, Barley, Maize, Ragi & Small Millets and other cereals
2.	Pulses	3.2	Pulses: Gram. Moong, Tur, Moth, Horse Gram, Masoor, Urad, peas etc. and other pulses
3.	Oilseeds	7.2	Oil Seeds: Linseed, Groundnut, Rapeseed and Mustard, Sesamum, Castor seed, Coconut, Safflower, Niger seed, Soyabean, Taramira Sunflower and other oilseeds
4.	Sugar	4.5	Sugar: Sugarcane, palmyra, Gur other sugar
5.	Fibres	2.9	Fibres: Kapas, Jute, Sunhemp, Mesta, other fibres
6.	Indigo	0.0	Indigo dyes and tanning material: Indigo, other dyes and tanning material
7.	Drugs and Narcotics	2.2	Drugs & Narcotics: Tobacco, Tea, Coffee, Opium, Betel leaves, Isabgol, Saffron, Coca, other drugs & narcotics.
8.	Condiments and spices	2.5	Condiments & Spices: Cardamom, Dry chilies, Black pepper, Dry ginger, Turmeric, Garlic, Fennal, Cumin, Ajwain, Methi, Tamarind, Nut meg, Cloves, Cinnamon, Coriander, Arecanut and other condiments and spices
9.	Fruits & Vegetables	18.2	Fruits and Vegetables: Banana, Mango, Grapes, Cashewnut, Papaya, Apple, Mosambi, Lemon, Orange, Lichi, Pineapple, Sapota, Guava, Potato, Sweat potato, Tapioca, Brinjal, Cabbage, Cauliflower, Okra, Tomato, Green peas, other vegetables, Onion, Cherry, Almonds, Walnut, Pear other temperate fruits, Subtropical fruits, Other citrus fruits, Jack fruit, Drumstick, floriculture, backyard farming
10.	Other Miscellaneous crops	4.5	Other Misc. crops: Rubber, Fodder, Mulberry, Guar Seed, Grass, Misc. Food & Misc. Non-food crops
11.	By Products	4.7	By products: Straw, Stalks and sticks of cereals and pulses cane trash, bagasse, poppy seed and poppy husk
<b>12.</b>	<b>Total crops</b>	<b>71.8</b>	
13.	Milk	19.4	Milk
14.	Meat group	4.9	Beef, Mutton, Pork, Poultry Meat and glands, Fats, heads and legs, Hides, skin, guts, blood, bones, horns, hoofs, tail stump, useless meat and Oesophagus
15.	Eggs	0.9	Eggs
16.	Wool group	0.1	Sheep Wool Goat hair, Camel hair and Pig bristles
17.	Dung	2.5	Dung Fuel and Dung Manure
18.	Silk group	0.3	Silk worm (Mulberry, Tussar, Ericot and Munga), Honey
19.	Increment in livestock	0.1	Increment in livestock of all categories of all animals
<b>20.</b>	<b>Total livestock</b>	<b>28.2</b>	
<b>21.</b>	<b>Total agriculture</b>	<b>100.0</b>	

**VALUE OF OUTPUT FROM AGRICULTURE (PROPER) 2004 - 2005**

<b>S. No.</b>	<b>Item</b>	<b>Rs. Crore</b>		<b>Item</b>	<b>Rs. Crore</b>
<b>1</b>	<b>Cereals</b>	<b>139766</b>	<b>6</b>	<b>Sugars</b>	<b>28443</b>
1.1	Paddy	73162	6.1	Sugarcane	17379
1.2	Wheat	47788	6.2	others	11064
1.3	Jowar	4547	<b>7</b>	<b>Drugs &amp; narcotics</b>	<b>13927</b>
1.4	Bajra	4416	7.1	Tea	3134
1.5	Barley	712	7.2	Coffee	2003
1.6	Maize	7636	7.3	Tobacco	2499
1.7	Ragi	1173	7.4	Others	6291
1.8	Small millets & Other cereals	332			
<b>2</b>	<b>Pulses</b>	<b>20246</b>	<b>8</b>	<b>Condiments &amp; Spices</b>	<b>15829</b>
2.1	Gram	7970	8.1	Cardamom	365
2.1	Arhar	3957	8.2	Chillies	4506
2.3	Urad	2041	8.3	Black Pepper	574
2.4	Moong	1829	8.4	Dry Ginger	1461
2.5	Masoor	1820	8.5	Turmeric	1971
2.6	Horse gram	220	8.6	Areca nut	2567
2.7	Others	2409	8.7	Garlic	1203
<b>3</b>	<b>Oilseeds</b>	<b>46053</b>	8.8	Coriander	537
3.1	Linseed	306	8.9	Others	2646
3.2	Sesamum	1845	<b>9</b>	<b>Fruits &amp; Vegetables</b>	<b>116055</b>
3.3	Groundnut	11165	9.1	Banana	8456
3.4	Rapeseed & Mustard	12047	9.2	Cashew nut	1480
3.5	Castor	1316	9.3	Potato	8775
3.6	Coconut	7177	9.4	Sweet Potato	801
3.7	Niger seed	200	9.5	Tapioca	2148
3.8	Safflower	265	9.6	Onion	3593
3.9	Sunflower	1894	9.7	Floriculture	5023
3.10	Soya bean	9587	9.8	Kitchen garden	2714
3.11	Others	250	9.7	Other	83066
<b>4</b>	<b>Dyes &amp; Tanning material</b>	<b>71</b>	<b>10</b>	<b>Other Crops</b>	<b>29035</b>
<b>5</b>	<b>Fibres</b>	<b>18759</b>	10.1	Rubber	3871
5.1	Kapas	17062	10.2	Guar Seed	867
5.2	Jute	1499	10.3	Miscellaneous crops	24297
5.3	Sun hemp	30	<b>11</b>	<b>By-products</b>	<b>30314</b>
5.4	Mesta	157	11.1	Straw & Stalks	27580
5.5	Others	11	11.2	Others	2733
				<b>Total value of output</b>	<b>458496</b>



**VALUE OF OUTPUT FROM LIVESTOCK**  
(2004 - 2005)

<b>S. No.</b>	<b>Item</b>	<b>Rs. Crore</b>
<b>1</b>	<b>Milk Group</b>	<b>123907</b>
<b>2</b>	<b>Meat Group</b>	<b>31259</b>
2.1	Meat	26613
2.1.1	Beef	2893
2.1.2	Mutton	9969
2.1.3	Pork	1634
2.1.4	Poultry meat	12118
2.2	Meat products	1079
2.3	By-products	3566
2.3.1	Hides	1353
2.3.2	Skin	1410
2.3.3	Other by-products	804
<b>3</b>	<b>Eggs</b>	<b>5850</b>
<b>4</b>	<b>Wool &amp; hair</b>	<b>326</b>
4.1	Wool	244
4.2	Hair & bristles	82
<b>5</b>	<b>Dung</b>	<b>16051</b>
5.1	Dung fuel	6397
5.2	Dung manure	9654
<b>6</b>	<b>Silk worm cocoons &amp; honey</b>	<b>1699</b>
<b>7</b>	<b>Increment in stock</b>	<b>943</b>
<b>8</b>	<b>Total value of Output</b>	<b>180034</b>

**VALUE ADDED FROM AGRICULTURE AND ALLIED ACTIVITIES**  
(2004 - 2005)

<b>S. No.</b>	<b>Item</b>	<b>Rs. Crore</b>
<b>1</b>	<b>Value of output</b>	<b>638530</b>
1.1	Agriculture	458496
1.2	Livestock	<b>180034</b>
<b>2</b>	<i>Less input</i>	175865
2.1	Seed	12537
2.2	Organic manure	9654
2.3	Chemical fertilizers	23953
2.4	Current repairs, maintenance of fixed assets & Other operational costs	3249
2.5	Feed of livestock	87714
2.6	Irrigation charges	1333
2.7	Market charges	14837
2.8	Electricity	6006
2.9	Pesticides & insecticides	920
2.10	Diesel oil	10428
2.11	<i>FISIM</i>	5234
<b>3</b>	<b>Gross Domestic product</b>	<b>476634</b>
3.1	Agriculture & allied activities	462665
3.2	Operation of irrigation system	13969

**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. Contribution to GDP, of Forestry and logging sector is approximately 2.1%.
- 10.2 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) Non Timber forest products(NTFP) formerly known 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-2008, 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 code 020.

**Methods of Estimation of Gross Value Added**

- 10.4 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 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. The Appendix 10.3 shows the estimates of GDP from forestry sector for the year 2004-05.

### 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 Non Timber 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 Non Timber forest products from the forests. The value of Non Timber 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). 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 authorized produce of Government forests. In addition to the production of industrial wood from these Government forests, there would be (i) authorized (but unrecorded) and unauthorized removals of timber from reserved/protected forests and (ii) unrecorded production from private owned forests and nontraditional forest areas (e.g., trees in village common fields, ridges, canal sides, road sides, fruit trees no longer productive etc.). The authorized 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. The data on output of industrial wood from "trees outside forests" has been provided by Forest Survey of India (FSI). Prices for the same have been derived from industrial wood prices of SFDs.

- 10.8 Non Timber Forest Products (NTFP): Data on quantity and producer prices of most of the non timber forest products (NTFP) are available from the SFDs. The items of NTFP vary from state to state. The agencies/arrangements for gathering the are also different from state to state, although data on NTFP 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. Fodder from Forest sources have been included in the National Accounts Compilation. This item has been included in consultation with Ministry of Environment and Forests as part of Minor Forest Products. It has been estimated by Forest Survey of India (FSI) that at national level 15.5% of livestock population is solely dependent on forest areas for fodder/roughages. This proportion has been used to arrive at value of fodder from forest sources.

10.9 Fuel wood: It constitutes an important basic need for large segment of the population. 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), 55th (1999-2000) and 61st (2004-05) 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 fuel wood 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 1998-99 and 2003-04.

- (ii) The consumption of fuel wood 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, arhar, jute, rapeseed & mustard, sunflower, castor sticks and baggasse) whose value of output has already been taken into account in the agriculture sector. This ratio built up for the base year is adapted 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 fuel wood and chips by the households per months, according to various consumer expenditure surveys of NSSO. The appendix 10.2 provides the total consumption of fuel wood and chips by households during 2004-05.

### 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 is around 15.6 per cent. This norm is utilized for estimating the material inputs in this sector for new series 2004-05.

### **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, state wise estimates of the value of output are obtained by using the corresponding base year (2004-05) 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 study by the Indian Council for Forest Research and Education (ICFRE), funded by the CSO has provided some useful information about fodder from forest which has been included in the 2004-05 series.

- 10.17 The input rates for the forestry sector is estimated at 15.6 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.



**ESTIMATED CONSUMPTION OF FUELWOOD AND CHIPS**

NSS Round	Consumption per person per 30 days	
	Rural (Kg.)	Urban (Kg.)
27 <sup>th</sup> (1972-73)	21.87	12.42
32 <sup>nd</sup> (1977-78)	17.89	10.02
38 <sup>th</sup> (1983-84)	15.74	8.79
43 <sup>rd</sup> (1987-88)	16.24	7.40
50 <sup>th</sup> (1993-94)	17.27	6.09
55 <sup>th</sup> (1999-2000)	17.70	5.34
61 <sup>st</sup> (2004-05)	21.44	6.29

## Appendix 10.2

**ESTIMATED TOTAL CONSUMPTION OF FIREWOOD AND CHIPS**

Year	Total consumption- Qty (Million. MT)			Growth Rate
	Rural	Urban	Total	
1993-94	135.91	17.86	153.77	
1994-95	139.79	17.60	157.40	2.4
1995-96	143.73	17.35	161.07	2.3
1996-97	147.71	17.09	164.80	2.3
1997-98	151.14	17.01	168.14	2.0
1998-99	153.95	17.10	171.05	1.7
1999-00	160.38	17.66	178.04	4.0
2004-05	202.20	23.83	226.03	26.9

## Appendix 10.3

**GDP FROM FORESTRY SECTOR**

Item	Estimate, 2004-05 (Rs. Crore)	(% of value of output)
1. industrial wood	37089	50.8
2. firewood	26195	35.9
3. NTFP	9749	13.3
4. value of output	73033	
5. inputs	11393	15.6
<b>6. GDP</b>	<b>61640</b>	84.4

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## FISHING

### Coverage

- 11.1 In the national accounts, activities covered in the fishing sector are (i) commercial fishing in (a) ocean, coastal and offshore waters and (b) inland waters, that include catching, tackling and gathering of fish from rivers, irrigation and other canals, lakes, tanks, fields inundated tracts etc., (ii) subsistence fishing in inland waters and artificial ponds, (iii) gathering of sea weeds, sea shells, pearls, sponges and other ocean and coastal water products and (iv) fish curing viz., salting and sun-drying of fish. In order to cover the production of goods for own consumption, as recommended in the System of National Accounts (SNA), subsistence fishing has been included in the coverage. Activities of salting and sun-drying of fish are also included in this sector, since these are undertaken predominantly by the same households, which are engaged in commercial/subsistence fishing.
- 11.2 According to the National Industrial Classification (NIC) 2008, the activities that are covered in the fishing sector under NIC code 050 are (i) fishing on commercial basis in ocean, sea, coastal areas and inland waters, (ii) gathering of marine materials such as natural pearls, sponges, coral and algae, (iii) fish farming, breeding and rearing including operations of hatcheries for fin and shell fish, mollusks, aquatic plants and cultivation of oysters for pearls or food, and (iv) service activities related to marine and fresh water fisheries and to operators of fish hatcheries or fish farms.
- 11.5 The estimates of production from coastal marine sector are compiled through a sample survey in all the maritime states. The marine fish landing takes place all along the coast line in all seasons. The data on production of marine fish is collected through a stratified multistage random sampling (stratification being over space and time). The stages of selection of sampling units are (i) fish landing centres, (ii) days within a month, and (iii) fishing vessels/craft for weighment of fish landed. The survey is conducted consecutively for two days in each centre adopting both enquiry and observation methods. On the fixed time of observation, the landings of first 10 fishing vessels are enumerated completely. When the fishing vessels exceed ten in number, then additional units are selected as (i) every second unit in next ten, (ii) every fifth vessel upto 50<sup>th</sup> and (iii) every tenth vessel thereafter. Night catches between the first and second day are ascertained by contacting fishermen and local persons at the landing centers. The sampling design for collection of marine fish data has been developed by the Central Marine Fisheries Research Institute (CMFRI), Kochi.
- 11.6 For estimating the inland production, each state is divided into 3 zones or strata based on the fish culture practices, rainfall, temperature, soil condition and other geographical parameters. A sample of three districts from high rainfall stratum, sample of two districts from moderate rainfall stratum and one district from low rainfall stratum are selected. The sampling frame of all the selected districts is prepared by enlisting all the villages of each district. This frame is further divided into 3 strata in such a way that the number of villages in each stratum is nearly equal. From each stratum within a district, six villages (called key villages) are selected at random from the list of villages. A random sample of 4 villages surrounding each of the key villages, are then selected. In this way, a sample of six clusters of 5 villages each in a stratum is selected. A cluster of villages will constitute the first stage unit and the ponds within cluster as the second stage unit. Selected villages are surveyed completely and all the water units in the village are enumerated by physical observation for estimating the average area under water units. After completing the above information, a random sub-sample of 5

### Method of Estimation of Gross Value Added (GVA)

- 11.3 The GVA from the fishing sector is estimated by production approach. It involves the estimation of total value of output at factor cost and deducting there from the value of various inputs at purchasers' prices which are used in the process of production. The estimates are prepared at the State level. Appendix 11.1 shows the estimates of GDP of fishing sector for 2004-05.

### Sources of data

- 11.4 The sources of data on fisheries statistics are the State Fisheries Departments (SFDs). The data on fish production is captured under following the categories:
- (i) Marine – (a) coastal marine  
                  (b) Deep sea; and
  - (ii) Inland – (a) aquaculture  
                 (b) Capture fisheries.

water bodies are selected from each cluster for observing fish catch from the sub-sample of water units. Further sampling in time is also adopted so that each water unit is visited at least once in a month for recording the catch more accurately and for providing for estimates of monthly catches. This sample is used for estimation of catch of fish from this class of resources. The sampling design for collection of inland fish data has been developed by the Central Inland Fisheries Research Institute (CIFRI), Barrackpore, West Bengal.

### Estimates at current prices

#### Value of Output

- 11.7 **Marine fish:** Data on estimated landings of marine fish, prices and value of fish catch are directly obtained from the SFDs of maritime states/union territories. For the estimation of marine fish production almost all maritime States follow the statistical sampling design. The produce of prawns is separately valued.
- 11.8 **Inland fish:** The data on inland fish production are also supplied by the SFDs. By and large the estimates are prepared on the basis of market arrivals of fish or on the basis of surveys conducted in selected landing centers; the key information that is used in collecting data on inland fish is on the data in respect of inland water bodies. The produce of prawns is separately valued.
- 11.9 **Subsistence fishing:** The data supplied by the SFDs includes production from subsistence fishing, in the case of most of the states. For other states, it is estimated at 12.5 per cent of inland fish production. This ratio has been arrived at on the basis of type studies conducted by few state Governments.
- 11.10 **Salting, Sun-drying and Frozen Fish:** Most maritime states resort to allied activities of fish curing, which include salting and sun drying of fish. The data on quantities and prices of fish let-in (raw fish going into salting, sun drying and frozen purposes) and fish let-out (the resultant salted, sundried and frozen fish) is also available from, the SFDs.
- 11.11 **Other products:** Data on producer prices and value of output in respect of gathering of pearls, chanks, oysters, sea-weeds, lime-shells, sea-shells etc., are not available, as such these are not included. However, from the available data from few states, it is assessed that the contribution of these activities is not significant.

- 11.12 **Prices:** For working out the value of output, the average annual auction prices of marine fish (species wise) collected by the SFDs at the landing centres and the inland fish prices reported by the SFDs from the assembling centers, are used.

#### Value of input

- 11.13 In the absence of any data based on scientific studies, it has been assumed, after consultation with the SFDs that the operational costs and repairs and maintenance in the case of marine fish, prawns, inland fish and subsistence fish, form 22.5 per cent, 22.5 per cent, 10 per cent, and 1 per cent, respectively of the corresponding items' values of output. For the activity of sun-drying and salting of fish, the inputs are assumed to be 1 per cent of the value of output. Operational costs broadly include expenditure on boats (mechanised and non-mechanised), trawlers, liners, fishing gears, gillnets, trawl-nets, cast-nets, traps, other bag-nets, consumption of diesel etc. The value of inputs is estimated at the State level.

#### Estimates at constant prices

- 11.14 The current catch of marine fish, inland fish and subsistence fish are valued at constant (2004-05) prices for the estimation of the output at constant prices. Similar treatment is given to data on fish curing also. The same proportions of expenditure on operational costs and repairs & maintenance to total output as for estimates at current prices are used to obtain corresponding estimates of value added at constant prices.

#### Quality and limitations of data base

- 11.15 The data on production of marine and inland fish is collected through scientific sample surveys. However, some States are not able to conduct these surveys according to the guidelines, due to variety of reasons. The information on fish curing activities is provided by SFDs, but they are based on different procedures and methods adopted by SFDs. The sampling designs developed by the Central Marine Fisheries Research Institute and the Central Inland Fisheries Research Institute, must be adopted by all the States. The fish production through deep sea fishing also need to be included in the respective states' marine fish production. As regards subsistence fishing, no reliable data are available and the methods followed for the estimation at state level are based on studies conducted by few States. The data on collection of pearls, chanks, weeds etc., are not available. The data on these also need to be provided by

the States. No appropriate official mechanism exists in the states for collecting reliable data on the activity of fish curing. Although, States are providing the data on various fish curing activities, the details on methods followed by the SFDs are not available.

11.16 The proportion used for preparing estimates of operational costs and expenditure on repairs and maintenance is not based on any scientific enquiries. The information on expenditure on repairs, maintenance of boats and nets by types, average cost of boats, number of boats etc., available with the states needs further examination.

### Appendix 11.1

#### GDP FROM FISHING SECTOR IN 2004-05

Items	QTY ('00 thous. MT)	VALUE (Rs. crore)
<b>1. TOTAL PRODUCTION (EXCL SUBST. FISH)</b>	61.73	29316
1.1 MARINE FISH	25	7367
1.2 INLAND FISH	33	14274
1.3 PRAWNS/SHRIMPS	4.21	7675
<b>2. TOTAL DISPOSAL (EXCL. SUBST. FISH)</b>	61.73	
2.1 MARINE FISH - RAW FORM	15.67	4915
2.1.1 FOR SALTING OF FISH	2.98	
2.1.2 FOR SUNDRYING OF FISH	3.69	
2.1.3 FOR FROZEN FISH	2.40	
2.2 INLAND FISH - RAW FORM	31.98	14111
2.2.1 FOR SALTING OF FISH	0.33	
2.2.2 FOR SUNDRYING OF FISH	0.44	
2.2.3 FOR FROZEN FISH	0.03	
2.3 PRAWNS - RAW FORM	1.63	2507
2.3.1 FOR SALTING OF FISH	0.02	
2.3.2 FOR SUNDRYING OF FISH	0.06	
2.3.3 FOR FROZEN FISH	2.50	
<b>3. TOTAL VALUE OF OUTPUT</b>	61.48	31989
3.1 MARINE FISH - RAW FORM	15.67	4915
3.2 INLAND FISH - RAW FORM	31.98	14111
3.3 PRAWNS - RAW FORM	1.63	2507
3.4 SALTING OF FISH - LET OUT	1.92	814
3.5 SUNDRYING OF FISH - LET OUT	1.66	842
3.6 FROZEN FISH	4.87	7168
3.7 SUBSISTENCE FISH	3.74	1632
<b>4. REPAIR AND MAINTENANCE &amp; INPUTS</b>		4836
4.1 MARINE		1657
4.2 INLAND		1427
4.3 SUBSISTENCE		16
4.4 PRAWNS		1727
4.5 SALTING		8
<b>5. GROSS VALUE ADDED</b>		<b>27152</b>

**Coverage**

12.1 The economic activities covered in this sector comprise extraction of minerals which occur in nature as solids, liquids or gases; underground and surface mines, quarries and oil wells, with all supplementary operations for dressing and beneficiating ores and other crude minerals such as crushing, screening, washing, cleaning, grading, milling, floatation, melting, palletizing, topping and other preparations needed to render the material marketable. All these activities are covered to the extent they are carried on at the mine site. It may be noted that large expenditure on preparing mining sites, prospecting and boring activities are not included here as they are included under the 'Construction' sector. Salt production by solar evaporation of sea water is also included under mining sector.

12.2 According to NIC 2004, mining and quarrying activity covers, the codes 101, 102, 103, 111, 112, 120, 131, 132, 141, and 142 respectively accounting for (i) 101- Mining and agglomeration of hard coal, (ii) 102- Mining and agglomeration of lignite, (iii) 103 - Extraction and agglomeration of peat, (iv) 111 - Extraction of crude petroleum and natural gas, (v) 112 - Service activities incidental to oil and gas extraction excluding surveying, (vi) 120 - Mining of uranium and thorium ores (e.g. pitchblende), including concentrating of such ores, (vii) 131 - Mining of iron ores, (viii) 132 - Mining of non-ferrous metal ores, except uranium and thorium ores, (ix) 141 - Quarrying of stone, sand and clay, and (x) 142 - Mining and quarrying, n.e.c.

**Method of Estimation of Gross Value Added (GVA)**

12.3 The estimates of GVA in this sector are prepared following the production approach. The value of output of each mineral, is calculated at state level, and by deducting the value of corresponding inputs, GVA is estimated. The State level GVA estimates are then consolidated to get the National level estimates.

**Sources of Data and Estimates at Current Prices**

12.4 For estimating the value of output, the mining and quarrying sector is divided into two broad groups viz., Major Minerals and Minor Minerals. The major minerals cover fuel minerals consisting of coal, lignite, petroleum & natural gas and other major

minerals i.e. metallic minerals including atomic minerals and non-metallic minerals. Minor minerals consist of materials such as marble, slate, shale etc. Appendix 12.1 gives a complete list of minerals, as per Indian Bureau of Mines.

**Fuel Minerals**

12.5 **Coal:** The estimates of GVA are compiled separately for Public & Private Sector as indicated below:

**Public Sector** - Almost entire activity of coal mining is in the public sector. The All India estimates of the value of output are obtained from the analysis of reports of Public Sector companies (Coal India Ltd. and its subsidiaries). The value of inputs pertaining to insurance, purchase of commodities and services and the repair and maintenance etc. are deducted from the value of output to obtain GVA of the Public Sector.

**Private Sector** - The Coal Controller of India publishes year-wise estimates of public and private sector production of coal. The share of private sector's production of coal to the total coal production is worked out in terms of quantity. Using this ratio, the private sector estimates of GVA in respect of coal are compiled.

12.6 **Lignite:** The GVA Estimates are compiled as under:

- Quantity and value of output estimates are provided by IBM.
- The input output ratios are obtained from the data furnished by Neyveli Lignite Corporation (NLC).
- Total value of output is obtained from the IBM data on which this input-output ratio is applied to arrive at the GVA.

12.7 **Petroleum & Natural Gas:** The data on production & prices is taken from the Report on Basic Statistics on Indian Petroleum & Natural Gas brought out by the Ministry of Petroleum and Natural Gas. Inputs of petroleum and natural gas are obtained from Oil & Natural Gas Commission (ONGC) and Oil India Ltd (OIL). The data collected contains information on production and sale of crude oil at Central Tank Farm (CTF); transportation charges of crude oil received for domestic consumption; production and sale of products other than crude oil and natural gas; and quantity and value of minerals, fuels and service inputs.

## 12.8 The GVA is estimated as under:

- The gross value of output of crude oil is evaluated by multiplying the price with the quantity of crude oil at CTF.
- In case of natural gas, the value of sale of gas sold to consumers is taken into account.
- In addition, the sale value of output of products other than crude oil and natural gas such as condensate, wax, distillate, waste, Natural Gas Liquid (NGL), sludge etc., are also included.
- As the elements of cess and sales-tax (as percentage of value of output) are included in the value of output at CTF prices, these are deducted from the Gross Value of Output (GVO) at CTF prices to obtain GVO at basic price.
- The input data for petroleum include value of crude oil used for internal purposes, the value of fuels consumed, materials consumed, cost of contract & commission work done by other concerns, other services purchased and expenditure on maintenance and repairs of pipeline transport.
- The GVA is then estimated by deducting the value of inputs from the gross value of output.

12.9 **Metallic & Non-Metallic Minerals:** The primary source of data on production of metallic and non-metallic minerals is the monthly and annual returns received by IBM under the statutory provisions of the Mineral Conservation & Development Rules (MCDR), 1958. The quantity and value of production data are obtained from the IBM publication Monthly Statistics of Mineral Production (MSMP). The data used for estimation are generally the sale value of the mineral at the mine site or pit head. In case of captive mines, the value of output is obtained on the basis of cost of production. The value of atomic minerals is obtained from the Department of Atomic Energy, Indian Rare Earths Ltd. and Kerala Minerals and Metals Ltd.

## 12.10 The calculation of GVA is done as under:

- The value of output at state level is obtained by multiplying the quantity of metal and non-metal outputs with the respective prices. These estimates are then consolidated to get the national level estimates.
- The estimates of mining expenses (deductible rates), are worked out as a percentage of value of mineral production, statewise and mineral-wise

on the basis of annual returns submitted by all the principal producers by IBM and supplied to CSO.

- The GVA is worked out by deducting the value of inputs from the total output of metals and non-metals.

12.11 Prior to 1999-2000 series only the data on rock salt production, as provided by the IBM, was considered for GVA estimation in output of salt. The production of salt by evaporation of sea water, pan drying was omitted as the same was not captured. In the series 1999-2000 onwards the salt production by evaporation of sea water has also been taken into account. The data on production of salt through evaporation of sea water is being captured from the Salt Commissioner's office. In the NIC 2004 extraction of salt, including salt mining, crushing and screening and salt production by solar evaporation of sea water, like brine or other natural brines is covered under code 14220 (mining sector) while code 24298 (manufacturing sector) covered manufacture of processed salt.

12.12 **Minor Minerals:** Data on minor minerals relate to value only. The quantity figures are not uniformly available for all states. Minor minerals are those which are declared as such by the Central Government in exercise of the powers conferred by Section I (a) of the Mines & Minerals (Regulation & Development) Act, 1957. They are further revised and notified from time to time in the Gazette of India. As minor minerals fall outside the purview of the MCDR, their statistics are collected by the State Geological Departments under the Minor Mineral Concession Rules framed by the respective State Governments for regulating the extraction of such minerals. These data are furnished by the concerned State Geological Departments to the IBM. The CSO, also obtain the data directly from the State Geological Departments with a time lag of one year. GVA is calculated by working out the input rate and then multiplying the output with the input rate.

### Financial Intermediation Services Indirectly Measured (FISIM)

12.13 The mineral-wise estimates of value of output at state level are aggregated to obtain the value of output at all India level. The estimates of GVA based on the data received include FISIM paid by the producers. The value of such services forms a part of the income originating in the banking and insurance sector and as such the FISIM are deducted further to obtain the



## CHAPTER 12

GVA net of banking charges. Appendix 12.2 gives the estimates of the value of output and GVA for 2004-05 for the mining and quarrying sector.

### Estimates at Constant Prices

12.14 The value of output of minerals for each state at Constant (2004-05) prices is derived by evaluating the quantity of current year output of each major mineral at the corresponding pit-head implicit basic prices of 2004-05, computed from the annual accounts of the companies. In the case of minor minerals, which are reported in value terms only, the ratio of value of output of the total non-metallic minerals at

constant to current prices for each state is multiplied by the value of output of the minor minerals at current prices to obtain the value of the output at constant (2004-05) prices.

### Quality and limitations of data base

12.15 All minor minerals fall outside the purview of the MCDR and their statistics are compiled by the State Geological Departments. The reliability of data in respect of these minerals cannot be considered to be of the same order as that of the major minerals. Also, data in respect of the output and input rates of the minor minerals is available only after a lag of one year.

### Appendix 12.1

#### LIST OF MINERALS USED IN THE ESTIMATION OF GROSS VALUE ADDED

<b>I. Major Minerals</b>	Kyanite
<b>Fuel Minerals</b>	Laterite
Coal	Limestone
Lignite	Limestone Kankar
Natural Gas	Lime Shell
Petroleum (Crude)	Magnesite
<b>Other Major Minerals</b>	Mica(Crude)
<b>Metallic Minerals</b>	Ochre
Bauxite	Pyrites
Chromite	Pyrophyllite
Copper Ore	Phosphorite
Gold	Quartz
Iron Ore	impure quartz,
Lead Concentrates	Quartzite
Zinc Concentrates	Fuchsite Quartzite
Manganese Ore	Silica Sand
Silver	Sand Others
Tin Concentrates	Salt ( Rock)
Tungsten Concentrates	Salt ( Evaporated)
	Shale
<b>Non-Metallic Minerals</b>	Slate
Agate	Steatite
Andalusite	Sillimanite
Apatite	Vermiculite
Asbestos	Wollastonite
Ball Clay	
Barytes	<b>II. MINOR MINERALS</b>
Calcite	Bentonite
Chalk	Boulder
Clay (Others)	Brick Earth
Corundum	Building Stones
Calcareous sand	Chalcedony or Corundum
Diamond	Fuller's Earth
Diaspore	Gravel
Dolomite	Lime Stone
Dunite	Marble
Felspar	Murram
Fire Clay	Ordinary Clay
Felsite	Ordinary Sand
Flourite(Graded)	Ordinary Earth

Flourite (Concentrates)	Pebbles or Kankar
Gypsum	Quartzite and Sand stone
Garnet (Abrasives)	Road Metal
Garnet (Gem)	Salt Petre
Graphite run-on-mines (r.o.m.)	Shale
Jasper	Shingle
Kaolin	Slate

## Appendix 12.2

**VALUE OF OUTPUT AND GROSS VALUE ADDED, 2004-05**

(Rs. crore)

Item	Group	Value of Output	Gross value added (including FISIM)
1	Total	108813	85734
1.1	Major Minerals	100678	78265
1.1.1	Fuel Minerals	87538	68111
1.1.1.1	Coal	38135	29326
1.1.1.2	lignite	2192	1171
1.1.1.3	Petroleum and Natural Gas	47211	37614
1.1.2	Metallic Minerals	10136	7869
1.1.2.1	Iron Ore	7403	5665
1.1.2.2	Manganese Ore	555	497
1.1.2.3	Bauxite	252	212
1.1.2.4	Copper Ore	213	165
1.1.2.5	Gold	194	143
1.1.2.6	Others	1519	1187
1.1.3	Non-metallic Minerals	3004	2284
1.1.3.1	Lime Stone	1797	1261
1.1.3.2	Mica Stone	3	2
1.1.3.3	Others	1204	1021
1.2	Minor Minerals	8135	7470
3.	Gross Domestic Product unadjusted of FISIM		85734
4.	Less FISIM		706
<b>5.</b>	<b>Gross Domestic Product</b>		<b>85028</b>

## MANUFACTURING

### Coverage

- 13.1 The manufacturing sector is classified into two broad sectors, viz., 'registered' and 'unregistered'. The registered manufacturing sector and the unregistered manufacturing sector are complementary to each other. The manufacturing sector covers all manufacturing, processing and repair & maintenance services units irrespective of their employment size, investment and location.
- 13.2 According to NIC 2004, the manufacturing sector is covered under the codes 15 - manufacture of food products and beverages, 16 - manufacture of tobacco products, 17 - manufacture of textiles, 18 - manufacture of wearing apparel; dressing and dyeing of fur, 19 - tanning and dressing of leather; manufacture of luggage, handbags saddlery, harness and footwear, 20 - manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plating materials, 21 - manufacture of paper and paper products, 22 - publishing, printing and reproduction of recorded media, 23 - manufacture of coke, refined petroleum products and nuclear fuel, 24 - manufacture of chemicals and chemical products, 25 - manufacture of rubber and plastic products, 26 - manufacture of other non-metallic mineral products, 27 - manufacture of basic metals, 28 - manufacture of fabricated metal products, except machinery and equipments, 29 - manufacture of machinery and equipment n.e.c., 30 - manufacture of office, accounting and computing machinery, 31 - manufacture of electrical machinery and apparatus n.e.c., 32 - manufacture of radio, television and communication equipment and apparatus, 33 - manufacture of medical, precision and optical instruments, watches and clocks, 34 - manufacture of motor vehicles, trailers and semi-trailers, 35 - manufacture of other transport equipment, 36 - manufacture of furniture; manufacturing n.e.c., and 37 - recycling.
- 13.3 **Registered manufacturing sector:** The registered manufacturing sector includes all factories covered under sections 2m (i) and 2m (ii) of the Indian Factories Act (IFA), 1948 which respectively refers to the factories employing 10 or more workers and using power or those employing 20 or more workers but not using power on any day of the preceding 12 months and Bidi and cigar establishments registered under Bidi and Cigar Workers (Condition of Employment) Act, 1966 and employing 10 or more workers using power or 20 or more workers and not using power. A 'factory' or an 'establishment', in the context of registered manufacturing sector, is defined as any premises including the precincts thereof (i) whereon 10 or more workers are working or were working on any day of the preceding 12 months, and in any part of which a manufacturing process is being carried on with the aid of power or is ordinarily so carried on or (ii) whereon 20 or more workers are working or were working on any day of the preceding 12 months, and in any part of which a manufacturing process is being carried on without the aid of power or is ordinarily so carried on - but does not include a mine subject to the operation of the Mines and Minerals (Regulation and Development) Act, 1957 or a railway running shed. The 'manufacturing process' is defined as any process for (i) making, altering, repairing, finishing, packing, oiling, washing, cleaning, breaking up, demolishing or otherwise treating or adapting any article or substance with a view to its use, sale, transport, delivery or disposal; (ii) pumping oil, water, sewage or any substance; (iii) generating, transforming or transmitting power; (iv) composing types for printing, printing by letter press, lithography, photogravure or other similar process or book binding; (v) constructing, reconstructing, repairing, refitting, finishing or breaking up of ships or vessels; (vi) preserving or storing any article in cold storage.
- 13.4 Factories registered under IFA but not engaged in manufacturing activities are excluded. These registered factories are those whose activities are restricted to providing (i) water and sanitary services, (ii) recreation and cultural services, (iii) personal services which are excluded from the manufacturing sector but are covered under the "services" sector, and likewise those engaged in the generation, transmission and distribution of electricity are covered under "electricity" sector and manufacture of gas in gas works and operation of cold storage though classified under manufacturing are not covered in this sector but included respectively under trade, hotel, restaurants, gas and storage sectors.

13.5 All the factories forming part of the registered manufacturing sector are classified into 19 industry groups based on the National Industrial Classification (NIC). The NIC-1970, which inter-alia provided a uniform framework for grouping together economic activities of similar nature prevailing in the economy, has since been revised and replaced by the revised National Industrial Classification of all Economic Activities NIC-1987, again by NIC-1998 and NIC 2004. In the new series 2004-05, NIC 2004 classification has been adopted, as the estimates are based on the results of Annual Survey of Industries (ASI), which followed the NIC-2004. The public sector undertakings producing currency, coinage and mint etc. have also been included in this sector.

13.6 **Unregistered manufacturing sector:** The unregistered manufacturing sector - being complementary to registered manufacturing sector - thus, by implication, covers all those units which are not covered under the registered manufacturing sector. In other words, the unregistered manufacturing sector covers all the manufacturing, processing, repair & maintenance services units employing less than 10 workers and using power or less than 20 workers and not using power. It also covers Own Account Enterprises (OAE) engaged in the manufacturing activity. However, conversion of sugarcane into indigenous gur, slaughtering of animals and dressing of meat carried out by farmers and individuals are excluded from this sector as they are included under agriculture and allied activities.

## A. Registered Manufacturing

### Method of Estimation of Gross Value Added (GVA)

13.7 The estimates of GVA are prepared by following the production approach. This approach requires estimates of value of output at ex-factory prices and the corresponding value of inputs at purchasers' prices. The output, mainly comprises: (i) ex-factory value of all products and by-products including semi-finished goods manufactured; (ii) receipts for industrial and non-industrial services rendered to others; (iii) value of fixed assets produced by the factory for its use; and (iv) net balance of goods sold in the same condition as purchased. Likewise inputs mainly comprise: purchase value of all items of (i) raw-materials, components, chemicals, packing materials & stores actually used for

the production process; (ii) fuels, lubricants, electricity, water etc. consumed (captive power generation consumed internally is neither accounted in output nor in inputs, however, inputs used for captive power generation are accounted for in the inputs); (iii) costs of non-industrial services received from other concerns; (iv) cost of material consumed for repairs & maintenance of fixed assets including cost of work done by others to the fixed assets; (v) cost of contract & commission work done by others on materials supplied by the factories; and (vi) cost of office supplies etc.

### Sources of Data

13.8 Data on output and inputs in respect of manufacturing sector are collected annually by the NSSO under the Annual Survey of Industries (ASI). The survey extends to the entire country except the states of Arunachal Pradesh, Mizoram, Sikkim and Union territory of Lakshadweep Islands and covers all the factories registered under Sections 2m(i) and 2m(ii) of the IFA, 1948, bidi and cigar manufacturing establishments registered under Bidi and Cigar Workers (Condition of Employment) Act 1966 and employing 10 or more workers using power or 20 or more workers and not using power and all the electricity undertakings registered with the Central Electricity Authority (CEA) and located in the country.

13.9 For ASI, the factories in the frame are classified into two sectors, viz., the census sector (C) and the sample sector (S). The Census Sector consists of the following categories:-

- all industrial units belonging to the five less industrially developed states/UT's viz. Manipur, Meghalaya, Nagaland, Tripura, and Andaman & Nicobar islands.
- For the rest of the twenty-six states/UTs.
  - i. Census Sector covers units having 100 or more.
  - ii. All factories covered under Joint Returns
- All electricity undertakings other than captive units as well as all departmental undertakings such as Railway workshops, etc. have been kept outside the purview of ASI from 1999-2000.

### Estimates at Current Prices

13.10 As already mentioned above, to estimate the Gross Value Added (GVA) for the registered manufacturing sector, production

approach is used. The production data in respect of units registered under Factories Act and others is available through Annual Survey of Industries (ASI) results.

13.11 The steps of calculation of GVA for the Registered Manufacturing sector for the base year 2004-2005 are as under:

- Output and input data at 3-digit of NIC-2004 is available in ASI 2004-05.
- GVA is calculated by subtracting input from output.
- GVA estimates are calculated as per recommended compilation categories (which were recommended by the Working Group on Workforce Estimates constituted by the Advisory Committee, and were based on regrouping of similar activities, as well as comparison with 1993-94 series industry-groups). Appendix 13.2 gives the List of relevant items/Sub-groups of wholesale price indices used for deflating current price estimates.
- Adjustments are made for the value of output/value added in respect of defence production units, railway workshops, currency, coinage, mints and security printing presses, which are not covered in the ASI. The source of data for these is annual returns from defence establishments and budget documents for railway workshops, currency, coinage, mints and security printing presses.

13.12 The estimates of GVA obtained from ASI include Financial Intermediation Services Indirectly Measured (FISIM) paid by the manufacturing establishments. The value of such services forms a part of the income originating in the banking and insurance sector and as such, is deducted from the GVA of the registered manufacturing sector. In the absence of adequate details, adjustment for FISIM is made only at the aggregate level, for all the industry-groups under manufacturing (registered). The nature of these services and the method of imputation of their values are described in the chapter relating to Banking and Insurance. The industry-wise adjusted (for FISIM) estimates of Output and GVA for the base year 2004-05 are presented in Table 13.1.

13.13 For estimating the GVA for other years (other than the base year), the normal practice is to use the same procedure that has been described for the base year, i.e. use the results of ASI directly on value of outputs and value of inputs and estimate

the GVA as a difference between the two, at compilation category level, after making suitable adjustments for output and value added of railway workshops, etc. and FISIM. When the results of ASI are not available, the recent most estimates of GVA at constant prices at different compilation category levels are moved forward using Index of Industrial Production. However, the growth rates obtained through ASI data do not compare favorably with the corresponding IIP growth rates. The constant price estimates thus obtained are converted to current price estimates by using WPI.

### Estimates at Constant Prices

13.14 For estimating the GVA at constant prices, ideally, the procedure of double deflation should be adopted. In this procedure the outputs and inputs are deflated by the respective price deflators. The price deflator for output should be based on the commodities (principal and subsidiary) produced, whereas the price deflator for inputs should be based on the commodities used as inputs. The procedure of double deflation should be done at detailed industry/compilation category level. The GVA for each industry/compilation category should be derived as residual of output at constant prices and inputs at constant prices. This procedure is being followed for the primary sectors in the national accounts statistics.

13.15 In the case of manufacturing (registered) industry, it has been observed (from the ASI results) that the value added as a proportion of output is not very high, implying that inputs account for a high proportion of output. If the procedure of double deflation is adopted in this industry, there is a possibility of GVA becoming negative, when the input price deflator becomes higher than the output price deflator. There is also a possibility in such cases that the GVA growth rates are subject to volatility. In such case, there are guidelines to use only the output price index as the single deflator for obtaining both values of output and GVA at constant prices. This procedure is known as single deflation method.

13.16 Normally, when the GVA estimates are based on the results of ASI, these are at current prices only. For obtaining the estimates of value of output and GVA at constant (2004-2005) prices, appropriate price indices at compilation category level, are needed. For the manufacturing sector,

these price indices are prepared using the detailed commodity-wise data available on WPI. As there is no one-to-one correspondence between some of the compilation categories/NIC 2004, 3 digit level classification and the corresponding wholesale price indices classification, appropriate price indices at the compilation categories level are compiled using wholesale price indices of relevant items covered under the compilation categories. For such compilation groups/NIC 2004 3-digit industries, the wholesale price index is derived as a weighted average of the wholesale price indices of these items, weights being those given in WPI commodity basket. However, when the GVA estimates are based on Index of Industrial Production, these are initially at constant prices only, as the Index of Industrial Production is a volume/quantum index.

#### **Quality and Limitations of data base**

- 13.17 Though, the ASI data relating to both census and sample sectors are quite comprehensive both in regard to the coverage and sample size, yet there is volatility in ASI estimates. Keeping this in view, it needs further improvement in sample design and coverage so that estimates of adequate reliability are available at (i) All India (4-digit level of NIC-2004) and industry groups (3-digit level of NIC-2004) and (ii) at 2/3-digit level at the state level.
- 13.18 The estimates at constant prices are prepared using single deflation method. The ideal method to arrive at the constant prices estimates is the double deflation method. This method inter-alia requires quantification of all items of output & input, availability of item-wise data on quantity & value and matching of items between the base year and the year for which these estimates are required. This method also involves estimation at very detailed level of items and is difficult to adopt, particularly for multi-product industry groups and in cases where inputs account for a large part of output.

#### **B: Unregistered Manufacturing Method of Estimation of Gross Value Added (GVA)**

- 13.19 The estimates of GVA for the unregistered manufacturing sector are obtained as a product of the work force and the corresponding GVA per worker. These estimates are first worked out for the benchmark (base) year and then carried forward

to subsequent years on the basis of indicators representing physical volume of activity.

#### **Sources of Data**

- 13.20 The main data sources for the preparation of the new series (2004-05) for the unregistered manufacturing sector are (i) Fourth All India Census of Micro, Small and Medium Enterprises (MSME) 2006-07 published by Development Commissioner, Micro, Small and Medium Enterprises (MSME) for the MSME segment and (ii) 62nd Round of NSS (2005-06) for other unorganized manufacturing units. These data have been thoroughly examined with a view to assessing their suitability and acceptability for use in working out the GVA for the year 2004-05 and onwards as discussed in subsequent paragraphs.
- 13.21 In order to meet the long felt need for the availability of reliable data in respect of unorganised sectors of non-agricultural sectors of the economy, an Economic Census and Surveys Scheme was launched by the CSO in 1976. Under this scheme, a countrywide census of non-agricultural establishments i.e., those employing at least one hired worker on a fairly regular basis, was conducted for the first time during the last quarter of 1977 to collect basic information, such as the number and nature of establishments, persons usually working in them, ownership etc. Based on the census frame, a sample survey covering unregistered manufacturing sector was conducted to collect detailed information on employment, emoluments, inputs, output, investment etc. For this purpose, establishments covered in the EC were categorised into two groups, namely, (i) Directory Establishments (DE) i.e., establishments having a total employment of six or more persons and (ii) the rest called Non-Directory Establishments (NDE); and the survey was conducted separately for these two groups, the latter also covering the own account enterprises. Subsequently, the second and third economic censuses were conducted in 1980 and 1990 along with House listing operations of 1981 and 1991 Population censuses respectively. These two censuses covered all agricultural and non-agricultural enterprises excepting those engaged in crop production and plantation. The fourth Economic Census was carried out in 1998 with the same coverage, but was done independently of population census. Based on the frame available from the Economic Censuses, follow-up enterprise surveys were



launched to collect information on unorganized segments of economy. Initially, surveys covering DEs were conducted by the CSO and NDE/OAEs by the NSSO. The first integrated survey on unorganised manufacturing was conducted as part of the 51<sup>st</sup> Round of NSS during July 1994 - June 1995. The coverage of NDME and OAE as well as DME was fairly complete. The second integrated survey on unorganised manufacturing sector covering OAEs, NDMEs and DMEs was conducted as a part of the 56<sup>th</sup> round of NSS during July 2000 - June 2001. The latest sample survey, the third integrated survey on unorganised manufacturing sector, covering OAEs, NDMEs and DMEs, was conducted as a part of the 62<sup>nd</sup> Round of NSS during July 2005 - June 2006, the results of which formed the basis for compiling benchmark estimates of GVA for the unorganized manufacturing sector.

- 13.22 With a view to developing a sound database on small scale units, the Office of the Development Commissioner (MSME) conducted three censuses of registered SSI units prior to the Fourth Census. The First Census was conducted in 1973-74 in respect of 2.58 lakh SSI units registered up to 30-11-1973. The reference year for this Census was calendar year 1972 in respect of units not maintaining accounts and the actual accounting year closing between 1-4-1972 and 31-3-1973 for those units maintaining accounts. Some information was also collected for 1970 and 1971. The Second Census was conducted during 1990-91 in respect of 9.87 lakh SSI units registered up to 31-3-1988. The reference year for this Census was financial year 1987-88 in respect of units not maintaining accounts and the actual accounting year closing between 1-4-1987 and 31-3-1988 for those units maintaining accounts. The Third all-India Census was conducted during 2002-03 for the possible proximate reference year, i.e., 2001-02 and the Fourth All -India Census conducted during 2008-09, relates to the reference year 2006-07.

### Estimates at Current and Constant Prices

- 13.23 Traditionally, the All India estimates of GVA from unregistered manufacturing sector are compiled as product of workforce and GVA per worker estimated from the nearest follow up surveys of Economic Census. From the (1993-94) series onwards, these estimates have been compiled separately for the units belonging to Small Scale Industries (SSI/MSME) group and others.
- 13.24 Thus GVA for the unregistered manufacturing sector is calculated from two separate sources as under:
- The Results of Fourth All India Census of Micro, Small & Medium Enterprises 2006-07 published by Development Commissioner (MSME).
  - The results of the 62<sup>nd</sup> Round of Survey of NSSO pertaining to the year 2005-06 and
  - Workforce estimates from the results of NSS 61<sup>st</sup> Round (2004-05).
- 13.25 **Calculation of Workforce:** The calculation of the workforce is done as under:
- Firstly the Total Workforce (using the Industrial Code 151- 372 at NIC 1998) for the Manufacturing Sector (as per recommended compilation categories) have been derived from the results of NSS 61<sup>st</sup> round (2004-05) of Employment-Unemployment Survey (EUS) and population projection as on 1.10 2004 of the office of Registrar General of India.
  - Then the workforce of the registered manufacturing part (ASI 2004-05) was deducted from the total work force (at the compilation category-wise). The balance gives the workforce relating to the un-registered manufacturing sector.
  - The data on total number of employees working in the MSME sector (net of workers in MSME covered under ASI) obtained from the O/o the DCMSME, based on the Results of Fourth All India Census of Micro, Small & Medium Enterprises 2006-07, pertains to the MSMEs excluding the units covered in ASI, under unregistered manufacturing. This workforce is then interpolated backward using the inter-survey growth rate of the workforce of 55<sup>th</sup> Round (1999-00) and 61<sup>st</sup> Round (2004-05) of NSS to obtain the workforce estimates for the base year 2004-05 in the MSME units covered under unregistered manufacturing.
  - Lastly, from the workforce calculated in step 'b' above, the workforce of MSME units in unregistered manufacturing is deducted to obtain the residual workforce, i.e. those working in non-MSME un-registered manufacturing units.
- 13.26 The GVA estimates for the new series for this sector for the base year 2004-05 have been prepared separately for the two segments of the unregistered manufacturing sector, namely (i) the segment of Micro, Small & Medium Enterprises (MSMEs) (other

than those covered under the ASI), and (ii) the rest of the unorganized manufacturing sector, i.e. the manufacturing sector which is not covered under either the ASI or the MSME. The industry-group-wise combined estimates for these segments are presented in Table 13.2.

13.27 The GVA for the MSME segment for the new series has been estimated using the value of output data available from the results of Fourth All India Census on Micro, Small & Medium Enterprises (MSMEs), 2006-07 published by the Development Commissioner, Micro, Small & Medium Enterprises (MSMEs), and the GVA/GVO ratios available from the DME results of NSS 62nd Round survey on unorganized manufacturing (The estimates of GVA are not separately available in the results of MSME Census). Due adjustments have been made to bring the estimates of GVA of the MSME segment to the price levels of 2004-05.

13.28 The estimates of other un-registered manufacturing units, i.e. the units not belonging to MSMEs group mentioned above have been compiled using information on GVA per worker from the integrated surveys of enterprises and households excluding MSMEs cases in 62<sup>nd</sup> round (2005-06). The GVA per worker from 62<sup>nd</sup> round of NSS that relates to the year 2005-06 has suitably been deflated to arrive at the GVA per

worker estimates for 2004-05. The total GVA from this part is obtained as the product of No. of workers and GVA per worker industry wise.

13.29 The benchmark year's (2004-05) estimates of GVA at industry level in respect of Un-registered Manufacturing Sector are finally obtained by adding the industry-wise estimates of MSME-part and Survey part.

13.30 **GVA estimates for Subsequent Years at 2004-05 Prices:** The benchmark year (2004-05) industry-wise estimates of GVA are moved with the help of Index of Industrial Production (IIP) to obtain the estimates for subsequent years.

13.31 **GVA estimates for subsequent years at Current Prices:** The industry wise current price estimates are obtained from the corresponding constant price estimates by superimposing the price changes as revealed by the indices of wholesale prices.

### **Quality and limitations of data base**

13.32 The periodic surveys provide detailed data on input and output once in five years only and the problem of preparing the estimates for the intervening years remains. There has been no satisfactory data to build up annual indicators necessary for carrying forward the bench-mark year estimates and this is a major gap in the data availability.

**CONCORDANCE TABLE FROM NATIONAL INDUSTRIAL CLASSIFICATION (NIC), 1998 TO NIC-1987  
AT TWO DIGIT LEVEL OF INDUSTRY GROUPS**

S. No	NIC-1998	NIC-1987	Item/ Sub-groups
	(1)	(2)	(3)
1	01405	230	Cotton ginning, cleaning and baling
2	151	200+202+203+210 to 212	Production, processing and preservation of meat, fish, fruit vegetables, oils and fats
3	152	201	Manufacture of dairy product
4	153	204+217+218	Manufacture of grain mill products, etc. and animal feeds
5	154	205 to 207+209+213 to 215+219	Manufacture of other food products
6	155	216+220 to 224	Manufacture of beverages
7	16	225 to 229	Manufacture of tobacco products
8	171+172+173	231 to 236+240 to 248 +250 to 264 + 267 to 269	Spinning, weaving and finishing of textile+ Other textiles+ Knitted and crocheted fabrics and articles
9	181-18105	265+266+292	Wearing apparel, except fur apparel and tailoring
10	182+19	290+293+299+291+311+294+295+296	Dressing and dyeing of fur; manufacture of articles of fur and tanning and dressing of leather; manufacture of luggage, handbags saddlery, harness and footwear
11	20	270 to 275+279	manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plating materials
12	361	276+277+342	Manufacture of furniture
13	21+22 *	28	Manufacture Of Paper And Paper Products and publishing, printing and reproduction of recorded media
14	23+25	310+312 to 319	Manufacture of coke, refined petroleum products and nuclear fuel and rubber and plastic products
15	24	30+208	Manufacture of chemical and chemical products
16	26	32	manufacture of other non-metallic mineral products
17	271+2731	-	Manufacture of Basic Iron & Steel+ Casting of iron and steel
18	272+2732	-	Manufacture of basic precious and non-ferrous metals+ Casting of non-ferrous metals
19	271+272+2731+2732	33	
20	371+372 **	-	Recycling of metal waste and scrap+ non-metal waste and scrap

S. No	NIC-1998	NIC-1987	Item/ Sub-groups
	(1)	(2)	(3)
21	28	-	Manufacture of fabricated metal products, except machinery and equipments
22	29+30	-	Manufacture of machinery and equipment n.e.c + office, accounting and computing machinery
23	28+29+30	340+341+343 to 346+349+350 to 359+364+367+388+390 to 393+397+399	
24	31+32	360 to 363+365+366+368+369+395+396	Electrical machinery and apparatus n.e.c.+ radio, television and communication equipment and apparatus
25	33+369	380 to 387 +389	Manufacture of medical, precision and optical instruments, watches and clocks+ Manufacturing n.e.c
26	34+35	37	Manufacture of motor vehicles, trailers and semi-trailers+ manufacture of other transport equipment

\* '2213' (Publishing of recorded media) and '2230'(Reproduction of recorded media) of NIC-1998 were not defined in NIC-1987.

\*\* '5240'(Retail Sale of second hand goods in stores) of NIC-1998 was not included in NIC-1987.

### Appendix 13.2

#### LIST OF RELEVANT ITEMS/SUB-GROUPS OF WHOLESALE PRICE INDICES USED FOR DEFLATING CURRENT PRICE ESTIMATES

NIC-1998	Industry Description	Item/ Sub-groups
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**CHAPTER 13**

151	Production, processing and preservation of meat fish, fruits, veg, oils & fats	Canning, preserving & processing of food( canned fish, fish meal, processed prawn, canned meat , vegetable seeds) , edible oil, oil cakes
152	Mfg. of dairy products	Dairy Products
153	Mfg. of grain mill products, etc and animal feeds	Grain Mill Products
154	Mfg. of other food products	Bakery Products, Sugar, Khandsari etc, Common Salts, Tea & Coffee Processing, Other Food Products n.e.c
155	Mfg. of beverages	Wine industries, Malt Liquor, Soft drinks & Carbonated Water
16	Mfg. of tobacco products	Manufacture of Bidi, Cigarettes, Tobacco & Zarda
171+172+173	Spinning, weaving and finishing of textiles etc.	Textiles (cotton textiles, man made textiles, woolen textiles, jute hemp & mesta textiles & other miscellaneous textiles)
181-18105	Wearing apparel, except fur apparel & tailoring	Textiles
182+19	Tanning and dressing of leather, fur and fur products.	Leather & Leather Products
20	Mfg. of wood and products of wood except furniture	Wood & Wood Products
361	Mfg of furniture	Furniture
21+22	Mfg. of paper and paper products, publishing, printing etc.	Paper & Paper Products
23+25	Coke, refined petroleum products, nuclear, rubber & plastic products	Coke, Minerals Oils, Rubber & Plastic Products
24	Mfg of chemical and chemical products	Chemicals & Chemical Products
26	Mfg of other non-metallic mineral products	Non-Metallic Mineral Products
271+272+2731+2732	Mfg of basic iron and steel and non-ferrous metals	Ferrous Metals , Non-Ferrous Metals
371+372	Recycling of metal waste and scrap+ non-metal scrap	Ferrous Metals Non-Ferrous Metals
28+29+30	Mfg of fabricated metal products, machinery & equipment n.e.c	Metal Products, agricultural machinery, industrial machinery, construction machinery, machine tools, air-conditioners, & refrigerators, non-electrical machinery & parts and IT hardware.
31+32	Elect. Machinery and apparatus n. e. c.+ radio, TV & comm. equip.	Electrical machinery, electrical accessories, electrical apparatus, electronic items and communication equipments.
33+369	Mfg of medical, precision and optical instruments, watches clocks etc.	Manufactured products
34+35	Motor vehicles, trailers and semi- trailers& other transport equip	Transport Equipment & Parts

**TABLE 13.1****ESTIMATES OF OUTPUT & GROSS VALUE ADDED FOR REGISTERED MANUFACTURING, 2004-05***(Rs. crore)*

NIC-1998	Industry Description	Value of Output	Gross Value Added
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151	Production, processing and preservation of meat fish, fruits, vegetables, oils & fats	63223	3683
152	Mfg. of dairy products	23852	2528
153	Mfg. of grain mill products, etc and animal feeds	52043	3699
154	Mfg. of other food products	50511	9577
155	Mfg. of beverages	14626	2661
16	Mfg. of tobacco products	12336	5243
171+172+173	Spinning, weaving and finishing of textiles etc.	121240	20337
181-18105	Wearing apparel, except fur apparel & tailoring	23670	5018
182+19	Tanning and dressing of leather, fur and fur products.	12401	1657
20	Mfg. of wood and products of wood except furniture	4187	499
361	Mfg of furniture	3735	678
21+22	Mfg. of paper and paper products, publishing, printing etc.	35639	7958
23+25	Coke, refined petroleum products, nuclear, rubber & plastic products	288542	43617
24	Mfg of chemical and chemical products	210915	50287
26	Mfg of other non-metallic mineral products	51475	15122
271+272+2731+2732	Mfg of basic iron and steel and non-ferrous metals	244801	57339
371+372	Recycling of metal waste and scrap+ non-metal scrap	323	41
28+29+30	Mfg of fabricated metal products, machinery & equipment n.e.c	123466	27366
31+32	Elect. Machinery and apparatus n. e. c.+ radio, TV & comm. equip.	74094	13778
33+369	Mfg of medical, precision and optical instruments watches clocks etc.	59111	12643
34+35	Motor vehicles, trailers and semi- trailers& other transport equip	187464	29336
	<b>Total</b>	1657655	313065
	<b>less: F.I.S.I.M.</b>		20721
	<b>Gross domestic product</b>		<b>292344</b>

TABLE 13.2

**ESTIMATES OF GROSS VALUE ADDED FOR UNREGISTERED MANUFACTURING, 2004-05**  
(Rs. crore)



<b>NIC-1998</b>	<b>Description</b>	<b>Gross value added including FISIM</b>
151	Production, processing and preservation of meat fish, fruits, vegetable oils & fats	5553
152	Mfg. of dairy products	981
153	Mfg. of grain mill products, etc and animal feeds	9768
154	Mfg. of other food products	5145
155	Mfg. of beverages	760
16	Mfg. of tobacco products	3248
171+172+173	Spinning, weaving and finishing of textiles etc.	28581
181-18105	Wearing apparel, except fur apparel & tailoring	12710
182+19	Tanning and dressing of leather, fur and fur products.	5654
20	Mfg. of wood and products of wood except furniture	8360
361	Mfg of furniture	5964
21+22	Mfg. of paper and paper products, publishing, printing etc.	6402
23+25	Coke, refined petroleum products, nuclear, rubber & plastic products	4078
24	Mfg of chemical and chemical products	8610
26	Mfg of other non-metallic mineral products	11735
271+272+2731+2732	Mfg of basic iron and steel and non-ferrous metals	5226
371+372	Recycling of metal waste and scrap+ non-metal scrap	264
28+29+30	Mfg of fabricated metal products, machinery & equipment n.e.c	17728
31+32	Elect. Machinery and apparatus n. e. c.+ radio, TV & comm. equip.	4938
33+369	Mfg of medical, precision and optical instruments, watches clocks etc.	12076
34+35	Motor vehicles, trailers and semi- trailers& other transport equip	6204
	<b>Total</b>	163984
	<b>less: F.I.S.I.M.</b>	3103
	<b>Gross domestic product</b>	<b>160881</b>

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## CONSTRUCTION

### Coverage

14.1 The construction activity as per the International Standard Industrial Classification (ISIC) adopted in the SNA consists of contract construction by general builders, civil engineering contractors and special trade contractors. Also included is own account construction carried out by independent units of enterprises or other organisations which are not part of the construction industry proper. But, owing to the problems of availability of data separately from units carrying out construction work, construction industry, in India, for the purpose of estimating domestic product, has been taken to include the whole of construction activity (contractual as well as own account). Construction work covers all activity connected with site preparation, alteration, addition, repair and maintenance, construction and maintenance of roads, rail-beds, bridges, tunnels, pipelines, rope-ways, ports, harbours runways, construction/erection and maintenance of power, telecommunication, transmission lines, waterways & water reservoirs, power plants, hydro-electric projects, industrial plants and building installations, planting and cultivating of new forests, plantations and orchards. Due to lack of data, demolition activity has, however, been excluded. Under NIC 2004, Division 45 covers construction activity.

### Methodology and Sources of Data Estimates at Current Prices

14.2 The 'Construction' broadly comprises two components namely (i) Accounted Construction (Pucca Construction) and (ii) Un-accounted construction (Kutchha Construction). In each category, both the new construction and repair & maintenance are covered. The output of construction of the total economy is compiled by a composite methodology including both commodity flow approach and Expenditure approach and taken as the total production costs of accounted and unaccounted constructions. The value of unaccounted construction undertaken with the use of construction materials such as cement, steel, bricks, timber, fixtures etc., is determined by commodity flow method. The estimates of labour intensive unaccounted construction undertaken mostly with the help of freely available or traditional, locally procured materials like leaves, reeds, mud, etc, on the other hand, are prepared by expenditure approach using data from sample surveys, bench mark estimates.

#### Accounted Construction by Institutions

14.3 The total construction output is estimated for the country by the above approach for accounted (pucca) construction. The estimates of output of pucca construction from public sector and private corporate sector are independently compiled by way of utilizing the data sources viz. budget documents, profit and loss accounts, and the balance sheets. The estimates of pucca construction output for the household (containing consumer households, non-profit institutions serving households (NPISHs) & unincorporated enterprises) sector are then derived as residuals for accounted construction.

#### Unaccounted Construction by Institutions

14.4 For estimating the total value of output of construction sector from unaccounted (kutchha) construction, the estimates of kutchha construction undertaken by the public and private corporate sector are prepared by expenditure approach using data from budget documents of central/state governments and local authorities, technical reports of NABARD and annual reports of public sector and private sector enterprises in developing rural roads, soil conservation, improvements to land, reclamation of the land cultivating the plantation crops & orchards etc, installing the wind energy systems, construction of wells and other construction works.

14.5 For estimating the value of output of unaccounted construction in the household sector, the main data source is the All India Debt and Investment Survey (AIDIS), conducted by the NSSO once in every ten years. This survey provides benchmark data on (a) new construction and (b) repair & maintenance in respect of (i) rural residential buildings (RRB), (ii) rural non-residential and other construction works (RNRB & OCW) (iii) urban residential buildings (URB) and (iv) urban non-residential and other construction works (UNRB & OCW). These benchmark estimates are moved forward and backward by applying quantitative indicators such as growth rates/ norms derived from various housing censuses and other survey results, combined index of agriculture and industrial production, and price index of cost of construction, separately for each of the above (i) to (iv) components, and also for (a) and (b). Since the AIDIS survey results include both pucca and kutchha construction, all these (i) to (iv) and (a) & (b) components are further bifurcated into accounted and

unaccounted construction in rural & urban areas, using the norms derived from the results of surveys undertaken on housing conditions by the NSSO. The unaccounted construction estimate that is derived through this procedure for household sector is added to the unaccounted construction of public and private corporate sector, to obtain the total value of output through unaccounted (kutcha) construction in the country.

- 14.6 The Gross Value Added (GVA) from construction is also estimated separately for the accounted (pucca) and unaccounted (kutcha) construction. For the pucca construction, the GVA is equivalent to the factor payments made in the accounted construction. For the kutcha construction, the GVA is estimated to be 75 per cent of the value of output in unaccounted construction. This GVA from construction is subsequently adjusted for FISIM. Further details on output and GVA from construction are discussed in the following paragraphs.

#### **Value of output of accounted construction**

- 14.7 The estimates of value of output for accounted construction are compiled through the commodity-flow approach. This approach envisages estimation of production of commodities used in construction after adjusting them for inputs in other industries, changes in stocks, imports and exports so as to obtain the net availability of commodities for construction purposes. The commodities available for construction are valued at prices paid by the builders at the site of construction. Information on retail prices, transport costs, dealers' margins and indirect taxes collected from various sources is used to estimate the prices of inputs at site.
- 14.8 The commodity flow approach measures the output and GVA of the (Pucca) accounted construction. It includes both new construction and repair and maintenance as well. The approach covers the cost of basic materials, other construction materials and factor payments such as labour cost, rent interest etc. The basic construction materials considered in this context include (i) Cement and Cement products, (ii) Iron and Steel, (iii) Bricks and Tiles, (iv) Timber and Round Wood and (v) Fixtures & Fittings. While estimating the availability of commodities for construction purposes, the imports of wood and timber products and veneer plywood and the results of ASI 2004-05 (on products and by products for finalising the composition of commodity groups at NIC 2004, 4 digit level, within each basic

construction material group) have been used in the new series of national accounts.

- 14.9 The five basic material groups account for 76% of the total construction materials and the remaining 24% is from other construction materials (other than the five basic construction materials mentioned in (i) to (v) in paragraph 14.8). Data on basic construction materials is collected every year. The contribution of factor payments to the construction activity is assumed to be 53.4 per cent of the total cost of all construction materials (both basic and other). These norms are derived from the previous surveys and found to be consistent with the results based on cost of construction indices compiled by various states. Principal source for these norms is the Survey on Housing Conditions in India, 2002; Housing stock and construction (58<sup>th</sup> Round), NSSO, besides the studies done by few states. The ratio of 53.4 per cent for factor payments account adopted in the new NAS series is the same as that used in the old 1999-00 series. Therefore, the revised norms for basic materials, other materials and factor inputs (out of the total value of output of construction) used in new series for construction activity are 76 per cent, 24 per cent, and 53.4 per cent as against the norms of 72.5 per cent, 27.5 per cent, and 53.4 per cent, respectively in the 1999-00 NAS series. For 2004-05 series, the item basket for the above construction materials has been finalized by analyzing the detailed results of Annual Survey of Industries (ASI) 2004-05 at commodity level of 5-digit-ASI Commodity Classification (ASICC) codes instead of four digit level of NIC as was done during 1999-2000 base year revision.
- 14.10 **Cement and Cement Products:** Cement is produced in the organised sector and the data on month-wise year-wise cement consumption in States/Union Territories are available in the annual publication "Cement Statistics" brought out by Cement Manufacturers' Association, New Delhi". From the data on total quantity of cement consumed, the net quantity of cement available for construction is determined by excluding the estimated quantity of cement used for intermediate consumption in other industries and adjusting for net imports. The estimated quantity is then evaluated with the help of all India average price of cement from 23 centres available from the Handbook of Housing Statistics brought out by the National Buildings Organisation (NBO). The total value of cement used in construction as obtained above is marked up by 7 per cent to take

account of the transportation costs from the point of purchase to the site of construction. The value of cement products like asbestos sheets, Hume pipes etc., as available from ASI is added to the value of cement. The data in respect of excise duties paid on cement products are collected from the Ministry of Finance. The estimates of Trade Transport Margins on cement products are obtained from the CSO's Input-Output Transactions Table (IOTT), 2003-04. Detailed estimation procedure of the value of cement used in construction is presented in *Appendix 14.1*.

14.11 **Iron and Steel:** The composition of items, along with their percentage share, consumed in construction from the "Iron and Steel" group for both organized manufacturing sector and unorganized manufacturing sector is determined through discussions with the officials of Central Public Works Department, National Building Organisation, Building Materials and Technology Promotion Council (BMTPC) Builders' Association, and others. For the new series, the detailed results of ASI 2004-05 have been used for estimating the value of iron & steel items like heavy structures, light structure, heavy rails, fish plates, corrugated sheets, bars and rods, sleepers, railway track material and iron and steel structures comprising bridge work, fabricated structures for buildings or transmission towers, sluice gates fabricated out of rolled section, gates and grills, shutters including rolling shutters, etc., used for construction purposes. The value of the products and byproducts for these iron and steel commodities has been taken from the ASI detailed results based on NIC 2004 at 5 digit level and multiplied with the corresponding percentage determined, in order to estimate the value of products used for construction purposes. For subsequent years for which ASI results are not available, the estimates are carried forward with the help of changes in the production of finished steel and relevant index of wholesale prices for iron and steel products or the estimates are moved with IIP growth rates.

14.12 The estimates of iron and steel goods produced in the unregistered manufacturing sector, used as input in construction, are based on the value of output of unregistered manufacturing units for the various commodities. The proportions of the value of output of iron and steel goods used in construction applied on the estimated value of output for iron & steel as available from the latest detailed results of the NSSO (62<sup>nd</sup> Round report of the un-organized

manufacturing sector in India, July 2005 to June, 2006) and Census of SSI units, 2001-02 gives the input of iron and steel to construction, from the unregistered manufacturing sector. The NSSO 62<sup>nd</sup> Round results in respect of un-registered manufacturing sector and the Census of SSI contain information on GVO and GVA for different groups of items based on NIC 2004 at 4/3 digit level for 2005-06. For the year 2004-05 and subsequent years, firstly the value of output is estimated for un-registered manufacturing sector by using the ratios of GVO and GVA for each industry group and applying the same on the estimates of GVA available for that year. Thereafter, the proportions of iron and steel used in construction to the total production reported in the ASI 2004-05 detailed results, at the 4-digit level of NIC-2004, are applied on the estimated value of output of products and byproducts in the corresponding groups of iron and steel products of the un-registered manufacturing sector, to obtain the estimated input of these items in construction.

14.13 The aggregate value of domestic supply of iron and steel products available for construction thus estimated is exclusive of indirect taxes & other duties and Trade & Transport Margins (TTMs). To arrive at the value at site, adjustment has been made on this account. The share of import duties attributable to imports of iron steel products used in construction is worked out on the basis of the proportion of iron and steel goods used in construction to the total iron and steel imported. Trade, transport and other charges have been worked out on the basis of information obtained from the 2003-04 IOTT. This is estimated to be 19.9% of the total value. The detailed steps in the estimation of the value of iron and steel used in construction are given in *Appendix 14.2*.

14.14 **Timber and Round wood:** Direct data on the production of timber and round wood are not separately available. Instead, information is available on production of industrial wood comprising mainly timber and round wood (received from the respective State Governments). From the total quantity of industrial wood, the value of timber and round wood is estimated using specified norms. A fixed proportion (12.5 per cent) is taken as having been used in construction on the basis of study done by the DES. Similarly, the total quantity of timber and round wood used in construction has been evaluated using all-India average price of timber from 23 centres available in the Handbook of Housing Statistics brought out by NBO. To this, the

value of imported timber of different varieties as well as the corresponding import duties is added. The total value thus obtained is adjusted for exports of timber and round wood and TTMs to obtain the value of this basic material at the site of construction. Data on imports and exports of different varieties of wood used in construction are obtained from the Department of Commerce, Ministry of Commerce and Industry. Data on trade, transport and other charges are estimated on the basis of information obtained from the 2003-04 IOTT. Round wood used in construction is directly taken from the dealers. One-third of the value of "Veneer, plywood and their products" with new varieties as available from ASI has now been included in the value of timber and round wood used in construction. This has been done on the basis of discussions held with the dealers engaged in the trading of veneers & plywood etc. The detailed procedure of estimation of value of timber and round wood used in construction is given in *Appendix 14.3*.

- 14.15 **Bricks and Tiles:** Estimates of the quantity of bricks and tiles are prepared in an indirect way, on the basis of information on dispatches of coal used for brick burning. Information is collected from the Office of the Coal Controller on dispatches of coal for brick burning. On the basis of the information collected from NBO, CPWD and various kiln owners, average quantity of coal needed for producing one lakh of bricks and tiles has been estimated. This proportion is used to determine the total quantity of bricks and tiles produced in the small scale sector. The output of bricks in the sector is evaluated at all-India average retail prices regularly collected and published by NBO along with the prices of timber and cement etc. The discussions held with the brick kiln owners revealed that hardly any coal was being used in the manufacture of bricks & tiles in the registered manufacturing (ASI) and the coal dispatches were mainly used for burning bricks in the un-organised sector. As such the value of production available from ASI has been taken into account explicitly and treated as organised. Besides the small scale industries, a large number of rural households produce bricks for own use. In the absence of adequate data their contribution has been taken equal to 10 per cent of the value of production of bricks & tiles produced in the small scale sector on the basis of data on work force engaged in the manufacturing of structural clay products as per 2001 population census. The value obtained from ASI is marked up by 33.1 per cent for TTMs on the basis of information obtained from IOTT 2003-04. On the recommendation of

Advisory committee on National Accounts for the new series of 2004-05 five percent of the value of bricks and tiles produced from organized sector has been taken as recycled bricks. Steps involved in the preparation of the estimates of bricks and tiles used in construction are described in *Appendix 14.4*.

- 14.16 **Fixtures and Fittings:** In the construction activities, 'fixtures and fittings' play significant contribution as the basic materials of construction. Data on value of production of a large number of fixtures and fittings of permanent nature, such as lifts, generators, fire-extinguishers, pipelines of Liquefied Natural Gas, fans and blowers, insulators, electric cables and wires, water meters, house service meters, sanitary fittings, glass blocks, aluminum pipe fitting, sections, bars and rods, channels etc., used in construction are collected from the reports of detailed results of ASI 2004-05. For the years for which ASI data are not available, IIP data are used. For each 5 digit level NIC 2004 compilation category of fixtures & fittings, a specified proportion of total production is treated as used in construction. These proportions are decided after discussing with CPWD & NBO. TTMs are estimated to be 33.1 per cent which is added to the value of output to arrive at the value at site. Details of estimation are shown in *Appendix 14.5*.
- 14.17 **Other construction materials:** Further, in the case of other construction materials like lime, glass and glass products, paints and varnishes, bitumen, sand, coal tar, chips, stone slabs for flooring etc., adequate annual data do not exist for independent estimation. As such the value of these materials is estimated as a proportion of value of all material inputs (24% of the total value of all material inputs). This proportion is based on the information obtained from NBO, CPWD and CBRI for the bench mark year 2004-05.
- 14.18 **Factor Inputs:** Similarly in the case of inputs of factor payments going into construction, the information available from the surveys undertaken by DES for projects in the year 2004-05, usual norms of the civil works undertaken by different renowned construction companies engaged in big projects, CPWD, NBO, cost of construction indices and NSS 58<sup>th</sup> round survey results are utilized for working out the value of construction due to this component, which is 53.4% of the value of all material inputs.

### **Value of output of Un-accounted construction**

- 14.19 The estimates of labour intensive kutchra



construction mostly undertaken with the help of freely available traditional locally procured materials like leaves, reeds, mud, etc., are prepared by expenditure approach using data from sample surveys, budget documents of central/state and local authorities and annual reports of public sector and private sector enterprises.

14.20 The coverage in un-accounted (kutcha) construction includes civilian construction in installing Wind Energy Systems and 17 plantation crops (coconut, tea, coffee, rubber, citrus fruits, pineapple, cashew nut, areca nut, banana, mango, grapes, papaya, apple, litchi, Sapota, guava, and pomegranates) under cultivated assets as the capital expenditure incurred on cultivation of plantation crops during the gestation period is treated as output under kutcha construction of the 'Construction Industry' for that year. These estimates are prepared on the basis of data on area on extensions and replacements as available in the annual reports of concerned boards and the information received from DESs. The cost structure has been worked out on the basis of information received from NABARD for the year 2002-03. For later years, the estimates are compiled by using a weighted index based on index of agriculture labour, WPI of fertilizer and the particular crops or fruits. The total estimates are further distributed to all the three institutional sectors in the base year 2004-05 by utilizing the information on crop wise small land holdings as available from Agriculture Census 2001 and the public sector estimates from the analysis of budget documents. The private corporate sector estimates are obtained as a residual in the base year. For later years, private corporate sector estimates are prepared on the basis of fixed ratio worked out in the base year 2004-05. For the later years, the difference of the total estimates and organized sector (i.e. public + private corporate) estimates gives the estimates for the household sector. In respect of wind energy, 8.71% of the total capital expenditure incurred in constructing the Wind Energy Systems which include Wind Mills, Aero-generators and Wind Turbines, is treated as new construction in un-accounted (kutcha) construction based on the cost structures of the projects undertaken by NABARD. The distribution of kutcha construction in erecting wind energy systems among institutional sectors is made on the basis of the Annual Reports of NABARD.

14.21 Fresh composite index numbers for (i)

General Pucca Construction, (ii) Rural residential Housing, (iii) Urban residential Housing (iv) Basic Materials, (v) Other materials, (vi) Rural-Urban non residential Buildings and other construction works accounted and un accounted, have been compiled with base 2004-05 revising the weights of materials and other items used for construction. These indices are used for moving forward the base year estimates to succeeding years.

14.22 **Public sector:** On the basis of discussions with the Officers of the State Governments, such labour intensive construction, besides afforestation and re-afforestation, in respect of public sector, relates to the categories of kutcha construction like soil conservation and area development. About 15 per cent of capital expenditure on other construction comprising bunding, field drains, kutcha bridges, etc. in the case of irrigation, expenditure on roads and buildings and 50 per cent of other construction in the case of forestry relates to kutcha construction. Data on such expenditure are available from the annual budget documents.

14.23 **Private corporate sector:** Estimates of construction in the private corporate sector include the expenditures made on plantation crops and wind energy systems. Estimates of construction in plantations in the private corporate sector are prepared on the basis of annual data on area of extensions, replacements and replantations available in the annual reports of Tea, Coffee, Rubber and other Commodity Boards as well as data on the cost of plantations, yearly cost structures during gestation as obtained from the respective Boards, NABARD, and National Horticulture Board. However, in the case of cost data not becoming available for a particular year, the current estimates are obtained by moving the latest available estimates with the help of quantum index based on area on extensions, replacements etc., duly superimposed by the index of daily wages of rural unskilled workers.

14.24 **Household sector:** In the case of household sector, the estimates are based on the results of NSS decennial survey AIDIS for 2002-03. The survey results provide data relating to fixed capital expenditure and expenditure on normal repairs and maintenance by the households separately for residential buildings, non-residential buildings and other construction both for rural and urban areas; and also separately for farm and non-farm businesses. But this expenditure is not available distinctly by pucca and kutcha in



respect of residential/non-residential buildings and wells. Therefore, having estimated the total expenditure under different categories of construction for the survey year 2002-03 and for other years using relevant indicators for such categories, ratios based on NSSO reports are then used to estimate the components of kutcha construction (the data on the components of pucca construction available from AIDIS are not considered in the household sector's accounted (pucca) construction, as those estimates were derived through the commodity flow approach). The norms used for apportioning the rural residential buildings into accounted and unaccounted constructions are 79 : 21 and for urban residential buildings, it is 97 : 3. These norms are estimated from the results of NSSO 58<sup>th</sup> Round "Housing Conditions" Survey results. Other construction works taken up by the Households engaged in Farm business is treated as unaccounted and that in Non Farm business is treated as accounted construction. The proportions and the sources used to obtain the corresponding estimates under different categories of construction are discussed in the following paragraphs.

- 14.25 **Rural residential buildings/houses:** Estimates for rural residential housing are prepared using the results of AIDIS, 2002-03. The survey report gives estimates of fixed capital expenditure and expenditure on normal repair and maintenance in residential buildings for the year 2002-03. The annual estimates for 2004-05 and subsequent years are obtained using combined index of net annual additions in the number of rural residential buildings (based on 1991 and 2001 population census data on rural occupied dwellings) and cost of construction of rural houses. The proportion of kutcha construction is determined on the basis of information relating to expenditure on construction of houses in rural areas available from the report no. 488 of NSSO 58<sup>th</sup> Round "Housing Conditions" Survey. According to these results only 79 per cent of the total expenditure on new construction & repairs & maintenance relates to pucca construction and is already covered by the commodity flow approach. Accordingly 21 per cent of the total expenditure on construction of rural residential houses has, therefore, been taken as the measure of expenditure of fixed capital formation and repair and maintenance in rural residential houses of labour intensive type, i.e., unaccounted in the commodity flow approach. In the absence of current data on proportions of labour intensive construction,

the ratio based on above mentioned NSSO report is assumed to hold good over the years.

- 14.26 **Urban residential buildings /houses:** Estimates for urban residential housing are also based on the results of AIDIS, 2002-03. The survey report gives estimates of fixed capital expenditure and expenditure on repair and maintenance in urban residential houses for the year 2002-03. Such annual estimates for 2004-05 and subsequent years are obtained using combined index of net annual additions in the number of urban residential buildings (based on 1991 and 2001 population census data on urban occupied dwellings) and cost of construction of urban houses. Information available in the NSSO 58<sup>th</sup> Round "Housing Conditions" Survey results on expenditure in construction shows that 3 per cent of total value of construction is of labour intensive type. This proportion has, therefore, been applied on the annual estimates of expenditure on new construction and repairs and maintenance under this category to obtain the measure of the labour intensive type of construction
- 14.27 **Rural/urban non-residential buildings and other construction works:** The estimates of the value of household construction consisting of rural and urban non-residential buildings and other construction works have been prepared using the results of AIDIS, 2002-03 separately for the pucca construction and kutcha construction.
- As in the case of residential buildings using the data contained in NSSO Report No 488 of 58<sup>th</sup> Round "Housing Conditions" Survey results 79 and 97 percent of non-farm and farm business for non-residential buildings and wells collected from AIDIS 2002-03 have been used for accounted part and 21 and 3 percent of non-residential buildings have been used as un-accounted part. The other construction works under farm and non-farm business have been taken fully as un-accounted construction. The figures of new construction and repairs and maintenance so obtained from AIDIS 2002-03 have been moved further with the help index of value of accounted construction. For the un-accounted construction the AIDIS 2002-03 base figures of farm and non- farm business and other construction works are moved with the help of combined index of value of output for agriculture and manufacturing after assigning the weights as their ratio in the total value of output for both agriculture and manufacturing.

### Method of Estimation of Gross Value added

- 14.28 For pucca construction, having estimated the value of material inputs by commodity flow-approach, other materials and factor payments by fixed (53.4%) proportions, the GVA is taken to be 34.81 per cent of the value of output. In case of all labour intensive kutcha construction, the GVA is taken to be 75 per cent of the value of output on a uniform basis. The sum of the two i.e., GVA from construction based on commodity flow approach and GVA from construction based on kutcha construction gives the total GVA from construction. The details of estimates of value added for 2004-05 are given in *Appendix 14.7*.

### Estimates at Constant Prices

- 14.29 The estimates of GVA at current prices are converted to constant prices by using appropriate deflators given in *Appendix 14.6* specially prepared for the purpose for different types of construction works. The sum of the estimates for various components of construction thus obtained gives the total value added from construction at 2004-05 prices.

### Quality and limitations of data base

- 14.30 In the estimation of GVA of construction sector, indirect approaches are adopted, in the absence of direct data on construction works. As a result a number of rates and ratios are used here. Although, most of these are updated at the time of revision of base year, the year to year changes in these rates are also expected to be significant. Presently, only five basic materials are examined in detail to estimate the value of output of accounted construction. The proportion of some of the other inputs, like bitumen, and items taken under other materials etc. could also be significant in the construction activity.

There is, therefore, a need to increase the number of basic construction materials in the estimation procedure and reduce the proportion of 'other materials'. The proportions of GVA to value of output for kutcha construction works are not based on satisfactory data. Because of the wide diversity in the types of construction even within the broad groups of pucca and kutcha construction, the proportions of GVA to the total value of construction for different types are likely to vary. It is desirable that the different types of construction are classified into homogeneous groups and the proportion of value added for each group is worked out on a more scientific/ satisfactory basis.

## Appendix 14.1

**VALUE OF CEMENT AND CEMENT PRODUCTS USED IN CONSTRUCTION**

Rs. Lakhs	
ITEM	2004-05
1.Total Consumption of Cement including Net Imports '000 Tonnes *	123080
2.Cement used as input in other industries 3.8% **	4677
3. Cement available for Construction '000 Tonnes (1-2)	118403
4.Prices of Cement (Rs. Per Tonnes) @	3573
5.Value of Cement (3*4) (Rs. Lakhs)	4230538
6.Transport Margin 7% of item 5 ***	296138
7.Value of Cement used in Construction at construction site (5+6)	4526675
8.Value of Cement Products(From ASI) Rs. Lakhs #	588889
9.Excise duty on Cement Products Rs. Lakhs (@10%)	58889
10.Value of Cement Products (from ASI) inclusive of Excise duty (8+9)	647778
11.T.T.Margin 33.1% of item 10 **	214415
12.Value of Cement Products at site (10+11)	862193
<b>13.Total Value of Cement incld. Cement products used in Construction (7+12)</b>	<b>5388868</b>

## Sources:

\* Cement Statistics (Publication of Cement Manufacturer's Association)

\*\* IOTT Norm , \*\*\* Study based on Cement Dealers

@ Current price data collected from 10 states has been used to estimate the quantity of cement, bricks and Timber used in construction

# New basket of items used in construction culled out from ASI detailed results at 5-digit level for the year 2004-05

## Appendix 14.2

**VALUE OF IRON AND STEEL USED IN CONSTRUCTION**

Rs. Lakhs	
ITEM	2004-05
1. Value from ASI #	11463741
2. Excise Duty ##	1375649
3. Net Imports *	-178534
4. Import duties *	7732
5. Value from Small Scale @	1739433
6. Total Value (1 to 5)	14408020
7. TTM at 19.9% of item 5 **	2867196
<b>8. Value at Site (6+7)</b>	<b>17275216</b>

## Source:

# New basket of items used in construction culled out from ASI detailed results at 5-digit level for the year 2004-05 , \*\* IOTT

@ NSS 62<sup>nd</sup> Round and SSI Results,

## TRU, M/O Finance, \* DGCIS

## Appendix 14.3

**VALUE OF TIMBER AND ROUNDWOOD USED IN CONSTRUCTION**

(Rs. Lakhs)

ITEM	2004-05
1. Production of industrial wood (000' cu. mt.) *	42923
1.1 Timber (91.86% of item 1 )	39429
1.2 Round wood (7.95% of item 1)	3412
2. Timber used in construction (12.5% of item 1.1)	4929
3. Price of Timber (Rs. per cu. mt.) @	30950
4. Value of Timber used in construction (2*3) in Rs. Lakhs.	1659465
5. Import of Timber & round wood(HS code 4403+4407)	47474
6. Import duty of Timber & round wood (Rs. Lakhs) (HS code 4403+4407)	4747
7. Total Value of Timber produced inclusive of import(4+5+6)	1711686
8. Export of Timber & round wood(HS code 4403+4407)	1843
9. Trade and Transport Margin(TTM) 60.1% of item 7	1028723
<b>10. Value of Timber at site (7+9-8) in Rs. Lakhs.</b>	<b>909977</b>
11. Round wood used in construction 38.3% of item 1.2	1307
12. Price of round wood (Rs. Per Cubic Mtr.)	5958
13. Value of round wood used in construction (11*12)	77868
14. TTM (60.1% of item 13)	46798
<b>15.Value of round wood at site (13+14) in Rs. Lakhs</b>	<b>124666</b>
16. Ex-factory val. of veneer & plywood & their product From ASI ##	203971
17. Excise duty on veneer & plywood @@	10806
18. Value of plywood (16+17)	214777
19. Value of plywood & veneer used in const.(1/3 of18)	71592
20. Import of veneer and plywood(HS code 4408+4410+4411+4412)	6801
21. Import duty of veneer and plywood (HS code 4408+4410+4411+4412)	1161
22 Value of veneer, plywood etc. at site(19+20+21) Rs. Lakhs	79554
23. Export of veneer and plywood(HS code 4408+4410+4411+4412)	6186
24. TTM 60.1% of item 22	47812
<b>25. Value of Veneer and plywood at site (22+24-23)</b>	<b>121180</b>
<b>26.Total value of Timber &amp; round wood etc (10+15+25)</b>	<b>2984413</b>

**Source:**

\* Supplied by DES

@ Current price data collected from 10 states has been used to estimate the quantity of cement, bricks and Timber used in construction

# on the basis of information received from DES and other construction companies

## New basket of items used in construction culled out from ASI detailed results at 5-digit level for the year 2004-05

@@ TRU Annexure 2 Item 67, wood and activity of wood.

**VALUE OF BRICKS AND TILES USED IN CONSTRUCTION***(Rs. Lakhs)*

<b>ITEM</b>	<b>2004-05</b>
1.Allocation of Coal for brick burning 000' tonnes *	8009
2.total bricks produced (in crores) @	5006
3.Price of bricks Rs. Per thousand of bricks @@	2373
4.Value of bricks in un-organised sector(Rs. Lakhs)	1306618
4.1 Small enterprises (2*3)	1187835
4.2 Others (10% of 4.1)	118783
5.Value of bricks & Tiles in organised sector (Rs. Lakhs) ASI #	565308
6. Excise Duty (@10%)	56531
7.Trade and Transport Charges 33.1% of item 5 \$	187117
8. Recycled bricks (5% of item 5) ##	28265
<b>9. Total Value of bricks at site (Rs. Lakhs) (4+5+6+8)</b>	<b>2143839</b>

**Sources**

\* data supplied by Office of the Coal Controller

@ 16 Tonnes of coal is required for burning of one lakh of bricks

@@ Current price data collected from 10 states has been used to estimate the quantity of cement, bricks and Timber used in construction

# New basket of items used in construction culled out from ASI detailed results at 5-digit level for the year 2004-05

\$ With the help of IOTT

## new study as suggested by Advisory committee.

**VALUE OF FIXTURES AND FITTINGS USED IN CONSTRUCTION**

Rs. Lakhs

Sl. No.	NIC2004 Code at 4-digit	NIC2004 Code at 5-digit	Description of Items	2004-05	Proportion Utilized
1	2520	25203	Manufacture of bathing tubs, wash-basins, lavatory pans and covers, flushing cisterns and similar sanitary-ware of plastics	22097	99%
2	2520	25206	Manufacture of molded industrial accessories of plastics [including electrical insulating fittings of plastics]	57193	17%
3	2520	25207	toilet articles of Plastic	51676	39%
4	2610	26109	Manufacture of other glassware/glass products: articles of glass used in construction such as glass blocks;	30972	44%
5	2691	26914	Manufacture of ceramic sanitary wares: sinks, baths, water-closet pans, flushing cistern etc.	31877	86%
6	2691	26915	Manufacture of ceramic insulators and insulating fittings for electrical machines, appliances and equipment	68153	95%
7	2694	26944	Manufacture of quicklime, slaked lime and hydraulic lime (excl. chewing lime)	24002	95%
8	2694	26945	Manufacture of plasters consisting of calcined gypsum or calcium sulphate	3747	99%
9	2696	26960	Cutting, shaping and finishing of stone[ includes cutting, shaping and finishing stone for use in construction, in cemeteries, on roads, as roofing and in other applications]	343872	72%
10	2720	27203	Manufacturing of Aluminum (includes basic processing, smelting, refining for production of base metal; its further rolling, drawing and extruding; and production of powders or flakes, foil, plates, sheets or strip, bars, rods, profiles, wires, tubes, pipes and tube or pipe fittings)	743288	50%
11	2812	28122	Manufacture of tanks, reservoirs and similar containers	37375	89%
12	2899	28993	Manufacture of reinforced safes, vaults, strongroom doors and gates and the like	2212	96%
13	2899	28994	Manufacture of metal sanitary ware, including baths, sinks, wash basins, and other metal sanitary and toilet articles, whether or not enamelled	62012	98%
14	3130	31300	Manufacture of insulated wire and cable [insulated (including enamelled or anodized) wire, cable (including coaxial cable) and other insulated conductors; insulated strip as is used in large capacity machines or control equipment; and optical fibre cables]	738831	96%
15	2520	25209	Manufacture of polymer/ synthetic / PVC water storage tanks and other plastic products	260502	19%
			<b>Grand Total</b>	<b>2377812</b>	
			<i>TTM 33.1%</i>	<i>787056</i>	
			<b>Total Value of Fixtures &amp; Fittings</b>	<b>3164868</b>	



**WEIGHTS ALLOTTED TO DIFFERENT INDICES IN THE PREPARATION OF  
DEFLATORS FOR VARIOUS TYPES OF CONSTRUCTION**

Indices	Pucca construction	Kutcha Construction			
		Rural housing	Urban Housing	Rural/Urban non-residential buildings & other construction	Others*
1. Wage rate index for rural construction workers	27.7	100		28	
2. Wage rate index for urban construction workers	72.3		100	72	
3. Wage rate index for rural unskilled labour					100

\* Construction under the category "others" covers plantations and afforestation and other "Kutcha construction" outside household sector.

## Appendix 14.7

**GROSS VALUE ADDED IN CONSTRUCTION**

Rs Crores

ITEM	2004-05
1.Accounted construction in Commodity flow approach	<b>217515</b>
2.Unaccounted Construction	<b>17520</b>
2.1 R/U non res. buildings& OCW- New	4773
2.2 R/U non res. buildings& OCW- Rep. & Maintenance	881
2.3 Rural residential buildings- New	5849
2.4 Rural residential buildings- Rep.& Maintenance	1369
2.5 Urban residential buildings- New	895
2.6 Urban residential buildings- Rep. Maintenance	77
2.7 Capital expenditure incurred in Plantations & Civil Construction in installations of Wind Energy systems in the Private Corporate Sector	708
2.8 plantations in household sector	738
2.9 Govt. Kutcha Construction	2531
3. TOTAL G V A	<b>235035</b>
LESS FISIM (Construction)	<b>6180</b>
<b>TOTAL GVA (Adjusted)</b>	<b>228855</b>

## ELECTRICITY, GAS AND WATER SUPPLY

### Coverage

- 15.1 The economic activities relating to generation, transmission and distribution of electric energy are covered under the electricity sub-sector, the manufacture of gas in gas works including gobar gas and distribution through mains to household, industrial, commercial and other users are covered under the gas sub-sector and the activities associated with collection, purification and distribution of water excluding the operation of irrigation system are covered under water supply sub-sector. In the NIC-2004, Division 40: electricity, gas, steam and hot water supply, includes the economic activities under the sector. Specifically, the activities are covered under the NIC 2004 3-digit codes of 401- production, collection and distribution of electricity, 402- Manufacture of gas; distribution of gaseous fuels through mains, 403- Steam and hot water supply, and 410- Collection, Purification and distribution of water.
- 15.2 **Method of Estimation of GVA and sources of Data**
- 15.2 GVA is estimated as the sum of gross factor incomes in the case of electricity and water supply sub-sectors and as gross output less inputs in the case of gas sub-sector.
- 15.3 **Electricity:** The main agencies involved in the activities falling within the purview of this sub-sector are public sector undertakings comprising Departmental Commercial Undertakings (DCUs) and Non-departmental Commercial Undertakings (NDCUs) of the central government and state governments and local bodies and private companies including co-operative societies. The major sources of data utilized in respect of each of the above agencies are (i) budget documents of the central, state and union territories in the case of DCUs, (ii) annual reports which inter-alia give profit and loss accounts and balance sheets in the case of NDCUs of central and state governments and private companies. The operating losses of electricity units under DCUs have been treated as imputed subsidies. In the new series, the coverage of this activity has been expanded to include the output of wind energy too. The information collected by some State Directorates from their renewable energy development agencies on (i) wind power generated (KWH/ million units), (ii) value of wind power generated and (iii) value of inputs, have been utilised to compile the estimates for this segment.
- 15.4 **Gas:** The major sources of data utilised are (i) Annual accounts of Gas Authority of India Ltd. (GAIL), Indraprastha Gas Ltd (IGL), Gujarat Petronet, and Maharashtra Natural Gas (MNG), (ii) annual reports of Khadi Village Industries Commission (KVIC) and (iii) Data on number of bio gas plants from Ministry of New and Renewable Energy Sources.
- 15.5 **Water supply:** The main sources of data utilised are (i) budget documents of the central and state governments, (ii) annual accounts of Kerala Water Authority (KWA), (iii) municipal data on compensation of employees, (iv) population census and (v) Employment Unemployment Survey (EUS), 61<sup>st</sup> round of NSS data on employment engaged in water supply activities.
- 15.6 **Estimates at Current Prices**
- 15.6 **Electricity:** Estimates of GVA in respect of DCUs are prepared from the data on total receipts and expenditures available in the central and state government budget documents. Gross factor incomes i.e., GVA in the case of NDCUs comprising state electricity boards, state and central power corporations and private companies are estimated on the basis of the data on annual expenditure and income available in the profit and loss accounts. The list of private companies in the electricity sector is available from the annual publication namely "All India Electricity Statistics General Review" of Central Electricity Authority. The estimates of GVA worked out in respect of public sector undertakings and private sector companies are added to arrive at the estimated GVA for the given year. The estimates of GVA so arrived at are netted for the FISIM which form a part of the output of the banking sector. The estimate of the factor incomes in the total of GVA in respect of public and private sectors for the base year 2004-05 is given in Appendix 15.1.
- 15.7 **Gas:** The GVA in respect of NDCUs is estimated on the basis of data on annual expenditure and income available in the profit and loss accounts. However, the estimates of GVA from gobar gas are worked out on the basis of the statewide production data available in the annual reports of KVIC. In the absence of details of input structure, the value of gobar gas is treated as equivalent to GVA. This is on the assumption that the value of gobar used in the generation of gobar gas also results in

- equivalent value of by-products of indigenous fertilizers and the estimates of these fertilizers are not separately taken account of in the agriculture sector. In the new series, coverage of Gobar Gas has been expanded. Ministry of New and Renewable Energy Sources has furnished, detailed Information on number of Bio-gas plants installed by different agencies viz. State Governments/KVIC/AIWC/National Dairy Development Board (NDDB) etc. Estimation of GVA in respect of Gobar Gas is done with the help of production data furnished by KVIC and data on number of Bio-gas plants supplied by Ministry of New and Renewable Energy Sources. The details for estimates for 2004-05 are given in Appendix 15.2.
- 15.8 Water supply: The estimates of GVA are obtained as the total compensation of employees (salaries and wages), operating surplus and consumption of fixed capital. The estimates of compensation of employees are worked out separately for the public sector and the rural and urban segments of the private sector. In the case of public sector comprising central and state departments dealing with water supply activities, the estimates are worked out from the details available in the respective budget documents. The estimates of GVA in respect of Kerala Water Authority (KWA) are based on their annual accounts report. The estimates of compensation of employees for the year 2004-05 for the private sector part are prepared using the estimates of workforce and average compensation of municipal workers engaged in water supply services. The private sector workforce for the year 2004-05, has been obtained after deducting the public sector workforce from the total workforce of the water supply services. The procedure of obtaining the total workforce in each economic activity in the country is given in the Chapter on Workforce. For the subsequent years, while the estimates of public sector component are compiled using the direct data, inter-survey growth rate on workforce/rate of growth in municipalities workforce and the direct data on average compensation of those of private sector are prepared using the municipal workers engaged in water supply services. The estimates of CFC are prepared separately using the perpetual inventory method (PIM). The detailed procedure of PIM is given in the
- chapter 26. The details of the estimates are given in Appendix 15.3.
- Estimates at Constant Prices**
- 15.9 **Electricity:** The base year estimates of GVA for the year 2004-05 in respect of electricity are moved forward to subsequent years with the help of quantum indices prepared from the data on quantity of energy sold, to obtain the estimates of GVA at constant prices for subsequent years. The data on quantity of energy sold/generated is available from the annual publication of CEA referred to above.
- 15.10 **Gas:** The base year (2004-05) estimate of GVA in gas from NDCU part is moved forward to subsequent years with the help of quantum indices based on the data on the quantity of gas sold. In case of gobar gas the constant price estimate of GVA is obtained by multiplying the quantity of production of each year by the base year price.
- 15.11 **Water Supply:** The estimates at constant prices are obtained by deflating the net value added at current prices with the help of Consumer Price Index (CPI) for industrial workers. CFC is then added to obtain the GVA.
- Quality and limitations of data base**
- 15.12 **Electricity:** Generally current data on annual basis are available in respect of departmental undertakings, central/state power corporations, and state electricity boards. However there are cases of time lag in receipt of the annual reports from some of the power corporations/electricity boards. The estimates in respect of such non-responding units are prepared by using the past trends.
- 15.13 **Gas:** In the absence of details of input structure of gobar gas, the value of output of gobar gas is treated as equivalent to GVA.
- 15.14 **Water Supply:** A prerequisite for deriving reliable estimates of GVA is the availability of firm data on working force. The rate of growth adopted for estimating private sector working force in urban and rural areas is based on the data of responding municipalities only which is a handicap in getting robust estimates.

## Appendix 15.1

**GROSS VALUE ADDED FROM ELECTRICITY SUB-SECTOR, 2004-05**

(Rs. crore)

Institution	Salaries & Wages	Interest	Rent	Profit	Net Value Added	Consumption of Fixed Capital	Gross Value Added
1. Public Sector	17925	10395	185	-10146	18359	23653	42012
2. Private Sector	2112	1522	41	3014	6689	1808	8497
<b>Total</b>	<b>20037</b>	<b>11917</b>	<b>225</b>	<b>-7131</b>	<b>25048</b>	<b>25461</b>	<b>50509</b>

## Appendix 15.2

**GROSS VALUE ADDED FROM GAS SUB-SECTOR, 2004-05**

(Rs. crore)

Item	Gross Value Added
GAIL+IPGL	4126
Gobar Gas	1367
<b>Total</b>	<b>5493</b>

## Appendix 15.3

**GROSS VALUE ADDED FROM WATER SUPPLY SUB-SECTOR, 2004-05**

(Rs. crore)

No.	Item	Gross Value Added
1.	Compensation of employees/MI – Private Sector	599
2.	Compensation of employees - Public sector	3652
3.	Operating surplus	-13
4.	Total net value added (1. +2. +3.)	4238
5.	Consumption of fixed capital	2436
<b>6.</b>	<b>Gross value added</b>	<b>6674</b>

\*\*\*

**Trade****Coverage**

16.1 The Trade sector includes wholesale and retail trade in all commodities whether produced domestically, imported or exported. It covers activities of purchase and selling agents, brokers and auctioneers. Wholesale trade covers units, which resell without transformation, new and used goods generally to the retailer and industries, commercial establishments, institutional and professional users or to other wholesalers. Retail trade covers units, which mainly resell without transformation new and used goods for personal or household consumption. This sector also comprises of maintenance and repair of motor vehicles and repair of personal household goods. As per NIC 2004 classification, this sector consists of following five categories:

- Maintenance and repair of motor vehicles (Codes 502+50404);
- Sale of motor vehicles (Codes 50-502-50404);
- Whole sale trade except of motor vehicles + Auctioning activities (Codes 51+74991);
- Repair of personal household goods (Code 526); and
- Retail trade (except motor vehicles) (Code 52-526).

**Sources of data**

16.2 The major sources of data for trade, hotels and restaurants are:

- Accounts of the public sector enterprises and budget documents;
- The results of the RBI study of the finances of a sample of companies engaged in trade and hotels & restaurants;
- Paid-up capital of all the companies engaged in trade and hotels & restaurants from the Ministry of Company Affairs;
- Publication entitled 'Statistical Statements Relating to Co-operative movement in India' from National Bank for Agriculture and Rural Development (NABARD);
- Unit value of Index of imports from Directorate General of Commercial Intelligence and Statistics (DGCI&S);
- Wholesale price index from the Office of Economic Adviser, M/O Commerce and Industry.

- 'Motor Transport Statistics of India', Ministry of Shipping, Road Transport and Highways;
- Employment-Unemployment Survey data from NSS 61<sup>st</sup> round (2004-05) and Population Census 2001 estimates of workforce;
- Informal Sector Survey conducted during 55<sup>th</sup> round (1999-2000) of NSS and Enterprise Survey conducted during 63<sup>rd</sup> round (2006-07) of NSS;
- 'Agricultural Statistics at Glance', Ministry of Agriculture;
- Consumer Price Index for Industrial Workers and Agriculture Labour, Ministry of Labour.

**Method of estimation of GVA**

16.3 The GVA estimates of *Trade* sector are prepared separately for:

- Public sector having units engaged in retail and whole sale trade (except of motor vehicles) + Auctioning activities;
- Private Organized sector consisting of (a) Private Corporate units engaged in retail and wholesale trade (except of motor vehicles) + Auctioning activities, (b) Trading Co-operative units engaged in retail and wholesale trade (except motor vehicles) + Auctioning activities, (c) Maintenance and repair of motor vehicles and (d) Repair of personal household goods. The GVA estimates are prepared separately for each of these four components.
- Private Un-organized sector having units engaged in all the five categories namely (i) Maintenance and repair of motor vehicles; (ii) Sale of motor vehicles; (iii) Whole sale trade except of motor vehicles + Auctioning activities; (iv) Repair of personal household goods; and (v) Retail trade except motor vehicles. The GVA estimates are prepared separately for these five categories.

16.4 **Public Sector:** Estimates of GVA relating to public sector units engaged in trade are based on the analysis of accounts of the public sector enterprises and budget documents. The annual reports are obtained by the CSO. A complete analysis of the reports including the profit-loss account and

balance-sheet are undertaken for preparing the components of value added and other aggregates. The details are discussed in the Chapter on Public Sector. The data relating to central public undertakings are generally up-to-date and complete.

- 16.5 The constant price estimates of value added by the public sector are prepared by moving the base year estimates with the quantum index (obtained on the basis of purchase and sale of public sector trading companies). The quantities of different products handled by Food Corporation of India (FCI), Minerals and Metals Trading Corporation (MMTC), State Trading Corporation (STC) and Industrial Development Corporation (IDC) are evaluated at base year prices to prepare the quantum index.
- 16.6 **Private Corporate Sector:** The base year estimates are prepared by using the results of the RBI study of the finances of a sample of companies (inflated by the ratio of paid-up capital (PUC) of all the companies for the activity, data obtained from the Ministry of Company Affairs and PUC of sample companies). The estimates of GVA for subsequent years are prepared by moving the base year estimates with the corporate sector growth rate (RBI) derived from the Annual Financial results of sample companies weighted by the share of compensation of employees and operating surplus derived from Table 76.1 of NAS 2009 to arrive at the rate of growth of GVA of trade sector. The constant-price estimates of private corporate segment are obtained by deflating the current price estimates with suitable indicators.
- 16.7 The estimates of GVA for co-operative societies (for trade only) are prepared using information available from NABARD's publication entitled 'Statistical Statements relating to co-operative movement in India', Part II-Non-credit societies. The publication has a time lag of 4-5 years. The *constant price* estimates of co-operative societies in trade sector are obtained by moving the base year estimates with the index of deflated sales of corporate sector. The value of sales at current prices is deflated using suitable indicator.
- 16.8 For Maintenance and repair of motor vehicles and Repair of personal household goods activities, estimates for the base year are usually prepared as a product of workers and GVA per worker.
- 16.9 For subsequent years, the estimates for the activities Maintenance and repair of motor vehicles and Repair of personal household goods are prepared by moving the current price estimates with the growth trend observed in private corporate sector relating to wholesale and retail trade excluding motor vehicles. The constant price estimates for both the activities are prepared by deflating the current price estimates with suitable indicator.
- 16.10 **Private un-organized Sector:** The base year GVA is usually estimated as a product of estimates of labour input and value added per worker. Since Trade was not covered in the Enterprise survey 2006-07, the base year estimate was retained as that of the previous series.
- 16.11 For preparing GVA estimates for subsequent years for all components of private un-organized sector, specially prepared Gross Trading Income (GTI) of commodity producing sectors is used. The current price estimates are obtained by moving the base year estimates with index of GTI constructed using output at current prices. The constant-price estimates are obtained by moving the base year estimates by a different index of GTI, which is based on the volume of goods evaluated at constant prices.
- 16.12 The GTI is based on (i) the value of marketable surplus in commodity producing sectors in agriculture, livestock, fishing, forestry, mining and manufacturing & value of imports and (ii) the corresponding Trade, Transport Margins (TTMs). The marketable surplus ratios used for the base year are as given in Ministry of Agriculture's publication 'Agricultural Statistics at Glance'. The GTI is estimated by multiplying the marketable surplus by the corresponding trade and transport margins for groups of commodities for which these marketable surplus ratios are available. The data on TTMs is obtained from the IOTT 2003-04. The base year estimates of GVA are then carried forward with the index of GTI thus obtained, to arrive at the annual estimates of GVA. The commodity/crop wise marketable surplus ratios and TTMs used in preparing GTI index are given in Appendix 16.1 & 16.2 respectively.
- Hotels and Restaurants**
- 16.13 This sector covers services rendered by hotels and other lodging places, restaurants, cafes and other eating and drinking places. As per



NIC 2004 classification, it consists of following two categories:

- Hotels, camping sites etc (NIC 2004, Code-551); and
- Restaurants, bars and canteens (NIC 2004, Code-552).

### Method of estimation GVA

16.14 The GVA estimates of Hotels and Restaurants are prepared separately for:

- Public sector;
- Private Organized sector; and
- Private Un-organized sector

16.15 The methodology followed for estimating GVA of public, private organized and private unorganized in the new series are as follows:

16.16 **Public Sector:** Estimates of GVA relating to public sector units engaged in hotels and restaurants are based on the analysis of accounts of the public sector enterprises and budget documents. The annual reports are obtained by the CSO. A complete analysis of the reports including the profit-loss account and balance-sheet are undertaken for preparing the components of value added and other aggregates. The constant price estimates of value added by the public sector are prepared by moving the base year estimates with the appropriate quantum index.

16.17 **Private organized Sector:** For Hotels and restaurants, the GVA at current prices for base year is estimated using annual results of the RBI study of the finances of a sample of companies (inflated by the ratio of paid-up capital (PUC) of all the companies engaged in hotels and restaurants activities). The estimates of GVA for subsequent years are prepared by moving the base year estimates with the corporate sector growth rate (RBI) derived from the Annual Financial results of sample companies weighted by the share of compensation of employees and operating surplus derived from Table 76.1 of NAS 2009 to arrive at the rate of growth of GVA of Hotels & Restaurants sector. The constant price estimates are obtained by deflating the current price estimates with suitable indicators.

16.18 **Private un-organized Sector:** The estimates of GVA for private unorganized sector in the new series have been compiled by using the estimated value added per worker (VAPW) from Enterprise Survey, 2006-07 and labour input estimates from Employment-Unemployment Survey, 2004-05 & Population Census 2001. The VAPW of ES, 2006-07 has been adjusted for the base year 2004-05 using CPI (AL) in rural areas and CPI (IW) in urban areas. The estimates of labour input of private unorganized part for all the categories (rural and urban) have been obtained from the Employment-Unemployment Survey 2004-05.

16.19 The current price estimates for subsequent years are obtained by moving the base year estimates with index of GTI constructed using output at current prices. The *constant-price* estimates for subsequent years are obtained by moving the base year estimates by a different index of GTI, which is based on the volume of goods valued at constant prices. The GTI index used in the case of hotels and restaurants is the same as that of GTI used in the unorganized trade, the assumption being the similar trend in income of unorganized hotels & restaurants.

### Quality and limitations of data base

16.20 While the GVA estimates of public sector which are based on current data may be considered reliable, the private corporate sector GVA estimates based on RBI sample studies are not robust, as these are based on thin samples, and sometimes in the absence of these data, the information available on PUC has its own limitations. However, growth from RBI sample derived by using the weighted share of compensation of employees and operating surplus from Table 76.1 of NAS 2009 may improve the quality of estimates as the data is based on current estimates. Further, for the unorganized part of the activity no current data is available and hence the benchmark estimates are moved with the indicator of GTI from commodity producing sectors. Trade was not covered in the Enterprise Survey 2006-07 and hence for estimates of unorganized sector of 2004-05, the last series (1999-2000) had to be carried forward.

**Estimates of GDP of trade, hotel & Restaurants, 2004-05**

(Rs. crore)

Items	2004-05
<b>1. Gross domestic product unadjusted</b>	<b>489984</b>
1.1 Trade	445521
1.2 Hotels & Restaurants	44463
<b>2. Less FISIM</b>	<b>12681</b>
2.1 Trade	11554
2.2 Hotels & Restaurants	1127
<b>3. Gross domestic product adjusted</b>	<b>477303</b>
3.1 Trade	433967
3.2 Hotels & Restaurants	43336

## Appendix-16.1

**Marketable Surplus ratios used in the current series**

S. No	Crop/Commodity	M. S. Ratio	S. No	Crop/Commodity	M. S. Ratio
1	Rice	71.37	32	mesta	87.3
2	Wheat	63.33	33	Other fibres	100.0
3	Jowar	53.44	34	Indigo	100.0
4	Bajra	69.39	35	Other dyes	100.0
5	Barley	42.9	36	Tea	100.0
6	Maize	76.22	37	Coffee	100.0
7	Ragi	57.74	38	tobacco (leaf)	100.0
8	Small millets	16.4	39	Tobacco (stem)	96.8
9	Other Cereals	16.4	40	Opium	96.8
10	Gram	93.76	41	Other drugs & narcotics	100.0
11	Arhar	79.52	42	Cardamom	96.5
12	Urad	85.76	43	Chillies	90.9
13	Moong	76.79	44	Black pepper	95.8
14	Masoor	56.7	45	Dry ginger	82.9
15	Horse gram	64.0	46	Turmeric	96.4
16	Other pulses	85.86	47	Arecanut	92.1
17	Linseed	86.9	48	Garlic	94.4
18	Sesamum	87.38	49	Coriander	90.9
19	Groundnut	88.75	50	Other spices	95.0
20	Rapeseed & mustard	89.66	51	Banana	85.7
21	Castor	67.9	52	Mango	85.7
22	Coconut	67.6	53	Citrus fruit	85.7
23	Niger seed	96.75	54	Grapes	85.7
24	Safflower	91.34	55	Cashew nut	100.0
25	Other oilseeds	83.0	56	Potato	85.0
26	Sugarcane	98.23	57	Sweet potato	75.8
27	Gur	98.23	58	Tapioca	70.0
28	Other sugars	98.23	59	Papaya	85.7
29	Kapas	94.94	60	Onion	82.91
30	Jute	90.72	61	Other fruits & vegetables	60.0
31	Sun hemp	96.5	62	Rubber	100.0

**Marketable Surplus ratios used in the current series**

S. No	Crop/Commodity	M. S. Ratio	S. No	Crop/Commodity	M. S. Ratio
63	Fodder	100.0	101	Food products	100.0
64	Misc. Food crops	22.7	102	Beverages, tobacco etc	100.0
65	Guar seed	83.0	103	Cotton textiles	100.0
66	Misc. non-food crops	22.7	104	Textiles products	100.0
67	Floriculture	60.0	105	Wood furniture etc	100.0
68	Cattle hides	100.0	106	Paper and printing etc	100.0
69	Buffalo hides	100.0	107	Leather and fur products	100.0
70	Goat hides	100.0	108	Basic Chemicals etc	100.0
71	Sheep hides	100.0	109	Rubber, Plastic, Petroleum & coal	100.0
72	Wool	100.0	110	Non-metallic products	100.0
73	Goat hair	100.0	111	Basic metal industries	100.0
74	Camel hair	100.0	112	Metal products	100.0
75	Pig bristle	100.0	113	Machinery Non elect	100.0
76	Dung fuel	5.00	114	Electrical m/c	100.0
77	Other dung	5.00	115	Transport Equipment	100.0
78	Bones, horns & hoofs etc	100.0	116	Other mfg	100.0
79	Hen eggs	88.2	117	Food products	100.0
80	Adult fowls	50.0	118	Beverages, tobacco etc	100.0
81	Chickens	50.0	119	Cotton textiles	100.0
82	Adult ducks	100.0	120	Textiles products	100.0
83	Other eggs and poultry	100.0	121	Wood furniture etc	100.0
84	Beef	100.0	122	Paper and printing etc	100.0
85	Buffalo meat	100.0	123	Leather and fur products	100.0
86	Goat meat	100.0	124	Chemicals etc	100.0
87	Mutton	100.0	125	Rubber, petroleum etc	100.0
88	Pork	100.0	126	Non-metallic products	100.0
89	Glands	100.0	127	Basic metal industries	100.0
90	Head legs	100.0	128	Metal products	100.0
91	Other meat products	100.0	129	Machinery, m/c tools	100.0
92	Milk consumed as such	100.0	130	Electrical m/c	100.0
93	Honey	100.0	131	Transport Equipment	100.0
94	Silk worm cocoons	100.0	132	Other mfg	100.0
95	Increment in stock	100.0	133	Coal & Lignite	100.0
96	Industrial wood (Recorded+ Unrecorded)	100.0	134	Iron ore	100.0
97	Fuel Wood	100.0	135	Manganese	100.0
98	Minor Forestry Product	100.0	136	Gold	100.0
99	Inland Fish	93.0	137	Mica	100.0
100	Marine Fish	93.0	138	Other minerals	100.0

**Trade Transport Margins used in the current Series**

S. No	Crop/Commodity	TTM	S. No.	Crop/Commodity	TTM
1	Rice	13.67	41	Other drugs & narcotics	26.14
2	Wheat	13.18	42	Cardamom	20.32
3	Jowar	21.46	43	Chillies	20.32
4	Bajra	18.5	44	Black pepper	20.32
5	Barley	20.32	45	Dry ginger	20.32
6	Maize	20.75	46	Turmeric	20.32
7	Ragi	20.32	47	Areca nut	20.32
8	Small millets	20.32	48	Garlic	20.32
9	Other Cereals	20.32	49	Coriander	20.32
10	Gram	6.93	50	Other spices	20.32
11	Arhar	16.67	51	Banana	20.32
12	Urad	16.67	52	Mango	20.32
13	Moong	16.67	53	Citrus fruit	20.32
14	Masoor	16.67	54	Grapes	20.32
15	Horse gram	16.67	55	Cashew nuts	20.32
16	Other pulses	16.67	56	Potato	20.32
17	Linseed	5.73	57	Sweet potato	20.32
18	Sesamum	5.73	58	Tapioca	20.32
19	Groundnut	5.73	59	Papaya	20.32
20	Rapeseed & mustard	5.73	60	Onion	20.32
21	Castor	5.73	61	Other fruits & Vegetables	20.32
22	Coconut	5.73	62	Rubber	20.32
23	Niger seed	5.73	63	Fodder	20.32
24	Safflower	5.73	64	Misc. Food crops	20.32
25	Other oilseeds	5.73	65	Guar seed	20.32
26	Sugarcane	19.63	66	Misc. non-food crops	20.32
27	Gur	19.63	67	Floriculture	20.32
28	Other sugars	19.63	68	Bones, horns & hoofs etc	22.36
29	Kapas	54.61	69	Hen eggs	22.36
30	Jute	54.61	70	Adult fowls	22.36
31	San hemp	54.61	71	Chickens	22.36
32	mesta	54.61	72	Adult ducks	22.36
33	Other fibres	54.61	73	Other eggs and poultry	22.36
34	Indigo	54.61	74	Beef	22.36
35	Other dyes	54.61	75	Buffalo meat	22.36
36	Tea	65.97	76	Goat meat	22.36
37	Coffee	14.64	77	Mutton	22.36
38	Tobacco (leaf)	14.64	78	Pork	22.36
39	Tobacco (stem)	26.14	79	Other meat products	22.36
40	Opium	26.14	80	Milk consumed as such	22.36

**Trade Transport Margins used in the current Series**

S. No	Crop/Commodity	TTM	S. No	Crop/Commodity	TTM
81	Industrial wood (Rec+Unrec)	24.31	95	Non-metallic products	44.07
82	Fuel Wood	24.31	96	Basic metal industries	19.64
83	Minor Forestry Product	24.31	97	Metal products	30.09
84	Inland Fish	37.86	98	Machinery Non elect	29.83
85	Marine Fish	37.86	99	Electrical m/c	30.09
86	Food products	31.41	100	Transport equipment	30.09
87	Beverages, tobacco etc	27.12	101	Other mfg	30.09
88	Cotton textiles	24.61	102	Food products	31.41
89	Textiles products	24.61	103	Coal & Lignite	90.34
90	Wood furniture etc	13.75	104	Iron ore	171.92
91	Paper and printing etc	30.63	105	Manganese	106.26
92	Leather and fur products	50.74	106	Gold	30.34
93	Basic Chemicals etc	26.16	107	Mica	425.89
94	Rubber, Plastic, Petroleum & coal	27.58	108	Other minerals	30.34

## TRANSPORT, STORAGE AND COMMUNICATION

### Coverage

- 17.1 The economic activities covered in this sector are (i) transport by railways, (ii) transport by other means, namely, road transport (mechanised and non-mechanised), water transport (coastal, ocean and inland), air transport and services incidental to transport, (iii) storage, and (iv) communication services. The budget documents of the railways and communication services which are integral part of Central Government budget documents include allied activities which according to standard industrial classification should belong to respective sectors. Following this principle, railway workshops and railway manufacturing establishments like Chittaranjan Locomotive Works, Integral Coach Factory, Diesel Locomotive Works and Wheel & Axle Plant are excluded from railway transport and included in the 'manufacturing' sector. Construction activity of the railways is also excluded and taken into account in the 'construction' sector. Expenditure on education, medical & health services are also excluded here and included in 'other services'. Similarly, the activities relating to post office savings bank, postal life insurance and telecommunication workshops are excluded from communication and included in 'banking', 'insurance' and 'manufacturing' sectors respectively.
- 17.2 Under the NIC 2004, these activities are covered under:  
 601: Transport via railways.  
 602: Other land transport.  
 611: Sea and coastal water transport.  
 612: Inland water transport.  
 621: Scheduled air transport.  
 622: Non-scheduled air transport.  
 630: Supporting and auxiliary transport activities; activities of travel agencies, including Storage and warehousing.  
 641: Post and courier activities.  
 642: Telecommunications.

### Transport by Railways Sources of data

- 17.3 The principal sources of data for estimating the GVA of Railway transport services are:  
 (i) Annual Report & Accounts and Annual Statistical Statements brought out by the Ministry of Railways (Railway Board); and  
 (ii) Budget Documents of the Central Government on Railways.
- 17.4 The Annual Report & Accounts and Annual Statistical Statements brought out by the Ministry of Railways (Railway Board) contain

comprehensive statistics on all-important aspects of the working of government railways and also some basic data in respect of non-government railways appropriation accounts. Budget documents of the Central Government on Railways contain budget of the Railways - Revenue and Expenditure of the Central Government, the Demand for Grants for expenditure of the Central Government on railways, Works, Machinery and Rolling Stock Programme of Railways and Explanatory Memorandum on Railway budget.

### Method of GVA Estimation

- 17.5 Railway budget is analyzed and three sets of accounts, namely, the production account, the income and outlay account and the capital finance account are prepared for the complete activity of government railways. The GVA at current prices is obtained from the production account as the sum of compensation to employees and gross operating surplus. The GVA thus obtained relates to the entire activity of the government railways. Since it includes GVA pertaining to the manufacturing, construction and the 'other services' activities also within government railways, these are subtracted from the total GVA to arrive at the current price estimates of GVA for government railways transport services. To this is added the GVA for non-government railways, the share of which is, however, quite small.

- 17.6 Estimates at *constant prices* are prepared by carrying forward the base year estimates with the combined indicator of passenger kilometers and net tonne kilometers. The two physical indicators are combined using passenger earnings and goods earnings for the base year as weights.

### Transport other than Railways

- 17.7 The economic activities covered in this sector are:
- Mechanized road transport (NIC-2004, Codes-6021+60221+60231);
  - Non-mechanized road transport (NIC-2004, Codes-60222+60232);
  - Air transport (NIC-2004, Code-62);
  - Water transport (NIC-2004, Code-61); and
  - Supporting & auxiliary transport activities (NIC-2004, Code-63-6302).

### Sources of data

- 17.8 The major sources of data for preparing



estimates for this sector are:

- The budget documents of Central and State Governments relating to transport activities;
- Annual reports/accounts of Central and State Government enterprises and Private sector registered companies relating to transport activities;
- Labour Input estimates- Employment and Unemployment survey data of NSS 61<sup>st</sup> Round (2004-05) and population census, 2001 estimates of work force;
- Enterprise surveys results of NSS 63<sup>rd</sup> round (2006-07);
- Estimated number of registered transport vehicles according to NIC codes;
- Consumer price index of Industrial Workers (IW) & Consumer price index of Agricultural Labour; and
- Index of Cargo handled at major and minor ports from Ministry of Shipping, Road Transport and Highways.

### Method of GVA Estimation

17.9 The GVA estimate is prepared by multiplying the labour input with estimated value added per worker (VAPW) available from the results of Enterprise Survey, for the respective NIC codes, separately for organized (corporate sector) and unorganized segments. The economic activities of Airport Authority were included under Air transport sub-sector in the 1993-94 series. This was shifted to the sub-sector 'supporting and auxiliary transport activities' in the 1999-2000 series which is being continued in the present series. Similarly, supporting service to water transport which was part of water transport was shifted to 'supporting and auxiliary transport activities' in the 1999-2000 series and the same is being continued for the 2004-05 series. The details are as follows:

17.10 **Mechanized road transport:** The main economic activities covered under the mechanized road transport are:

- Transport by buses;
- Transport by other vehicles; and
- Transport by trucks.

17.11 The GVA estimates of mechanized road transport are prepared separately for organized (public and corporate) and unorganized. The current price GVA estimate of *public* part is prepared by analyzing the annual accounts of State Road Transport Corporations. The *constant price* GVA is estimated by moving the base year GVA with quantum index of passenger kilometers.

17.12 The GVA of *corporate* and *unorganized* part for the year 2004-05 has been prepared as a product of GVAPW of ES 2006-07 and labour input estimates based on Employment-Unemployment Survey, 2004-05 of 61<sup>st</sup> round & Population Census 2001 of the respective NIC codes. Since 2003-04, the Ministry of Surface Transport is not reporting data on registering of vehicles. The same is estimated by taking into account the number of vehicles sold less the number of vehicles off the road. (The life of a commercial vehicle is assumed to be 15 years.) The constant price GVA for subsequent years is compiled by moving the base year estimates with the growth in registered vehicles. The constant price GVA is inflated by WPI to get current price GVA.

17.13 **Non-mechanized road transport:** Base year GVA estimate of this part has been prepared as a product of GVAPW of ES 2006-07 and labour input estimates based on Employment-Unemployment Survey, 2004-05 of 61<sup>st</sup> round & Population Census 2001 of the respective NIC codes. For the corporate sector, the current price estimates for subsequent years are prepared by moving the base year GVA with the growth rate of transport from the RBI study of Sample Companies and the constant price estimates are obtained by deflating the current price GVA with WPI. For the unorganized sector, the current price GVA for subsequent years is compiled as a product of base year labour input moved with the inter survey workforce growth rate between 1999-2000 and 2004-05 Employment & Unemployment surveys of NSS and base year GVA per worker moved with CPI (Agriculture Labour) and CPI (Industrial Worker) to obtain the estimates for rural and urban areas respectively. The constant prices GVA for rural and urban areas are estimated separately by deflating the current price GVA with CPI for Agriculture Labours and CPI for Industrial workers respectively.

17.14 **Air transport:** The GVA estimates of air transport at current prices are prepared in two parts i.e. organized (public) and corporate. Current price GVA estimate for the base year are prepared by analyzing the Air transport part of budget documents and annual accounts of Airlines (both public and private), flying and gliding clubs. The constant price GVA of public part is estimated by moving the base year GVA with air transport volume index. The constant price GVA of the private part is estimated by moving the base year GVA,

which is estimated by analyzing the financial statements of all private airlines, with growth rate of private airline passenger and cargo handled. The current price GVA for subsequent years is compiled by inflating the constant price GVA with WPI (2004-05).

17.15 **Water transport:** The GVA estimates of water transport are prepared separately for organized (public and corporate) and unorganized segments.

- **Water transport (Organized Public):** The base year GVA estimate of organized (public) part has been prepared at current prices by analyzing the water transport part of budget documents and annual accounts of Public Shipping Companies and Inland Water Shipping Companies. The constant price GVA is estimated by moving the base year GVA with Index of Cargo handled at major ports and minor ports.

- **Water transport (Organized Private):** GVA estimate of corporate part for the base year is prepared by analyzing the annual accounts of Private Shipping Companies. The constant price GVA is estimated by moving the base year GVA with Index of Cargo handled at major and minor ports. The current price GVA for subsequent years is compiled by inflating the constant price GVA with WPI (2004-05).

- **Water transport (Un-organized):** The base year GVA estimate of unorganized part has been prepared as a product of adjusted GVAPW of ES 2006-07 of 63<sup>rd</sup> round and labour input estimates based on Employment-Unemployment Survey, 2004-05 of 61<sup>st</sup> round & Population Census 2001 of respective NIC codes. For subsequent years the constant price estimates are prepared by moving the base year GVA with Index of cargo handled at major and minor ports. The current price GVA is estimated by inflating the constant price GVA with WPI (2004-05).

17.16 **Supporting and auxiliary transport activities:** The GVA estimates of 'supporting and auxiliary transport activities' are prepared separately for organized (public and private) and un-organized parts.

- **Supporting and auxiliary transport activities (organized public):** The GVA estimate of organized part is prepared by analyzing the light houses and light ships

part of the budget documents and annual accounts of companies engaged in services incidental to water and air transport like Port Trusts, Inland Water Authority, Dredging Corporation and Airport Authority of India. The GVA at constant prices is obtained by deflating the current price GVA with Consumer Price Index (CPI) of Industrial worker.

- **Supporting and auxiliary transport activities (un-organized):** The GVA estimate of un-organized part for the base year has been prepared as a product of GVAPW of ES 2006-07 of 63<sup>rd</sup> round and labour input estimates based on Employment-Unemployment Survey, 2004-05 of 61<sup>st</sup> round & Population Census 2001 of the respective NIC codes. For subsequent years, the constant price estimates and current price estimates are prepared by moving the base year GVA with combined rate of growth of road, air and water transport at constant prices and current prices respectively.

### Storage and Warehousing

17.17 The economic activities covered in this sector are:

- Warehousing Corporations;
- Cold Storage; and
- Storage not elsewhere classified (n. e. c).

### Sources of data

17.18 The major data sources for preparing estimates for storage and warehousing sector are:

- The budget documents of Central and State Governments relating to storage and warehousing activities;
- Annual reports of Central and State Government enterprises relating to storage and warehousing corporations;
- Enterprise surveys results of NSS 63<sup>rd</sup> round (2006-07);
- Labour Input estimates- Employment and Unemployment survey data of NSS 61<sup>st</sup> Round (2004-05); and
- Annual survey of Industries (ASI) results relating to cold storage.

### Method of GVA Estimation

17.19 The GVA estimates are prepared separately for Organized (Public and Private) and unorganized parts. The estimates are prepared separately for warehousing corporations, cold storage and storage n.e.c.

- **Storage and warehousing (Organized Public):** The current price GVA estimate of warehousing corporations is based on

the analysis of annual accounts of state and central warehousing corporations. The constant price estimates are prepared by deflating the current price estimates with storage index.

- **Cold Storage:** The current price GVA estimates for the cold storage are based on the results available from Annual Survey of Industries (ASI) and the constant price estimates are prepared from current price estimates using Storage Index.
- **Storage n.e.c.:** The base year GVA has been prepared as a product of GVAPW of ES 2006-07 and labour input estimates based on Employment-Unemployment Survey, 2004-05 of 61<sup>st</sup> round & Population Census 2001. The current price GVA for subsequent years is compiled as a product of base year labour input moved with the inter survey workforce growth rate between 1999-2000 and 2004-05 Employment & Unemployment surveys of NSS and base year GVA per worker moved with CPI (Agriculture Labour) and CPI (Industrial Worker) to obtain the estimates for rural and urban areas respectively. The current price GVA is deflated with CPI to get the constant price estimates for the subsequent years.

### Communication Services Sources of data

- 17.20 **Public Sector:** The principal sources of data for Communication are Annual Reports and Accounts of the Indian Posts & Telecommunication Departments. As in the case of government railways, separate economic accounts, namely, the production account, income & outlay account and the capital finance account are presented in NAS.
- 17.21 The Annual Reports and Accounts of the Indian Posts and Telecommunication Departments are analysed and the three sets of accounts namely, the production account, the income and outlay account and the capital finance account are prepared. (Details are available in the Part A of Chapter 27 on 'Public Sector'). The GVA at current prices is obtained from the production account as the sum of compensation of employees and operating surplus which is also equal to gross output less intermediate consumption in the form of purchases of goods and services, CFC and

indirect taxes less subsidies. The estimates at constant prices are prepared by carrying forward the base year estimates with the help of combined weighted index of number of money orders, number of telegrams, number of telephones and number of postal articles handled, weights being the corresponding gross earnings in the base year.

- 17.22 **Private Corporate Sector:** The participation of the private sector in cellular mobile communication and basic telephony has been increasing significantly since the second half of the last decade.
- 17.23 The economic activities covered under this sector are (i) Courier activities (NIC-2004, Code-64120); (ii) Activities of the cable operators (NIC-2004, Code-64204); and (iii) Other communication (NIC-2004, Code-642(-) 64204).
- 17.24 The data sources are:
- Annual Reports of Cellular Operators
  - RBI sample study results relating to communication sector
  - Employment and Unemployment survey data from NSS 61<sup>st</sup> round and population census, 2001 estimates of work force;
  - value added per worker from Enterprise Survey 2006-07 of 63<sup>rd</sup> round;
  - CPI(AL) and CPI(IW); and
  - No. of Cellular and landline subscribers.
  - Average revenue per user (ARPU) obtained from TRAI reports

### Method of GVA Estimation

- 17.25 The method followed for estimation of value added from different categories of activities is to use the labour input and value added per worker.
- 17.26 **Courier Services:** The estimates of GVA for courier services for the year 2004-05 have been compiled by using the Gross Value added per worker (GVAPW) of Enterprise Survey(ES) 2006-07 and labour input estimates 2004-05 separately for Rural/ Urban/ organized/ un-organised segments. The corporate sector estimates are prepared using labour input from EUS 2004-05 and the estimated value added per worker in respect of corporate sector units, from the results of NSS 63<sup>rd</sup> round survey.
- 17.27 For subsequent years, the current price estimates of GVA have been prepared by moving the base year GVA with Corporate Sector growth rate from RBI. The constant price estimates have been estimated by

deflating the current price estimates by WPI (2004-05). For the unorganized sector, the estimates of labour input for subsequent years have been prepared using the inter survey growth rate of quinquennial Employment & Unemployment surveys as observed between 1999-2000 and 2004-05 of NSS. The value added per worker of rural and urban sectors is projected to subsequent years with the CPI (AL) and CPI (IW) respectively. Then the current price GVA for subsequent years for the unorganized sector is compiled as a product of labour input and GVA per worker obtained as above. The constant price GVA estimates for rural and urban areas are prepared separately by deflating the current price GVA with CPI for Agriculture Labours and CPI for Industrial workers respectively.

17.28 *Activities of Cable Operators (NIC-98 code 64204)*: The activities covered under this compilation category are the activities of cable operators, and the estimates of GVA for these services for the year 2004-05 have been compiled by using the GVAPW of rural/urban by using VAPW from ES, 2006-07 and labour input estimates. For subsequent years, the methodology for compiling the current price GVA estimates for the corporate part is the same as in the case of Courier services. The constant price estimates have been estimated by deflating the current price estimates by WPI (2004-05).

17.29 For the unorganized sector, the estimates of GVA for cable operators for the year 2004-05 have been compiled by using the Gross Value added per worker (GVAPW) of Enterprise Survey (ES) 2006-07 and labour input estimates 2004-05 separately for Rural/Urban. The estimates of labour input for subsequent years have been prepared using the inter survey growth rate of quinquennial Employment & Unemployment surveys as observed between 1999-2000 and 2004-05 of NSS. The value added per worker of rural and urban sectors is projected to subsequent years with the CPI (AL) and CPI (IW) respectively. Then the current price GVA for subsequent years for the unorganized sector is compiled as a product of labour input and GVA per worker obtained as above. The constant price GVA estimates for rural and urban areas are estimated separately by deflating the current price GVA with CPI for Agriculture Labours and CPI for Industrial workers respectively.

17.30 *Communication Services other than those of Couriers and Cable Operators (NIC-98 code 642 (-) 64204)*: The activities covered

under this compilation category under private sector are all the communication activities other than those of Couriers and Cable operators and it covers the activities of cellular & basic telecom services, and the activities of PCO/ STD/ ISD booths.

17.31 The estimates of GVA for other communication services for the year 2004-05 have been compiled by using the GVAPW of ES 2006-07 and labour input estimates separately for Corporate and Rural/Urban/unorganized segments. For the Corporate sector, first the overall GVA to sales ratio is obtained by analysing the annual accounts of all private cellular operators in the year 2004-05. Then the Average Revenue per user multiplied by the average number of subscribers gives the total revenue for the year 2004-05. Multiplying the GVA to sales ratio to the total revenue gives the total GVA in 2004-05. For subsequent years, the base year GVA is moved with corporate growth rate (RBI) derived from the Annual Financial results of sample companies weighted by the share derived from Table 76.1 of NAS 2009 to arrive at the rate of growth of GVA of this sector to obtain the estimates. The constant price GVA estimates for subsequent years are prepared by moving the base year GVA with the index of growth in number of cellular subscribers and landline connections.

17.32 Similarly, for the unorganized segment, the base year estimates have been prepared separately for rural and urban sectors using the estimated workforce in this segment and the VAPW estimate obtained from the results of NSS 63<sup>rd</sup> round survey. For subsequent years, the constant price GVA estimates are prepared by moving the base year GVA with the rate of growth in number of cellular subscribers and landline connections subscribers. The current price GVA estimates are obtained by using the GDP deflator of corporate sector on constant prices.

### Quality and limitations of data base

17.33 The estimates of value added from Railways and Communication in public sector are based on up-to-date and reliable information. For the private sector, the estimates are compiled mostly through indirect methods using proxy indicators, such as number of telephone connections or extrapolating with inter-survey growth rates in labour input. For estimating GVA at current prices, the difficulty in getting annual accounts relating to air, water and cellular companies prompted the use of indirect methods. Most of the private channels are run by private companies where data is hard to get.

Appendix 17.1

**Estimates of GDP for Transport by other means and storage, 2004-05**

(Rs. crore)

Items	2004-05
<b>A. Transport by other means</b>	
<b>1. Gross Domestic Product ( Unadjusted)</b>	<b>170686</b>
1.1 Road Transport	144097
1.2 Water Transport	6434
1.3 Air Transport	5590
1.4 Supporting & Auxiliary transport activities	14566
2. Less FISIM	691
<b>3. Gross Domestic Product</b>	<b>169995</b>
<b>B. Storage</b>	
<b>4. Gross Domestic Product ( Unadjusted)</b>	<b>1991</b>
5. Less FISIM	11
<b>6. Gross Domestic Product</b>	<b>1980</b>

Appendix 17.2

**Value added from Communication Services**

(Rs. crore)

Communication	2004-05
Public	33091
Private	16189
<b>Total</b>	<b>49280</b>

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## BANKING AND INSURANCE

### Coverage

- 18.1 The two main activities covered under this sector are banking and insurance which consisting of:
- commercial banks;
  - banking department of Reserve Bank of India (RBI);
  - public non-banking financial corporations;
  - organised non-banking financial companies engaged in trading in shares, investment holdings, mutual funds, loan finance and the like activities;
  - unorganised non-banking financial institutions/undertakings such as professional money lenders and pawn brokers;
  - post office savings banks including operations concerning cumulative time deposits and national saving certificates;
  - co-operative credit societies; and
  - Life and non-life insurance activities.
- 18.2 Under the National Industrial Classification 2004, this sector consists of codes 651-Monetary Intermediation, 659-Other financial intermediation, 660- Insurance and pension funding, except compulsory social security, 671- Activities auxiliary to financial intermediation, except insurance and pension funding, and 672- Activities auxiliary to insurance and pension funding.

### Methods of Estimation of GVA and Sources of Data

#### Estimates at Current Prices

- 18.3 Annual Reports/Accounts of the public sector banks, companies and corporations like Life Insurance Corporation (LIC), State Financial Corporations etc. are major sources of data. The budget documents of Department of Posts provide the necessary data in the case of post office savings and postal life insurance. (Appendix 18.1)
- 18.4 **Banks:** The gross output of banks and similar financial institutions is estimated in two components viz., actual service charges and the imputed service charges. The concept of imputed service charge and its methodology of estimation are discussed in the subsequent paragraphs. The GDP from this sector is estimated by income method for each of the sub-sectors.
- 18.5 **Financial intermediaries:** These are financial institutions which incur liabilities on their own account on financial markets by borrowing funds which they lend on different terms and conditions to other institutional

units. Thus, they intermediate between lenders and borrowers by channeling funds from one to other, putting them at risk in the process.

- 18.6 Some financial intermediaries raise most of their funds by taking deposits; others do so by issuing bills, bonds or other securities. They lend funds by making loans or advances, or by purchasing bills, bonds or other securities. The pattern of their financial assets is different from that of their liabilities and in this way transforms the funds they receive in ways more suited to the requirements of borrowers. Financial intermediaries also provide auxiliary financial services like currency exchange, advice about investments, purchase of real estate or taxation. The output of such services is valued on the basis of the fees or commissions charged, in the same way as other services. However, many financial intermediaries do not charge explicitly for the intermediation services which they provide to their customers so that there may be no receipts from sales (for example issue of cheque books) which can be used to value these services. Therefore, it becomes difficult to value the output of financial intermediation for which no explicit charges are made and for which there are no sales receipts. Such output is valued indirectly through financial intermediation services indirectly measured (FISIM). The financial intermediaries are able to provide services for which they do not charge explicitly by paying or charging different rates of interest to borrowers and lenders. They pay lower rates of interest to those from whom they borrow and charge higher rates of interest from those whom they lend. The resulting net receipts of interest are used to defray their expenses and provide an operating surplus. This scheme of interest rates avoids the need to charge their customers individually for services provided.

- 18.7 In other words, the banking enterprises render services to their customers in the form of maintaining their accounts and advising them on financial matters. In return for these services, customers are charged a nominal amount which is substantially smaller than the expenses of the enterprises. On the other hand, the banks provide loans and advances and the returns on such transactions are much higher than the payments made to depositors. This net return accruing to



banks is large enough to meet their expenses and to earn a profit.

18.8 Whenever the production of output is recorded in the system the use of that output must be explicitly accounted for elsewhere in the System of National Accounts. Hence FISIM must be recorded as being disposed of in one or more of the following ways— as intermediate consumption by enterprises, as final consumption by households & government, or as exports to non-residents. In principle, the total output should, therefore, be allocated among the various recipients or users of the services for which no explicit charges are made.

18.9 The imputed service charges which form a component of financial sector output are partly treated as intermediate consumption of industries and partly as the final consumption of government and the households. For allocating the FISIM to different industries and household different indicators like for state financial corporation, industry wise loans outstanding, for NABARD, sector wise disbursement for refinance, for OADB, outstanding balance of loans for oil PSUs, for IDBI, industry wise credit exposure, for NDC, activity wise disbursement of loan, for scheduled commercial banks, ownership of deposits and outstanding credits etc are used. The proportions of imputed service charges so worked out for the each of the industries, such as agriculture, forestry, manufacturing, services, etc., are treated as separate input items in the respective industries. In the case of households and government such charges are considered as an item of private and government consumption expenditure.

18.10 Data on income, expenditure and appropriation of commercial banks are available annually from the 'Statistical Tables relating to Banks in India' published by the RBI.

18.11 **Banking department of RBI:** The functions of the Issue Department of RBI are like that of a government department and for this reason it is treated as an administrative department of the Central Government. The rest of the activities of the RBI are considered under the Banking Department. The Annual Report of the RBI presents the balance-sheet of the Issue and Banking Departments separately. However, the profit and loss account of the two departments is presented in a combined form. Details regarding individual items of income and expenditure in respect of the two

departments separately are collected directly from the RBI annually for the purpose of estimation of GDP.

18.12 **Non-banking financial enterprises:** There are about eighty public sector financial corporations and companies of Central and State Governments. The estimates of these enterprises are prepared from the details available in the annual reports which are analysed annually.

18.13 **Non-Government Non-Banking Financial companies (NGBFCs):** The Reserve Bank of India (RBI) annually publishes a study on the 'Performance of Non-Government Financial and Investment Companies' in its Bulletin. The study is based on the Annual Accounts of around eight hundred to one thousand companies. This number varies from year to year. The tables presented in the study include 'Combined Income, Expenditure and Appropriation Accounts' for the selected financial and investment companies. The same is being utilised to obtain the estimates of GVA at current prices of the non-banking financial companies.

18.14 The methodology followed for current price estimates of GVA and FISIM of this sub-sector is to estimate the GVA of the sample companies, by analysing the data on income, expenditure and profits provided in the RBI sample study. The ratio of the paid up capital of the population to the paid up capital of the sample forms the blowing up factor.

18.15 The RBI publishes the sample study on the non-government Financial and Investment Companies in the Bulletin every year. Each study presents the data for three consecutive financial years for a common set of companies.

18.16 Thus, for a particular year, three different estimates of GVA are derived based on the successive sample studies. It becomes very difficult at the time of revision of estimates to decide which study should be considered as representative. Whenever the results of a study are published, the temptation is to examine the estimates from the most recent study to revise the estimates. However, it has been observed that at times the results of the study for a financial year vary considerably and introduces volatility in the estimates of GVA and other aggregates. Further the growth rate based on PUC is always positive, while the sector itself may actually have a negative growth. Such

situations give scope for arbitrariness in using a particular set of estimates.

- 18.17 In order to avoid the uncertainty, which stems from different estimates thrown by different sets of samples for the same year, the current price estimates of GVA of NGNBFCs are prepared by using the RBI study results of a particular year appearing in all the available studies in the current series of national accounts. This would mean the pooling of the sample companies to get a more stable estimate.
- 18.18 **Mutual Funds (MFs):** The Unit Trust of India is considered as a financial intermediary. The imputed value of services of UTI has been calculated as total income on account of dividend and interest earned, and profit on sale/redemption of investment minus interest and dividend paid to the unit holders, and undistributed profit.
- 18.19 **Unorganised non-banking financial institutions:** One-third of the gross/net value added in the organised activities have been assumed to be the corresponding estimates of the activities of the unorganised non-banking financial enterprises.
- 18.20 **Post office savings bank:** Banking activities of the Department of Posts cover post office savings bank, cumulative time deposit account, national savings certificates, and other schemes. For these services, GVA is estimated as a proportion of management expenses, i.e. management of saving bank and government securities etc, management of saving certificates, banking transaction tax etc., data on which are available from the publication namely, demand for grants of the department of posts.
- 18.21 **Co-operative credit societies:** The details of the factor incomes of co-operative credit societies are obtained directly from "*Statistical Statements Relating to Co-operative Movement in India, Vol. I Credit societies published by NABARD*". The latest publication available is for the year 2003-04. However, estimates of profits given in these publications are net of income tax whereas in the measurement of domestic product profits need to be gross of such taxes. To obtain these estimates, direct data are obtained on details of income and expenditure of a sample of co-operative credit societies every year from NABARD.
- 18.22 **Insurance:** In case of insurance enterprises the premium for insurance constitutes the main source of income and they receive

income from investment as well. In the case of general insurance, imputed service charges are measured as the receipts on account of premium plus interest and dividends earned less expenditure on account of claims paid.

There are two types of insurance; life and non-life insurance. Life insurance is an activity whereby a policyholder makes regular payments to an insurer in return for which the insurer guarantees to provide the policyholder with an agreed sum, or an annuity, at a given date or earlier if the policyholder dies beforehand. Non-life insurance covers all other risks; accidents, sickness, fire etc. A policy that provides a benefit in the case of death within a given period but in no other circumstances, usually called term insurance, is regarded as non-life insurance because as with other non-life insurance, a claim is payable only if a specified contingency occurs and not otherwise.

- 18.23 The output of insurance represents the value of the service provided by insurance corporations in arranging payments of claims and benefits in exchange for the receipts of premiums and contributions. Premiums are usually paid regularly, often at the start of an insurance period, whereas claims fall due later. In the mean time between the payment of premiums being made and the claim being receivable, the sum involved is at the disposal of the insurance corporation to invest and earn income from it. The income thus earned allows the insurance corporations to charge lower premiums than would be the case otherwise. This income comes from the investment of the technical reserves of the insurance corporations, which are assets of the policyholders, and does not include any income from the investment of the insurance corporations' own funds. The technical reserves of an insurance corporation consist of pre-paid premiums, reserves against outstanding claims, actuarial reserves for life insurance and reserves for with-profit insurance. The output of the insurance activity, which represents the service provided to policyholders, is calculated separately for life and non-life insurance as:
- Total actual premiums or contributions earned;
  - Plus total premium or contribution supplements;
  - Less claims or benefits due;
  - Less increases (plus decreases) in actuarial reserves and reserves for with-profit insurance.

The GVA is obtained by subtracting the intermediate consumption from the output.

18.24 **Life insurance:** The annual Report and Accounts published by the LIC give necessary details for preparation of the estimates of GVA. However, as regards profits, the LIC declares every two years, surplus derived as the balance after deducting net liabilities under Assurances and Life Annuity Contracts from Life Fund. In respect of private life insurance companies, data is available in their annual accounts and these are collected and analysed in the CSO.

18.25 **Postal Life Insurance:** The GVA by the life insurance business conducted by the Department of Posts is estimated by analysing the 'Appropriation Accounts' brought out by the same department. Profits and dividends are assumed to be nil.

18.26 **General insurance:** Gross factor incomes are obtained by analysing the accounts given in the annual reports of the General Insurance Corporation and its subsidiaries viz., Oriental Insurance Company, United India Insurance Company, National Insurance Company and The New India Assurance Company. Similarly, the GVA in respect of private non-life insurance companies, is compiled from the details available in their annual accounts, which are collected and analysed in the CSO.

18.27 **Employees State Insurance Corporation:** It is

treated as a casualty insurance enterprise and included under general insurance sector. The estimates are prepared using data from its annual reports.

#### 18.28 **Estimates at Constant Prices**

The estimates of GVA at constant prices are prepared separately for each of the sub-sectors. In general, the base year estimates are carried forward using indicators measuring the volume of activity in the corresponding sub-sector. A suitable indicator is prepared in each case to measure the volume of activity. In cases where the volume of activity is measured in value terms i.e., at current prices, these are deflated by the wholesale price index of all commodities to obtain the corresponding quantum index. For the Banking Department of RBI, the deflator used is the implicit price deflator of commercial banks. Indicators used in the preparation of constant price estimates are presented at Appendix 18.2

#### **Quality and limitations of data base**

18.29 The overall position regarding the availability of data for this sector is satisfactory except in the case of unorganised non-banking financial enterprises and own-account money lenders. However, for some of the sub-sectors sufficient details are not available on the distribution of management expenses to enable direct measurement of the factor incomes. This is particularly true for private non-banking financial companies, co-operative societies and post office savings banks.

**SOURCE MATERIAL USED**

Item	Sources of data
1. Commercial banks	Annual Reports/Account.
2. Banking department of RBI	RBI Annual Report.
3. Public sector financial corporations	Annual Reports.
4. Private non-banking financial companies	RBI bulletins.
5. Post office savings banks	Budget documents of Department of Post
6. Co-operative credit societies	Statistical statements relating to co-operative movement in India, Vol. I Credit societies (NABARD) and data on income and expenditure of sample co-operative societies obtained directly.
7. Life Insurance	i) Annual Reports and Accounts (LIC); ii) Annual Reports and Accounts of private life insurance companies; and iii) Appropriation Accounts: Postal Services.
8. General Insurance	Annual Reports and Accounts.
9. Employees State Insurance Corporation	Annual Reports.

## Appendix 18.2

**INDICATORS USED IN THE PREPARATION OF CONSTANT PRICE ESTIMATES**

Item	Indicators
1. Commercial banks,	Base year estimate is moved forward by using the index of deflated series on change in aggregate of deposits and credits of scheduled commercial banks.
2. Banking Department of RBI,	Current price estimate is deflated with the implicit index of commercial banks
3. Post Office Savings bank	Consumer Price Index (Industrial Worker).
4. Non- banking financial companies and corporations	Total net receipts deflated by WPI.
5. Co-operative credit societies	Average of indices of deposits (deflated) and membership.
6. Life insurance corporation	Average of deflated indices of change in life fund and sum assured.
7. Postal life insurance	Average deflated indices of life fund and sum assured.
8. Non-life insurance	Deflated index of premium net of claims and surrenders.

**ESTIMATES OF GDP - BANKING AND INSURANCE, 2004-05***(Rs. crore)*

<b>S. No.</b>	<b>Sector/Sub Sectors</b>	<b>2004-05</b>
<b>1</b>	<b>Gross Domestic Product</b>	<b>1,71, 098</b>
<b>1.1</b>	<b>Banking</b>	<b>1,40,525</b>
1.1.1	Banks	86,283
1.1.2	Banking Deptt. of RBI	-3, 156
1.1.3	Post office saving banks	1,266
1.1.4	Non-banking financial cos. & Corpn. incl. UTI	41,359
1.1.5	Co-op. credit societies	14,499
1.1.6	E.P.F.O.	274
<b>1.2</b>	<b>Insurance</b>	<b>30,573</b>
1.2.1	Life insurance	17,911
1.2.2	Postal life insurance	110
1.2.3	Non-life insurance	12,552

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## REAL ESTATE, OWNERSHIP OF DWELLINGS AND BUSINESS SERVICES

### Coverage

19.1 The economic activities covered in this sector are (i) ownership of dwellings (occupied residential houses), (ii) real estate services (activities of all types of dealers such as operators, developers and agents connected with real estate), (iii) renting of machinery and equipment without operator and of personal and household goods, (iv) Computer and Related Activities, (v) Accounting, Book-keeping and Related Activities, (vi) Research and development, market research and public opinion polling, business & management consultancy, architectural, engineering & other technical activities, advertising and business activities not elsewhere classified and (vii) legal services. Ownership of dwellings also includes the imputed value of owner occupied dwellings. Services rendered by non-residential buildings are considered to be a subsidiary activity of the industries, which occupy the buildings and therefore, are not included in this sector.

19.1.1 In the NIC 2004, these activities, other than ownership of dwellings, are covered under the 3-digit codes:

- 701: Real estate activities with own or leased property.
- 711: Renting of transport equipment.
- 712: Renting of other machinery and equipment.
- 713: Renting of personal and household goods n.e.c.
- 721: Hardware consultancy.
- 722: Software consultancy and supply.
- 723: Data processing.
- 724: Database activities.
- 725: Maintenance and repair of office, accounting and computing machinery.
- 729: Other computer related activities
- 731: Research and experimental development on natural sciences and engineering.
- 732: Research and experimental development on social sciences and humanities.
- 741: Legal, accounting, book-keeping and auditing activities; tax consultancy; market research and public opinion polling; business and management consultancy.
- 742: Architectural, engineering and other technical activities.
- 743: Advertising.
- 749: Business activities n.e.c.

### Sources of data

19.3 The data sources include:

- Employment and Unemployment survey data from NSS 61<sup>st</sup> Round and population census, 2001 estimates of work force;
- Value added per worker from Enterprise Survey, 63<sup>rd</sup> Round;
- Annual reports of software companies,
- NASSCOM data of output of software services;
- 2001 Census residential houses in urban and rural areas;
- NSS 61<sup>st</sup> Round results for rent per household separately for rural and urban areas; and
- Consumer Price Index for Agriculture labour-CPI (AL), Consumer Price Index for industrial workers-CPI (IW), wholesale price index (WPI) and Consumer Price Index for urban non-manual employees-CPI (UNME) of house rent sub group.
- Corporate sector growth rate from RBI.

### Methods of GVA Estimation

19.4 The estimates of real estate, legal services and business services (except software development) are prepared using labour input and value added per worker approach. The estimates of software development activities are prepared using NASSCOM data of output from these services and Gross Value Added (GVA) to Gross Value Output (GVO) ratio obtained from the annual reports of various companies engaged in software development activities. For ownership of dwellings, the user cost approach (used internationally where the number of rented dwellings are less than 25%) is used for rural residential houses and for the urban houses, the methodology consists of estimating the gross rental of residential buildings (including owner occupied) and deducting therefrom the cost of repairs and maintenance to obtain the estimates of GVA.

### Estimates at current prices

#### Real Estate

19.5 Real estate activities (NIC-2004, code-70): This category includes buying, selling, renting and operating of self-owned or leased real estate such as apartment building and dwellings, non-residential buildings, developing and subdividing real estate into lots etc. Also included are development and sale of land and cemetery lots, operating of apartment hotels and



residential mobile home sites. (Development on own account involving construction classified in class 4520 of NIC 2004.) Purchase, sale, letting and operating of real estate-residential and non-residential buildings, Developing and subdividing real estate into lots, Lessors of real property, Real estate activities with own or leased property n.e.c. Real estate activities on a fee or contract basis (this category includes buying, selling, renting managing and appraising real estate on a fee or contract basis) are also part of this activity.

19.6 The GVA estimates for this activity are prepared separately for corporate and unorganized segments. The benchmark year's GVA estimates are prepared as a product of estimated labour input engaged in the economic activity and the estimated value added per worker (VAPW), separately for corporate and unorganized segments. For the current NAS series (base year 2004-05), the labour input estimates are from the NSS 61<sup>st</sup> round (2004-05) survey results (for details, please refer to the Chapter on workforce estimates), and the estimates of VAPW are from the results NSS 63<sup>rd</sup> round (2006-07). As mentioned, the GVA estimates for the base year are prepared separately for rural/urban areas and also separately for organized/ unorganized segments. The NSS 63<sup>rd</sup> round survey results provide the data separately for corporate sector and unorganized sector.

19.7 For subsequent years, the estimates of labour input in the activity have been prepared using the inter survey growth rate of quinquennial Employment & Unemployment surveys as observed between 1999-2000 and 2004-05 of NSS 55<sup>th</sup> and NSS 61<sup>st</sup> round survey results. The value added per worker of rural and urban areas and unorganized segments are projected to subsequent years with the CPI (AL) and CPI (IW) respectively. The GVA estimates are compiled as product of workforce and VAPW for the respective rural/urban and unorganized segments. The base year estimates of the corporate sector are moved with the corporate sector growth rate (RBI) derived from the Annual Financial results of sample companies weighted by the share of compensation of employees and operating surplus derived from Appendix 17.3 to arrive at the rate of growth of GVA of real estate sector and deflated by suitable indicator to arrive at constant prices.

## Ownership of Dwellings

19.8 In the production boundary of national accounts, only two categories of services produced by households for own final consumption are included, namely,

- (a) Services of owner-occupied dwellings: Owner-occupiers are deemed to own household unincorporated enterprises that produce housing services for their own consumption; and
- (b) Domestic services produced by employing paid staff: Households are deemed to own household unincorporated enterprises in which they employ paid staff – servants, cooks, gardeners, etc. – to produce services for their own consumption.

19.9 The activities mentioned under (a) above are included under 'ownership of dwellings'. The economic activities covered in this sector are ownership of dwellings (occupied residential houses) including imputed value of owner occupied dwellings also. Services rendered by non-residential buildings are considered to be a subsidiary activity of the industries, which occupy the buildings and therefore, are not included in this sector.

19.10 In the old series (1999-2000), GVA estimates for the ownership of dwellings were estimated as the gross rental (actual rent paid and imputed rent for owned dwellings) of the residential houses less the cost of repairs and maintenance. The data available on dwellings from the Population Census and the data on rent from the NSS Consumer Expenditure Surveys are the principal sources for estimating the GVA of 'ownership of dwellings'. In this series, the old method has been followed for urban dwellings. However, for the rural areas, the methodology for estimating value added from rural dwellings has been changed to that based on user cost approach because according to the international recommendations, when few dwellings are rented, the output of dwelling services should be estimated by the user cost approach.

19.11 (i) **Urban dwellings:** The number of census dwellings in the base year (2004-05) in urban areas was arrived at by adjusting 2001 figures for the mid-year 2004-05 by applying the average compound growth rate observed between 1991 and 2001. The number of census houses so arrived has been multiplied by the average rent per household, information on which is obtained from results of NSS 61<sup>st</sup> (2004-05) Round

consumer expenditure survey. From this estimated gross rental, the cost of repair and maintenance (estimated from the NSS All India Debt and Investment Survey, 2002-03 (AIDIS)) is subtracted to obtain the GVA estimates for urban areas. For subsequent years, the estimates of number of urban (census) residential houses are prepared using the inter-censal average compound growth rate in dwellings. The estimates of rent per household are moved to subsequent years with the index of house rent using CPI (UNME) up to 2008-09 when it was discontinued. The estimates of later years are obtained by imposing the growth of CPI (IW Housing) on 2008-09.

- 19.11 (ii) **Rural dwellings:** As 92% of households (as per NSS 58<sup>th</sup> round survey) in the rural areas owned their dwelling units, the estimates of rural dwellings have been prepared using the user cost approach. This approach consists of estimating each of the expenditure that owners of dwellings would need to take into account in fixing a market rent if they decided to rent their dwellings. These expenditures are repair and maintenance, consumption of fixed capital and net operating surplus. The benchmark estimates of repair and maintenance is derived from AIDIS 2002-03. For subsequent years, these estimates are compiled using growth observed within number of rural dwellings and superimposing the price effect. The estimation of consumption of fixed capital stocks is given in the respective chapter. The net operating surplus of owner occupied dwellings is calculated by applying a rate of return (8%) to the current value of stock of dwellings.

### **Business Services**

- 19.12 **Renting of Machinery & Equipment without Operator (NIC-2004, Code 71):** The activities covered under this compilation category are the activities of renting of machinery and equipment without operator and of personal and household goods.
- 19.13 The estimates of GVA for these activities for the year 2004-05 are compiled by using the labour input method. The VAPW of rural/urban areas of Enterprise Survey, 2006-07 of NSS 63<sup>rd</sup> Round and the labour input estimates based on EUS 2004-05 of the 61<sup>st</sup> Round are used to prepare the GVA estimates for the base year.
- 19.14 For subsequent years, the estimates of workforce in the activity have been prepared using the inter survey growth rate of Employment & Unemployment surveys as

observed between 1999-2000 and 2004-05 of NSS 55<sup>th</sup> and NSS 61<sup>st</sup> round survey results. The value added per worker of rural and urban areas and organized and unorganized segments are projected to subsequent years with the CPI (AL) and CPI (IW) respectively. The GVA estimates are compiled as product of workforce and VAPW for the respective rural/urban/organized and unorganized segments.

- 19.15 **Computer and Related Activities in Private Sector (NIC-2004, Code 72):** The activities covered under this compilation category are hardware consultancy, software consultancy & supply, data processing, database activities, maintenance & repair of office/accounting/computing machinery and other computer related activities. The estimates of GVA for 2004-05 series of NAS are compiled separately for organised and unorganised sectors.
- 19.16 GVA estimates for organised sector are prepared using NASSCOM data of output of software services and GVA to output ratio obtained from the analysis of available annual reports of software companies on year to year basis.
- 19.17 The estimates of GVA for the year 2004-05 for un-organised sector have been prepared by using the labour input method based on GVAPW estimates of ES 2006-07 and the labour input estimates from EUS 2004-05 of NSS 61<sup>st</sup> Round, separately for rural and urban areas.
- 19.18 For subsequent years, the estimates of GVA in the unorganized sector are prepared using the growth observed in the organized sector. The constant price estimates for rural and urban segments are prepared by deflating the current price estimates with the index of CPI (AL) and CPI (IW) respectively.
- 19.19 **Legal Activities (NIC-2004, Code 7411):** The activities covered in this category are legal activities (legal services such as those rendered by advocates, barristers, solicitors, pleaders, mukhtars, etc. (law court activities are classified in class 7523 of NIC 2004).
- 19.20 The estimates of GVA for legal services for the base year 2004-05 have been prepared by using the labour input method based on VAPW estimates of NSS Enterprise Survey of 2006-07 and the labour input estimates based on EUS 2004-05 of NSS 61<sup>st</sup> Round, worked out separately for rural/ urban and organized/un-organised segments.

- 19.21 For subsequent years, the method is same as indicated at paragraph 19.14 above.
- 19.22 **Accounting, Book-keeping and Related Activities in Private Sector (NIC-2004, Code 7412):** The activities covered under this compilation category are accounting, book-keeping & auditing activities and tax consultancy services.
- 19.23 The estimates of GVA for legal services for the base year 2004-05 have been prepared by using the labour input method based on VAPW estimates of NSS Enterprise Survey of 2006-07 and the labour input estimates based on EUS 2004-05 of NSS 61<sup>st</sup> Round, worked out separately for rural/ urban and organized/un-organised segments.
- 19.24 For subsequent years, the method is same as indicated at para 19.14 above.
- 19.25 **Research and development, market research and public opinion polling, business & management consultancy, architectural, engineering & other technical activities, advertising and business activities n.e.c. excluding auctioning (NIC-2004, Codes 73, 7413, 7414, 742, 743, 749(-)74991):** This compilation category is obtained by re-grouping the activities under business services and other services.
- 19.26 The estimates of GVA for this compilation category for the base year 2004-05 have been prepared by using the labour input method based on VAPW estimates of NSS Enterprise Survey of 2006-07 and the labour input estimates based on EUS 2004-05 of NSS 61<sup>st</sup> Round, worked out separately for rural/ urban and organized/un-organised segments.
- 19.27 For subsequent years, the method is same as indicated at paragraph 19.14 above.
- Estimates at constant prices**
- 19.28 For Real estate activities, Renting of Machinery & Equipment without Operator, Computer and Related Activities, Legal activities, Accounting, book keeping, Research & Development, the constant price estimates for rural and urban areas are obtained by deflating current price estimates with CPI (AL) and CPI (IW) respectively except in the case of organised sector of real estate, business services which are obtained by deflating with WPI. The constant price estimates of urban dwellings are obtained by moving the base year estimate with the inter censal growth rate in dwellings. The expenditure components of rural dwellings are estimated at constant prices by deflating with appropriate price deflators.
- Quality and limitations of data base**
- 19.29 While the estimates for the organized sector in the computer related services are estimated from direct data sources, those of organized and unorganized segments in respect of all other sub-sectors are prepared through benchmark-indicator method. The CPI (UNME) is also discontinued from December, 2010 and a reliable indicator needs to be found out. The use of weighted RBI abridged results of sample companies with compensation of employees and operating surplus as weights will improve the quality of results. Regular, timely and complete data in respect of these services, if available on the corporate sector, could improve considerably the quality of their GVA estimates.
- 19.30 The estimates of GDP from Real estate, Ownership of Dwellings and Business Services are given in Appendix 19.1.

## Appendix 19.1

**GDP from Real estate, Ownership of dwellings and Business Services**

(Rs. crore)

Services	2004-05
Gross rental of dwellings	235018
Rural	126718
Urban	108300
Less: cost of repairs & maintenance of dwellings	68507
Rural	33074
Urban	35433
<b>Gross domestic product</b>	<b>268057</b>
Dwellings	166511
Rural	93644
Urban	72867
Real Estate	4782
Renting of Machinery	1875
Computer relating services	65175
Legal services	9291
Accounting	4047
Research Dev.	16376
Less: F.I.S.I.M.	1981
<b>GDP net of F.I.S.I.M.</b>	<b>266076</b>

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**Coverage**

- 20.1 Public administration and defence (NIC 2008 Division 84) covers services rendered by the administrative departments of the general government i.e., Central and State governments, Union Territories, Municipal Corporations, Municipalities, Housing Boards, Cantonment Boards, Improvement Trusts, Zilla Parishads/District and Local Boards and Panchayati Raj institutions. Public services in the autonomous institutions (quasi-government bodies) are also included under these economic activities. These services relate to the organs of state dealing with collection of taxes, other fiscal services, interest payments and servicing of debt, defence services, administrative services (such as external affairs, police, jails, supplies and disposal, pensions), social and community services (viz., social security, welfare and relief on account of natural calamities) and economic services (e.g. agriculture, animal husbandry, industries and community development). The management of expenditure of various funds like Central Road Fund, Famine Relief Fund, and Labour Welfare Fund also forms part of this sector. The activities of the RBI and EPFO are like that of administrative departments, and, therefore, these activities are also included. However, economic services like irrigation, forestry etc., are included under respective industry groups. Thus, irrigation systems come under 'agriculture', construction activity undertaken by government under 'construction', education and medical & health services in 'other services' industry groups. The departmental commercial enterprises of government such as railways, posts and communication, overseas communication services, forests, road transport, power projects, distilleries, television and radio broadcasting, milk supply schemes, manufacturing industries including defence manufacturing establishments and government printing presses are included in the appropriate industry groups.

**Method of Estimation of Gross value Added (GVA)**

- 20.2 Normally, goods and services produced for own final consumption or own capital formation are valued on the basis of prices of similar goods and services produced by market producers. However, in the case of general government, which is engaged in

non-market production, its output cannot be valued with these imputation procedures, as suitable prices for similar services produced by market producers are not available. For these reasons, and also to ensure that the various non-market services produced by government units and NPISHs are valued consistently with each other, the SNA recommends that they are all valued by the sum of the costs incurred in their production, namely, as the sum of:

- Intermediate consumption;
- Compensation of employees;
- Consumption of fixed capital; and
- Other taxes, less subsidies, on production

- 20.3 Therefore, the net operating surplus on the production of non-market goods or services produced by government units and NPISHs is assumed always to be zero. In most cases, the general government may also have some receipts (such as sales of publications or receipts from entry tickets to monuments, etc), which however, are not based on market prices. Even in such cases, the total value of its output is measured on cost basis. The value of its receipts from the sale of non-market goods or services at prices that are not economically significant remain as part of the value of its non-market output.

- 20.4 The expenditure on services produced by the administrative departments are mainly financed by the governments themselves and they are consequently considered to be the final consumer of these services except for a minor part sold to other sectors. Most of the buildings occupied by administrative departments and defence organisations are owned by the government. Data on the amount of rent paid for hired premises are not separately available as the same are included under the office expenses in the budget documents. Interest paid on capital borrowed by the government being included under interest on public debt does not form a part of factor payment. The cost of inputs, comprising purchase of commodities and services, compensation of employees and CFC which is also equal to the value of output produced for own use and a minor part sold to household sector thus does not include the element of operating surplus. GDP from the activities of public administration and defence therefore comprises compensation of employees and CFC only.



### Sources of Data

20.5 The sources of data for estimating the value of output and value added in respect of these services are the budget documents of Central Government, State Governments, Union Territories and local authorities and the information available in the Finance Accounts, Appropriation Accounts and other reports of the Comptroller & Auditor General of India. Besides the data published in these documents, the required additional details on items like Integrated Indira Aawas Yojana, Prime-Minister Grameena Sadak Yojana, Sarva Shiksha Abhiyan, District Primary Education Programme, Rural water Supply and Sanitation Programmes, Rural Development Programme, National Rural Employment Guarantee Programme etc. are collected from the concerned ministries/departments through correspondence. In the case of Issue Department of RBI, the profit and loss accounts of the RBI are analysed and the allocation between the Issue and Banking Departments is done on the basis of data obtained from the RBI directly. The details of receipts & expenditure of EPFO are obtained from the Annual Report of EPFO.

### Estimates at current prices

20.6 Two detailed exercises namely, the economic and purpose classifications of all the budgetary transactions of the public authorities are undertaken annually. The detailed methodology, the concepts and definitions adopted and the details of the set of four accounts prepared have been discussed in detail in the chapter on 'Public Sector'. The estimates of compensation of employees for all administrative departments obtained from the production account of Administrative departments include that for education, medical & health services, water supply, sanitary services and construction also, which form part of other industries. For instance, education, medical & health and sanitary services form part of 'other services', construction of 'construction' and water supply of 'electricity gas and water supply' industry groups. The estimates of compensation of employees for these activities are obtained from this purpose classification and are subtracted from the total to arrive at the estimates for public administration and defence (Appendix 20.1).

20.7 In the case of local authorities the data availability cannot be said to be satisfactory. While there is not much difficulty in the case of bigger local bodies like the Municipal Corporations, Housing Boards and

improvement trusts, the problematic areas are that of municipalities and village panchayats due to their large numbers. As such the macro economic estimates of local bodies have been compiled by considering the accounts of all urban local bodies on census basis and using the accounts of rural local bodies on sample basis. The local bodies have started raising substantial income from their own resources besides the grants received from State and Central Governments. Besides, sample data collected by State DESes from gram panchayats, data on local bodies available on the C & AG website was also used to compile estimates of Local Bodies for new series.

20.8 In the Budget documents, the CFC is available for departmental enterprises. But, the CFC for administrative departments is not available in Budget documents. Hence the CFC is estimated for the government sector (Administrative Departments & Departmental Enterprises) separately and is used in deriving the estimates of GVA. These details are discussed in the Chapter 26 on Consumption of Fixed Capital.

### Public services in Autonomous Institutions (quasi-government bodies)

20.9 A large number of autonomous institutions have been set up by various Ministries/Departments to achieve some objectives without day to day interference of government for which substantial grants are released to them every year. Such grants are reflected in income and outlay account of Government Administrative Departments as current transfers to autonomous institutions or private institutions or individuals. In addition to the grants, the recipient institutions generate own resources of funds to meet their expenditure for payment of salaries, pension, office expenses and for acquisition of fixed assets. In the absence of these details in the budget documents, the expenditure of government could not be exactly classified as it was spent on salaries or office expenses or for capital assets. As a result, the government macro economic estimates like NDP, GFCE and GFCF are underestimated. Moreover, the analysis of financial accounts of all autonomous institutions receiving grants in-aid is a gigantic task. Grants released by Ministries of Human Resource Development, Health & Family Welfare, Agriculture, Science & Technology, Communication & Information Technology and Finance account for 75% of the total grants given by



all central ministries to these institutions. For base year revision, annual financial accounts of some important institutions like Kendriya Vidyalaya Sangathan (KVS), UGC, CSIR, ICAR, Department of Atomic Energy, IGNOU etc are analysed to work out the ratios of own funds, compensation of employees, intermediate consumption and gross fixed capital formation from the total grants released to these sample institutions. These ratios have been applied on total grants released to these institutions by the Central Government during 2004-05 to 2008-09RE to compile estimates of own resources, NDP, GDP, GFCE and GFCF of autonomous institutions to replace corresponding existing estimates in Quasi-Government Bodies from Public Sector. Analysis of financial accounts of autonomous institutions facilitated to include the purpose as well as economic classification in the NAS table for autonomous institutions also.

### Estimates at constant prices

- 20.10 The estimates of NVA from public administration and defence at constant prices are worked out by deflating the current price estimates by the corresponding CPI for Industrial Workers i.e., CPI (IW). The GVA is estimated by adding the estimates of CFC compiled

independently, to the NVA at constant prices.

### Quality and limitations of data base

- 20.11 The annual budget documents are the main source of information on the activities of government administrative departments. These details generally give the necessary information for the preparation of estimates of value added. Although the overall structure of the budget, as prescribed, is uniformly followed by the Central and State Governments, there are certain variations in the presentation of details from State to State. There are some important items of expenditure about which no details are given. Also, often more detailed information is available in the "budget estimates" or "revised estimates" than in "accounts". In such cases, the actual expenditure on various items presented in the "accounts" is allocated on the basis of "budget" or "revised estimates" of the relevant year. In the case of local bodies, there is a considerable time lag in the availability of state-wise consolidated accounts for most of the states. The consolidated accounts of Panchayati Raj institutions are also available for some states only. Financial accounts of some of the autonomous institutions are not timely available.

### Appendix 20.1

#### COMPENSTATION OF EMPLOYEES - PUBLIC ADMINISTRATION AND DEFENCE, 2004-05

(Rs. Crore)

S. No.	Item	NDP
<b>1.</b>	<b>Administrative Departments: Total less</b>	<b>246784</b>
1.1	Construction	16238
1.2	Real estate and business services	14
1.3	Water supply	3534
1.4	Other services ( 1.4.1+1.4.2+1.4.3+2)	77704
1.4.1	Education	50379
1.4.2	Medical and public health	17048
1.4.3	Sanitation	3079
<b>2.</b>	<b>Autonomous Institutions (Quasi Government Bodies)</b>	<b>7198</b>
2.1	Education	4895
2.2	Medical and public health	2303
<b>3.</b>	<b>EPFO</b>	<b>274</b>
<b>4.</b>	<b>Net Domestic Product (NDP)</b>	<b>149020</b>
4.1	Public Administration and Defence (NDP)	137023
4.2	Autonomous Bodies	11997
<b>5.</b>	<b>Consumption of Fixed Capital (CFC)</b>	<b>25618</b>
<b>6.</b>	<b>Public Administration and defence (GDP) ( 4+5)</b>	<b>174638</b>

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## OTHER SERVICES

### Coverage

- 21.1 The economic activities covered under this sector are (i) Coaching and Tuition (NIC-2004, Code 80902 and 80903), (ii) Education excluding Coaching and Tuition (NIC-2004, Code 80 (-) 80902 (-) 80903), (iii) Human health activities including veterinary activities (NIC-2004, Code 851 and 852), (iv) Sewage and refuse disposal, sanitation activities (NIC-2004, Code 90), (v) Activities of membership organisations (+) social work (NIC-2004, Code 91+853), (vi) Recreational cultural and sporting activities (NIC-2004, Code 92), (vii) Washing and cleaning of textiles and fur products (NIC-2004, Code 9301), (viii) Hair Dressing and other Beauty Treatment (NIC-2004, Code 9302), (ix) Funeral and related activities (NIC-2004, Code 9303+9309), (x) Pvt. households with employed person (NIC-2004, Code 95), (xi) Custom Tailoring (NIC-2004, Code 18105), and (xii) Extra Territorial organisations and Bodies (NIC-2004, Code 99).

### Sources of Data

- 21.2 The sources of data include:
- (i) Employment and Unemployment survey data of NSS 61<sup>st</sup> Round and population census, 2001 estimates of work force;
  - (ii) Value added per worker from Enterprise Survey, NSS 63<sup>rd</sup> Round;
  - (iii) Budget documents for data relating to activities of these services covered under government;
  - (iv) Annual reports/accounts of corporations; and
  - (v) Consumer Price Index for Agriculture labour-CPI(AL), Consumer Price Index for industrial workers-CPI(IW).

### Methods of GVA Estimation

- 21.3 All the activities are broadly grouped under three segments, namely, public sector, private corporate sector and private unorganized sector. While the estimates of GVA in respect of activities covered under public sector are compiled by analyzing the budget documents and annual reports of the concerned units, those of private organised and private unorganized segments are prepared generally following the labour input method and benchmark-indicator procedures.
- 21.4 Generally, the GVA estimates for non-public sector segments are prepared separately for organized and unorganized segments. Initially estimates are prepared for a benchmark year (usually the base of current

national accounts series), and for subsequent years, the benchmark year's GVA estimates are extrapolated with suitable physical and price indicators. The benchmark year's GVA estimates are prepared as a product of estimated workforce engaged in the economic activity and the estimated value added per worker (VAPW), separately for organized and unorganized segments. For the current NAS series (base year 2004-05), the workforce estimates are from the NSS 61<sup>st</sup> Round (2004-05) survey results and the estimates of VAPW are from the results NSS 63<sup>rd</sup> Round (2006-07). As mentioned, the GVA estimates for the base year are prepared separately for rural/urban areas and also separately for organized/ unorganized segments. It may be mentioned that the NSS 63<sup>rd</sup> Round survey results provide the data separately for corporate sector and unorganized sector.

- 21.5 For subsequent years, the estimates of workforce in the activity are generally prepared using the inter survey average compound growth rate of quinquennial Employment & Unemployment surveys as observed between 1999-2000 and 2004-05 of NSS 55<sup>th</sup> and NSS 61<sup>st</sup> Round survey results. The value added per worker of rural and urban areas and organized and unorganized segments are projected to subsequent years with the CPI (AL) and CPI (IW) respectively. The GVA estimates are compiled as product of workforce and VAPW for the respective rural/urban/organized and unorganized segments. Specific procedures followed for estimating the GVA of various economic activities in the sector is given below:

- 21.6 **Coaching and Tuition (NIC-2004 codes 80902 and 80903):** The activities covered under this compilation category are the activities of coaching centres and individuals providing tuitions. All these activities are taken in the unorganized segment.

- 21.7 The estimates of GVA for coaching & tuition activities have been prepared for the year 2004-05 by using the VAPW of rural/ urban areas from the results of NSS Enterprise Survey 2006-07 of 63<sup>rd</sup> Round, and the labour input estimates based on the results of EUS 2004-05 of the 61<sup>st</sup> Round, as outlined in paragraph 21.4.

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- 21.8 For subsequent years the estimates of labour input are prepared using the inter survey growth rate. The value added per worker of rural and urban sectors is projected to subsequent years with the CPI (AL) and CPI (IW) respectively.
- 21.9 **Education excluding Coaching and Tuition (NIC-2004 code 80 (-) 80902 (-) 80903):** The activities covered under this compilation category are the activities of private education institutions, excluding those of coaching centres and individuals providing tuitions. GVA estimates for this category are prepared separately for recognized and non-recognized institutions.
- 21.10 **Public sector institutions:** The GVA for the public sector institutions is taken to be equivalent to the budget expenditure on salaries and wages of teaching and non-teaching staff of educational services, data obtained from the analysis of the budget documents on year-to-year basis plus consumption of fixed capital.
- 21.11 **Private Corporate covering Recognized Institutions:** The GVA estimates for Private Recognized institutions have been prepared by using VAPW estimates of from NSS 63<sup>rd</sup> Round Enterprise survey (ES) 2006-07 (corporate sector part).
- 21.12 **Private Unorganised covering non-recognized institutions:** The GVA estimates for the year 2004-05 have been compiled separately for rural and urban areas by the procedure outlined in paragraph 21.4.
- 21.13 For subsequent years, the estimates at current prices for both private corporate and unorganized are prepared using the trends in consumption expenditure of these items by households, as revealed by the NSS surveys on consumer expenditure.
- 21.14 **Human health activities + Veterinary activities (NIC-2004 code-851+852):** The activities covered under this compilation category are the activities of human health and veterinary services.
- 21.15 The estimates of GVA in human health and veterinary services are prepared separately for public, private organised and private unorganised sectors.
- 21.16 **Human health activities + Veterinary activities-Public:** The GVA for the public sector is taken to be equivalent to the budget expenditure on salaries and wages of medical personnel obtained from the analysis of the budget documents on year-to-year basis plus consumption of fixed capital.
- 21.17 **Human health activities + Veterinary activities- Pvt. Organized:** The GVA for private organised sector is prepared using labour input and VAPW of corporate sector estimated from NSS 63<sup>rd</sup> Round Survey results.
- 21.18 **Human health activities + Veterinary activities- Pvt. Un-organised:** In case of unorganised segment, the labour input estimates are obtained from the 61<sup>st</sup> round EUS separately for rural and urban areas and multiplied with respective VAPW of NSS 63<sup>rd</sup> Round ES 2006-07 separately. For subsequent years, the method is same as indicated at para 21.13 above.
- 21.19 **Sewage and refuse disposal, sanitation activities (NIC-2004, code-90):** The activities covered in this category are sewage and refuse disposal, sanitation and similar activities. The estimates of GVA are prepared separately for public and private sectors.
- 21.20 **Public sector:** Public sector estimates are the sum of budget expenditure on salaries and wages of activities falling under NIC 900 covered under government plus consumption of fixed capital.
- 21.21 **Private sector:** The GVA for private organised sector is prepared using labour input and VAPW of corporate sector estimated from NSS 63<sup>rd</sup> Round Survey results.
- 21.22 For subsequent years the estimates of labour input are prepared using the inter survey growth rate. The value added per worker of rural and urban sectors is projected to subsequent years with the CPI (AL) and CPI (IW) respectively.
- 21.23 **Activities of membership organisations (+) social work (NIC-2004, Code 91+853):** Activities of business and employers organizations (includes activities of industry associations, chambers of commerce and similar federations) and Activities of professional organisations (includes the activities of associations of writers, painters, lawyers, doctors, journalists and other similar organizations); Activities of trade unions includes activities of associations whose members are mainly employees, including government employees, interested chiefly in the representation of their views

- concerning their work situation; Activities of other membership organizations, Activities of religious organisations (includes the activities of religious organisations or individuals who provide services directly to worshippers), Activities of political organizations; Activities of other membership organizations n.e.c. (includes rotary clubs, student associations, war veterans' associations, book clubs, philatelic clubs, associations of minority groups, and the activities of other similar associations / organisations not elsewhere classified); Social work with accommodation includes the activities of orphanages, children boarding homes and hostels, residential nurseries, juvenile correction homes, homes for the aged, homes for physically or mentally handicapped etc.; Social work without accommodation includes a variety of social, counseling, welfare, refugee, referral and similar services to individuals and families in their homes or elsewhere. They may be carried out by government offices or by private charitable organisations. [Examples include day-care centres for children (crèches), day care activities for the handicapped; welfare and guidance activities for the children etc.]
- 21.24 The GVA estimates for the base year (2004-05) for these services have been prepared by using NSS 63<sup>rd</sup> Round (2006-07) survey estimate of VAPW and 61<sup>st</sup> Round EUS and RGI data on estimated Labour Input, separately for rural/urban/organized/unorganized segments.
- 21.25 For subsequent years, the estimates of labour input are prepared using the inter survey average compound growth rate of quinquennial Employment & Unemployment surveys of NSS during 1999-2000 and 2004-05. The value added per worker of rural and urban areas are projected to subsequent years with the CPI (AL) and CPI (IW) respectively.
- 21.26 **Recreational cultural and sporting activities (NIC-2004, Code-92):** The activities covered in this category are recreational cultural and sporting activities.
- 21.27 The GVA estimates for these activities for the base year 2004-05 have been prepared separately for public and private sectors.
- 21.28 **Public Sector:** Estimates are obtained by analyzing the report of the Prasar Bharati Broadcasting Corporation.
- 21.29 **Private Sector:** Private sector labour input estimates as obtained separately for rural and urban areas, from EUS 2004-05 are multiplied with VAPW of 63<sup>rd</sup> Round of NSS to get the estimates of GVA in the base year.
- 21.30 For subsequent years, the method is same as indicated at para 21.25 above.
- 21.31 **Washing and cleaning of textiles and fur products (NIC-2004, Code-9301):** The activities covered in this category are washing and dry-cleaning of textile and fur products including laundry collection and delivery; repair and minor alteration of garments when done in connection with cleaning and carpet and rug shampooing and drapery and curtain cleaning in clients' premises.
- 21.32 The GVA estimates for corporate and unorganised segments for base year (2004-05) from these services have been prepared using NSS 63<sup>rd</sup> Round (2006-07) survey estimates of VAPW and labour input, separately for rural and urban areas.
- 21.33 For subsequent years, the method is same as indicated at para 21.25 above.
- 21.34 **Hair Dressing and other Beauty Treatment (NIC-2004, Code-9302):** The activities covered in this category are hairdressing and other beauty treatment including facial massage, manicure & pedicure and make-up.
- 21.35 The GVA estimates for corporate and unorganised segments for base year (2004-05) from these services have been prepared using NSS 63<sup>rd</sup> Round (2006-07) survey estimates of VAPW and labour input, separately for rural and urban areas.
- 21.36 For subsequent years, the method is same as indicated at para 21.25 above.
- 21.37 **Custom Tailoring (NIC-2004, Code-18105):** The GVA estimates for corporate and unorganised segments for base year (2004-05) from these services have been prepared using NSS 62<sup>nd</sup> Round (2005-06) survey estimates of VAPW and labour input, separately for rural and urban areas.
- 21.38 For subsequent years, the method is same as indicated at para 21.25 above.
- 21.39 **Funeral and related activities (NIC 2004, Code 9303+9309):** The activities covered in this category are funeral and related

## CHAPTER 21

- activities (NIC-2004, Code-9303) (such as operation and maintenance of cremation/burial grounds and maintenance of graves and mausoleums) and other service activities n.e.c. (NIC-2004, code-9309) (including activities related to physical well being and comfort such as delivered by sauna and steam baths, reducing and slandering salons, massage salons, rest rooms etc). Also, included are astrological and spiritualists' activities; activities of the marriage bureaus, shoe shiners, porters, valet car parkers etc.
- 21.40 The GVA estimates for corporate and unorganised segments for base year (2004-05) from these services have been prepared using NSS 63<sup>rd</sup> Round (2001-02) survey estimates of VAPW and labour input, separately for rural and urban areas.
- 21.41 For subsequent years, the constant price GVA estimates for rural and urban sectors are prepared separately by moving the base year GVA with population growth for rural and urban sectors respectively. The current price GVA estimates for subsequent years are prepared by inflating the constant price GVA with CPI.
- 21.42 **Pvt. households with employed person (NIC-2004, Code-95):** The activities covered in this category are private households with employed persons (Includes the activities of private households employing all kinds of domestic personnel such as maids, cooks, gardeners, gatekeepers, secretaries, governess, baby sitters etc.).
- 21.43 Data on private households with employed persons was not collected in the NSS 63<sup>rd</sup> Round Enterprise Survey, as it was not found feasible to identify such households as enterprises. The value added generated by this activity included wages paid to the 'employed persons'. Value Added Per Worker based on wage data collected in the 61<sup>st</sup> Round Employment Unemployment Survey has been used. The total daily earnings of the workers falling under this category have been divided by the number of workers to arrive at daily wages/salaries adjusting for annual wages separately for rural and urban areas for the base year 2004-05.
- 21.44 The GVA estimates for the base year (2004-05) from these services have been prepared as a product of workforce and average wage per unit of LI (adjusted for annual wages) separately for rural and urban areas in the base year.
- 21.45 For subsequent years, the method is same as indicated at para 21.25 above.
- 21.46 **Extra Territorial Organisations and Bodies (NIC-2004-05, Code-99):** The activities covered in this category are extra territorial organisations and bodies (includes the activities of international organizations such as United Nations and its agencies, regional bodies etc., IMF, World Bank, European Commission, OPEC etc.)
- 21.47 The estimates of these services are prepared using NSS 61<sup>st</sup> Round labour input and thrice the value added per worker of Public Administration and defence (as a proxy) separately for rural and urban areas.
- 21.48 For subsequent years, the method is same as indicated at para 21.25 above.
- Estimates at constant prices**
- 21.49 The estimates at constant prices for rural and urban in respect of private recognised and unrecognised education, private organised and unorganised Human health activity + Veterinary activities, private Sewage and refuse disposal, sanitation and similar activities, Activities of membership organisations (+) social work with accommodation, Recreational cultural and sporting activities, Washing and cleaning of textiles and fur products, Hair Dressing and other Beauty Treatment, Custom Tailoring, private households with employed person and Extra Territorial Organisations and Bodies, except Funeral and related activities, are obtained by deflating the current price estimates with CPI(AL) and CPI(IW) respectively. In the case of public part of educational services, public part of Human health activity + Veterinary activities, public part of Sewage and refuse disposal, sanitation and similar activities and T.V. & Radio broadcasting under public sector, the estimates at current prices are deflated by the CPI(IW) to derive the estimates at constant prices.
- Quality and limitations of data base**
- 21.50 While the estimates for the public sector component are estimated from direct data sources, those of private organized and unorganized segments in respect of all economic activities are prepared through benchmark-indicator method. On these segments no current data on annual basis is available. Regular, timely and complete data in respect of these services, if available on the corporate sector, could improve considerably the quality of their GVA estimates.

**GDP from Other services**

(Rs. crore)

<b>Services</b>	<b>2004-2005</b>
<b>1. Community Services</b>	184214
1.1 Education	106683
1.2 Coaching centre	10723
1.3 Medical and Health	53546
1.4 Membership Organisations	13262
<b>2. Recreation &amp; Entertainment</b>	12834
3. Radio & T.V.	744
<b>4. Personal Services</b>	35548
4.1 Pvt. Household with Employed person	4518
4.2 Washing & cleaning of Textiles	5110
4.3 Hair dressing and other beauty treatment	5508
4.4 Custom Tailoring	6879
4.5 Funeral related activities + other services	13533
<b>5. Sanitary Services</b>	4868
<b>6. International &amp; other Extra-territorial bodies</b>	1279
<b>GDP</b>	239487
Less FISIM	2764
<b>GDP net of FISIM</b>	236723

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## PRIVATE FINAL CONSUMPTION EXPENDITURE

### Introduction

- 22.1 The Private final consumption expenditure (PFCE) is defined as the expenditure incurred by the resident households and non-profit institutions serving households (NPISH) on final consumption of goods and services, whether made within or outside the economic territory. The resident households and NPISHs incur expenditure while traveling abroad, while non-resident households, NPISHs and extra territorial bodies make final consumption expenditure within the economic territory of the country. Since it is convenient to obtain the estimate of total final consumption expenditure made by all households and NPISHs, whether resident or non-resident using commodity flow approach, 'final consumption expenditure in the domestic market' is derived first. This estimate is then adjusted by adding expenditures by residents, incurred abroad (which forms part of imports) and subtracting the expenditures by non-residents, incurred within the economic territory (which forms part of exports), to obtain the estimate 'final consumption expenditure of resident households and NPISHs'.
- 22.2 The consumption expenditure also includes the imputed gross rent of owner-occupied dwellings, consumption of own account production evaluated at producers' prices and payments, in cash and kind, made available to employees. It also includes the financial intermediary services indirectly measured (FISIM).
- 22.3 The final consumption expenditure of non-profit institutions serving households includes the value of goods and services produced for own use on current account i.e., the value of gross output reduced by the sum of the value of their commodity and non-commodity sales. This includes transfers in kind of non-durable goods and services from government administration, industries and rest of the world. The final consumption expenditure of households and non-profit institutions serving households are estimated together and are not available separately.
- Method of Estimation**
- 22.4 The estimates of PFCE are obtained by following the commodity flow approach. It implies working of commodity balances relating to various items of consumption, taking into account of (i) production; (ii) intermediate consumption in agriculture, manufacturing and other industries; (iii) net imports; (iv) stock variations; (v) consumption on government account and (vi) gross fixed capital formation. For obtaining PFCE, the expenditure incurred by industries as intermediate consumption and all final use (demand) (including imports and exports) other than those by households and non-profit institutions are deducted from the total availability. The quantity of final consumption obtained from commodity balances is generally evaluated at market prices. For services, the estimates of final consumption expenditure is derived from the total output (as measured by the gross earnings) of the agencies providing these services to the consumers after netting out the expenditure by the private enterprises and public sector on these services during the year. The gross earnings of any particular service during a given period is the sum total of the payments received from the consumers of these services in lieu of the services rendered to them.
- 22.5 For food items, PFCE is estimated at two stages. Firstly, the quantity retained by the producers for their own consumption is evaluated at producer's prices which is the same as used for the domestic product and secondly, marketed part is evaluated at retail prices which are the average prices of rural and urban prices collected from National Sample Survey Organisation (NSSO) and Directorate of Economic & Statistics, Ministry of Agriculture respectively. For manufactured items, the value of output is adjusted for excise duty and trade and transport margin (TTM). The TTM'S are separately estimated for various commodities/commodity groups on the basis of Input Output Table. Import duty is also added to the value of imports.
- 22.6 The methods of estimation of change in stock of food grains, agricultural commodities other than food grains with the public, registered manufacturing sector, private corporate sector, unregistered manufacturers and NDCUs are given below:
- (i) The estimates of stocks of food grains with public (producers plus traders) are based on methodology given by Prof. Dandekar in his study\*. According to this, consumption of food grains is subtracted from the net availability with the public to arrive at the estimates of change in stocks. This method assumes that the stocks with the public in a bad

agriculture year are negligible and per capita consumption of food grains during any two consecutive bad years is almost of the same order.

- (ii) The estimates of change in stocks in respect of registered manufacturing sector are based on ASI. In the case of private corporate sector, industry-wise estimates of change in stocks are furnished by the RBI to CSO.
- (iii) The estimates of stocks of manufactured goods with the unregistered manufacturers, NDCUs of the government and private traders are based on detailed analysis of annual reports of the public sector enterprises and additional data collected in connection with the Input-Output Table, 2003-04.

[\* "Agriculture, Employment & Poverty", a paper presented at the Conference on the Indian Economy organised by the Centre for Asian Development Studies, Boston University, October 4-7, 1986.]

### Sources of data

- 22.7 To obtain commodity balances available for private consumption by following commodity flow approach, we need data on output, seed, feed, wastage, net imports, consumption of partly capital goods and government consumption. Basic data on output and input of various commodities are the same as used for the preparation of estimates of GDP. The wastage ratios for most of the commodities viz., Rice, Wheat, Jowar, Bajra, Mango, Potato etc., are based on the data available in the latest publications of DMI. In case of those commodities for which DMI reports are not available, wastage percentages are based on the discussions with the experts of DMI, wholesalers and retailers dealing in these commodities.
- 22.8 The main sources of data relating to inter-industry consumption are the DMI reports, ASI and IOTT. The data on imports and exports are available on a regular basis both in quantity and value terms, from the Monthly Statistics of Foreign Trade of India, published by the Directorate General of Commercial Intelligence & Statistics (DGCIS). The allocation of partly capital goods to capital formation and to final consumption is done on the basis of IOTT.
- 22.9 Government consumption expenditure (net purchases of goods and services) for

different years is obtained independently from the economic analysis of budget documents. The total expenditure on goods is distributed over commodities/commodity groups on the basis of the norms of the expenditure used for input-output table. These norms are arrived at after detailed analysis of item wise expenditure of Central, State and local government bodies budgets and getting relevant break-ups of the office expenditure and miscellaneous items appearing in the budget documents from various government offices through correspondence.

### Estimates at current prices

- 22.10 For the purpose of preparing the estimates, the entire expenditure is divided into 8 groups and the estimates are prepared by 38 expenditure categories. The estimates of private final consumption expenditure by object at group level and category level are given in Table 22.1. These categories cover 67 major items under food and 90 major items under the non-food and services groups. The category-wise coverage is shown in Appendix 22.1. The commodities have also been classified by type of goods into four type viz., durable, semi-durable, non-durable and services. Type wise coverage is given in Appendix 22.2. The item wise detailed methodology followed is given below.

### Cereals & bread

- 22.11 The cereal items include rice, wheat, jowar, bajra, maize, barley, ragi, small millets, gram (whole) etc. The data on production of cereals and 'seed and feed' are the same as those used in the preparation of estimates of domestic product in the agriculture sector. In the new series, the quantity retained by producer has been estimated first and the average of the marketable surplus ratio is estimated subsequently. The proportion of quantity retained out of total production is estimated by averaging the estimates for the years 2003-04, 2004-05 and 2005-06. This proportion has been used for all the years starting from 2004-05. The marketing reports of the DMI are used for obtaining percentage norms for wastage in the disposal of cereals between pre-marketing and marketing transactions.
- 22.12 The norms for inter-industry consumption of cereals are taken from the IOTT and relevant DMI reports. The quantities of cereals used as inputs in the production of various cereal products are calculated with the help of these norms.

22.13 In the marketed surplus, adjustment is made for stock, wastage, net imports, inter-industry consumption and government consumption, to work out net market supplies available for consumption. The quantity retained by the producers and net market supplies are evaluated separately. The ex-farm prices for evaluation of quantity retained by the producers are the same as used in the estimates of domestic product. The average retail prices based on rural retail prices obtained from NSSO and urban retail prices from DESAg are used to evaluate net market supplies. The values of quantity retained and net market supplies available for consumption are added to obtain estimates of final consumption expenditure.

22.14 The value of output in respect of the item 'bread and biscuits' has been taken from the ASI, 2004-05. For the unregistered part, output is estimated using ratios of value of output of unregistered to registered manufacturing. The combined value of output from registered and unregistered segments is marked up with TTM of these items, to arrive at the value at market prices.

#### Pulses

22.15 The pulses group (whole as well as split) for which the estimates have been prepared are arhar, moong, urd, masoor, gram (split only) and the residual. The basic data on output, as in the case of cereals are from the details available for measurement of domestic product. The production data is adjusted for seed & feed to work out marketed surplus and quantity retained by producers. The marketed surplus is further adjusted to obtain net market supplies available for consumption. The norms for quantities utilised as 'dal' (split pulses) in both the cases (quantity retained and net market supplies) are based on the Marketing Report on Pulses in India, (DMI). The information on yield rates of 'dal' to the 'whole' is based on ASI reports. The quantity of whole and split pulses in case of net market supplies are evaluated at respective retail prices. In case of retention part, it is evaluated at ex-farm price of whole grain which is also the same as used in the estimation of domestic product.

#### Sugar & gur

22.16 The items included are sugarcane, gur, sugar (refined) and palm gur. In case of sugarcane and gur, data on production, seed and feed are the same as utilised for domestic product estimates. Data on production, change of stock, export and

import of sugar are taken from the Ministry of Agriculture. The price of sugar used is the retail prices. Data regarding quantity of sugar distributed through public distribution system (PDS) and the corresponding ration prices are obtained from the Department of Food. The value obtained by evaluating quantity of sugar distributed through PDS by retail price and ration price differential is deducted from the final PFCE estimates of sugar. The consumption of palm gur is taken from the annual report of Khadi & Village Industries Commission. Gur used as animal feed is also taken into account while preparing PFCE estimates of gur.

#### Oil & oilseeds

22.17 Oilseeds for which the estimates are prepared are sesamum, linseed, rape seed and mustard seed and other oilseeds. The oil items are Vanaspati (hydrogenated oil), mustard, coconut, gingelly, groundnut, linseed, castor oils and the residual. The basic data on production relating to oilseeds are the same as those utilised for the estimation of domestic product. In the case of oilseeds, inter-industry norms are based on DMI Reports. The quantity of oilseeds retained by the producers is evaluated at producer's prices. The production data on the edible oils is directly obtained from the Ministry of Agriculture. Utilisation of oils for Vanaspati manufacturing are derived on the basis of data relating to quantity of different raw oils used in the Vanaspati industry supplied by the Directorate of Vanaspati, Vegetable Oils & Fats. The valuation is done on the basis of retail prices which are average prices of rural & urban areas obtained from NSSO & DESAg respectively. The data on output and stock variation of Vanaspati are taken from the Monthly Abstract of Statistics (MAS) brought out by the CSO.

#### Fruits & vegetables

22.18 Under this group items like banana, mango, grapes, citrus fruits, cashew kernel, onion etc, groundnut, fruits and vegetable products, coconut and copra are covered. Production figures for all these commodities are the same as used for the estimation of domestic product. Inter-industry consumption norms are based on respective DMI reports. Inter-industry consumption for mango, citrus fruits, and other fruits are considered for fruits and vegetable products also. The wastage norms in respect of mangoes, banana, citrus fruits, grapes, onion and vegetables are based on either DMI reports or discussions with the subject matter experts.

Potatoes and other tubers

- 22.19 This group covers potato, sweet potato and tapioca. The output is the same as used for the estimation of domestic product. Inter-industry consumption for potatoes is also considered for fruits and vegetable products. Wastage ratios are based on DMI reports.

Milk and milk products

- 22.20 The items which are included in the estimates of private consumption of milk and milk products are (i) milk consumed as such, (ii) pasteurised milk, (iii) butter, (iv) lassi and (v) other milk products. The basic data on output and prices are the same as those utilised for preparation of domestic product estimates. The value of milk products and the pasteurised milk is estimated on the basis of input-output data from ASI. Account has also been taken of the dairy products in the manufacturing sector and the relevant data is obtained from ASI. Milk production is also adjusted for wastage.

Meat, eggs and fish

- 22.21 For meat and poultry, the estimates are prepared in respect of beef, pork, mutton, goat meat, buffalo meat, other meat products, duck and chicken including eggs. The basic data on output and prices are the same as those utilised for estimation of domestic product. While preparing private consumption estimates of fish and its products, quantity approach is followed. The quantity of fish utilised for domestic consumption viz., marine, inland and fish products are considered separately. The production estimates are duly adjusted for net imports and wastages.

Coffee, tea and cocoa

- 22.22 The data in respect of production, utilisation, stock variation, net imports and prices in respect of tea and coffee are obtained from the Annual Reports, 'Tea Statistics' (Tea Board) and 'Coffee Statistics' (Coffee Board). In the case of coffee the production is available for the coffee seeds which are converted to coffee powder. For instant coffee the specific conversion ratios are supplied by the Coffee Board. Year-wise quantity of raw coffee used for instant coffee is also obtained from Coffee Board.

Spices

- 22.23 The base year estimates of spices have been prepared by using the value of per capita consumption available in the in the 61st Round NSSO consumer expenditure survey in the current series. For the

subsequent years, the growth in per capita consumption expenditure observed between NSS 61st and 63rd Rounds has been used.

Other food

- 22.24 This sub-group consists of salt, sugar confectionery and 'other foods'. The 'other foods' consist of items like malted food, sago, papad, multi-purpose food etc. The estimates of salt are built up on the basis of NSSO consumer expenditure survey results. The output of sugar confectionery and other foods for the registered manufacturing sector part is obtained from the ASI survey results. In case of other food, the value of output is adjusted for stocks only. No adjustment is made for net imports and stocks while preparing estimates of sugar confectionery. For the unregistered part, output is estimated using ratios of value of output of unregistered to registered manufacturing.

Beverages

- 22.25 For alcoholic and non-alcoholic beverages the value of output for registered manufacturing sector is obtained from the ASI. For the unregistered part, output is estimated using ratios of value of output of unregistered to registered manufacturing. The value of output thus arrived at for the registered and unregistered sectors are adjusted for stocks and excise duties.

Pan and other intoxicants

- 22.26 This sub-group consists of pan, arecanut, other ingredients of pan (except arecanut) and opium. The estimates of pan are prepared on the basis of per capita consumption as available from the NSSO consumer expenditure survey results. Output estimates of arecanut and opium are the same as used for the domestic product. The estimates of arecanut are further adjusted for net imports. In case of opium, no adjustment is made for imports and stocks.

Tobacco & its products

- 22.27 This sub-group consists of commodities like raw tobacco, cigarettes, bidi, snuff, cigar & cheroots and other tobacco products. The output of raw tobacco and price data are the same as utilised for estimation of domestic product. Proportion of quantity of raw tobacco retained by the producers to total output is based on DMI report. Only quantity retained by producers is evaluated for estimation of PFCE, in respect of raw tobacco consumption. The production data for the registered manufacturing sector part is obtained from the ASI survey results. For

the unregistered part, output is estimated using ratios of unregistered to registered value of outputs. To this, excise duty is added and TTM of tobacco applied to arrive at PFCE. For tobacco products like cigar and cheroot, snuff and hukka tobacco, quantity of tobacco products cleared for home consumption is taken from the source data. Conversion ratios of raw tobacco to these products are worked out from the output and input data of ASI. After applying these ratios, quantity of different tobacco products is obtained. The retail prices of these products are based on ASI ex-factory prices marked up by TTM. Due adjustment is made for net imports and wastage.

#### Hotels and restaurants

- 22.28 In the case of hotels and restaurants, the estimates of GVA are converted into the value of output on the basis of the corresponding relationship observed for similar public limited companies. Of the total expenditure, 28 per cent is taken as private consumption in the base year.

#### Gross rent and water charges

- 22.29 The expenditure on house rent is estimated to include rented dwellings as well as those which are owner occupied and covers not only the total domestic production on this account but also the expenditure on repairs and maintenance. Water charges are computed for only urban areas at 3 per cent of the gross value added.

#### Fuel and power

- 22.30 The estimates are prepared separately for coal, firewood, vegetable waste, dung cake, kerosene oil, charcoal, lignite, gas coke, electricity, bagasse, liquefied petroleum gas and gobar gas. The data on production and prices in the case of firewood, vegetable waste, dung cake and bagasse are the same as those used for estimation of value of output in GDP estimates. Stock variation is assumed to be nil for these items. The data on output of coal, charcoal, gas coke and lignite are obtained from the Office of the Coal Controller. The evaluation is done at the retail prices as available in the Monthly Abstract of Statistics (MAS). For the years for which relevant data are not available, the base year prices are adjusted by the wholesale price index number. Adjustments for net imports are done in the case of coal only. The share of household consumption for these items is based on the NCAER survey results.
- 22.31 Data on electricity sold to domestic consumers is obtained from the Office of the Central Electricity Authority (CEA.). For

liquefied petroleum gas and kerosene, domestic consumption as well as retail prices are taken from the annual publication, "Indian Petroleum & Natural Gas Statistics" by Ministry of Petroleum and Natural Gas. In case of firewood, production is the same as used for estimation of value of output in the forestry sector. The total value is taken as private final consumption expenditure. Gobar gas consumption is directly taken from the annual report of the Khadi and Village Industries Commission.

#### Manufactured goods

- 22.32 The database for the preparation of estimates for a majority of manufactured items is same as the one utilised for estimation of domestic product. Since the value of products and by products from 2004-05 are available at the compilation category-wise and not at the commodity-wise, from the GVA estimates of unregistered manufacturing industry, the value of output at the commodity level is estimated using item level data from ASI, 2004-05. The item level value of products and by products for the 21 compilation categories have been utilized for developing ratios for items consumed by the households to total value of products and by products corresponding to these compilation categories in the current NAS series for annual estimates.
- 22.33 For the unregistered part, output is estimated using ratios of value added to value of output in respect of registered manufacturing industry, based on ASI data.
- 22.34 The distributive margins for the manufacturing industry are estimated on the basis of Input-Output. The distributive margins for certain commodities are also supplemented by DESAg's weekly bulletin of urban retail prices of essential commodities and rural retail prices compiled by NSSO at all India level. The difference between retail price and corresponding wholesale price expressed as a percentage of the latter is taken as the distributive margin. The distributive margins so arrived at are suitably adjusted for margins between ex-factory and wholesale prices. These distributive margins are applied to the imports also. Import duties and excise duties are added to the value of output of different commodities before applying the distributive margins.
- 22.35 In the current NAS series, the allocation of partly capital goods to capital formation and to final consumption has been done on the



basis of ratios worked out from IOTT 2003-04.

- 22.36 The estimates for clothing are prepared under the categories of cotton fabrics, silk fabrics, woolen fabrics and miscellaneous textiles. The basic data on the value of production in respect of registered manufacturing are obtained from the ASI factory sector. For the unregistered part, output has been estimated using ratios of value of output of unregistered to registered manufacturing.

#### Services

- 22.37 The services group is classified under the following major heads (i) transport and communication, (ii) recreation, education and cultural services and (iii) miscellaneous goods and services.

#### Transport

- 22.38 Transport services have been divided into road and rail transport services, water transport, air transport, repair services and services incidental to transport. Road transport is further sub-divided into 'mechanised' and non-mechanised' while water transport is sub-divided into organised shipping (i.e., Ocean & coastal water transport operated by recognised shipping companies) and unorganised services (i.e., inland boat services plying in rivers & canals and ocean-going sailing vessels, combined as a single item). Air transport consists of services run by the Air India, Indian Airlines and the private airlines.
- 22.39 The estimates of private consumption in terms of purchase of services in respect of mechanised road transport (buses and tramways, taxis and auto rickshaws), rail transport, air transport and organised water transport are based on the total passenger earnings in these services. In the case of rail, air and organised shipping transport, the data on gross passenger earnings are directly obtained from Annual Reports of the Railway Board, Air India, Indian Airlines & Private Airlines and Ports and Shipping Statistics. While 80 per cent of the gross passenger earnings are treated as PFCE in the case of railways, only 38 per cent of the earnings are taken in the case of air transport. In the case of organised shipping, 75 per cent of the earnings is taken as PFCE.
- 22.40 As regards other modes of mechanised road transport viz., bus, tramways, taxi and auto rickshaw, the gross passenger earnings are

estimated as the product of average 'per vehicle earnings' and the total number of vehicles on the road. The estimates of number of vehicles are available annually in the 'Motor Transport Statistics' published by the Transport Research Division, Ministry of Shipping, Road Transport and Highways. Total earnings of bus, taxi and auto rickshaw are worked out for the year 2004-05 on the basis of earnings per vehicle and employment as available in the reports of Directory Establishment (DE) Survey, 1979-80 published by CSO and non-directory establishments (NDE) and own account enterprises NSS 34<sup>th</sup> Round (1979-80). The earnings for bus service are suitably adjusted for the earnings of departmental and non-departmental enterprises as estimated for domestic product. These estimates for all the three categories are moved with the help of number of vehicles to arrive at the estimates of other years at constant prices. To arrive at the estimates at current prices, estimates at constant price are inflated with the help of implicit price indices as used for domestic product. Share of private final consumption is taken as 50 per cent for taxis, 85 per cent for buses and 90 per cent for auto rickshaw.

- 22.41 Non-mechanised road transport comprises of animal drawn transport, three-wheeler, cycle rickshaws, etc. For these services as also for unorganised inland water transport, the output to value added ratios (taken from Directory establishment survey: 34th Round of NSSO Survey) are applied to the estimates of GVA as available separately for rural and urban areas, to obtain the estimates of value of output. A ratio of 95 per cent of this is taken as the private consumption expenditure.
- 22.42 Repair services and maintenance costs pertaining to owned transport, falling in the ambit of private consumption expenditure includes repairs and maintenance of motorcars, motor cycles/scooters and bicycles. The estimates of the total costs of such repairs and maintenance are worked out as the product of per vehicle average cost per year and the number of vehicles. Annual data in respect of number of cars and two wheelers other than bicycles are available from the 'Motor Transport Statistics'. The number of bicycles is taken from the 'Monthly Abstract of Statistics' (CSO). The per vehicle average cost is estimated on the basis of allowance prescribed for computing the rebate on Income tax in respect of repairs and



maintenance of different vehicles. The estimated per vehicle cost of repairs and maintenance is moved further by appropriate price index. The above costs are, however, exclusive of the cost of consumption of tyres and tubes for which separate estimates are prepared by commodity flow method. These estimates cover the consumption in respect of privately owned transport vehicles as well as vehicles plying for hire. Due allowance is made to estimate the part of consumption relating to privately owned vehicles also. The estimates of expenditure on consumer taxes relating to private vehicles obtained for base year are moved with the data on number of vehicles.

- 22.43 The estimates of private consumption expenditure for services incidental to transport are based on gross agency earnings. The source of data is as those of gross earnings of the various transport services. A ratio of 5 per cent of the agency earnings are ascribed to private consumption expenditure.

#### Communication

- 22.44 The expenditure of households and private non-profit bodies on postal, telephone and telegraph services are considered in this sector. The basic data are culled out from the Annual Report of the Posts & Telegraphs Department. On the basis of analysis of communication data, 40 per cent of the total earnings from postal articles, money orders, telephone and telegraph are assumed to be the share of PFCE.

#### Recreation, educational and cultural services

- 22.45 For recreation and entertainment, the estimates of consumption expenditure are prepared on the basis of rates of entertainment taxes and revenues of State governments. The estimates for educational services are prepared, based on the expenditure incurred by the households. The GVA estimate for education is converted into output on the basis of GVO/GVA ratio. A ratio of 58 percent of the output of the private sector is taken as the PFCE.

#### Medical care & health services

- 22.46 The estimates of expenditure of the households on medical care and health services for the benchmark year are based on Nation Health Account of India 2004-05, M/o Health and Family Welfare. The PFCE for subsequent years has been estimated using growth rate in the private expenditure during 2004-05 and 2005-06 as given in the Nation Health Account. The receipt by Central government on account of Central

Government Health Scheme compiled from the Central government budget is also taken as an item of household consumption.

#### Miscellaneous goods and services

- 22.47 This group covers two categories of services viz., (i) personal care and effect (barber and beauty shops, religious services, other personal and sanitary services), (ii) other miscellaneous services (Banking charges, legal, business and insurance services) and (iii) personal goods n.e.c. (Jewellery, watches and clocks, leather products, non-metallic mineral products and toilet products). Estimates of gross value added in respect of services except banking and insurance services are converted into value of output on the basis of estimates of total earnings and gross value added.

- 22.48 The estimates for religious and other community services and other personal services like domestic services, laundry, barber and beauty shops and sanitary services are domestic product based. The total output in the case of religious and domestic services is treated as PFCE while 75 per cent for laundry, tailoring and radio & TV services and 98 per cent for barber & beauty shops 90 per cent and respectively, of output are taken. For business services, 4 per cent of output is assumed to be PFCE while for legal and sanitary services it is 50 per cent. For tailoring and radio & T. V. services, the share of PFCE is taken as 75 and 95 percent respectively. For sanitary services the share of PFCE is 50 per cent. For religious and funeral & other services n.e.c., the PFCE is taken as 85 per cent.

- 22.49 The private consumption expenditure on banking and insurance charges is estimated as imputed charges. In the case of insurance sub-sector life insurance, insurance on motor vehicles and general insurance are estimated separately. These estimates are the same as used for domestic product estimates. In the case of personal goods, the methodology followed is the same as for manufacturing items.

#### Estimates at Constant Prices

- 22.50 In the case of all the food items for which the output estimates are available in quantity terms, the estimates of private final consumption for each of the years have been valued at the prices in the base year i.e., 2004-05, in order to obtain estimates at constant prices. In the case of items like other cereals, other meat products, milk and milk products, other oilseeds, other fruits and vegetables, fruits and vegetable products, sugar confectionery, other food,

beverages, cigarettes and tobacco products, where production is in terms of value, the current price estimates are deflated with the wholesale price indices. For all items under manufacturing group where production figures are in value terms only, deflation by appropriate price index of wholesale prices is resorted to for getting the corresponding estimates at constant prices. In the case of services items, the implicit deflator as used while preparing the estimates of gross value added at current and constant prices is used for deflating the current PFCE estimates to obtain the corresponding constant price estimates.

#### **Quality and Limitations of data base**

- 22.51 The basic data on output and prices are mostly the same as those utilized for the preparation of GDP estimates and as such shortcomings in the GDP estimates would be inherent in the measurement of private consumption as well. The wastage ratios for

most of the commodities are based on DMI reports which are sometimes very old. In the case of those commodities for which DMI reports are not available, percentages from unpublished reports or on the basis of discussion with the experts of DMI, wholesalers and retailers are used. The TTMs used for various commodities are based on data obtained from the co-operative stores/super bazaars/retail outlets. The data on retail prices are based on the weekly bulletin of urban retail prices issued by DESAg and rural retail prices data are based on NSSO surveys. The shortcomings in wastage ratios, TTMs and retail prices would also be inherent in the estimates of private final consumption expenditures. Besides, several commodities and services, the percentage of output consumed by households and NPISHs, is based on adhoc information, in the absence of any regular dataflow.

**MAJOR ITEMS COVERED UNDER PRIVATE FINAL CONSUMPTION EXPENDITURE****I. FOOD****Cereals & Bread**

1. Rice
2. Wheat
3. Jowar
4. Bajra
5. Maize
6. Ragi
7. Barley
8. Small millets
9. Gram whole
10. Other cereals
11. Bread & Biscuits

**Pulses**

12. Arhar
13. Moong
14. Urad
15. Masoor
16. Gram products
17. Other pulses

**Sugar and Gur**

18. Sugarcane
19. Gur
20. Sugar (refined)
21. Palm gur

**Oil & Oilseeds**

22. Vanaspati
23. Mustard oil
24. Coconut oil
25. Gingili oil
26. Groundnut oil
27. Linseed oil
28. Castor oil
29. Other edible oils
30. Sesamum seed
31. Linseed
32. Rape & mustard
33. Other oilseeds
34. Imported oils

**Fruits & Vegetables**

35. Banana
36. Mango
37. Grapes
38. Citrus fruits
39. Cashew kernel
40. Onion
41. other fruits & vegetables
42. Groundnut
43. Fruits & vegetable products
44. Coconut
45. Copra

**Potatoes & Other Tubers**

46. Potato
47. Sweet potato
48. Tapioca

**49. Milk and Milk Product****Meat, Eggs & Fish**

50. Beef
51. Pork
52. Mutton
53. Goat meat
54. Buffalo meat
55. Other meat products
56. Duck
57. Fowl
58. Chicken
59. Eggs
60. Fish & fish products

**Coffee, Tea & Cocoa**

61. Coffee
62. Tea
63. Cocoa
64. Spices

**Other Food**

65. Salt
66. Sugar confectionery
67. Other food

**Beverages**

68. Non-Alcoholic beverages
69. Alcoholic beverages

**Pan & Other Intoxicants**

70. Pan
71. Arecanut
72. Opium

**Tobacco & its products**

73. Tobacco raw
74. Cigarettes
75. Bidi
76. Snuff
77. Cigar & cheroots
78. Other tobacco products
79. Hotels & restaurants

**II. CLOTHING & FOOTWEAR****Clothing**

80. Cotton textiles
81. Silk textiles
82. Woolen textiles
83. Misc. textiles
84. Footwear

**III. GROSS RENT, FUEL & POWER****85. Gross rent and water charges****Fuel & power**

86. Electricity
87. Liquefied petroleum gas
88. Kerosene oil

**Other Fuel**

89. Coal
90. Firewood
91. Vegetable waste

## CHAPTER 22

- 92. Dung cake
- 93. Lignite
- 94. Gas coke
- 95. Bagasse
- 96. Charcoa
- 97. Gobar gas

### IV. FURNITURE, FURNISHINGS APPLIANCES & SERVICES

#### Furniture, Furnishings & repairs Services

- 98. Carpet
- 99. Coir products
- 100. Wooden furniture
- 101. Steel furniture

#### Refrigerator, cooking and washing appliances etc.

- 102. Non-electrical machinery
- 103. Electrical appliances
- 104. Refrigerators & air-conditioners

#### Glassware, tableware & utensils

- 105. Glass & glass products
- 106. Earthenware & china pottery
- 107. Metal utensils
- 108. Other metal utensils

#### Other goods

- 109. Matches
- 110. Misc. personal goods
- 111. Plastic products
- 112. Rubber products
- 113. Dry and wet batteries

#### Services

- 114. Domestic services
- 115. Laundry, cleaning and dyeing
- 116. General Insurance

### V. MEDICAL CARE AND HEALTH SERVICES

- 117. Medical care & health services

### VI. TRANSPORT & COMMUNICATION

#### Operation of personal transport ,

#### Personal transport equipment

- 118. Motor vehicles & parts
- 119. Motor cycles, scooters and bicycles
- 120. Tyres and tubes
- 121. Petrol and diesel
- 122. Repair charges including insurance

#### Purchase of Transport services

- 123. Rail
- 124. Air
- 125. Bus including tramways
- 126. Taxi
- 127. Auto rickshaws
- 128. Non-mechanised road transport
- 129. Organised water transport
- 130. Unorganised water transport
- 131. Services incidental to transport
- 132. Communication

### VII. RECREATION, EDUCATION & CULTURAL SERVICES

#### Equipment, paper & stationary

- 133. TV & Radio
- 134. Musical instruments
- 135. Photographic goods
- 136. Typewriters
- 137. Sports and athletic goods

- 138. Newspapers, books and magazines
- 139. Stationery articles Personal goods n.e.c
- 140. Fireworks
- 141. Recreation & cultural services
- 142. Education

### VIII. MISCELLANEOUS GOODS AND SERVICES

#### Personal care and effects

- 143. Barber & beauty shops
- 144. Religious services
- 145. Funeral and other services .e.c
- 146. Sanitary services
- 147. Tailoring services
- 148. TV and Radio services

#### Personal goods n. e. c

- 149. Jewellery and ornaments
- 150. Watches and clocks
- 151. Leather products (bag etc)
- 152. Non-metallic mineral prod.
- 153. Toilet products

#### Other miscellaneous services

- 154. Banking charges
- 155. Legal services
- 156. Business services
- 157. Life insurance

### ITEMS CLASSIFIED BY TYPE OF GOODS

<b>Durable Goods</b> <ol style="list-style-type: none"> <li>1. Furniture, fixtures, carpets</li> <li>2. Heating &amp; cooking appliances, refrigerator &amp; air conditioners</li> <li>3. Personal transport equipment</li> <li>4. Radio, TV etc.</li> <li>5. Musical instruments</li> <li>6. Typewriters</li> <li>7. Jewellery ornaments</li> <li>8. Photographic goods</li> </ol>	<b>Non-Durable Goods</b> <ol style="list-style-type: none"> <li>1. Food, beverages and tobacco</li> <li>2. Fuel and power</li> <li>3. Newspaper, books and magazines</li> <li>4. Toilet products</li> <li>5. Dry and wet batteries</li> <li>6. Petrol and diesel</li> <li>7. Fireworks</li> <li>8. Matches</li> </ol>
<b>Semi Durable Goods</b> <ol style="list-style-type: none"> <li>1. Clothing and footwear</li> <li>2. Glassware, tableware, household utensils</li> <li>3. Miscellaneous personal goods</li> <li>4. Rubber products</li> <li>5. Plastic products</li> <li>6. Coir products</li> <li>7. Tyres and tubes</li> <li>8. Sports goods, toys</li> <li>9. Pen, nib, pencil, stationery etc.</li> <li>10. Watches and clocks</li> <li>11. Non-metallic mineral products</li> <li>12. Leather products</li> </ol>	<b>Services - Household only</b> <ol style="list-style-type: none"> <li>1. Rent and water charges</li> <li>2. Domestic and laundry services</li> <li>3. Medical services</li> <li>4. Purchased transport and communication</li> <li>5. Repair charges including insurance</li> <li>6. Entertainment and recreational services</li> <li>7. Educational charges</li> <li>8. Personal care and effects</li> <li>9. Other misc. services</li> <li>10. Hotels and restaurants</li> </ol>

Table 22.1

**PRIVATE FINAL CONSUMPTION EXPENDITURE BY OBJECT, 2004-05***(at current prices)**(Rs. Crore)*

<b>Item</b>	<b>PFCE</b>
1. Food, beverages & tobacco	769500
1.1 Food	650364
1.1.1 Cereals & bread	165490
1.1.2 Pulses	15873
1.1.3 Sugar & gur	33339
1.1.4 Oils & oilseeds	37778
1.1.5 Fruits & vegetables	150855
1.1.6 Potatoes & other tubers	17046
1.1.7 Milk & milk products	134069
1.1.8 Meat, egg & fish	62424
1.1.9 Coffee, tea & cocoa	6153
1.1.10 Spices	18213
1.1.11 Other food	9124
1.2 Beverages, pan & intoxicants	39197
1.2.1 Beverages	27049
1.2.2 Pan & other intoxicants	12148
1.3 Tobacco & its products	42341
1.4 Hotels and restaurants	37598
2. Clothing & footwear	127829
2.1 Clothing	108477
2.2 Footwear	19352
3. Gross rent, fuel & power	266434
3.1 Gross rent & water charges	181949
3.2 Fuel & power	84485
3.2.1 Electricity	18666
3.2.2 Liquefied petroleum gas	16288
3.2.3 Kerosene oil	8738
3.2.4 Other fuel	40793
4. Furniture, furnishing, appliances & services	65174
4.1 Furniture furnishing & repairs	8404
4.2 Refrigerator, cooking, washing appliances etc	13409
4.3 Glassware, table- ware & utensils	15462
4.4 Other goods	17067
4.5 Services	10832
5. Medical care & health services	95560
6. Transport and communication	371800
6.1 Personal transport equipment	35995
6.2 Operation of personal transport equipment	124528
6.3 Purchase of transport services	180040
6.4 Communication	31237
7. Recreation, education & cultural services	57213
7.1 Equipment, paper & stationary	22522
7.2 Recreation and cultural services	2136
7.3 Education	32555
8. Miscellaneous goods & services	172082
8.1 Personal care & effects	52082
8.2 Personal goods n.e.c.	30445
8.3 Other miscellaneous services	89555
<b>9. Private final consumption expenditure in domestic market</b>	<b>1925592</b>

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## GOVERNMENT FINAL CONSUMPTION EXPENDITURE

23.1 The role of governmental agencies in the overall social and cultural development of the country hardly needs any emphasis. These activities, the objectives of which are determined largely by the overall policies of the government, differ widely in their cost structures and sources of finance and hence studying the behaviour of macro-economic parameters assumes great significance in the evaluation of these programmes. With this end in view, the Central Statistics Office (CSO) brings out estimates of gross domestic product, government final consumption expenditure (GFCE), savings, and capital formation etc. for public sector every year.

### Estimates at Current Prices

23.2 Producers of government services, that is, the administrative departments of the government include autonomous bodies and ministries/departments of central, state, union territory governments and urban and rural local authorities engaged in administration, defence and regulation of public order; health, educational, cultural, recreational and other social and welfare services; promotion of economic growth and technological development. The legislature, executive, judiciary and other bodies like public services commission, general research and survey organizations are also included under administrative departments. The activities of producers of government services are largely financed by the government itself and consequently they are considered to be the final consumers of most of the services and goods, which they produce. Their cost structure does not contain an element of operating surplus and is made up, to a substantial extent, of compensation of employees and purchase of goods and services. A very minor part of the gross input of the producers of government services, sometimes referred to a "Public Goods" is sold off in the market as sale of commodities and services (for example the sale of entry tickets to monuments). The receipts are adjusted against the expenditure on purchase of goods and services and only the net purchase of commodities and services is considered for estimating the final consumption expenditure. The government final consumption expenditure is worked out as under:-  
GFCE= Gross output of administrative departments

=total current expenditure of the administrative departments for producing government services.

=compensation of employees (wages and salaries + pensions) + net purchase of goods and services + consumption of fixed capital (CFC).

23.3 **Wages and Salaries:** Remuneration of general government employees such as pay of officers, pay of establishment and allowance and honorarium other than traveling and daily allowances and contributions to provident fund by the government, if any are included. Cost of liveries and uniforms, rations supplied to police and defence personnel and provisions are treated as part of compensation of employees.

23.4 **Purchase of goods and services:** All current expenditures such as office expenses, materials and supplies, rent, rates and taxes, fuel & light, printing, travel expenses, telephone & telegraph charges and purchase of other commodities and services for current operations are included, beside the expenditure on current repairs and maintenance. Also included are all payments/charges for services rendered for other agencies/departments.

### Sources of data

23.5 The main source of data for preparation of GFCE is the budget documents of central and state governments and of local authorities. According to the provisions of the constitution, before the close of every financial year, the Government of India and each State Government have to lay before the Parliament and the State Legislatures respectively a statement of estimated receipts and disbursements for every new financial year. This statement titled "Annual Financial Statement" is the main budget document. Apart from the Speech of the Finance Minister, the other important documents which are laid before the Parliament / State Legislature along with the Annual Financial Statement include Budget at a Glance, Finance Bill, Receipt Budget, and Expenditure Budget, followed by detailed demands for grants for each Ministry/department. The Annual Financial Statement, Receipts and Expenditure Budget and the Demands for grants and the "Finance accounts" published by the Comptroller and Auditor General of India are the main sources of data for preparation of the economic accounts of administrative

departments and departmental enterprises and the estimates of GFCE of administrative departments.

### Analysis of Data

- 23.6 The system of classification adopted for presentation of data on financial transactions appearing in the budget documents is designed to ensure that receipts are collected in the manner and form authorized by law and expenditures are incurred by the specific authorities and on special items sanctioned by Parliament/legislature. For understanding the economic impact of government transactions, details of item-wise accounts scattered over a number of major account heads/sub heads/minor heads are, therefore, reclassified and regrouped into meaningful economic categories. The current transactions of the departmental commercial undertakings are at par with those of producers and of the purely administrative departments with those of consumer. Current receipts of the former constitute sale proceeds of goods and services supplied to the rest of the economy while purely administrative departments have little or no income of their own and largely draw upon the incomes of other sectors to meet their expenditure. A very minor part of the gross input of the producers of government services, sometimes referred to a "Public Goods" is sold off in the market as sale of commodities and services (for example the sale of entry tickets to monuments). The receipts are adjusted against the expenditure on purchase of goods and services and only the net purchase of commodities and services is considered for estimating the final consumption expenditure. Current expenditure of commercial undertakings like working expenses of productive enterprises are intermediate expenses that go to form prices of goods and services produced. These are different in character from the current expenses on wages and salaries and goods purchased by the administrative departments which are in the nature of consumer outlays and represent demands for goods and services for final consumption.
- 23.7 The economic classification of government annual expenditure following the SNA guidelines provides sufficient details for working out, the components of GFCE. The expenditure as well as receipts pertaining to the administrative departments is segregated from those of the departmental

commercial undertakings and the economic accounts are prepared.

- 23.8 The final consumption expenditures of 'public services in autonomous institutions (quasi government bodies), are also included in the GFCE estimates. For these units, firstly analyse some of the annual financial accounts of important autonomous institutions like Kendriya Vidyalaya Saghatan (KVS), UGC, CSIR, ICAR, Department of Atomic Energy, IGNOU etc to work out the ratios of own funds, compensation of employees, intermediate consumption and gross fixed capital formation from the total grants released to these sample institutions. The relevant ratio has been applied on the total grants released to these institutions by the Central Government during 2004-05 (Base Year), at the time of base year revision, to compile the estimate of GFCE of autonomous institutions to replace the corresponding existing estimate in quasi-government bodies from Public Sector.
- 23.9 Besides preparing the GFCE estimates at National Level, an attempt can also be made to compile the estimates at State level in respect of autonomous bodies.

### Estimates at Constant Prices

- 23.10 Estimates of government final consumption expenditure at constant prices are prepared separately for compensation of employees, net purchase of commodities and services and consumption of fixed capital (CFC). The constant price estimates of compensation of employees are prepared by deflating the estimates of compensation of employees at current prices by the Consumer Price Index of industrial workers. Estimates of purchase of commodities and services net of sales at constant prices are obtained by deflating current price estimates by the corresponding weighted price indices of items of expenditure. For Commodities, the WPI is made use of, while for services, the implicit price deflators in the GDP estimates are used.
- 23.11 The price indices of different commodities and services are combined to obtain overall indices separately for Central and State Government Expenditure.
- 23.12 To construct indices, data available from Input-Output Tables on item wise government expenditure on goods & services for Central Government (including Defence and Union Territories) and State Governments has been used. Data as obtained from Input-Output table (1998-99

table) has been grouped and weights have been assigned to each of these groups by considering the proportion  $E_i/E \times 100$  where  $E$ =Total expenditure on goods & services (all the groups).  $E_i$ = Expenditure within a group.

- 23.13 For the items Traveling Allowance (TA) and other allowances, CPI Index for Industrial Workers has been used. For items like Food, Beverages & Tobacco, Textile Products, Wood and Wood Products etc., Wholesale Price Indices have been used. Implicit indices have been used for groups like Electricity charges, Repair and maintenance charges of capital goods, Railways, Communication and Banking and insurance. A combined index has been prepared to deflate the current price estimates of 'Net purchase of commodities & services' by taking the weighted average of the indices (of each of the group) separately for Centre and States. For the estimation of

consumption expenditure of Local Authorities the indices used for the State Governments are used.

- 23.14 The GDP for autonomous institutions at constant prices is prepared by deflating its current prices series by Consumer Price Index for Industrial Workers. The methodology as adopted for preparing the estimates of GFCE in the case of autonomous institutions at constant prices remains the same for constant series.
- 23.15 The constant price estimates of CFC are obtained by following the procedure of Perpetual Inventory Model (PIM), details of which are given in the chapter on capital stock and CFC.
- 23.16 A more detailed write-up on GFCE, including the purpose classifications adopted for the GFCE, is given in the Chapter on public sector.

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**Introduction**

24.1 Saving represents the excess of current income over current expenditure and is the balancing item of use of disposable income account (as per SNA) of producing enterprises and households, government administration and other final consumers. For preparation of the estimates of domestic saving, the economy has been divided into three broad institutional sectors viz., (i) public sector (ii) private corporate sector and (iii) household sector.

24.2 The estimates of domestic saving are presently prepared only at current prices. The estimates at constant prices have not been attempted so far as the suitable procedure of estimation is yet to be evolved. In pursuance of the recommendations of the Working Group on saving and Expert Group On Saving and Capital Formation set up by the Department of Statistics under the chairmanship of Prof. K.N. Raj and Prof. Raja J. Chelliah respectively, the CSO and RBI agreed on a uniform methodology and data base. It was decided that each agency would be responsible for compilation of estimates of specified sectors and supply the data to the other agency. Accordingly, the CSO now prepares the estimate of public sector and household saving in the form of physical assets, life funds, provident and pension funds, while the RBI is responsible for estimating the saving of the private corporate sector and that of the household sector in all other instruments of financial saving except life funds and provident & pension funds. Thus the estimates of gross domestic saving released by the two organizations are based on uniform methodology and same data sources. However, the two sets of estimates of gross domestic saving may differ slightly due to difference in timings of the release by the two organizations. The RBI normally releases its Annual Report in September i.e., three months before the release of the official estimates of national income and related aggregates based on the data available up to June end, whereas the estimates released by the CSO in the following January incorporate data supplied

by the RBI and other agencies by December end.

**Methodology and Sources of Data**  
**Gross Domestic Saving - Public Sector**

24.3 Public Sector covers government administration, autonomous institutions, departmental enterprises and non-departmental enterprises. The non-departmental enterprises comprise government companies, statutory corporations and port trusts.

24.4 Government administration, departmental enterprises and autonomous institutions: The gross saving of government administration, departmental enterprises and autonomous institutions is defined as the excess of current receipts over current expenditure and are obtained by analyzing the budget documents. The current expenditure includes (i) final consumption expenditure; (ii) interest on public debt; (iii) subsidies and (iv) current transfer, while the receipts comprise of (i) income from entrepreneurship and property; (ii) direct taxes; (iii) indirect taxes and (iv) miscellaneous receipts. The Issue Department of the RBI which is considered to be more akin to administrative activities of the Government is also included here. The estimates of Savings are directly obtained from the Use of Disposable account.

24.5 In the new series, the saving of public sector has been revised due to treatment of R&D expenditure as capital expenditure which was being treated as current expenditure in the old series. The savings of Public authorities have also been revised due to the inclusion of construction and machinery (which has been included in commodity flow estimates) component of capital account head 4076 from Defence Service Budget estimates as capital expenditure instead of current expenditure as was treated in the old series.

24.6 Non-departmental enterprises: The gross saving of the non-departmental enterprises including Banking Department of RBI is

estimated from the results of the analysis of annual accounts of these companies and corporations. In case of LIC and UTI Mutual Funds, the saving arising out of life insurance business and management of funds respectively is included in the household sector. Details are given in chapter 27.

### **Gross Domestic Saving - Private Corporate sector**

24.7 Private Corporate Sector comprises all non-government financial/non-financial corporate enterprises and co-operative institutions. Non-government non-financial enterprises include public and private limited companies (inclusive of foreign controlled rupee companies/ foreign direct investment companies) registered as joint stock companies under company Act, 1956. Non-government financial institutions constitute all schedule and non-scheduled commercial banks in the private sector, other financial and investment companies engaged in activities such as financing of hire-purchase, transactions in shares and commodities & financing of loans or investment in securities and housing finance companies. Co-operative institutions comprise all co-operative banks, co-operative credit and non-credit societies.

24.8 Reinvested earnings of foreign direct investment companies in India is excluded from the saving of non-government financial / non-financial corporate enterprises and included in the net factor income and net capital inflow from abroad.

### **Non-government non-financial companies**

24.9 The basic data for non-government non-financial companies are available from the results of the analysis of RBI studies on company finances. The analysis is undertaken separately for public limited companies and private limited companies. The gross saving of public and private limited companies is taken as equivalent to the retained profits (excluding non-operating surplus/deficit) plus depreciation provision. The non-operating surplus, deficit comprises (a) profit/loss on account of (i) sale of fixed assets, investments etc.,(ii)

revaluation/devaluation of foreign currencies, (b) provisions no longer required, written back, (c) insurance claims realized, and (d) income or expenditure relating to the previous years and such other items of non-current nature. The estimates for public and private limited companies are obtained separately by blowing up the sample results on the basis of coverage of paid-up capital (PUC) of sample companies in the PUC of all companies.

### **Non-government financial institutions**

24.10 Private commercial banks: The saving of private commercial banks is estimated as addition to the reserve funds. The transfers to reserve funds include net amount carried to reserves, depreciation provision, amount allocated for other special purposes and amount carried forward to next year's account net of surplus/deficit of the previous year brought forward as available from the details of "Earnings and Expenses of Commercial Banks" published in the RBI's 'Statistical Tables Relating to Banks in India. Since the details of appropriation of profit are not available for the later years the saving has been estimated on the basis of trend observed in the profit of these banks.

24.11 Private financial and investment companies: The saving of non banking financial and investment companies is estimated on the basis of RBI studies on performance of financial and investment companies following the same procedure as relating to non-financial companies.

### **Co-operative institutions**

24.12 In case of co-operative societies, data on statutory reserves/funds, bad debt reserves, and other reserves are available in the 'Statistical Statements Relating to Co-operative Movement in India' brought out by National Bank for Agriculture and Rural Development (NABARD). However, there is a time lag of four to five years. The gross saving is taken as the increase in statutory funds and other reserves/funds. In the absence of data, the estimates of saving for the credit and non-credit societies are prepared on the basis of trend observed in

the value added of banks and trade sector, respectively.

### Gross Domestic Saving - Household Sector

24.13 The household sector comprises, apart from individuals, all non-government, non-corporate enterprises like sole proprietorships and partnerships owned and/or controlled by individuals and non-profit institutions which furnish educational, health, cultural, recreational and other social and community services to households. The saving of the household sector is taken as the sum of its investments in various instruments of financial saving and in the form of physical assets. Since direct annual data on household saving as an excess of income over current expenditure of households and household enterprises are not available, the saving of the household sector is worked out by following the residual method except saving in the form of life insurance funds and provident & pension funds.

24.14 The investment in financial saving comprises currency, net deposits, shares and debentures, net claims on government in the form of small saving, investment in central and & State government securities, life insurance funds and provident & pension funds.

### Financial saving

24.15 Currency: Household saving in the form of currency is estimated as a residual by deducting the amount of currency held by the private corporate sector and public sector enterprises from the total currency with the public. The data on total currency with the public (i.e., notes in circulation plus circulation of Rupee Coins and Small Coins minus cash in hand with banks) for each year are available in the RBI Bulletin. The institutions/sectors other than households in respect of which the amount of currency holdings deducted are: (i) private corporate business, comprising non-government financial and non-financial companies registered under the Companies Act, (ii) co-operative institutions (other than co-operative banks), (iii) government companies and statutory corporations (both

financial and non-financial) and (iv) railways and central and state government treasuries.

24.16 Currency held by the private corporate business is estimated on the basis of the results of RBI sample studies on company finances of non-government non-financial (public and private limited) companies, and private financial and investment companies published in the RBI Bulletins.

24.17 The information on currency held by co-operative credit and non-credit societies is taken from the publication 'Statistical Statements Relating to Co-operative Movement in India' (NABARD).

24.18 The currency held by the government companies and statutory corporations is estimated from the results of the analysis of the annual accounts of these companies and corporations. However, in case of LIC, GIC (including its subsidiary companies) and Railways, the data on currency holding are obtained directly from the respective institutions. The cash balances of the treasuries are taken from the Finance Accounts of the Central and State Governments.

24.19 On the question of cash in hand, the Advisory Committee on National Accounts in its meeting held in June, 1987 had suggested that a simple procedure of possibly taking a proportion of the total currency in circulation might serve the purpose. Accordingly the RBI, on the basis of past trends of currency holding of the household and non-household sector, estimated this proportion to be 0.93 which has been used for estimating the currency holding of the households from 1985-86 onwards.

24.20 Net deposits: Saving of the household sector in the form of net deposits consists of deposits with commercial banks, non-banking companies comprising financial & non-financial companies in the public & private sectors including State Electricity Boards (SEBs), co-operative banks & societies and trade debt (net) minus bank credit and loans & advances to the households by these institutions.



- 24.21 Data on commercial banks' deposits for each year are published by the RBI in the table on All Scheduled Commercial Banks—Business in India of the RBI Bulletin. Deposits under foreign currency and/or non-resident deposits are excluded from bank deposits. These bank deposits then bifurcated into current, saving and fixed deposits on the basis of relationship of these categories of deposits observed in Form X which contains data on liabilities and assets of scheduled commercial banks in India. The share of household deposits in current, saving and fixed deposits is estimated on the basis RBI annual survey on "Composition and Ownership Pattern of Scheduled Commercial Bank Deposits". This survey is undertaken every year. From this survey, the table on ownership of bank deposits by type and economic sector is used for working out household deposits. The household deposits consists of (i) Individuals (including Hindu Undivided Families), (ii) trusts Associations, clubs etc., (iii) Proprietary and partnership concerns, (iv) Educational Institutions, (v) Religious Institutions and (vi) Others (not elsewhere classified )
- 24.22 The bank credit to households comprises (i) bills purchased and discounted and (ii) loans/advances, cash credit and over-drafts to institutions like partnerships, proprietary concerns, joint families etc., and individuals. Loans and advances by the RBI to its staff are also included separately on the basis of information obtained from the RBI. Data on total Scheduled commercial banks credit are published in the RBI bulletin. But institution-wise details are not available. In order to estimate the proportion of credit given to the households by commercial banks, the information collected by the RBI through their survey on "Organisation-wise Classification of Outstanding Credit of scheduled Commercial Banks According to Occupation" is utilized. The categories of 'partnerships, proprietary concern, joint families, associations, clubs, societies, trusts and groups,' 'individuals' and loans with credit limit upto Rs. 25000 are taken to household sector. The household proportion is estimated after excluding the food credit, which is assumed to be extended to the government sector. The proportion gets revised by the use of 'Deployment of Gross Bank Credit by Major Sectors' published in the Annual Report of the RBI. The proportion is then applied to total bank credit (excluding food credit) to arrive at the estimates of bank credit to household.
- 24.23 The non-banking financial companies are broadly classified into (i) registered and regulated by RBI (ii) not registered with RBI but RBI issues direction relating to deposits acceptance activity and (iii) exempted from RBI regulations including requirement of registration. Under category (i), loan companies, investment companies, equipment leasing companies, hire purchase finance companies and residuary banking companies are included. Mutual benefit finance companies (notified Nidhis), Mutual benefit companies (potential Nidhis) and miscellaneous non banking companies (chit fund companies) are included under second category. Category (iii) includes Insurance companies, stock exchange, stock brokers, merchant banking, housing and micro finance companies.
- 24.24 The data source for estimation of household sectors' deposits with non-banking companies, excepting SEBs, was used to be the RBI surveys on "Growth of Deposits with Non-banking Companies" and studies on company finances published in the RBI Bulletin from time to time. As the survey has been discontinued after 1995-96, public deposits data, in respect of financial companies, are obtained from the Department of Non Banking Supervision (DNBS) of RBI and for housing financial companies from National Housing Banks. The break-up of such deposits into government and non-government is obtained based on 1995-96 survey. In respect of non-government non-financial companies, public deposits data available in the RBI studies on Finances of Public Limited Companies and Finances of Private Limited Companies is used. For non-financial government companies, estimates are made based on the ratio as per the survey on Growth of Deposits with Non-banking Companies. That is, on the basis of DNBS survey, the ratio of govt. to non-govt.

- non-financial companies is calculated and this ratio is applied to non-govt. non-financial companies' data.
- 24.25 The total security deposits of consumers for supply of power available from the annual reports of SEBs do not provide separate details of deposits by the households. The share of household deposits in the total security deposits is worked out by allocating it on the basis of the household share in total consumption of electricity.
- 24.26 Deposits with the non-banking companies are netted for the loans extended to the households by these companies. The information on loans extended to the households, as available from the following sources, has been made use of.
- (i) Loans extended by State Financial Corporations (SFCs) and State Industrial Development Corporations (SIDCs) etc. to staff members as well as to proprietor & partnership concerns, Hindu Undivided Families and Trusts;
  - (ii) Loans and advances granted by other government financial corporations, namely Industrial Development Bank of India (IDBI), Industrial Financial Corporation of India (IFCI), ICICI, Rural Electrification Corporation (REC), to their staff members and loans by HDFC & Housing & Urban Development Corporation (HUDCO) to individuals and
  - (iii) Information on loans and advances by the chit fund and mutual saving fund companies is specially obtained from the RBI and loans and advances given by SEBs to their employees is obtained from their annual reports.
- 24.27 Data on deposits with and advances given to the households by co-operative societies (credit and non-credit) and banks available annually from the publications, 'Statistical Statements Relating to the Co-operative Movement in India' (NABARD) and 'Important items of Data, Credit and Non-Credit Co-operative Societies' (NABARD) are made use of.
- 24.28 The trade debt (net) has been estimated as change in trade due in respect of sundry creditors minus change in loans and advances to sundry debtors. This information is available from the RBI studies on company finances published in RBI Bulletin from time to time. The sample results are blown up on the basis of coverage of sample PUC to total PUC of all companies.
- 24.29 Shares, debentures and bonds: The household investment in shares and debentures includes investment in shares and debentures issued by non-government non-financial and financial companies and co-operative banks and societies, bonds issued by public sector enterprises, units of Unit Trust of India (UTI) and shares & debentures issued by financial corporations other than UTI. However, investment in shares & debentures issued by non-financial government companies are not taken into account for want of requisite data. So far this amount has been assumed as negligible.
- 24.30 Information on household investment in shares & debentures of non-government (financial and non-financial) companies is not available separately. This is derived as a residual by subtracting the investment of the public sector and the private corporate sector from the total investment in this instrument. First, a global estimates of shares and debentures is arrived at by blowing up the sample estimates of shares and debentures of public and private limited companies, based on the ratio of global paid up capital (PUC) available from the Department of Company Affairs (DCA) to sample PUC of public and private limited companies as obtained from the RBI studies on Finances of Public Limited Companies and Finances of Private Limited Companies. The estimates so arrived at are cross-checked with the primary market data obtained from the Capital Market Division (CMD) of RBI. For estimating household share in investment in shares and debentures, the results of the survey of Ownership of Capital Of Joint Stock Companies are made use of. This survey

has been discontinued after 1995. However, the ratios from this survey are being used.

- 24.31 The details of ownership of share capital for each type of co-operative institutions are available in the NABARD's publication 'Statistical Statements Relating to Co-operative Movement in India'. The share capital contributed by individuals and others is assumed as household investment in the co-operative share capital.
- 24.32 The household investments in the bonds issued by Public Sector Undertakings are either obtained from the Ministry of Finance or from respective institutions. Similarly, the households' investment in the units of UTI is estimated on the basis of information obtained from the UTI. Household investment in this case consists of adult / individual, minor, Hindu Undivided family (HUF), trust and dividend accrued to household on account of investment in the units of UTI. Income accrued to household but not paid on account of investment to the units of UTI has also been included in the estimates of households' saving in the form of shares and debentures. Household investment in mutual funds other than UTI is estimated on the basis of information collected directly from various mutual funds. The data on household investment in shares and debentures of financial corporations are available from their balance sheets.
- 24.33 **Net claims on government:** It includes investment in government securities, small savings, bearer bonds, capital investment bonds, national rural development bonds, national deposit scheme, compulsory deposits and other such schemes brought out by the Government from time to time, less household's net borrowing from the Government. In the absence of data, no corresponding estimates relating to local authorities can be prepared.
- 24.34 The household investment in government securities (rupee debt) is estimated on the basis of data on sale of total securities available in the budget document of the Central & State Governments using the proportion of securities purchased by the households to total securities obtained from the RBI survey on 'ownership of Central &

State Government Securities'. The small savings comprise national saving certificates, national plan saving certificates, post office saving bank deposits, post office cash certificates & defence certificates, cumulative time deposits, national defence certificates, treasury saving deposit certificates & annuity deposits, Indira Vikas Patras and Rahat Patras etc. The bearer bonds, capital investment bonds, national rural development bonds, national deposit schemes and compulsory savings are taken from the budget documents of the Central Government. The households' share is derived by adjusting the investment made in small savings out of provident fund contributions and deposit linked insurance funds. The investment in small savings out of provident fund contributions by the employees is worked out on the basis of information obtained from provident fund institutions on the pattern of investment of provident fund contributions. Information on capital investment bonds, national rural development bonds, national deposit schemes, etc., is obtained from the Central Debt Section of the Central Office of the RBI. The net borrowing of the households, culled out from the budget documents of the Central and State Governments, is subtracted to arrive at the households' net claim on government on this account.

- 24.35 **Life insurance funds:** The life insurance business is primarily considered as a conduit of saving of the household sector and as such the saving of the LIC arising strictly out of its life insurance business (net of the transfer to government) is regarded as accruing to the policy holder and, therefore, included in the estimates of saving of the household sector. Households' saving in the case of LIC is estimated as net accruing liability or an increase in the life funds of the LIC and bonus to policy holders excluding government share in profit, capital gains and old claims. Similarly Households' saving in the case of private life insurance companies is estimated as an increase in the life funds. Loans given to the policy holders and to the households against mortgage of property in India and also loans given by the General Insurance Companies to its staff etc. are subtracted to arrive at

the estimates of the households' saving (net of loans and advances). Data on loans to households are obtained directly from the LIC & General Insurance Companies.

24.36 Saving in the form of postal life insurance, state government life insurance and central government employees' group insurance scheme is estimated as the excess of receipt over payments. Receipts include subscription realized, interest accrued etc., while payments comprise payment of loans to policy holders, payment of insurance amounts after maturity or death and payment for other miscellaneous charges. The data on postal life insurance, central government employees' group insurance scheme and state insurance are available from the annual reports of the P & T and the budget documents of the Central/State Governments respectively. The total saving of households in the form of life insurance, central government group insurance scheme and state government life insurance, net of loans and advances to households by LIC & GIC, etc.

24.37 **Provident & pension funds:** Employees' saving in the form of provident fund (PF) is through PF schemes which are either contributory or non-contributory. In the former scheme the employers and the employees both contribute to the PF. The total contributions minus withdrawals plus interest credited to PF account constitute the saving of the employees. For the purpose of estimation employees of the following categories of institutions/schemes have been considered: (a) Central & State governments, (b) Local Authorities, (c) Non-financial Statutory corporations, (d) Financial Institutions, (e) education institutions, (f) employees' PF Scheme, 1952, (g) Coal Mines PF scheme, (h) Assam Tea Plantations PF Scheme, (i) Seamen's PF scheme, (j) Public PF Scheme, (k) Port Trust PF Scheme and (l) Dock Labour Boards' PF Scheme.

24.38 Information on PF contributions relating to Central & State Governments and Public PF Scheme is culled out from the budget documents. For want of requisite data on PF of employees of local authorities, the same is estimated as 6 per cent of wages

and salaries paid to the employees of these authorities.

24.39 Non-financial statutory corporations include Air India, Indian Airlines and other statutory corporations. Figures of PF relating to Air India & Indian Airlines are collected from these institutions. For other statutory corporations information is culled out from their respective annual reports. The PF contribution by the employers as available in the annual reports is doubled to include the employees' contributions. For want of requisite data no adjustments are made for withdrawals, interest accrued and the employees' contributions made in excess of the minimum prescribed limit. Financial institutions comprise RBI, Commercial Banks, LIC, Export Credit Guarantee Corporation of India Ltd. and Employees State Insurance Corporation, UTI, IDBI and other financial and investment companies. Information on PF of RBI & Commercial Banks is obtained from the RBI while for others the same is obtained from respective institutions or their annual reports.

24.40 Data relating to the PF contributed by the employers and the employees of various establishments covered under the Employees' provident Fund Act, 1952 are made available by the Central provident Fund Commissioner (CPFC). Since 1971-72 net contributions towards the Pension Fund, covered within the framework of Employees' Family Pension Scheme 1971, are also included. Similar data on PF contributions and pension fund contributions relating to the employees covered under PF and pension fund schemes of Coal Mines, Assam Tea Plantations and Seamen are collected from the respective authorities. Data on PF contributions by the employees of Dock Labour Boards and Port Trusts are also collected each Board/Trust.

### Physical assets

24.41 Net addition to physical assets of the households, comprising investment in fixed assets of construction and machinery & equipment, and change in stocks, is taken to constitute households' saving in physical assets. Estimates of investment in fixed assets for the economy as a whole are worked out independently in connection with

the estimates of capital formation. Households' investment in fixed assets is derived as residual by deducting the corresponding estimates of public and private corporate sectors from the total. Change in stocks is estimated separately by industry of use.

### **Net Domestic Saving**

- 24.42 The estimates of net domestic saving for different institutional sectors are obtained by subtracting the corresponding estimates of CFC, based on the estimates of capital stock, from the estimates of gross domestic saving of each of the institutional sectors.

### **Quantity and Limitations of Data Base**

- 24.43 The estimates of saving suffer from a number of limitations, mainly from deficiency of data. This particularly refers to the estimates from the private corporate and the household sectors. Estimates for the private corporate sector are based on the analysis of the sample companies undertaken by the RBI and blown up on the basis of the ratio of PUC of the sample companies to all companies. The PUC may not be appropriate for blowing up the sample estimates of saving, but in the absence of any other global indicator one has to use this indicator. Data on Co-operative societies are not available for all the years. There is a time lag of four to five years.
- 24.44 Estimates for the household sector have been built up in two parts (i) saving in financial assets and (ii) saving in physical assets. In case of saving in financial assets the estimates of household saving in currency are estimated as 93 per cent of total currency on the basis of past trends of currency holding. This percentage may undergo a change as and when more data based on the survey results of the RBI become available. The estimates of

provident fund of non-departmental enterprises are obtained by doubling the employers' contribution as available in the books of accounts. No adjustments are made for withdrawals, interest etc., since the data on these items are not available. The non-government educational institutions are being covered under the Employees Provident Fund Act, 1952 since 1981-82. However, the coverage of private educational institutions has been incomplete as many of these institutions are not making any returns to the CPFC. Thus, the estimates of PF can be improved only when the coverage of private educational institutions improves and reliable data on withdrawals, interest etc., in respect of non-departmental enterprises becomes available. The results of RBI survey on Growth of Deposits with Non-banking Companies and Ownership of Capital Of Joint Stock Companies are not available beyond 1995-96. Estimates in respect of most of the other financial assets are based on current data through they mainly refer to total saving under each of these categories and households, contributions are obtained as residuals. The households' saving in physical assets also is estimated by using the residual approach. The residual approach adopted for deriving saving estimates for households is undoubtedly not very satisfactory in all cases and has enough scope for improvement. The only approach through which this can be achieved is by conducting independent household surveys to collect direct data on annual investments made by individuals and non-corporate institutions in different categories of financial and physical assets.

- 24.45 Based on procedure described above, the estimates of Domestic Savings were obtained for the base year 2004-05 and are given in Appendix 24.1 and 24.2.

**DOMESTIC SAVING BY TYPE OF INSTITUTIONS, 2004-05**

(Rs. Crore)

<b>S. No.</b>	<b>Item</b>	<b>2004-05</b>
<b>1.</b>	<b>Household sector</b>	<b>763685</b>
<b>1.1</b>	<i>Financial saving</i>	<i>327956</i>
1.1.1	Currency	36975
1.1.2	Net deposits	48999
1.1.3	Shares and debentures	8841
1.1.4	Net claims on government	106927
1.1.5	Life insurance funds	70334
1.1.6	Provident and pension funds	55879
<b>1.2</b>	<i>Saving in physical assets</i>	<i>435729</i>
<b>2.</b>	<b>Private corporate sector</b>	<b>212519</b>
<b>2.1</b>	<i>joint stock companies</i>	<i>195910</i>
2.1.1	Non-financial	192855
2.1.2	Financial	11610
2.1.3	Less : Reinvested Earning of foreign companies	8555
<b>2.2</b>	<i>Co-operative banks &amp; societies</i>	<i>16609</i>
<b>3.</b>	<b>Public sector</b>	<b>74499</b>
<b>3.1</b>	<i>Public authorities</i>	<i>-59516</i>
3.1.1	Government administration (including autonomous institutions)	-75256
3.1.2	Departmental commercial enterprises	15740
<b>3.2</b>	<i>Non-departmental enterprises</i>	<i>134015</i>
3.2.1	Government companies	79463
3.2.2	Statutory corporations (including port trusts)	54552
<b>4.</b>	<b>Gross domestic saving (1+2+3)</b>	<b>1050703</b>
<b>5.</b>	<i>Less consumption of fixed capital</i>	<b>319891</b>
5.1	Household sector	111036
5.2	Private corporate sector	99850
5.3	Public sector	109005
<b>6.</b>	<b>Net domestic saving</b>	<b>730812</b>
6.1	Household sector	652649
6.2	Private corporate sector	112669
6.3	Public sector	-34506



**FINANCIAL ASSETS AND LIABILITIES OF THE HOUSEHOLD SECTOR, 2004-05**

(Rs. Crore)

S.No.	Item	2004-05
<b>1.</b>	<b>Gross financial saving</b>	<b>447730</b>
<i>1.1</i>	<i>Currency</i>	<i>36975</i>
<i>1.2</i>	<i>Deposits</i>	<i>167571</i>
1.2.1	With banks	158394
1.2.2	With non-banking companies	3878
1.2.3	With co-operative banks & societies	5512
1.2.4	Trade debt net	-213
<i>1.3</i>	<i>Shares and debentures</i>	<i>8841</i>
1.3.1	Private corporate business	6198
1.3.2	co-operative banks & societies	189
1.3.3	Units of Unit Trust of India	728
1.3.4	Bonds of public sector undertakings	176
1.3.5	Mutual fund (other than UTI)	1550
<i>1.4</i>	<i>Claims on government</i>	<i>106420</i>
1.4.1	Investment in government securities	21314
1.4.2	Investment in small savings etc.	85106
<i>1.5</i>	<i>Life insurance funds</i>	<i>72044</i>
1.5.1	Life insurance funds	69794
1.5.2	Postal insurance	1414
1.5.3	State insurance	836
<i>1.6</i>	<i>Provident and pension funds</i>	<i>55879</i>
<b>2.</b>	<b>Financial liabilities</b>	<b>119774</b>
<i>2.1</i>	<i>Bank advances</i>	<i>107283</i>
2.2	Loans and advances by co-operative banks and societies	4688
2.3	Loans by financial corporations and non-banking companies	6600
<i>2.4</i>	<i>Loans and advances from government</i>	<i>-507</i>
<i>2.5</i>	<i>Loans from insurance corporations</i>	<i>1710</i>
<b>3.</b>	<b>Net financial saving of household sector (1-2)</b>	<b>327956</b>

**Coverage**

- 25.1 Gross Capital Formation (GCF) refers to the aggregate of gross additions to fixed assets (fixed capital formation), increase in stocks of inventories or change in stocks (CIS) and valuables. Gross Fixed Capital Formation (GFCF) comprises two main components, (i) construction, and (ii) machinery and equipment. Only new 'Construction' forms part of GFCF from construction. The GFCF from machinery and equipment includes the ex-factory value of capital goods produced in the registered and unregistered manufacturing sectors and the excise duties paid on them, net imports of capital goods and Trade and Transport Margins (TTMs), software production, fixed assets in livestock, Installation of wind energy systems and Research and Development expenditure. 'Valuables' covers the expenditures made on acquisition of valuables. The estimates of gross capital formation are compiled separately by type of assets and by industry of use. Under type of assets, the estimates in respect of (i) construction and (ii) machinery and equipment are derived at the aggregate level through the commodity flow approach. The estimates of GFCF and change-in-stocks by industry of use, on the other hand, are prepared by expenditure approach, separately for each of the institutional sectors.
- 25.2 Construction activity covers all new constructions and major alterations and repairs of buildings, highways, streets, bridges, culverts, railroad beds, railroads, subways, airports, parking areas, dams, drainages, wells and other irrigation sources, water and power projects, communication systems such as telephone and telegraph lines, land reclamations, bunding and other land improvements, planting and cultivating new orchards (tea, coffee, rubber, mango, cashew nut, areca nut, coconut, citrus fruits, grapes, apple, banana, guava, papaya, litchi, pomegranates, pineapple and Sapota plantations), afforestation projects, installation of wind energy systems etc.
- 25.3 Machinery and equipment comprises all types of non-electrical and electrical machinery like agricultural machinery, power generating machinery, manufacturing, transport equipment, furniture and furnishings. Also included are increments in livestock in respect of breeding stock, drought animals, dairy cattle and other animals raised for wool clippings. Additions to livestock other than the said fixed assets are accounted in change in stock estimates. In accordance with recommendations of 2008 SNA, Research and Development (R&D) expenditure captured from non-departmental undertakings has been included in the new series as part of capital formation.
- 25.4 The estimates of GCF for the economy as a whole include all relevant items of new capital goods which are produced domestically (exclusive of exports) and new and second-hand imported goods. According to SNA, imports should include the outlays in foreign countries of the embassies, consulates and other extra-territorial establishments of the government of the given country on new fixed assets reduced by the net sales of their second-hand and scrapped assets. Similarly, the net outlays of foreign embassies, consulates and other diplomatic bodies located in a country, on fixed assets produced within the country are to be recorded in the exports and not in the gross fixed capital formation (GFCF) of the given country. The fixed capital outlays of international agencies located in the country are to be treated in an identical manner. Due to want of data, it has not been possible to account for these. The estimation, therefore, follows the domestic concept, whereby, only additions made to stocks of fixed assets and inventories within the geographical boundary of the country have been taken into account. Accordingly, the GCF refers to gross domestic capital formation (GDCF).
- 25.5 Additions to non-reproducible tangible assets such as land, mineral deposits and the natural growth of standing timber or crops have not been included in GCF. However, outlays on improvement of land and development or extension of mining sites, timber tracts and plantations are taken as part of capital formation. The outlays on incomplete construction works incurred during the period are included in the estimates of fixed assets.
- 25.6 Inventories consist of materials and supplies, work-in-progress and finished products and goods in the possession of producers and dealers. Stocks of strategic materials, grains and other commodities of special importance to the nation in the possession of government are also included in the estimates of change in stocks.
- 25.7 The estimates of GFCF for the country are prepared both by type of assets viz., construction, machinery and equipment and by industry of use.

## Methodology and Sources of data

### Domestic Capital Formation by Type of Assets at Current Prices

25.8 The estimates of GDCF by type of assets are prepared separately for construction, machinery and equipment, software, change in stocks and valuables. The commodity flow approach is used for preparing the annual estimates of pucca construction works as well as for machinery and equipment. The estimates of kutcha construction are prepared using the expenditure approach. The estimates of change in stock are prepared by industrial categories only.

25.9 **Construction:** As mentioned in earlier paras the estimates of domestic capital formation in construction are compiled separately for pucca construction and kutcha construction. The total expenditure on construction is the aggregate of the values of both material inputs and factor payments in the form of payments to labour as well as to capital (i.e., rent, interest, profits etc.). But the total value of construction undertaken during the year is inclusive of new construction including major repairs and replacements (herein after referred to as new construction) and current repairs and maintenance. To obtain the estimates of gross fixed capital formation, only new construction is considered.

#### *Pucca construction*

25.10 The value of output of pucca construction is worked out at the aggregate level by Commodity Flow Approach (CFA). In order to work out the estimates of fixed capital formation for pucca construction, the current repairs & maintenance component have to be subtracted from the value of output. The current repair and maintenance is estimated separately, following the expenditure approach, for public sector, private corporate sector and household sector separately. This approach provides the estimates of fixed capital formation by type of institutions as discussed below.

25.11 In case of public sector, the estimates of expenditure on new construction and repairs and maintenance are obtained by analysing the budget documents and annual accounts of public sector enterprises/companies. Such estimates for private corporate sector are based on RBI studies of sample joint stock companies and the estimates for the co-operative credit and non credit societies are based on the data obtained from the NABARD. The estimates of expenditure on new pucca construction and repairs & maintenance in case of household sector are prepared in three parts - (i) rural residential

buildings, (ii) urban residential buildings, and (iii) rural/urban non-residential buildings and other construction works (repair & maintenance only) and are based on the data thrown up by AIDIS, 2002-03. As the expenditure on construction estimated on the basis of AIDIS, 2002-03 comprises both pucca and kutcha construction, ratios based on NSSO 58<sup>th</sup> Round survey on "Housing conditions in India" Report No 488 is used to estimate the components of pucca and kutcha constructions separately for residential buildings. For rural/urban non-residential buildings and other construction works, the estimate of pucca construction for the Household Sector is derived as residual i.e., by deducting the independent estimates of expenditure on new construction and repairs and maintenance of two institutional sectors (Public Sector and Private Sector) as detailed above from the estimates of total value of construction.

#### *Kutcha construction*

25.12 In respect of labour intensive kutcha construction works, the new construction component is estimated separately for each of the institutional sectors, i.e. public sector, private corporate sector and households, as explained in the chapter 14 on Construction. In respect of public sector, the estimates of expenditure on kutcha new construction are based on the analysis of budget documents. These relate to afforestation and reforestation, soil conservation and area development, capital expenditure on 'other construction comprising bunding, field drains, kutcha bridges etc. In the case of private corporate and household sectors, kutcha construction covers expenditure on plantation crops. In the new series 17 plantation crops have been covered. Expenditure towards repairs and maintenance for the kutcha construction in plantations is assumed to be nil. For the household sector, the estimates of expenditure on new construction and repairs and maintenance are based on the results of AIDIS, 2002-03. As stated earlier, ratios contained in the NSSO reports are used to estimate the components of kutcha construction separately for residential buildings, non-residential buildings and other construction works. The estimates in respect of public and private corporate sectors are based on current data for each year. However, in case of household sector the estimates of expenditure on new construction and repairs and maintenance worked out from AIDIS, 2002-03 are moved backward and forward with suitable quantum and price indicators, as described in detail in chapter 14 on Construction, to obtain the estimates in other years.

- 25.13 **Machinery & equipment:** The GFCF from machinery and equipment (ME) includes the ex-factory value of capital goods produced in the registered and unregistered manufacturing sectors, the excise duties paid on them, net imports of capital goods, Import duties and Trade & Transport Margins (TTMs), software production, fixed assets in livestock (increment in livestock used for dairying, breeding & draught purpose are treated as fixed assets in livestock) and installation charges of wind energy systems. The estimates of capital goods (at current prices) in machinery and equipment are prepared by commodity flow approach. Latest available survey results (ASI 2004-05 detailed results) have been used for determining the item basket of capital goods. In this regard, a revised capital goods item basket using the detailed results of ASI 2004-05 based on NIC 2004 classification has been prepared. The results of NSS 62<sup>nd</sup> Round (2005-06) Enterprise Survey on unorganized manufacturing enterprises have been taken into account to compile the estimates in machinery and equipment at current prices for unorganized sector.
- 25.14 Various items of machinery and equipment domestically produced and net of imports, are classified into (i) capital goods; (ii) parts of capital goods; (iii) partly capital goods and (iv) parts of partly capital goods. The total value of the items classified under (i) is taken on 100% basis for capital formation. In the case item (ii) parts of capital goods, 50 per cent of the value is taken as capital formation and the rest is treated as intermediate consumption. The proportions of partly capital goods attributable to capital formation are given in Appendix 25.4. Similarly, half of the proportions applicable to partly capital goods is taken as the value of parts of partly capital goods for estimating fixed capital formation.
- 25.15 The data on ex-factory value of products and by products at detailed five digit level of Annual Survey of Industries Commodity Classification (ASICC) code along with NIC 2004 have been obtained for ASI, 2004-05. By this approach of estimation of GFCF, all the machinery items produced in the economy irrespective of the principal economic activity classification of the establishments are captured. After allocation of ASI output in terms of PFCE, inter industry use, net exports etc, consistent with IOTT norms, the estimates of GFCF is obtained at NIC-2004 at four and two digit levels and then finally at the broad category levels as non-electrical (NE), electrical (E), transport equipment (TE) and other (O). In addition to NIC codes 29 and 30(NE), 31 and 32(E) 34 and 35(TE) and 20, 21, 22, 25, 27, 28, 33, 36, 37(Others) covered in the old series; additional NIC codes viz. 15 to 19, 23, 24, 26 and 40 to 74 have been identified as GFCF in ME. These additional items have been included in the broad category 'others'. For GFCF in ME from the unorganized manufacturing sector, the ratio of estimated GFCF in ME to ex factory value of products & by products at NIC 2 digit level obtained for ASI item basket, have been applied on the value of output at two digit level of NIC obtained from 62<sup>nd</sup> round survey on unorganized manufacturing sector. The addition in stock of capital goods in terms of finished and semi finished materials at NIC 4 digit level have been obtained from ASI 2004-05 and the same have been clubbed to get the estimates at the NIC 2 digit level and at the broad category level. Thus, the estimates of ex-factory value of capital goods at the broad category level are obtained. To these ex factory value of capital goods, the net import, import duty, excise duty are added to get the domestic availability of GFCF in ME. Finally, Trade and Transport Margin as obtained from IOTT 2003-04 are added at the broad category level to get the estimate of GFCF in ME. Detailed methodology is given in the succeeding paras.
- 25.16 To the ex-factory value of capital goods produced domestically in registered and un-registered manufacturing sectors, the amount of excise duties, imports and import duties are added. From the total thus obtained, the value of re-exports is deducted to obtain the availability of capital goods. The value of capital goods so obtained is then marked up for trade, transport and other charges to obtain the value at purchasers' prices. Trade, transport and other installation charges have been estimated for the year 2004-05 on the basis of information obtained from the IOTT 2003-04. From the total value at purchasers' prices thus obtained, the value of exports is deducted to obtain the value of capital formation at site.
- 25.17 For estimating the value of additions to livestock taken to form part of fixed assets, all livestock (excepting bulls and bullocks over three years not in use for breeding or work, cows over three years not in use for work or breeding purposes, young male & female stock, goats under one year, female goats of one year and above and not in milk, pigs and poultry) are taken into account. As the annual data on livestock population are not available, these are estimated by extrapolation using geometric rate of growth

determined from the data on 17<sup>th</sup> Indian Livestock Census (ILC) 2003 and 18<sup>th</sup> ILC 2007. For working out the estimates of capital formation, the numbers of livestock thus obtained have been evaluated at the average wholesale prices obtained for various categories.

25.18 **Valuables:** In accordance with the recommendations of SNA, the data on expenditures made on net acquisition of valuables on precious items like gold, gems, ornaments and precious stones etc, has been included under GCF, as a separate category under "valuables" (separately from the GFCF and Change in Stocks). Valuables are classified as:

- Precious metals and stones that are not held for use as inputs into production processes;
- Other valuables such as collections of jewellery of significant value fashioned out of precious stones and metals; and
- Antiques and other art objects such as paintings and sculptures.

25.19 In the new series the coverage of valuables has been restricted to include the precious articles with HS codes 7102 (diamonds), 7106 (silver), 7108 (gold), 7110 (platinum), 7103 (other gems and stones), 7113 and 7114 (gold and silver ornaments), keeping in view the data availability. The monetary gold was not regarded as 'Valuables'. The total production of valuables and net imports has been taken into account for compiling the estimates of valuables. Since these valuables also have industrial use, norms of 40% and 90%, respectively for gold and silver 30 % for gold and silver ornaments and gems and 40% for diamond and platinum, have been used to arrive at the estimates on acquisition of these items as store of value. Suitable adjustments have been made on the export data on valuables to account for value addition done in the country (GVA and change in stock), so that imports and exports on valuables are on comparative quantity terms.

#### **Domestic Capital Formation by Type of Institutions**

25.20 The estimates of gross capital formation for the public sector & private corporate sector are also prepared by expenditure approach on the basis of analysis of budget documents and annual reports of enterprises. These estimates of public sector plus private corporate sector including co-operatives by type of assets (construction and M&E) are subtracted from the corresponding estimates of commodity flow to arrive at the estimates for household sector as a residual.

#### **Gross Domestic Capital Formation by Industry of Use**

25.21 An independent set of estimates of gross fixed capital formation (GFCF) and Change in Stock (CIS) for each of the industrial categories is prepared primarily following the expenditure approach. The Gross capital formation estimates have been prepared for each industry group by aggregating the GFCF and CIS estimates, which are prepared separately. Broadly, for each industry, institution wise estimates of GFCF are prepared wherever possible and aggregated to arrive at the industry level estimate. The estimates of GFCF have been prepared separately for each of the three institutional sectors, namely, public sector, private corporate sector and household sector. While the estimates for the public sector are from the budget documents, those of private corporate sector are on the basis of data provided by the RBI from a sample of joint stock companies and also the data provided by NABARD on cooperatives. However, for the household sector for some specified items, bench mark results obtained from various NSSO surveys (especially the capital output ratios) and growth rates in GVO, GVA etc are used to obtain the GFCF estimates (by extrapolating the benchmark capital stock data with the growth observed in GVO/GVA and taking the difference between two years' capital stock data).

#### **Gross Fixed Capital Formation**

25.22 **Public Sector:** Under public sector, all the three institutional sub-sectors, namely Government Administration, Departmental Commercial Undertakings (DCU's) and Non Departmental Commercial Undertakings (NDCU's) are covered for compiling the GFCF estimates. Using the information collected on the actual expenditures incurred on the new construction of Roads, Buildings, and Other Construction, and expenditures made on acquisition of the Machinery, Transport vehicles and equipment, Software, Research and development and other capital outlays on Livestock, the estimates of the GFCF at current prices for the current year are prepared for administration and DCUs. Here net purchase of second hand assets is also included. In case of the NDCUs, the information obtained from the books of Accounts is used. The expenditure incurred on usual/ routine repair and maintenance is not covered for compilation of capital formation.

25.23 **Private Corporate Sector:** In respect of the joint stock companies of private corporate sector, the estimates of GFCF and CIS for each industrial category are made



available directly by the RBI on the basis of their sample studies of joint stock companies. The results of the sample studies are published in their publication entitled 'Finances of Public and Private Limited Companies'. Generally, the RBI gives data every year on GFCF and CIS for a set of three years based on the analysis of sample of companies for the Indian Economy. The estimates of GFCF of private commercial banks and private insurance companies are estimated separately as given in para 25.40.

- 25.24 **Co-operatives:** Mostly, the cooperative societies are involved in the activities of Registered Manufacturing, Trade (non credit societies), Banking (credit societies). For compilation of GFCF estimates, all three activity groups are covered. Data in respect of this sector is obtained from the publication "Statistical statements relating to co-operatives movement in India" published by NABARD. Latest data available is for the year 2003-04 in the form of various tables for credit and non-credit societies. For other years the 2003-04 estimates of credit and non-credit societies GFCF are prepared on the basis of growth observed in GVA credit societies and GVA trade respectively. Methodology of estimation of GVA trade and GVA of credit societies is explained in the Chapter 16 and Chapter 18 respectively.
- 25.25 **Household Sector:** For most of the industries, the GFCF estimates of household sector for the current year at current prices are derived from the bench mark surveys using appropriate indicators/ratios/norms etc. or by capital output ratio. WPI for the appropriate industry group is used to convert current price estimates to constant price estimates, and vice versa in a specific industry. Wherever, an appropriate WPI is not available, WPI of all commodities is used.
- 25.26 Detailed industry wise methodology followed for obtaining the estimates of all the institutional sectors is as follows:
- 25.27 **Agriculture:** The estimates of GFCF are prepared separately for public, private corporate and the household sectors. Data on improvement of land and irrigation works, laying of new orchards and plantations and purchase of agricultural machinery and implements in the public sector are obtained by analyzing the budget documents and annual reports. Private corporate sector estimates for agriculture machinery and construction are taken from the industry wise sample results of RBI.

Estimates of GFCF in the household sector **other than plantation** are prepared separately for (a) construction and (b) machinery & equipment. For the estimates of machinery and equipment, the value of products and by products for the NIC code 2921 and its capital goods ratio (utilization for production) obtained on the basis of detailed analysis of ASI 2004-05 results is applied to obtain the value of capital goods for farm business. Excise duty/ imports (item code 8432-8436, 8701), import duties and 18.8 % of the total value as TTM are added. A fixed ratio (16.3%) of registered part has been added to cover the un-registered part. From this the value of (machinery portion of) private corporate sector and public sector are subtracted. This is used as indicator for moving the bench mark estimate of expenditure on machinery by the households. From this, the current price estimates of machinery and equipment are obtained. This estimate is moved forward with the value of output in agriculture for subsequent years. A fixed ratio (16.3%) of registered part has been added to cover the un-registered part. Net imports (H.S. code 8432-8436, 8701) are added to get the estimates of GFCF in machinery & equipment of household sector at constant price. A current price estimate of GFCF for machinery equipment is obtained by using weighted index of WPI. The benchmark year estimate of construction is prepared by applying the ratio of construction to machinery (1.38; taken from AIDIS 2002-03) to the value of agriculture machinery for registered manufacturing taken from ASI 2004-05. The construction estimate of the benchmark year 2004-05 so obtained is moved forward with the value of output of agriculture for subsequent years. By adding the construction and Machinery estimates, the GFCF estimate is thus arrived at. **Increment in livestock** which is used for dairying, breeding, and draught purpose are to be treated as fixed assets and part of machinery. This is separately worked out using the information from livestock censuses, and is added further to the GFCF estimate of agriculture machinery. The estimates of capital expenditure in respect of **17 plantations crops** included in the new series of 2004-05, are prepared on the basis of data on area on extensions and replacements as available in the annual reports of concerned boards and the information received from DESs. The cost structure has been worked out on the basis of information received from NABARD for the year 2002-03. For later years, the estimates are compiled by using a weighted index



based on index of agriculture labour, WPI of fertilizer and the particular crops or fruits. The total estimates worked out for the base year are further distributed to all the three institutional sectors by utilizing the information on crop wise small land holdings as available from Agriculture Census 2001 and the public sector estimates from the analysis of budget documents. Private corporate sector estimate of Plantation is then obtained as a residual. Total expenditure on plantation is worked out every year and public sector estimates are also available for later years. Private corporate sector estimates for later years are prepared on the basis of fixed ratio worked out in the base year 2004-05. The difference of the total estimates and organized sector (i.e. public + private corporate) estimates gives the estimates for the household sector.

25.28 **Forestry and Logging:** In respect of this industry, no separate data is available for the private sector. The estimates of public sector are prepared first and then marked up by 5.0 per cent to account both the private corporate and household sectors. The norm has been obtained on the basis of the ownership of forests in the country. The estimates of GFCF in public sector are obtained by analyzing the budget documents and annual report of non departmental enterprises.

25.29 **Fishing:** For fishing industry, the estimates for Public sector and private sector are prepared separately. For public sector, the estimates are prepared by analyzing the annual accounts of non departmental enterprises. The private sector estimates are completely treated as that of household. The household estimates of gross fixed capital stock (GFCS) are compiled from the data obtained from the livestock census on fishing boats and nets etc as benchmark estimate for the base year. The growth rate observed in the inputs is taken as indicator for moving the benchmark GFCS estimate. The GFCF estimates at constant prices are prepared as the difference of GFCS estimates between the successive years. A composite index of WPIs of timber, diesel engine and nylon terrene and mixed cotton is prepared and used for arriving at the estimates of GFCF at current prices.

25.30 **Mining & Quarrying:** The estimates of GFCF in the public sector non-departmental enterprises are obtained from the analysis of the annual reports of such enterprises. In respect of the private corporate sector, the estimates are made available directly by the

RBI on the basis of their studies of sample joint stock companies. Besides the estimates of GFCF in public and private corporate sectors, the GFCF estimate in the household sector for minor minerals is also prepared. For this purpose the results of the Enterprise Survey for the year 1992-93 are utilized to work out the capital output ratio (48.3%) as benchmark. For compiling the estimate of GFCF for other years at constant price, this capital output ratio is applied on the value of output of minor minerals used. To get the estimates at current prices, weighted index is used by including wpi of timber, engines and mixed nylon fabrics. The breakup in construction (24%) and machinery (76%) is worked out on the basis of stock of 1992-93.

25.31 **Registered Manufacturing:** In this sector, the institutional approach is followed. The estimates of GFCF are obtained separately for Public Sector and Private Corporate Sector. The estimates relating to public sector are obtained by analyzing budget documents and annual accounts of non-departmental enterprises. The estimates for private corporate sector as supplied by the RBI are used. Data on the Non credit cooperatives from NABARD are also included in the private corporate sector. Under the household sector, the contribution of individual proprietorship, joint family and partnership factories is derived from the ASI 2004-05 results and taken as the benchmark estimates. The estimate for 2004-05 is extrapolated with the growth rate observed in the output of registered manufacturing sector. Applying the proportion of GFCF of construction and machinery equipments as observed from the ASI 2004-05, the total GFCF estimate has been bifurcated into GFCF of construction and GFCF of ME for this industry in the household sector. The 2004-05 price estimates have been inflated by using the index of general pucca construction and WPI for machinery and transport equipment respectively to get the estimates of GFCF of construction and ME at current price.

25.32 **Unregistered Manufacturing:** For unregistered manufacturing sector, the capital output ratio has been estimated from the 1999-2000 series and applied on the VO of unregistered manufacturing sector at 2004-05 prices to get the estimates of stock of fixed assets at 2004-05 prices. Taking the difference between two successive year's stock data, the estimate of GFCF at 2004-05 prices has been obtained. Applying the proportion of stock of construction and machinery equipments as observed from the

62<sup>nd</sup> round of enterprise survey on unorganized manufacturing sector conducted by NSSO, the total GFCF estimate has been bifurcated into GFCF of construction and GFCF of ME for this industry in the household sector. The 2004-05 price estimates have been inflated by using the index of general pucca construction and WPI for machinery and transport equipment respectively to get the estimates of GFCF of construction and ME at current price. The index of general pucca construction is a weighted index of WPI of different inputs such as cement, steel, etc.

25.33 **Electricity, Gas & Water Supply:** The estimates for this industry are prepared for all three institutional sectors. Under water supply only public sector estimates are prepared on the basis of information culled out from govt. budget and analysis of annual accounts. Public sector estimates of electricity are obtained by analyzing budget documents and annual accounts of non-departmental enterprises. The private sector estimates of electricity are prepared on the basis of analysis of companies listed in the annual publication of Central Electricity Authority namely, "All India Electricity Statistics". The capital investment made in the Bio-gas plants is covered under household sector. The estimates are compiled using the data available on number of biogas plants, and unit prices for installation in case of biogas plants from the Ministry of New and Renewable Energy.

25.34 **Construction:** The estimates of GFCF in respect of public sector are obtained by analyzing the annual reports/budget documents. For the private corporate sector, the estimates are made available by the RBI based on their studies on sample joint stock companies. However, for estimating GFCF in household sector, the estimate of GVO at 2004-05 prices is prepared for entire economy of the household sector, then the capital output ratio for central non-departmental undertaking construction companies has been applied on the GVO of construction in the household sector to get the estimate of stock of fixed assets (GFCF) at 2004-05 price. After applying the 10 and 90 percent ratio for construction and machinery on the GFCF thus obtained asset wise (construction and machinery) GFCF at 2004-05 prices are prepared. Taking the difference of GFCF the estimates at 2004-05 prices are arrived at. By inflating these estimates by the index of general pucca construction for construction and index of WPI of machinery and transport equipment for machinery, the

estimates of GFCF for household sector at current prices are obtained.

25.35 **Trade:** The estimates for public sector are obtained by analyzing the annual reports of statutory corporations and companies. The estimates of GFCF in respect of joint stock companies and cooperative societies as made available by RBI and obtained from NABARD publication relating to non credit society are used as belonging to private corporate sector. For household sector, the estimates of GFCF for bench mark year have been prepared on the basis of 1999-00 informal sector survey results using capital output ratio (Capital Stock to GVA) and moved for subsequent years on the basis of GVA.

25.36 **Hotels and Restaurants:** In this sector, the estimates of public and private corporate sectors are prepared on the basis of analysis of annual accounts of non departmental enterprises and sample companies' data from RBI respectively. Household sector estimates are derived at 2004-05 prices by using capital stock to GVA ratio worked out from the report number 529 of NSS 63<sup>rd</sup> round on "Service Sector in India, 2006-07" for the benchmark year and using GVA in private un-organised sector at constant price estimates for subsequent years. Applying the proportion of stock of construction and machinery equipments as observed from the same survey data for the specific industry, the total GFCF estimate has been bifurcated into GFCF of construction and GFCF of ME for the respective industry in the household sector. By inflating these estimates by index of general pucca construction and machinery & transport equipment, the current prices estimates are prepared.

25.37 **Railways:** Estimates of GFCF for railways have been obtained by analyzing the budget documents and annual accounts of non-departmental enterprises. The estimates refer to transport services only and exclude capital employed in railway workshop and manufacturing units and construction activities undertaken by the railways. The latter are included in the respective industrial sectors.

25.38 **Transport by other means:** The estimates relating to transport by other means in public sector are obtained by analyzing the annual accounts of transport companies, International Airport Authority of India etc., and budget documents of Department of Civil Aviation. The total estimate of private sector is prepared under the transport by other means using capital stock to GVA ratio

worked out from the report number 529 of NSS 63<sup>rd</sup> round on "Service Sector in India, 2006-07" similar to the method explained in para 25.35.

- 25.39 **Storage:** The public sector estimates of the GFCF under the storage activity are separately compiled by analyzing the annual reports/budget documents. The private sector estimates are prepared based on report number 529 of NSS 63<sup>rd</sup> round on "Service Sector in India, 2006-07" using capital stocks to GVA ratio. The procedure followed is similar to the method explained in para 25.35.
- 25.40 **Communication:** The public sector estimates are prepared by analyzing the budget documents and annual reports. The estimate of private communication is prepared using capital stocks to GVA ratio based on report number 529 of NSS 63<sup>rd</sup> round. The procedure followed is similar to the method explained in para 25.35.
- 25.41 **Financing, real estate, ownership of dwellings & business services:** For **banking & insurance**, the estimates of GFCF in respect of public sector comprising of RBI, nationalized banks, financial corporations and insurance companies are obtained by analyzing their annual reports. The private sector includes private banks, private insurance companies, foreign banks, financial joint stock companies and cooperative credit societies. The estimates of the private banks, including foreign banks, are compiled from the statistical tables relating to banks in India published by RBI. The estimates of GFCF, in case of financial joint stock companies, are directly obtained from RBI. Estimates relating to private insurance companies are compiled from the IRDA annual report. The estimates of credit societies are obtained from the statistical tables released by NABARD. Estimates for household sector are not prepared.
- 25.42 The estimates of GFCF in respect of **ownership of dwelling** in public sector are prepared by analyzing the budget documents. For private corporate sector the estimates are supplied by the RBI based on their studies of joint stock companies. For household sector, the data obtained from AIDIS, 2002-03 in respect of 'Ownership of Dwellings' are used. Governments' other capital transfers to the households under this sector (GFCE purpose Item No 6) have also been accounted for. The estimates of **real estate** for household sector are prepared on the basis of capital stock to GVA ratio based on report number 529 of NSS 63<sup>rd</sup> round on "Service Sector in India, 2006-07". Under the **business services**, estimates of software component are prepared. The estimates are compiled by adding domestic software produced, taken from NASSCOM and imports from RBI. The estimates of GFCF are obtained as net additions to fixed assets.
- 25.43 **Public Administration and Defence:** For the public sector, the data on GFCF by type of assets is culled out from the budget documents. The autonomous bodies dealing in public services are also taken into account.
- 25.44 **Other Services:** The estimates of all the three sectors, namely, public, private corporate and households are prepared under the activity. The public sector estimate is first prepared from the analysis of budget, documents and annual reports. The household sector includes three components, namely, educational, health, and sanitary & other services. Results of NSS survey report no. 529, of NSS 63<sup>rd</sup> round on "Service Sector in India, 2006-07" have been used to estimate the total of other services including medical and education.
- 25.45 The GFCF estimates thus arrived at, differ with those of by type of assets. The GFCF estimates obtained from commodity flow approach for the entire economy are taken as firmer estimates and the industry wise GFCF estimates for Private Corporate and Household Sectors compiled by the expenditure method, are adjusted proportionately with the estimates compiled by institutions through the commodity flow approach.
- 25.46 **Change in Stock**  
The estimates of Change in Stock (CIS) at Current Price (CP) and Constant Price (KP) and estimates of inventory at CP and KP are compiled for all three institutional sectors (Public sector, Private corporate sector and Household sector) and for each industry category. These are estimated through the expenditure method. They are compiled first for each of the three institutional sectors or sub sectors wherever data is adequately available separately and thereafter the industry level estimates are obtained by combining them.
- 25.47 The general methodology used is described below using the mathematical formulae /notations.

$$I_t \text{ at c.p} = BCIS_t \text{ at c.p} + I_{t-1} \text{ at c.p}$$

$$I_t \text{ at k.p} = I_t \text{ at c.p} * WPI_0 / WPI_t$$

$$CIS_t \text{ at k.p} = I_t \text{ at k.p} - I_{t-1} \text{ at k.p}$$

$$CIS_t \text{ at c.p} = CIS_t \text{ at k.p} * WPI_t / WPI_0$$

Where

- $I_t \text{ at c.p}$  is Inventory at current prices for the current year 't'
- $BCIS_t$  is the book value of change in stock during the year 't' at current prices obtained from the books of accounts
- $I_t \text{ at k.p}$  is Inventory at constant prices for the current year 't', obtained using the appropriate index numbers
- $WPI_t/WPI_0$  is the ratio of the appropriate price index numbers used for conversion of estimates from current prices to constant prices and vice versa
- $CIS_t$  is the change in stock for the current year 't'
- C.P current prices
- K.P constant prices

25.48 The book value of the change in stock for the current year at CP is added to the previous year's inventory at CP to derive the current year's inventory at CP. Appropriate WPI is used to obtain the inventory of the current year at KP. Difference between two successive years' inventory estimates at KP is taken as CIS estimate of the current year at K.P. Using the same WPI, the CIS estimates at CP are obtained.

25.49 Generally the above said method is followed to compile the estimates of CIS and inventory in Public Sector and Cooperative Sector. In case of co-operative societies, the industries covered are manufacturing and trade. The estimates of private corporate sector are supplied by RBI after revaluation of inventory estimates. For household sector, estimates are not prepared for all industrial categories. The industries covered are Agriculture, Mining & Quarrying, Registered Manufacturing, Un-registered Manufacturing, Hotels and Restaurants, Trade, Transport by other means, Storage and Warehousing.

25.50 Detailed industry wise, methodology followed is given in the succeeding paras. Generally, for most of the industrial categories under public and private corporate sector, the CIS estimates for the current year at CP are directly available. However for household sector, the CIS estimates are not available directly. The same are derived from the bench mark surveys using appropriate indicators / ratios/

norms etc. Thereafter, inventory and CIS estimates both at CP and KP are prepared. WPI index for the appropriate industry group is used to convert CP estimates to KP estimate, and vice versa in a specific industry. Wherever, an appropriate WPI is not available, WPI of all commodities is used.

25.51 **Agriculture and allied activities:** The estimates of change in stocks in agriculture sector have been prepared separately for (i) public sector (ii) private corporate sector, (iii) household sector. Livestock is covered under the household sector. The estimates of public sector are based on data available from budget documents and annual reports. The estimates of change in stocks in respect of coffee and rubber plantations in the private corporate sector are prepared on the basis of data on stocks and prices at the beginning and end of the year collected from the respective boards. The change-in-stocks have been obtained as difference of the stock at the end and at the beginning of the year. The change is first obtained in quantitative terms. It is then multiplied with the ratio of the WPIS of the current years and base year to get the current and constant price estimates.

25.52 **Live Stock:** As the annual incremental data on species wise livestock are not available, these are estimated by projection method at the All India / state level using geometric growth rate determined from the latest available quantitative data from Indian Live Stock Census (ILC 2003 ). The incremental value of livestock thus obtained has been evaluated at the corresponding average wholesale prices of livestock categories obtained from the DESs. The constant price estimates are obtained by using the appropriate wholesale price indices. The additions to livestock other than those coming under the fixed assets are accounted under change in stocks. The categories of animals which form part of increase in livestock are bulls and bullocks over three years not in use for breeding or work, cows over three years not in use for breeding, young male and female cattle stock, goats, sheep, camel and horses, ponies, donkey, mules, yak, maithun under one year, and goats, sheep, camel and other animals of one year and above and not in milk, or not reared for wool clipping or not used as draught animals etc. In fact, a fixed percentage of the incremental value of livestock in each category is taken as change in stock. In case of the pigs and poultry, the entire incremental livestock is taken into compilation of change in stock estimate.

- 25.53 **Forestry and logging:** Forests come mostly under the public sector (DCUs and NDCUs). The CIS estimates are prepared based on the budget and their books of accounts. In the absence of adequate information for the private sector, no estimates for private sector are prepared.
- 25.54 **Fishing:** For the public sector under the NDCUs, the CIS estimates are prepared based on their books of accounts. No estimates are prepared for private sector due to lack of adequate data.
- 25.55 **Mining and quarrying:** The estimates of change in stocks in respect of the major and minor minerals covered exclusively in the public sector are based on the analysis of annual accounts of public sector undertakings. However, estimates in respect of other minerals are based on RBI analysis of joint stock companies. In household sector, the ratio between inventory and output for minor minerals has been obtained for the year 2005 from Indian Minerals Year Book, 2005, IBM. This ratio has been applied on Value of Output of minor minerals at current price to get the inventory at current price. Deflating the current price estimates of inventory by the WPI for minor minerals, the 2004-05 price estimate of inventory is obtained and taking the difference between two successive years' inventory estimates at 2004-05 prices, the estimate of CIS at 2004-05 prices is arrived at. Then again inflating the 2004-05 prices of CIS by the WPI for minor minerals, the current price estimate of CIS in mining and quarrying is arrived at.
- 25.56 **Registered manufacturing:** The CIS estimates for public sector are prepared on the basis of budget documents and analysis of annual reports. Private corporate sector estimates are supplied by the RBI. For the registered manufacturing sector coming under the household, the ratio between the inventory and output for this industry (individual proprietorship, joint family and partnership) has been obtained from ASI, 2004-05 and the same has been applied on the GVO of registered manufacturing sector at current price to get the inventory at current price. Deflating the current price estimates of inventory by the WPI for manufacturing, the 2004-05 price estimate of inventory is obtained and taking the difference between two successive years' inventory estimates at 2004-05 prices, the estimate of CIS at 2004-05 prices is arrived at. Then again inflating the 2004-05 price estimates of CIS by the WPI for manufacturing, the current price estimate of CIS in registered manufacturing is arrived at.
- 25.57 **Unregistered manufacturing:** The ratio between the inventory and output for this industry has been obtained from 62<sup>nd</sup> round enterprise survey on unorganized manufacturing sector conducted by NSSO in 2005-06 and the same has been applied on the GVO of unregistered manufacturing sector at current price to get the inventory at current price. Deflating the current price estimates of inventory by the WPI for manufacturing, the 2004-05 price estimate of inventory is obtained and taking the difference between two successive years' inventory estimates at 2004-05 prices, the estimate of CIS at 2004-05 prices is arrived at. Then again inflating the 2004-05 price estimates of CIS by the WPI for manufacturing, the current price estimate of CIS in unregistered manufacturing is arrived at.
- 25.58 **Construction:** The CIS estimates are built up on the basis of analysis of balance sheets of construction companies in the private corporate and public sectors. No CIS estimate compiled for household sector.
- 25.59 **Electricity, gas and water supply:** In Public sector, the estimates of CIS are prepared for the activity as a whole but separately for NDCU (covering Electricity, Gas, Water supply), DCU (covering only electricity) and Administration (covering only Water supply). For the private corporate sector, the estimates cover only electricity sub sector and are based on analysis of joint stock companies by RBI. No CIS estimate for household sector is prepared for Electricity, Gas & Water Supply.
- 25.60 **Railways:** In case of Railways, stocks consist of 'Miscellaneous Advances, Revenue and credits under current suspense account. In the Capital Account, stocks consist of stores, suspense and some expenditure on works. For working out change in stocks for railway transport, the change in stocks under the manufacturing activities is netted out.
- 25.61 **Transport by other means:** The change in stocks in the overall activity namely transport by other means in DCU, and NDCUs is estimated combining the road, water, air transport, and port activities from the budget and books of accounts respectively. In the case of private corporate sector, the estimates of CIS are obtained for the entire activity from the RBI data. For household sector the latest information on



inventory is available from the Enterprise Survey Report on transport sector, 1988-89. From the report, the inventory is estimated to be 2.33% of the stock of fixed assets of type transport equipment. It has also been seen that the inventory is mainly in terms of tyres and tubes etc. Using the same ratio on 2004-05 price estimate of stock of fixed assets of transport equipment in the household sector for mechanized road transport, the estimate of inventory for household sector at 2004-05 prices is obtained. Then applying the WPI for tyres on the 2004-05 price estimate of inventory, the current price estimates of inventory are obtained. Taking the difference between the two successive years' inventory at current prices, the estimate of CIS at current prices is obtained. Then again applying the WPI for tyres on the CIS for current estimates, the constant price estimate of CIS are obtained.

25.62 **Communication:** In case of communication, stocks consist of general stores, factory stores, manufacturing suspense account, civil engineering stores and purchases. There are some recoveries also in communication under the stores suspense (general factory and civil engineering stores) and manufacturing expenses. For the private sector, the ratio of CIS to the GVA in communication observed in the public sector is applied to the GVA of private sector and CIS at CP is obtained for the current year. Thereafter, the Inventory at CP and KP, CIS at KP are prepared using the formulae and appropriate WPIs.

25.63 **Storage:** For storage Activity, the CIS estimate is prepared based on results of the books of accounts and using standard formulae for the lone NDCU sub sector. For the household sector, the estimates of inventory at CP in storage are prepared using enterprise survey 1992-93 and the annual growth rate observed in GVA at CP. Thereafter using the standard formulae, the estimates of CIS at KP and at CP, Inventory at KP are arrived at. For private corporate sector, RBI estimates are used.

25.64 **Banking and insurance:** The estimates of change in stocks in the private sector are based on RBI analysis of joint stock companies. The estimates of change in stocks of banking & insurance in the public sector relate only to non-departmental commercial undertakings and are based on analysis of their annual accounts.

25.65 **Trade:** Estimates of change in stock in the trade sector have been prepared separately for food grains and other commodities and

for public and private sectors. The estimates for public sector relate only to NDCUs and are based on the analysis of their annual accounts. For private trade in commodities other than food grains, the estimates are worked out separately for registered and un-registered establishments. The estimates for registered establishments have been prepared separately for (i) joint stock companies, (ii) co-operative societies, and (iii) household enterprises. The estimates in respect of joint stock companies are based on the analysis of annual accounts of private trading companies published by RBI and those in respect of co-operative societies and household enterprises are prepared on the basis of data available from the Statistical Statements Relating to Co-operative Movement in India (RBI) and data on bank advances to household trading establishments available in the Banking Statistics (RBI) supplemented with the information available in RBI Bulletins.

25.66 The latest report of survey on trade conducted by NSS from which the information on inventory as on date is available is Report no. 403 of NSS 46<sup>th</sup> round on small trading units 1990-91. Using this information the estimate of inventory of capital for trade separately for food items and non-food items have been prepared for the survey year. Using the indicator variables "outstanding credit by schedule commercial banks (SCB) to household for trading" for inventory of non-food items for household sector trade and "food credit by schedule commercial banks" for inventory of food items for household sector trade, the benchmark estimates have been moved to further years to get the current price estimates of inventory for this industry. Deflating the current price estimates of inventory by the WPI for all commodities, the estimates of inventory at 2004-05 prices have been obtained. Taking the difference between two successive years' estimates of inventory at 2004-05 prices the estimates of CIS at 2004-05 prices have been obtained. Then the CIS estimates at 2004-05 prices have been inflated to current price estimates of CIS by applying the WPI for all commodities.

25.67 **Hotels and restaurants:** The estimates of change in stocks in hotels and restaurants in the private corporate sector are based on the results of analysis of joint stock companies by RBI. The estimates for the public sector have been obtained from the analysis of the accounts of the non-departmental commercial enterprises. For household sector, the latest information



on inventory is available from the Enterprise Survey Report on Hotel and Restaurants, 1993-94, CSO. From this report the per enterprise inventory formation at constant price is obtained and the household sector number of enterprises are obtained from the Enterprise surveys on service sector conducted in 57<sup>th</sup> round, 2001-02 and 63<sup>rd</sup> round, 2006-07 by NSSO. This is used in moving the inventory at constant prices. Inflating the constant price estimate of inventory by the WPI for all commodities, the estimate of inventory at current price is arrived at. Taking the difference between the two successive years' inventory at current price, the estimate of CIS at current price is arrived at.

25.68 **Real estate:** The estimates of change in stocks in real estate are compiled for public sector based on the budget estimates and private corporate sector based on the analysis of joint stock companies by RBI.

25.69 **Public administration & Defence:** The change in stocks for this activity is estimated for administrative departments of the government (public sector). It is obtained as a result of economic and purpose classification of the annual budget documents/accounts of public authorities. The stocks held by the administrative departments are in the nature of (i) policy stocks like food, fertilizers etc., and (ii) work-stores under the Civil Works Departments which mainly consist of cement, bricks, steel etc. The policy stocks are given in the budget documents in the form of purchases and sales during the year and the net purchases during the year are classified as change in stocks. In the case of work-stores, suspense accounts are maintained by the government under the appropriate heads of accounts, formation of the stock is shown against the suspense appearing in the expenditure side, while the withdrawals from out of these stocks during the year are shown against the 'receipt and recoveries' of capital accounts of the detailed demands for grant. The purchases during the year minus withdrawals are treated as change in stocks.

25.70 For arriving at the estimate of change in stocks in the case of public administration and Defence activity, the change in stocks relating to activities like education, medical and health, water supply, sanitary services and construction are subtracted from the total change in stocks for all administrative departments.

25.71 **Other services:** In the absence of any

reliable data for the household sector, only the estimates of change in stocks in the public administration & DCU, NDCUs and private corporate sectors as obtained from analysis of budget documents, annual reports of non-departmental enterprises and joint stock companies of RBI using the methodology describe above are used.

### Errors and Omissions

25.72 The estimates of Gross Capital Formation (GCF) by the industry of use are obtained, as by aggregating the corresponding estimates of fixed capital formation (adjusted as said earlier) and change in stocks prepared industry wise through expenditure method. A separate independent estimate of GFCF by type of assets (construction and machinery & equipment) is also obtained by commodity flow method. The estimates of gross domestic saving added with the net capital inflow from abroad (Current Account's deficit) give rise to another estimate of total domestic capital formation, (by funds flow method). These independent estimates of Gross capital formation thus obtained differ and do not tally. Using the measure of saving as the controlling total (the funds flow method as more confirmed method), domestic capital formation by type of assets is adjusted for the difference and this difference is treated as 'errors and omissions'. For measuring the rate of capital formation, total domestic capital formation by funds flow method (or the adjusted gross capital formation for 'errors and omissions') is used.

### Estimates at Constant Prices Capital formation by Type of Assets

25.73 **Construction:** The estimates of the value of output from construction at current prices are adjusted to obtain the corresponding constant price figures using appropriate deflators for different types of construction specially prepared for the purpose. The deflators for construction are prepared separately for (i) general 'pucca' construction excluding residential buildings, (ii) rural residential buildings, (iii) urban residential buildings, (iv) rural/urban non-residential buildings and other construction works not covered by the commodity flow method and (v) plantations under the household sector. The weights allotted to price indices of different inputs for various kinds of construction works are given in Appendix 25.5. The value of all constructions other than residential buildings covered in the commodity flow method is deflated by the index of cost of general pucca

construction excluding residential buildings. The values of construction of rural and urban residential buildings are deflated by the indices of cost of construction of rural and urban buildings respectively. The estimates of construction for public sector and private corporate sector at current prices are deflated on the basis of weighted index combining index number of wholesale prices with the weights of the value of building, roads & bridges and other construction for the year 2004-05 for public sector and private corporate sectors respectively. By further aggregating the various components thus obtained gives the total value of construction at 2004-05 prices.

- 25.74 **Machinery and Equipments:** The estimates of machinery and equipment at constant prices for each institutional unit are prepared using separate indicators. The estimates of machinery and equipment for household sector are deflated using index of machinery and transport equipment (motor), the index number of wholesale prices compiled by the Office of the Economic Advisor. The estimates of public sector and private corporate sector are deflated by a weighted composite index of WPIs prepared on the basis of machine tools, non-electrical machinery, electrical machinery and transport equipment.

#### **Gross Fixed Capital formation by Industry of Use**

- 25.75 For preparing constant price estimates of GFCF by industry of use, corresponding estimates at current prices separately for each industry group are deflated. To the extent data are available; each component of capital formation is deflated separately by relevant price index numbers. The set of indices used are construction cost indices of "pucca/kutchra" construction, index of wholesale prices of machinery, transport equipments and prices of livestock by categories.

#### **Change in Stock and Inventory**

- 25.76 The estimates of CIS and Inventory at constant prices (KP) are prepared for each industrial category and for each Institutional unit mainly using appropriate index number. Detailed methodology has already been recorded in the above paras under the change in stock.

#### **Quality and limitations of data base**

- 25.77 The methodology described above suffers

from a number of limitations due to the paucity of data, which are briefly described as under:

- The estimates of capital formation in machinery and transport equipment are, to a large extent, dependent on the figures of domestic production and imports of machinery and equipment. Broadly, statistics of domestic production as given in ASI factory sector reports for different categories of machinery and equipment can be considered to be dependable. Estimates, however, are quite deficient in regard to domestic production in unregistered manufacturing sector. The estimates of capital formation by type of assets suffer from another limitation. The proportions used for estimating the production of capital goods out of partly capital goods and part of capital goods are based on data on household durable goods as obtained from NSS survey results.
  - Estimates of GFCF by industry of use have been prepared mainly following expenditure approach. A critical evaluation of the estimates in the context of data base shows that for a large percentage share of the aggregate capital formation (about 70 per cent) originating in organised industry groups like registered manufacturing, electricity, gas, railways and public administration sector etc in public sector, the estimates are based on direct annual data. For the remaining sectors, (Private corporate and household sectors) the estimates are based on either benchmark estimates or analysis of balance sheets of selected companies in the corporate sector. Industry wise distribution of capital formation and CIS is based on the distribution for a given year. The estimates for some of these industry activities where private share is dominant, therefore, need to be based on more satisfactory information and current years data in order to improve their reliability.
- 25.78 The estimates of change in stocks in registered household trading establishments are prepared on the basis of bank credit / advances and, therefore, these estimates may not be very reliable. The estimates of change in stocks of food grains in trade and small scale manufacturing are also unsatisfactory mainly because of non-availability of data.

**Estimates of Gross Capital Formation by Institutions**

(Rs. Crore)

<b>items</b>	<b>2004-05</b>
<b>1 Gross capital formation</b>	<b>1052232</b>
1.1 public sector	240580
1.2 private corporate sector	334869
1.3 household sector	435729
1.4 valuables	41054
<b>2. Gross fixed capital formation</b>	<b>931028</b>
<b>2.1 public sector</b>	<b>224108</b>
2.1.1 construction	144108
2.1.2 machinery & equipment	80000
<b>2.2 private corporate sector</b>	<b>295621</b>
2.2.1 construction	74653
2.2.2 machinery & equipment	220968
<b>2.3 household sector</b>	<b>411299</b>
2.3.1 construction	295003
2.3.2 machinery & equipment	116296
	41054
<b>3.Change in stock</b>	<b>80150</b>
3.1 public sector	16472
3.2 private corporate sector	39248
3.3 household sector	24430
	<b>41054</b>
<b>4.Less consumption of fixed capital</b>	<b>319891</b>
4.1 public sector	109005
4.2 private corporate sector	99850
4.3 household sector	111036
<b>5.Net capital formation</b>	<b>732341</b>
5.1 public sector	131575
5.2 private corporate sector	235019
5.3 household sector	324693
	<b>41054</b>
<b>6. Errors &amp; omissions</b>	<b>11809</b>
<b>7. Net capital formation adjusted for errors &amp; omission</b>	<b>744150</b>
<b>8. Gross capital formation adjusted for errors &amp; omission</b>	<b>1064041</b>

**Estimates of Gross Capital Formation by industry of use, 2004-2005**

(Rs. Crore)

industry	GFCF	change in stocks	GCF
1. agriculture, forestry and fishing	74657	1439	76096
1.1 agriculture	67708	1440	69148
1.2 forestry & logging	972	-1	971
1.3 fishing	5977	0	5977
2. mining & quarrying	36013	1309	37322
3. manufacturing	288884	55633	344517
3.1 registered	194837	51147	245984
3.2 unregistered	94047	4486	98533
4. electricity, gas & water supply	51971	1329	53300
5. construction	52061	2384	54445
6. trade, hotels & restaurants	55243	16980	72223
6.1 trade	44387	16870	61257
6.2 hotels & restaurants	10856	110	10966
7. transport, storage & communication	67578	36	67614
7.1 railways	12975	149	13124
7.2 transport by other means	36417	400	36817
7.3 storage	175	-518	-343
7.4 communication	18011	5	18016
8. financing, insurance, real estate & business services	157604	-1468	156136
8.1 banking & insurance	5906	-1507	4399
8.2 real estate, ownership of dwellings & business services	151698	39	151737
9. community, social & personal services	147017	2508	149525
9.1 public administration & defence	83744	2297	86041
9.2 other services	63273	211	63484
<b>10. total gross capital formation by industry of use-Unadjusted</b>	<b>931028</b>	<b>80150</b>	<b>1011178</b>
11. valuables			41054
12. total GCF by Industry of use Unadjusted(including Valuables)			1052232
<b>13. gross capital formation by type of assets adjusted</b>			<b>1064041</b>
14. difference (13-12)			11809

**Estimates of Gross Fixed Capital Formation by Institutions and Assets, 2004-2005**

(Rs. Crore)

	item	GFCF
<b>1</b>	<b>Construction</b>	
	<b>residential buildings</b>	<b>79135</b>
1.1	private	76926
1.2	public *	2209
<b>2</b>	<b>non-residential buildings</b>	<b>284998</b>
2.1	private	254244
2.2	public	30754
2.2.1	enterprises **	6895
2.2.2	administrative departments	23859
<b>3</b>	<b>other construction</b>	<b>149631</b>
3.1	private	38486
3.2	public	111145
3.2.1	enterprises	57866
3.2.2	administrative departments	53279
<b>4</b>	<b>total construction</b>	<b>513764</b>
4.1	private	369656
4.2	public	144108
4.2.1	enterprises	64761
4.2.2	administrative departments	79347
<b>5</b>	<b>breeding stock, dairy cattle etc.</b>	<b>-198</b>
<b>6</b>	<b>transport equipment</b>	<b>75684</b>
6.1	private	65286
6.2	public	10398
6.2.1	enterprises	3338
6.2.2	administrative departments	7060
<b>7</b>	<b>other machinery &amp; equipment ***</b>	<b>341777</b>
7.1	private	272175
7.2	public	69602
7.2.1	enterprises	53005
7.2.2	administrative departments	16597
<b>8</b>	<b>total machinery &amp; equipment</b>	<b>417264</b>
8.1	private	337264
8.2	public	80000
8.2.1	enterprises	56343
8.2.2	administrative departments	23657
<b>9</b>	<b>total gross fixed capital formation</b>	<b>931028</b>
9.1	private	706920
9.2	public	224108
9.2.1	enterprises	121104
9.2.2	administrative departments @	103004

\* does not include public sector enterprises

\*\* includes residential buildings also

\*\*\* includes computer software

@ includes quasi govt. bodies also

Note: Enterprises refer to both DCUs and NDCUs

**PROPORTION OF PARTLY CAPITAL GOODS TREATED AS CAPITAL GOODS**

Sl No	Item Code Assigned by NSSO	Name of the item	percentage
1	550	Bedstead (Wooden)	73
2	551	Almirah, dressing table (Wooden)	73
3	552	Chair, stool, bench, table	73
4	553	Suitcase, trunk, box handbag and other travel goods	24
5	554	Foam, rubber cushion (dunlop pillow type)	24
6	555	Carpet, daree & other floor matting	24
7	556	Paintings, drawings, engravings etc.	69
8	557	Other furniture & fixtures (couch sofa etc)	73
9	560	Gramophone & record player	5
10	561	Radio	5
11	562	Television	5
12	563	VCR/VCP/DVD & other goods for recreation	26
13	564	Camera & photographic equipment (Digital camera/ hand movie camera)	26
14	565	Tape recorder, CD Player	34
15	566	Gramophone & record, audio video cassette	34
16	567	Musical instruments	85
17	580	Stainless steel utensils	27
18	581	other metal utensils	27
19	582	Casseroles, thermo, thermo ware	27
20	590	Electric fan	74
21	591	Air conditioner, air cooler,	74
22	593	Sewing machine	69
23	594	Washing machine	59
24	595	Gas Stove	27
25	596	Pressure cooker/pressure pan, other cooking /household appliances	27
26	597	Refrigerator	59
27	598	Electric iron, heater, toaster, oven & other electric heating appliances	74
28	610	Bicycle	69
29	611	Motor cycle, scooter	69
30	612	Motor car, jeep and other transport equipment	69
31	613	Tyre & Tubes	69
32	620	Glass eyes, hearing aids & orthopedic equipment and other medical equipment	34
33	630	Clock, watch	34
34	631	Other machines for household work	34
35	640	Bathroom and sanitary equipment	34
36	641	Plugs, switches & other electric fittings	74
37		Type writers	69
38		PCs	69



**WEIGHTS ALLOTTED TO DIFFERENT INPUTS IN THE PREPARATION OF DEFLATORS  
FOR VARIOUS TYPE OF CONSTRUCTION**

Inputs	Types of Construction					
	General Pucca construction excluding residential buildings	Rural residential buildings	Urban residential buildings	Rural & urban non-residential buildings & other construction works (Un-Accounted)	Rural & urban non-residential buildings & other construction works (Accounted)	Others *
1.Cement	8.63	10.66	8.67	-	10.7	-
2.Iron & Steel	27.64	34.16	27.77	-	34.3	-
3.Bricks	3.43	4.24	3.45	-	4.3	-
4.Timber	4.78	5.91	4.80	-	-	-
5.Fixture and fitting	5.07	-	5.09	-	-	-
6.Electric Apparatus	3.98	-	3.99	-	-	-
7. Paints	4.41	-	4.43	-	-	-
8. PVC Pipes and Tubes	2.10	-	2.11	-	-	-
9. Others	5.16	-	5.19	-	-	-
lime		0.21		-	-	-
sand		0.21		-	-	-
10. Rural Construction Worker	9.75	44.62		28.0	23.4	
11. Urban Construction Worker	25.06		34.50	72.0	27.4	
12. Rural Unskilled labour				-	-	100.0
	100.0	100.0	100.0	100.0	100.0	100.0

\* Construction under the category "others" covers plantations and afforestation and other "Kutchha construction" outside household sector.

## CAPITAL STOCK AND CONSUMPTION OF FIXED CAPITAL

### Introduction

26.1 Capital stock of a country is broadly referred to as that part of national wealth which is reproducible; it consists of all resources which contribute to the production of goods and services. The changing relationship between output and capital stock is an important aspect of the study of changes in productive efficiency in the various industries of a developing economy. Firm estimates of capital stock enhance the ability to associate capital formation with economic growth and to project future production possibilities, thereby leading to formulation of policies designed to achieve the desired economic objectives. These also provide a firm basis for estimating capital consumption needed to arrive at the estimates of various macro-economic aggregates on net basis.

26.2 Present estimates of capital Stock are based on the recommendations of the Advisory Committee on National Accounts, working Group on saving, set up by the Govt. of India in May 1981 under the chairmanship of Prof. K.N. Raj, and Expert Group on Saving & Capital Formation appointed in 1995 under the chairmanship of Prof. Raja J. Chelliah. In pursuance of their recommendations, studies on the construction of life-table of assets and estimation of Net Fixed Capital Stock (NFCS) using Perpetual Inventory method (PIM) were initiated in the National Accounts Division (NAD). The NAD concentrated its efforts to prepare firm estimates of capital stock as on 31 March, 1981 so that the corresponding estimates of Consumption of Fixed Capital (CFC) based on these estimates could be prepared for use in the series with base 1980-81 and also for subsequent series. To begin with, the estimates of NFCS were attempted by type of institution, i.e., public sector, private corporate sector and household sector. These estimates were, however, deficient in as much as the private non-profit institutions were not covered for want of data. The NAD in its subsequent exercise constructed life-table of assets, separately for the public and private sectors and prepared the estimates of NFCS by industry of use. It may be useful to mention that the estimates prepared by NAD as early as in 1981 were compiled by carrying forward the bench mark estimates of NFCS at the end of 1949-50 of Mukherjee and Sastry (1959)\* using the official estimates prepared by NAD. The conceptual details and the method of estimation used in working out the

estimates are discussed in the following paragraphs.

### Concepts of capital stock and consumption of fixed capital

26.3 The guidelines issued by the United Nations Statistical Office (UNSO) in 1977 defined the national wealth as 'total of various kinds of net tangible and intangible non-financial assets of residents, plus financial claims on non-residents less financial liabilities to non-residents'. Tangible assets have been further classified into (i) reproducible tangible assets (i.e., capital stock) comprising fixed assets and stocks (i.e., inventories) and (ii) non-reproducible tangible assets comprising land, timber tracts and forests, sub-soil assets & extraction sites, fisheries and historical monuments. The reproducible fixed tangible assets (i.e., fixed assets used for the production of goods & services) commonly known as fixed capital stock comprise assets in the form of residential buildings, non-residential buildings, dams, irrigation & flood control projects, other construction works, transport equipment, machinery and equipment, breeding stock, draught animals, dairy cattle and the like, and capital expenditure on land improvement, plantations, orchard developments and afforestation. The fixed assets include uncompleted construction assets also. The stocks include the inventories of goods producing industries, trade, other industries and stocks of government services. These comprise stocks of finished and semi-finished goods and young livestock except breeding stock, dairy cattle and the like which form part of the fixed assets. It may, however, be clarified that the durable goods in the hands of households which are not used for further production of goods and services such as automobiles, refrigerators, washing machines, furniture, sewing machines, etc., as well as fixed assets mainly meant for defence purposes such as warships, fighter aircrafts and war materials do not form part of the fixed capital stock as these are assumed to have been consumed as soon as they are purchased. However, the construction works undertaken by the households including buildings and capital expenditure on residential dwellings for defence personnel, border roads, ordnance factories etc., form part of the fixed capital stock. The details of various types of assets which constitute reproducible and

non-reproducible wealth are given in *Appendix 26.1*.

26.4

\*Mukherjee, M. and Sastry, N.S.R.(1959). "An Estimate of the Reproducible Tangible Wealth of India", Review of Income and Wealth, Series VIII. As per SNA 1993 (Para 6.199) gross capital stock is the value of all fixed assets still in use at the end of an accounting period, at the actual or estimated current purchasers' prices for new assets of same type, irrespective of age of the assets. The net or written-down values of all the fixed assets is equal to the actual or estimated current purchaser's price of new assets of same type less the cumulative values of consumption of fixed capital accrue up to that point in time. CFC is the cost of production. It may be defined in general terms as the decline, during the course of the accounting period, in the current value of the stock of fixed assets owned and used by a producer as a result of physical deterioration, normal obsolescence or normal accidental damage. It excludes the value of fixed assets destroyed by acts of war or exceptional events such as major natural disasters which occur very infrequently. Its value may deviate considerably from depreciation as recorded in business accounts. Thus CFC, in short, can be defined as that part of gross product which is required to replace fixed capital used up in the process of production during the period of account. This flow is based on the concept of economic life time of the individual assets.

26.5

CFC is calculated for all fixed assets i.e. tangible and intangible fixed assets owned by producers. Fixed assets must have been produced as outputs from the process of production. Exceptions to the above cases are the following.

CFC is not calculated for

- Valuables (precious metals, precious stones etc.) that are acquired precisely because their value, in real terms, is not expected to decline over time;
- Depletion or degradation of the non-produced assets such as land, mineral, etc;
- Livestock;
- Work in progress; and
- Value of fixed assets destroyed by acts of war or major natural disasters, which occur very infrequently.

### **Perpetual inventory method**

26.6

SNA 1993 recommends that the estimates of CFC should be compiled in conjunction with the estimates of capital stock. These

can be built up from the data on gross fixed capital formation in the past combined with estimates of the rate at which the efficiency of fixed assets declined over their service lives. This method of estimation of capital stock and changes in capital stock overtime is known as the perpetual inventory method (PIM). Estimates of CFC are obtained as a by product of the PIM. The various steps involved in PIM are as follows:

- Assumptions are made about the average length of life of each class of assets separately distinguished;
- GFCF is then estimated for each class of assets for 'L' years prior to 'Y', where 'L' is the average life of an asset and 'Y' is the year for which capital consumption and gross stock are to be estimated;
- Appropriate price indices are to be identified and applied to the estimates of GFCF to convert them to constant prices;
- The estimate of GFCF at constant prices for the year 'Y' are added to the available stock for the year 'Y-1' and deducted by estimate of capital consumption for the year 'Y-1' to obtain the estimate of available stock or NFCS at constant prices at the end of the year 'Y';
- The NFCS of an asset is then divided by 'L' to obtain the estimate of capital consumption at constant prices;
- The price indices are used to convert the estimates of capital consumption to current prices;
- The estimates of NFCS for the year 'Y' are converted to current prices using appropriate price indicators; and
- Having arrived at the capital stock at the end of the year 'Y', it is maintained year-by-year by the same procedure as outlined above.

26.7

The above steps obviously involve collection, compilation and categorization of considerable amount of data on various types of assets and their prices for estimation of fixed capital formation and CFC separately for each class of assets and working out the same at constant prices under certain assumptions about their average life.

### **Assumed life of assets**

26.8 As mentioned earlier, PIM necessitates the availability of reliable estimates of average age of various types of fixed assets in different industries. However, no life table of fixed assets is currently available in India. Based on extensive discussions held by CSO with the concerned agencies like Ministry of Industry; Railway Board; Bureau of Industrial Costs & Prices; National Productivity Council; Departments of Posts and Tele-communications; Central Road Research Institute; Central Water Commission; Ministry of Shipping, Road Transport and Highways, Indian Roads Congress etc. the requisite information on average age of various assets have been obtained. Data on average life of machine tools in the reports of Censuses of Machine Tools (1968 & 1986) conducted by Central Machine Tools Institute, Bangalore, were also examined. The average life of assets on the basis of depreciation provision under Income-Tax Rules as well as in the Companies (Amendment) Act, 1988 have also been considered. On the basis of the above materials as well as discussions held with concerned experts, the average life for each type of assets has been attempted. In the case of canals, it has been felt that the current expenditure on repairs and maintenance are sufficient to maintain these assets for a long time. As such no depreciation is provided for such assets. Again at the time of base year revision, elaborate exercise with the latest industry-wise and asset-type wise data relevant for revision of average age of assets is undertaken. Revised estimates of average age by asset type as used for calculation of CFC estimates and they are presented in the *Appendices 26.2 to 26.5*.

### Method of Estimation

- 26.9.1 The estimates of net capital stock separately for NFCS and stock of inventories as on 31 March, 1981 and onward and the CFC during each year have been prepared by type of institution and by industry of use for each type of asset. It has not been possible to make adjustment for capital losses.
- 26.9.2 SNA 1993 mentions that inputs into production obtained from the use of a given fixed asset tend to diminish over time. The rate at which the efficiency declines may vary from one type of asset to another and suggests three possible profiles for measuring depreciation: Constant decline in efficiency until the asset disintegrates; a linear decline in efficiency - the service life ends when efficiency declines to zero; a constant geometric, or exponential, decline in efficiency. However, it further states that

by using a geometric or declining balance formula the absolute value of capital consumption declines from year to year, so that at some point it falls below the corresponding figure that would be obtained using straight-line depreciation. The method of declining balance involves applying the depreciation rate against the non-depreciated balance. Instead of spreading the cost of the asset evenly over its life, this system expenses the asset at a constant rate, which results in declining depreciation charges each successive period.

- 26.9.3 In the new series, method of declining balance has been adopted which takes into account the decline in efficiency or loss of productivity of the assets during its life time. If the depreciation cost for the first year of the asset is  $V_0 = V \cdot (1/L)$ , where  $V$  is the GFCF and  $L$  represents the average service life of the asset, then for the next year the depreciation would be
- $$V_1 = (V - V_0) \cdot (1/L)$$
- $$= V \cdot (1/L) \cdot (1 - (1/L))$$
- $$V_2 = V \cdot (1/L) \cdot (1 - (1/L))^2$$

$V_n = V \cdot (1/L) \cdot (1 - (1/L))^n$  at the end of  $n$  years of service life. As the declining balance will never exhaust the full value of the asset during its life time, in the method adopted the scrap value has been reduced to about 10% of the value of the asset.

- 26.10 The estimates of GFCF at industry level available in the NAS at current prices have been converted into constant (2004-05) prices for all industries and for all types of assets by applying the relevant price indices which are shown in *Appendix 26.6*.

### Net Fixed Capital Stock

- 26.11 **Public Sector:** Public sector comprises administrative departments, departmental commercial undertakings (DCUs) and non-departmental commercial undertakings (NDCUs). For each of the sub-sectors industry-wise estimates of NFCS and CFC have been prepared separately. Data on GFCF by different type of assets are compiled on the basis of analyses of budget documents and annual reports of non departmental undertakings.
- 26.12 **Private corporate sector:** This sector comprises public limited companies and private limited companies i.e., companies in the private sector set up under the Companies Act and credit and non-credit co-operative societies. The GFCF estimates as supplied by the RBI have been used for most industries except electricity for which

annual accounts are analysed, for preparing NFCS estimates.

- 26.13 **Household Sector:** This sector comprises household and non-household unincorporated enterprises and non-profit institutions. The estimates of GFCF of household sector as obtained by utilizing bench mark survey results and appropriate indicators / ratios / norms etc or capital-output ratio have been used to derive the NFCS estimates.

- 26.14 The details on compilation of industry-wise estimates of GFCF have already been discussed in the chapter on Capital Formation.

### **Stock of inventories**

- 26.15 In order to estimate the stock of inventories as on 31 March, 1981 and onwards an attempt has been made to compile such estimates by type of institution, i.e., public

sector, private corporate sector and household sector within each industry group using available source material. In order to arrive at the estimates of stock of inventory at constant prices, change in stock estimates are revalued utilizing appropriate price index numbers. The method of estimation has been discussed in the chapter 25 on Capital Formation- "Change in stock".

### **Estimates of capital stock**

- 26.16 The estimates of NFCS, inventories and net capital stock by type of institution and by industry of use at the overall level and separately for the public sector at current prices and at 2004-05 prices as on 31<sup>st</sup> March, 2005 and onwards are available in the NAS Statements No. 21, 22 and 34. The estimates as on March, 2005 are given in *Table Nos. 26.1 to 26.4*.

### *Appendix 26.1*

## **CLASSIFICATION AND DEFINITION OF ASSETS \***

<b>Non-financial assets</b>	Entities, over which ownership rights are enforced by institutional units, individually or collectively, and from which economic benefits may be derived by their owners by holding them, or using them over a period of time, that consist of tangible assets, both produced and non-produced, and most intangible assets for which no corresponding liabilities are recorded.
<b>Produced assets</b>	Non-financial assets that have come into existence as outputs from production processes. Produced assets consist of fixed assets, inventories and valuables, as defined below.
<b><i>Fixed assets</i></b>	Produced assets that are used repeatedly or continuously in production processes for more than one year. Fixed assets consist of tangible and intangible fixed assets, as defined below.
<b>Tangible fixed assets</b>	Fixed assets that consist of dwellings; other buildings and structures; machinery and equipment and cultivated assets, as defined below.
<i>Dwellings</i>	Buildings that are used entirely or primarily as residences, including any associated structures, such as garages, and all permanent fixtures customarily installed in residences. Houseboats, barges, mobile homes and caravans used as principal residences of households are also included, as are historic monuments identified primarily as dwellings. Costs of site clearance and preparation are also included.  Examples include products included in Central Product Classification (CPC) a class 5211, residential buildings and CPC group 387, prefabricated buildings, such as one- and two-dwelling buildings and other residential buildings intended for non-transient occupancy. Uncompleted dwellings are included to the extent that the ultimate user is deemed to have taken ownership, either because the construction is on own-account or as evidenced by the existence of a contract of sale/purchase. Dwellings acquired for military personnel are included because they are used, as are dwellings acquired by

	civilian units, for the production of housing services.
<i>Other buildings and structures</i>	Non-residential buildings and other structures, as defined below. Uncompleted buildings and structures are included to the extent that the ultimate user is deemed to have taken ownership, either because the construction is for own use or as evidenced by the existence a contract of sale/purchase. Buildings and structures acquired for military purposes are included to the extent that they resemble civilian buildings acquired for purposes of production and are used in the same way.
	<i>Non-residential buildings</i> Buildings other than dwellings, including fixtures, facilities and equipment that are integral parts of the structures and costs of site clearance and preparation. Historic monuments identified primarily as nonresidential buildings are also included. Examples include products included in CPC class 5212, non-residential buildings, such as warehouse and industrial buildings, commercial buildings, buildings for public entertainment, hotels, restaurants, educational buildings, health buildings, etc.
	<i>Other structures</i> Structures other than buildings, including the cost of the streets, sewers and site clearance and preparation other than for residential or non- residential buildings. Also included are historic monuments for which identification as dwellings or non-residential buildings is not possible and shafts, tunnels and other structures associated with mining subsoil assets. (Major improvements to land, such as dams and dykes for flood control, are included in the value of land.)  Examples include products included in CPC group 522, civil engineering works, such as highways, streets, roads, railways and airfield runways; bridges, elevated highways, tunnels and subways; waterways, harbours, dams and other waterworks; long-distance pipelines, communication and power lines; local pipelines and cables, ancillary works; constructions for mining and manufacture; and constructions for sport and recreation.
<i>Machinery and equipment</i>	Transport equipment and other machinery and equipment, as defined below other than that acquired by households for final consumption. Tools that are relatively inexpensive and purchased at a relatively steady rate, such as hand tools, may be excluded. Also excluded are machinery and equipment integral to buildings that are included in dwellings and non-residential buildings.  Uncompleted machinery and equipment are excluded, unless produced for own use, because the ultimate user is deemed to take ownership only on delivery of the asset. Machinery and equipment acquired for military purposes are included to the extent that they resemble goods acquired by civilian units for purposes of production and that the military uses in the same way.  Machinery and equipment acquired by households for final consumption are not treated as an asset. They are instead included in the memorandum item "consumer durables" in the balance sheet for households. Houseboats, barges, mobile homes and caravans used by households as principal residences are included in dwellings.
	<i>Transport equipment</i> Equipment for moving people and objects. Examples include products other than parts included in CPC division 49, transport equipment, such as motor vehicles, trailers and semi trailers; ships; railway and tramway locomotives and rolling stock; aircraft and spacecraft; and



	motorcycles, bicycles, etc.
	<p><i>Other machinery and equipment</i></p> <p>Machinery and equipment not elsewhere classified. Examples include products other than parts included in CPC divisions 43, general purpose machinery; 44, special purpose machinery; 45, office, accounting and computing equipment, 46, electrical machinery and apparatus; 47, radio, television and communication equipment and apparatus; and 48, medical appliances, precision and optical instruments, watches and clocks. Other examples are products other than parts included in CPC groups 337, fuel elements (cartridges) for nuclear reactors; 381, furniture; 383, musical instruments; 384, sports goods; and 423, steam generators except central heating boilers.</p>
<i>Cultivated assets</i>	Livestock for breeding, dairy, draught, etc. and vineyards, orchards and other plantations of trees yielding repeat products that are under the direct control, responsibility and management of institutional units, as defined below. Immature cultivated assets are excluded unless produced for own use.
	<p><i>Livestock for breeding, dairy, draught, etc.</i></p> <p>Livestock that are cultivated for the products they provide year after year. They include breeding stocks (including fish and poultry), dairy cattle, draft animals, sheep or other animals used for wool production and animals used for transportation, racing or entertainment.</p>
	<p><i>Vineyards, orchards and other plantations of trees yielding repeat products</i></p> <p>Trees (including vines and shrubs) cultivated for products they yield year after year, including those cultivated for fruits and nuts, for sap and resin and for bark and leaf products.</p>
<b>Intangible fixed assets</b>	Fixed assets that consist of mineral exploration, computer software, entertainment, literary or artistic originals and other intangible fixed assets, as defined below, intended to be used for more than one year.
<i>Mineral exploration</i>	The value of expenditures on exploration for petroleum and natural gas and for non-petroleum deposits. These expenditures include pre-licence costs, licence and acquisition costs, appraisal costs and the costs of actual test drilling and boring, as well as the costs of aerial and other surveys, transportation costs, etc., incurred to make it possible to carry out the tests.
<i>Computer software</i>	Computer programs, program descriptions and supporting materials for both systems and applications software. Included are purchased software and software developed on own account, if the expenditure is large. Large expenditures on the purchase, development or extension of computer databases that are expected to be used for more than one year, whether marketed or not, are also included.
<i>Entertainment, literary or artistic originals</i>	Original films, sound recordings, manuscripts, tapes, models, etc., on which drama performances, radio and television programming, musical performances, sporting events, literary and artistic output, etc., are recorded or embodied. Included are works produced on own account. In some cases, such as films, there may be multiple originals.
<i>Other intangible fixed assets</i>	New information, specialized knowledge, etc., not elsewhere classified, whose use in production is restricted to the units that have established ownership rights over them or to other units licensed by the latter.
<b>Inventories</b>	Produced assets that consist of goods and services that came into existence in the current period or in an earlier period held for sale, use

	<p>in production or other use at a later date. They consist of materials and supplies, work-in-progress, finished goods and goods for resale, as defined below.</p> <p>Included are all inventories held by government, including, but not limited to, inventories of strategic materials, grains and other commodities of special importance to the nation.</p>
<b>Materials and supplies</b>	Goods that their owners intend to use as intermediate inputs in their own production processes, not to resell.
<b>Work-in-progress</b>	Goods and services that are partially completed but that are not usually turned over to other units without further processing or that are not mature and whose production process will be continued in a subsequent period by the same producer. Excluded are partially completed structures for which the ultimate owner is deemed to have taken ownership, either because the production is for own use or as evidenced by the existence of a contract of sale/purchase. They consist of work-in-progress on cultivated assets and other work-in-progress, as defined below.
<i>Work-in-progress on cultivated assets</i>	Livestock raised for products yielded only on slaughter, such as fowl and fish raised commercially, trees and other vegetation yielding once-only products on destruction and immature cultivated assets yielding repeat products.
<i>Other work-in-progress</i>	Goods other than cultivated assets and services that have been partially processed fabricated or assembled by the producer but that are not usually sold, shipped or turned over to others without further processing.
<b>Finished goods</b>	Goods that are ready for sale or shipment by the producer.
<b>Goods for resale</b>	Goods acquired by enterprises, such as wholesalers and retailers, for the purpose of reselling them without further processing (that is, not transformed other than by presenting them in ways that are attractive to the customer).
<i>Valuables</i>	Produced assets that are not used primarily for production or consumption, that are expected to appreciate or at least not to decline in real value, that do not deteriorate over time under normal conditions and that are acquired and held primarily as stores of value. Valuables consist of precious metals and stones, antiques and other art objects and other valuables, as defined below.
<i>Precious metals and stones</i>	Precious metals and stones that are not held by enterprises for use as inputs into processes of production.
<i>Antiques and other art objects</i>	Paintings, sculptures, etc., recognized as works of art and antiques.
<i>Other valuables</i>	Valuables not elsewhere classified, such as collections and jewellery of significant value fashioned out of precious stones and metals.
<b>Non-produced assets</b>	Non-financial assets that come into existence other than through processes of production. Non-produced assets consist of tangible assets and intangible assets, as defined below. Also included are costs of ownership transfer on and major improvements to these assets.
<b>Tangible non-produced assets</b>	Non-produced assets that occur in nature and over which ownership may be enforced and transferred. Environmental assets over which ownership rights have not, or cannot, be enforced, such as open seas or air, are excluded. Tangible non-produced assets consist of land, subsoil assets, non-cultivated biological resources and water resources, as defined below.
<b>Land</b>	The ground, including the soil covering and any associated surface waters, over which ownership rights are enforced. Also included are

	major improvements that cannot be physically separated from the land itself. Excluded are any buildings or other structures situated on it or running through it; cultivated crops, trees and animals; subsoil assets; non-cultivated biological resources and water resources below the ground. Land consists of land underlying buildings and structures, land under cultivation, recreational land and associated surface water and other land and associated surface water, as defined below.
<i>Land underlying buildings and structures</i>	Land on which dwellings, non-residential buildings and structures are constructed or into which their foundations are dug, including yards and gardens deemed an integral part of farm and non-farm dwellings and access roads to farms.
<i>Land under cultivation</i>	Land on which agricultural or horticultural production is carried on for commercial or subsistence purposes, including, in principle, land under plantations, orchards and vineyards.
<i>Recreational land and associated</i>	<i>surface water</i> Land that is used as privately owned amenity land, parklands and pleasure grounds and publicly owned parks and recreational areas, together with associated surface water.
<i>Other land and associated surface water</i>	Land not elsewhere classified, including private gardens and plots not cultivated for subsistence or commercial purposes, communal grazing land, land surrounding dwellings in excess of those yards and gardens deemed an integral part of farm and non-farm dwellings and associated surface water.
<b>Subsoil assets</b>	Proven reserves of mineral deposits located on or below the earth's surface that are economically exploitable, given current technology and relative prices. Ownership rights to the subsoil assets are usually separable from those to the land itself. Subsoil assets consist of coal, oil and natural gas reserves, metallic mineral reserves and non-metallic mineral reserves, as defined below.
<i>Coal, oil and natural gas reserves</i>	Anthracite, bituminous and brown coal deposits; petroleum and natural gas reserves and fields.
<i>Metallic mineral reserves</i>	Ferrous, non-ferrous and precious metal ore deposits.
<i>Non-metallic mineral reserves</i>	Stone quarries and clay and sand pits; chemical and fertilizer mineral deposits; salt deposits; deposits of quartz, gypsum, natural gem stones, asphalt and bitumen, peat and other non-metallic minerals other than coal and petroleum.
<b>Non-cultivated biological resources</b>	Animals and plants that yield both once-only and repeat products over which ownership rights are enforced but for which natural growth and/or regeneration is not under the direct control, responsibility and management of institutional units. Examples are virgin forests and fisheries within the territory of the country. Only those resources that are currently, or are likely soon to be exploitable for economic purposes should be included.
<b>Water resources</b>	Aquifers and other groundwater resources to the extent that their scarcity leads to the enforcement of ownership and/or use rights, market valuation and some measure of economic control.
<b>Intangible non-produced assets</b>	Non-produced assets that are constructs of society. They are evidenced by legal or accounting actions, such as the granting of a patent or the conveyance of some economic benefit to a third party. Some entitle their owners to engage in certain specific activities and to exclude other institutional units from doing so except with the permission of the owner. Intangible non-produced assets consist of patented entities, leases and other transferable contracts, purchased goodwill and other intangible non-produced assets.
<b>Patented entities</b>	Inventions in categories of technical novelty that, by law or by judicial decision, can be afforded patent protection. Examples include

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	constitutions of matter, processes, mechanisms, electrical and electronic circuits and devices, pharmaceutical formulations and new varieties of living things produced by artifice.
Leases and other transferable contracts	Leases or contracts where the lessee has the right to convey the lease to a third party independently of the lessor. Examples include leases of land and buildings and other structures, concessions or exclusive rights to exploit mineral deposits or fishing grounds, transferable contracts with athletes and authors and options to buy tangible assets not yet produced. Leases on the rental of machinery are excluded from non-financial intangible assets.
Purchased goodwill	The difference between the value paid for an enterprise as a going concern and the sum of its assets less the sum of its liabilities, each item of which has been separately identified and valued. The value of goodwill, therefore, includes anything of long-term benefit to the business that has not been separately identified as an asset, as well as the value of the fact that the group of assets is used jointly and is not simply a collection of separable assets.
Other intangible non-produced assets	Intangible non-produced assets not elsewhere classified.

\* Source: *System of National Accounts, 1993*

### Appendices showing assumed life of assets used in 2004-05 series

#### Appendix 26.2

##### Asset wise age (in years) in Administrative Department

S. No.	Industry	Building	Roads & Bridges	Other Construction	Transport Equipment	Machinery and Equipment	Software
1.	Construction	-	-	-	-	15	5
2.	Water Supply	80	800	50	20	20	5
3.	Real Estate, Ownership of Dwellings & Business Services	80	-	-	-	-	-
4.	Public Administration and Defence (excluding broadcastings)	80	800	35	10	15	5
5.	Other Services	80	800	35	20	15	5
6.	Government Quasi Bodies	80	-	35	20	15	-

#### Appendix 26.3

##### Asset wise age (in years) in Departmental Enterprises

S. No.	Industry	Building	Roads & Bridges	Other Construction	Transport Equipment	Machinery and Equipment	Software
1.	Agriculture (Irrigation)	80	800	100	20	25	5
2.	Forestry and Logging	80	800	35	20	25	5
3.	Manufacturing including Rly Mfg. & Telecom Factory	80	800	50	20	25	5
4.	Electricity	80	800	50	20	25	5
5.	Trade	80	-	35	20	25	-
6.	Railway Transport	80	100	35	35	20	-
7.	Other Transport excluding Port Trusts	80	800	35	20	25	5
8.	Communication	80	-	35	15	15	-
9.	Railway Manufacturing	80	100	35	20	25	-
10.	Telecom Factory	80	-	-	20	25	-
11.	Other Services (Broadcasting)	80	-	-	20	15	-

**Asset wise age(in years) in Non-Departmental Enterprises**

S. No.	Industry	Building	Roads & Bridges	Other Construction	Transport Equipment	Machinery and Equipment including software
1.	Agriculture	80	-	35	20	25
2.	Forestry and Logging	80	-	35	20	25
3.	Fishing	80	-	35	20	25
4.	Mining and Quarrying	45	-	33	20	25
5.	Manufacturing	80	-	50	20	25
6.	Construction	80	-	36	20	25
7.	Electricity	80	-	50	20	25
8.	Gas	80	-	50	20	25
9.	Trade	80	-	35	20	25
10.	Hotel & Restaurants	80	-	35	20	25
11.	Road Transport	80	-	35	20	25
12.	Water Transport	80	-	35	20	25
13.	Air Transport	80	-	50	20	25
14.	Port Trust	80	-	35	20	25
15.	Concord	65	-	35	20	25
16.	Storage	80	-	35	20	25
17.	Communication	80	-	35	20	25
18.	Banking and Insurance	80	-	35	20	25
19.	Other Services	80	-	35	20	25
20.	Water Supply	80	-	50	-	20

**Asset wise age (in years) in Private Sector**

S. No.	Industry	Non-residential Building	Other Construction	Machinery and Equipment	Software
1.	Agriculture	40	25	25	-
2.	Agriculture Plantation	-	35	-	-
3.	Forestry and Logging	-	35	25	-
4.	Fishing	-		15	-
5.	Mining and Quarrying	-	33	25	5
6.	Manufacturing Registered	-	65	25	5
7.	Manufacturing Un-registered	-	65	25	5
8.	Electricity	-	45	25	5
9.	Construction	-	65	25	5
10.	Trade (Private Corporate)	-	65	25	-
11.	Trade (Co-operative Societies)	-	65	25	-
12.	Trade (Household)	-	65	25	-
13.	Hotel & Restaurants	-	65	25	5
14.	Transport by other means – Mechanised Road Transport	-	50	20	5
15.	Transport by other means –Non-Mechanised Road Transport	-		8	-
16.	Water Transport	-	50	20	-
17.	Private Air Transport	-	35	25	-
18.	Storage	-	65	25	-
19.	Banking and Insurance – Private Banks	-	65	25	5



S. No.	Industry	Non-residential Building	Other Construction	Machinery and Equipment	Software
20.	Banking and Insurance – Non Banking Financial Companies	-	65	25	-
21.	Banking and Insurance- Co-operative Banks / Credit Societies	-	65	25	-
22.	Ownership of Dwellings - Urban Res. Building (Pucca)	-	80	-	-
23.	Ownership of Dwellings - Urban Res. Building (Kutcha)	-	10	-	-
24.	Ownership of Dwellings - Rural Res. Building (Pucca)	-	80	-	-
25.	Ownership of Dwellings - Rural Res. Building (Kutcha)	-	10	-	-
26.	Real Estate & Business Services	-	20	20	5
27.	Other Services	-	65	25	5
28.	Joint Stock Companies	-	65	25	5
29.	Co-operative Societies- non financial (Other Services)	-	65	25	-
30.	Communication	-	-	25	5
31.	Private Quasi Bodies	-	65	25	-

## Appendix 26.6

**Indices used for deflation of estimates of Capital in 2004-05 series**

Indices used in Public Sector
1. CPI, UNME: for building
2. Weighted Index No. of Roads & Bridges: for Roads & bridges
3. Weighted Index No. of rural/urban construction works (accounted ):for other construction
4. WPI of transport equipment (Locomotive + Motor): for transport equipment
5. WPI of non-electrical machinery : for machinery equipment and Software
6. WPI of Iron and Steel: for other construction in railways transport only.

**Indices used in Private Sector**

1. CPI-UNME:	For Ownership of Urban Pucca Dwelling, Urban Kutcha Dwelling
2. WPI for non-electrical machinery:	For 1. Machinery Equipment of Agriculture, Forestry & Logging, Unregistered Manufacturing, Non-mechanized Road Transport, Communication, and 2. Software of Mining & Quarrying, Manufacturing, Electricity, Construction, Hotel & Restaurants, Banking Insurance, Real Estate, Other Services, Joint Stock Companies, Communication, Private Quasi Bodies.
3. WPI for Transport Equipment (Locomotive + Motor)	For Machinery Equipment of Mechanised Road Transport, Water Transport.
4. Weighted Index No. of wages of rural & urban construction workers (unaccounted)	For Non- residential building of Agriculture
5. Weighted Index No. of cost of general pucca construction	For Other Construction of Mining & Quarrying, Registered Manufacturing, Unregistered Manufacturing, Electricity, Construction, Trade, Hotel & Restaurants, Mechanised Road Transport, Non-mechanised Road Transport, Water Transport, Air Transport, Storage, Banking Insurance, Other Services, Joint Stock Companies, Quasi Private Bodies.

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6. Weighted Index No. of cost of construction-rural housing	For Ownership of Rural Pucca Dwelling, Rural Kutcha Dwelling
7. WPI for electrical machinery	For Machinery Equipment of Electricity,
<b>Indices used in Private Sector</b>	
8. Index used for fishing (weighted index of WPI of Timber, Diesel Engine, Nylon)	For Machinery Equipment of Fishing
9. WPI for Machinery & Transport Equipment (Motor)	For Machinery Equipment of Mining & Quarrying, Registered Manufacturing, Construction, Trade, Hotel & Restaurants, Air Transport, Storage, Banking Insurance, Other Services, Joint Stock Companies, Quasi Private Bodies.
10. CPI, Agricultural Labourer	For Other Construction of Agriculture Plantation, Forestry & Logging
11. Weighted Index No. of wages of rural & urban construction workers(accounted)	For Other Construction of Agriculture

**Table 26.1: Estimates of Capital Stock as on 31 March, 2005 by type of institution***(Rs. Crore)*

<b>Institution</b>		<b>Net Fixed Capital Stock</b>	<b>Inventories</b>	<b>Net Capital Stock</b>
<b>1</b>	<b>public sector</b>	<b>3210527</b>	<b>183537</b>	<b>3394064</b>
1.1	administrative departments	1396746	18998	1415744
1.2	departmental enterprises	634139	8947	643086
1.3	non departmental enterprises	1179642	155592	1335234
<b>2</b>	<b>private sector</b>	<b>5507783</b>	<b>423782</b>	<b>5931565</b>
2.1	private corporate sector	2043588	190782	2234370
2.1.1	joint stock companies	2027844	175210	2203054
2.1.2	co-operatives	15744	15572	31316
2.2	household sector	3464195	233000	3697195
<b>3</b>	<b>Total</b>	<b>8718310</b>	<b>607319</b>	<b>9325629</b>

**Table 26.2: Estimates of Capital Stock as on 31 March, 2005 by industry of use***(Rs. Crore)*

Industry	Public Sector			Total		
	Net Fixed Capital Stock	Inventory	Net Capital Stock	Net Fixed Capital Stock	Inventory	Net Capital Stock
<b>1 agriculture, forestry &amp; fishing</b>	<b>378458</b>	<b>3777</b>	<b>382235</b>	<b>933029</b>	<b>68730</b>	<b>1001759</b>
1.1 agriculture	358787	3353	362140	882054	68306	950360
1.2 forestry & logging	19613	427	20040	20212	427	20639
1.3 fishing	58	-3	55	30763	-3	30760
<b>2 mining &amp; quarrying</b>	<b>180138</b>	<b>11688</b>	<b>191826</b>	<b>216285</b>	<b>16481</b>	<b>232766</b>
<b>3 manufacturing</b>	<b>228606</b>	<b>80418</b>	<b>309024</b>	<b>2321438</b>	<b>306650</b>	<b>2628088</b>
3.1 registered	228606	80418	309024	1713524	261767	1975291
3.2 unregistered	0	0	0	607914	44883	652797
<b>4 elect. gas &amp; water supply</b>	<b>643851</b>	<b>16578</b>	<b>660429</b>	<b>702133</b>	<b>16358</b>	<b>718491</b>
<b>5 construction</b>	<b>34347</b>	<b>9459</b>	<b>43806</b>	<b>236280</b>	<b>25686</b>	<b>261966</b>
<b>6 trade, hotels &amp; restaurants</b>	<b>9247</b>	<b>30261</b>	<b>39508</b>	<b>454870</b>	<b>134240</b>	<b>589110</b>
6.1 trade	7706	30253	37959	371949	132162	504111
6.2 hotels & restaurants	1541	8	1549	82921	2078	84999
<b>7 transport, storage &amp; communication</b>	<b>377970</b>	<b>12238</b>	<b>390208</b>	<b>579283</b>	<b>14724</b>	<b>594007</b>
7.1 railways	194145	1955	196100	194145	1955	196100
7.2 transport by other means	48824	1300	50124	222903	3754	226657
7.3 storage	4998	5597	10595	6049	5597	11646
7.4 communication	130003	3386	133389	156186	3418	159604
<b>8 financing, insurance, real estate &amp; business services</b>	<b>98710</b>	<b>1255</b>	<b>99965</b>	<b>1731975</b>	<b>4667</b>	<b>1736642</b>
8.1 banking & insurance	44256	1255	45511	75528	3840	79368
8.2 real estate, ownership of dwellings & busi. services	54454	0	54454	1656447	827	1657274
<b>9 community, social &amp; personal services</b>	<b>1259200</b>	<b>17863</b>	<b>1277063</b>	<b>1543017</b>	<b>19783</b>	<b>1562800</b>
9.1 public administration & defence	1142401	16978	1159379	1142401	16978	1159379
9.2 other services	116799	885	117684	400616	2805	403421
<b>10 total(1 to 9): net capital stock</b>	<b>3210527</b>	<b>183537</b>	<b>3394064</b>	<b>8718310</b>	<b>607319</b>	<b>9325629</b>

**Table 26.3: Estimates of Consumption of Fixed Capital during 2004-05 by industry of use**

*Rs. crore*

<b>Industry</b>	<b>Public Sector</b>	<b>Total</b>
<b>1 agriculture etc.</b>	6042	38137
1.1 agriculture .	5236	33893
1.2 forestry & logging	802	827
1.3 fishing	4	3417
<b>2 mining &amp; quarrying</b>	11804	14564
<b>3 manufacturing</b>	13712	106730
3.1 registered	13712	86500
3.2 unregistered	0	20230
<b>4 elect. gas &amp; water supply</b>	26807	28886
<b>5 construction</b>	1240	10344
<b>6 trade, hotels &amp; restaurants</b>	269	12553
6.1 trade	216	9373
6.2 hotels & restaurants	53	3180
<b>7 transport , storage &amp; communication</b>	18183	30832
7.1 railways	7466	7466
7.2 transport by other means	3813	15204
7.3 storage	85	108
7.4 communication	6819	8054
<b>8 financing, ins., real estate &amp; b. s.</b>	2314	39295
8.1 banking & insurance	1588	2986
8.2 real estate, ownership of dwellings & busi. Serv.	726	36309
<b>9 community, social &amp; personal services</b>	28634	38550
9.1 public administration & defence	25618	25618
9.2 other services	3016	12932
<b>10 total ( 1 to 9 )</b>	<b>109005</b>	<b>319891</b>

**Table 26.4: Estimates of Consumption of Fixed Capital during 2004-05 by type of institution**

*Rs. crore*

<b>Institution</b>	
1 Public Sector	109005
1.1 Admin. Departments (Inclusive of Quasi)	31521
1.2 Depart. Enterprises	15817
1.3 Non Dept.	61667
2 Private Sector	210886
2.1 Private Corporate	99850
2.1.1 Joint Stock Cos.	99680
2.1.2 Co-operatives	169
2.2 Household	111036
<b>3 Total</b>	<b>319891</b>

## Public Sector

## Part-B

## Non-Departmental Commercial Undertakings-Financial and Non-Financial Corporations

- 27.97 Non departmental commercial undertakings (NDCU) comprise Government companies in which not less than 51 per cent of the paid up capital (PUC) is held by the central government or state government or partly by central government and partly by one or more state governments, subsidiaries of government companies, Statutory corporations set up under special enactments of parliament or state legislatures, nationalized banks, Life Insurance Corporation of India(LIC), General Insurance Corporation (GIC), etc.
- 27.98 Non Departmental Commercial Undertakings (NDCU) hold and manage the financial/non-financial assets and liabilities. Assets may be tangible as well as intangible assets. These enterprises have separate boards of directors and present profit and loss accounts and balance sheets.
- 27.99 Non departmental commercial undertakings have been divided into two categories based on the type of activity performed by them:
- **Financial enterprises:** These are engaged in activities involving financial transactions. These include the nationalized banks and banking department of RBI, Financial corporations LIC, GIC and its subsidiaries and employees state insurance corporation (ESIC).
  - **Non-financial enterprises:** These include all other undertakings/ enterprises of central, state, union territory governments and local authorities under the industry groups of agriculture, forestry and logging, fishing, mining, manufacturing, electricity and gas, road, air and water transport including port trusts, storage and warehousing, trade, hotels & restaurants and other services.

**Data Sources and its Analysis**

- 27.100 The annual accounts of each of the non departmental enterprises are analysed separately to prepare the national accounts of this sub sector. The annual accounts presented by these enterprises contain two parts viz. profit and loss account and balance sheet. The profit and loss account gives the details of income and expenditure incurred by the enterprise during the accounting year whereas the balance sheet provides the details of the economic position of the unit at a point of time in comparison to the previous year. To prepare the national accounts, the data from the annual accounts of the enterprise is analysed through specially designed worksheets. These worksheets are bridge tables for generating the three main accounts, namely, Production Account, Income & Outlay Account and Capital Finance Account as per 1968 SNA.

**Production account**

Item	Item
1. Intermediate Consumption	Output of goods & services
2. Compensation of employees	
3. Operating surplus	
4. Consumption of fixed capital	
5. Indirect taxes	
6. <b>Less</b> subsidies	
<b>7. Gross Input</b>	<b>9. Gross output</b>

- 27.101 The production account as shown above is concerned with items of income and expenditure relating to the production activity of the enterprise during the year. Details of the important entries of this account are discussed in the following paragraphs.
- Gross output**
- 27.102 Gross output is the value of sales together with the value of change in stocks of finished and semi finished goods, work in progress and the value of own account fixed capital formation.
- Intermediate consumption**
- 27.103 Intermediate consumption consists of the value of the goods and services consumed as inputs by a process of production, excluding fixed assets whose consumption is recorded as consumption of fixed capital. The goods or services may be either transformed or used up by the production process. Some inputs

re-emerge after having been transformed and incorporated into the outputs, for example grain may be transformed into flour which in turn may be transformed into bread. Other inputs are completely consumed or used up, for example electricity and most services. Intermediate consumption does not include expenditure by enterprises on valuables consisting of works of art, precious metals and stones, articles of jewellery etc. as valuables are assets acquired as stores of value; they are not used up in production and do not deteriorate physically over time. The intermediate consumption does not include costs incurred by the gradual using up of fixed assets owned by the enterprise. The decline in their value during the accounting period is recorded as consumption of fixed capital. However, intermediate consumption does include the rentals paid on the use of fixed assets, whether equipment or buildings (if available separately from land rent), that are leased from other institutional units and also fees, commissions, royalties, etc. payable under licensing arrangements.

### Compensation of employees

- 27.104 Compensation of employees has two main components:
- Wages and salaries payable in cash or in kind; and
  - The value of the social contribution payable by employers. These may be actual social contributions payable by employers to social security schemes or to private funded social insurance schemes to secure social benefits for their employees; or imputed social contributions by employers providing unfunded social benefits.

### Operating Surplus

- 27.105 Operating surplus is a measure of the surplus accruing from processes of production. It is estimated as gross output less the sum of intermediate consumption, compensation of employees, CFC and indirect taxes less subsidies.

### Consumption of fixed capital

- 27.106 Consumption of fixed capital is a cost of production. It may be defined as decline, during the course of the accounting period, in the current value of the stock of fixed assets owned and used by a producer as a result of physical deterioration, normal obsolescence or normal accidental damage. It excludes the value of fixed assets destroyed by acts of war or exceptional events such as major natural disasters which occur very infrequently. In order to be consistent with the other entries in the same production account, consumption

of fixed capital must be valued with reference to the same overall set of current prices as that used to value output and intermediate consumption. Consumption, of fixed capital should reflect underlying resource costs and relative demands at the time the production takes place. It should therefore be calculated using the actual or estimated prices and rentals of fixed assets prevailing at that time and not at the times the goods were originally acquired. The historic costs of fixed assets, i.e. the prices originally paid for them, may become quite irrelevant for calculation of consumption of fixed capital if prices change sufficiently over time. Estimates of consumption of fixed capital are obtained as a by product of the perpetual inventory method (PIM) used for estimating capital stock and their changes over time. Consumption of fixed assets does not cover the depletion or degradation of non-produced assets such as land, mineral or other deposits or coal, or natural gas.

### Indirect Taxes

- 27.107 These include both production & Product Taxes.

- 27.108 **Taxes on production:** At the level of an individual enterprise, taxes on production are recorded as being payable out of its value added. Similarly, in business accounting, taxes on production, except invoiced VAT, are usually regarded as costs of production that may be charged against sales or other receipts when calculating profits for tax or other purposes. Other taxes on production include Taxes on payroll or work force; Recurrent taxes on land, buildings or other structures; Business and professional licences; Taxes on the use of fixed assets or other activities; Stamp taxes; Taxes on pollution and Taxes on international transactions.

- 27.109 **Taxes on products:** A tax on a product is a tax that is payable per unit of some good or service. The tax may be a specific amount of money per unit of quantity of a good or service. A tax on a product usually becomes payable when it is produced, sold or imported, but it may also become payable in other circumstances, such as when a good is exported, leased, transferred, delivered or used for own consumption or own capital formation. Excise Duty, Sales taxes, VAT, Cess, Custom duties are shown in this head.

- 27.110 **Value Added Tax (VAT):** A value added type of tax is a tax on goods or services collected in stages by enterprises but which is ultimately charged in full to the final



purchasers. It is described as a deductible tax because producers are not usually required to pay to the government the full amount of the tax they invoice to their customers, being permitted to deduct the amount of tax they have been invoiced on their own purchase of goods or services intended for intermediate consumption or fixed capital formation. VAT is usually calculated on the price of the good or service including any other tax on the product. VAT is also payable on imports of goods or services in addition to any import duties or other taxes on the imports.

### Subsidies

- 27.111 Subsidies are current unrequited payments that government unit, including non-resident government units, make to enterprises on the basis of the levels of their production activities or the quantities or values of the

goods or services which they produce, sell or import. Subsidies are equivalent to negative taxes on production in so far as the impact on the operating surplus is in the opposite direction to that of taxes on production. Subsidies do not include grants that governments may make to enterprises in order to finance their capital formation, or compensate them for damage to their capital assets, such grant being treated as capital transfers. Current grants received by the enterprises from the government to overcome losses like grants to the electricity boards and losses due to implementation of the new government policies by the nationalised banks etc. are treated as subsidies. The subsidy given to the FCI on account of distribution of the food grains on behalf of the government is also included under this head.

### Income and Outlay Account

Item	Item
1. Property Income <ul style="list-style-type: none"> <li>• Interest</li> <li>• Dividends</li> <li>• Rent and Royalties</li> </ul>	6. Operating Surplus
2. Direct Tax Payments	7. Property Income <ul style="list-style-type: none"> <li>• Interest</li> <li>• Dividends</li> <li>• Rent and Royalties</li> </ul>
3. Current Transfers not elsewhere classified	8. Current transfers not elsewhere classified
4. Saving	
5. Disbursement	9. Receipts

### Property Income

- 27.112 Property incomes are received by the owners of financial assets and tangible non-produced assets, mainly land and sub-soil assets. Property income accrues when the owners of such assets put them at the disposal of other institutional units. As a result financial assets are created whose owners are entitled to receive property incomes in the form of interest, dividend etc. Owners of land and subsoil assets may put them at the disposal of other units by arranging contracts or leases under which the tenants or users of the assets agree to pay the owners property incomes in the form of rents and royalties.

### Interest

- 27.113 Interest is a form of property income that is receivable by the owners of certain kinds of financial assets, namely: deposits; securities other than shares; loans and other accounts receivable. Interest may be defined as: Under the terms of financial instrument agreed between them (creditors and debtors) interest is the amount that the debtor becomes liable to pay to the creditor over a given period of time without reducing the amount of principal outstanding.

### Dividend

- 27.114 Dividends are a form of property income to which shareholders become entitled as a result of placing funds at the disposal of corporations. Raising equity capital through the issue of shares is an alternative way of raising funds to borrowing.

### Rents and Royalties

- 27.115 Rent is a form of property income which is treated as accruing continuously to the landowner throughout the period of the contract agreed between the landowner and the tenant. The rent recorded for a particular accounting period is therefore, equal to the value of the accumulated rent payable over that period of time, as distinct from the amount of the owners of the assets, whether private or government units, may grant leases to other institutional units permitting them to extract such deposits over a specified period of time in return for the payment of rents. These payments are often described as royalties, but they are essentially rents that accrue to owners of the assets in return for putting them at the disposal of other institutional units like mining rights for specified periods of time and are treated as such in the system. The

rents may take the form of periodic payments of fixed amounts, irrespective of the rate of extraction or, more likely, they may be a function of the quantity or volume of the asset extracted.

### Transfers

- 27.116 A transfer is a transaction in which one institutional unit provides a good, service or asset to another unit without receiving from latter any good, service or asset in return as counterpart. A cash transfer consists of the payments of currency or transferable deposit by one unit to another without any counterpart. A transfer in kind consists either of the transfer of ownership of a good or asset, other than cash, or the provision of a service, without any counterpart. Transfers may either be current or capital. A capital transfer is one in which the ownership of an asset is transferred or which obliges one or both parties to acquire or dispose of an asset. Other transfers are described as current. Three main types of current transfers are:
- Current taxes on income, wealth etc.
  - Social contributions and benefits
  - Other current transfers.

### Saving

- 27.117 Saving is the balancing item of the Income and Outlay Account. It represents the difference between the current receipts and current expenditure in an accounting year. Gains and losses associated with the transactions in fixed assets are not taken in to account and therefore excluded from the estimates of saving.

### Capital Finance Account

- 27.118 The structure of Capital Finance Account for NDCUs is indicated in the following Table. This account is prepared by analysing the Balance sheets of the NDCUs. The balance sheet contains accounts that are concerned with the values of the assets owned by institutional units or sectors and their liabilities at particular points in time and with the evaluation of those values over time. Balance sheets measure the values of stocks of assets or liabilities and are typically compiled at the beginning and end of the accounting period. The major entries of this account are described in the succeeding paragraphs.

### Capital Finance Account

item	item
1. Change in stocks	5. saving, net
2. Gross fixed capital formation	6. Consumption of fixed capital
3. Purchase of land (net)	7. Capital transfers, net
<b>4. Gross investment</b>	<b>8. Finance of gross investments</b>
<b>9. Net lending</b> (8-4) or (16-21)	
10. Cash balance	17. Paid up capital
11. Bank Balance	18. Loans from
12. Investment in shares and securities	18.1 Government
13. Loans and advances	18.2 Financial Institutions
14. Foreign assets	18.3 Non- Financial Institutions
	18.4 Others
15. Other domestic assets	19. Foreign liabilities
	20. Other domestic liabilities
<b>16. Net Acquisition of Financial Assets</b>	<b>21. Net Incurrence of Liabilities</b>

### Gross investment

- 27.119 **Change in stocks:** The data on change in stocks is derived from the balance sheet and is equivalent to change in stocks of finished and semi-finished goods, works in progress, raw materials, fuels, packing material, tools and other consumable durables.
- 27.120 **Gross domestic fixed capital formation:** This item comprises of expenditure during the year

on residential & non-residential buildings, other constructions, machinery and equipment, transport equipment, capital work in progress and expenditure during construction. Data on gross fixed assets by type as at the end of the current and preceding financial years are available in the schedule of fixed assets attached to the balance sheets of the enterprises. Gross fixed capital formation is estimated by type from these schedules.

- 27.121 **Purchase of Land:** Land being a non-reproducible asset is shown separately from the gross fixed capital formation and consists of purchase/acquisition of land excluding structures and other construction works situated on it.

### **Finance of gross investment**

- 27.122 **Saving:** This item is transferred from the income and outlay account and serves as a source of finance for gross accumulation.

- 27.123 **Consumption of fixed capital:** This is transferred from the production account and is a source of finance for gross accumulation.

- 27.124 **Capital transfers:** These are transfers of non-recurrent nature from the government, primarily meant for financing capital formation or other similar long term expenditure like grants given by the government for workers colony.

- 27.125 **Net borrowing:** This is a balancing item in the upper and lower panel of the capital finance account.

### **Net acquisition of financial assets**

- 27.126 **Cash balance:** This is cash balance with the NDCUs.

- 27.127 **Bank balance:** This is self explanatory.

- 27.128 **Investment:** Investments are in the form of government securities or in the form of shares of subsidiaries and others.

- 27.129 **Loans and advances:** These are loans to employees, advance income tax etc.

- 27.130 **Foreign assets:** These include the bank deposits in foreign countries.

- 27.131 **Other domestic assets:** These include sundry debtors, credit advance, security deposit on account of electricity etc.

### **Net incurrence of liabilities**

- 27.132 **Paid up capital:** This is the share capital raised by the enterprises.

- 27.133 **Loans:** This is self explanatory.

- 27.134 **Foreign liabilities:** This includes loans received from foreign governments and institutions, international monetary institutions like IBRD etc. Also included is deferred payment to foreign countries.

- 27.135 **Other domestic liabilities:** This item include grants held in government account, sundry

creditors, proposed and unclaimed dividends, other current liabilities, and all provisions made such as provision for taxation and for bad and doubtful debts, advances from customers, security deposits from contractors, life fund, outstanding claims, other reserves and all other liabilities n.e.c. such as interest due to depositors but not paid during the year, sundry creditors etc.

### **Estimates at current prices Gross Domestic Product**

- 27.136 The GDP at factor cost is obtained as the sum of compensation of employees, operating surplus and CFC. This is also equivalent to gross output less inputs in the form of purchases of goods and services and indirect taxes less subsidies. The estimates in the case of NDCUs are obtained by analysing the annual accounts contained in their reports.

### **Gross Capital Formation**

- 27.137 It is measured by the total value of the gross fixed capital formation, changes in inventories and acquisitions less disposals of valuables.

### **Gross fixed capital formation**

- 27.138 It is measured by the total value of a producer's acquisitions less disposals of fixed assets during the accounting period plus certain additions to the value of non-produced assets realized by the productive activity of institutional units. Fixed assets are tangible or intangible assets produced as output from processes of production that are themselves used repeatedly or continuously in other processes of production for more than one year. The following items are covered:

- 27.139 **Dwellings and other buildings & structures** Gross fixed capital formation in buildings, including dwellings and other structures by producers consists of the value of their acquisitions of new and existing buildings & other structures less the value of their disposals of their existing buildings and structures. All dwellings, including houseboats, mobile homes and caravans used as principal residences of households and any associated structures such as garages are fixed assets. Construction of new historic monuments is also included in gross fixed capital formation.

- 27.140 **Machinery and equipment:** It consists of the value of acquisitions of new and existing machinery and equipment less the value of disposals of existing machinery and equipment. It covers transport equipment;

office equipment, furniture etc. Machinery and equipment such as vehicles, furniture, kitchen equipment, computers, communication equipment etc. that are acquired by households for purposes of final consumption, are not fixed capital formation.

27.141 **Cultivated assets:** These consist of livestock or trees that are used repeatedly or continuously over period of time of more than one year to produce other goods and service. Thus livestock like breeding stock, dairy cattle, and sheep reared for wool and drought animals are fixed assets. However, animals raised for slaughter, including poultry are not fixed assets. Similarly trees (including shrubs) that are cultivated in plantations for the products they yield year after year – such as fruit trees, vines, rubber trees, palm trees etc. are fixed assets, but trees grown for timber that yield a finished product once only when they are ultimately felled are not fixed assets.

27.142 **Mineral exploration:** Mineral exploration is undertaken to discover new deposits of minerals or fuels that may be exploited commercially. Such exploration may be undertaken on own account by enterprises engaged in mining or the extraction of fuels. Alternatively, specialised enterprises may carry out exploration either for their purposes or for fees. The information obtained from exploration influences the production activities of those who obtain it over a number of years. The expenditures incurred on exploration within a given accounting period, whether undertaken on own account or not, are therefore treated as expenditures on the acquisition of an intangible fixed asset and included in the enterprise's gross fixed capital formation. It also includes the costs incurred to make it possible to carry out tests like the cost of aerial or other surveys, transportation cost etc. the value of the resulting asset is not measured by the value of new deposits discovered by exploration but by the value of resources allocated to exploration during the accounting period.

27.143 **Computer software:** Computer software that an enterprise expects to use in production for more than one year is treated as an intangible fixed asset. Acquisitions of such software are therefore treated as gross fixed capital formation. It also includes the purchase or development of large databases that the enterprise expects to use in production over a period of time more than one year.

27.144 **Entertainment, literary or artistic originals:** These consist of the original films, sound recordings, manuscripts, tapes, models etc. on which drama performances, radio and television programming, musical performances, sporting events etc. are recorded or embodied. The acquisition of an original constitutes gross fixed capital formation. The original is often retained by its producer, but it may also be sold after it has been produced in order to be exploited by another unit. When it is sold the gross fixed capital formation is measured by the price paid by the purchaser to acquire the asset. If it is not sold, its valuation may be difficult because it depends on the future benefits that the owner expects to derive. These benefits may be very difficult to estimate in advance. In the absence of other information it may be necessary to value the originals by its costs of production, as in the case of many other kinds of output produced for own gross fixed capital formation.

27.145 **Research and Development:** The expenditure reported on account of research and development has been taken as part of research and development as per SNA 2008 in the new base year.

### **Change in stock**

27.146 It represents the value of the physical change in raw materials, work in progress (other than the work in progress in buildings which are included in fixed capital formation) and finished products, which are held by commercial enterprises.

### **Saving**

27.146 The net saving of government companies and statutory corporations including the RBI and LIC, are estimated using the results of the analysis of the annual accounts of these companies and corporations. The net saving is obtained as an aggregate of net transfers to balance sheet and net transfers to reserve. Income/ expenditure relating to previous year and capital gains/losses are excluded. The net saving of the Banking Department of RBI is estimated as the sum of the annual changes in i) National Agricultural Credit (Long term Operations) Fund; ii) National Agricultural Credit (stabilisation) Fund and iii) National Industrial Credit (Long Term Operations) Fund. In the case of LIC, only the saving arising out of the surpluses other than those added to life fund and transferred to the government is considered.

## Estimates at constant prices

### Gross Domestic Product

- 27.148 The estimates of GDP for individual industrial categories at constant prices are prepared either by deflating the current price estimates with relevant price index numbers or by moving the base year estimates with the quantum indices of the volume of activities.
- 27.149 **Agriculture:** In the case of NDCUs the implicit price indices in respect of the total domestic product in agriculture is used for deflating the current prices estimates.
- 27.150 **Forestry & logging, fishing, mining & quarrying:** The estimates of GVA at current prices are deflated separately with the implicit price index of total GVA in the respective industries.
- 27.151 **Manufacturing:** The current price estimates are deflated by the price indices worked out from the data on sales of more important of the enterprises such as-Bharat Earth Movers Ltd., Bharat Heavy Electricals Ltd., Heavy Engineering Corporation Ltd., Hindustan Antibiotics Ltd., Hindustan Telephone Industries, Hindustan Teleprinters Ltd., Hindustan Steel Ltd., Visveswareya Iron & Steel Ltd., Indian Oil Corporation Ltd., Madras Refineries Ltd., Cochin Refineries Ltd., Indian Petrochemicals Corporation Ltd., Fertiliser & Chemicals (Travancore) Ltd., Fertiliser Corporation of India Ltd. and Rashtriya Chemicals & Fertilisers Ltd.
- 27.152 **Electricity, gas and water supply:** In the case of electricity the base year estimates of GDP are carried forward to other years with the help of quantum indices prepared from the data on quantity of energy sold by the public sector undertakings as available annually in Public Sector Electricity Supply-All India Statistics (CEA-Commercial Directorate of Ministry of Energy). For water supply, where the NDP consists of compensation of employees only, the current price estimates are deflated with the help of CPI of industrial workers. The estimates of CFC at constant prices are added to NDP at 2004-05 prices to arrive at GDP at constant prices. These CFC
- estimates are prepared separately by using Perpetual Inventory Method.
- 27.153 **Construction:** The overall implicit price index for construction sector is used to deflate the estimates of GDP at current prices.
- 27.154 **Trade, hotels and restaurants:** The base year estimates of GDP in respect of NDCUs are moved forward using the indicators of volume of goods handled in FCI. For DCUs in trade and NDCUs in hotels and restaurants the estimates of GDP at current prices are deflated by the implicit price index as worked out from the current and constant price estimates of GDP in the trade sector of NDCUs.
- 27.155 **Transport storage and communication:** The methodology for constant price estimates is discussed in the chapter 17.
- 27.156 **Banking & Insurance:** The methodology for constant price estimates is discussed in the chapter 18.
- 27.157 **Other services:** Value added in public sector activities from other services comprises mainly compensation of employees. The current price estimates for this sector are deflated by the CPI of industrial workers.

### Quality and limitations of data base

- 27.158 One of the major limitations of estimates is the non-response in the case of some enterprises. Time-lag in finalisation of the annual accounts by some of the enterprises is another constraint. The estimates of gross product in respect of responding units are blown up with the ratio of the total PUC of all units to that of the responding units. The estimates of GCF and gross saving are worked out on the basis of trend analysis of the related components. The enterprise itself is taken as a statistical unit. In the case where the enterprise is engaged in more than one economic activity, the industry-wise estimates of domestic product and capital formation are prepared on the basis of the activity which forms the major source of value added.

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**Domestic Product from Public Sector by type of Economic Activity****and by type of Institution, 2004-05***(Rs. Crore)*

S. No.	Industry	GDP	NDP
<b>1</b>	<b>agriculture, forestry &amp; fishing</b>	<b>18063</b>	<b>12021</b>
1.1	agriculture	14146	8910
1.1.1	departmental enterprises	12276	7683
1.1.2	non-departmental enterprises	1870	1227
1.2	forestry & logging	3889	3097
1.2.1	departmental enterprises	3481	2722
1.2.2	non-departmental enterprises	418	375
1.3	fishing	18	14
1.3.1	non-departmental enterprises	18	14
<b>2</b>	<b>mining &amp; quarrying</b>	<b>68010</b>	<b>56206</b>
2.1	non-departmental enterprises	68010	56206
<b>3</b>	<b>manufacturing</b>	<b>64935</b>	<b>51223</b>
3.1	departmental enterprises	12273	11024
3.2	non-departmental enterprises	52662	40199
<b>4</b>	<b>electricity, gas &amp; water supply</b>	<b>58806</b>	<b>31999</b>
4.1	administrative departments	5943	3534
4.2	departmental enterprises	2572	1163
4.3	non-departmental enterprises	50291	27302
<b>5</b>	<b>construction</b>	<b>23751</b>	<b>22511</b>
5.1	administrative departments	16452	16238
5.2	departmental enterprises	5425	5425
5.3	non-departmental enterprises	1874	848
<b>6</b>	<b>trade, hotels &amp; restaurants</b>	<b>7783</b>	<b>7514</b>
6.1	trade	7417	7201
6.1.1	departmental enterprises	145	144
6.1.2	non-departmental enterprises	7272	7057
6.2	hotels & restaurants	366	313
6.2.1	non-departmental enterprises	366	313
<b>7</b>	<b>transport, storage &amp; communication</b>	<b>84057</b>	<b>65874</b>
7.1	railways	29162	21696
7.1.1	departmental enterprises	28952	21825
7.1.2	non-departmental enterprises	210	-129
7.2	transport by other means	20981	17168
7.2.1	departmental enterprises	2222	1708
7.2.2	non-departmental enterprises	18759	15460
7.3	storage	823	738
7.3.1	non-departmental enterprises	823	738
7.4	communication	33091	26272
7.4.1	departmental enterprises	4289	4124
7.4.2	non-departmental enterprises	28802	22148
<b>8</b>	<b>financing, insurance, real estate &amp; business services</b>	<b>98040</b>	<b>95726</b>
8.1	banking & insurance	97300	95712
8.1.1	Admn. Department (E. P. F. O.)	274	274
8.1.2	departmental enterprises	1376	1376
8.1.3	non-departmental enterprises	95650	94062
8.2	real estate & business services	740	14
8.2.1	administrative departments	740	14
<b>9</b>	<b>community, social &amp; personal services</b>	<b>257074</b>	<b>228440</b>
9.1	public admn., defence & quasi govt. bodies	174638	149020
9.1.1	public administration & defence	160844	137023
9.1.2	Autonomous institutions	13794	11997
9.2	other services	82436	79420
9.2.1	administrative departments	72810	70506
9.2.2	departmental enterprises	0	0
9.2.3	non-departmental enterprises	2178	1716
9.2.4	Autonomous institutions	7448	7198
<b>10</b>	<b>total</b>	<b>680519</b>	<b>571514</b>
<b>10.1</b>	<b>administrative departments</b>	<b>257063</b>	<b>227589</b>
<b>10.2</b>	<b>departmental enterprises</b>	<b>73011</b>	<b>57194</b>
<b>10.3</b>	<b>non-departmental enterprises</b>	<b>329203</b>	<b>267536</b>
<b>10.4</b>	<b>Autonomous institutions</b>	<b>21242</b>	<b>19195</b>



**Capital Formation in Public Sector by type of Economic Activity  
and by type of Institution, 2004-05**

(Rs. Crore)

GFCF	Change in	GCF	INDUSTRY	NFCF	Change in stocks	NCF
16159	28	16187	1 agriculture, forestry & fishing	10117	28	10145
15226	29	15255	1.1 agriculture	9990	29	10019
10928	47	10975	1.1.1 departmental enterprises	6335	47	6382
4298	-18	4280	1.1.2 non-departmental enterprises	3655	-18	3637
932	-1	931	1.2 forestry & logging	130	-1	129
862	6	868	1.2.1 departmental enterprises	103	6	109
70	-7	63	1.2.2 non-departmental enterprises	27	-7	20
1	0	1	1.3 fishing	-3	0	-3
1	0	1	1.3.1 non-departmental enterprises	-3	0	-3
16596	492	17088	2 mining & quarrying	4792	492	5284
16596	492	17088	2.1 non-departmental enterprises	4792	492	5284
13544	12543	26087	3 manufacturing	-168	12543	12375
1399	183	1582	3.1 departmental enterprises	150	183	333
12145	12360	24505	3.2 non-departmental enterprises	-318	12360	12042
44673	532	45205	4 electricity, gas & water supply	17866	532	18398
5965	26	5991	4.1 administrative departments	3556	26	3582
1215	-9	1206	4.2 departmental enterprises	-194	-9	-203
37493	515	38008	4.3 non-departmental enterprises	14504	515	15019
7693	902	8595	5 construction	6453	902	7355
407	240	647	5.1 administrative departments	193	240	433
7286	662	7948	5.2 departmental enterprises	6260	662	6922
7285	662	7947	5.3 non-departmental enterprises	6260	662	6922
474	-157	317	6 trade, hotels & restaurants	205	-157	48
402	-149	253	6.1 trade	186	-149	37
3	0	3	6.1.1 departmental enterprises	2	0	2
399	-149	250	6.1.2 non-departmental enterprises	184	-149	35
72	-8	64	6.2 hotels & restaurants	19	-8	11
72	-8	64	6.2.1 non-departmental enterprises	19	-8	11
24834	-323	24511	7 transport, storage & communication	6651	-323	6328
12975	149	13124	7.1 railways	5509	149	5658
10362	111	10473	7.1.1 departmental enterprises	3235	111	3346
2613	38	2651	7.1.2 non-departmental enterprises	2274	38	2312
3372	49	3421	7.2 transport by other means	-441	49	-392
571	29	600	7.2.1 departmental enterprises	57	29	86
2801	20	2821	7.2.2 non-departmental enterprises	-498	20	-478
55	-518	-463	7.3 storage	-30	-518	-548
55	-518	-463	7.3.1 non-departmental enterprises	-30	-518	-548
8432	-3	8429	7.4 communication	1613	-3	1610
141	-2	139	7.4.1 departmental enterprises	-24	-2	-26
8291	-1	8290	7.4.2 non-departmental enterprises	1637	-1	1636
5319	1	5320	8 financing, insurance, real estate & business services	3005	1	3006
3110	1	3111	8.1 banking & insurance	1522	1	1523
3	0	3	8.1.1 departmental enterprises	3	0	3
3107	1	3108	8.1.2 non-departmental enterprises	1519	1	1520
2209	0	2209	8.2 real estate & business services	1483	0	1483
2209	0	2209	8.2.1 administrative departments	1483	0	1483
94816	2454	97270	9 community, social & personal services	66182	2454	68636
83744	2297	86041	9.1 public admn. defence & autonomous inst.	58126	2297	60423
79605	2297	81902	9.1.1 public administration & defence	55784	2297	58081
4139	0	4139	9.1.2 Autonomous institutions	2342	0	2342
11092	157	11229	9.2 other services	8056	157	8213
8629	-1	8628	9.2.1 administrative departments	6325	-1	6324
0	0	0	9.2.2 departmental enterprises	0	0	0
396	158	554	9.2.3 non-departmental enterprises	-66	158	92
2047	0	2047	9.2.4 Autonomous institutions	1797	0	1797
224108	16472	240580	10 Total	115103	16472	131575
96815	2562	99377	10.1 administrative departments	67341	2562	69903
25484	365	25849	10.2 departmental enterprises	9667	365	10032
95623	13545	109168	10.3 non-departmental enterprises	33956	13545	47501
6186	0	6186	10.4 Autonomous Institutions	4139	0	4139

**Gross and Net Saving in Public Sector by type of Institution,***(Rs. Crore)*

Item		2004-05
<b>1</b>	<b>gross domestic saving</b>	<b>74499</b>
1.1	administrative departments	-84912
1.2	departmental enterprises	15740
1.3	non-departmental enterprises	134015
1.4	Autonomous institutions	9656
<b>2</b>	<b>consumption of fixed capital</b>	<b>109005</b>
2.1	administrative departments	29474
2.2	departmental enterprises	15817
2.3	non-departmental enterprises	61664
2.4	Autonomous institutions	2047
<b>3</b>	<b>net domestic saving</b>	<b>-34506</b>
3.1	administrative departments	-114386
3.2	departmental enterprises	-77
3.3	non-departmental enterprises	72348
3.4	Autonomous institutions	7609

**Final Consumption Expenditure of Administrative Departments  
by Type of Authority, 2004-2005***(Rs. Crore)*

Item		2004-05
<b>1</b>	<b>compensation of employees</b>	<b>236842</b>
1.1	central government #	61311
1.2	state government @	123955
1.3	local authorities	32381
1.4	Autonomous institutions	19195
<b>2</b>	<b>net purchase of commodities and services</b>	<b>86155</b>
2.1	central government #	29241
2.2	state government @	20797
2.3	local authorities	29950
1.4	Autonomous institutions	6167
<b>3</b>	<b>total ( 1 + 2 )</b>	<b>322997</b>
3.1	central government #	90552
3.2	state government @	144752
3.3	local authorities	62331
1.4	Autonomous institutions	25362
<b>4</b>	<b>consumption of fixed capital **</b>	<b>31521</b>
4.1	Administrative departments	29474
4.1	Autonomous institutions	2047
<b>5</b>	<b>total final consumption expenditure</b>	<b>354518</b>

# Includes Union Territories

\* Excludes wage component of new construction.

@ Including National Capital Territory of Delhi &amp; Pondicherry

\*\* No provision is made in the Budget Documents for CFC; these are estimated through the Perpetual Inventory Method

## INPUT OUTPUT TRANSACTIONS TABLE

### Introduction

28.1 The system of National accounts includes an integrated set of supply use tables as well as input-output tables. These tables provide a detailed analysis of the process of production and use of the goods and services products) and the income generated in that production.

28.2 The first Input-Output Transactions Table (IOTT), consistent with the National Accounts Statistics (NAS) related to the year 1968-69 was published by the Central Statistical Organisation (CSO), in the publication "National Accounts Statistics, 1978". This table was prepared jointly 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 regular basis and publish them once in every five years. The IOTT 1973-74, in the aggregated 60 sectors form, was included in the NAS, 1981. A detailed report entitled "Input-Output Transactions Table, 1973-74" was published by the CSO in September 1981. Thereafter, the Reports on IOTT for the reference years 1978-79, 1983-84, 1989-90, 1993-94 and 1998-99 in June 1989, September 1990, November 1997, July 2000, March 2005, 2008 respectively were brought out.

### IOTT Structure

28.3 It 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 the final expenditures. It also gives the method of estimation of inputs and outputs for various sectors of the economy and the underlying assumptions in case of non-availability of information in the forms required, particularly in the case of unspecified inputs

and outputs and their allocation to different sectors. It also deals with the method adopted for the generation of various components of final demand and indirect taxes.

28.4 *Appendix 28.1* 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 (130 sectors) adopted in the IOTT are given in *Appendix 28.2*.

28.5 Matrices 1 to 5 provide Detailed 130 sector absorption (commodity x industry) matrix for the Indian economy, accompanying make (industry x commodity) matrix and other associated/subsidiary matrices. The 130 sector commodity x commodity table under industry technology assumption, and the Leontief Inverse Matrix are included as Matrices 6 and 7 respectively.

28.6 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). The matrices included in the report 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.

### Sector Classifications

28.7 The first 37 sectors in the sector classification (Appendix 28.2) represent primary production, the next 68 sectors relate to manufacturing industries and the remaining 25 sectors deal with the tertiary activities. In the primary production, 20 categories belong to agriculture, 4 to animal husbandry and 1 each to forestry and fishing and the remaining 11 to mining. The level of dis-aggregation adopted for manufacturing industries generally correspond to 4-digit level of National Industrial Classification (NIC), 2004. 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, research & development, medical and health and other services. 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

28.8 All the entries in the IOTT are at factor cost, i.e. excluding trade and transport margins (TTMs) 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 TTMs 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

28.9 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 System of National Accounts (SNA).

### Overall Balancing between total Product and Expenditure

28.10 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 is 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.

### Inputs and Outputs of Sectors

28.11 Input structure in respect of different sectors together with commodity-wise details of final demand vectors and indirect taxes are compiled from the details available in the relevant worksheets made for preparation of national income and related aggregates released annually by the CSO through NAS. The details of sources of information and methodology in this respect have been discussed in the earlier chapters of this publication. However, specific details for the sectoral classification adopted in the Input-Output Transaction Table of Indian National Accounts are discussed in the following paragraphs.

### Agriculture (Sectors 1 to 20)

28.12 The first 20 sectors of the IOTT, namely, (1) paddy, (2) wheat, (3) jowar, (4) bajra, (5) maize, (6) gram (7) pulses, (8) sugarcane, (9) groundnut, (10) coconut, (11) other oil seeds, (12) jute, (13) cotton, (14) tea, (15) coffee, (16) rubber, (17) tobacco, (18) fruits, (19) vegetables, and (20) other crops, cover the agriculture sector. The input structures for these sectors have been developed separately for each of these 20 sectors.

28.13 The main sources of data utilised for estimation of various inputs going into production of various crops are the Cost of Cultivation Studies (CCS) published by the Directorate of Economics and Statistics, Ministry of Agriculture (DESAg).

28.14 The information on cost of plantation crops, viz., tea, coffee, rubber, tobacco and coconut is obtained from the Tea Board, Coffee Board, Rubber Board, Directorate of Tobacco Development and Coconut Development Board, respectively. The cost structure furnished by these Boards includes cost beyond the cultivation stage, whereas for agricultural sectors, the charges up-to the cultivation stage are only relevant as

processing of these crops is the activity outside the scope of agriculture. Account is therefore taken of the value of inputs used only up-to the stage of cultivation. These inputs relate to cost of materials required towards cultivation cost, such as, general fieldwork, manuring, spraying, plucking and tapping.

28.15 Since data available from these sources are in value terms and sometimes refer to different years, necessary adjustments are made for the price changes in those cases where the data related to the years other than reference year.

28.16 The inputs going into production of agricultural commodities are (i) seed, (ii) chemical fertilisers, (iii) organic manure, (iv) pesticides and insecticides, (v) irrigation charges, (vi) electricity, (vii) diesel oil, (viii) bullock labour, (ix) current repairs and maintenance of fixed assets and other operational costs, (x) market charges and (xi) financial intermediation services indirectly measured (FISIM).

28.17 The value of seed in respect of individual crops is estimated on the basis of seed rates available from the various CCS as well as from the State Agriculture Departments. The seed rates are the same as those utilised in the estimation of GDP.

28.18 The consumption of fertilisers for each of the crops (other than tea, coffee and rubber for which actual consumption estimates are available from the respective Boards) is estimated on the basis of information relating to crop-wise per hectare consumption of fertiliser available from the CCS Reports and the corresponding area under the crops. The fertiliser consumption in the case of 'other crops' is estimated on the basis of per hectare weighted average value of fertiliser consumption of all the principal crops and the area under 'other crops'. The total value of fertilisers thus estimated is distributed over all the crops using the value of total fertilisers as published in National Accounts Statistics.

28.19 The consumption of dung (organic) manure, pesticides and insecticides for each of the crops (other than tea, coffee and rubber) is estimated on the basis of information relating to crop-wise per hectare consumption of manure and pesticides available in the reports of the CCS and the area under each crop. In the case of 'other crops', the respective consumption of manure and pesticides is estimated on the basis of per hectare weighted average value of the manure and pesticides consumption of all the principal

crops and the area under 'other crops'. These crop-wise estimates are adjusted so as to correspond to the total value estimated for deriving GDP in the NAS. Pesticides data are available from Pesticide Association of India.

28.20 The irrigation charges are payable to the government in lieu of water supplied to producers from government owned canals. These data are collected from the State Directorates of Economics and Statistics (DESS), State Irrigation departments and budget documents of the state governments. The items on which the information is collected are sale of water for irrigation purposes, irrigation cess, local cess, etc. Allocation of charges to individual crops (excluding plantation crops) is done on the basis of data available from the CCS and the area under each crop. In the case of 'other crops', irrigation charges are estimated on the basis of per hectare weighted average value of irrigation charges of all the principal crops and the area under 'other crops'. The irrigation charges paid for agricultural activity are taken as self input and clubbed with the value of seed. As the government irrigation system is considered as service output of agricultural sector, the material input costs of government irrigation are also to be taken as inputs of the sector. The total material cost of government irrigation is arrived at from the budget documents of centre, state and local bodies. These items are (i) travel expenses, (ii) advertisement/publicity, (iii) electricity, (iv) publication, (v) postage and stamps, (vi) paper and stationery, (vii) repair of furniture, typewriters etc., (viii) maintenance of staff car and petrol charges, and (ix) repairs and maintenance. These material costs are allocated to each crop (excluding plantation crops) and 'other crops' in proportion to crop-wise area under canal irrigation.

28.21 Information on electricity consumption is not explicitly available from the CCS. Data on electricity utilised for agricultural purposes is obtained from the Central Electricity Authority and is distributed to various crops in proportion to crop-wise area irrigated by tube wells and pump sets.

28.22 Information on diesel oil consumption is used from the latest data available in the CCS. The total consumption of diesel oil in agriculture is estimated on the basis of number of tractors and diesel engines used in agriculture and per unit consumption of diesel oil. The data on the number of tractors are obtained from the respective state DES and the number of diesel engines, estimated from the livestock census. The value of diesel oil consumption by tractors



is distributed among the various crops in proportion to the area under each crop (excluding area under plantation crops & orchards) and that of diesel oil consumed by oil engines on the basis of crop area irrigated by all the sources except tube wells and canals.

28.23 The cost of bullock labour for the crops (excluding plantation crops) is estimated on the basis of data available from the CCS relating to crop-wise per hectare cost of bullock labour and the area under each crop. In case of 'other crops' the value is estimated on the basis of per hectare weighted average value of bullock labour of all the principal crops and the area under 'other crops'. The crop-wise estimates are finally adjusted so as to correspond to the value of bullock labour. These are in fact animal services produced in the animal husbandry sector for the use of agriculture and are taken as purchases from the animal husbandry sector.

28.24 Information on repair and maintenance is not available in the CCS. The estimates of total repairs and maintenance for all types of farm implements and machinery, farm houses, grain golas, plantations and orchards, reclamation of land, bunding and other land improvements are prepared on the basis of data contained in All India Debt and Investment Survey (AIDIS). Allocation of repairs and maintenance of fixed capital for various categories of assets for different crops is made in proportion to the fixed capital estimated on the basis of the CCS and is adjusted so as to correspond to the estimates for the agricultural sector as a whole.

28.25 In the dis-aggregated statement on value added from agriculture and allied activities published in the NAS, the item "market charges" is included as an input item. This item relates to transport charges for carrying the agricultural products from the farmer's field to the nearest market and the charges paid by the farmers to the primary marketing centres. In relation to these agricultural sectors, it may be mentioned that the manufacturing activities of rice milling, flour milling, dal milling and other grain milling are clubbed with the respective sectors of paddy, wheat, pulses and other crops, as the final uses are not available separately for these items.

28.26 Also, the value of output of by-products like straw, stalks, cane trash, rice bran etc. are included in the output of respective crops, as no separate inputs are required for their production. FISIM have also been allocated to

the respective sectors and are treated as an input item.

### **Animal Husbandry (Sectors 21-24)**

28.27 Animal husbandry activity is divided into three sectors namely (i) milk and milk products, (ii) animal services to agriculture consisting of services rendered by draught animals for different agricultural operations and (iii) poultry and eggs and other livestock products comprising of various edible and non-edible livestock products other than milk and milk products. The services rendered by animals for carrying goods and passenger traffic (unorganised transport) are considered as a part of transport sector and not of the animal husbandry sector.

28.28 The inputs of animal husbandry sector consist of livestock feed cost, expenditure on repairs and maintenance and operational cost. Livestock feed comprises of (i) roughages, which include cane-trash, grass, fodder, stalks and straws etc. The entire value of fodder products, cane trash and grass, 95 per cent of the value of stalks and straws (produced in agriculture sector) are assumed to constitute the feed of total livestock population (including transport animals). (ii) The estimates of concentrates per animal per year are obtained from CCS. A correction is made to adjust for the consumption of these items by those animals which are not used in agriculture by excluding the proportion of consumption of animals like bullocks in urban areas, horses, camels etc. mainly used for transportation purposes.

28.29 Category-wise animal population for the reference year is estimated by using the respective growth of animals observed in various Livestock Censuses (latest being Livestock Census 2003). Cost of feed of animals used in agricultural activities is estimated as a proportion of total feed cost of the entire population. For distributing the total cost between the agriculture and non-agriculture sectors, the respective number of animals under each of these categories is converted into cattle equivalents and proportions are worked out. The total urban working population of cattle and buffaloes and the entire population of horses, ponies, donkeys, mules and camels are treated as animals not used for agricultural purposes.

28.29 The total feed estimated as above is allocated to various categories of animals under the four sectors of animal husbandry and transport service animals. The livestock feed for the whole year is estimated separately for each category of animals.



28.30 The inputs of animal husbandry consist of feed, repairs and maintenance and operational cost. The cost of repairs and maintenance of cattle sheds and meat stalls is estimated using the results of AIDIS, and credited to construction sector. Operational cost of removing hides, skins, hair and wool consists of repair and maintenance of implements used and also the cost of labour. Since no information is available on the operational costs relating to livestock products, it is assumed that twenty five per cent of operational costs is firewood and thus credited to sector 25, ten per cent repairs and maintenance of implements used to be credited to sector 82, and the rest of it i.e. sixty five per cent of the operational cost is on labour which is produced and consumed by the two sectors 'milk and milk products' and 'other livestock products'. Gross value of output from livestock products is estimated from 8 broad groups, viz. (i) milk and milk products (ii) meat and meat products, (iii) hides and skins, (iv) eggs and poultry meat, (v) wool and hair, (vi) dung, (vii) increment in livestock and (viii) other products. The output thus worked out at market prices is then converted at producers' prices by deducting the market charges.

### **Forestry (Sector 25)**

- 28.31 The economic activities covered under this sector are (i) forestry (planting & conservation of forests, gathering of uncultivated forest products such as resins, lac etc; and charcoal burning carried out in the forests and the like) and (ii) logging (felling and rough cutting of trees, rough shaping of poles etc.) and transportation of logs upto the permanent lines of transport. The forest products are classified into two broad groups, (a) major products and (b) minor products. Major products include industrial wood (timber, round-wood, match and pulpwood) and fuel wood (fuel wood and charcoal wood) whereas minor products comprise a large number of items such as bamboo, sandal wood, charcoal, lac, resins, honey, gum, tendu leaves, etc.
- 28.32 For major products annual data on output and wholesale prices at assembling centres are obtained from the Chief Conservator of Forests or through the DES in the states. For estimating the value of output of major products, the production is evaluated at producers' prices at state level.
- 28.33 For minor products, output and price data for each type of products are not available for all states. For such states, information on royalty value or contract fee released by the

government is available. The value of output in such cases is worked out indirectly from the royalty value using appropriate proportions decided in consultation with the Chief Conservator of Forests/DES.

- 28.34 The inputs under this activity refer to operational costs and expenditure on repairs and maintenance of roads, transport equipment and other assets. On the basis of data on revenue and expenditure of the State Forest Departments, the value of inputs has been taken to be 10 per cent of total value of output. This sector consists of three parts (i) State Forest Departments appearing in the demands for grants of centre and state government budgets, (ii) state government forest corporations of various states and (iii) the work done by the contractors (private part). Information on purchase of commodities and services for government forests has been culled out from the budget documents of central and state governments. The total cost has been split up into items of raw material and services used on the basis of proportions obtained from the analysis of budget documents of the central and state governments. The commodity-wise details of items such as 'materials and supplies' and 'office expenditure' which appear in the 'Demands for Grants' of budget documents are obtained through correspondence from the State Forest Departments. Similarly, information on item-wise inputs of forest corporations of various state governments is culled out from their annual reports. However, for the remaining third part, the item-wise inputs are estimated on certain assumptions according to the nature of work done by the contractors.

### **Fishing (Sector 26)**

- 28.35 The activities included in this sector are commercial fishing in (i) ocean, coastal and off-shore water, (ii) inland water which includes catching, tackling and gathering of fish from rivers, irrigation and other canals, lakes, tanks etc., subsistence fishing and exploitation of uncultivated plants life in inland water and artificial ponds. Fish curing viz., salting and sun drying of fish is also taken as an activity falling within the sector.
- 28.36 The total input of fishing activity in the form of operational costs and expenditure on repairs and maintenance is obtained using the same norms as adopted in the estimation of gross value added from this sector. The total input in fish curing activity viz., value of salt used, estimated on the basis of data on value of salt used for fish curing received directly from the State Fisheries Department of the maritime states.

28.37 The total input of fishing activity is divided into two parts namely; using (i) mechanised boats and (ii) non-mechanised boats. On the basis of the data available in (i) "All India Livestock Census" (ii) ratio of cost of their maintenance derived from the study of mechanisation of fishing boats, by Programme Evaluation Organisation of Planning Commission of India and (iii) the results of the studies conducted by the Indian Institute of Management, Ahmedabad, the total repair and maintenance of the boats is estimated. The item-wise operational costs other than the repair and maintenance of boats are worked out on the basis of data received from different State Fisheries Departments. The total input cost for mechanised and non-mechanised boats are split up into various items. The input structure of fishing sector is obtained by clubbing the respective input structures, and also the value of salt used for fish curing and the FISIM.

#### **Mining and Quarrying (Sectors 27 to 37)**

28.38 Mining and quarrying activity is dealt separately into ten sectors namely, (i) coal and lignite, (ii) natural gas, (iii) crude petroleum, (iv) iron ore (v) manganese ore, (vi) bauxite, (vii) copper ore, (viii) other metallic minerals, (ix) lime stone, (x) mica and (xi) other non-metallic minerals.

28.39 The input norms for coal, lignite and crude petroleum & natural gas are based on data obtained from the Coal Controller, Neyveli Lignite Corporation Ltd., Oil & Natural Gas Commission and Oil India Ltd. Data on metallic and non-metallic minerals to the extent of iron ore, bauxite, manganese, other metallic minerals and non-metallic minerals (excluding minor minerals) are obtained through correspondence from the respective producing mines. The input data for minor minerals are taken from the annual reports of the companies. The items "other inputs" and "raw materials" appearing in the data have been broken up into various commodities on the basis of the expenditure details culled out from the annual reports of Non-Departmental Commercial Undertakings. The input-structure of other non-metallic minerals is obtained by combining those of the non-metallic minerals and minor minerals.

#### **Manufacturing (Sectors 38 to 105)**

28.40 Manufacturing sector, comprising of 38 to 105 sectors of the IOTT, is prepared separately for registered and unregistered manufacturing respectively. Data for registered manufacturing for a reference year is obtained from Annual Survey of Industries (ASI), whereas the data for unregistered manufacturing is obtained from survey

conducted by NSSO for a year close to reference year with proper adjustments.

28.41 **Registered Manufacturing:** The source of data for the output and inputs of registered manufacturing sector is the ASI. The Data of ASI used for the IOTT are Block H (Pt I Schedule) (inputs), Block J (outputs) and Block I, F & G (other inputs & outputs). These data available at 4-digit level of National Industrial Classification (NIC), 2004, estimated for All India by Industry x ASICC Commodity Codes from the respective Blocks are converted into IOTT sectors using NIC - IOTT concordance codes and ASICC Commodity-IOTT concordance codes for the industries & commodities respectively, which are developed specifically by the CSO. The input and output flows for registered manufacturing are arrived at by combining the individual flows of data from Block H, I, F for the former and Block J & G for the latter respectively. The unidentified items appearing in the Data such as "other products" and "addition to stock of semi-finished products" are clubbed with principal product of the industry. Also items like (i) other basic materials, (ii) other chemicals and auxiliary materials, (iii) other packing materials, (iv) consumable stores and (v) building material are distributed to the relevant conceivable sectors in proportion to their existing values. In addition to these items, some more items do appear viz. (i) electricity produced and sold, (ii) sale value of goods sold in the same condition as purchased, (iii) work done for others (iv) own construction (v) materials consumed for repairs and maintenance of machinery, building & others (vi) contract and commission works done by others on materials supplied, (vii) purchase value of goods sold in the same condition as purchased (viii) printing and stationery (ix) rates & taxes excluding income-tax (x) insurance charges (xi) bank charges (xii) inward freight and transport charges (xiii) postage, and telephone telex charges and (xiv) miscellaneous charges. While the items (i), (iii), (iv) and the difference of (ii) and (vii) (taken as trade output) relate to output, remaining items are inputs. Item (iii) & (vi) are allocated to other services sector in the output and input flows respectively. The repairs and maintenance of buildings are allocated to construction sector whereas the repairs and maintenance of others, machinery & equipment are allocated to relevant sectors producing industrial machinery. The remaining items are allocated to the respective sectors with the necessary adjustments. Repair & maintenance of locomotives & other rail road equipment are also included in the

manufacturing sector. These data are culled out from the Budget Documents of Ministry of Railways for the reference year.

- 28.42 **Unregistered Manufacturing:** The source of data for the output and inputs of unregistered manufacturing sector is from the survey on unorganised manufacturing sector conducted by the NSSO. Specially tabulated data on item-wise inputs and outputs are used for preparing the input/output flows of the unregistered manufacturing. Treatment of unidentified items appearing in the above mentioned tables are same as those of registered manufacturing, except for those items which are not given ASIC Codes. These uncoded items are given IOTT sector codes by the CSO on the basis of the corresponding descriptions of these items, made available to the CSO by the NSSO. Necessary adjustments are also made to convert the data to the latest reference year i.e. the year of latest IOTT. Input/output flows thus arrived separately for registered and unregistered manufacturing are clubbed together to arrive the total flows of the manufacturing sectors.
- 28.43 **Construction (Sector 106)** The values of the basic materials viz., cement, iron and steel, bricks and tiles, timber and round wood and other construction materials used for construction are the input costs of the construction sector. To split up the aggregate value of other construction materials over their various constituents, the input norms for roads and bridges compiled from a study done by Planning Commission and for other buildings, obtained from Central Building Research Institute (CBRI), Roorkee are used. The office expenditure of construction companies is taken from annual reports of public sector companies. The input norms for building construction are applied to the value of building construction and the input norms for roads and bridges are applied to the value of construction other than buildings.
- 28.44 In the Make Matrix the outputs shown by the industries against construction have been shown as such. Since the value of output and domestic product for the total construction is derived by the commodity flow approach, the output of construction sector in the Make Matrix is reduced by the total of construction output shown by the respective industries.
- 28.45 The inputs relating to construction not accounted in commodity flow approach are in the form of straw, bamboo and grass etc.
- 28.46 **Electricity (Sector 107)** The economic activities covered in this sector are generation, transmission and distribution of electrical energy. The estimates of inputs are arrived at by aggregating the inputs of (i) State Electricity Boards, (ii) Neyveli Lignite Corporation, (iii) Damodar Valley Corporation, (iv) Departmental Commercial Undertakings of Central and State Governments relating to the electricity sector, Municipal Electricity boards & Local Bodies (v) Private Electricity companies, respectively. The item-wise expenditure on inputs in these undertakings and private companies is compiled from their annual reports and budget documents of central and state governments and local bodies.
- 28.47 The gas sector covers the activity of gas produced and supplied. The major source of data is Khadi & Villages Industries Commission (KVIC) in the case of gobar (dung) gas. The data on production of gobar gas (methane) and manure in quantity and value terms along-with the number of gobar gas plants and the repair and maintenance of these plants are obtained from the KVIC. The input gobar (cow dung) and out put of manure are assumed to be of equal value due to the non-availability of details on their valuation. Thus, the inputs entering in the cost structure of gas sector are gobar and repairs and maintenance of the gobar gas plants.
- 28.48 **Water Supply (sector 108)** The economic activities covered in this sector are collection, purification and distribution of water for domestic and industrial consumers, excluding the operation of irrigation system. For preparing the input structure, government sector comprises of centre, state/UT governments and local authorities including water supply corporations/boards.
- 28.49 The item-wise inputs in respect of the government sector are estimated on the basis of data culled out from the budget documents of centre and state governments and local authorities and water supply corporation/boards. In the case of private sector, the only inputs considered are plumber charges and transportation charges. These are taken as one per cent of the GVA of private sector, in the absence of cost details of water supply activity in the private sector.
- 28.50 **Railway transport (Sector 109)** Railway transport service includes government railways. The total material consumption of

government railways is obtained by analysing the Demands for Grants for Expenditure of the Central Government Railways. The expenditure made by railways on education, medical facilities, and repair and maintenance activities of manufacturing railway (workshops) is excluded from this sector and is included in the respective sectors of the IOTT.

- 28.51 The material consumption of government railways appears as expenditure under five heads in the Demands for Grants for Expenditure of the Central Government Railways. These expenditure heads are (i) travel expenses, (ii) contingent expenses, (iii) cost of materials, (iv) contractual payments, and (v) other expenses. Item-wise details for contingent expenses, cost of materials, contractual payments and other expenses are culled out, to the extent possible, from the respective heads of the budget document and information collected from the Railway Board.

#### **Other Transport Services (Sector 111-113)**

- 28.52 The other transport service includes road, water, air transport and services incidental to transport. These activities are considered separately for the purpose of estimation of input structure. The road transport is further classified into mechanised and non-mechanised road transport.
- 28.53 **Mechanised Road Transport:** Mechanised road transport includes buses, trucks, taxis, auto rickshaws and tramways. The total material consumption of mechanised road transport is estimated separately for public and private sectors. For the public sector undertakings, input structure is estimated by analysing the annual reports of State Road Transport Corporations and Budget Documents of Centre, States & Local bodies. The public sector undertakings in respect of mechanised road transport are mainly engaged in bus transport services. As regards private sector, material consumption is estimated separately for passenger and freight traffic. For passenger and freight traffic, the input cost and item-wise details of the inputs are estimated separately, on the basis of norms obtained from the results of the Enterprise Survey/Surveys.

- 28.54 **Non-mechanised road transport:** The expenditure on individual items of inputs per enterprise is estimated from the norms obtained on non-mechanised transport in the Enterprise Survey. The ratios of input to GVA from non-mechanised road transport are then

worked out and applied to the total GVA from non-mechanised road transport available from NAS to get the input structure of non-mechanised road transport. The data available from the survey on unregistered manufacturing sector has been utilised to break-up the item repair and maintenance appearing in the input structure into different IOTT sectors. In the case of animal transport services, the input item "maintenance of working animals" is further broken up into item-wise feed of transport animals on similar lines as in the case of animal husbandry sector for the item, livestock feed.

- 28.55 **Water transport:** Water transport sector includes services rendered by (i) ocean & coastal water transport, (ii) inland water transport and (iii) supporting services to water transport. The organised and unorganised parts for each of these categories of water transport are considered separately for preparing the input structure of the sub-sector.

- 28.56 The organised ocean & coastal water transport covers freight and passenger traffic by shipping companies. For the details of material inputs, the profit and loss accounts of major shipping companies are analysed and the proportions are applied to the GVA for the entire shipping transport available from NAS. The input structure of unorganised part is estimated on the basis of the norms obtained through Enterprise Survey (ES) latest being 1993-94 in respect of water transport relating to ocean & coastal transport.

- 28.57 The input structure of organised inland water transport is arrived at by analysing the income and expenditure accounts of (i) Central Inland Water Transport Corporation, Calcutta, (ii) Kerala Water Transport Corporation and (iii) Kerala Inland Navigation Corporation. For unorganised inland water transport, the input structure has been prepared on the basis of the norms obtained through Enterprise Survey. The input to GVA ratio observed in these norms has been applied to the GVA of unorganised inland water transport available from NAS.

- 28.58 The organised part of supporting services to water transport comprises (i) port trusts, (ii) ports, pilotages, light houses and light ships and (iii) Dredging Corporation of India Ltd. The activities of port trusts include handling of import & export traffic and other port services. Separate accounts are available for each of the port trusts. Details available in these accounts are used to obtain the input structure of port trusts. In the case of

- Dredging Corporation of India Ltd., the information available in its annual report is made use of to arrive at the input structure. The data on purchase of goods and services in respect of ports, pilotages, light houses and light ships are culled out from the Demand for Grants of the Ministry of Home Affairs and Ministry of shipping, Road Transport and the relevant state government budgets. The item "office expenses", for which no details are available in the above mentioned government budgets, is broken up on the basis of information obtained from the concerned Ministries through correspondence. For the unorganised part of the supporting services to water transport, total input structure is prepared using the norms obtained through the latest available Enterprise Survey.
- 28.59 **Air Transport:** For preparing the input structure of public sector airlines, the annual reports of Air India and Indian Airlines provide the basic data from the profit and loss accounts. Item-wise details of miscellaneous expenses appearing in the reports are obtained from the companies through correspondence. For non-scheduled operators, input structure is estimated either on the basis of data available from the annual reports or from the data obtained from the companies through correspondence. To the above, the input structure of International Airport Authority of India (IAAI), National Airport Authority, flying & gliding clubs and the Directorate General of Civil Aviation (DGCA) are added to get the input structure of total air transport activity. Requisite information in respect of flying & gliding clubs is obtained from the companies and for IAAI and DGCA; the inputs are culled out from the annual reports/Demand for Grants of the Ministry of Tourism and Civil Aviation.
- 28.60 **Services incidental to transport:** Services incidental to transports comprise packing, crating, operations of travel agencies etc. These services are associated with shipping, air, railways and mechanised road (truck) transport. The Enterprise Survey provides the ratio of input to GVA in respect of services incidental to transport, covered under the NIC-98 groups 707, 708, 730, 737, 738 and 739. This ratio is applied to total GVA in respect of services incidental to transport available from NAS to arrive at the total input of the activity. The total inputs obtained are broken up into various expenditure items on the basis of details of expenditure obtained from the same survey and few travel agencies directly through correspondence.
- 28.61 The combined input structure of other transport sector is obtained by clubbing the input structures of road, water and air Transport and services incidental to transport.
- 28.62 **Storage and Warehousing (Sector 114)** This sector covers storage operations comprising warehousing corporations, cold storage & other storage and warehousing when such storage is offered as an independent service. The input structures of public sector warehousing, cold storage and storage & warehousing in the unorganised sector are prepared separately and consolidated thereafter to arrive at the value of inputs for this sector. Analysis of reports of public warehousing corporations provides the estimates of inputs for warehousing. Inputs for cold storage are estimated on the basis of results of ASI. However, break-up of certain items like stationery, repair and maintenance etc. is done on the basis of data obtained from few private cold storage units. The input structure of private storage and warehousing is estimated on the basis of the results of latest Enterprise Survey. The ratio of input to GVA of the storage and warehousing observed in the survey results has been applied to the total GVA of 'other storage and warehousing' from NAS.
- 28.63 **Communication (Sector 115)** This sector comprises of services rendered by public and private communication organisations / enterprises. The activities of the Department of Telecommunication relating to telecommunication factories and administrative services are excluded from communication and merged in the concerned sectors. The item-wise details of purchases of goods and services are prepared on the basis of the data culled out from the Demands for Grants for Expenditure of the Central Government for Departments of Posts & Telecommunication and the annual reports of the non-departmental commercial enterprises. The input relating to the private communication services is estimated on the basis of GVA to output ratio of the public sector part and is allocated to the different sectors on the basis of the norms of the public sector. The item-wise break-up of 'office expenses' is obtained on the basis of data obtained from the Central Government departments.
- 28.64 **Trade (Sector 116)** The activities considered in this sector are (i) wholesale and retail trade in all commodities, both produced at home (including exports) and imported, purchase and selling agents, brokers and auctioneers. Wholesale trade



covers units which resell without transformation, new and used goods generally to the retailers and industries, commercial establishments, institutional and professional users or to other wholesalers. Retail trade covers units, which only resell without transformation, new and used goods for personal or household consumption. The gross output in the distribution of commodities is measured as gross trade margins of the trading establishments, i.e. gross output is the gross margins released on the sale of goods in the same condition as they have been purchased and reduced by the delivery cost of the goods to the unit.

28.65 For estimating the input structure of trade activity, the organised and unorganised parts are dealt with separately. The organised part covers trade in the public sector and the private corporate sector. The inputs in the public sector enterprise are estimated from the analysis of income and expenditure accounts available in the annual reports of various trading corporations. For the private corporate sector, data from the RBI's study of sample companies is utilised. The input structure of the unorganised trade is prepared on the basis of the results available in the Directory Trade Establishments (DTE) Survey, 1990-91 and Non-Directory Trade Establishments (NDTE) and Own-Account Trade Establishments (OATE) Survey, NSS 46<sup>th</sup> Round, 1990-91. To arrive at the item-wise input estimates for DTE, NDTE & OATE for the reference year (1998-99), the item-wise estimates of 1990-91 available from these surveys are inflated to 1998-99 prices by applying suitable indices. Ratios of item-wise inputs to GVA observed in the unorganised trade (DTE, NDTE and OATE), are applied to GVA of unorganised trade estimated independently for the NAS to arrive at the item-wise estimates of purchase of goods and services in respect of unorganised trade.

#### **Hotels and Restaurants (Sector 117)**

28.66 This sector consists of services rendered by hotels, restaurants, cafes, and other eating, drinking and lodging places. Organised and unorganised parts are dealt separately for preparing the input structure. The organised part covers hotels & restaurants in the public sector, whereas the unorganised part includes hotels (other than public sector, but including joint stock companies), rooming houses, camps and other lodging places, restaurants, cafes and other eating and drinking places covered by the latest available Enterprise Survey.

28.67 The input structure of the public sector part is prepared using the expenditure details available in the profit and loss accounts of the annual reports of various central and state non-departmental commercial undertakings and the respective budget documents for departmental commercial undertakings dealing in the activity. The input structure of the unorganised part is prepared on the basis of norms obtained through the results of the latest available Enterprise Survey on hotels and restaurants. The item-wise input to GVA ratios obtained from the results of the latest Enterprise Survey are applied to GVA of unorganised hotels and restaurants for reference year (1998-99), available from the NAS to arrive at the item-wise inputs of unorganised part for IOTT. The input structure of hotels and restaurants sector is finally obtained by adding the organised and unorganised parts mentioned above.

#### **Banking (Sector 118)**

28.68 Banking sector consists of commercial banks, banking department of RBI, non-banking financial institutions, post office saving bank, cooperative credit societies and unorganised financial institutions such as money lender, financiers, chit funds etc. & the services of employee's provident fund organisation. The item-wise details of inputs for these categories of banking institutions are compiled from the annual reports and data obtained from commercial banks, banking department of RBI and non-banking financial institutions. For post office saving bank, the item-wise purchase of commodities and services are arrived at by analysing the budget documents and for cooperative credit societies, input data are obtained from National Bank for Agricultural and Rural Development (NABARD). Input cost of unorganised financial institutions is taken, as in the case of GDP, one third of the organised miscellaneous financial companies of the non-banking financial institutions.

#### **Insurance (Sector 119)**

28.69 Information on income and expenditure of non-life insurance and other insurance is available in the annual reports of the respective companies. Details of management expenses are collected from these companies. The input- structure of postal life insurance is prepared on the basis of the information culled out from the Demands for Grants of the Department of Posts.

#### **Ownership of Dwellings (Sector 120)**

28.70 The activities covered in this sector are actual and imputed income from residential houses. The annual inputs of rental income are the



cost of repairs and maintenance of dwelling which is treated as a purchase from the construction sector.

### **Education and Research (sector 121)**

28.71 Activities covered under this sector are (i) educational services and (ii) research and scientific services. It includes both types of institutions, recognised and unrecognised. The total value of input of recognised institutions is estimated on the basis of data obtained from the Ministry of Human Resources Development. The input items include expenditure on apparatus, chemicals & consumable stores, libraries, maintenance of buildings, maintenance of equipment & furniture, games & sports and other items. The data thus obtained relate to recognised institutions only. The contribution of unrecognised institutions is estimated on the basis of the results available from latest Enterprise Survey.

28.72 The item-wise break-up of "other items" for both recognised and unrecognised institutions is obtained on the basis of norms obtained by analysing the expenditure on the purchase of goods and services in education from the government budgets of Central Ministries/Departments, States/UT and Local Bodies. However, the item-wise break-up of office expenditure into different items is worked out on the basis of the detailed data received from the education departments of central and state governments on 'office expenditure' and 'material and supply'. The output of this service sector is taken as the sum of total inputs mentioned above and GVA of education and research as worked out for NAS.

### **Medical & Public Health (Sector 122)**

28.73 The total value of input of medical & health services is estimated separately for government and non-government sectors. In case of government hospitals the medical facilities provided by government administration (including railways), inputs are estimated on the basis of data culled out directly from the budget documents of the central and state/UT governments and local bodies. The item "office expenditure" and "material supply" appearing in the budgets are broken up into various items on the basis of data obtained through correspondence from the medical and health departments of central and state/UT governments.

28.74 In the case of non-government sector, the item-wise inputs are estimated separately for organised and unorganised sectors. While the input details of unorganised sector is

estimated on the basis of results available from the latest Enterprise Survey, the input for organised sector is estimated using the GVA to output ratio of the public & private unorganised sector. However, "other operation" appearing in the survey expenditure is further broken up item-wise on the basis of norms obtained from the analysis of accounts of private non-profit institutions relating to medical & health.

### **Services (Sector 123-129)**

28.75 The Services have been dis-aggregated into seven sectors namely "Business Services" (Sector 123), "Computer related Services" (Sector 124), "Legal Services" (Sector 125), "Real Estate Services" (Sector 126), "Renting of Machinery & Equipment" (Sector 127), "Other Community, Social & Personal Service" (Sector 128) and "Other services" (Sector 129). Business Services comprises of accounting and research & development. Other Community, Social & Personal Service services cover (a) religious and community services, (b) cultural services, (c) personal services such as domestic services, laundry, dry-cleaning and dyeing, photographic studios, barber and beauty shops, (d) funeral related activities (e) custom tailoring (f) hair dressing and other beauty treatment (g) washing and cleaning of textiles. "Other Services" (Sector 129), includes (a) sanitary services, (b) recreation & entertainment, (c) radio & TV broadcasting services (d) international and other territorial bodies and (e) services not elsewhere classified.

28.76 The input structure is obtained separately for sanitary services, radio and television broadcasting and rest of the other services. The input structure of sanitary services is dealt with separately for public and private sectors. The public sector part is determined from the analysis of the budget documents of the central and state governments and local bodies of municipal corporations. The input structure of radio and television broadcasting service is obtained by analysing the part of the Demands for Grants for expenditure for the Ministry of Information & Broadcasting. The real estate services comprise of activities of all types of dealers such as operators, developers and agents connected with real estate. The details of inputs in respect of all other services including real estate and the corresponding private part of the sanitary services are estimated on the basis of the results available in the NSS Survey on Unorganised Services Sector in India, 2001-02. Results of NASSCOM-CRISIL Survey of IT-ITES Companies, 2006 have also been

utilised for preparing the input structure of the sector 'Computer related Services'.

### **Final Demand & Indirect Taxes**

- 28.77 **Final demand:** The final uses of gross domestic product have been classified into six categories viz., (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 (EXP), and (vi) Imports (IMP).

### **Private Final Consumption Expenditure (PFCE)**

- 28.78 PFCE represents the consumption expenditure of households and non-profit institutions. The methodology adopted to prepare the vector of PFCE is the same as that adopted for NAS. However, to arrive at the sector-wise estimates of PFCE, the item-wise details of PFCE by object, available in the NAS are used along with the output data (at four digit level national industrial classifications (NIC)) from the results of surveys conducted on registered and unregistered manufacturing sectors. The relevant import /export data obtained from RBI are also used to arrive at the sector-wise estimates PFCE.

### **Government Final Consumption Expenditure (GFCE)**

- 28.79 GFCE represents current consumption expenditure of the government. This expenditure comprises of compensation of employees, depreciation and intermediate consumption (purchase of goods and services including repair and maintenance less sales). The total GFCE is divided on the basis of economic classification into sectors of education, medical and health, water supply, construction, other services and public administration and defence. The expenditure relating to these sectors, except public administration & defence, is allocated to these respective sectors whereas in the case of public administration and defence, only the compensation of employees is allocated to the sector "public administration and defence". The details of intermediate consumption and receipts are culled out from the budget documents of central & state government and local bodies and Finance Account of Union Government. The annual reports of research and scientific institutions and Employee's Provident Fund Organisation and the details of Issue Department of RBI are also used to get the details of intermediate consumption. These are allocated to the appropriate sectors in the final demand under GFCE. Items like "office expenditure" and "material and supply" for

which no break-up is available in the budget documents, are split up into the respective sectors on the basis of information received through correspondence from the ministries/departments of the central and state governments and attached subordinate offices.

### **Gross Fixed Capital Formation (GFCF)**

- 28.80 The detailed commodity-wise output data relating to products and by-products of capital goods industries covered in the ASI, are considered along with detailed data on exports and imports, and import duty for the preparation of commodity-wise estimates of GFCF.

### **Change in Stocks (CIS)**

- 28.81 Commodity-wise CIS has been estimated separately for (a) manufacturing sectors and (b) sectors other than manufacturing.

- 28.82 **Manufacturing Sectors:** Industry-wise estimates of CIS in manufacturing sector are dealt separately for registered and un-registered manufacturing. The data on "value of stocks at the beginning and end of the year by industries" for registered and un-registered manufacturing are obtained through ASI and the Survey on Unorganised Manufacturing conducted by the NSSO. To obtain the corresponding commodity-wise estimates of CIS, these have been reclassified. For an industry, the CIS, is available under the categories: (i) raw materials, (ii) stores, (iii) fuel, (iv) semi-finished goods and (v) finished goods. The finished and semi-finished goods of an industry are identified as the main product of the industry and treated as change in stocks of the main product. The values under raw materials, stores and fuels of an industry are divided into shares of specific commodities on the basis of main basic materials, stores and fuels consumed in that industry and taken as stocks of these specific input commodities. These sector-wise details are then clubbed together to arrive at the combined CIS for the manufacturing sector.

- 28.83 **Other than Manufacturing Sectors:** Commodity-wise CIS in sectors other than manufacturing have been arrived separately for public sector (Departmental Commercial Undertakings and Non- Departmental Commercial Undertakings), private corporate sector, co-operative societies and households. Commodity-wise details available from the budget documents of central & state/UT government and local bodies, annual reports of the undertakings are made use of to arrive at the change in stocks of the public sector. Data received from the RBI is

used to obtain the commodity-wise change in stocks relating to the private corporate sector. Data from NABARD's publication "Statistical Statements Relating to the Co-operative Movements in India" (Part I) is also used to arrive at the change in stocks of the co-operative societies. Commodity-wise details available from the results of latest available Enterprise Surveys on Transport & Hotels and Restaurants, Storage and Warehousing & Mining and Quarrying, and DTE & NDTE Surveys, are utilised to prepare the commodity wise change in stocks of the respective sectors of the household part. The estimates of CIS arrived separately for the above mentioned parts are clubbed together to obtain the estimates of the commodity-wise CIS in sectors other than manufacturing.

- 28.84 Commodity-wise CIS estimated for manufacturing sector and sectors other than manufacturing, as mentioned above, are added together to obtain the total commodity-wise CIS.

#### Exports

- 28.85 Exports comprise exports of merchandise on free on board (f.o.b.) basis and other items like transport and communication in respect of exports other than merchandise, insurance etc. are available in the DGCI&S publication 'Monthly Statistics of Foreign Trade of India, Vol. I, Exports'. For the remaining items data are obtained from the RBI.

#### Imports

- 28.86 Imports include the imports of merchandise and other items like transport services of merchandise, imports by resident industries, and other transport and communication services by non-residents and miscellaneous commodities, etc. Item-wise details of imports of merchandise at cost, insurance and freight (c.i.f.) values are available in the DGCI&S publication 'Monthly Statistics of Foreign Trade of India, Vol. II, Imports'. For remaining items data are obtained from the RBI.

#### Indirect taxes

- 28.87 Indirect taxes are distinguished as commodity taxes and other indirect taxes. Commodity taxes include union & state excise duties, value added tax, sales tax, custom duties (on imports & exports) and various other duties and cesses. Other indirect taxes include levies like electricity duty, motor vehicle tax, entertainment tax, and stamp duty, etc. The types of indirect taxes by commodities and services on which they are levied have, therefore, been ascertained and each particular tax is apportioned in proportion to

the value of flow of commodities going to different industry sectors and final uses. The source material used for different components of indirect taxes on various commodity groups is described below: -

- 28.88 Commodity-wise union excise duties are taken from the Receipts budget of Central Government whereas data on state excise duties from respective State budget documents for the reference year.

- 28.89 The budget documents of State governments and Finance Accounts give only the state-wise break-up of the total sales tax levied and does not furnish their commodity-wise data. There is very little uniformity in the rates and exemptions of sales tax levied in different States & Union Territories. For allocating the total sales tax amongst different commodity sectors, the commodities on which sales tax are levied are identified, to the extent possible, and are allocated to the respective sectors. The remaining amount of sales tax is allocated to the different commodity sectors in proportion to the norms arrived on the basis of the specially tabulated industry-wise data on sales tax from the report of 51<sup>st</sup> Round of NSSO on un-registered manufacturing 1994-95.

- 28.90 Imports are reported at cost, insurance and freight (c.i.f.) values and are exclusive of import duties and domestic taxes. The commodity-wise custom duties (both on imports and exports) are available from the DGCI&S. Data on import duties are used to build up commodity sector-wise import duties (115 sectors). Adjustments are made for refunds & withdrawals to arrive at net import duties. Similarly, using the DGCI&S data, commodity-wise export duties/cesses are prepared.

- 28.91 Source material used for "other indirect taxes" is the budget documents of state governments and Finance Accounts of the Union and State Governments. These taxes are identified and allocated to the respective sectors of the IOTT.

#### Subsidies

- 28.92 The commodity wise subsidies are compiled from the budgets of Central and State Governments. These are identified to the relevant commodity sectors and allocated to different consuming industry sectors and final uses in proportion to the domestic flow. Some of the subsidies meant for specific purpose like subsidy provided for export promotion, electricity, and subsidy on the construction of wells for agriculture purposes are allocated to

the respective cells of the domestic flow matrix. Requisite details are, however, not available for many items like subsidies to agriculture, industry, irrigation, Food Corporation of India (FCI), National Small Industries Corporation, Small and Marginal Farmers Development Agencies, industrial corporations and subsidies for product promotion etc. Subsidies paid to FCI are

allocated to items such as wheat, rice and other crops on the basis of detailed data available from the Annual Report and Accounts of FCI. Similar subsidies given to Khadi and Village Industries Commission (KVIC) are allocated on the basis of details available in the report of KVIC. Irrigation subsidy is allocated to various crops in proportion to irrigated crop area.

### Appendix 28.1

## MATHEMATICAL EXPRESSION ON THE METHODOLOGY OF CONSTRUCTION OF ASSOCIATED MATRICES

- A28.1 This Appendix gives a brief discussion on methods of obtaining *commodity x commodity* table and *industry x industry* table under alternative technology assumptions.
- A28.2 The *commodity x commodity* input-output table is suitable for multi sectoral projections where final demand estimates are obtained on commodity basis. The *industry x industry* input-output table is useful in detailed planning of industries whose products include by-products also. The two alternative assumptions for transferring of outputs of secondary products are (i) industry technology assumption where input structure of a secondary product is considered to be similar to that of the industry where it has been produced and (ii) commodity technology assumption where the input structure of the secondary product of an industry is assumed to be similar to that of the industry where it is primarily produced. Besides these two main assumptions, sometimes mixed assumptions have to be followed, as all secondary products cannot just be based on only one type of technology assumption. Usually commodity
- technology assumption is followed for subsidiary products and industry technology assumption is appropriate for joint products and by-products.
- A28.3 In a *commodity x commodity* table both rows and columns represent the commodity group sectors. If the secondary products of an industry group along-with the inputs are transferred to the industry group where they are the principal products, the resulting table is a *commodity x commodity* input-output table.
- A28.4 In an *industry x industry* table, on the other hand, both rows and columns represent industry group sectors comprising of a mix of different commodity groups. The row of a sector in this table gives the supply of all products and secondary product (as a mix) produced by the corresponding industry group for different intermediate and final uses.
- A28.5 The following gives briefly the methodology in mathematical terms for constructing such tables. The basic data available from industry input and output tabulations satisfy the following relationships:

$$\text{Input relations: } q_i = \sum x_{ik} + f_i \quad (1)$$

$$\text{Output relations: } q_i = \sum_k m_{ik} \quad (2)$$

$$g_i = \sum_j m_{ij} \quad (3)$$

Where

$q_i$  = total output of j-th commodity group

$g_i$  = total output (of all products and by-products) of the i-th industry group

$f_i$  = final demand of the j-th commodity

$x_{ik}$  = output of j-th commodity used as input in the k-th sector (industry group)

$m_{ij}$  = output of j-th commodity produced by the i-th industry group

The above symbols without subscript refer to the corresponding vectors

A28.6 A schematic arrangement of input-output data in a simplified accounting framework can be presented as follows:

	Commodities	Industries	Final demand	Total
Commodities		X	F	q
Industries	M			g
Primary inputs		y'		
Total	q'	g'		

A28.7 Here  $y$  denotes the column vector of  $y_j$  and  $y_j$  denotes the value of primary inputs (factor incomes) in the  $j$ -th industry. The superscript prime (') is used to denote the transpose.

A28.8 From this accounting data various other matrices can be derived further using the following notations:

A: *commodity x commodity* coefficient matrix

W: *commodity x commodity* flow matrix recording the value of purchase of commodities by commodities

B: *commodity x industry* coefficient matrix, values in the absorption matrix expressed as coefficients

$B = X (g)^{-1}$

C: *Product mix* matrix, columns of which show proportions in which a particular industry produces various commodities

$C = M' (g)^{-1}$  where  $g$  = diagonal matrix with diagonal elements as the elements of vector  $g$

D: *Market share* matrix, the columns of which show proportions in which various industries produce the total output of a particular commodity

$D = M (q)^{-1}$  where  $q$  = diagonal matrix with diagonal elements as the elements of vector  $q$

E: *industry x industry* coefficient matrix

Z: *industry x industry* flow matrix recording the value of purchases of industry outputs by industries

e: final demand for the outputs of industries.

A28.9 The derived matrices can be conveniently seen in the following schematic arrangement:

	Commodities	Industries	Final demand
Commodities	A $W = Aq$ $= BDq = BM$	$B = X(g)^{-1}$	
Industries	$C = M'(g)^{-1}$ $D = M(q)^{-1}$	E $Z = Eg$	e

A28.10 According to the method suggested in "System of National Accounts", Studies in Method Series F.No.2, Revision 3, 1968 (UN),

*commodity x commodity* table and *industry x industry* table under the two technology assumptions can be derived as under;

*Commodity x commodity* table:

**Commodity technology:**  $q = (BC^{-1}) q + f$ ,  $W = (BC^{-1}) q$

**Industry technology:**  $q = (BD) q + f$ ,  $W = (BD) q$

*Industry x industry* table:

**Commodity technology:**  $g = (C^{-1} B) g + e$ ,  $Z = (C^{-1} B) g$

**Industry technology:**  $g = (D B) g + e$ ,  $Z = (DB) g$

A28.11 For commodity technology assumption, the output or make matrix has to be square and non-singular so that inverse of the matrix could be obtained.

A28.12 In order to use *industry x industry* table under any of the assumptions, it is necessary to derive the final demand for the outputs of industries, 'e'. However, information of final

demand is invariably available on commodity rather than industry basis and in order to estimate the final demand for industry

outputs 'f' has to be made industry-wise by multiplying it by the appropriate matrix. Thus under,

<b>Commodity technology</b>	: $e = C^{-1} f$
<b>Industry technology</b>	: $e = Df$

A28.13 The *commodity x commodity* table is found to be more suitable in most applications since demand is for a particular commodity or group of commodities and not for the mixed range of output of an industry and thus there is no need to transform the final demand vectors from one unit to another. Moreover, the calculated commodity outputs can be transformed using the market share or product mix matrix into industry output levels. This sequence of calculations makes an industry x industry table unattractive. Further, for a *commodity x commodity* table, transfers made under the commodity technology assumption, sometimes give rise to negative entries which are difficult to explain. Thus only *commodity x commodity* table under industry technology assumption has been presented in the present report.

**Net indirect taxes for commodity x commodity table**

A28.14 The input flow matrix at producers' price can be considered as the sum of two matrices, (i) the input flow at factor cost and (ii) matrix of net indirect taxes. This matrix of net indirect taxes for *commodity x industry* table is denoted by  $T_{31}$ .

A28.15 The matrix of net indirect taxes ( $T_2$ ) for *commodity x commodity* table under the two

technology assumptions can be derived in the same way as the *commodity x commodity* flow matrix is obtained from the input flow matrix as described in "Problems of input-output tables and analysis" Studies in Methods -Series F. No. 14, Revision 1, 1966 (UN). Thus under,

<b>Commodity technology:</b>	$T_2 = T_1 (g)^{-1} C^{-1} q$
<b>Industry technology</b>	: $T_2 = T_1 (g)^{-1} D q$

A28.16 The column totals of the net indirect tax matrix  $T_2$  represent the total net indirect taxes on inputs consumed by various commodity groups and also on the categories of final demand. These net indirect tax totals are presented as a row at the bottom of the *commodity x commodity* table.

**Value added for commodity x commodity table**

A28.17 In National Accounts Statistics, the estimates of gross value added are prepared according to different industry groups. However, for *commodity x commodity* table the estimates of gross value added according to different commodity groups are required. In what follows, the necessary details are presented to derive the vector of gross value added for *commodity x commodity* table.

**A28.18** In the notations used so far, the set of industry cost equations can be expressed in the form  
 $g_i = y + g B' i$  where  $i$  denotes the unit column vector (4)

**A28.19** The set of commodity cost equations can be expressed similarly in the form

$$q_i = l + q A' i \text{ where } l \text{ denotes the vector of gross value added corresponding to different commodity groups.} \quad (5)$$

pre-multiplying (5) by  $D$ , we obtain

$$Dq_i = D l + D q A' i \quad (6)$$

Under **commodity technology** assumption,  $A = B C^{-1}$

Also  $M = Dq$  and  $M' = Cg$

Thus from (6), we get

$$\begin{aligned} g_i &= D l + D q (C^{-1})' B' i && \text{since } g = Dq \\ &= D l + M (C')^{-1} B' i \\ &= D l + M M^{-1} g B' i \\ &= D l + g B' i \end{aligned} \quad (7)$$

On comparing (4) and (7), we see that



$$y = DI$$

Hence

$$I = D^{-1} y$$

Similarly, on pre-multiplying (5) by  $C^{-1}$ , we obtain

$$C^{-1} q = C^{-1} I + C^{-1} q A' I \quad (8)$$

Under **industry technology** assumption,  $A = BD$

Thus (8) becomes

$$C^{-1} q_i = C^{-1} I + C^{-1} q D' B' i$$

or

$$gI = C^{-1} I + g (M')^{-1} q D' B' i$$

$$= C^{-1} I + g (D')^{-1} D' B' i$$

$$= C^{-1} I + g B' i$$

(9)

On comparing (4) and (9), we see that

$$y = C^{-1} I$$

or

$$I = Cy$$

Therefore under,

**Commodity technology** :  $I = D^{-1} y$

**Industry technology** :  $I = Cy$

### Mixed Assumptions

A28.20 For mixed assumption, the output matrix would be divided into two parts, such as

$$M = M_1 + M_2$$

Where  $M_2$  is a matrix of those by-products which are to be transferred on the assumption of industry technology and the element of  $M_1$  are outputs which, it seems

reasonable to treat on the assumption of commodity technology. The formation of  $M_1 + M_2$  involves splitting individual elements of  $M$ , since these elements may contain a mixture of products not all of which are to be treated in the same way.

A28.21 With this decomposition of  $M$ , we would have

$$\text{commodity } \times \text{ commodity table} : q = I (B R) q + f$$

$$\text{industry } \times \text{ industry table} : g = (R B) g + R f$$

$$\text{where } R = C^{-1}(I - D_2^{-1} i) + D_2 ;$$

$D_2^{-1} i$  denote a diagonal matrix formed from the vector of  $D_2 i$

A28.22 Since  $R$  involves the matrix  $C_1^{-1}$ , the matrices  $C_1$  and  $D_2$  must be square matrices of the same order.

A28.23 It may further be mentioned that  $C_1$  and  $D_2$  are matrices similar to  $C$  and  $D$  except that they are now based on  $M_1$  and  $M_2$  respectively using  $q_1$  vector in case of  $C_1$ , but  $q$  vector in case of  $D_2$ .

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### SECTOR SPECIFICATION FOR THE INPUT-OUTPUT TRANSACTIONS

IOTT Sec. No.	Name	Specification
001	Paddy	Paddy, rice milling
002	Wheat	Wheat, flour milling
003	Jowar	Jowar
004	Bajra	Bajra
005	Maize	Maize
006	Gram	Gram
007	Pulses	Milled and unmilled tur, urad, moong, matar, masur and gram dal including flour
008	Sugarcane	Sugarcane, gur (indigenous production)
009	Groundnut	Groundnut
010	Cocount	Coconut, copra
011	Other Oil Seeds	Other Oil Seeds
012	Jute	Raw jute
013	Cotton	Raw cotton
014	Tea	Tea plantation
015	Coffee	Coffee plantation
016	Rubber	Rubber plantation
017	Tobacco	Tobacco plantation
018	Fruits	Fruits
019	Vegetables	Vegetables
020	Other crops	Other cereals and their milling, mesta, sannhemp, dry chillies, black pepper, dry ginger, turmeric, indigo, opium, cardamom, other fibbers, other sugars, other dyes and tanning materials, other drugs and narcotics, other condiments and spices, fodder, grass, rice bran, rice husk, straw and stalks, badges, cane trash and miscellaneous food and non-food crops.
021	Milk and milk products	Milk consumed as such, ghee, butter, lassi
022	Animal Services (agricultural)	Agricultural animal services by rural bullocks and camels.
023	Poultry & Eggs	Eggs, Poultry meat, increment in poultry
024	Other livestock products	Production of meat, mutton, pork and glands, other meat products, raw hides and skins, animal hair, bristles, wool, honey, silk worm cocoons, horns, hoofs, dung fuel & manure, increment in livestock.
025	Forestry and logging	Planting, replanting, conservation of forests, production of fuel including charcoal, felling and cutting of trees, hewing or rough spaping of poles, blocks etc. And transportation of logs upto the permanent lines of transport, sandal wood, gathering of uncultivated materials such as gums, lacs, resins, forest grown fruits, nuts, herbs, barks and cane, gobar gas.
026	Fishing	Rearing and catching of fish, seaweeds, shells, pearls sponges etc. Fish curing viz, salting and sundrying of fish
027	Coal and lignite	Coal and lignite mining
028	Natural gas	Natural gas
029	Crude petroleum	Crude petroleum
030	Iron ore	Iron ore mining
031	Manganese ore	Bauxite mining
032	Bauxite	Copper ore mining
034	Other metallic Minerals	Chomite, lead and zinc ore, silver ores, gold ores,

		ilmenite and rutile
035	Lime stone	Lime stone mining
036	Mica	Mica mining
037	Other non metallic minerals	Dolomite, apatite, asbestos, baryetes, chinaclay, gypsum, kyanite, magnesite, diamond, calcite, ochre, garnet, graphite, feldspar, fireclay, fluorite, quartz and silica, sillimanite, steatite, minor minerals, salt mining and quarrying, sand and stone quarrying, mining of clahy, sandpits, chemical and fertilizer, mineral mining. Precious and semi precious stone mining.
038	Sugar	Manufacture and refining of sugar
039	Khandsari, boora	Boora, candy and khandsari
040	Hydrogenated oil (vanaspati)	Hydrogenated oils, vanaspati ghee
041	Edible oils other than vanaspati	Edible oils such as linseed oil, mustard oil, sesamum oil, coconut oil, groundnut oil, cotton seed oil, til oil, mahua oil etc.
042	Tea and coffee processing	Blended and unblended black tea leaf grade, dust and waste, coffee curing, roasting and grinding
043	Miscellaneous food products	Preservation, processing and canning of meat, milk foods and manufacture of dairy products, manufacture of fruit juice, jams, jellies, pickles and canning and bottling of fruits and vegetables, canning, preserving and processing of fish. Crustacean and similar foods, manufacture of cocoa. Chocolate, sugar confectionery and sweetmeats, cashewnut drying, shelling, roasting, salting etc., Manufacture of ice, prepared cattle, poultry and other animal feeds, starch processed from maize, tapioca, tamarind, potato etc., manufacture of malted foods, powder, semi-processed foods and instant foods, sago and sago products, vitaminised high protein flour (multi purpose foods), frying of dals, nuts and foods n.e.c., Residuary snacks n.e.c., other food processing activities.
044	Beverages	Distilling, rectifying and blending of spirits, wines, beer, malt, liquors, other malt country liquor, toddy, manufacture of aerated drinks, aerated natural flavoured syrups, synthetic flavoured syrups, fruit juices and beverages n.e.c.
045	Tobacco Products	Tobacco stemming, redrying, grading etc. And manufacture of bidi, cigars cigarette, cheroots, tobacco, chewing tobacco, zarda and snuff
046	Khadi, cotton texiles in hand looms	Cotton spinning in charkha, khadi weaving and finishing of cotton textiles in handlooms
047	Cotton texiles	Cotton ginning, cleaning and baling spinning, weaving and finishing of cotton textiles in mills and power looms, printing, dyeing and bleaching of cotton textiles, cotton textiles n.e.c.
048	Woolen texiles	Wool cleaning. Baling and pressing, wool spinning, weaving etc., (handloom, powerlooms and mills), dyeing, bleaching and manufacture of woolen blankets, shawls, felts and others.
049	Silk texiles	Spinning, weaving finishing, printing, dyeing and bleaching of silk textiles
050	Art silk, synthetic fibre texiles	Spinning, weaving and finishing, of synthetic fibers, rayon's, nylons etc., printing, dyeing and bleaching of synthetic textiles, other silk and synthetic fiber textiles.

051	Jute, hems, mesta textiles	Pressing, baling, Spinning, weaving finishing, of jute, Mesta, hemp and other coarse fibre, dyeing, printing and bleaching of jute textiles, manufacture of jute bags and other jute textiles
052	Carpet weaving	Weaving carpets, rugs, durries and others
053	Ready made garments and made up textile goods	Ready made garments, clothing and tailoring made up textile goods, curtains, bed covers, furnishings, mosquito nets
054	Miscellaneous textile products	Cotton, woolen and synthetic fibres knitting in mills or otherwise, thread and thread ball making, jute, cotton, hemp, sisal, nylon rope, cordage and twines, nets, webbing, narrow fabrics, embroidery work, laces, fringes, zari and zari products manufacture of rain coats, hats, umbrellas etc., oil canvas goods, coir fibre, yarn and coir products, linoleum and similar products, gas mantles and other textiles viz. bandage, gauze, dressing cloth
055	Furniture and fixtures-wooden	Wooden, bamboo, cane furniture and fixtures and repair of such furniture
056	Wood and wood products except furniture	Manufacture of veneer, plywood and their products, sawing and planning of wood, container made of wood, cane, bamboo, reed etc., structural wooden goods such as beams, posts etc., wooden industrial goods, cork and cork products and miscellaneous wood, bamboo and cane products
057	Paper, paper products and newsprint	Manufacture of machine made and made pulp, paper and paper board including newsprint, container4s and boxes of paper and paper board miscellaneous pulp products, paper and paper board articles
058	Printing, publishing and allied activities	Printing, and publishing of newspapers, periodicals, books, journals, atlases, maps, sheet music, directories, bank notes, currency notes, postage stamps, security passes, engraving, etching, block making, book binding allied activies like envelope printing picture post cark printing, embossing
059	Leather footwear	Manufacture and repair of leather footwear, leather-cum-rubber/plastic cloth footwear
060	Leather and leather products except footwear	Tanning, curing, finishing, embossing and janning of leather, manufacture of wearing apparel and consumer goods of leather substitutes of leather, scrapping curving and tanning, bleaching dyeing of fur and other pelts, manufacture of wearing apparel, rugs and other articles of fur and pelts
061	Rubber products	Rubber tyres and tubes for motor vehicles, tractors, aircraft, scooters, motor cycles and cycles and other rubber and plastic footwear, rubber surgical and medical equipment rubber contraceptives, rubber pipes, balloons, rubber industrial and domestic goods and misc. rubber products
062	Plastic products	Plastic moulded goods and such as containers, sheets, nets, corks, polythene bages, spectacles frames, industrial accessories, domestic goods and miscellaneous plastic products
063	Petroleum products including L.P.G.	Products of petroleum refineries, Manufacture of L.P.G. in gas works and distribution through mains to house hold, industrial and commercial and other users.
064	Coal tar products	Coke and other coal tar products
065	Inorganic heavy chemicals	Basic heavy inorganic chemicals

066	Organic heavy chemicals	Basic heavy organic, mixed chemicals
067	Fertilizers	Inorganic, organic, mixed and other fertilizers
068	Pesticides	Insecticides, fungicides, weedicides and pesticides formulations
069	Paints, varnishes and lacquers	Paints, varnishes, lacquers and dyestuffs, waxes and polishes
070	Drugs and medicines	Drugs and medicines – allopathic, ayurvedic, unani, homoeopathic and others
071	Soaps, cosmetics, glycerine	Soaps, perfumes, cosmetics, toothpastes, soap in any form and other toilet aids, glycerine and detergents
072	Synthetic fibres, resin	Turpentine, resin, synthetic resin plastic materials and synthetic fibres like celluloid nylon, terylene and miscellaneous products of fermentation industries other than alcohol
073	Other chemicals	Inedible vegetable oils including solvent extracted oils, animal oils and fats, matches, explosives, ammunition, safety fuses, fire-works, photochemical materials, sensitized films and paper, fine chemicals, drug and dye intermediaries, glue and galatine, shellac, synthetic sweeteners, textile chemical auxiliaries and other chemical products
074	Structural clay products	Structural clay products such as fire bricks, refractories, tiles and others
075	Cement	Cement
076	Other non-metallic mineral products	Manufacture of glass and glass products, earthenware and pottery, chinaware, sanitaryware, porcelainware, insulators, lime and plaster, mica products, structural stone goods, stoneware, stone dressing and crushing, earthen and later statues and products, asbestos cement and its products, slate products, cement and products, abrasives, graphite products, mineral wool, silica products and other non-metallic mineral products
077	Iron and steel ferro alloys	Iron and steel, special steel and ferro-alloys
078	Iron and steel casting and forging	Iron and steel castings and forgings
079	Iron and steel foundries	Iron and steel structurals, pipes, plates, wire drawings, tools and others
080	Non-ferrous basic metals (including alloys)	Melting refining, rolling into basic forms, wire drawings etc. of non-ferrous basic metals and alloys
081	Hand tools, hardware	Hand tools, bolts, nuts, locks, metal chains, agricultural hand tools and implements, general hardware
082	Miscellaneous metal products	Metal containers, steel trunks, trunks, safes, vaults, sanitary and plumbing fixtures and fittings of metal, stoves, hurricane lanterns, welded products, enamelling, galvanising plating and polishing of metal products, metal utensils, cutlery and kitchenware, metal furniture and fixtures blades, springs, art metal ware, other metal products
083	Tractors and other agricultural implements	Tractors and other agricultural machinery, equipment and implements
084	Industrial machinery for food and textile industries	Rice, dal, flour and oil mill machinery, sugar machinery, tea machinery, textile machinery and jute machinery
085	Industrial machinery (except food and textile)	Pharmaceutical machinery, chemical machinery, paper machinery, mining machinery, cement

		machinery
086	Machine tools	Automatic, capstans, turrets and lathes, boring, broaching, drilling and threading machines, milling, planning shaping, gear cutting and slotting machines grinding lapping, honing and polishing machines, sawing, filling and cut-off machines metal forming machinery and other metal work machine tools
087	Other non-electrical machinery	Drills, coal cutting machines, earth moving, moving, lifting and hoisting machinery, cranes, conveyors and road rollers and other heavy machinery and equipment used by construction and mining industries, prime movers, boilers and steam generating plants such as diesel engines. Refrigerating, air conditioning plants for industrial use, domestic air conditioners and refrigerators. Fire fighting equipment and appliances including fire engines, conveying equipment such as bucket elevators, derrick and size reduction like crushers, ball mills etc.,. Centrifugal machines, pumps, air and gas compressors and vacuum pumps, ball roller and tapered bearings, speed reduction units, sewing and knitting machines, washing machines, filtration and distillation equipment, arms and armanents and miscellaneous non-electrical machinery and their repair services
088	Electrical industrial machinery	Generators, transformers, switch gears, electric motors
089	Electrical cables, wires	Insulated cables and wires
090	Batteries	Storage batteries, dry cells
091	Electrical appliances	Electrical fans, lamps, fluorescent tubes miniature lamps, household appliances like iron, heaters etc., and their repair services
092	Communication equipment	Manufacture of wireless communication equipment, manufacture of radios, teleprinters, telephones, telegraph equipment, phonographs and record changers, manufacture of parts and accessories and other including public address equipment
093	Other electrical machinery	Manufacture and repair of radiographic X-ray apparatus and tubes and parts, manufacture of light fittings, emergency lighting equipment, flash lights, stage lighting equipment, electric furnaces and oven telescopic aerials and parts and accessories
094	Electronic equipment including TV	Manufacture of television sets, electronic computers. Electronic control instruments, other parts and accessories
095	Ships and boats	Making of ships and other vessels drawn by power, boat building and their repairing
096	Rail equipment	Manufacture of diesel locomotives, steam locomotives, electric locomotives, railway coaches, wagons, parts and accessories
097	Motor vehicles	Manufacture of motor cars, buses, trucks, jeeps, station wagons and parts and repair of motor vehicles
098	Motor cycles and scooters	Manufacture of motor cycles, scooters and scooterettes parts and accessories and their repair
099	Bicycles cycle-rickshaw	Manufacture of cycles, cycles rickshaws and repair of bicycles and cycle-rickshaw
100	Other transport equipment	Manufacture of other rail-road equipment, tramway works, bullock carts, push-carts, hand-



		carts and transport equipment not elsewhere classified
101	Watches and clocks	Manufacture of clocks, table time pieces, watches and their parts and repair of watches and clocks
102	Medical Precision Optical Instruments	Manufacture of surgical, medical, laboratory scientific and mathematical instrument, photographic and optical goods (excluding photochemical, sensitized paper and film).
103	Gems & jewellery	Gems, jewellery and related articles, imitation jewellery & novelties
104	Aircrafts Spacecrafts	Manufacture of aircraft, Spacecrafts, and parts and repair
105	Miscellaneous manufacturing	Water meters, steam meters and electricity meters recording and regulating devices for pressure, temperature, weight, level etc. Minting coins, sports and athletic goods and play equipment, musical instruments, stationery articles like fountain pens, pencils, pens, pin cushions, tags, hair brushes, dusters, feather articles, signs and advertising displays, mechanical toys, other toys, bones, ivory, horns and similar products, wigs, costume, lampshades, presentation articles, badges and others, and repair of enterprises not elsewhere classified
106	Construction	Construction and maintenance of buildings, aerodromes, roads, railways, bridges, tunnels, pipelines, ports, harbours, runways communication systems, waterways, water reservoirs, hydro electric projects and industrial plants and activities allied to construction
107	Electricity	Generation and transmission of electric energy and its distribution to households, industrial and commercial and other users
108	Water supply	Collection, purification and distribution of water
109	Railway transport services	Government railways and private railways
110	Land Transport including via pipelines	Buses, tramways and pipelines, trucks taxis, auto rickshaws, animal services, urban bullock, urban buffalo, horses and other animals drawn carts, cycles, hand pulled rickshaw and pack animals,
111	Water Transport	Shipping transport by boats, steamer, ferry etc. by canal or rivers and unorganized water transport by sea
112	Air Transport	Air Transport
113	Supportive and Auxiliary transport activities	Supportive and Auxiliary transport activities and services incidental to transport activities
114	Storage and warehousing	Warehousing, cold storage and storage and warehousing not elsewhere classified
115	Communication	Postal, telephone, telegraph services rendered by postal and telegraph department and overseas communication services
116	Trade	Wholesale and retail trade
117	Hotels and restaurants	Services rendered by hotels, boarding houses, eating houses, cafes, restaurants, canteen etc.
118	Banking	Commercial banks, banking department of RBI, other financial companies, industrial development and financial corporations. Post office
119	Insurance	Life insurance corporation, postal life insurance, employees state insurance and non-life insurance such as fire, marine, accidents etc.
120	Ownership of dwellings	Residential houses

**CHAPTER 28**

121	Education and research	Education, scientific and research services
122	Medical and health	Medical and health service
123	Business services	Accounting Service, Research and Development and other Business services
124	Computer Related Service	Computer Related Service
125	Legal Services	Legal Services
126	Real estate Activities	Real estate Activities
127	Renting of Machinery & Equipment	Renting of Machinery & Equipment
128	Community Social & personal Services	Religious and community services, cultural services, personal services such as domestic services, laundry, dry-cleaning and dyeing, photographic studios, studios, barber and beauty shops, funeral related activities, custom tailoring, hair dressing and other beauty treatment, washing and clearing of textiles.
129	Other Services	Sanitary services, recreation & entertainment, radio & TV broadcasting services, international and other territorial bodies and services not elsewhere classified.
130	Public administration and defence	Public administration and defence

## Notes :

1. Sectors 001 to 012 also include agricultural and horticultural services such as harvesting baling and threshing husking and shelling, preparation for marketing, pest destroying and spraying, pruning, picking and operating irrigation systems.
2. Sectors 021 to 024 include breeding and rearing of animals and poultry including private veterinary services.
3. Sectors 027 to 037 include extraction, breaking, milling, washing, cleaning, grading and processing.

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**AGGREGATED SECTOR CLASSIFICATION FOR  
INPUT-OUTPUT TRANSACTIONS**

Aggregated Sector No.	Description of aggregated sector	Sectors in APPENDIX III
1	Food crops.....	1,2,3,4,5,6,7
2	Cash crops.....	8,9,11,12,13,17
3	Plantation crops.....	10,14,15,16,18
4	Other crops.....	19,20
5	Animal husbandry.....	21,22,23,24
6	Forestry & logging.....	25
7	Fishing.....	26
8	Coal and lignite.....	27
9	Natural gas.....	28
10	Grude petroleum.....	29
11	Iron ore.....	30
12	Other minerals.....	31,32,33,34,35,36,37
	Sugar.....	38,39
13	Food products excluding sugar.....	40,41,42,43
14	Beverages.....	44
15	Tobacco products.....	45
16	COTTON TEXTILES.....	46,47
17	Wool, silk & synthetic fibre textiles.....	48,49,50
18	JUTE, HEMP AND MESTA TEXTILES....	51
19	Textiles products including wearing...	52,53,54
20	Wood and wood products except	56
21	Furniture and fixture.....	55
22	Paper and paper products.....	57
23	Printing, publishing and alied activities..	58
24	Leather and leather products....	59,60
25	Plastic and rubber products....	61,62
26	Petroleum products....	63
27	Coal tar products....	64
28	Inorganic heavy chemicals.....	65
29	Organic heavy chemicals....	66
30	Fertilizers.....	67
31	Paints, varnishes and lacquers....	69
32	Pesticides, drugs and other chemicals....	68,70,71,72,73
33	Cement.....	75
34	Non-metallic mineral products....	74,76
35	Iron & steel industries and foundries...	77,78,79
36	Other basic metal industry...	80
37	Metal products except mach. & transport Equipment	81,82
38	Agricultural machinery....	83
39	Industrial machinery for food and textiles	84
40	Other machinery.....	85,86,87
41	Electrical, electronic machinery & appliances...	88,89,90,91,92,93,94
42	Railway transport equipment....	96
43	Other transport equipment.....	95,97,98,99,100
44	Miscellaneous manufacturing industries...	101,102,103,104,105
45	Construction .....	106
46	Electricity....	107
47	Water supply.....	108
48	Railway transport services....	109
49	Other transport services....	110,111,112,113
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## QUARTERLY ESTIMATES OF GDP

### Introduction

- 29.1 The Central Statistical Organisation (CSO) introduced the quarterly estimates of Gross Domestic Product (GDP), on 30.6.1999 starting with the estimates for the fourth quarter-Q4 (January-March) of 1999, both at constant (1993-94) and current prices. The Quarterly Gross Domestic Product (QGDP) estimates are released by the CSO on the last working day after two months.
- 29.2 The production approach is used for compiling the QGDP estimates, in terms of gross value added (GVA) and is broadly based on the benchmark-indicator method. In this method, for each of the industry-groups, namely, agriculture, forestry, fishing, mining, manufacturing, electricity, gas and water supply, trade, hotels and restaurants, transport, storage and communication, banking and insurance, real estate, ownership of dwellings and business services, public administration, a key indicator or a set of key indicators for which data in volume or quantity terms is available on quarterly basis, are used to extrapolate the value of output/value added estimates of the previous year. For example, in the case of agriculture sector, the set of key indicators are the quarterly estimates of agriculture production (at individual crop level) and in the case of manufacturing sector, the key indicators are the index of industrial production (at 2-digit industry group level). In general terms, quarterly estimates of GDP are extrapolations of annual series of GDP. The estimates of GVA by industry are compiled by extrapolating value of output or value added with relevant indicators.
- 29.3 For compiling the QGDP Estimates at constant prices, the estimates at constant prices of the previous year are extrapolated with the growth rates observed in the physical/proxy key indicators. For compiling the estimates at current prices, firstly the implicit price deflators are estimated using the data on prices available from the wholesale and consumer price indexes of the respective industry groups. These industry-wise implicit price deflators are then super-imposed on the QGDP Estimates compiled at constant prices, to obtain the industry-wise estimates at current prices.
- 29.4 The quarterly GDP estimates of different sectors at constant prices are compiled according to two alternative methods, depending upon whether the GDP estimates are to be derived as value of output minus value of inputs, or as GDP estimates directly. In the case of industries, agriculture, forestry, fishing and mining, where the former approach is followed, the commodity-level value of output at constant prices of the previous year is extrapolated with the growth in production of the particular commodity during the reference quarter. In these industries, for those commodities for which quarterly production data is not available, their values of output are first estimated for the entire year using the trend available from the past years' data, and the annual estimate is apportioned equally among the four quarters of the year. The quarterly value of output of each of these four industries is the sum of value of output of individual commodities within these four industries. For estimating the quarterly value of inputs in these four industries, the previous year's input-output ratio is applied on the quarterly estimated value of output, separately for each of these four industries.
- 29.5 In the case of all other industries, the gross value added estimate for the reference quarter is directly estimated at different disaggregated levels (for example, in the case of manufacturing at 2-digit National Industries Classification (NIC) level) by extrapolating the estimated GDP of the same quarter of the previous year with the growth rate observed in the physical indicator during the reference quarter.
- 29.6 A table giving the various indicators used in compiling the QGDP estimates, industry-wise, is given at *Appendix 29.1*.
- ### Estimates at current Prices
- 29.7 The industry-wise details of the methodology of estimating the QGDP Estimates at current prices is described in the following paragraphs.
- ### Agriculture including livestock
- 29.8 For estimating the quarterly value of output of this industry, commodity-wise quarterly agriculture production data is required. However, agriculture production data is available only by two seasons (kharif or summer and rabi or winter). In order to compile estimated quarterly agriculture production from the season-wise production data, the India Crop Calendar (ICC), 1998 is used. The ICC presents the calendar of harvesting operations. This document gives the periods of harvesting of crops in different

seasons/states. Using the season-wise production data and the India Crop Calendar, 1998, the Ministry of Agriculture prepares the estimates of quarterly agriculture production of different crops.

- 29.9 The above method of compiling quarterly agriculture production estimates assumes that the entire production of a particular state/season/crop occurs in the harvesting period. By adopting this method, the total estimated agriculture production during the four quarters of a financial year (April to March) will be different from the one relating to the agriculture year (July to June). However, for annual national accounting purposes, the CSO has been adopting the total crop production in an agriculture year as that in the financial year. The two estimates of annual crop production differ to the extent of the difference in production during April-June of the two successive years. Therefore, in order to ensure consistency between the quarterly GDP estimates and the annual GDP estimates, the agriculture production estimates in the four quarters of a financial year are adjusted on a prorata basis to that of the total production in the agriculture year.
- 29.10 In the case of livestock products, quarterly estimates of production are available for the three major items, namely, milk, egg and wool, from the Department of Animal Husbandry and Dairying, Ministry of Agriculture. These estimates are compiled through special tabulations of the questionnaires on annual Integrated Sample Survey (ISS). This survey is conducted in three seasons, namely, summer, rainy and winter, primarily to estimate the yield rates of production per different categories/ages/breeds of animals.
- 29.11 The crops/livestock products for which the quarterly production data is available are rice, wheat, jowar, bajra, barley, maize. Ragi, small millets, gram, tur, urad, moong, masur, khesari, moth, kulthi, peas & beans, other kharif pulses, other rabi pulses, groundnut, sesamum, rapeseed & mustard, linseed, castorseed, safflower, nigerseed, coconut, sunflower, soyabean, cotton, jute, mesta, sanhemp, blackpepper, dry chillies, dry ginger, turmeric, arecanut, cardamom, corander, potato, tapioca, garlic, sweet potato, banana, onion, sugarcane, tobacco, guarseed, milk, egg and wool.
- 29.12 For estimating the value of inputs of agriculture sector for the reference quarter,

the annual input-output ratios of the previous year are adopted. The quarterly GVA estimate for the agriculture sector is obtained as the difference between quarterly estimates of value of output and material inputs.

### Forestry

- 29.13 In the absence of quarterly production data on major and minor forest products, the annual estimates of the current year are prepared first, separately for the three items, namely industrial wood, fuelwood and minor forest products, by using the average annual growth rate observed in these items during the past few years. The estimated values of output of forestry products during the reference quarter is taken as  $1/4^{\text{th}}$  of the annual forecast of value of output of forestry products. The inputs of forestry sector are taken to be 15.6 per cent of value of output, both for the annual estimates and the quarterly estimates.

### Fishing

- 29.14 The quarterly estimates of production of inland and marine fish are available from the Ministry of Agriculture. Using this quarterly production data, quarterly estimates of value of output of inland and marine fish are compiled. For estimating the value inputs, the previous year's input-output ratio is adopted.

### Mining

- 29.15 The data on production of coal, crude petroleum and the Index of Mining, are available on monthly periodicity. For the reference quarter, the quarterly production data on crude petroleum, coal and the Index of Mining are used to estimate the values of output of crude petroleum, coal and other major and minor minerals, respectively. The value of inputs in the mining sector are estimated separately for fuel minerals and all others, based on the previous year's input-output ratios for these minerals.

### Manufacturing

- 29.16 The data on Index of Industrial Production (IIP) for the manufacturing sector is available on monthly periodicity at 2-digit level of National Industrial classification (NIC). For the reference quarter, the GVA estimate at 2-digit level is compiled by extrapolating the previous year's GDP estimate at 2-digit level with the growth in IIP observed in the particular 2-digit industry group in the reference quarter.

### Electricity, Gas And Water Supply

- 29.17 The indicator for the electricity is taken to be the monthly Index of



Electricity. For the reference quarter, the growth rate in this index is used to extrapolate the previous year's estimates. For the gas and water supply industry groups, the annual forecast is first made using the past trends and the same is apportioned equally among the four quarters of the year.

### Construction

- 29.18 The key indicators of the *pucca* (modern type) construction are taken to be the production of cement, steel, bricks & tiles and the Index of Industrial Production (IIP) relating to fixtures & fittings, monthly data on which is available. For the quarterly GDP estimates, the *pucca* construction part is compiled using the growth observed in the production of cement and cement products (using the indicator cement), iron & steel (using the indicator steel), bricks & tiles (using the indicator coal) and timber and roundwood (using the indicator IIP-wooden fixtures). For the *kutchha* construction part of GDP of construction sector, the annual forecast is first made using the past trends and the same is apportioned equally among the four quarters of the year.

### Trade, Hotels And Restaurants

- 29.19 The key indicator of the sector, namely, the index of gross trading income is computed on the basis of the total estimated gross trading income. The gross trading income for each commodity producing sector (agriculture, livestock, forestry, fishing, mining, registered manufacturing, unregistered manufacturing and imports) is computed using the estimated value of output of the respective sectors. From the estimated total gross trading income, an index of gross trading income is compiled. For the reference quarter, the growth in the index of gross trading income, which is compiled by using the values of output of the commodity producing sectors during the reference quarter, is used to extrapolate quarterly GVA estimate of the corresponding quarter of the previous year.

### Railways

- 29.20 The data on the two key indicators of this sector, namely, passenger kilometers and net tonne kilometers are available every month. Using this, a single weighted average quantum figure is obtained, with the earnings from passengers and freight as weights. With the help of quarterly data on the two key indicators of this sector, namely, passenger kilometers and net tonne kilometers, a weighted average quantum figures is compiled for the reference

quarter. Using the growth rate observed in this indicator, the quarterly GVA of the reference quarter is estimated for the railways.

### Transport Other Than Railways

- 29.21 The data on indicators of this sector, namely, number of commercial vehicles on road (estimated from the production of commercial vehicles), cargo handled at major ports and passenger kilometers flown and freight tonne kilometers flown, in the case of civil aviation, are available on monthly basis. The quarterly data on the production of commercial vehicles, cargo handled at major ports and passenger kilometers flown and freight tonne kilometers flown, in the case of civil aviation are used to compile the GDP estimates for the reference quarter of the sub-sectors, road, water and air. For the sub-sector, services incidental to transport, the annual forecast is first made using the past trends and the same is apportioned equally among the four quarters of the year.

### Communication

- 29.22 For the quarterly estimates, the indicator used is the total stock of telephone connections in the country, monthly data on which is available. The growth observed in this indicator is used to estimate the GDP of the industry.

### Banking And Insurance

- 29.23 For the banking industry, the physical indicator is the sum of aggregate deposits and bank credits (deflated by the wholesale price index). The data on these items is available on monthly basis. For insurance, the physical indicator for the life insurance component is the sum of life insurance (sum assured) and life fund (deflated by the wholesale price index). The data on these items is available on quarterly basis. For the non-life insurance component, the indicator taken is the non-life fund (gross less claims) deflated by the wholesale price index. This data is available on quarterly basis. The growth in various indicators of the sector mentioned above are used to estimate the QGDP of the respective sub-groups of the banking and insurance industry.

### Public Administration & Defence

- 29.24 The indicator for deriving the quarterly GDP estimate is taken as the revenue expenditure of the central government deflated by the consumer price index (industrial workers) [CPI(IW)], in the absence of quarterly data on expenditure of

centre and state governments on salary and wages. The data on these indicators is available on monthly basis. For the quarterly estimates, the data on revenue expenditures of central government and the expenditures on salaries and wages by the State governments are available. This data is used to compile the quarterly GVA estimates of this economic activity.

#### **Other Services**

- 29.25 The estimates of GDP of "other services" consist of two components, namely, the public sector component and the private sector component. For the quarterly estimates, the indicator used for the public sector part is the same as that used in the public administration and defence. For the private sector part, the annual forecast is

first made using the past trends and the same is apportioned equally among the four quarters of the year.

#### **Estimates at current prices**

- 29.26 The QGDP estimates at current prices are compiled by superimposing the Wholesale Price Index/CPIs on the QGDP estimates at constant prices, at major industry group level. This is done by estimating the Implicit price deflators (IPDs) for each quarter, using the relevant price indexes, for the reference quarter. The QGDP estimate at current prices for each industry equals the product of QGDP for the quarter at constant prices and the IPD for the quarter of that industry.

**INDICATORS USED FOR QUARTERLY ESTIMATES OF GDP**

<b>SECTOR</b>	<b>INDICATORS</b>
1. agriculture	Quarterly agriculture production estimates of forecast crops
2. livestock	Quarterly production of milk, egg and wool
3. forestry	Apportioning the annual forecast equally in all the four quarters.
4. fishing	Quarterly production of inland and marine fish
5. mining and quarrying	Production of coal, crude petroleum and IIP (Mining)
6. manufacturing	Index of Industrial Production (Manufacturing).
7. electricity, gas and water supply	Index of Industrial Production (Electricity)
8. construction	Production of cement, steel, coal and IIP (Group 27)
9. trade, hotels and restaurants	Gross Trading Index, which is computed using the value of output of commodity producing sectors and imports
10. railways	Net tonne Kms. and Net passenger Kms.
11. transport by other means	Number of commercial vehicles in operation for the road activity, cargo handled at major ports for the water activity and passenger kilometers flown and freight tonne kilometers flown for the air industry.
12. communication	Total number of telephones (basic, WLL and Cell) installed.
13. banking and insurance	aggregate deposits, bank credits and the wholesale price index for the banking sub-sector, life insurance (sum assured) and life fund and wholesale price index for the life insurance part of the insurance sub-sector and non-life fund (gross less claims) and the wholesale price index for the non-life insurance part of the insurance sub-sector
14. public administration	Central government revenue expenditure; expenditure on salaries and wages by the state governments and consumer price index (industrial workers)
15. other services	For the public sector component, the same indicator as in 14 and for the private part, apportioning equally in all the four quarters.

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**Introduction**

- 30.1 The Central Statistical Office (CSO) introduced the advance estimates of national income in the year 1993, beginning with the estimates for the year 1992-93. These estimates are now released on 7<sup>th</sup> February or the next working day, of each year. The approach for compiling the advance estimates is broadly based on the benchmark-indicator method. In this method, for each of the industry-groups, namely, agriculture, forestry, fishing, mining, manufacturing, electricity, gas and water supply, trade, hotels and restaurants, transport, storage and communication, banking and insurance, real estate, ownership of dwellings and business services, public administration, a key indicator or a set of key indicators for which data in volume or quantity terms is available during the year, are used to extrapolate the value of output/value added estimates of the previous year. For example, in the case of agriculture sector, the set of key indicators are the advance estimates of agriculture production (at individual crop level) and in the case of manufacturing sector, the key indicators are the index of industrial production (at 2-digit industry group level). The benchmark estimates are the previous year's Quick Estimates.
- 30.2 For compiling the Advance Estimates at constant prices, the benchmark estimates at constant prices are extrapolated with the growth rates observed in the physical/proxy key indicators. For compiling the estimates at current prices, firstly the implicit price deflators are estimated using the data on prices available from the wholesale and consumer price indexes of the respective industry groups. These industry-wise implicit price deflators are then super-imposed on the Advance Estimates compiled at constant prices, to obtain the industry-wise estimates at current prices.
- 30.3 A table giving the various indicators used in compiling the Advance estimates, sector-wise, is given at *Appendix 30.1*.
- 30.4 The industry-wise details of the methodology of estimating the Advance Estimates is described below:

**Sources of data and Method of Estimation****Agriculture including livestock**

- 30.5 The advance estimates of agriculture production of different crops are compiled by the Directorate of Economics and Statistics, Ministry of Agriculture (DESAg), based on the data received from the State Agricultural Statistics Authorities (SASAs). For the advance estimates of GDP, which are required to be compiled in the month of January/February, the advance estimates are based on kharif harvest and rabi sowings. The DESAg releases the advance estimates of crop production at quarterly periodicity, beginning with the first advance estimates of kharif production in September.
- 30.6 In the case of livestock sub-sector, estimates of production, mainly in the form of targets or likely projections are available for milk, egg, and wool, from the Department of Animal Husbandry, Ministry of Agriculture, based on the data received from the Animal Husbandry Departments of States.
- 30.7 The crops/livestock products for which the advance estimates of production available are rice, wheat, jowar, bajra, barley, maize, ragi, small millets, gram, tur, urad, moong, masur, khesari, moth, kulthi, peas & beans, other kharif pulses, other rabi pulses, groundnut, sesamum, rapeseed & mustard, linseed, castorseed, safflower, nigerseed, coconut, sunflower, soyabean, cotton, jute, mesta, sanhemp, blackpepper, dry chillies, dry ginger, turmeric, arecanut, cardamom, coriander, potato, tapioca, garlic, sweet potato, banana, onion, sugarcane, fruits and vegetables, tobacco, guarseed, milk, egg and wool.
- 30.8 For preparing Advance estimates of GDP for the current year, the crop-wise estimates of value of output of Quick Estimates, are extrapolated on the basis of growth in production as reflected in the advance estimates of production made available by the DESAg, for the above mentioned crops. For the remaining crops and the livestock products for which the advance estimates of production data are not available, the Quick Estimates of value of output of these crops are extrapolated to the current year, on the basis of past years' growth rates.
- 30.9 As regards estimation of value of inputs of agriculture sector, the input-output ratio of the Quick Estimates is assumed to be the same for the Advance Estimates.

**Forestry**

30.10 In the case of forestry sector, the advance estimates of value of output for the fuelwood is made in the same manner as that in the case of Quick Estimates, which is to use the data on consumption of firewood from the results of NSS Consumer expenditure surveys. For the other two items, namely, industrial wood and minor forest products, the Quick Estimates of value of output of these crops are extrapolated to the current year, on the basis of past years' growth rates.

30.11 The inputs of forestry sector are taken to be 15.6 per cent of value of output, both for the Quick Estimates and the Advance Estimates.

**Fishing**

30.12 The Quarterly Estimates of production of inland and marine fish are compiled by the Ministry of Agriculture, based on the data received from the State Fisheries departments. For the Advance estimates, data is available for the first two quarters of the current financial year. For preparing Advance estimates for the current year, estimates of value of output of Quick Estimates are extrapolated on the basis of growth in production as reflected in the production during the first two quarters of the current year in respect of inland and marine fish. As the quarterly production of inland and marine fish are generally available with a time lag, the, annual production is estimated on the basis of average growth observed from 2004-05 up to the year for which latest annual estimates are available. The Advance estimates of input for the current year are compiled using the input-output ratio of Quick Estimates in respect of the fishing sector.

**Mining**

30.13 The data on production of coal, crude petroleum and the Index of Mining, are available on monthly basis and for 8 to 9 months for the current year, when advance estimates are compiled. The growth rate observed in these items is used to extrapolate the Quick Estimates of value of output of coal, crude petroleum, and other major and minor minerals, respectively. The Advance estimates of input for the current year are made using the annual input-output ratio of the Quick Estimates in respect of the mining sector, separately for fuel minerals and other minerals.

**Manufacturing**

30.14 The data on Index of Industrial Production (IIP) for the manufacturing sector is available on monthly basis at 2-digit level of National Industrial classification (NIC), and for 8 months for the current year, when advance estimates are compiled. The Advance Estimates of IIP at 2-digit industry groups for the current year are initially compiled by dividing the cumulative index for the 8 months of the current year, by the average of ratio of 8 months index to the annual index of past years. The estimated IIP so derived for the current year at 2-digit level is used to extrapolate the previous year's value added Estimates at 2-digit level, separately for the registered and unregistered manufacturing sectors.

**Electricity, Gas and Water Supply**

30.15 The indicators for the electricity and water supply sub-sectors are taken to be the monthly Index of Electricity and budget estimates of water supply. The Quick Estimates of Electricity sub-sector are extrapolated with the growth observed in the index of electricity of the current year (which is computed on the same lines as that mentioned above under the manufacturing sector), to arrive at the Advance Estimates of GDP for the electricity sub-sector. For the gas and water supply sub-sector, the Quick Estimates value added is extrapolated with the past years' average growth rate to arrive at the Advance Estimates of GDP for the gas and water supply sub-sector. In case, budget estimates of expenditure on water supply are available, the Quick Estimates of value added is extrapolated with the growth in the budget estimates of expenditure on water supply (after deflating by the CPI(IW)).

**Construction**

30.16 The construction activity is segregated into two components, namely, pucca construction and kutcha construction. For the pucca construction part, the key indicators are taken to be the production of cement, steel, bricks & tiles and the IIP relating to fixtures & fittings, data on which is available on monthly basis. For the Advance Estimates, data is available for about 8 months of current year. Based on the growth rates observed during the current year on these items, the four components, cement and cement products (using the indicator cement), iron & steel (using the indicator steel consumption), bricks & tiles (using the indicator coal) and timber and roundwood (using the indicator IIP-wooden fixtures), of pucca construction are compiled. For the kutcha construction

part, the GDP is estimated using last few years' annual average growth rates.

#### Trade, Hotels and Restaurants

- 30.17 The key indicator of the sector, namely, the index of gross trading income is computed on the basis of total estimated gross trading income. The gross trading income for each commodity producing sector (agriculture, livestock, forestry, fishing, mining, registered manufacturing, unregistered manufacturing and imports) is computed using the estimates of value of output of the respective sectors. From the estimated total gross trading income, an index of gross trading income is computed. For the Advance estimates, the index of gross trading income is compiled by using the values of output of the commodity producing sectors during the current year. This index of gross trading income is used to extrapolate the Quick estimates of the previous year to arrive at the advance estimates.

#### Railways

- 30.18 The data on the two key indicators of this sector, namely, passenger kilometers and net tonne kilometers are available on monthly basis. For the Advance Estimates, data is available for about 8 months of current year. The two indicators are combined into one indicator with the weights as earnings from passengers and freight. The growth rate observed in this combined indicator is used to extrapolate the Quick estimates of the previous year to arrive at the advance estimates.

#### Transport other than Railways

- 30.19 The data on indicators of this sector, namely, number of commercial vehicles on road (estimated from the production of commercial vehicles), cargo handled at major ports and passenger kilometers flown and freight tonne kilometers flown (both domestic and international) in the case of civil aviation, are available on monthly basis. For the Advance Estimates, data is available for about 8 months of current year. Based on the growth rates observed during the current year on these items, the four components, road (using the indicator of total commercial vehicles on road), water (using the indicator of cargo handled at major ports), air (using the indicators mentioned for civil aviation) and services (using past few years' average growth rate), the Quick estimates of previous year are extrapolated to arrive at Advance Estimates of GDP of the sector.

#### Communication

- 30.20 The data on indicators of this sector, namely, the total stock of telephone connections, separately for landline including WLL and cellular, are available on monthly basis. For the Advance Estimates, data is available for about 9 months of current year. Based on the growth rates observed during the current year on the indicators, the Quick estimates of previous year are extrapolated to arrive at Advance Estimates of GDP of the sector.

#### Banking and Insurance

- 30.21 For the banking sub-sector, the physical indicator is the sum of aggregate deposits and bank credits (deflated by the wholesale price index), and for the insurance sub-sector, the indicators are the net premiums collected for life and non-life insurance (deflated by the wholesale price index). For the Advance Estimates, data is available for about 8 months of current year. Based on the growth rates observed during the current year on these physical indicators, the Quick estimates of previous year are extrapolated to obtain the Advance Estimates of GDP, separately for the banking and insurance sub-sectors.

#### Public Administration & Defence

- 30.22 The indicator for the Advance estimates of GDP is taken as the revenue expenditure of the central and state governments for the first 9 months of the year, deflated by the consumer price index (industrial workers) [CPI(IW)]. Based on the growth rates observed during the current year on this physical indicator, the Quick estimates of previous year are extrapolated to arrive at Advance Estimates of GDP, for the sector.

#### Other Services

- 30.23 The Advance estimates for the public sector part of other services are compiled using the growth rate observed in the budget estimates of revenue expenditure of central and state governments. For the non-public sector part of this sector, the advance estimates are made using the past few years' average growth rate, in the absence of data on any relevant indicators of the sector.

#### Estimates at current prices

- 30.24 For compiling the advance estimates at current prices, firstly estimates of Implicit Price Deflators (IPDs) are prepared for the current year. The IPD is the ratio of estimates at current prices to those at constant prices. The IPDs for the current year are estimated by



extrapolating the previous year's IPDs with the growth rate observed in the relevant WPI/CPIs. The Advance estimate at current prices for a particular sector is compiled as a product of

### **Expenditure components of GDP**

30.25 The procedure for arriving at advance estimates for different expenditure categories have been explained in the chapter on quarterly estimates.

the estimated IPD of the sector and the corresponding Advance estimate of GDP of the sector at constant prices.

**INDICATORS USED FOR ADVANCE ESTIMATES OF GDP**

<b>SECTOR</b>	<b>INDICATORS</b>
1. Agriculture	<u>Principal Crops</u> : Advance estimates of crop production <u>Other crops</u> : Average of past few years' growth rates <u>Inputs</u> : Previous year's input-output ratio
2. Livestock	<u>Milk, egg and wool</u> : Targets/projections <u>Other products</u> : Average of past few years' growth rates
3. Forestry	<u>Fuel wood</u> : NSS consumer expenditure surveys <u>Other items</u> : Average of past few years' growth rates <u>Inputs</u> : fixed ratios of output, as in the case of previous year
4. Fishing	<u>inland and marine fish</u> : Quarterly production data <u>Inputs</u> : Previous year's input-output ratio
5. Mining and quarrying	<u>Coal and crude petroleum</u> : Monthly Production data <u>Other Items</u> : Index of Industrial Production (Mining) <u>Inputs</u> : fixed ratios of output, as in the case of previous year, separately for fuel minerals and other minerals
6. Manufacturing	Index of Industrial Production (Manufacturing)
7. Electricity, gas and water supply	<u>Electricity</u> : Index of Industrial Production (Electricity) <u>Water Supply</u> : budget estimates of central government revenue expenditure deflated by CPI(IW) <u>Gas</u> : average of past few years' growth rates
8. Construction	<u>Pucca construction</u> : Production of cement, steel, coal and IIP (27) <u>Kutcha construction</u> : average of past few years' growth rate
9. Trade, hotels and restaurants	Gross Trading Index, which is computed using the value of output of commodity producing sectors and imports
10. Railways	Net tonne Kms. and Net passenger Kms. The two indicators are combined using the weights of respective earnings
11. Transport by other means	<u>Road</u> : Number of commercial vehicles on road, estimated using the data on production of commercial vehicles <u>Water</u> : Cargo handled at major ports <u>Air</u> : passenger kilometers flown and freight tonne kilometers flown (both domestic and international) <u>Services</u> : average of past few years' growth rates
12. Communication	Total stock of telephones, both fixed line including WLL and Cellular
13. Banking and insurance	<u>Banking</u> : Total of aggregate deposits and bank credits deflated by the wholesale price index for the sub-sector, <u>Insurance</u> : Net premium received on life and non-life insurance business deflated by the wholesale price index
14. Public administration	Central and state government revenue expenditure deflated by consumer price index (industrial workers)
15. Other services	For the public component, budget estimates of central and state government revenue expenditure deflated by consumer price index (industrial workers) and for the private part average of past few years' growth rates.

## Estimation of Rural and Urban Income, 2004-05

### Introduction

- 31.1 The Central Statistics Office (CSO) has been compiling estimates of Rural and Urban break up of net domestic product (NVA), for the base years of National Accounts Statistics (NAS) series, since the NAS, 1970-71 series. These NVA estimates with rural and urban break-up were so far compiled for the years 1970-71, 1980-81, 1993-94 and 1999-2000. The procedure adopted for compiling these estimates was the allocation method in which the activity-wise net value added (NVA) was allocated between rural and urban areas using data on indicators available for each economic activity with rural and urban break-up. Major indicators used in this allocation method were the labour input, results of surveys and administrative records which provide rural and urban break up on these indicators.
- 31.2 Continuing with this practice and the sources and methods broadly adopted for the previous estimates, the rural and urban contribution to NVA have been compiled for the year 2004-05, following the introduction of new NAS series with base year 2004-05.

### Methodology adopted in estimating Rural and Urban Income, 2004-05

- 31.3 The approach and methodology for estimating the Rural and Urban income (as a breakup of Net Domestic Product –NVA), activity-wise, is given in the following paragraphs.

### Agriculture

- 31.4 The Situation Assessment Survey (SAS) of farmers, 2002-03 conducted by the National Sample Survey Organisation (NSSO) provides the total area operated separately in respect of rural and urban areas. The ratio of area of land holdings in rural areas to the total area under land holdings as per the results of SAS is estimated at 95.86%. This ratio has been used for allocating the NVA of Agriculture between rural and urban areas.
- 31.5 For the livestock, the basic source of data for the livestock population is the 5-yearly All India Livestock Census. According to the results of the latest Livestock Census conducted in the year 2003, the proportion of livestock population (including poultry) in rural areas out of total livestock population has been estimated to be 94.18%. This ratio

has been used for allocating the NVA of livestock between rural and urban areas. In the case of operation of irrigation system, the entire NVA has been allocated to rural areas.

### Forestry & Logging

- 31.6 The data on production of Forestry products is not available separately for rural and urban areas. However, firewood production is estimated on the basis of firewood consumption, as available from NSS consumer expenditure surveys, in the GDP estimates. For estimating the consumption of firewood separately in rural and urban areas, the data on per capita average monthly household consumption of firewood and chips is available in the NSS 61<sup>st</sup> Round Survey (Report no.508) separately for rural and urban areas. As per the results of this survey, the ratio of consumption of firewood in rural areas is 87.01%. For industrial wood, the major component is wood produced from trees outside forests (TOF). For this, the growing stock of TOF in rural areas as estimated by the Forest Survey of India (FSI) has been applied on the output of total Industrial wood to get the rural share of the output of this item. The ratio of growing stock of TOF in rural area out of the total area is 94.97%. The combined ratio of firewood and industrial wood in rural areas has been used to allocate the NVA of forestry sector between the rural and urban areas.

### Fishing

- 31.7 The Fishing activity comprises production of inland fish and marine fish. The urban and rural workforce, multiplied by average wage for unskilled workers in urban and rural areas respectively as available in report No. 515 (Part II) of NSS EUS 2004-05 titled '**Unemployment and employment situation in India, 2004-05**' provided the ratio for allocation of NVA of fishing sector between the rural and urban areas.

### Mining and Quarrying

- 31.8 The rural/urban proportions of workforce in mining and quarrying as available from the NSS Employment Unemployment Survey of 61<sup>st</sup> round, 2004-05 has been utilized to allocate the NVA of the activity between rural and urban areas.

**Registered Manufacturing**

- 31.9 For the registered manufacturing sector, the NVA has been allocated using the estimates of NVA in rural and urban areas as available directly in the reports of the Annual Survey of Industries (ASI) for the year 2004-05.

**Unregistered Manufacturing**

- 31.10 For unregistered manufacturing sector, the differential in rural and urban GVA estimates obtained from the 62<sup>nd</sup> Round (2005-06) Survey of NSSO on un-organized manufacturing sector conducted in 2005-06 has been used to compute rural-urban estimates of NVA for unregistered manufacturing.

**Electricity, Gas and Water Supply**

- 31.11 The rural/urban proportions of the workforce for the year 2004-05, for Gas, Electricity and Water Supply sector, have been utilized to work out the rural/urban NVA estimates of this activity.

**Construction**

- 31.12 The estimates of NVA in the construction industry have been distributed between rural and urban areas for each of the three institutional sectors, namely public sector, private corporate sector and household sector using the following methodology:

- 31.13 For each of the different sub-sectors in different institutions, norms for apportioning the estimates of total NVA in construction industry into rural and urban categories have been prepared based on census and different surveys' results. The norms are described below:

- (i) For the public sector, estimate of NVA is prepared for each of the three sub-institutions, namely, (i) administrative departments, (ii) departmental commercial undertakings (DCU) and (iii) non-departmental commercial undertakings (NDCU). Again with in each of the sub-institutions, estimates of NVA are prepared for different types of assets like buildings, roads & bridges and other construction. The estimates of NVA in construction in public administration and DCUs have been apportioned between rural and urban areas in proportion to rural urban differential in labour input (LI) of this component as available from the Employment Unemployment Survey of 61<sup>st</sup> round, 2004-05. This proportion is 86.9 and 13.1 in rural and urban areas respectively. For NDCUs, the NVA on account of type of asset 'construction' is

apportioned industry wise. The NVA on account of generation of type of asset 'construction' in Agriculture & allied and Mining & Quarrying is attributed to rural areas only. Whereas the NVA on account of generation of type of asset 'construction' in industries like construction, trade, hotel & restaurant, transport, storage, real estate etc, and other services are taken in urban areas only. For the other industries, the NVA is apportioned in rural and urban areas based on rural-urban distribution of new construction of joint stock companies from ASI 2004-05.

- (ii) In case of the private corporate sector, the estimates of NVA are prepared separately for each of the sub sectors namely (a) joint stock companies (b) other scheduled commercial banks (c) cooperatives (credit and non-credit) and (d) new companies under construction. For item no. (a), (c), and (d), the NVA is apportioned industry wise. Like in case of NDCUs as described under (i) above, the NVA on account of generation of type of asset 'construction' in Agriculture & allied activities and Mining & Quarrying is attributed to rural areas only. Whereas the NVA on account of generation of type of asset 'construction' in industries like construction, trade, hotels & restaurants, transport, storage, real estate etc, and other services are taken in urban areas only. For other industries, the NVA is apportioned between rural and urban areas based on rural-urban distribution of new construction of joint stock companies as available from the results of ASI 2004-05. The NVA for other scheduled commercial banks (private banks and foreign banks) has been apportioned into rural and urban sectors in proportion to the rural-urban share of sum of deposits and credits of other scheduled commercial banks for the year 2004-05. The source of this data is the RBI's statistical tables relating to banks in India, 2004-05. The respective rural-urban proportions in this case are 25.85% & 74.15%, respectively.
- (iii) In the household sector, specific activities like construction of rural residential buildings and urban residential buildings have been allocated to their respective areas as presently being compiled for the annual GDP estimates. The entire NVA obtained for expenditure on plantation of crops, wind

energy systems etc. has been earmarked to rural sector. The expenditure on account of residual part of construction (after netting public, private corporate and household parts construction from the overall output of construction) has been apportioned into rural and urban areas by the proportion of labour input (LI) working in rural area and urban area as available from the Employment Unemployment Survey (EUS) of 61<sup>st</sup> round, 2004-05. For the construction on account of non-residential buildings and other construction works, the estimate has been apportioned into the rural and urban areas based on the of rural urban expenditure on new construction as available from All India Debt and Investment Survey (AIDIS) 2002-03.

### **Trade, Hotels and Restaurants**

- 31.14 The GVA for this sector is prepared in three parts namely, public, private organized and unorganized. The GVA of public and private organized sector is allocated to rural and urban areas on the basis of rural-urban differential in total workforce of the respective segments as derived from the EUS-2004-05. For the unorganized part, the GVA estimates are available separately for rural and urban areas in the annual NAS estimates. The differential in rural and urban GVA thus obtained has been applied on total NVA in the household sector to get rural and urban estimates of NVA. For trade activity, the GVAPW has been taken from the 55<sup>th</sup> Round (1999-2000) survey of NSSO on Informal Sector and for Hotels and Restaurants, the GVAPW has been obtained from Enterprise Survey of NSSO of 57<sup>th</sup> round (2001-02).

### **Transport other than railways and storage**

- 31.15 The GVA estimates of rural and urban areas have been prepared using the methodology similar to that of Trade, Hotels and Restaurants. The GVA of public sector is allocated to rural and urban areas on the basis of rural-urban differential in total workforce. For the private organized and unorganized part, the GVA estimates are available separately for rural and urban areas in the annual NAS estimates. The differential in rural and urban GVA has been applied on total NVA to obtain rural and urban estimates. To compute GVA from unorganized component of all these sectors, the GVAPW has been obtained from Enterprise Survey of NSSO conducted in its 63<sup>rd</sup> Round (2006-07).

## **Communication**

- 31.16 The GVA of public sector is allocated to rural and urban areas on the basis of rural-urban differential in total workforce. The private communication part includes (i) Courier activities (NIC-98, code-64120), (ii) Activities of the cable operators (NIC-98, code-64204) and (iii) Other communication (NIC-1998, code- 642 (-) 64204). For Courier activities and cable operators, GVA estimates are available separately for rural and urban areas in the annual GDP estimates. For other communication, estimates of GVA for private organized part are taken to be in urban areas whereas estimates of GVA for unorganized part are available separately for rural and urban areas in the annual GDP estimates. The differential in rural and urban GVA thus estimated has been applied on total NVA to allocate between rural and urban areas.

## **Banking & Insurance**

- 31.17 In the case of Banking & Insurance sector, the rural and urban break-up of deposits and credits of scheduled commercial banks has been used as an indicator for allocation of the NVA between the rural and urban areas. The data on deposits and credits of scheduled commercial banks has been obtained from the Reserve Bank of India publication –“Basic Statistical Returns-2004-05”.

## **Real estate, Ownership of dwellings & business services**

- 31.18 The economic activities covered in this activity are (i) ownership of dwellings (occupied residential houses), (ii) real estate services (activities of all types of dealers such as operators, developers and agents connected with real estate), (iii) renting of machinery and equipment without operator and of personal and household goods, (iv) Computer and Related Activities, (v) Accounting, Book-keeping and Related Activities, (vi) Research and development, market research and public opinion polling, business & management consultancy, architectural, engineering & other technical activities, advertising and business activities n.e.c. and (vii) legal services. Ownership of dwellings includes the imputed value of output of owner occupied dwellings.
- 31.19 For all the activities of this sector except for private organized part of software and ownership of dwellings, estimates of NVA are obtained separately for rural and urban areas from GVA which is worked out as a product of GVAPW and work force in the annual GVA estimates. The entire NVA of

software services from organized sector has been allocated to urban areas.

- 31.20 For GVA estimate in respect of ownership of dwellings, 2001 census households and rent per household obtained from results of NSS 61<sup>st</sup> round has been used to estimate the gross rental in urban areas. Cost of repair & maintenance has been subtracted from the gross rental, to get the GVA estimates for urban areas. For rural areas, the user cost approach is used to estimate GVA. The NVA is allocated to rural and urban areas on the basis of rural-urban differential in GVA.

### **Public Administration and Defence**

- 31.21 For "Public Administration and Defence" the distribution of employees in different pay scales has been taken from the publication "Census of Central Government Employees as on 31st March, 2004" of the Directorate General of Employment and Training (DGE&T). The information on pay and allowances in the different city/towns available in the brochure on "Pay and Allowances of Central Government Civilian Employees, 2004-05" published by the Pay and Research Unit of Ministry of Finance has been combined with the number of employees in respective categories to compute income of employees in different cities. The cities categorized A1, A, B1, B2 and C are assumed to be urban areas and the residual is assumed to be rural areas. The rural and urban differential in total earnings (salaries and allowances) has been used to allocate the total NVA between rural and urban areas.

### **Railways**

- 31.22 For Railways, the rural and urban differential in workforce from RGI-Population Census 2001 has been applied on the NVA of railways to allocate the NVA of railways between rural and urban areas.

### **Other Services**

- 31.23 The economic activities covered under this sector are (i) Coaching and Tuition, (ii) Education excluding Coaching and Tuition, (iii) Human health activities including veterinary activities (iv) Sewage and refuse disposal, sanitation activities, (v) Activities of membership organisations, (vi) Recreational cultural and sporting activities, (vii) Washing and cleaning of textiles and fur products, (viii) Hair Dressing and other Beauty Treatment, (ix) Funeral and related activities, (x) Pvt. households with employed person, (xi) Custom Tailoring, and (xii) Extra Territorial organisations and Bodies.
- 31.24 For the public part of education, medical, sewage and television & radio (Prasar Bharati), the NVA is allocated between rural and urban areas on the basis of rural-urban differential in total workforce as per EUS 2004-05. For all other activities of this sector, the estimates of NVA for private organized and unorganized are obtained separately for rural and urban areas from GVA estimates worked out as a product of GVAPW and work force in the annual GVA estimates. The rural-urban GVA thus obtained has been used for allocating the NVA between rural and urban areas.



**Summarized Methodology:**

<b>Industry</b>	<b>Indicator used for allocation between rural and urban</b>
Agriculture	Total area operated in rural and urban areas from Situation Assessment Survey (SAS) of Farmers, 2002-03 conducted by NSSO
Livestock	Livestock population in rural and urban areas from All India Livestock Census 2003
Forestry and Logging	<ul style="list-style-type: none"> <li>Firewood production: firewood consumption expenditure in rural and urban areas from 61<sup>st</sup> round Consumer Expenditure Survey, 2004-05</li> <li>Industrial wood: growing stock of Trees Outside Forest in rural areas as estimated by Forest Survey of India</li> </ul>
Fishing	Rural and urban workforce estimates multiplied by estimated average wage for unskilled workers in rural and urban areas respectively as available from 61 <sup>st</sup> round Employment Unemployment Survey (EUS), 2004-05
Mining and Quarrying	Rural and urban workforce estimates in mining and quarrying as available from 61 <sup>st</sup> round EUS, 2004-05
Registered Manufacturing	Estimated NVA in rural and urban areas as available from Annual Survey of Industries, 2004-05
Unregistered Manufacturing	Rural and urban GVA estimates as available from Enterprise Survey on unorganized manufacturing sector, 62 <sup>nd</sup> round, 2005-06
Electricity, gas, water supply	Rural and urban workforce estimates in electricity, gas, water supply as available from 61 <sup>st</sup> round EUS, 2004-05
Construction	<ul style="list-style-type: none"> <li>Public Administration and DCUs: Estimated labour input from 61<sup>st</sup> round EUS, 2004-05 for construction industry in the respective institution.</li> <li>NDCUs: agriculture and allied, mining and quarrying: NVA on account of generation of type of asset 'construction' in industries like agriculture and allied, mining and quarrying is allocated to rural areas only. NVA on account of generation of type of asset 'construction' in industries like construction, trade, hotel-restaurants, transport, storage, real estate, other services etc is allocated to urban areas only. For remaining industries, the indicator is rural urban distribution of new construction of joint stock companies from ASI, 2004-05.</li> <li>Private Corporate Sector: Except for other scheduled commercial banks (OSCB), similar methodology as in case of NDCUs. <ul style="list-style-type: none"> <li>OSCBS (private banks and foreign banks): Rural and urban share of sum of deposits and credits of OSCBs in 2004-05 from the publication 'Statistical Tables relating to Banks in India, 2004-05', of RBI.</li> </ul> </li> </ul>
Trade, hotel and restaurants	<ul style="list-style-type: none"> <li>Public: Rural and urban workforce estimates in trade and hotel restaurants in public sector as available from 61<sup>st</sup> round EUS, 2004-05</li> <li>Private organized: Rural and urban workforce estimates in trade and hotel restaurants in private organized sector as available from 61<sup>st</sup> round EUS, 2004-05</li> <li>Unorganized: rural and urban NVA estimates are prepared separately for unorganized sector utilizing estimates of GVAPW and workforce in rural and urban areas from 57<sup>th</sup> round Enterprise Survey on service sector and 61<sup>st</sup> round EUS, 2004-05 for hotel and restaurants and estimates of GVAPW and workforce in rural and urban areas from 55<sup>th</sup> round survey of NSSO on informal sector for trade sector.</li> </ul>
Transport other than railways	Similar methodology as above
Communication	<ul style="list-style-type: none"> <li>Public sector: Rural and urban workforce estimates in communication in public sector as available from 61<sup>st</sup> round EUS, 2004-05</li> <li>Private sector: <ul style="list-style-type: none"> <li>Courier and cable activities: similar methodology as in hotel and restaurants</li> <li>Other communication in private organized part: assumed to be occurring in urban areas only</li> <li>Other communication in unorganized sector: similar methodology as in unorganized sector in hotel and restaurants</li> </ul> </li> </ul>
Banking and Insurance	Rural and urban deposits and credits of scheduled commercial banks from 'Basic Statistical Returns, 2004-05' published by Reserve Bank of India

Industry	Indicator used for allocation between rural and urban
Real estate, ownership of dwelling, business services	<ul style="list-style-type: none"> <li>• Similar methodology as in hotel and restaurants except for private organized part of software and ownership of dwellings.</li> <li>• GVA in software service in organized sector assumed to be in urban areas only.</li> <li>• GVA in Ownership of dwelling is estimated separately for rural and urban areas as described in respective chapter.</li> </ul>
Public Administration and Defence	<ul style="list-style-type: none"> <li>• Estimated distribution of regular central government employees in different pay scales and location wise dispersal of employees in different type of locations from table 7 and table 8 of 'Census of Central Government Employees as on 31<sup>st</sup> March, 2004' of Directorate General of Employment and Training (DGET)</li> <li>• Information on pay and allowances in different pay ranges available in the brochure on Pay and Allowances of Central Government Civilian Employees, 2004-05 published by the Pay Research Unit of Ministry of Finance.</li> <li>• Using above two estimated income of central government employees are generated in different type of locations. Cities categorized as A1,A,B,C are classified as urban and remaining are treated as rural.</li> <li>• Proportion of estimated rural income out of total income in case of central government employees used as the indicator.</li> </ul>
Railways	Estimated rural and urban workforce from RGI Population Census, 2001.
Other Services	<ul style="list-style-type: none"> <li>• For education, medical, sewage, television &amp; radio broadcasting in public sector, estimated rural and urban workforce from 61<sup>st</sup> round of EUS, 2004-05</li> <li>• For remaining similar methodology as in case of hotel and restaurants.</li> </ul>

**Net Domestic Product by economic activity in rural and urban areas  
for the year 2004-05  
(at current prices)**

(Rs. Crore)

Sl No.	Industry	Rural	Urban	Total
<b>1</b>	<b>agriculture, forestry and fishing</b>	<b>496053</b>	<b>31236</b>	<b>527289</b>
1.1	agriculture	422825	19916	442741
1.2	forestry and logging	55747	5066	60813
1.3	fishing	17482	6253	23735
<b>2</b>	<b>mining and quarrying</b>	<b>46707</b>	<b>23757</b>	<b>70464</b>
<b>3</b>	<b>manufacturing</b>	<b>147382</b>	<b>199113</b>	<b>346495</b>
3.1	registered	86313	119531	205844
3.2	unregistered	61069	79582	140651
<b>4</b>	<b>electricity, gas &amp; water supply</b>	<b>11233</b>	<b>22556</b>	<b>33789</b>
<b>5</b>	<b>construction</b>	<b>99335</b>	<b>119176</b>	<b>218511</b>
<b>6</b>	<b>trade, hotel &amp; restaurants</b>	<b>190089</b>	<b>274661</b>	<b>464750</b>
6.1	trade	174219	250375	424594
6.2	hotel & restaurants	15870	24286	40156
<b>7</b>	<b>transport, storage and communication</b>	<b>73276</b>	<b>146309</b>	<b>219585</b>
7.1	railways	6721	14975	21696
7.2	transport by other means	59274	95517	154791
7.3	storage	261	1611	1872
7.4	communication	7019	34207	41226
<b>8</b>	<b>financing, insurance, real estate, ownership of dwelling and business services</b>	<b>107200</b>	<b>290679</b>	<b>397879</b>
8.1	banking and insurance	24913	143199	168112
8.2	real estate, ownership of dwellings and business services	82287	147480	229767
<b>9</b>	<b>community, social and personal services</b>	<b>105210</b>	<b>267601</b>	<b>372811</b>
9.1	public administration and defence	24012	125008	149020
9.2	other services	81198	142593	223791
<b>10</b>	<b>total net domestic product at factor cost</b>	<b>1276485</b>	<b>1375088</b>	<b>2651573</b>
<b>11</b>	<b>population (millions)</b>	<b>777.7</b>	<b>311.3</b>	<b>1089</b>
<b>12</b>	<b>per capita NVA (Rs.)</b>	<b>16414</b>	<b>44172</b>	<b>24349</b>

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32.1 The value of output created out of production process is distributed to three factors of production, namely, labour, capital and intermediate consumption. The value added (value of output, *minus*, intermediate consumption) is created by two factors of production, namely, labour and capital. These two factors of production have claim to the income generated out of the production process, and are accordingly compensated respectively by compensation of employees and operating surplus in the case of organized sector and mixed income in the case of self employed/unincorporated enterprises.

32.2 The estimates of factor incomes are required for studying the relative shares of factors of production in the value added from different industries of the economy. The SNA recommends presentation of domestic factor incomes according to kind of economic activity and by institutions. The basic concept recommended in the SNA originates from the production account of industries in which factor incomes appear under the distribution of domestic product. In the SNA 1993, the generation of income account gives operating surplus/mixed income as the balancing item, with value added as resources on the right side and compensation of employees payable to workers employed in the production process as uses of value added (other than taxes and subsidies) on the left side.

32.3 In the national accounts statistics, the official estimates of factor incomes at current prices were introduced in the year 1976. Estimates giving distribution of Net Domestic Product were published in various issues of National Accounts Statistics (NAS) during 1976 to 1987 in the following disaggregation:

- (a) factor incomes by industry of origin;
- (b) factor incomes by organized and unorganized sectors (aggregated, not cross classified by industry of origin); and
- (c) Factor incomes by public and private organized sectors.

32.4 The methodology for preparing these estimates was included in National Accounts Statistics: Sources & Methods (April, 1980). After the introduction of NAS 1980-81 series, a separate brochure on factor income was brought out by the CSO, giving the estimates of factor income from 1980-81 to

1989-90 separately for public sector, organized sector and unorganized sector, cross-classified by industry of origin. The detailed methodology adopted for compiling the estimates of factor incomes was also included in the brochure. Subsequently, the estimates of factor incomes are regularly included in the CSO's annual publication "National Accounts Statistics".

### Conceptual Basis of Estimates

32.5 First, SNA makes a distinction between commodities and industries. This is significant because cost structure usually relates to industries. Further, to minimise the role of assumptions to the extent feasible, SNA has recommended grouping of establishments rather than enterprises to form industries. According to SNA 'In those countries which do not have the practice of setting up enterprises for specific purposes, it can be observed that the output of an establishment is almost always more homogeneous than the output of the enterprise of which it forms a part'. In India data collection system has been developed in such a manner that the production of characteristic products (i.e. commodities) is being estimated along with cost structure, in respect of certain economic activities (such as agriculture, livestock, fishing). Thus the estimates for the economy as a whole are related to the commodities originating according to industrial classification, in these activities. However, the estimates of public sector and private corporate sector are based on enterprise approach and thus relate to product mix of the enterprise and not a single characteristic product (commodity). Thus it may happen that in a statement on public sector by industry of origin, an industry in public sector might show a higher estimate than in the total economy where the output of a industry is only the characteristic product (commodity).

32.6 Second, the SNA has recommended use of International Standard and Industrial Classification (ISIC) of all Economic Activities for classifying industries. However, for the purpose of national accounts, category for the activity of owner-occupied dwellings has been added. ISIC Division 70: Real estate activities and Division 71: renting of machinery and equipment without operator and of personal and household goods, include activities of renting commercial building and renting & leasing of machinery and equipment. The

contribution of services of ownership of dwelling is included under, "real estate, ownership of dwellings and business services".

32.7 Third, in India because of the existence of unincorporated enterprises and household industries which either do not maintain accounts or are wholly managed by self employed workers (own account enterprises) the factor incomes generated cannot always be separated between income from labour and entrepreneurship. It has, therefore, become necessary in such cases to introduce the additional item of 'mixed income of self employed' to take complete account of the factor incomes generated. The mixed income of self employed covers compensation of employees of own account workers as well as profit/loss generated in the unincorporated enterprises. In the NAS, the mixed income was being separately shown even before the 1993 SNA. However, following the 1993 SNA recommendation to show mixed income separately, the Indian national accounts are in line with the 1993 SNA recommendation, as far as mixed income is concerned.

32.8 In view of the foregoing discussions the estimates of factor incomes have been presented in the categories given below, in the NAS:

1. Compensation of employees
2. Operating surplus
3. Mixed income of self employed
- 4. Net value added (1+2+3).**

32.9 However, in this connection it may be mentioned that in the NAS no imputation for rent has been made for using own building, machinery and equipments except for residential buildings.

### **Data Base and General Issues**

32.10 The estimates of factor incomes are prepared by institutional sectors and by industry of origin. The institutional sectors, which are considered for preparation of estimates, are:

- a) Public sector comprising administrative departments of the government, departmental enterprises and non departmental enterprises;
- b) Private Corporate sector covering the joint stock companies in the private sector; and
- c) Household and private unincorporated enterprises

32.11 The data base for covering above sectors is derived from a variety of sources such as budget documents, reports of non-departmental enterprises, Reserve Bank of India Bulletin, Publications of National Bank for Agriculture and Rural Development (NABARD) and various reports of sample surveys conducted by Central Statistics Office (CSO) and National Sample Survey Office (NSSO) along with ancillary sector/activity specific information from various sources.

### **Public Sector**

32.12 A detailed discussion on public sector giving sources of data, concepts used for economic analysis of the data is included in the Chapter on public sector. Going through the details it can be seen that the budget documents are generally available for Ministries. Reports of non departmental enterprises are for each enterprise covering all establishments under the enterprise. Thus while analysing the budget documents to a large extent, effort has been made to reclassify each budget document according to kind of economic activity of individual departments under each Ministry. But due to non-availability of establishment-wise data in the annual reports, no such activity-wise reclassification could be made for non-departmental enterprises. Because of these limitations the estimates of public sector cannot be merged at individual sector level as such, yet for the economy as a whole breakup by public and private sector is possible.

### **Private corporate sector**

#### **Joint Stock Companies**

32.13 Private corporate sector includes the joint stock companies registered under the Companies Act 1956. The sector covers a large number of companies. Data giving important aggregates for preparing national accounts aggregates, covering the entire sector are not available from any source. The only source for the data is the Company Finance Studies released by Reserve Bank of India. For the purpose of the study only a sample of private/public limited companies are considered. Although the sample is not based on any scientific sampling scheme, yet it is seen that the coverage in terms of paid-up capital is some what representative. The estimates of entire population are obtained by blowing up the estimates from the sample study on the basis of coverage in terms of total paid up capital. Apart from the reservation from many sources about the appropriateness of blowing factor, a comparable series of paid

up capital of all companies is not available from Ministry of Company Affairs. For want of comprehensive data, distribution of factor shares in the private corporate sector are not included in the NAS. However, wherever private corporate sector data is being used for preparing estimates of value added, the distribution of factor share derived from RBI studies on company finance are used for preparing the estimates. This component is merged in the private organized sector.

### Cooperative Societies

32.14 The cooperative societies are broadly covered under two groups viz. Cooperative credit societies and non credit societies. Data for this institutional sector are released by NABARD (earlier, until early 80's, by RBI). The cooperative credit societies are financial institutions registered under Cooperative Societies Act enforced at the State level, functioning within the purview of Banking Regulation Act. These include State Cooperative Banks, Central Cooperative Banks, Industrial Cooperative Banks, Primary Agricultural Credit Societies, Primary non-agricultural Credit Societies, Land Development Banks, Grain Banks, Primary Cooperative Banks etc. On the non-credit side these societies cover various activities of manufacturing, trading and agriculture (including livestock, dairying, poultry etc.). Data on Income and Expenditure of these societies are published in two volumes, one relating to credit societies and other relating to non-credit societies. The time-lag in the availability of data on cooperative societies is, however, quite high.

### Households and Private Unincorporated Enterprises

32.15 The household sector including private unincorporated enterprises is the unorganized segment of the economy. The non-agricultural part of this segment has been covered in the Indian economy through various surveys organized in the regular programmes of National Sample Survey Office and follow up surveys of Economic Census organized/coordinated by CSO. The work on estimation of various socio-economic characteristics is being done through national sample surveys since early fifties but the coverage of these surveys was restricted to household enterprises only. In the year 1974-75, an effort was made to cover the non household units but it could not provide reliable and coordinated data. However, of late, data on

unorganized segments of various economic activities are becoming available regularly.

### Organized Sector

32.16 The coverage of the organized sector in National Accounts Statistics is described below:

#### 1) Agriculture

➤ government irrigation system, non-departmental enterprises and crop production in plantation crops of tea, coffee and rubber covered in private corporate sector

#### 2) Forestry

➤ recorded production of industrial and fuel wood, as reported by the State Forest Departments

#### 3) Fishing

➤ non departmental enterprises (public undertakings)

#### 4) Mining & quarrying

➤ major minerals, as reported by the Indian Bureau of Mines

#### 5) Manufacturing

➤ registered factories covered under Factory Act

#### 6) Electricity, gas and water supply

➤ total activity of electricity, public sector part of gas and water supply

#### 7) Construction

➤ construction works in the public sector and private corporate sector (Joint Stock Companies)

#### 8) Trade, hotels & restaurants

➤ public and private corporate sector and cooperatives

#### 9) Railways

➤ entire sector

#### 10) Transport by other means

➤ public sector, private shipping companies, private airlines and road transport covered under the private corporate sector

#### 11) Storage

➤ warehousing corporation in public sector, cold storage covered under Factory Act

#### 12) Communication

➤ public sector and companies covered under the private corporate sector

#### 13) Banking and insurance

➤ total activity except the commission agents attached to life Insurance Corporation of India and unorganized non banking financial undertakings including professional moneylenders and pawn brokers

#### 14) Real estate, ownership of dwellings and business services



- real estate and business services companies in the private corporate sector and public sector

### 15) Public administration and defence

- entire sector

### 16) Other services

- public and private corporate sector medical, sanitary services, TV and radio broadcasting and other services and public and recognised educational institutions in the private sector

32.17 From the above description it can be noted that the concept of organized sector followed so far is somewhat different from the concept taken in the follow up surveys of the Economic Census. Although, the follow-up enterprise surveys cover private corporate sector and cooperative societies (thus constitute unorganized sector as per the concept of surveys), these segments are covered under organized sector in the national accounts. The factor incomes of these are prepared using the data available from the RBI.

### Unorganized Sector

32.18 In order to fill the vital data gaps for planning, policy formulation and the estimation of national income, a central scheme called "Economic Census and Surveys" was launched by the Government of India during the Fifth Five Year Plan period. The scheme envisaged organising periodically, a countrywide census of all economic activities (excluding those engaged in crop production and plantation) followed by detailed sample surveys of unorganized segments of different sectors of non agricultural economy in a phased manner. For the purpose of collection of data, the unorganized segment of any sector of the economy in India is defined to comprise those operating units whose activity is not regulated under any legal provision so that the required data are available in a regular fashion. Thus, the surveys under the Economic Census covered the private non-agricultural sector in the manner that all factory units not registered under the Factories Act constitute unorganized segment of manufacturing. In the sectors of trade, transport, hotels & restaurants, storage & warehousing and services all non public operating units constitute the unorganized segment on the consideration of non availability of regular accounts of their activity. However, recognised educational institutions, fully funded by government, have been included under the organized sector. Apart from

this, some other activities were also excluded due to difficulties in collection of data.

### Estimates of factor incomes

32.19 The estimates of factor incomes are prepared by distributing the estimates of net domestic product (NDP) in various economic activities. Broadly this process is done by dividing the sectors into three groups according to availability of data. The first group relates to components where regular data for preparing production account are available. This group apart from public sector includes registered manufacturing; private shipping companies etc. and poses no problem. In the second group those activities are included for which reliable estimates of net domestic product are available from recognised sources e.g. plantation, major minerals etc. and it is presumed that the activity is mainly concentrated in public or private corporate sector. In such cases fairly reliable estimates can be prepared by distributing NDP according to distribution of factor incomes of public and/or private corporate sector for relevant activity. In the third group the estimates of NDP are prepared using data available from various sample surveys & ancillary sources for the bench mark year and carried forward to other years using various quantity and price indicators. The distribution of factor incomes for the bench mark year are available from the original source. Individual component of factor incomes are carried forward to other years by suitable indicators. The major source of these estimates is based on data mainly provided by Economic Census and follow up surveys. A brief background on Economic Censuses and surveys on unorganized segments of economic activities is given below.

32.20 The Indian Statistical System has been making efforts to fill-up these data gaps right from the beginning of the Five Year Plans. The first National Sample Office (NSS) Round (1950-51) covered non-agricultural household enterprises as one of its subject themes. Such enterprises were covered regularly up to 1955. Subsequently, selected activities were taken up for survey intermittently in different Rounds of the NSS. These efforts, however, were partial and sporadic. Since the NSS Rounds were mostly centered on household concepts, the unorganized economic activities in the non-household units were sparsely captured. Thus, a complete directory of establishments in the

unorganized sector of the economy to serve sampling frame for carrying out detailed surveys subsequently was not available at any point of time up-till 1976. The High level Evaluation Committee set up by the Government of India to review the work of Central Statistical Organisation had stated that it was through Economic Census and Follow-up Surveys only, that the detailed requirements of data for the unorganized sectors of the economy could be met. In a developing country like ours, Economic Census is the only answer to reach the unorganized sectors. In order to meet the long felt need for the availability of data in respect of unorganized non-agricultural sectors of the economy, a scheme of Economic Census and Surveys was launched by the Central Statistical Organisation in 1976. Since then, four economic censuses have been conducted by the Central Statistical Organisation, in the years 1977, 1980, 1990, the last being in 1998.

- 32.21 The main purpose of conducting economic census is to generate an updated frame of enterprises for detailed follow-up surveys. It yields essential data on number and distribution of enterprises engaged in different types of economic activities which forms the basis, mainly, for the detailed follow-up surveys. The result of these censuses also provides basic entrepreneurial data relating to different sectors of the economy for the purpose of planning, development and research etc. specifically for unorganized sector of the economy.
- 32.22 The first economic census was conducted through out the country, except Lakshdweep, during 1977 in collaboration with the Directorate of Economics & Statistics (DES) in the States/Union Territories (UTs). The coverage was restricted to only non-agricultural enterprises employing at least one hired worker on a fairly regular basis. Data on items such as description of activity, number of persons usually working, type of ownership etc. were collected.
- 32.23 The second economic census was conducted in 1980 along with the house-listing operations of 1981 Population Census. This was done with a view to economise resources, manpower, time and money. The scope and coverage was enlarged during this economic census. This time all enterprises engaged in economic activities - both agricultural and non-agricultural whether employing any hired worker or not - were covered, except those engaged in

crop production and plantation. All States/UTs were covered with the sole exception of Assam, where population census, 1981 was not conducted. The information on location of enterprise, description of economic activity carried on, nature of operation, type of ownership, social group of owner, use of power/fuel, total number of workers usually engaged with its hired component and break-up of male and female workers was collected. The items, on which information was collected in second economic census, were more or less the same as those collected in the first economic census. However, based on experience gained in the first economic census certain items viz. years of activity, value of annual output/turnover/receipt, mixed activity or not, registered/licensed/recognised and act or authority, if registered were dropped. The field work was done by the field staff consisting of enumerators and supervisors employed in the Directorate of Census Operations of each State/UT. The State Directorates of Economics & Statistics (DES) were also associated in the supervision of fieldwork. Data processing and preparation of State level reports of economic census and their publication were carried out by the DES.

- 32.24 The third economic census was synchronised with the house-listing operation of the Population Census 1991 on the same pattern as of EC 1980. The coverage was similar to that of EC 1980. All States/UTs except Jammu & Kashmir, where population census 1991 was not undertaken, were covered.
- 32.25 With a view to meeting the demand of various user departments for the data on unorganized sectors of the economy and considering the nature of large number of small units which are subjected to high rates of mobility and mortality, it was felt that the economic census must be brought back to its quinquennial nature so that an up-to-date and complete frame can be made available once in five years for conducting the follow up surveys. It was also felt necessary to assess the impact of economic liberalisation process on entrepreneurial activities of the country and to monitor the sectoral changes, particularly the emergence of the service sector. Keeping these aspects in view, fourth economic census was launched in 1998. The overall responsibility for organisation and conduct of the economic census rested with the Central Statistical Organisation (CSO). The DESs of respective States/UTs

were made responsible for conducting the field work and preparing the report. In the fourth economic census a complete enumeration of all agricultural (except crop production & plantation) and non-agricultural entrepreneurial activities was carried out through out the country.

32.26 In order to study the changes in the unorganized sectors of the economy, identifying regional disparities among unorganized sectors in respect of different economic activities, the following follow-up surveys have been conducted based on the frame given by the four economic censuses. The NSSO also conducted a number of surveys on unorganized segments, initially for the enterprises and establishments other than those covered under the follow-up surveys, and subsequently (after 2001-02) for all the enterprises/establishments.

- (i) Unorganized Manufacturing Survey: 1978-79.
- (ii) Survey on Trade, Hotels, Restaurants, Transport, Storage & Warehousing & Services: 1979-80.
- (iii) Enterprise Survey on Hotels, Restaurant, Transport, Storage & warehousing & Service Sector: 1983-84.
- (iv) Survey on Unorganized Manufacturing: 1984-85.
- (v) Survey on Trade: 1985-86.
- (vi) Survey on Hotels, Restaurants and Transport: 1988-89.
- (vii) Survey on Unorganized Manufacturing: 1989-90.
- (viii) Survey on Trade: 1990-91.
- (ix) Survey on Service Sector: 1991-92.
- (x) Enterprise Survey on Mining, Quarrying and Storage & Warehousing Sector: 1992-93.
- (xi) Enterprise Survey on Hotels, Restaurants & Transport Sector: 1993-94.
- (xii) Survey on Unorganized Manufacture: 1994-95.
- (xiii) Directory Trade Establishment (DTE) Survey: 1996-97.
- (xiv) Survey on Own-Account and Non-Directory Trade Survey: 1997.
- (xv) Special Enterprise survey on Manufacture, Trade, Hotels, Restaurants, Transport and other services including Health, Education, Communication, Real Estate/ Business/ Legal/ Personal service: 1998-99.
- (xvi) Special Enterprise survey on Manufacture, Trade, Hotels, Restaurants, Transport and other

services including Health, Education, Communication, Real Estate/ Business/ Legal/ Personal service and construction (Proprietary and Partnership enterprises only for all activities): 1999-2000.

- (xvii) Survey on Unorganized Manufacturing: 2000-01.
- (xviii) Survey on Unorganized Services: 2001-02.

### **Adjustment for imputed banking charges**

32.27 In the case of banks and similar financial intermediaries, actual service charges account for a small proportion of their income. The activities of these institutions are largely financed by the excess of property income they receive over the property income they pay out. The property income involved consists essentially of interest. The gross value added from banking activity includes income derived by banks in the form of interest on loans and dividend on other investments which are generated as factor income outside the banking sector. In the National Accounts Statistics such banking service charges are imputed to the depositors and to the institutions to which the loans are disbursed. The imputed banking charges (IBC) are estimated as the excess of the interest/dividend received over the interest paid and are taken as imputed income of banking activity. The sum total of such imputed income and actual income is considered as the output originating in the banking sector. The imputed income is considered as charges paid by different sectors to banking sector. To determine the service charges for each of the sectors, the imputed income is allocated to the relevant activities on the basis of institution-wise deposits with the banks and the institution-wise loan disbursement by the banks. The imputed service charges thus determined, have been allocated to various sectors as their intermediate consumption and thereby reducing the value added of the sector by that amount. This way the duplication which would have occurred if the value added from the banking sector was taken into account without any adjustment, has been avoided.

32.28 In the NAS while presenting disaggregated statements, the IBC (FISIM) is shown explicitly in whichever sector they have been taken into account. In fact the domestic product of a sector is arrived at by subtracting the IBC allocated to that sector from the domestic product unadjusted for

imputed banking charges. Thus, the net domestic product of a sector is the sum total of its compensation of employees, operating surplus and mixed income where the operating surplus in turn is the sum total of property incomes (rent and interest) and residual (profit/loss) less IBC. In the NAS, therefore, in the statements, where property payments (rent and interest) have been shown, the IBC has also been shown separately.

### Estimates of property incomes

32.29 In the estimates of factor incomes published earlier by the CSO, the components of property incomes, namely, rent and interest, which are contained in the operating surplus, were shown to the extent feasible, separately. To facilitate comparability, separate statements are included presenting the estimates of property incomes and imputed banking charges (IBC) by different institutional sectors cross classified by industry of origin.

32.30 Data base for the estimation of property incomes is the same as that for factor incomes spelt out above. However another important point in this regard is that the rent in the surveys related to rent of commercial building and equipment rented by establishment and no imputation has been done for owned assets. Further, no separate estimates are available for building.

### Methodology and Sources of Data

32.31 The estimates of factor incomes for public/private corporate sector and cooperative societies are based on regular data as discussed earlier. The data base for the estimates of factor incomes and property incomes for the economy as a whole by industry of origin, coverage of individual sectors is same as given in the domestic product. For preparing the estimates, sectoral net domestic product has first been divided into organized and unorganized segments as per concept given above. The estimates of factor incomes from government irrigation, electricity, railways, communication, public administration & defence, education, health & sanitary services are directly derived from data available from budget documents and annual reports of non-departmental undertakings. Similarly the estimates for registered manufacturing sector and recognized educational institutions in the private sector are derived from Annual Survey of Industries and Education in India

released by Central Statistical Organisation and Ministry of Human Resource Development respectively. The methodology and data base are described below:

### Agriculture

32.32 The estimates of factor incomes for the agriculture sector are prepared by classifying first the net value added in the public sector and private sector. The public sector consists of operation of government irrigation system. Factor income components for this are derived from the data contained in budget documents and the annual reports of the Non-departmental Commercial Undertakings. The output of private sector has been divided into three categories viz. plantation crops, crop production excluding plantation crops and animal husbandry. This output is subsequently converted to net value added using data available from Tea, Coffee, Rubber Boards, Cost of cultivation studies and NSS reports. As the procedure of growing plantation crops is significantly different from other crops and the activity is largely identical to work being done in the private corporate sector, these crops are considered to be under the private organized part. The distribution of factor incomes and property incomes for the plantation crops is derived from the Company Finance Studies conducted by the Reserve Bank of India (RBI) and the annual reports of these Boards. The value of output of all other crops and the livestock sector are taken to be in the unorganized sector.

32.33 The estimates of factor incomes for crop production (excluding plantation) and animal husbandry are prepared by estimating compensation of employees and rent for crop production using data contained in the cost of cultivation studies; and compensation of employees for animal husbandry sub sector using data contained in NSS reports. Further estimates of interest payments are based on All India Debt and Investment Survey AIDIS. Assuming that there is no rent component in the animal husbandry sub sector these components have been subtracted from total net value added to get the mixed income of self-employed.

32.34 The cost of cultivation studies are being conducted regularly by Directorate of Economics & Statistics, Ministry of Agriculture (DESAg) and are released in the Publication entitled 'Cost of

Cultivation of principal crops in India'. The publication gives cost of Human Labour (casual, attached and Family) and rent paid for leased in land per hectare. The coverage of the cost of cultivation studies (CCS) varies from state to state and year to year. These data are available for 19 states covering about 27 crops. The procedure adopted for computing factor incomes and property incomes from CCS is given below.

- 32.35 Using the Cost of Cultivation Studies for the years 2002-06, data on 617 State-crop combinations were analyzed for purpose of revising these shares. From the data, NDP per hectare was first calculated by deducting the costs of material inputs and depreciation from the value per hectare of main product and by-product. Factor shares were then calculated for each of the factors, i.e. compensation of employees, rent, interest, family labour and mixed income. These were then weighted by the corresponding area under the crop in the state, to arrive at the factor shares at the national level.

The estimated proportions, as well as the presently used proportions are outlined in the following table:

Item	Estimated (%)	Present (%)
Compensation of employees	19.16	13.7
Rent paid on leased-in-land	1.23	1.8
Rental value of self owned land	36.86	29.1
Family labour	0.25	15.4
Interest	14.31	1.23
Mixed income	28.18	39 (approx)

As the data obtained from the CCS pertains to the costs for the crop production only, **the Interest Estimated need not be apportioned to the livestock sector.**

In the case of plantation sector, it is found that the Plantation Act applies to the following plantations:-

- "(a) to any land used or intended to be used for growing tea, coffee, rubber cinchona or cardamom which admeasures 5 hectares or more and in which fifteen or more persons are employed or were employed on any day of the proceeding twelve months;
- (b) to any land used or intended to be used for growing any other plant, which admeasures 5 hectares or more and in which fifteen or more persons are employed or were employed on any day of the preceding twelve months".

Therefore, the GVA of the crops – tea, coffee, rubber, arecanut, black pepper, cardamom, cashewnut, coconut and fruits – may be treated as 'organized' taking into account the ratio of Gross Cropped Area in holdings of size more than 5 hectares. Data as available from the report on Agriculture Census 2000-01 is given as under:-

	Gross Cropped Area (in ha)	Gross Cropped Area (in holdings >5 ha)	%
Tea	414875	344474	83.03
Coffee	303491	160038	52.73
Rubber	354763	43716	12.32
Arecanut	290114	37589	12.96
Black pepper	104538	12360	11.82
Cardamom	78713	34715	44.41
Cashewnut	442949	113934	25.72
Coconut	1210914	206728	17.07
Total fruits	2317466	508419	21.94



Also, the plantations are likely to have factor shares similar to that of the public sector. Hence **the ratios used for splitting the NDP of the plantation sector into different factors may be derived from the public sector.**

32.35a In case of livestock sector, the Unit level data of Schedule 33 of the 59<sup>th</sup> Round of NSS (Situation Assessment Survey of Farmers) were analyzed to obtain the factor shares. The following proportions were estimated:

- CE – 5.52%
- Rent – 0.03% (No rent in the current series)
- Interest – 0.37% (No interest in the current series)
- Mixed income – residual: accounts for 94.08%

#### **Forestry and Logging**

32.36 The organized part of the sector comprises of net value added corresponding to recorded production of timber and fuel-wood. Since major share of forest is with the government and no information other than contained in budget documents is available, the net value added for recorded production of timber and fuel wood has been distributed according to distribution of factor incomes available from the budget documents. The remaining part of this sector, balance net value added, is treated as mixed income of self employed in the unorganized sector.

#### **Fishing**

32.37 The contribution of non-departmental enterprises has been taken in the organized segment of the sector and rest of the activity under unorganized sector. The data on fisheries being inadequate (only 9 households in the sample), the factor shares for the fisheries sector was not estimated from the 59<sup>th</sup> Round.

From the type study done in the fishing sector by Directorate of Economics and Statistics, Kerala, the factor shares have been estimated as

#### **1. For inland fish**

- a. CE – 15.24%
- b. Rent – 0.79%
- c. Interest – 7.32%
- d. Mixed income – Residual

#### **2. For Marine Fish**

- CE – 7.01%
- Rent – 0.0002%
- Interest – 0.17%
- Mixed Income -Residual

We use a weighted average of these ratios (weights being the value added in the two categories at the national level in the year 2004-05). The factor shares, using the above mentioned approach are as under:

- CE – 11.38%
- Rent – 0.42%
- Interest – 3.97%
- Mixed income – residual

#### **Mining and Quarrying**

32.38 The activity relating to extraction of major minerals has been included in the organized segment, whereas minor minerals have been included in the unorganized segment. In the case of this industry, substantial share of major minerals is covered in the public sector. Therefore, use has been made of distribution of factor incomes and property incomes derived from non-departmental enterprises engaged in this activity. In the case of minor minerals, the estimates of factor incomes are based on the latest results of enterprise surveys.

#### **Manufacturing: Registered**

32.39 The data on factor incomes and property incomes are available from the results of Annual Survey of Industries (ASI). The compensation of employees comprises total emoluments and Employers' Contribution to provident and other funds. The proportional composition of factor incomes as worked out in case of units covered under ASI is applied on the total NDP of the registered manufacturing sector.

#### **Manufacturing: Unregistered**

32.40 The components of factor incomes and property incomes for this sector which is taken as unorganized are based on results of NSS 56<sup>th</sup> Round (2000-01) survey on unorganized manufacturing. The benchmark estimate of compensation of employees, rent and interest prepared for the year 2000-01 are subtracted from the net value added to get the estimates of mixed income of self employed. The bench mark estimate of compensation of employees is moved backward and forward with the help of composite index of working force and index of wages. The index of wages is also a combined index number of wages of rural



skilled worker and index of wages of factory workers in urban areas drawing less than Rs.1000/- per month, weight being the working force for rural and urban areas given by the population census. The component of rent in the bench mark year have been moved to other years using the estimate of rent in Annual Survey of Industries (ASI) and interest with the help of the index of outstanding credit of scheduled commercial banks at the end of the year to the small scale industries obtained from the RBI publication on banking statistics.

### **Electricity, gas & Water Supply**

32.41 **Electricity:** The activities covered in this industry are organized in nature. The estimates of factor incomes and property incomes of electricity industry are based on the basis of analysis of annual accounts of electricity undertakings. The activities undertaken departmentally are covered through the budgetary information and that of non departmental enterprises and private companies covered through their respective annual reports. While analysing the reports, care has been taken to exclude value added corresponding to construction activity undertaken by the NDCUs.

32.42 **Gas:** The factor incomes and property incomes from liquefied petroleum gas (LPG) are estimated on the basis of the components, compensation of employees, rent & interest as available for the industry group of petroleum refineries of Annual Survey of Industries. In the case of Gas Authority of India Limited, factor income and property income estimates are based on the results of the analysis of annual reports. In the case of Gobar Gas, the components of value added is assumed to be mixed income of the self employed as the whole activity is in the unorganized sector.

32.43 **Water Supply:** The value added in water supply activity is arrived at by estimating the compensation of employees and operating surplus, separately for public and private segments. The estimates of compensation of employees are built up on the basis of information available in the budget documents of the public sector. The estimates of factor incomes in the private unorganized sector is in the form of mixed income of self employed as no details are available. Therefore, the entire NDP in respect of unorganized sector is taken as mixed income.

### **Construction**

32.44 The estimates of factor incomes and property incomes in construction are prepared separately for the organized and unorganized segments. The organized segment comprises public sector and private organized sectors (including plantations). The unorganized segment comprises urban and rural residential and non residential buildings in the unincorporated enterprises including households. However, the construction work done by public and private corporate sectors through contractors, which are part of unorganized sector, has been included in the unorganized sector. For preparing the estimates of factor incomes, the net value added of the sector is divided first between the organized and unorganized segments. The value added for the unorganized sector is derived from value of construction in this segment and using method given in the chapter on construction. The factor income distribution of net value added in the organized sector other than NDCUs, public authorities and plantations is prepared on the basis of the relevant proportions determined with the help of the data from the sample studies on finances of public and private limited companies conducted by the RBI and the data on total paid up capital received from the Ministry of Company Affairs. In the case of NDCUs and public authorities engaged in construction, the factor income estimates are obtained directly by analysing their annual reports and budget documents, respectively. As no data on rent etc., are available in the case of public authorities, the whole of the net value added of such authorities is treated as compensation of employees. In the case of construction activity connected with plantations, total value added from this activity is taken as compensation of employees as these are mainly of labour intensive type.

32.45 The factor incomes and property incomes in the unorganized sector are estimated in terms of compensation of employees, mixed income of self employed and interest. Due to non-availability of data, rent payments in such construction are assumed to be negligible. The proportion of borrowings to total expenditure in construction has been estimated on the basis of data on 'average amount of finance raised per construction by source of finance and type of structure and nature of construction' given in the report No. 377 on building construction, 44<sup>th</sup> Round (NSSO, 1990), for rural and urban areas separately. The total

borrowings for each type of construction activity in unorganized sector has been estimated with the help of this proportion from the total construction expenditure based on AIDIS, 2002-03. The rate of interest used is the weighted average rate of interest derived on the basis of data on 'interest rate of loans contracted by agency giving loans for individual owners and organisations' and the 'average amount of finance raised per construction by source of finance' type of structure and nature of construction' again thrown by the same NSS 44<sup>th</sup> Round in report No. 377 on Building Construction. This interest rate is applied on the amount of borrowings to estimate the total interest payments. The value added net of interest payments is distributed between compensation of employees and mixed income of self employed on the basis of the ratios estimated with the help of the data on average amount of wages per construction for hired labour and household labour obtained from the above mentioned NSS Report. The proportions observed have been applied to all the years on net value added in the unorganized sector.

### **Trade, hotels & restaurants**

- 32.46 **Trade:** The factor incomes and property incomes estimates in respect of trade have been prepared separately for organized and unorganized segments. The organized part comprises public & private corporate sector and cooperatives. The estimates from public sector are based on actual analysis of annual reports. In the case of cooperatives, the requisite data have been culled out from the publication '*Statistical Statements Relating to Cooperative Movement in India*' by National Bank for Agriculture and Rural Development (NABARD). The estimates for private corporate sector are prepared using the data based on detailed analysis of finances of joint stock companies as supplied by Reserve Bank of India. In the case of unorganized part, factor incomes estimates for 1999-2000 are based on NSS 53<sup>rd</sup> Round survey results.
- 32.47 **Hotels & Restaurants:** The estimates are prepared in two parts, namely, organized part and unorganized part. The organized part comprises public and private corporate sectors. The estimates for public part are based on analysis of the annual reports and those for private corporate sector are based on the RBI data like those on trade. In the case of unorganized part, the estimates of factor incomes and property incomes for

1999-2000 are based on the results of NSS 57<sup>th</sup> Round survey.

### **Transport, Storage and Communication**

- 32.48 **Railways:** Data on compensation of employees, operating surplus and property incomes for government railways (excluding railway workshops and manufacturing establishments) are available from the budget document of the Central Government and annual reports of the Indian Railways. The amount of interest for the entire railway sector (given in the budget documents) is bifurcated into transportation and manufacturing (including railway workshops) activities on the basis of the capital-at-charge in respect of various railway units published annually in the Explanatory Memorandum on Railway Budget. As the value added from non-government railways is negligible, no separate estimates of factor incomes have been made in respect of non-government railways. However, the factor incomes of NDCUs, Konkan Railways and Delhi Metro Rail Corporation are separately compiled from their annual reports.
- 32.49 **Transport by other means:** The factor incomes and property incomes estimates in the organized part of the transport by other means, which consists of passenger and freight transport by road in public sector; sea transport by shipping companies; port trusts, ports and pilotages; light houses and light ships; air transport, flying and gliding clubs and air ports, are obtained by analysing the budget documents/annual accounts of the public sector departments/non-departmental enterprises and private shipping companies. The estimates of the road transport for the private corporate sector which also forms part of the organized sector are based on the RBI studies on "Finances of Private and Public Limited Companies".
- 32.50 In respect of unorganized transport segment, the factor income and property income estimates for the base year have been prepared by using the results of NSS 57<sup>th</sup> Round survey. The estimates so obtained for the base year are moved to other years with the help of appropriate indicators. The compensation of employees are moved with the help of combined index of working force and index of wages. The index of wages is also a combined index of wages of rural skilled workers and consumer price index number of urban non-manual employees using hired workers in rural and urban areas respectively. The indicator for

rent is the combined index of working force and implicit index of rent of dwelling. Interest is moved with the index based on the outstanding credits of scheduled commercial banks. Mixed income of self-employed is obtained as a residual.

32.51 **Storage:** The estimates of factor incomes and property incomes of the organized part of the storage, namely state warehousing corporations/central warehousing corporations are obtained by analysis of their annual accounts. Regarding the cold storage, the estimates are based on ASI data. In the case of warehousing, in the private sector and storage not elsewhere classified, the estimates are based on the results of Enterprise Survey, 1992-93, which has been super imposed on net value added on all the years.

32.52 **Communication:** The estimates of factor incomes of postal (excluding post office savings banks and postal life insurance) and departmental telecommunication services are obtained through the analysis of data contained in the Central Government Budget Documents. The factor incomes in respect of non-departmental undertakings and those in the corporate sector are prepared on the basis of data contained in the annual accounts of these undertakings. The unorganized segment's estimates of factor incomes are compiled using the results of NSS 57<sup>th</sup> Round survey.

### **Financing, Insurance, Real Estate, & Business Services**

#### **Banking & Insurance**

32.53 In respect of commercial banks and the banking department of RBI, factor incomes are estimated from the data contained in "Special compilation on income and expenditure of banks" made available by the RBI. The factor income estimates in respect of post office savings banks are prepared on the basis of data contained in the annual budget documents of Department of Posts. The only factor income in respect of this activity is the compensation of employees, which is estimated as a proportion of the management expenses. The proportion of compensation of employees to the management expenses as worked out in respect of commercial banks is applied in case of post office savings banks also. The estimates in respect of Cooperative Credit Societies are worked out from the data on income and expenditure contained in the statistical statements received from the RBI/NABARD. The factor income estimates

in respect of public sector non-banking financial corporations and companies, including Employees' Provident Fund Organisation (EPFO) are prepared from the data contained in their annual accounts. In respect of private financial companies, the estimates are based on the sample studies of the RBI on "Performance of financial and investment companies". However, in this case, rent is estimated as a proportion of other expenses. The proportion as observed in the case of public sector financial corporations and companies is applied on private non-banking financial companies also. The entire income generated by the activities of money lenders, pawn brokers, etc. is taken as the mixed income of self employed which is estimated as one third of the net value added of the public sector and private sector non-banking financial companies.

32.54 Factor incomes in respect of Life Insurance Corporation of India (LIC), General Insurance Corporation (GIC) and its subsidiaries are worked out from the data contained in their annual accounts. However, in respect of General Insurance Corporation and its subsidiaries, the 'rent' is included under 'expenses of management'. The details of 'expenses of management' are collected directly from the GIC and its subsidiaries, which are analysed to work out the factor incomes as well as the rent component. In case of Postal Life Insurance, the factor incomes are estimated on the basis of data in respect of this activity contained in the budget documents of the Department of Posts. The commission paid to the agents by the LIC, GIC and its subsidiaries is treated as mixed income of self employed.

#### **Real estate, ownership of dwellings & business services**

32.55 The estimates of factor incomes and property incomes are prepared separately for organized and unorganized segments. The organized part comprises of Real Estate and business services comprise units under private corporate sector and public sector. Remaining part is treated as unorganized. The organized sector has been further broken up into public & private corporate sectors. The methodology used for preparing the estimates of factor incomes is given below:

32.56 **Real Estate and business services:** Organized activities here originate in public and private joint stock companies. The estimates of this sub sector are prepared by

analysing the reports of the companies. These estimates are blown up by the ratio of the total paid up capital of all real estate companies to the paid up capital of the companies covered under analysis. The entire NVA of unorganized sector has been treated as factor incomes in form of mixed income of self employed.

- 32.57 **Ownership of Dwellings:** The entire NVA of unorganized sector has been treated as factor incomes in the form of mixed income of self employed.

#### **Community, social & personal services**

- 32.58 **Public Administration and Defence:** The only factor income of this sector is the compensation of employees which is estimated by analysing the data contained in the budget documents of the Central and State Governments and the local authorities. Compensation of employees in respect of the Issue Department of the RBI, which is treated as an administrative department, is also added to it. However, compensation of employees in respect of the EPFO, which is treated as an administrative department, are not included to it, but

shown separately under banking and insurance.

- 32.59 **Other Services:** The estimates have been prepared separately for organized and unorganized sectors. The organized sector comprises of public and private corporate sector medical, sanitary services, TV and radio broadcasting and other services and public and recognised educational institutions in the private sector. The remaining services are considered in the unorganized sector. For all the organized activities (excepting T.V. & Radio), in the public sector, the factor incomes consist of compensation of employees only. For T.V. and Radio, it comprises both compensation of employees and operating surplus. However, the components of rent and interest are not there in this case. The factor incomes in respect of private corporate segment are prepared on the basis of RBI data on company finance studies, as well as, the information available from the results of NSS 57<sup>th</sup> Round survey. For the unorganized segment of these economic activities, the factor are prepared using the results of NSS 57<sup>th</sup> Round survey.

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## GLOSSARY OF MAIN TERMS

Item	Concept/definition in use
Accounting year	Fiscal year 1 <sup>st</sup> April to 31 <sup>st</sup> March.
Accounts of the Nation	Four accounts relating respectively to production, consumption, accumulation and external transactions.
Accumulation	Acquisition of fixed assets, stocks of non-durable goods, land, financial assets, patents, copy-rights and other intangible assets during a period of account less the incurrence of liabilities. This is gross accumulation. Net accumulation is gross accumulation during a period of account reduced by the consumption of fixed capital during the period.
Assets	Machinery, equipment, furniture, buildings and other durable reproducible goods, stocks of non-durable goods, land, monuments and other non-reproducible tangible assets, copy-rights, leases, financial claims on other parties and other intangible assets.
Assets, fixed	Durable goods except land, mineral deposits, timber tracts and similar, fisheries and the like, non-reproducible tangible assets, employed in production by resident industries, producers of government services for civilian purposes, and producers of private non-profit services to households including owner dwellings, permanent family dwellings for military personnel, breeding stock, draught animals and dairy cattle.
Assets, tangible	Fixed assets, stocks of non-durable goods, land, mineral deposits, timber tracts, fisheries and the like
Assets or liabilities, financial	Gold, currency and other claims on (obligations of) other parties owned by an economic agent; or the claims on (obligations of) an economic agent owned by other parties.
Balance of payment	A record of economic transactions on current account between the residents of India and the rest of the world, involving the export and import of goods, rendering of services and exchange of gifts. The capital account shows the implications of the current transactions for the country's international creditor/debtor position. Capital movements reflect changes in the ownership of capital assets between residents and foreigners.
Valuation of Imports and Exports	Valuation basis is f.o.b. at the custom frontier of the exporting country for exports and c.i.f. at the customs frontier of the importing country for imports. f.o.b. value: The value in the market at the customs frontier of a country of her exports of merchandise and other goods including all costs of transporting the goods to the custom frontier, export duties and the cost of loading the goods on the carrier unless the latter cost is borne by the carrier. c.i.f. value: The value in the market at the custom frontier of a country of her imports of merchandise, other goods, etc. including all charges for transporting and insuring the goods from the country of export and the given country but excluding the cost of unloading from ship, aircraft, etc., unless it is borne by the carrier.
Balance Sheet	Account showing the assets, liabilities and net worth of an institutional unit, or class of such units, as of a given date.
Capital finance account	Account relating to the capital transactions i.e., accumulation of assets and its financing by the resident institutional units.
Capital formation, gross and net	Gross capital formation includes gross fixed capital formation and change in stocks. Net capital formation is gross capital formation less consumption of fixed capital.
Capital formation Accounts	Accounts for accumulation are divided into two sets: those relating to capital formation and those relating to capital finance. The first set i.e. capital formation accounts are further divided between stock-building (increase in stocks) and fixed capital formation. The capital formation accounts refer to expenditure on tangible assets other than land, mineral rights, and the like and in all cases these

Item	Concept/definition in use
	are accounts for activities.
Capital formation, domestic	Domestic capital formation is with reference to the activities of all the producers (including households) in the domestic territory of the country. Fixed capital formation consists of the acquisition of fixed assets by resident industries and the producers of government services and of private non-profit services to households and occurs only on the domestic territory of the given country. Also includes acquisition of new residential buildings by households within domestic territory.
Capital formation, fixed	Gross fixed capital formation consists of the outlays (purchases and own account production) of industries, producers of government services and producers of private non-profit services to households, on addition of commodities to their stocks of fixed assets less their net sales (i.e. sales minus purchases) of similar second-hand and scrapped goods. Excluded are the outlays of government services on durable goods for military use. Included are acquisitions of reproducible and non-reproducible durable goods (except land, mineral deposits, timber tracts, fisheries and the like) for civilian use, work-in-progress on construction projects; capital repairs, outlays on the improvement of land and on the development and extension of timber tracts, plantations, vineyards, etc., which take considerably more than a year to become productive; the acquisition of breeding stock, draught animals dairy cattle and the like, and the transfer costs in connection with purchases and sales of land, mineral deposits, timber tracts etc. Similar outlays by households on residential construction are also included. Net fixed capital formation is Gross Fixed capital formation less consumption of fixed capital.
Capital formation, fixed, own account	Value (including imputed cost) of own account construction of structures, minor irrigation works, roads and similar works etc., and items of machinery and equipment which have an expected life time of use of one year or more produced for own use by enterprises, producers of government services and non profit institution survey households
Capital formation, household	Acquisition of new capital and household increase in stock of producer households and acquisition of new residential buildings by households (final consumers). Household sector is defined to comprise, apart from individuals, all non-government non-corporate enterprises like farm and non-farm business, unincorporated establishments like sole proprietor-ship and partnership and non-profit institutions like charitable trusts, religious endowments, educational institutions etc.
Capital formation, , by type of capital goods	Comprises gross domestic capital fixed formation under following categories: (i) new assets a. buildings b. roads & bridges c. other construction & works d. transport equipment, including transport animals e. machinery and other equipment, including stock, dairy and the like. (ii) net purchase of second-hand physical assets.
Capital expenditure	Expenditure for new capital equipment and structures including expenditure which extend the normal life of the asset or raise its productivity are included in capital expenditure. Thus major alterations, renovations and rebuilding are capital expenditure. Routine care such as oiling, adjusting, cleaning and the replacement of short-lived parts are current expenditure.
Capital gain or loss	Increases or decreases in the value of the assets of institutional and other units which are due to changes in market prices, discovery of new mineral deposits and other natural resources, depletion of



Item	Concept/definition in use
	mineral deposits, unforeseen obsolescence, theft, major catastrophes and other events except the purchase and sale of assets, the normal wear and tear, accidental damage and losses in tangible assets, the writing off of bad debts and other flows which are recorded in the transaction accounts
Capital goods	All goods produced for use in future productive processes i.e., machinery, equipment, plants, buildings, other construction and works, which have an expected life time of considerably more than a year, and producers' stocks of raw materials, semi-finished and finished goods.
Capital repairs	Major alterations in, or additions to, machinery, equipment, structures or other fixed assets which significantly extend their expected life-time of use, productivity, or the character or volume of the services they render.
Capital stocks	Stocks mainly of buildings, plant, machinery and vehicles and other reproducible tangible assets available in different activities. Excluded generally are stocks of goods, and capital invested in land, non-reproducible assets, financial assets and non-financial intangible assets.
Capital transaction account	Standard account relating to the transactions of the nation with the rest of the world in respect of financial assets and liabilities, purchases less sales of intangible assets and other sources of the finance of gross accumulation
Capital transfers	Un required transfers which are designed to finance the gross capital formation, other forms of accumulation, or long-term expenditure of the recipient, which are made out of the wealth or saving of the donor, or which are non-recurrent (quite irregular) for either party to the transaction.
Consumption of fixed Capital	Current replacement cost of the reproducible fixed assets of the producers of government administrative services used up during a period of account as a result of normal wear and tear, foreseen obsolescence and the normal rate of accidental damage. Unforeseen obsolescence catastrophes and the depletion of natural resources are not taken into account. Measurement is at current replacement cost basis.
Commodity-flow approach	Commodity-flow approach starts with estimates of the supply of commodities expressed in producers' values and proceeds to estimate dispositions expressed in purchasers' values by adding trade and transport margins and similar other expenditures.
Compensation of employees	All payments by resident producers of wages and salaries to their employees, in cash and in kind, and of contributions, paid or imputed, in respect of their employees to social security schemes and to private pension, family allowance, casualty insurance, life insurance and similar schemes.
Consumer durables	Goods acquired by households which have an expected life-time considerably more than one year and a relatively high value, such as motor cars, refrigerators and washing machines. Dwellings are excluded since they are classed as the fixed assets.
Current repairs and maintenance	Outlays which make good breakages in fixed assets and keep them in good working order. Includes outlays on new parts and attachments of fixed assets which have an expected life of use of one year or some what more but which are short-lived relative to the fixed asset itself, or of relatively small value.
Current transactions account	Standard account relating to the transactions of the nation with the rest of the world in respect of current receipts and disbursements.
Current transfers	Transfers of income between transactors. The transfers made from the current income of the payer and added to the current income of the recipient for such purposes as consumption expenditure.
Disposable income, national	Income of the nation, institutional units etc. from all sources after deduction of all current transfers paid. It is equivalent to the

Item	Concept/definition in use
	national income at market prices adjusted for all current transfers (other than property and entrepreneurial income received which is a part of national income).
Disposable income, personal	Personal income minus miscellaneous receipts of government administrative departments and direct taxes paid by the household
Disposable income and its appropriation account	Standard consolidated income and outlay account for the nation.
Domestic production	If the production of all domestic producers is consolidated, the resulting total will measure the production taking place in what is called the domestic territory of the country and defined as domestic production.
Gross domestic product at factor cost	i) The gross output of all commodities, industries etc. evaluated at factor cost less the purchaser's value of intermediate inputs. Also equals: The gross expenditure on the final uses of domestic supply of goods and services valued at purchaser's prices less import of goods and services valued c.i.f. less indirect taxes net of subsidies. Also equals: The sum of compensation of employees, mixed income of self-employed, operating surplus of other resident producer's, consumption of fixed capital net of subsidies paid by resident producers.
GDP at market prices	Gross domestic product at factor cost plus indirect taxes minus subsidies
Domestic product, net	Gross domestic product less consumption of fixed capital
Domestic product and expenditure account	Standard consolidated production, consumption, expenditure and capital formation account for the nation.
Domestic territory	In addition to the territory lying within the political frontiers including territorial waters of a country, (excluding her overseas territories and possessions) includes, (i) ships and aircraft operated by residents of the country entirely or primarily, between two or more countries; (ii) fishing vessels, oil and natural gas rigs, and floating platforms operated by residents of the country wholly or mainly, in international waters or engaged in extraction in areas in which the country has the exclusive right of exploitation by virtue of international agreements or pronouncements and (iii) the embassies, consulates and military establishments of the country located abroad.
Enterprise	Ultimate unit in institutional classification.
Enterprise of a country, resident	Units which are engaged in production and in transactions in land on the domestic territory of a given country.
Enterprises, corporate	Corporations, joint stock companies, cooperatives, limited liability partnerships and other financial and non-financial enterprises which by virtue of legislation, administrative regulations or registration, are recognised as business entities independent of their owners.
Enterprises, financial	Enterprises which are primarily engaged in financial transactions in the market, consisting of both incurring liabilities and acquiring financial assets.
Enterprises, non-financial	Organised and unorganised enterprises mainly engaged in activities other than providing financial and insurance services.
Enterprises organized	All enterprises which are either registered or come under the purview of any of the Acts and/or maintain annual accounts and balance-sheets.
Enterprises, unorganized	All unincorporated enterprises and households industries other than the organised ones which are not regulated by any of the Acts and which do not maintain annual accounts and balance-sheets.
Enterprises, private	Enterprises in which private parties own all, or a majority of the shares, other capital participation or equity and which private parties control
Enterprises, public	Consists of Departmental and non-departmental public sector

Item	Concept/definition in use
	enterprises.
Enterprises, public, departmental	Enterprises owned and controlled by the public authorities, which are mainly engaged in furnishing the kind of goods and services which are often produced by business establishments but do not hold or manage financial assets and liabilities apart from their working balances and business accounts, payable and receivable. Examples are activities relating to government. railways, posts and telegraphs, overseas communications service, minor irrigation, multipurpose river projects, irrigation, navigation and drainage projects, electricity schemes, forest, government distilleries and factories, ordnance factories, public works work-shops, government presses, road and water transport services, tourist transport services, tourist accommodation, commercial broadcasting services, milk supply schemes and port trust.
Enterprises, public, non-departmental	Comprise government companies registered under Companies Act 1956 and having 51 per cent or more share of government and public corporations set up in the Central/State Government Act wholly, or mainly, owned and/or controlled by the public authorities excluding housing boards, municipal corporations and improvement trusts
Establishment	Ultimate unit in industrial classification
Exports of goods and services	All transfers of the ownership of goods from residents of a country to non-residents and services provided by resident producers of the country to non-residents are to be covered. In practice, the exports of goods may consist of the outward movement of merchandise across the customs frontier of a country and of other goods across the boundaries of her domestic territory, including the direct purchases in the country of extra-territorial organisations and non-resident persons. Since the imports of merchandise into a country are to be valued at c.i.f., the exports of services of the country should also include the charges in respect of the imports for the transport and insurance services provided by resident producers of the given country.
External Transactions Accounts	Accounts setting out the current and capital transactions of the nation with the rest of the world.
Factor cost, Gross output	The value of the gross output of producer's measured in producer's values i.e. in the market price of the unit less the indirect taxes, net, in respect of the commodities, industries, etc., or the sum of the primary inputs and the purchasers' value of the intermediate inputs.
Factor cost, Gross value added	The gross output of the industries valued at factor cost less the purchasers' value of intermediate inputs into the industries.
Factor incomes	Compensation of employees, mixed income of self-employed and operating surplus of producers.
Final consumption expenditure accounts	Accounts relating to the final consumption of goods and services by resident households, government services and private non-profit services to households.
Final consumption expenditure of government services	The value of gross output is equal to the sum of the value of intermediate consumption of goods and services, compensation of employees, consumption of fixed capital less sales.
Final consumption expenditure of households in the domestic market	This is equal to final consumption expenditure of household plus direct purchases in the domestic market by non-resident households and extra- territorial bodies minus direct purchases abroad by resident households
Final consumption expenditure, private	Value of final expenditure of households and private non-profit institutions on current goods and services less sales of second hand and scrapped goods including imputed value of own account production and expenditure on consumer durable. It includes final consumption expenditure of non-residents on goods including all costs in the domestic market but excludes final consumption expenditure of normal residents of the country abroad.

Item	Concept/definition in use
Final consumption expenditure of private non-profit house-holds	Value of goods and services produced for own use on current account that is the value of their gross output services to reduced by the sum of the value of their commodity and non-commodity sales. The value of their gross output is equal to the sum of the value of their intermediate consumption of goods and services, compensation of employees, consumption of fixed capital and indirect taxes.
Final use of goods and services	Disposition of goods and services to final consumption expenditure, gross fixed capital formation, increase in stocks and exports.
Government, administrative departments	All departments, offices, organisations and other bodies which are agencies or instruments of the central, State or local public authorities, whether accounted for, or financed in, ordinary or extra-ordinary budgets or extra budgetary funds. Included are all social security arrangements for large sections of the population imposed, controlled or financed by a government. Excluded are government departmental and non-departmental enterprises and public corporations.
Government enterprises	Same as public departmental enterprises
Government services producers	Producers of government services furnish but normally do not sell, to the community those common services which otherwise cannot be conveniently and economically provided, and administer the State and the economic and social policy of the community. Also included are defence and external affairs.
Gross output of industries	In general, the value of all the goods and services (commodities) produced during the period of account including net increase in work-in-progress and products for use on own account. Valuation is usually at producers' value that is the market value at the establishment of the producers or at approximate basic values, which is producers' values less the relevant commodity taxes, net. The gross output is equivalent to the gross margins, that is, the differences between sale and purchase values of the goods sold, in the case of the distributive trades, the insurance service charge in the case of casualty and life insurance; and the sum of the actual and imputed service charges in the case of banks and similar financial institutions.
Imports of goods and services	In concept, all transfers of the ownership of goods from non-residents of a country to residents and services provided by non-resident producers to residents of the country. In practice, the imports of goods may consist of the inward movement of merchandise across the customs frontier of a country and of other goods across the boundaries or her domestic territory, including the direct purchases of the government services and residents of the country abroad. Since, imports of merchandise are valued c.i.f., imports also include the charges of resident producers for transport and insurance services in respect of these imports.
Income, forms of	Various forms of income are: wages and salaries, employees contributions to social security, pension and similar schemes, entrepreneurial income, mixed income of self-employed, operating surplus, property income; direct taxes on income, social security contribution, current transfers by enterprises, social security benefits, social contributions, current transfers by enterprises, social assistance grants, other current transfers by government, current transfers by households, current transfers by the rest of the world
Income and outlay accounts	Accounts showing the receipt and disbursement of incomes by resident institutional units.
Income approach	Income approach for measuring the gross domestic product is to take the sum of the factor incomes accruing from production i.e. the provision for consumption of fixed assets, compensation of employees, mixed income of the self-employed, operating surplus and the excess of indirect taxes over subsidies.

Item	Concept/definition in use
Income, from property	Actual and imputed transfers of property incomes accruing from ownership of physical and financial assets, agriculture and other land, patents, copyright, concessions and similar intangible assets. Includes net rent on buildings in the case of all enterprises other than the government administrative departments.
Income, private	Factor incomes and transfers accruing to the private sector, from all sources. Includes current transfer payments from public authorities and rest of the world
Income, personal	Private income minus savings of private corporate sector net of retained earnings of foreign companies minus corporation tax.
Interest	Interest comprises (actual and imputed) property incomes in respect of such financial claims as banks and other deposits, bills, bonds, promissory notes and other loans, accounts receivable and payable, trade advances and consumers debts and household equity in life insurance reserves and pension funds.
Interest on public debt	Interest on debt owned by the administrative departments of the central, state and local governments.
Intermediate consumption of industries	Covers non-durable goods and services (commodities) used up in production, including repair and maintenance of capital stock (excluding rent paid on buildings), research, development and prospecting. Excludes consumption of fixed capital and rent paid.
Mixed income of self-employed	This consists of wage income of own account workers and profits and dividends of unincorporated enterprises. This form of income has been specifically defined for India as the breakdown of two components viz., income of own account workers and profits etc., is not available separately.
National accounts, as a system	It is an accounting system setting out clearly and concisely a frame-work within which the statistical information needed to analyse the economic process in all its many aspects could be organised and related.
National income	Net domestic product at factor cost plus net factor income from abroad represents the national income of the country.
National product at factor cost gross/net	Value of factor cost of the product, attributable to the factors of production supplied by the normal residents of the country. It is equal to gross domestic product at factor cost plus net factor income from abroad.
National product at market prices	National product at factor cost plus indirect taxes reduced by subsidies
Net factor income from abroad	Income attributable to factor services rendered by the normal residents of the country to the rest of the world less factor services rendered to them by the rest of the world. It also includes retained earnings of foreign controlled rupee companies and branches of foreign companies in the domestic territory. Residents include both individuals and institutions. Tourists or commercial travelers of a given country traveling abroad are treated as residents of the given country. The official diplomatic and consular representatives of a given country, including members of official missions and members of armed forces stationed abroad are to be considered extra territorial by the country in which they are located and residents of the given country. The factor incomes generated by such residents are domestic product of resident country. Factor incomes of locally recruited staff of foreign diplomatic military establishments are included in factor income from abroad.
Operating surplus	Gross output at producers' values less the sum of intermediate consumption, compensation of employees (including labour income of self-employed), consumption of fixed capital and indirect taxes reduced by subsidies.
Private sector	All organised and unorganised enterprises excluding those under public sector
Producers	Industries, producers of government services, producers of

Item	Concept/definition in use
	non-profit services to households and domestic services rendered by one household to another.
Production accounts	Commodity and activity accounts. For commodity: Accounts relating to the total supply of commodities from domestic production and imports and their disposition to intermediate and final uses. For activity: Accounts of industries, producers of government services, producers of private non-profit services to households, and the domestic services to households, in respect of their gross output of goods and services and their intermediate consumption, primary inputs and indirect taxes less subsidies.
Public corporations	Corporations wholly, or mainly owned and/or controlled by the public authorities. (All public financial institutions are treated as corporations).
Public sector	Comprises government administrative departments, departmental and non-departmental enterprises
Rent	Factor income generated by the letting and use of land for agricultural and other purposes, building/residential and non/residential. It is treated as income from property
Rest of the world, transactions with	Transactions with the rest of the world calls for detailed classification of exports and imports of goods and services, of factor incomes and of transactions in financial claims.
Saving	The difference between the current receipts and the current disbursements; the balancing item on the income and outlay account; and the balancing item of "Use of disposable income account" in 1993 SNA.
Saving, household	This is sum of increase in the financial assets and of physical assets of household sector (for coverage of household sector see capital formation, household).
Saving, household physical assets	Saving of households in the form of physical assets comprising investment in construction including land improvements, machinery and equipment and inventories.
Stocks	Stocks consist largely of the materials and supplied, work-in-progress except in construction projects and finished products and goods in the possession of industries. Standing timber and crops are excluded from stocks, but livestock raised for slaughter, logs and harvested crops are included. Producers of government services may also engage in transactions in stocks. These transactions relate primarily to stocks of strategic materials, grains and other commodities of special importance to the nation, and to the sales of large lots of surplus goods
Stocks, change in	Difference between market/book values of the stocks at the beginning and end of the period
Subsidies	All grants on current account made by government to private industries and public corporations, and grants made by the public authorities to enterprises in compensation for operating losses when these losses are clearly the consequence of the policy of the government to maintain prices at a level below costs of production. In the case of irrigation schemes, operating loss is classified as subsidy.
Surplus of the nation on current transactions	Excess of receipts on current account over disbursements on current account in respect of the transactions of a country with the rest of the world.
Taxes, corporate	Direct taxes on corporations and co-operatives which are levied at regular intervals on the profits, capital or net worths of these enterprises. Corporate income and excess profits, taxes, taxes on undistributed profits or on capital stocks are included here. Capital levies and similar non-recurrent payments should be treated as capital transfers and not as charges against current profits.
Taxes, direct	Direct taxes are the levies by public authorities at regular intervals,



Item	Concept/definition in use
	except social security contributions, on income from employment, property, capital gains or any other source and on the financial assets and the net or total worth of enterprises, private non-profit institutions and households; and on the possession, or use, of goods by individuals and households
Taxes, indirect	Taxes assessed on producers in respect of the production, sale, purchase or use of goods and services which they charge to the expenses of production. Also included are import duties.
Trade, credit and advances	Credit extended in respect of sale/purchase of goods and services, and advances for the production of goods and services in progress or to be undertaken
Value added, gross	Gross output - intermediate consumption.
Wages and salaries in kind	Goods and services acquired or produced by industries, producers of government services and producers of private non-profit services to households which are provided to their employees free of charge, or at markedly reduced cost, and are of clear and direct benefit to the employees.

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**ABBREVIATIONS**

ACNA	Advisory Committee on National Accounts
AIDIS	All India Debt & Investment Survey
AIES	All India Educational Survey
AIITS	All India Income Tax Statistics
AMFI	Association of Mutual Funds in India
ASI	Annual Survey of Industries
BE	Budget Estimates
BoP	Balance of Payments
BPM5	BoP Manual, 5th Edition of the IMF
BSR	Basic Statistical Returns
CACP	Commission for Agricultural Costs and Prices
CAG	Comptroller & Auditor General of India
CAPE	Crop Acreage and Production Estimation
CBDT	Central Board of Direct Taxes
CBEC	Central Board of Excise and Customs
CBHI	Central Bureau of Health Intelligence
CBRI	Central Building Research Institute
CCS	Cost of Cultivation Studies
CEA	Central Electricity Authority
CFC	Consumption of Fixed Capital
CGA	Controller General of Accounts
CGHS	Central Government Health Scheme
CGWB	Central Ground Water Board
CIF	Chief Inspector of Factories
CIFRI	Central Inland Fisheries Research Institute
CII	Confederation of Indian Industries
CIL	Coal India Limited
CIWTCI	Central Inland Water transport Corporation of India
CMFRI	Central Marine Fisheries Research Institute
CMIE	Centre for Monitoring of Indian Economy
COCSSO	Conference of Central and State Statistical Organisations
COFOG	Classifications of Functions of Government
COICOP	Classification of Individual Consumption by purpose
CPC	Central Pay Commission
CPI	Consumer Price Index
CPI (AL)	CPI Agricultural Labourers
CPI (IW)	Consumer Price Index (Industrial Workers)
CPI (R)	CPI Rural
CPI (RL)	CPI (Rural Labourers)
CPI (U)	CPI (Urban)
CPI (UNME)	CPI (Urban Non-Manual Employee)
CPWD	Central Public Works Department
CSO	Central Statistical Organisation
CWC	Central Water Commission
CWWG	Crop Weather Watch Group
DAC	Department of Agriculture & Cooperation
DAHD	Department of Animal Husbandry & Dairying
DARE	Department of Agricultural Research and Education
DCA	Department of Company Affairs
DCSSI	Development Commissioner for Small Scale Industries

DCU	Departmental Commercial Undertakings
DDP	District Domestic Product
DEAP	Department of Economic Analysis and Policy
DES	Directorate of Economics and Statistics
DESACS	Department of Statistical Analysis and Computer Services
DESMOA	Directorate of Economics and Statistics, Ministry of Agriculture
DGCI&S	Directorate General of Commercial Intelligence and Statistics
DGE&T	Directorate General of Employment and Training
DGFT	Directorate General of Foreign Trade
DGHS	Directorate General of Health Service
DIPP	Department of Industrial Policy and Promotion
DGTD	Directorate General of Technical Development
DME	Directory Manufacturing Establishment
DMI	Directorate of Market and Inspection
DPD	Data Processing Division
EARAS	Establishment of an Agency for Reporting Agricultural Statistics
EB	Enumeration Block
EC	Economic Census
ECD	Economic Census Division
ECGC	Export Credit Guarantee Corporation
EPF	Employees Provident Fund
EPFO	Employees Provident Fund Organisation
ESCAP	Economic and Social Commission for Asia and the Pacific
ESIC	Employees State Insurance Corporation
ESIS	Employees State Insurance Scheme
EXIM	Export Import Bank of India
f.o.b.	Free on Board
FAO	Food & Agricultural Organisation
FASAL	Forecasting Agricultural output using Space, Agro-meteorology and Land based observations
FDI	Foreign Direct Investment
FICCI	Federation of Indian Chambers of Commerce and Industry
FIIs	Foreign Institutional Investors
FIPB	Foreign Investment Promotion Board
FISIM	Financial Intermediary Services Indirectly Measured
FLS	Family Living Survey
FOD	Field Operations Division
FSI	Forest Survey of India
GAIL	Gas Authority of India Limited
GC	Governing Council
GCES	General Crop Estimation Survey
GDI	Gender Development Index
GDP	Gross Domestic Product
GFCE	Government Final Consumption Expenditure
GFS	Government Finance Statistics
GIC	General Insurance Corporation of India
GIS	Geographical Information Systems
GNP	Gross National Product
GTI	Gross Trading Income
GVA	Gross Value Added
GVO	Gross Value of Output
HDI	Human Development Index

<i>HFC</i>	Housing Financing Company
<i>HUDCO</i>	Housing & Urban Development Corporation
<i>HUF</i>	Hindu Undivided Family
<i>IAP</i>	Index for Agriculture Production
<i>IASRI</i>	Indian Agricultural Statistics Research Institute
<i>IBM</i>	Indian Bureau of Mines
<i>ICAR</i>	Indian Council of Agriculture Research
<i>ICS</i>	Improvement of Crop Statistics
<i>IDBI</i>	Industrial Development Bank of India
<i>IDFC</i>	Infrastructure Development Finance Company
<i>IDR Act</i>	Industrial Development Regulation Act
<i>IFCI</i>	Industrial Finance Corporation of India
<i>IIBI</i>	Industrial Investment Bank of India Limited
<i>IIP</i>	Index of Industrial Production
<i>ILC</i>	Indian Livestock Census
<i>ILO</i>	International Labour Organisation
<i>IMD</i>	Indian Meteorological Department
<i>IMF</i>	International Monetary Fund
<i>IOTT</i>	Input-Output Transactions Table
<i>IRDA</i>	Insurance Regulatory Development Authority
<i>ISI</i>	Indian Statistical Institute
<i>ISIC</i>	International Standard Industrial Classification
<i>ISM&amp;H</i>	Indian Systems of Medicine and Homeopathy
<i>ISRO</i>	Indian Space Research Organisation
<i>ISS</i>	Indian Statistical Service
<i>ISO</i>	Information System Organisation
<i>ISWGNA</i>	Inter Secretariat Working Group on National Accounts
<i>KVIC</i>	Khadi & Village Industries Commission
<i>LIC</i>	Life Insurance Corporation of India
<i>LPG</i>	Liquid Petroleum Gas
<i>LUS</i>	Land Use Statistics
<i>MCPC</i>	Middle Class Price Collection
<i>MOSPI</i>	Ministry of Statistics and Programme Implementation
<i>MSFTI</i>	Monthly Statistics of Foreign Trade in India
<i>NABARD</i>	National Bank for Agriculture and Rural Development
<i>NACO</i>	National AIDS Control Organisation
<i>NAD</i>	National Accounts Division
<i>NAIS</i>	National Agricultural Insurance Scheme
<i>NAS</i>	National Accounts Statistics
<i>NASSCOM</i>	National Association of Software and Service Companies
<i>NBFC</i>	Non-Banking Financial Company
<i>NBFIs</i>	Non-Banking Financial Intermediaries
<i>NBO</i>	National Buildings Organisation
<i>NCA</i>	National Commission on Agriculture
<i>NCAER</i>	National Council of Applied Economic Research
<i>NCERT</i>	National Council of Educational Research and Training
<i>NCFC</i>	National Crop Forecasting Centre
<i>NDCU</i>	Non- Departmental Commercial Undertakings
<i>NDME</i>	Non-Directory Manufacturing Establishment
<i>NDP</i>	Net Domestic Product
<i>NGO</i>	Non-Governmental Organisation

NH	National Highways
NHB	National Horticultural Board
NIA	National Insurance Academy
NIAC	New India Assurance Company Limited
NIC	National Industrial Classification
NICNET	National Informatics Centre Network
NIEPA	National Institute for Educational Planning & Administration
NIPFP	National Institute of Public Finance and Policy
NNP	Net National Product
NSC	National Statistical Commission
NSO	National Statistical Office
NSS	National Sample Survey
NSSO	National Sample Survey Organisation
NVA	Net Value Added
OECD	Organisation for Economic Co-operation and Development
OIL	Oil India Limited
ONGC	Oil & Natural Gas Commission
ONS	Office of National Statistics
PFCE	Private Final Consumption Expenditure
PIM	Perpetual Inventory Method
PSU	Public Sector Undertaking
PWD	Public Works Department
QE	Quick Estimate
RBI	Reserve Bank of India
RE	Revised Estimate
RGI	Registrar General of India
UTES	Railway Infrastructure Technical & Economic Services
ROC	Registrar of Companies
RRB	Regional Rural Bank
RS	Remote Sensing
RSE	Relative Standard Error
RTO	Road Transport Office
SASAs	State Agricultural Statistics Authorities
SDDS	Special Data Dissemination Standards
SDI	State Directorate of Industries
SDP	State Domestic Product
SDRD	Survey Design & Research Division
SFC	State Financial Corporation
SFDs	State Forest Departments
SIDBI	Small Industries Development Bank of India
SIDC	State Industrial Development Corporation
SIDO	Small Industry Development Organisation
SNA	System of National Accounts
SNMI	Survey of Non-Manufacturing Industries
STC	Securities Trading Corporation
TAC	Tariff Advisory Committee
UGC	University Grants Commission
UIIC	United India Insurance Company
UNDP	United Nations Development Programme
UNME	Urban Non-Manual Employee
UNSD	United Nations Statistics Division

<i>UN-SNA</i>	United Nations System Of National Accounts
<i>UNSO</i>	United Nations Statistical Office
<i>UT</i>	Union Territory
<i>UTI</i>	Unit Trust of India
<i>VAPW</i>	Value Added per Worker
<i>WB</i>	World Bank
<i>WF</i>	Work force
<i>WPI</i>	Wholesale Price Index
<i>WTO</i>	World Trade Organisation

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	-do-	Monthly	Review of Infrastructure Performance
-do-	-do-	Annual	Statistical Abstract of India
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Report No.	Title	Round/Period of survey	Date of release
1.	General Report No.1 on the 1 <sup>st</sup> Round	1 <sup>st</sup> (Oct. 50-March 51)	Dec.1952
2.	Tables With Notes on the 2 <sup>nd</sup> round	2 <sup>nd</sup> (April-June 51)	Dec.1953
3.	Tables With Notes on the 3 <sup>rd</sup> round	3 <sup>rd</sup> (August-Nov. 51)	June 1954
4.	Special Report on the Survey of Persons in the 'Live Register' of Delhi Employment Exchange.	(August-Sep. 53)	1954
5.	Technical Paper on Some Aspects of the Development of the Sample Design.		March 1954
6.	Survey of Faridabad Township	4 <sup>th</sup> (March -April 1954)	Dec. 1954
7.	Couple Fertility: 2 <sup>nd</sup> round (April-June 51) and 4 <sup>th</sup> Round (Apr.-Sep.52)		Dec. 1955
8.	Report on Preliminary Survey of Urban Development	(Sep. 1953)	May 1956
9.	Report on the Sample Survey of Displaced Persons in the Urban areas of the Bombay State	(July-Sep. 1953)	Aug. 1957
10.	First Report on the Land Holdings, Rural Sector.	8 <sup>th</sup> (July 54-March 55)	1958
11.	Report on the Sample Survey of Manufacturing Industries	1949 and 1950	1958
12.	A Technical Note on Age Grouping		1958
13.	Report on Household Transport Operations.	7 <sup>th</sup> (Oct. 53- March 54)	1958
14.	Report on Some Characteristics of the Economically Active Population: 4 <sup>th</sup> to 7 <sup>th</sup> Rounds	April 52- march 54	1959
15.	Report on the Sample Survey of Manufacturing Industries, 1951	1951	1958
16.	Preliminary Report on Employment and Unemployment	9 <sup>th</sup> (May-Nov. 55)	1959
17.	Report on the Sample of Employment in Calcutta (1953).	1953	1959
18.	Tables With Notes on Consumer Expenditure.	4 <sup>th</sup> (Apr-Sep. 52)	1959
19.	Report on Small Scale Manufacture (Household Enterprises Smaller than Registered Factories).	7 <sup>th</sup> (Oct. 53- March 54)	1959
20.	Report on Pattern of Consumer Expenditure: 2 <sup>nd</sup> to 7 <sup>th</sup> Rounds	(Apr.51- Mar. 54)	1959
21.	Household Small Scale Manufacturing Establishments (Smaller than those covered by Industries Development Regulations Act, 1951)	9 <sup>th</sup> (May- Nov.55)	1959
22.	Report on the Sample Survey of Manufacturing Industries, 1952	1952	1960
23.	Report on the Sample Survey of Manufacturing Industries, 1953	1953	1960
24.	Report on Household Retail Trade: 7 <sup>th</sup> to 9 <sup>th</sup> Rounds	Oct.53-Nov. 55	1960
25.	Sample Verification of Livestock Census, 1956	1956	1960
26.	A Preliminary Report on Housing Condition	7 <sup>th</sup> (Oct. 53- March 54)	1960
27.	Technical Records of Sample Design, Instructions to field Workers and List of Sample Villages and Urban Blocks	9 <sup>th</sup> (May- Nov.55)	1960
28.	Report on the Sample Survey of Manufacturing Industries, 1954 (1)	1954	1960
29.	Notes on some Results of the Land Utilisation Survey.	10 <sup>th</sup> (Dec. 55-May56)	1960
30.	Report on Land Holdings (2): Operational Holdings in Rural India.	8 <sup>th</sup> (Jul. 54-Apr.55)	1960
31	Tables With Notes on Household Transport Operations: 8th to 10 <sup>th</sup> Rounds.	(Jul. 54- May 56)	1960
32(i)	Some Aspects of Cost Cultivation of Paddy, Wheat, Jowar and Bajra: 5 <sup>th</sup> to 7 <sup>th</sup> Round	1951-52 and 1952-53	1960
32(ii)	Some Aspects of Cost Cultivation of Barley, Maize, Ragi, Grams, Small Millets, Groundnut, Cotton and Jute: 5 <sup>th</sup> to 7 <sup>th</sup> Rounds.	1951-52 and 1952-53	1960
32(iii)	Some Aspects of Cost Cultivation of Minor Cereals, Pulses, Sugarcane, Oilseeds, Potato, Spices and Tobacco: 5 <sup>th</sup> to 7 <sup>th</sup>	1951-52 and 1952-53	1960

Report No.	Title	Round/Period of survey	Date of release
	Rounds		
33.	Tables With Notes on Wages, Employment, Income and Indebtedness of Agricultural Labour Households in Rural Areas: 11 <sup>th</sup> and 12 <sup>th</sup> round.	August 56- August 57	1960
34.	Tables With Notes on Employment and Unemployment	10 <sup>th</sup> (Dec.55-May 56)	1960
35.	Tables With Notes on Livestock Products: 5 <sup>th</sup> to 7 <sup>th</sup> Rounds	(April 52- March 54)	1960
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39.	Tables With Notes on Consumer Expenditure.	8 <sup>th</sup> (Jul.54-Mar. 55)	1961
40.	Tables With Notes on Consumer Expenditure.	9 <sup>th</sup> (May – Nov. 55)	1961
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43.	Tables with Notes on Small Manufacture :Household Enterprises Smaller than Registered Factories	9 <sup>th</sup> and 10 <sup>th</sup> (May 55- May 56)	1961
44.	A Note on Profession and Services	4 <sup>th</sup> to 8 <sup>th</sup> (Apr 52- Apr 55)	1961
45.	Report on Indian Villages ( a Study of some Social and Economic Aspects)	10 <sup>th</sup> to 12 <sup>th</sup> (Dec 55- Aug 57)	1961
46.	Tables with Notes on Consumer Expenditure of Agricultural labour Households in Rural areas	11 <sup>th</sup> and 12 <sup>th</sup> (Aug 56- Aug 57)	1961
47.	Tables with Notes on Consumer Expenditure.	10 <sup>th</sup> (Dec 55-May 56)	1961
48.	Preliminary Estimates of Birth and Death Rates and of the Rate of Growth of Population.	14 <sup>th</sup> (Jul. 58-Jul. 59)	1961
49.	Report on Morbidity.	7 <sup>th</sup> (Oct 53-Mar 54) and 11 <sup>th</sup> to 13 <sup>th</sup> (Sept 56-May 58)	1961
50.	Tables with Notes on Housing Conditions	10 <sup>th</sup> (Dec 55-may 56)	1961
51.	Tables with Notes on Housing Condition	11 <sup>th</sup> (Aug-56-Jan 57)	1961
52.	Tables with Notes on Employment and Unemployment	11 <sup>th</sup> and 12 <sup>th</sup> (Aug-56- Aug.57)	1961
53.	Tables with Note on Internal Migration	9 <sup>th</sup> , 11 <sup>th</sup> , 12 <sup>th</sup> and 13 <sup>th</sup> (May-55-May 58)	1962
54.	Vital Rates	7 <sup>th</sup> (Oct 53-Mar 54)	1962
55.	Report on Sample Survey of Manufacturing Industries, 1954(2):Exploratory Survey of Scheduled Industries	1954(2)	1962
56.	Report on Sample Survey of Manufacturing Industries, 1955(1) Survey of Scheduled Industries	1955(1)	1962
57.	Report on Sample Survey of Manufacturing Industries	1955(2)	1962
58.	Report on Sample Survey of Manufacturing Industries, 1956(1) Survey of Scheduled Industries.	1956(1)	1962
59.	Tables with Notes on Pattern of Household Ownership and Possession of Land in Rural Areas 1950-51 to 1953-54	8 <sup>th</sup> (Jul 54-April 55)	1962
60.	Tables with Notes on Farming Condition and Practices in Rural Areas 1953-54	8 <sup>th</sup> (Jul 54-April 55)	1962
61.	Notes on the Result of the Land Utilisation Survey and Crop Cutting Experiments	11 <sup>th</sup> (Aug 56-Feb.57)	1962
62.	Report on Employment and Unemployment. Supplementary to Report No. 16	9 <sup>th</sup> (May – Nov. 55)	1962
63.	Tables with Notes on Employment and Unemployment in Urban Areas.	13 <sup>th</sup> (Sep.57- May 58)	1962
64.	Indian Villages: A Study of some Social and Economic Aspects.	13 <sup>th</sup> (Sep.57- May 58)	1962
65.	Tables with Notes on Animal Husbandry:	11 <sup>th</sup> (Aug 56-Feb.57)	1962
66.	Report on Land Holdings (4): Rural Sector States.	8 <sup>th</sup> (Jul 54-April 55)	1962

Report No.	Title	Round/Period of survey	Date of release
67.	Tables with Notes on Housing Conditions	12 <sup>th</sup> (Mar-Aug.57)	1962
68.	Tables with Notes on Rural Indebtedness.	8 <sup>th</sup> (Jul54-April55)	1962
69.	Notes on the Results of the Land Utilisation Survey and Crop Cutting Experiments	12 <sup>th</sup> (Mar-Aug.57)	1962
70.	Technical Paper on Sample Design.	14 <sup>th</sup> (Jul.58-June59)	1962
71.	Consumer Expenditure by Level of Household Expenditure.	13 <sup>th</sup> (Sep.57- May 58)	1962
72.	Tables with Notes on Milk Production	12 <sup>th</sup> (Mar-Aug.57)	1963
73.	Some Results of the Land Utilisation Survey and Crop Cutting Experiments	14 <sup>th</sup> (Jul.58-June59)	1963
74.	Report on Land Holdings (5): Rural Sector (Some Aspects of Operational Holdings – Population Zones and All India)	8 <sup>th</sup> (Jul54-April55)	1963
75.	Report on Sample Survey of Manufacturing Industries, 1956(2)	1956	1963
76.	Fertility and Mortality Rates in India	14 <sup>th</sup> (Jul.58-June59)	1963
77.	Tables with Notes on Consumer Expenditure	11 <sup>th</sup> (Aug56-Feb.57)	1963
78.	Tables with Notes on Consumer Expenditure	12 <sup>th</sup> (Mar-Aug.57)	1963
79.	Some Results of the Land Utilisation Survey and Crop Cutting Experiments.	15 <sup>th</sup> (Jul. 59- June 60)	1963
80.	Tables with Notes on Consumer Expenditure	13 <sup>th</sup> (Sep.57- May 58)	1963
81.	Report on Land Holdings, Urban Sector.	8 <sup>th</sup> (Jul54-April55)	1963
82.	Tables with Notes on Some Aspects of Cost of Cultivation of Paddy, Wheat, Barley, Maize, Millets, Pulses, Oilseeds and Vegetables – Urban India:	5 <sup>th</sup> to 7 <sup>th</sup> Round(1951-53)	1963
83.	Report on Sample Survey of Manufacturing Industries, 1957(1)	1957	1963
84.	Report on Sample Survey of Manufacturing Industries-Survey of Scheduled Industries.	1957	1963
85.	Tables with Notes on Employment and Unemployment in Urban Areas.	14 <sup>th</sup> (Jul.58-June59)	1964
86.	Report on Sample Survey of Manufacturing Industries, 1957(2)	1957	1964
87.	Tables with Notes on Average Budget of Agricultural Labour Households in Rural Areas.11 <sup>th</sup> and 12 <sup>th</sup> round	11 <sup>th</sup> &12 <sup>th</sup> (Aug 56-Aug. 57)	1964
88.	Tables with Notes on Households Receipts and disbursement	14 <sup>th</sup> (Jul.58-June59)	1964
89.	Tables with Notes on Dwelling Habits of Occupants of the Two Room Government Residence in New Delhi	July 1960	1964
90.	Tables with Notes on Survey of Scheduled Industries 1958; Sample Survey of Manufacturing Industries1958	1958	1964
91.	Tables with Notes on Annual Survey of Industries 1959; Sample Sector: Summary Results.	1958	1964
92.	Some Results of the Land Utilisation Survey and Crop Cutting Experiments.	16 <sup>th</sup> (Jul. 60- June 61)	1964
93.	Sample Survey of Manufacturing Industries1958; Factory Establishments; Summary Results.	1958	1964
94.	Tables with Notes on small Scale Manufacture: Rural and Urban(Household Enterprises Smaller than the Registered Factories)	14 <sup>th</sup> (Jul.58-June59)	1964
95.	Tables with Notes on Household Indebtedness.	16 <sup>th</sup> (Jul. 60- June 61)	1965
96.	The Annual Survey of Industries 1960; Sample Sector Summary Results.	1960	1965
97.	Tables with Notes on Capital Formation (Rural)	15 <sup>th</sup> (Jul. 59- June 60.)	1965
98.	Tables with Notes on Consumer Expenditure (Preliminary)	15 <sup>th</sup> (Jul. 59- June 60.)	1965
99.	Tables with Notes on Household Non- Registered Trade	15 <sup>th</sup> (Jul. 59- June 60.)	1965
100.	Tables with Notes on Employment and Unemployment	14 <sup>th</sup> (Jul.58-June59)	1965
101.	Tables with Notes on Consumer Expenditure (Preliminary)	16 <sup>th</sup> (Jul. 60- June 61)	1965
102.	Tables with Notes on Consumer Expenditure.	14 <sup>th</sup> (Jul.58-June59)	1965
103.	Tables with Notes on Urban Labour Force.	16 <sup>th</sup> (Jul. 60- June 61)	1966
104.	Tables with Notes on Consumer Expenditure	15 <sup>th</sup> (Jul. 59- June 60.)	1966

Report No.	Title	Round/Period of survey	Date of release
105.	Tables with Notes on Household Non-Mechanised Transport and Utilisation of Working Animals.	15 <sup>th</sup> (Jul. 59- June 60.)	1966
106	Tables with Notes on Land Utilisation Survey and Crop Cutting Experiments.	17 <sup>th</sup> (July. 61- June 62.)	1966
107	Tables with Notes on Consumer Expenditure.: 11 <sup>th</sup> and 12 <sup>th</sup> Rounds	11 <sup>th</sup> & 12 <sup>th</sup> (Aug. 56- Aug. 57)	1966
108.	Report on the type of study on Consumption and Disposal of Cereals and Capital Formation by Households, 1959-60	1959-60	1966
109.	Tables with Notes on Indian Villages.	14 <sup>th</sup> (Jul. 58-June 59)	1966
110.	Tables with Notes on Rates of Birth, Death and Growth of Rural Population.	15 <sup>th</sup> (Jul. 59- June 60.)	1966
111.	Tables with Notes on Sample Survey of Manufacturing Industries 1958; Factory Establishments; Detailed Results.	16 <sup>th</sup> (Jul. 60- June 61)	1966
112.	Tables with Notes on Land Utilisation Survey and Crop Cutting Experiments.	18 <sup>th</sup> (July. 62- June 63.)	1966
113.	Tables with Notes on Agricultural Holdings in Rural India.	16 <sup>th</sup> (Jul. 60- June 61)	1966
114.	Tables with Notes on Employment and Unemployment in Rural India.	16 <sup>th</sup> (Jul. 60- June 61)	1967
115.	Tables with Notes on Disposal of Cereals by Producer Households in Rural Areas.	15 <sup>th</sup> (Jul. 59- June 60.)	1968
116.	Tables with Notes on Family Planning.	16 <sup>th</sup> (Jul. 60- June 61)	1967
117.	Tables with Notes on the Enquiry of Physically Handicapped Persons.	16 <sup>th</sup> (Jul. 60- June 61)	1967
118.	The Annual Survey of Industries 1961; Sample Sector: Summary Results.	1961	1967
119.	Special Study on Morbidity.	16 <sup>th</sup> (Jul. 60- June 61)	1967
120.	The Annual Survey of Industries 1962; Sample Sector Summary Results.	1962	1967
121.	Preliminary Estimates of Birth and Death Rates and of the Rate of Growth of Population.	18 <sup>th</sup> (July. 62- June 63.)	1967
122.	Tables with Notes on Annual Survey of Industries 1959; Sample Sector: Detailed Results.	1958	1968
123.	The Annual Survey of Industries 1963; Sample Sector Summary Results.	1963	1968
124.	Some Results of the Land Utilisation Survey and Crop-cutting Experiments.	18 <sup>th</sup> (July 63-June 64)	1968
125	Technical Paper on Sample Design	19 <sup>th</sup> (July 64-June 65)	1968
126.	Tables with Notes on Internal Migration. 14 <sup>th</sup> (Jul 58-Jun 59) and 15 <sup>th</sup> Round (Jul 59-Jun 60)	14 <sup>th</sup> (Jul 58-Jun 59) and 15 <sup>th</sup> (Jul 59-Jun 60)	1968
127.	Tables with Notes on Urban Labour Force.	17 <sup>th</sup> ( Sep 61-July 62)	1969
128.	Tables with Notes on Internal Migration	14 <sup>th</sup> ( July 58-June 59)	1969
129.	Report on Pilot Enquiry on Morbidity	17 <sup>th</sup> ( Sep 61-July 62)	1969
130.	Tables with Notes on Profession and Liberal Arts	18 <sup>th</sup> ( Feb 63-Jan 64)	1968
131.	Tables with Notes on Annual Survey of Industries, 1960 -Sample Sector: Detailed Results.	1960	1969
132.	Tables with notes on Annual Survey of Industries 1960 Sample Sector: Summary Results.	1960	1969
133.	Some results of the Land Utilisation Survey and Crop-Cutting Experiments.	19 <sup>th</sup> (Jul 64-Jun 65)	1969
134.	Tables with Notes on Income of Rural Labour Household.	18 <sup>th</sup> (Feb 63-Jan 64)	1969
135.	Tables with Notes Consumer Expenditure (Preliminary).	17 <sup>th</sup> ( Sep 61-July 62)	1969
136.	Tables with Notes on Capital Formation (Urban)	17 <sup>th</sup> ( Sep 61-July 62)	1968
137.	Tables with Notes on Housing Condition	16 <sup>th</sup> (July 60-Aug 61)	1969
138.	Tables with Notes on Consumer Expenditure	16 <sup>th</sup> (July 60-Aug 61)	1969
139.	Tables with Notes on Annual Survey of Industries 1961-Sample Sector : Detailed Results	1961	1968
140.	Tables with Notes on Some Aspects of Agriculture in India	11 <sup>th</sup> (Aug 56-Feb 57)	1969



Report No.	Title	Round/Period of survey	Date of release
	(Rural):		
141.	Tables with notes on Household Consumption of Fuel and Light.	18 <sup>th</sup> (Feb63-Jan64)	1969
142.	Tables with Notes Consumer Expenditure (Preliminary).	18 <sup>th</sup> (Feb63-Jan64)	1968
143.	Tables with Notes on Indebtedness of Scheduled Tribe Households.	18 <sup>th</sup> (Feb63-Jan64)	1969
144.	Tables with Notes on Some Aspects of Land Holdings in Rural Areas (State and all-India Estimates).	17 <sup>th</sup> (Sept61-July62)	1968
145.	Tables with Notes on Income of Scheduled Tribe Households: 18th (Feb63-Jan64) Rural Areas of Manipur and Tripura.	18 <sup>th</sup> (Feb63-Jan64)	1969
146.	Tables with Notes on Housing Condition	15 <sup>th</sup> (Jul59-Jun60)	1970
147.	Some Results of the Land Utilisation Survey and Crop - Cutting Experiments.	20 <sup>th</sup> (July65-June66)	1969
148.	Report on Special Survey on Household Entrepreneurial Activities in Aligarh Town	1959-60	1969
149.	Report on Pilot Study on Non-Household Enterprises	19 <sup>th</sup> (Jul.64-June65)	1969
150.	Tables with Notes on Housing Condition	17 <sup>th</sup> (Sept61-July62)	1969
151.	Tables with Notes on Consumer Expenditure (Some Selected Items) 18 <sup>th</sup> (Feb63-Jan64) ( gap period)	18 <sup>th</sup> (Feb63-Jan64)	1969
152.	Tables with Notes on Urban Labour Force.	18 <sup>th</sup> (Feb63-Jan64)	1969
153.	Differential Birth, Death and Infants Mortality Rates in Rural Household.	15 <sup>th</sup> (Jul59-Jun60)	1969
154.	Tables with Notes on Couple Fertility.	17 <sup>th</sup> (Sept61-July62)	1970
155.	Tables with Notes on Consumer Expenditure (Some Selected Items).	18 <sup>th</sup> (Feb63-Jan64)	1969
156.	Tables with Notes on Rural Employment and Unemployment.	15 <sup>th</sup> (Jul59-Jun60)	1969
157.	Tables with Notes on Urban Employment and Unemployment.	15 <sup>th</sup> (Jul59-Jun60)	1969
158.	Tables with Notes on Consumer Expenditure on Scheduled Tribes Households of Manipur Tripura.	18 <sup>th</sup> (Feb63-Jan64)	1970
159.	Tables with Notes on Some Aspects of Land Holdings in Rural India.	16 <sup>th</sup> (July60-Aug61)	1969
160.	Some Results of the Land Utilisation Survey and Crop - Cutting Experiments.	21 <sup>st</sup> 9Jul. 66- June 67)	1970
161.	Tables with Notes on Annual Survey of Industries 1965-Sample Sector : Summary Results	1965	1970
162.	Tables with Notes on Some Results of Land Holdings in Rural Areas.	17 <sup>th</sup> (Sept61-July62)	1970
163.	Tables with Notes on Urban Labour Force.	19 <sup>th</sup> (Jul.64-June65)	1970
164.	Tables with Notes on Annual Survey of Industries 1962-Sample Sector: Detailed Results.	1962	1970
165.	Tables with Notes on Some Results of Land Holdings in Urban Areas.	17 <sup>th</sup> (Sept61-July62)	1970
166.	Tables with Notes on Urban Labour Force.	20 <sup>th</sup> (Jul.65-June66)	1970
167.	Tables with Notes on Villages and Towns in India.	19 <sup>th</sup> (Jul.64-June65)	1970
168.	Tables with Notes on Annual Survey of Industries 1963-Sample Sector: Detailed Results.	1963	1970
169.	Tables with Notes on Housing Condition of Scheduled Tribe Households of UTs of Manipur and Tripura.	18 <sup>th</sup> (June 63-May 64)	1970
170.	Tables with Notes on Housing Condition	18 <sup>th</sup> (Feb63-Jan64)	1970
171.	Some Results Relating to Construction of Pucca houses in Rural and Urban Areas.	22 <sup>nd</sup> (Jul.67-June68)	1970
172.	Tables with Notes on Indian Villages.: Some Important Results.	18 <sup>th</sup> (Feb63-Jan64)	1970
173.	Tables with Notes on Employment and Unemployment in	19 <sup>th</sup> (Jul.64-June65)	1970

Report No.	Title	Round/Period of survey	Date of release
	Rural and Urban Areas.		
174.	Tables with Notes on Annual Survey of Industries 1966-Sample Sector: Summary Results.	1966	1970
175.	Tables with Notes on Differential Fertility and Mortality Rates in India.	18 <sup>th</sup> (Feb63-Jan64)	1970
176.	Some Results of the Land Utilisation Survey and Crop - Cutting Experiments.	22 <sup>nd</sup> (Jul.67-June68)	1970
177.	Vitals Rates in India.	19 <sup>th</sup> (Jul.64-June65)	1971
178.	Tables with Notes on Annual Survey of Industries 1965-Sample Sector: Detailed Results.	1965	1970
179.	Tables with Notes on Consumer Expenditure (Preliminary).		
180.	Tables with Notes on Fertility and Mortality Rates in Urban Areas of India.	16 <sup>th</sup> (July60-Aug61)	1970
181.	Tables with Notes on Urban Labour Force.	21 <sup>st</sup> (July66-June 67)	1970
182.	Tables with Notes on Internal Migration.	18 <sup>th</sup> (Feb63-Jan64)	1971-72
183.	Tables with Notes on Post-Census Survey of Livestock Numbers 1966: Rural Sector.	1966	1971
184.	Tables with Notes on Consumer Expenditure.	17 <sup>th</sup> (Sept61-July62)	1974
185.	Age Pattern of Marriages and Fertility of Couples.	17 <sup>th</sup> (Sept61-July62)	1971
186.	Tables with Notes on Differential Fertility and Mortality Rates in Rural and Urban Areas India: Integrated Household Survey Schedule 17.	19 <sup>th</sup> (Jul.64-June65)	1970
187.	Pilot Enquiry on Building Construction: Some Results (urban).	22 <sup>nd</sup> (Jul.67-June68)	1970
188.	Tables with Notes on Annual Survey of Industries 1964-Sample Sector: Detailed Results.	1964	1971
189.	Tables with Notes on Household Consumer Expenditure and Enterprise for Rural and Urban Areas of India.	19 <sup>th</sup> (Jul.64-June65)	1971
190.	Tables with Notes on Employment and Unemployment in Rural Areas.	17 <sup>th</sup> (Sept61-July62)	1971
191.	Tables with Notes on Consumer Expenditure Urban Areas.	18 <sup>th</sup> (Feb63-Jan64)	1971
192.	Tables with Notes on Consumer Expenditure.	19 <sup>th</sup> (Jul.64-June65)	1971
193.	Tables with Notes on Family Planning: 22 <sup>nd</sup> (Jul.67-June 68) round and 5 <sup>th</sup> Sub-Round (March-April 68)	22 <sup>nd</sup> (Jul.67-June68)	1973
194.	Tables with Notes on Annual Survey of Industries 1967-Sample Sector: Summary Results.	1967	1972
195.	Tables with Notes on Housing Condition	19 <sup>th</sup> (Jul.64-June65)	1973
196.	Tables with Notes on Villages and Towns in India: Some Results.	22 <sup>nd</sup> (Jul.67-June68)	1972
197.	Tables with Notes on Household Distribution Trade.	20 <sup>th</sup> (Jul.65-June66)	1972
198.	Tables with Notes on Annual Survey of Industries 1966-Sample Sector: Detailed Results.	1966	1974
199.	Tables with Notes on Capital Formation	19 <sup>th</sup> (Jul.64-June65)	1974
200.	Some Results of the Land Utilisation Survey and Crop - Cutting Experiments.	23 <sup>rd</sup> (Jul.68-June69)	1975
201.	Tables with Notes on Household Consumer Expenditure Enterprise and Demographic Particulars.	20 <sup>th</sup> (Jul.65-June66)	1975
202.	Tables with Notes on Farm Practices.	22 <sup>nd</sup> (Jul.67-June68)	1975
203.	Tables with Notes on Household Enterprises.	19 <sup>th</sup> (Jul.64-June65)	1976
204.	Vital Rates by Per Capita Monthly Household Expenditure.	22 <sup>nd</sup> (Jul.67-June68)	1975
205.	Some Results on Small Scale Manufacture in Rural and Urban Areas.	23 <sup>rd</sup> (Jul.68-June69)	1975
206.	Tables with Notes on Birth and Death Rates and Fertility Rate	20 <sup>th</sup> (Jul.65-June66)	1975
207.	Tables with Notes on Household Non-Registered Trade.	24 <sup>th</sup> (July69-June70)	1975
208.	Tables with Notes on Annual Survey of Industries, 1967-Sample Sector: Detailed Results.	1967	1975

Report No.	Title	Round/Period of survey	Date of release
209.	Tables with Notes on Consumer Expenditure	20 <sup>th</sup> (Jul.65-June66)	1976
210.	Birth and Death Rates by Recall Period.	21 <sup>st</sup> (Jul.66-June67)	1975
211.	Some Results Relating to Construction of Pucca Houses in Rural Areas.	23 <sup>rd</sup> (Jul.68-June69)	1975
212.	Some Results Relating to Construction of Pucca Houses in Urban Areas.	23 <sup>rd</sup> (Jul.68-June69)	1975
213.	Tables with Notes on Annual Survey of Industries 1969-Sample Sector: Summary Results.	1969	1976
214.	Tables with Notes on Urban Labour Force.	22 <sup>nd</sup> (Jul.67-June68)	1975
215.	Tables on Land Holdings: All India.	26 <sup>th</sup> (Jul.71-June72)	1976
216.	Tables with Notes on Consumer Expenditure	22 <sup>nd</sup> (Jul.67-June68)	1976
217.	Tables with Notes on Annual Survey of Industries 1968-Sample Sector: Summary Results.	1968	1976
218.	Tables with Notes on Small Scale Manufacture in Rural and Urban Areas.	23 <sup>rd</sup> (Jul.68-June69)	1976
219.	Tables with Notes on Annual Survey of Industries 1968-Sample Sector: Detailed Results.	1968	1976
220.	Tables with Notes on Enquiry on Physically Handicapped Persons: 24 <sup>th</sup> Round (Jul.69-June70) and 28 <sup>th</sup> Round (Jul.73-June74).	24 <sup>th</sup> (Jul.69-June70) 28 <sup>th</sup> (Jul.73-June74).	1976
221.	Tables with Notes on Some Features of Household Non-Registered Trade.	24 <sup>th</sup> (Jul.69-June70)	1975
222.	Selective Tables on Employment and Unemployment ; Sub-Rounds 1&2 27 <sup>th</sup> Round	27 <sup>th</sup> (Oct.72-Sep.73).	1975
223.	Time Disposition, Wage Rate and Attitude towards Employment Opportunities outside Villages of Weaker Section of Rural Population in India: sub Round 1	25 <sup>th</sup> (Jul.70-June71)	1976
224.	Tables with Notes on Annual Survey of Industries 1970-Sample Sector: Summary Results.	1970	1976
225.	Time Disposition and Wage Rate for Economically Weaker Section of the Rural Population in India: sub Round 2 of the 25 <sup>th</sup> Round (Oct-Dec.1970).	25 <sup>th</sup> (Jul.70-June71)	1976
226.	Time Disposition and Wage Rate for Economically Weaker Section of the Rural Population in India: sub Round 3 of the 25 <sup>th</sup> Round (Jan.-March 71).	25 <sup>th</sup> (Jul.70-June71)	1976
227.	Time Disposition and Wage Rate for Economically Weaker Section of the Rural Population in India: sub Round 4 of the 25 <sup>th</sup> Round (Apr.-June71).	25 <sup>th</sup> (Jul.70-June71)	1976
228.	Tables with Notes on Consumer Expenditures.	23 <sup>rd</sup> (Jul.68-June69)	1976
229.	Tables with Notes on Annual Survey of Industries 1969-Sample Sector: Detailed Results.	1969	1976
230.	Tables with Notes on Consumer Expenditures (Preliminary).	21 <sup>st</sup> (Jul.66-June67)	1977
231.	Tables with Notes on Consumer Expenditures.	25 <sup>th</sup> (Jul.70-June71)	1976
232.	Consumer Expenditures of the Weaker Section of the Rural Population in India:	25 <sup>th</sup> (Jul.70-June71)	1977
233.	Tables with Notes on Earnings, Indebtedness, Cultivated Holdings and Assets of Weaker Section Households in Rural India:	25 <sup>th</sup> (Jul.70-June71)	1976
234.	Tables with Notes on Dimensions of the Economic Problems of Weaker Section of Rural Population.	25 <sup>th</sup> (Jul.70-June71)	1978
235.	Tables with Notes on Consumer Expenditures.	24 <sup>th</sup> (Jul.69-June70)	1978
236.	Tables with Notes on Non-Household small Scale Manufacture.	23 <sup>rd</sup> (Jul.68-June69)	1976
237.	Time Disposition and Wage Rate for Economically Weaker Section of the Rural Population of India: All sub Rounds 4 of the 25 <sup>th</sup> Round (Jul. 70 -June 71).	25 <sup>th</sup> (Jul.70-June71)	1976
238(I)	Calorie and Protein Values of Food items Consumed Per Diem Per Consumer Unit in Rural Areas.	26 <sup>th</sup> (Jul.71-June72)	1976
238(ii)	Calorie and Protein Values of Food items Consumed Per	26 <sup>th</sup> (Jul.71-June72)	1976

Report No.	Title	Round/Period of survey	Date of release
	Diem Per Consumer Unit in Urban Areas.		
239.	Consumer Expenditures for Cultivator Households in Rural Areas.	26 <sup>th</sup> (Jul.71-June72)	1976
240	Tables on Consumer Expenditures.	28 <sup>th</sup> (Oct.73-June74)	1977
241(i)	Earnings, Indebtedness, Cultivated Holdings and Assets of Weaker Section Households in Rural Areas of the States of Assam, Bihar, Haryana, Jammu& Kashmir, Orissa, Punjab, Rajasthan, Uttar Pradesh and West Bengal-Region-wise Estimates.	25 <sup>th</sup> (Jul.70-June71)	1978
241(ii)	Earnings, Indebtedness, Cultivated Holdings and Assets of Weaker Section Households in Rural Areas of the States of Andhra Pradesh, Kerala, Gujarat, Maharashtra Madhya Pradesh, Mysore and Tamilnadu: - Region-wise Estimates.	25 <sup>th</sup> (Jul.70-June71)	1978
241(iii)	Earnings, Indebtedness, Cultivated Holdings and Assets of Weaker Section Households in Rural Areas of Union Territories of Delhi, Himachal Pradesh, Manipur, Tripura, Pondicherry, Goa and Daman & Diu of Region-wise Estimates.	25 <sup>th</sup> (Jul.70-June71)	1978
242.	Tables with Notes on Capital Formation.	24 <sup>th</sup> (Jul.69-June70)	1978
244.	Tables with Notes on Urban Labour Force	22 <sup>nd</sup> (Jul.67-June 68)	1973
245.	Time Disposition and Wage Rate for Economically Weaker Section of the Rural Population of India: Sub Rounds 3 (Jan. -Mar.71).	25 <sup>th</sup> (Jul.70-June 71)	1976
246.	Time Disposition and Wage Rate for Economically Weaker Section of the Rural Population of India: Sub Rounds 4 (Apr. -June.71).	25 <sup>th</sup> (Jul.70-June 71)	1976
250.	Special Tables on Consumer Expenditure for the National Commission on Agriculture: 23 <sup>rd</sup> (Jul.68-June69) 25 <sup>th</sup> (Jul.70-June71)	23 <sup>rd</sup> (Jul.68-June69) 25 <sup>th</sup> (Jul.70-June71)	1975
251.	Tables with Notes on Consumer Expenditures.	23 <sup>rd</sup> (Jul.68-June69)	1975
252.	Tables with Notes on Consumer Expenditures (Preliminary).	20 <sup>th</sup> (Jul.65-June65)	1974
253/1	Report on the First Phase of the in the District of Madurai (TN) (Pilot Survey on the Estimation of Catch of Fish from Inland Water Resources).	28 <sup>th</sup> (Jul.73-June74)	1973
253/2	Report on the First Phase of the in the District of Karimnagar Andhra Pradesh (Pilot Survey on the Estimation of Catch of Fish from Inland Water Resources).	28 <sup>th</sup> (Jul.73-June74)	1975
253/3	Report on the First Phase of the in the District of Murshidabad (WB) Pilot Survey on the Estimation of Catch of Fish from Inland Water Resources.	28 <sup>th</sup> (Jul.73-June74)	1975
253/4	Report on the Second Phase of the in the District of Madurai (TN) Pilot (Survey on the Estimation of Catch of Fish from Inland Water Resources).	28 <sup>th</sup> (Jul.73-June74)	1975
253/5	Report on the Second Phase of the in the District of Karimnagar Andhra Pradesh (Pilot Survey on the Estimation of Catch of Fish from Inland Water Resources).	28 <sup>th</sup> (Jul.73-June74)	1976
253/6	Report on the Second Phase of the in the District of Murshidabad (WB) (Pilot Survey on the Estimation of Catch of Fish from Inland Water Resources).	28 <sup>th</sup> (Jul.73-June74)	1976
254.	Tables with Notes on Consumer Expenditures (Preliminary).	21 <sup>st</sup> (Jul.66-June67)	1974
255.	Employment Unemployment Profile for India-A Preliminary Study Based on Employment and Unemployment survey NSS 27 <sup>th</sup> Round 1972-73.	27 <sup>th</sup> (Jul.72-June73)	1975
256.	Tables with Notes on Annual Survey of Industries 1968-Sample Sector: Detailed Results.	1968	1975
257.	Consumer Expenditure of the Weaker sections of the Rural Population.	25 <sup>th</sup> (Jul.70-June71)	1975
258.	A Note on Procedure of Estimation of Calorie and Protein	26 <sup>th</sup> (Jul.71-June72)	1975

Report No.	Title	Round/Period of survey	Date of release
	Consumption level from the Information Collected in Consumer Expenditure survey- NSS 26 <sup>th</sup> round.		
258/1	Calorie and Protein content of food items Consumed Per Diem Per Consumer Unit in Rural and Urban Areas of Assam & Bihar	26 <sup>th</sup> (Jul.71-June72)	1975
258/10	Calorie and Protein content of food items Consumed Per Diem Per Consumer –All India-Rural	26 <sup>th</sup> (Jul.71-June72)	1976
258/11	Calorie and Protein content of food items Consumed Per Diem Per Consumer –All India-Urban	26 <sup>th</sup> (Jul.71-June72)	1976
258/20	Calorie and Protein Content of Food Items Consumed Per Diem Per Consumer Unit in Rural areas of Gujarat, MP and Rajasthan.	26 <sup>th</sup> (Jul.71-June72)	1975
258/30	Calorie and Protein Content of Food Items Consumed Per Diem Per Consumer Unit in Rural and Urban areas of Orissa & West Bengal and Rural Areas of Maharashtra.	26 <sup>th</sup> (Jul.71-June72)	1975
258/50	Calorie and Protein Content of Food Items Consumed Per Diem Per Consumer Unit in Urban areas of Gujarat, MP, Rajasthan & Goa	26 <sup>th</sup> (Jul.71-June72)	1975
258/60	Calorie and Protein Content of Food Items Consumed Per Diem Per Consumer Unit in Rural areas of Haryana, J& K , Punjab & UP and Urban Areas of Maharashtra	26 <sup>th</sup> (Jul.71-June72)	1975
258/70	Calorie and Protein Content of Food Items Consumed Per Diem Per Consumer Unit in Rural areas of AP, Kerala, Mysore, Tamilnadu, Pondicherry, Tripura.	26 <sup>th</sup> (Jul.71-June72)	1975
258/90	Calorie and Protein Content of Food Items Consumed Per Diem Per Consumer Unit in Urban Areas of AP, Kerala Mysore, Tamilnadu, Pondicherry, Tripura.	26 <sup>th</sup> (Jul.71-June72)	1975
259	Tables with Notes on the Enquiry on Physically Handicapped Persons.	23 <sup>rd</sup> (July 68-June69)	1975
260	Tables with Notes on Small-Scale Manufacture in Rural and urban Areas.	23 <sup>rd</sup> (July 68-June69)	1975
262	Tables with Notes on Earnings, Indebtedness, Cultivated Holdings and Assets of Weaker Section Households in Rural India.	25 <sup>th</sup> (July70-June71)	1976
265/1	Fertiliser use in Agricultural Holdings	26 <sup>th</sup> (July71-Sept.72)	
265/2	Fertiliser use in Agricultural Holdings	26 <sup>th</sup> (July71-Sept.72)	
265/3	Fertiliser use in Agricultural Holdings	26 <sup>th</sup> (July71-Sept.72)	
265/4	Fertiliser use in Agricultural Holdings	26 <sup>th</sup> (July71-Sept.72)	
265/5	Fertiliser use in Agricultural Holdings	26 <sup>th</sup> (July71-Sept.72)	
265/6	Fertiliser use in Agricultural Holdings	26 <sup>th</sup> (July71-Sept.72)	
270	Time Disposition and Wage Rate for Economically Weaker Section of the Rural Population of India.	25 <sup>th</sup> (July70-June71)	1976
271.	Tables with Notes on Consumer Expenditures.	25 <sup>th</sup> (July69-June70)	1976
275/2.	Tables with Notes on Earnings, Indebtedness, Cultivated Holdings and Assets of Weaker Section Households in Rural Areas of the States of AP, Kerala Gujarat, MP, Maharashtra, and Tamilnadu.	25 <sup>th</sup> (July69-June70)	1976
278/1	Tables with Notes on Self-employed Households in Non-agricultural Enterprises.	29 <sup>th</sup> (Jul.74-June75)	
278/2.	Tables with Notes on Self-employed Households in Non-agricultural Enterprises.	29 <sup>th</sup> (Jul.74-June75)	
278/3.	Tables with Notes on Self-employed Households in Non-agricultural Enterprises.	29 <sup>th</sup> (Jul.74-June75)	
278/4.	Tables with Notes on Self-employed Households in Non-agricultural Enterprises.	29 <sup>th</sup> (Jul.74-June75)	
278/5.	Tables with Notes on Self-employed Households in Non-agricultural Enterprises.	29 <sup>th</sup> (Jul.74-June75)	



Report No.	Title	Round/Period of survey	Date of release
280/1.	Tables with Notes on Self-employed Households in Non-agricultural Enterprises; Detailed Results.	29 <sup>th</sup> (Jul.74-June75)	
280/2.	Tables with Notes on Self-employed Households in Non-agricultural Enterprises; Detailed Results.	29 <sup>th</sup> (Jul.74-June75)	
280/3.	Tables with Notes on Self-employed Households in Non-agricultural Enterprises; Detailed Results.	29 <sup>th</sup> (Jul.74-June75)	
280/4.	Tables with Notes on Self-employed Households in Non-agricultural Enterprises; Detailed Results.	29 <sup>th</sup> (Jul.74-June75)	
280/5.	Tables with Notes on Self-employed Households in Non-agricultural Enterprises; Detailed Results.	29 <sup>th</sup> (Jul.74-June75)	
280/6.	Tables with Notes on Self-employed Households in Non-agricultural Enterprises; Detailed Results.	29 <sup>th</sup> (Jul.74-June75)	
281/2.	Report on Livestock number and Products (some Estimates on Production of Livestock Products and Related Characteristics)-All India.	30 <sup>th</sup> (Jul.75-June76)	1979
281/16.	Report on Livestock number and Products (some Estimates on Production of Livestock Products and Related Characteristics)-Manipur Tripura.	30 <sup>th</sup> (Jul.75-June76)	1979
281/17.	Report on Livestock number and Products (some Estimates on Production of Livestock Products and Related Characteristics)-J&K.	30 <sup>th</sup> (Jul.75-June76)	1979
281/18.	Report on Livestock number and Products (some Estimates on Production of Livestock Products and Related Characteristics)-HP, Delhi, Chandigarh.	30 <sup>th</sup> (Jul.75-June76)	1979
281/19.	Report on Livestock number and Products (some Estimates on Production of Livestock Products and Related Characteristics)-Goa, Daman, & Diu.	30 <sup>th</sup> (Jul.75-June76)	1979
281/20.	Report on Livestock number and Products (some Estimates on Production of Livestock Products and Related Characteristics)- Nagaland & Meghalaya.	30 <sup>th</sup> (Jul.75-June76)	1979
281/21.	Report on Livestock number and Products (some Estimates on Production of Livestock Products and Related Characteristics)-All India.	30 <sup>th</sup> (Jul.75-June76)	1979
282/1.	Some Key Estimates of Employment and Unemployment:	32 <sup>nd</sup> (Jul.77-June78)	1979
282/2.	Some Key Estimates of Employment and Unemployment:	32 <sup>nd</sup> (Jul.77-June78)	1979
283.	Tables with Notes on Characteristics of Pack Animals.	30 <sup>th</sup> (Jul.75-June76)	1979
284.	Tables with Notes on Consumer Expenditures.	27 <sup>th</sup> (Oct.72-sep. 73)	1979
285.	Jhum Cultivation in North-Eastern States.	31 <sup>st</sup> (Jul.76-June77)	1979
287.	Estimated Number and Related Characteristics of Sheep, Goats and Pigs on the date of Survey on Livestock Number and Products:	30 <sup>th</sup> (Jul.75-June76)	1979
288/1.	A Notes on Characteristics of Household Diary Enterprises.	30 <sup>th</sup> (Jul.75-June76)	1979
288/2.	A Notes on Characteristics of Household Poultry Enterprises.	31 <sup>st</sup> (Jul.76-June77)	1979
289.	Some Results of the survey on Irrigation.	31 <sup>st</sup> (Jul.76-June77)	1979
290.	Condition of Slum Areas in Big Cities	31 <sup>st</sup> (Jul.76-June77)	1979
291/1.	Use of Power (Electricity/Diesel) on Rural Areas(Sch0.1)	31 <sup>st</sup> (Jul.76-June77)	1979
291/2.	Results of the survey on Rural Electrification (Sch.3.2): General Information on Electrification (part-ii)	31 <sup>st</sup> (Jul.76-June77)	1979
291/3.	Use of Electricity for Domestic use and Particulars of Irrigation in the Household Holdings (Particulars of Pump sets in Electrified Villages).	31 <sup>st</sup> (Jul.76-June77)	1979
291/4.	Use of Electricity for Domestic use and Particulars of Irrigation in the Household Holdings (Particulars of Pump sets in Electrified Villages).	31 <sup>st</sup> (Jul.76-June77)	1979
291/5.	Use of Power for Industrial/Commercial Purposes.	31 <sup>st</sup> (Jul.76-June77)	1979
292.	Tables with Notes on Morbidity.	28 <sup>th</sup> (Oct.73-sep. 74)	1980



Report No.	Title	Round/Period of survey	Date of release
293.	General Information Relating to the Major Irrigation Projects.	31 <sup>st</sup> (Jul.76-June77)	1980
294.	Availability of Facilities for livestock Development in Rural Areas.	30 <sup>th</sup> (Jul.75-June76)	1980
295.	A Notes on Jhum Cultivation in North-Eastern States.	31 <sup>st</sup> (Jul.76-June77)	1980
296.	A Notes on Preliminary Enquiry on Construction Activities.	34 <sup>th</sup> (Jul.79-June80)	1980
297.	Per Capita Per Diem Intake of Nutrients.	27 <sup>th</sup> (Jul.72-June73)	1980
298.	Report on the Second Quinquennial Survey on Employment and Unemployment: All India.	32 <sup>nd</sup> (Jul.77-June78)	1981
298-A	Employment –Unemployment Situation in Cities and Towns during Late Seventies.	32 <sup>nd</sup> (Jul.77-June78)	1985
298-B	Pattern of Employment and Unemployment of Scheduled Castes and Scheduled Tribes during Late Seventies.	32 <sup>nd</sup> (Jul.77-June78)	1985
298/1.	Report on the Second Quinquennial Survey on Employment and Unemployment: (AP).	32 <sup>nd</sup> (Jul.77-June78)	1982
298/1.	Report on the Second Quinquennial Survey on Employment and Unemployment (Kerala).	32 <sup>nd</sup> (Jul.77-June78)	1983
298/11.	Report on the Second Quinquennial Survey on Employment and Unemployment (MP).	32 <sup>nd</sup> (Jul.77-June78)	1983
298/12.	Report on the Second Quinquennial Survey on Employment and Unemployment:(Rajasthan).	32 <sup>nd</sup> (Jul.77-June78)	1982
298/13.	Report on the Second Quinquennial Survey on Employment and Unemployment:(Karnataka).	32 <sup>nd</sup> (Jul.77-June78)	1984
298/14.	Report on the Second Quinquennial Survey on Employment and Unemployment:(Orissa).	32 <sup>nd</sup> (Jul.77-June78)	1982
298/15.	Report on the Second Quinquennial Survey on Employment and Unemployment:(Assam).	32 <sup>nd</sup> (Jul.77-June78)	1984
298/16.	Report on the Second Quinquennial Survey on Employment and Unemployment:(HP)	32 <sup>nd</sup> (Jul.77-June78)	1985
298/17.	Report on the Second Quinquennial Survey on Employment and Unemployment:(J&K)	32 <sup>nd</sup> (Jul.77-June78)	1985
298/20.	Report on the Second Quinquennial Survey on Employment and Unemployment: (Bihar).	32 <sup>nd</sup> (Jul.77-June78)	1982
298/30.	Report on the Second Quinquennial Survey on Employment and Unemployment:(Maharashtra).	32 <sup>nd</sup> (Jul.77-June78)	1982
298/40.	Report on the Second Quinquennial Survey on Employment and Unemployment: (Gujarat).	32 <sup>nd</sup> (Jul.77-June78)	1982
298/50.	Report on the Second Quinquennial Survey on Employment and Unemployment: (Haryana).	32 <sup>nd</sup> (Jul.77-June78)	1982
298/60.	Report on the Second Quinquennial Survey on Employment and Unemployment: (Punjab).	32 <sup>nd</sup> (Jul.77-June78)	1982
298/70.	Report on the Second Quinquennial Survey on Employment and Unemployment: (West Bengal).	32 <sup>nd</sup> (Jul.77-June78)	1982
298/80.	Report on the Second Quinquennial Survey on Employment and Unemployment: (Tamilnadu).	32 <sup>nd</sup> (Jul.77-June78)	1983
298/90.	Report on the Second Quinquennial Survey on Employment and Unemployment@Uttar Pradesh).	32 <sup>nd</sup> (Jul.77-June78)	1983
299.	Estimates of Number, Birth, Death, and Calving Interval of Bovine.	30 <sup>th</sup> (Jul.75- Jun 76)	1983
300/1.	Tables with Notes on use of Irrigation in Household Holdings in Karnataka.	31 <sup>st</sup> (Jul.76- Jun 77)	1982
300/2.	Tables with Notes on use of Irrigation in Household Holdings in Bihar.	31 <sup>st</sup> (Jul.76- Jun 77)	1982
300/3.	Tables with Notes on use of Irrigation in Household Holdings in AP, MP, Maharashtra, Orissa, & West Bengal.	31 <sup>st</sup> (Jul.76- Jun 77)	1983
300/4.	Tables with Notes on use of Irrigation in Household Holdings in Assam, Manipur, & Tripura.	31 <sup>st</sup> (Jul.76- Jun 77)	1984
300/5.	Tables with Notes on use of Irrigation in Household Holdings	31 <sup>st</sup> (Jul.76- Jun 77)	1984

Report No.	Title	Round/Period of survey	Date of release
	in J&K, HP, UP, Haryana, Punjab, and Rajasthan.		
300/6.	Tables with Notes on use of Irrigation in Household Holdings in Gujarat, Kerala, Tamilnadu, Delhi, Goa, Daman, Diu and Pondicherry.	31 <sup>st</sup> (Jul.76- Jun 77)	1985
300/7.	Tables with Notes on use of Irrigation in Household Holdings in all India.	31 <sup>st</sup> (Jul.76- Jun 77)	1986
301/1	Indebtedness and Earnings of Rural Households.	32 <sup>nd</sup> (Jul.77-June78)	1982
301/2	Wages and Earnings of Rural Labour Households.	32 <sup>nd</sup> (Jul.77-June78)	1984
301/3.	Employment and Unemployment of Rural Households.	32 <sup>nd</sup> (Jul.77-June78)	1984
302/1.	Tables with Notes on Survey on Socio-economic Condition of Households in Rural Slums in Cities with Population of One Lakh or More but less than one Million: Calcutta.	31 <sup>st</sup> (Jul.76- Jun 77)	1983
302/2.	Tables with Notes on Survey on Socio-economic Condition of Households in Slums in Million –Plus Cities : Bombay	31 <sup>st</sup> (Jul.76- Jun 77)	1985
302/3.	Tables with Notes on Survey on Socio-economic Condition of Households in Slums in Million –Plus Cities: Madras.	31 <sup>st</sup> (Jul.76- Jun 77)	1983
302/4.	Tables with Notes on Survey on Socio-economic Condition of Households in Slums in Million –Plus Cities : Delhi	31 <sup>st</sup> (Jul.76- Jun 77)	1983
302/5.	Tables with Notes on Survey on Socio-economic Condition of Households in Slums in Million –Plus Cities: Bangalore.	31 <sup>st</sup> (Jul.76- Jun 77)	1983
302/6.	Tables with Notes on Survey on Socio-economic Condition of Households in Slums in Million –Plus Cities: Hyderabad.	31 <sup>st</sup> (Jul.76- Jun 77)	1983
302/7.	Tables with Notes on Survey on Socio-economic Condition of Households in Slums in Million –Plus Cities: Kanpur.	31 <sup>st</sup> (Jul.76- Jun 77)	1984
302/8.	Tables with Notes on Survey on Socio-economic Condition of Households in Slums in Million –Plus Cities: Ahmedabad.	31 <sup>st</sup> (Jul.76- Jun 77)	1984
302/9.	Tables with Notes on Survey on Socio-economic Condition of Households in Slums in Cities with Population of One Lakh or More but less than one Million.	31 <sup>st</sup> (Jul.76- Jun 77)	1984
303/1.	Tables with Notes on Hotels and Restaurants and Non-directory Establishments and Own-account Enterprises (Maharashtra).	34 <sup>th</sup> (July 79- June 80)	1983
303/2.	Tables with Notes on Hotels and Restaurants and Non-directory Establishments and Own-account Enterprises (Assam, Bihar, Orissa, West Bengal).	34 <sup>th</sup> (July 79- June 80)	1985
303/3.	Tables with Notes on Hotels and Restaurants and Non-directory Establishments and Own-account Enterprises (Meghalaya, Tripura, Nagaland and Mizoram).	34 <sup>th</sup> (July 79- June 80)	1985
303/4.	Tables with Notes on Hotels and Restaurants and Non-directory Establishments and Own-account Enterprises (Andhra Pradesh, Gujarat, Karnataka, Tamilnadu. Goa, & Pondicherry).	34 <sup>th</sup> (July 79- June 80)	1986
303/5.	Tables with Notes on Hotels and Restaurants and Non-directory Establishments and Own-account Enterprises (Haryana, HP, J&K, MP, Punjab, Rajasthan, UP, and Delhi).	34 <sup>th</sup> (July 79- June 80)	1986
304.	Tables with Notes on Households Engaged in Manufacture of Textiles, Cane Bamboo Products for Own Consumption in North-eastern States.	33 <sup>rd</sup> (July 78- June 79)	1983
305.	Survey on Disabled Persons.	36 <sup>th</sup> (July – Dec.81)	1986
306.	Number of Bovine and Yield of Milk Classified by Various Correlates.	30 <sup>th</sup> (July 75- June 76)	1986
307.	Tables with Notes on Non-directory Establishments in Service Sector other than Education, Medical, Health and selected Community and Cultural Services.	34 <sup>th</sup> (July 79- June 80)	1983
308.	Report on Indebtedness Survey among Scheduled Tribes Population of Himachal Pradesh.	31 <sup>st</sup> (July 76- June 77)	1983
310.	Report on Unirrigated Households Holdings.	31 <sup>st</sup> (July 76- June 77)	

Report No.	Title	Round/Period of survey	Date of release
		77)	
311.	Report on Second Quinquennial Survey on Consumer Expenditure.	32 <sup>nd</sup> (July 77- June 78)	1984
311/1.	Report on Second Quinquennial Survey on Consumer Expenditure.	32 <sup>nd</sup> (July 77- June 78)	1983
312.	Report on Unirrigated Households Holdings: States and All India.	31 <sup>st</sup> (July 76- June 77)	1984
313.	Tables with Notes on Storage and Warehousing Non-directory Enterprises and Own-account Enterprises.	34 <sup>th</sup> (July 79- June 80)	1985
314.	Tables with Notes on Particulars of Owned Houses.	32 <sup>nd</sup> (July 77- June 78)	1985
315.	Key Results of last Three Quinquennial Enquires on Employment and Unemployment.	38 <sup>th</sup> (Jan. –Dec.1983)	1985
316.	Tables with Notes on Non-directory Enterprises and Own-account Enterprises in Services Incidental to Transport.	34 <sup>th</sup> (July 79- June 80)	1985
317.	Tables with Notes on Some Village Level information on Irrigation.	31 <sup>st</sup> (July 76- June 77)	1986
318.	Assets and Liabilities of Rural and Urban Households.	38 <sup>th</sup> (Jan. –Dec.1983)	1985
319.	Report on third Quinquennial Survey on Consumer Expenditure.	38 <sup>th</sup> (Jan. –Dec.1983)	1985
320.	Tables with Notes on Non-directory Establishments and Own-account Enterprises in Mechanised Passenger and Goods Transport Activity.	34 <sup>th</sup> (July 79- June 80)	1986
321.	Tables with Notes on Non-government Medical and Health Non-directory Enterprises.	34 <sup>th</sup> (July 79- June 80)	1985
322.	Some Aspects of Indebtedness of Rural and Urban Households.	34 <sup>th</sup> (July 79- June 80)	1985
323.	Tables with Notes on Unorganised Educational Non-directory Establishments.	34 <sup>th</sup> (July 79- June 80)	1988
324.	Tables with Notes on Non-directory Establishments in Community and Non-Commercial Cultural Activities.	34 <sup>th</sup> (July 79- June 80)	1985
325.	Tables with Notes on Non-directory Establishments and Own-account Enterprises in Non-Mechanised Passenger and Goods Transport Activity.	34 <sup>th</sup> (July 79- June 80)	1987
326.	Villages in North-Eastern States.	32 <sup>nd</sup> (July 77- June 78)	1987
327.	Tables with Notes on Own-account Enterprises in Service Sector.	34 <sup>th</sup> (July 79- June 80)	1987
328.	Some Aspects of Indebtedness of Rural and Urban Households (Part –ii).	37 <sup>th</sup> ( Jan. Dec. 82)	1987
329.	Per Consumer Unit Per Diem of Nutrients.	32 <sup>nd</sup> (July 77- June 78)	1987
330.	Report on Land Holdings: 1. Some Aspects of Household Ownership Holdings.	37 <sup>th</sup> ( Jan. Dec. 82)	1987
331.	Report on Land Holdings: 2. Some Aspects of Operational Holdings (States And All India Estimates based on Major Crop Seasons of the Agr. year 1981-82)	37 <sup>th</sup> ( Jan. Dec. 82)	1987
332.	Report on Consumer Expenditure of Scheduled Caste/ Scheduled Tribe Households.	38 <sup>th</sup> (Jan. –Dec.1983)	1986
333.	Pattern of Consumer Expenditure Households Self-employed and of Agricultural Households.	38 <sup>th</sup> (Jan. –Dec.1983)	1986
334.	Broad Features of Capital Expenditures Incurred by Rural and Urban Households.	37 <sup>th</sup> ( Jan. Dec. 82)	1987
335.	Report on Pilot survey on Construction in Urban Areas (Scheme-B).	35 <sup>th</sup> (July 80- June 81)	1986
336.	Report on Source of Drinking Water and Energy used for Cooking and Lighting.	38 <sup>th</sup> (Jan. –Dec.1983)	1987
337.	Characteristics of Disabled Persons.	35 <sup>th</sup> (July 81- June 82)	1987
338.	Report on Land Holdings 3-Estimates of Livestock and	37 <sup>th</sup> ( Jan. Dec. 82)	1987

Report No.	Title	Round/Period of survey	Date of release
	Agricultural Implements classified by Household Operational Holding (States and All India).		
339.	Tables with Notes on Particulars of Dwelling Units.	38 <sup>th</sup> (Jan. –Dec.1983)	1987
340.	Extent and Nature of Borrowings and Repayments of Rural and Urban Households (States and All India).	37 <sup>th</sup> ( Jan. Dec. 82)	1987
341	Report on third Quinquennial Survey on Employment and Unemployment (All India).	38 <sup>th</sup> (Jan. –Dec.1983)	1987
341/A	Employment and Unemployment Situation of Scheduled Castes and Scheduled Tribe Population during early Eighties (All India).	38 <sup>th</sup> (Jan. –Dec.1983)	1987
341/B.	Employment and Unemployment in Cities and Towns.	38 <sup>th</sup> (Jan. –Dec.1983)	1987
341/1.	Report on third Quinquennial Survey on Employment and Unemployment: Andhra Pradesh.	38 <sup>th</sup> (Jan. –Dec.1983)	1987
341/2.	Report on third Quinquennial Survey on Employment and Unemployment: Bihar.	38 <sup>th</sup> (Jan. –Dec.1983)	1988
341/3.	Report on third Quinquennial Survey on Employment and Unemployment: Kerala.	38 <sup>th</sup> (Jan. –Dec.1983)	1988
341/4.	Report on third Quinquennial Survey on Employment and Unemployment: Maharashtra.	38 <sup>th</sup> (Jan. –Dec.1983)	1989
341/5.	Report on third Quinquennial Survey on Employment and Unemployment: Karnataka.	38 <sup>th</sup> (Jan. –Dec.1983)	1989
341/6.	Report on third Quinquennial Survey on Employment and Unemployment: Madhya Pradesh.	38 <sup>th</sup> (Jan. –Dec.1983)	1989
341/7.	Report on third Quinquennial Survey on Employment and Unemployment: Orissa.	38 <sup>th</sup> (Jan. –Dec.1983)	1988
341/8	Report on third Quinquennial Survey on Employment and Unemployment: Rajasthan.	38 <sup>th</sup> (Jan. –Dec.1983)	1989
341/9.	Report on third Quinquennial Survey on Employment and Unemployment: Tamilnadu.	38 <sup>th</sup> (Jan. –Dec.1983)	1989
341/10.	Report on third Quinquennial Survey on Employment and Unemployment: Uttar Pradesh.	38 <sup>th</sup> (Jan. –Dec.1983)	1989
341/11.	Report on third Quinquennial Survey on Employment and Unemployment: West Bengal.	38 <sup>th</sup> (Jan. –Dec.1983)	1988
341/12.	Report on third Quinquennial Survey on Employment and Unemployment: Gujarat.	38 <sup>th</sup> (Jan. –Dec.1983)	1989
341/13.	Report on third Quinquennial Survey on Employment and Unemployment: Haryana.	38 <sup>th</sup> (Jan. –Dec.1983)	1989
341/14.	Report on third Quinquennial Survey on Employment and Unemployment: Punjab.	38 <sup>th</sup> (Jan. –Dec.1983)	1989
341/15.	Report on third Quinquennial Survey on Employment and Unemployment: Assam.	38 <sup>th</sup> (Jan. –Dec.1983)	1989
341/16	Report on third Quinquennial Survey on Employment and Unemployment: Himachal Pradesh.	38 <sup>th</sup> (Jan. –Dec.1983)	1989
341/17.	Report on third Quinquennial Survey on Employment and Unemployment: Jammu & Kashmir.	38 <sup>th</sup> (Jan. –Dec.1983)	1989
342.	Tables with Notes on Integrated Household Survey in North-Eastern States.	32 <sup>nd</sup> (July77-June 78)	1987
343.	Tables with Notes on Survey of Unorganised Manufacture-NDEs and OAEs.	33 <sup>rd</sup> (July78-June 79)	1987
344.	Features of Operational Holdings during Kharif and Rabi Seasons of the Agricultural Year1981-82 (States And All India Estimates for the Rural Sector only):	37 <sup>th</sup> (Jan. –Dec.1982)	1989
345.	Tables with Notes on Integrated Household Survey in North-Eastern States.	33 <sup>rd</sup> (July78-June 79)	1987
346/1.	Tables with Notes on Own-Account Trading Enterprises and Non-Directory Trading Establishments covering some major Aspects (Employment, Expenditure, Value Added etc.)	34 <sup>th</sup> (July79-June 80)	1989
346/2.	Tables with Notes on Own-Account Trading Enterprises and Non-Directory Trading Establishments covering some	34 <sup>th</sup> (July79-June 80)	1988

Report No.	Title	Round/Period of survey	Date of release
	detailed Aspects		
347.	Report on Internal Migration.	38 <sup>th</sup> (Jan. –Dec.1983)	1988
348.	Per Capita and Per Consumer Unit Per Diem Intake of Calorie Protein and Fat and Perceptions of the People on Adequacy of Food.	38 <sup>th</sup> (Jan. –Dec.1983)	1988
349.	Assets, Liabilities on Capital Expenditure of Urban Households by Population Size Class Towns (All India Estimates)	37 <sup>th</sup> (Jan. –Dec.1982)	1988
350.	Report on Effect of Drought on the Pattern of Employment and Unemployment: A Comparative Study of the Survey Results of NSS 38 <sup>th</sup> and 39 <sup>th</sup> rounds.	39 <sup>th</sup> (Jan. –June1984)	1988
351.	Population, Birth and Death Rates.	39 <sup>th</sup> (Jan. –June1984)	1988
352.	Monthly Per Capita Consumption of Cereals for various Sections of the Population.	38 <sup>th</sup> (Jan. –Dec.1983)	1989
353.	Level of Nutritional Intake of Population Distributed over Different Expenditure Classes.	38 <sup>th</sup> (Jan. –Dec.1983)	1989
354.	Fertility Rates in India.	39 <sup>th</sup> (Jan. –June1984)	1988
355/1	Tables with Notes on Consumer Expenditure for Assam, Bihar, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal and Pondicherry.	42 <sup>nd</sup> (Jul.86-Jun. 87)	1989
355/2.	Tables with Notes on Consumer Expenditure for All India: Andhra Pradesh, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Punjab, Andaman & Nicobar, Chandigarh, Dadra & Nagar Haveli, Goa, Daman & Diu and Lakshdweep.	42 <sup>nd</sup> (Jul.86-Jun. 87)	1989
356.	Tables with Notes on the Effect of Adjustment of Energy Intake for Meals Consumed Free and Meals Served to Others.	38 <sup>th</sup> (Jan. –Dec.1983)	1988
357.	Tables with Notes on Distribution of Households by Monthly Expenditure Class after Adjustment (Considering Annual Expenditure).	38 <sup>th</sup> (Jan. –Dec.1983)	1989
358.	Consumption of Fuel and Light (on the basis of Results of the first Three Quinquennial rounds of surveys).	38 <sup>th</sup> (Jan. –Dec.1983)	1990
359/1.	Report on Construction: 35 <sup>th</sup> Round (Jul. 80- Jun. 81) No. 1: States of Andhra Pradesh Assam, Bihar, Gujarat, Haryana, and Himachal Pradesh.	35 <sup>th</sup> (Jul. 80- Jun. 81)	1989
359/2.	Report on Construction: 35 <sup>th</sup> Round (Jul. 80- Jun. 81) No. 2: States of Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal.	35 <sup>th</sup> (Jul. 80- Jun. 81)	1989
360.	Tables with Notes on Distribution of Households by Monthly Expenditure Class after Adjustment of House rent.(Urban Sector)	38 <sup>th</sup> (Jan. –Dec.1983)	1989
361.	A Profile of Households and Population by Economic Class and Social Group and Availability of Drinking Water, Electricity, and Disinfection of Dwellings.	42 <sup>nd</sup> (Jul.86-Jun. 87)	1990
362.	Utilisation of Public Distribution system.	42 <sup>nd</sup> (Jul.86-Jun. 87)	1989
363/1.	Tables with Notes on Survey of Unorganised Manufacture; Non-directory Establishments and Own-account Enterprises: Vol.-I.	40 <sup>th</sup> (Jul.84-Jun. 85)	1989
363/2.	Tables with Notes on Survey of Unorganised Manufacture; Non-directory Establishments and Own-account Enterprises: Vol.-II.	40 <sup>th</sup> (Jul.84-Jun. 85)	1989
364.	Morbidity and Utilisation of Medical Services.	42 <sup>nd</sup> (Jul.86-Jun. 87)	1989
365/1.	Participation in Education: (All- India).	42 <sup>nd</sup> (Jul.86-Jun. 87)	1989
365/2	Participation in Education: (Major States) - Vol.-I.	42 <sup>nd</sup> (Jul.86-Jun. 87)	1989



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365/2.	Participation in Education: (Major States) - Vol.-II.	42 <sup>nd</sup> (Jul.86-Jun. 87)	1989
366/1.	Tables with Notes on Own-Account Trading Enterprises and Non-Directory Trading Establishments: All-India.	41 <sup>st</sup> (Jul.85-Jun. 86)	1989
366/2.	Tables with Notes on Own-Account Trading Enterprises and Non-Directory Trading Establishments: vol. I: States.	41 <sup>st</sup> (Jul.85-Jun. 86)	1989
366/2.	Tables with Notes on Own-Account Trading Enterprises and Non-Directory Trading Establishments: Vol. II: States.	41 <sup>st</sup> (Jul.85-Jun. 86)	1989
367.	Socio-Economic Profile of the Aged Persons.	42 <sup>nd</sup> (Jul.86-Jun. 87)	1989
368.	Child and Maternity Care.	42 <sup>nd</sup> (Jul.86-Jun. 87)	1989
369.	Utilisation of Family Planning Services.	42 <sup>nd</sup> (Jul.86-Jun. 87)	1989
370/1.	Tables with Notes on Consumer Expenditure (All-India Based on first Semi-Round).	44 <sup>th</sup> (Jul.88-Jun. 89)	1989
370/2.	Tables with Notes on Consumer Expenditure.	44 <sup>th</sup> (Jul.88-Jun. 89)	1990
371-A.	Employment and Unemployment Situation in Scheduled Cast/ Scheduled Tribe Population during late Eighties.	43 <sup>rd</sup> (Jul.87-Jun. 88)	1990
371-B.	Employment and Unemployment Situation in Cities and Towns during late Eighties.	43 <sup>rd</sup> (Jul.87-Jun. 88)	1991
372.	Report on the fourth Quinquennial Survey on Consumer Expenditure –Pattern of Consumer Expenditure( Based on Sub-Sample 1 of Schedule 1.0 )	43 <sup>rd</sup> (Jul.87-Jun. 88)	1990
373.	Particulars of Dwelling Units.( Sub-Sample 1)	43 <sup>rd</sup> (Jul.87-Jun. 88)	1990
374.	Pattern of Consumption of Cereals, Pulses, Tobacco and Some other Selected Items. .( Sub-Sample 1).	43 <sup>rd</sup> (Jul.87-Jun. 88)	1990
375.	A Report on Some Important Characteristics of Villages in Tribal Areas.	44 <sup>th</sup> (Jul.88-Jun. 89)	1990
376.	Report on Housing Condition.	44 <sup>th</sup> (Jul.88-Jun. 89)	1990
377.	Report on Building Construction.	44 <sup>th</sup> (Jul.88-Jun. 89)	1990
378.	Report on Living Condition of Some Major Tribes of India.	44 <sup>th</sup> (Jul.88-Jun. 89)	1990
379.	An Economic Profile of some Major Tribes of India.	44 <sup>th</sup> (Jul.88-Jun. 89)	1990
380.	A Report on Living Condition of Tribals and Non-Tribals of Tribal Areas.	44 <sup>th</sup> (Jul.88-Jun. 89)	1991
381.	Tables with Note on Third Annual Survey on Consumer Expenditure.	45 <sup>th</sup> (Jul.89-Jun. 90)	1991
382.	Some Aspects of Internal Migration (All-India).	43 <sup>rd</sup> (Jul.87-Jun. 88)	1991
383.	Level and Pattern of Consumption of Different Socio-Economic Groups of Households.	43 <sup>rd</sup> (Jul.87-Jun. 88)	1993
384.	Consumption of Clothing, Footwear and Durable Goods (With Month & Year as Reference Period).	43 <sup>rd</sup> (Jul.87-Jun. 88)	1993
385.	Proportions of Households Benefiting from Specified Poverty Amelioration Programmes by Socio-Economic Status.	43 <sup>rd</sup> (Jul.87-Jun. 88)	1993
386.	Tables with Note on Fourth Annual Survey on Consumer Expenditure and Employment and Unemployment	46 <sup>th</sup> (Jul.90-Jun. 91)	1993
387.	Distribution of Households and Persons by household Monthly Per Capita Expenditure for Different Calorie Intake levels.	38 <sup>th</sup> (Jan.-Dec. 83)	1992
388./1	Tables with Note on Fifth Annual Survey on Consumer Expenditure and Employment -Unemployment	47 <sup>th</sup> (July 91- Dec.91)	1992
389.	Report on Exploratory Survey of Living Conditions of Tribals of Nagaland.	44 <sup>th</sup> (Jul.88-June 89)	1993
390.	Report on the Pilot Survey of Income, Consumption and Savings. Part-1: Income.	(Sep.83-Dec.84)	1993
391	A Report on Delayed Mental Development among Indian Children	47 <sup>th</sup> (Jul.-Dec. 91)	1994
392	Availability of Some Education and Culture Related Facilities in Indian Villages.(Sch.3.1).	47 <sup>th</sup> (Jul.-Dec. 91)	1994
393.	A Report on Disabled Persons	47 <sup>th</sup> (Jul.-Dec. 91)	1994
394.	Literacy in India.	47 <sup>th</sup> (Jul.-Dec. 91)	1995
395.	Participation in Cultural Activities.	47 <sup>th</sup> (Jul.-Dec. 91)	1995



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396/1.	Tables with Notes on Survey of Unorganised Manufacture; Non-directory Establishments and Own-account Enterprises: Part.1.All-India.	45 <sup>th</sup> (Jul.89-June 90)	Apr. 95
396/2.	Tables with Notes on Survey of Unorganised Manufacture; Non-directory Establishments and Own-account Enterprises: Part-II -States -wise(vol. &II)	45 <sup>th</sup> (Jul.89-June 90)	Apr. 95
397.	Household Consumer Expenditure and Employment Situation in India.	48 <sup>th</sup> (Jan.92-Dec. 92)	Dec. 94
398.	Report on the Pilot Survey of Income, Consumption and Savings. Part-II: Methodological Study.	(Sep.83-Dec.84)	Sep. 95
399.	Land and Livestock Holdings Survey –Some Aspects of Household Ownership holdings- Report 1.	48 <sup>th</sup> (Jan.92-Dec. 92)	Dec. 97
400.	Household Consumer Expenditure and Employment Situation in India.	49 <sup>th</sup> (Jan.93- June 93)	March,96
401.	Key results on Household Consumer Expenditure, 1993-94	50 <sup>th</sup> (Jul.93-June 94)	March,96
402.	Level and Pattern of Consumer Expenditure	50 <sup>th</sup> (Jul.93-June 94)	May, 96
403	Small Trading Units in India	46 <sup>th</sup> (Jul.90-June 91)	Sep. 96
403/1.	State Level Results on Small Trading units in India: Vol.-I.	46 <sup>th</sup> (Jul.90-June 91)	Oct. 96
403/1.	State Level Results on Small Trading Units in India: Vol.-II.	46 <sup>th</sup> (Jul.90-June 91)	Oct. 96
404.	Consumption of Some Important Commodities in India	50 <sup>th</sup> (JUL. 93 –JUN.94)	Mar., 97
405.	Nutritional intake in India.	50 <sup>th</sup> (JUL. 93 –JUN.94)	Oct. 96
406.	Key Results on Employment & Unemployment.	50 <sup>th</sup> (JUL. 93 –JUN.94)	Jul.96
407.	Operational Land Holdings in India, 1991-92: Salient Features	48 <sup>th</sup> (Jan.92-Dec. 92)	Mar.97
408.	Live-stock and Agricultural Implements in Household Operational holdings, 1991-92	48 <sup>th</sup> (Jan.92-Dec. 92)	Oct. 97
409.	Employment & Unemployment in India, 1993-94	50 <sup>th</sup> (JUL. 93 –JUN.94)	Mar. 97
410/1.	Dwellings in India	50 <sup>th</sup> (JUL. 93 –JUN.94)	Mar. 97
410/2.	Energy used by Indian Households	50 <sup>th</sup> (JUL. 93 –JUN.94)	Mar. 97
411.	Employment & Unemployment situation in cities and Towns in India, 1993-94	50 <sup>th</sup> (JUL. 93 –JUN.94)	Sep.97
412.	Economic Activities and School Attendance by Children in India, 1993-94	50 <sup>th</sup> (JUL. 93 –JUN.94)	May 97
413.	Sources of Household Income in India, 1993-94	50 <sup>th</sup> (JUL. 93 –JUN.94)	June 97
414.	Seasonal Variation in the Operation of Land Holdings in India.	48 <sup>th</sup> (Jan.92-Dec. 92)	June 97
415.	Reported Adequacy of Food Intake in India, 1993-94	50 <sup>th</sup> (JUL. 93 –JUN.94)	Sep. 97
416.	Participation of Indian Women in Household Work and other Specified Activities, 1993-94	50 <sup>th</sup> (JUL. 93 –JUN.94)	JUN. 97
417.	Slums in India	49 <sup>th</sup> (Jan.-June. 93)	Sep.97
418.	Unemployed in India, 1993-94: Salient Features	50 <sup>th</sup> (JUL. 93 –JUN.94)	Sep.97
419.	Household Assets and Liabilities as on 30-6-91.	48 <sup>th</sup> (Jan.92-Dec. 92)	Feb. 98
420.	Indebtedness of Rural Households as on 30.6.1991	48 <sup>th</sup> (Jan.92-Dec. 92)	JUL. 98
421.	Indebtedness of Urban Households as on 30.6.1991	48 <sup>th</sup> (Jan.92-Dec. 92)	Jul.98
422.	Differences in Level of Consumption Among Socio-Economic Groups.	50 <sup>th</sup> (JUL. 93 –JUN.94)	Aug.97
423.	IRDP Assistance and Participation in Public Works, 1993-94	50 <sup>th</sup> (JUL. 93 –JUN.94)	Sep. 97
424.	Ownership of Live-Stock, Cultivation of Selected Crops and Consumption Levels, 1993-94	50 <sup>th</sup> (JUL. 93 –JUN.94)	Jan.98
425.	Employment & Unemployment Situation among Social Groups in India, 1993-94.	50 <sup>th</sup> (JUL. 93 –JUN.94)	Nov.97
426.	Use of Durable Goods by Indian Households, 1993-94	50 <sup>th</sup> (JUL. 93 –JUN.94)	Sep.97
427.	Consumption of Tobacco in India, 1993-94.	50 <sup>th</sup> (JUL. 93 –JUN.94)	Jan.98

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428.	Wages in kind, Exchanges of Gifts and Expenditure on Ceremonies and Insurance in India, 1993-94.	50 <sup>th</sup> (JUL. 93 –JUN.94)	Sep.98
429.	Housing Conditions in India.	49 <sup>th</sup> (Jan.-June. 93)	Feb.98
430.	Migration in India.	49 <sup>th</sup> (Jan.-June. 93)	Oct. 98
431 (Part I)	Household Borrowings and Repayments during 1.7.91 to 30.6.92	48 <sup>th</sup> (Jan.92-Dec. 92)	Sep.98
431 (Part-II)	Household Borrowings and Repayments during 1.7.91 to 30.6.92	48 <sup>th</sup> (Jan.92-Dec. 92)	Sep.98
432 (Part-I)	Households Assets and Indebtedness of Social Groups as on 30.6.91	48 <sup>th</sup> (Jan.92-Dec. 92)	Aug.98
432 (Part-II)	Households Assets and Indebtedness of Social Groups as on 30.6.91	48 <sup>th</sup> (Jan.92-Dec. 92)	Aug.98
433	Unorganised Manufacturing Sector in India Its Size, Employment and Some Key Estimates.	51 <sup>st</sup> (JUL. 94-JUNE95)	Aug.98
434.	Unorganised Manufacturing Enterprises in India: Salient Features	51 <sup>st</sup> (JUL. 94-JUNE95)	Aug.98
435.	Assets and Borrowings of the Unorganised Manufacturing Enterprises in India	51 <sup>st</sup> (JUL. 94-JUNE95)	Aug.98
436.	Household Consumer Expenditure and Employment Situation in India, 1994-95	51 <sup>st</sup> (JUL. 94-JUNE95)	Jul.98
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438.	Employment & Unemployment Situation Among Religious Groups in India, 1993-94	50 <sup>th</sup> (JUL. 93 –JUN.94)	June 98
439	Attending an Educational Institution in India: Its Level, Nature and Cost.	52 <sup>nd</sup> (Jul. 95-June 96)	Oct. 98
440	Household Consumer Expenditure and Employment Situation in India, 1995-96	52 <sup>nd</sup> (Jul. 95-June 96)	Sep.98
441	Morbidity and Treatment of Ailments.	52 <sup>nd</sup> (Jul. 95-June 96)	Nov. 98
442	Household Consumer Expenditure and Employment Situation in India, 1997	53 <sup>rd</sup> (Jan.- Dec 97)	Oct. 98
443	Small Trading Units in India and Their Basic Characteristics: 1997 Vol. I.	53 <sup>rd</sup> (Jan.- Dec 97)	Dec.98
444	Small Trading Units in India and Their Basic Characteristics: 1997 Vol. II.	53 <sup>rd</sup> (Jan.- Dec 97)	Nov. 98
445	Maternity and Child Health Care in India.	52 <sup>nd</sup> (Jul. 95-June 96)	Dec.98
446	The Aged in India: A Socio-Economic Profile, 1995-96.	52 <sup>nd</sup> (Jul. 95-June 96)	Nov. 98
447	Choice of Reference Period for Consumption Data.	(51 <sup>st</sup> , 52 <sup>nd</sup> and 53 <sup>rd</sup> )	Mar.2000
448	Household Consumer Expenditure and Employment Situation in India.	54 <sup>th</sup> (Jan. June 98)	June, 99
449	Drinking water, Sanitation and Hygiene in India.	54 <sup>th</sup> (Jan. June 98)	Jul. 99
450	Travel and Use of Mass Media and Financial Services by Indian Households.	54 <sup>th</sup> (Jan. June 98)	July 99
451	Cultivation Practices in India.	54 <sup>th</sup> (Jan. June 98)	Aug. 99
452	Common Property Resources.	54 <sup>th</sup> (Jan. June 98)	Dec 99
453	Household Consumer Expenditure in India (July – December 1999) - Key Results.	55 <sup>th</sup> (Jul.99-June 2000)	Sep. 2000
454	Household Consumer Expenditure in India, 1999–2000 - Key Results.	55 <sup>th</sup> (Jul.99-June 2000)	Dec. 2000
455	Employment and Unemployment in India, 1999-2000 - Key Results.	55 <sup>th</sup> (Jul.99-June 2000)	Dec. 2000
456	Non-agricultural Enterprises in the Informal Sector in India, 1999-2000 - Key Results.	55 <sup>th</sup> (Jul.99-June 2000)	Dec. 2000
457	Level and Pattern of Consumer Expenditure in India, 1999 – 2000.	55 <sup>th</sup> (Jul.99-June 2000)	Mar. 2001
458 (Part-I)	Employment and Unemployment Situation in India, 1999 – 2000.	55 <sup>th</sup> (Jul.99-June 2000)	May. 2001
458 (Part-II)	Employment and Unemployment Situation in India, 1999 – 2000.	55 <sup>th</sup> (Jul.99-June 2000)	May, 2001
459	Informal Sector in India, 1999 - 2000 - Salient Features.	55 <sup>th</sup> (Jul.99-June 2000)	May

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460	Non agricultural Workers in Informal Sector based on Employment and Unemployment Survey, 1999-2000.	55 <sup>th</sup> (Jul.99-June 2000)	July 2001
461	Consumption of some Important Commodities in India, 1999-2000.	55 <sup>th</sup> (Jul.99-June 2000)	JUL. 2001
462	Employment and Unemployment Situation in Cities and Towns of India, 1999-2000.	55 <sup>th</sup> (Jul.99-June 2000)	Aug. 2001
463	Sources of Household Income in India, 1999-2000.	55 <sup>th</sup> (Jul.99-June 2000)	Aug. 2001
464	Energy Used by Indian Households, 1999-2000.	55 <sup>th</sup> (Jul.99-June 2000)	Aug. 2001
465	Participation of Indian Women in Household Work and other Specified Activities, 1999-2000.	55 <sup>th</sup> (Jul.99-June 2000)	Sep. 2001
466	Reported Adequacy of Food Intake in India, 1999 – 2000.	55 <sup>th</sup> (Jul.99-June 2000)	Aug. 2001
467	IRDP Assistance and Participation in Public Works: 1999-2000.	55 <sup>th</sup> (Jul.99-June 2000)	Aug. 2001
468	Employment and Unemployment Among Religious Groups in India, 1999-2000.	55 <sup>th</sup> (Jul.99-June 2000)	Sep. 2001
469	Employment and Unemployment Among Social Groups in India, 1999-2000.	55 <sup>th</sup> (Jul.99-June 2000)	Sep. 2001
470	Migration in India, 1999-2000.	55 <sup>th</sup> (Jul.99-June 2000)	Sep. 2001
471	Nutritional Intake in India, 1999-2000.	55 <sup>th</sup> (Jul.99-June 2000)	Aug. 2001
472	Differences in the Level of Consumption Among Socio- economic Groups, 1999-2000.	55 <sup>th</sup> (Jul.99-June 2000)	Aug. 2001
473	Literacy and Levels of Education in India, 1999 – 2000.	55 <sup>th</sup> (Jul.99-June 2000)	Sep. 2001
474	Sources of Consumption in India, 1999 – 2000.	55 <sup>th</sup> (Jul.99-June 2000)	Sep. 2001
475	Results of a Pilot Survey on Suitability of Different Reference Periods for Measuring Household Consumption.		Sep. 2002
476	Household Consumer Expenditure and Employment - Unemployment Situation in India, 2000 – 2001.	56 <sup>th</sup> (Jul.2000-June 01)	Sep. 2002
477	Unorganised Manufacturing Sector in India 2000-2001 - Key Results.	56 <sup>th</sup> (Jul.2000-June 01)	Sep. 2002
478	Unorganised Manufacturing Sector in India 2000-2001 - Characteristics of Enterprises.	56 <sup>th</sup> (Jul.2000-June 01)	Sep. 2002
479	Unorganised Manufacturing Sector in India, 2000 – 2001: Employment, Assets and Borrowings.	56 <sup>th</sup> (Jul.2000-June 01)	Nov. 2002
480	Unorganised Manufacturing Sector in India, 2000 – 2001: Input, Output and Value Added.	56 <sup>th</sup> (Jul.2000-June 01)	Nov. 2002
481	Household Consumer Expenditure and Employment - Unemployment Situation in India, 2001 – 2002.	57 <sup>th</sup> (Jul.01-June 02)	Sep. 2003
482	Unorganised Service Sector in India 2001 - 02 Salient Features.	57 <sup>th</sup> (Jul.01-June 02)	Aug. 2003
483	Unorganised Service Sector in India 2001 - 02 Characteristics of Enterprises.	57 <sup>th</sup> (Jul.01-June 02)	Sep. 2003
484	Household Consumer Expenditure and Employment - Unemployment Situation in India, 2002 – 2003.	58 <sup>th</sup> (JUL.-DEC. 2002)	Dec. 2003
485	Disabled Persons in India, July-December 2002.	58 <sup>th</sup> (JUL.-DEC. 2002)	Dec. 2003
486	Condition of Urban Slums, 2002: Salient Features.	58 <sup>th</sup> (JUL.-DEC. 2002)	Dec. 2003
487	Report on Village Facilities, July-December 2002.	58 <sup>th</sup> (JUL.-DEC. 2002)	Dec. 2003
488	Housing Condition in India, 2002: Housing Stock and Constructions.	58 <sup>th</sup> (JUL.-DEC. 2002)	Mar. 2004

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489	Housing Condition in India, 2002: Housing Amenities and other Characteristics.	58 <sup>th</sup> (JUL.-DEC. 2002)	May 2005
490	Household Consumer Expenditure and Employment-Unemployment Situation in India, 2003	59 <sup>th</sup> (Jan- Dec. 2003)	Mar. 2005
491.	Household Ownership Holdings in India, 2002-03. (Sch. 18.1)	59 <sup>th</sup> (Jan- Dec. 2003)	Nov. 2006
492.	Some Aspects of Operational Land Holdings in India, 2002-03, (Sch. 18.1)	59 <sup>th</sup> (Jan- Dec. 2003)	August 2006
493.	Livestock Ownership Across Operational Land Holdings Classes in India. 2002-03 (Sch. 18.1)	59 <sup>th</sup> (Jan- Dec. 2003)	Jan. 2006
494.	Seasonal Variation in the Operational Land Holdings in India, 2003-03. (Sch. 18.1)	59 <sup>th</sup> (Jan- Dec. 2003)	August 2006
495	Consumption Expenditure of Farmer Households, 2003 (SAS. 33)	59 <sup>th</sup> (Jan- Dec. 2003)	Oct. 2005
496	Some Aspects of Farming, 2003( SAS. 33)	59 <sup>th</sup> (Jan- Dec. 2003)	JUL. 2005
497.	Income, Expenditure and Productive Assets of Farmer Households.2002-03 ( SAS.. 33)	59 <sup>th</sup> (Jan- Dec. 2003)	Dec. 2005
498	Indebtedness of Farmers Households (SAS. 33)	59 <sup>th</sup> (Jan- Dec. 2003)	May 2005
499	Access to Modern Technology for Farming, 2003(SAS. 33)	59 <sup>th</sup> (Jan- Dec. 2003)	June 2005
500	Household Assets and Liabilities in India (as on 30.06.2002) (Sch. 18.2)	59 <sup>th</sup> (Jan- Dec. 2003)	Nov. 2005
501.	Household Indebtedness in India as on 30-6-2002. (Sch. 18.2)	59 <sup>th</sup> (Jan- Dec. 2003)	Dec. 2005
502.	Household Borrowings and Repayments in India, During 1.7.2002to 30.6.2003. (Sch. 18.2)	59 <sup>th</sup> (Jan- Dec. 2003)	JAN. 2006
503.	Household Asset Holding and Indebtedness by Social Groups in India.(as on 30-6-2002) Sch. 18.2)	59 <sup>th</sup> (Jan- Dec. 2003)	April 2006
504.	Household Capital Expenditure in India. During.7.2002to 30.6.2003. (Sch. 18.2)	59 <sup>th</sup> (Jan- Dec. 2003)	April 2006
505	Household Consumer Expenditure in India, 2004	60 <sup>th</sup> (Jan. –June 2004)	Nov. 2005
506	Employment and Unemployment Situation in India, January-June 2004.	60 <sup>th</sup> (Jan. –June 2004)	Nov. 2005
507.	Morbidity, Health Care and the Condition of the Aged	60 <sup>th</sup> (Jan. –June 2004)	MAR. 2006
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510.	Public Distribution System and Other Sources of Household Consumption.	61 <sup>st</sup> (July04-June 05)	
511.	Energy Used by Indian Households.	61 <sup>st</sup> (July04-June 05)	
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513.	Nutritional Intake in India.	61 <sup>st</sup> (July04-June 05)	
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516.	Employment and Unemployment Situation Among Socio-Economic Groups: 2004-05.	61 <sup>st</sup> (July04-June 05)	Oct. 2006
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519.	Informal Employment In India: 2004-05.	61 <sup>st</sup> (July04-June 05)	
520.	Employment and Unemployment Situation in Cities and Towns in India: 2004-05	61 <sup>st</sup> (July04-June 05)	Mar. 2007

Report No.	Title	Round/Period of survey	Date of release
521.	Employment and Unemployment Situation Among Major Religious Groups in India: 2004-05.	61 <sup>st</sup> (July04-June 05)	Mar. 2007
522.	Household Consumer Expenditure in India: 2005-06	62 <sup>nd</sup> (July05-June06)	
523.	Employment and Unemployment Situation in India: 2005-06	62 <sup>nd</sup> (July05-June06)	
524.	Unorganised Manufacturing Sector in India, 2005 – 06: Employment, Assets and Borrowings.	62 <sup>nd</sup> (July05-June06)	
525.	Unorganised Manufacturing Sector in India 2005-06 - Characteristics of Enterprises.	62 <sup>nd</sup> (July05-June06)	
526.	Unorganised Manufacturing Sector in India 2005-06- Input, Output and Gross Value Added.	62 <sup>nd</sup> (July05-June06)	

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