

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 and production of LPG, 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-1998, Division 40: electricity, gas, steam and hot water supply, includes the economic activities under the sector. Specifically, the activities are covered under the NIC 1998 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 (iii) annual reports of a sample of companies and data on electricity sold/generated available in the annual publication of Central Electricity Authority (CEA), namely "General Review of the Public Electricity Supply - All India Statistics" in the case of private companies. In the current series, the operating losses of electricity units under DCUs have been treated as imputed subsidies, which is a departure from the old series.
- 15.4 **Gas:** The major sources of data utilised are (i) Annual accounts of Gas Authority of India Ltd. (GAIL), and Indraprastha Gas Ltd (IGL), (ii) annual reports of Khadi Village Industries Commission (KVIC) and (iii) Data on number of bio gas plants from Ministry of Non-conventional Energy Sources.
- 15.5 **Water supply:** The main sources of data utilised are (i) budget documents of the central and state governments, (ii) municipal data on compensation of employees, (iii) population census and (iv) Directorate General of Employment and Training (DGET) data on public sector employment engaged in water supply activities.
- 15.6 **Estimates at Current Prices**
- 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 and central electricity boards, state and central power corporations are estimated on the basis of the data on annual expenditure and income available in the profit and loss accounts. In the case of undertakings of local bodies, co-operative societies and private companies, the GVA per unit of sale/generation of electricity derived on the basis of a sample of units/companies is blown up with the total quantity of sales/ generation of electricity by all the private companies. The figures relating to the quantity of electricity sold/generated each year is taken from the CEA publication referred to above. However, for the base year 1999-2000, the data in respect of all the undertakings of local bodies, co-operative societies and private companies available with CEA were analysed for obtaining the estimates of GVA. 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 including co-operative societies for the base year 1999-2000 is given in Appendix 15.1.
- 15.7 **Gas:** The estimates of GVA are worked out on the basis of the statewise 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

Estimates at Constant Prices

- 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 Non-conventional Energy source has furnished, detailed Information on number of Bio-gas plants installed by different agencies viz. State Governments/KVIC/AIWC/National Dairy Development Board (NDDDB) 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 Non-conventional Energy Sources. The details for estimates for 1999-00 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 compensation of employees for the year 1999-2000 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 1999-2000, 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, those of private sector are prepared using the inter-survey growth rate on workforce/rate of growth in municipalities workforce and the direct data on average compensation of 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.
- 15.9 **Electricity:** The base year estimates of GVA for the year 1999-2000 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 estimates of GVA of gas at constant prices are prepared by valuing the current year production at base year (1999-2000) prices. The base year input-output ratio is used to estimate the total inputs in the sub-sector. The gross value added is derived as output minus inputs.
- 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. Annual data are also available from the CEA in respect of undertaking of local bodies, cooperative societies and private companies. 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, 1999-00

(Rs. crore)

Institution	Salaries & Wages	Interest	Rent	Profit	Net Value Added	Consumption of Fixed Capital	Gross Value Added
1. Public Sector	13038	11563	69	-5752	18918	16335	35253
2. Private Sector	810	811	23	-511	1133	1964	3096
Total	13848	12374	92	-6263	20051	18299	38349

Appendix 15.2

GROSS VALUE ADDED FROM GAS SUB-SECTOR, 1999-00

(Rs. crore)

Item	Gross Value Added
GAIL+IPGL	1702
Gobar Gas	585
Total	2287

Appendix 15.3

GROSS VALUE ADDED FROM WATER SUPPLY SUB-SECTOR, 1999-00

(Rs. crore)

No.	Item	Gross Value Added
1.	Compensation of employees - Private Sector (rural + urban)	73
2.	Compensation of employees - Public sector	2205
3.	Operating surplus	-23
4.	Total net value added (1. +2. +3.)	2256
5.	Consumption of fixed capital	1635
6.	Gross value added	3891