

# CHAPTER 6

## MINING & QUARRYING

### Coverage

6.1 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, pelletising, 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. Production of rock salt is included but production of salt obtained by evaporation of water from sea, lake etc., is excluded from the purview of this sector and included under 'manufacturing'. Similarly, large expenditure on preparing mining sites, prospecting and boring activities are not included here as they are included under the 'construction' sector.

### Methodology and Source material

6.2 The estimates of GVA in this sector are prepared following the production approach by calculating the value of output of each mineral at state level and deducting the value of corresponding inputs therefrom.

### Estimates at Current Prices

### Output

6.3 For calculating 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 and natural gas and other major minerals i.e. metallic minerals including atomic minerals and non-metallic minerals. A list of all minerals under the respective groups used in the estimation of GVA is given in Appendix 6.1.

### Fuel minerals

6.4 **Coal & lignite:** The state-wise quantity and value of output of coal & lignite are published in the Indian Bureau of Mines (IBM) publication "Financial Year Aggregates of Mineral Production" (FYAMP). The value of output given in the publication is at the pit-head prices and has been assumed to be at the factor cost. As such the value of output of coal and lignite given in this publication has been used directly.

6.5 **Petroleum & natural gas:** The data on production, prices and inputs of petroleum and natural gas are obtained from Oil & Natural Gas Commission (ONGC) and Oil India Ltd (OIL) in a proforma specially designed by the CSO. The proforma 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. The gross production of crude oil is evaluated in terms of the 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. Since 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 Gross Value of output at CTF prices to obtain gross value of output at factor cost.

## **Metallic & Non-metallic minerals**

6.6 The primary source of data on production of metallic and non-metallic minerals are the monthly and annual returns received in the 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 FYAMP. 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.

### **Minor minerals**

6.7 Data on minor minerals relate to value only as 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. These are co-ordinated and released by the IBM in their half yearly publication 'Mineral Statistics of India' with a time lag of about two to three years. The CSO, however, is able to obtain the latest data directly from the State Geological Departments.

### **Input**

#### **Fuel minerals**

6.8 **Coal & lignite:** In respect of coal the value of inputs (coal, diesel, explosive, electricity, lubricants, sand, repair & maintenance, other materials and expenses) is obtained from the Office of Coal Controller, Calcutta. For lignite the value of inputs (petroleum, diesel, electricity, stores, spares, materials for R & M, DRE-Belting and others, service charges, common administration and others) is obtained from Neyveli Lignite Corporation Ltd. (NLC). The ratio of value of input to value of output as worked for NLC is assumed to hold good for lignite obtained from Gujarat Mineral Development Corporation Ltd. as the input data are not made available for this Corporation.

6.9 **Petroleum & natural gas:** The input data for crude petroleum and natural gas are obtained from ONGC and OIL in the prescribed proforma, as mentioned above. The input data for petroleum include value of crude oil used for internal purposes, the value of fuels consumed, materials consumed, cost of contract and commission work done by other concerns, other services purchased and expenditure on maintenance and repairs of pipeline transport.

#### **Metallic & Non-metallic minerals**

6.10 In respect of these minerals for which the responsibility of collection of primary data rests with the IBM, the estimates of mining expenses (deductible rates) are worked out state-wise and mineral-wise on the basis of Annual Returns submitted by all the principal producers as a percentage of value of mineral production by IBM and supplied to CSO. However, the IBM has not been able to provide these rates from 1985-86 onwards due to certain computer processing difficulties and the rates of 1984-85 is assumed to hold good for subsequent years.

### **Minor minerals**

6.11 The estimates of input costs are not available from the agencies, which supply the value of output. The estimates of rates of mining expenses or value of input expressed as a percentage of value of output are, therefore, based on data available in the Report No. 280/6; 'Tables with Notes on Survey of Self-employed Households in Non-agricultural Enterprises - Detailed Results', 29th Round (1974-75) of NSSO.

### **Imputed banking charges**

6.12 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 are not netted for banking service charges 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 imputed banking charges are deducted further to obtain the GVA net of banking charges.

6.13 Table 6.1 gives the estimates of the value of output and GVA for 1980-81 for the mining and quarrying sector.

### **Estimates at Constant Prices**

6.14 The value of output of minerals for each state at 1980-81 prices is derived by evaluating the quantity of current year output of each major mineral at the corresponding pit-head/CIF prices of 1980-81. 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 the minor minerals at current prices to obtain the value of the output at constant (1980-81) prices. This is multiplied by the rates of mining expenses for each state as available from the NSSO Report as mentioned in para 6.11 to obtain the estimates of GVA at constant (1980-81) prices.

### **Quality and limitations of Data base**

6.15 IBM publication FYAMP provides state-wise, financial year-wise quantity and value of output estimates of other major minerals excluding atomic and minor minerals with a time lag of about one year. IBM, however, provides data of mineral-wise quantity and value of output at all India level for the current year.

6.16 All minor minerals fall outside the purview of the MCDR and their statistics are compiled by the State Geological Departments. The estimates of value of output are for calendar year and they are assumed to hold good for financial year. The reliability of data in respect of these minerals cannot be considered to be of the same order as that of the major minerals. No deductible rates are available in respect of minor minerals on year to year basis.

## APPENDIX 6.1: List of minerals used in the estimation of Gross Value Added

### I. MAJOR MINERALS

#### Fuel Minerals

Coal  
Lignite  
Natural Gas  
Petroleum (Crude)

#### Other Major Minerals metallic minerals

Bauxite  
Chromite  
Copper Ore  
Diaspore  
Gold  
Iron Ore  
Lead Concentrates  
Manganese Ore  
Silver  
Tin Concentrates  
Tungsten Concentrates  
Zinc Concentrates

#### Non-metallic minerals

Agate  
Apatite  
Phosphorite  
Asbestos  
Ball Clay  
Barytes  
alcite  
halk  
lay (Others)  
orundum  
Diamond  
Dolomite  
Emerald (Crude)  
Felsite  
Felspar  
Fire Clay  
Flourite (Concentrates)  
Flourite (Graded)  
Garnet (Abrasives)  
Garnet (Gem)  
Graphite run-on-mines  
(r.o.m.)  
Gypsum  
Jasper  
Kaolin  
Kyanite  
Andalusite  
Limestone  
Lime kankar  
Lime shell  
Calcerous sand  
Magnesite

Mica (Crude)  
Mica (Waste and Scrap)  
Ochre  
Pyrites  
Pyrophyllite  
Quartz  
Fuchsite Quartzite  
Quartzite  
Silica Sand  
Moulding Sand  
Salt (Rock)  
Sand (Others)  
Sillimanite  
Slate  
Steatite  
Staurolite  
Vermiculate  
Wollastonite

### II. MINOR MINERALS

Building Stones  
Quartzite  
Sand Stone  
Granite  
Laterite  
Boulder  
Shingle  
Gravel  
Chalcedony pebbles used for  
ballmill purposes only  
Lime Shell  
Kankar and limestone used in  
kilns for manufacture of lime  
used as building material  
Murrum  
Brick Earth  
Fuller's Earth  
Bentonite  
Road Metal  
Rehmatti  
Slate and shale used for the  
building material  
Ordinary Clay  
Ordinary sand used for  
purposes other than refractory  
Ceramics, Metallurgical, Optical  
and Stowing in coal mines  
Manufacture of silvcrete  
cement, sodium silicate,  
pottery and glass  
Stone used for household utensils  
Marble and salt petre

**TABLE 6.1: Value of output and Gross Value added, 1980-81**

(Rs. crore)

Item	Group	Value of output	Gross value added including bank charges
(1)	(2)	(3)	(4)
1	Total	2482	1915
1.1	Major Minerals	2283	1733
1.1.1	Fuel Minerals	1861	1396
1.1.1.1	Coal	1409	1016
1.1.1.2	Lignite	49	21
1.1.1.3	Petroleum and natural gas	403	359
1.1.2	Other Major Minerals	422	337
1.1.2.1	Metallic Minerals	266	212
1.1.2.1.1	Iron ore	129	102
1.1.2.1.2	Copper ore	33	23
1.1.2.1.3	Gold	27	20
1.1.2.1.4	Manganese ore	26	23
1.1.2.1.5	Bauxite	10	7
1.1.2.1.6	Others	41	37
1.1.2.2	Non-metallic Minerals	156	125
1.1.2.2.1	Lime stone	79	61
1.1.2.2.2	Mica stone	3	2
1.1.2.2.3	Others	74	32
1.2	Minor Minerals	199	182
2	Imputed bank Charges		28
3	Gross value added excluding bank charges		1887