

MINING & QUARRYING**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. In the new series (1999-2000) improvement has been made by considering the salt production by solar evaporation of sea water, under mining sector.
- 12.2 According to NIC 1998, 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 factor cost.
- 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 In the old 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 new series 1999-2000 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 for the year 1999-2000 has been captured from the Salt Commissioner's office. Salt mining and quarrying, including crushing, screening and evaporation in pan, was covered under NIC 154 (mining sector) in NIC 1987, while NIC 208 (manufacturing sector) covered production of common salt. In the NIC 1998 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. These are coordinated 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 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 GVA net of banking charges.

Estimates at Constant Prices

- 12.14 The value of output of minerals for each state at Constant (1999-00) prices is derived by evaluating the quantity of current year output of each major mineral at the corresponding pit-head implicit basic prices of 1999-00, 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 (1999-00) 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

I. Major Minerals	Kyanite
Fuel Minerals	Laterite
Coal	Limestone
Lignite	Limestone Kankar
Natural Gas	Lime Shell
Petroleum (Crude)	Magnesite
Other Major Minerals	Mica(Crude)
Metallic Minerals	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
Non-Metallic Minerals	Slate
Agate	Steatite
Andalusite	Sillimanite
Apatite	Vermiculite
Asbestos	Wollastonite
Ball Clay	
Barytes	II. MINOR MINERALS
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, 1999-2000

(Rs. crore)

Item	Group	Value of Output	Gross value added (including FISIM)
1	Total	53016	41844
1.1	Major Minerals	49151	38333
1.1.1	Fuel Minerals	43306	33802
1.1.1.1	Coal	24485	18070
1.1.1.2	lignite	1051	417
1.1.1.3	Petroleum and Natural Gas	17769	15315
1.1.2	Metallic Minerals	3691	2653
1.1.2.1	Iron Ore	1924	1262
1.1.2.2	Manganese Ore	193	170
1.1.2.3	Bauxite	130	99
1.1.2.4	Copper Ore	311	219
1.1.2.5	Gold	156	131
1.1.2.6	Others	978	773
1.1.3	Non-metallic Minerals	2155	1877
1.1.3.1	Lime Stone	1247	1066
1.1.3.2	Mica Stone	4	3
1.1.3.3	Others	905	809
1.2	Minor Minerals	3864	3511
3.	Gross Domestic Product unadjusted of FISIM		41844
4.	Less FISIM		250
5.	Gross Domestic Product		41594