

CHAPTER IV

MINING AND QUARRYING

Coverage

4.1. 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 prospecting and boring activities is not included here but included under the 'construction' sector.

Methodology and Source Material

Estimates at current prices

4.2. The value added in this sector is estimated by production approach. Statewise and mineralwise value of output are published by the Indian Bureau of Mines (IBM), Nagpur. Although minor minerals²⁷ are outside the purview of Mineral Conservation and Development Rules, 1958 (MCDR), framed under Mines & Minerals (Regulation and Development) Act, 1957, statistics of value of output of these minerals are collected by State Governments and these are consolidated and released by the IBM. The mining expenses consist of cost of raw materials used, fuels, electricity, etc., consumed in production including collieries' own consumption of raw coal and cost of industrial and non-industrial services purchased from outside. The estimates of such deductions, referred to as 'deductible rates' are compiled for each mineral and for each state separately. The national totals of value added are obtained by aggregating the state figures after deductions. The method adopted and the statistical source material used are the same for all the States.

4.3. The mineral output data as available in IBM publications and used for estimation are generally valued at the sale value of the mineral at the mine site or pit head in the form in which they are extracted from the earth. In some cases these prices, however, include factors attributable to some minor processing activity that might

have been carried out on the mineral ore at the mine site prior to its marketing. Thus for gold and silver, the value figures supplied by the IBM relate to metal output, whereas for lead and zinc they relate to 'concentrates'. Metals and 'concentrates' are processed products of ore and their values, therefore, include the value added by the processing activity besides the value added in mining. In the absence of data, no attempt is made to reduce the value in these cases to their pithead values.

4.4. The Statewise fiscal year data on quantity and value of output in respect of major minerals except fuel-minerals viz., coal, lignite, petroleum and natural gas are collected from "Mineral Statistics of India" (IBM bi-annual) and "Bulletin of Mineral Statistics and Information" (IBM, bi-monthly). The data in respect of coal and lignite are obtained directly from the Coal Controller, Calcutta and Neyveli Lignite Corporation Limited, Neyveli. The value of output of petroleum and natural gas at well head site are obtained from Oil and Natural Gas Commission, Oil India Limited, and Assam Oil Company Ltd., Digboi, Assam. The monthwise breakup of the value of output of minor minerals is not available and as such the calendar year values obtained from the IBM are adopted for fiscal year without any adjustment.

4.5. Information on the cost structure of coal production is obtained from the Coal Controller and it is used for arriving at the input and consumption of fixed capital rates. In respect of lignite, deductible rates are based on the data supplied by Neyveli Lignite Corporation Ltd., T.N. In respect of petroleum and natural gas, the deductible rates are worked out on the basis of data on their cost structure supplied by Oil and Natural Gas Commission, Oil India Limited and Assam Oil Company Limited.

4.6. In respect of all those minerals for which the responsibility of collection of primary data rests with the IBM, estimates of rates of mining expenses and allowances for consumption of fixed capital are worked out and supplied by the IBM on the basis of annual returns from all the principal producers on capital structure, machinery installed, cost of operation, fuel consumption, etc. These deductions are worked out by the IBM at State level upto 1962 and both Statewise and mineral-wise for the subsequent years

²⁷ Minor minerals includes : building stones, quartzite, sandstone, granite, laterite, boulder shingle, gravel, chalcedony pebbles used for ballmill purposes only, limeshell, kankar and limestone used in kilns for manufacture of lime used as building material, murrum, brick earth, fuller's earths, bentonite, road metal, rehmati, slate and shale used as building material ordinary clay, ordinary sand used for purposes other than refractory, ceramics, metallurgical, optical and stowing in coalmines, manufacture of silverite, cement, sodium silicate, pottery and glass, stone used for household utensils, marble and salt petre.

for which the returns have been analysed. The data on cost structure are for calendar years and are adopted as such for the corresponding financial years. For all minor minerals and for those major minerals for which such rates are not available with the IBM for any year/state, the overall rates at the state level of input cost and consumption of fixed capital for the reported major minerals (excluding coal, lignite, crude petroleum and natural gas), are used. For the more recent years for which the annual returns have not been analysed by the IBM, the rates relating to the last available year are utilised. In case of minor minerals, the estimates of rates of mining expenses or in other words the value of input expressed as percentage of value of output have been revised for 1974-75 and for later years on the basis of data contained in the NSS Draft Report No. 280/6, *Tables with Notes on Survey of Self-employed Households in Non-agricultural Enterprises—Detailed Results, 29th Round: 1974-75* (NSSO, 1978). In the absence of requisite data on consumption of fixed capital for minor minerals, these rates at the state level have been assumed to be the same as the lowest rate available for major non-fuel and non-metallic minerals.

4.7. The estimates of value added based on data received from Coal Controller in respect of Coal, from oil producing companies in respect of petroleum and natural gas and from IBM 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 needs to be deducted as a service charge from the value added of the mining and quarrying sector. The corresponding charges available from banking sector are deducted from total value added.

Estimates at constant prices

4.8. The value of output of minerals for each State at 1970-71 prices is derived by evaluating the quantity of output of each major mineral at

the corresponding pit head price of 1970-71. In the case of minor minerals, which are reported in value terms only, the current value figures at the state level are deflated using the implicit price index of the major minerals of the corresponding state (excluding crude petroleum and natural gas). The estimated current price percentage costs of mining expenses and allowance for consumption of fixed capital separately for coal mining and other mining for each State and for each year are utilised to derive the estimates of gross and net value added at 1970-71 prices.

Reliability, Objectivity and Current Status of Data

4.9. The monthly data of mineral output, has a time lag of about six months. The half yearly mimeographed publication *Mineral statistics of India* (IBM) gives data with a time lag of about 3 months only. It also incorporates the latest revisions in the annual production figures of all minerals. These along with the monthly data (wherever necessary) are used for the preparation of the estimates. The production statistics of minor minerals, however, suffer from a time lag of about two years.

4.10. As minor minerals fall outside the purview of the Minerals Conservation and Development Rules, 1958 (MCDR), their statistics are compiled by the state governments. They are consolidated and released by IBM through their half yearly publications. The coverage of such minerals in recent years indicate a definite improvement but the reliability of data in respect of these minerals cannot be considered to be of the same order as that of the major minerals. Further no deductible rates are available in respect of minor minerals.

4.11. It would be desirable to evaluate the various items of inputs also at the base year prices to obtain the value added at constant prices by the double deflation method. However, this is possible only if the data on input are available in physical terms.