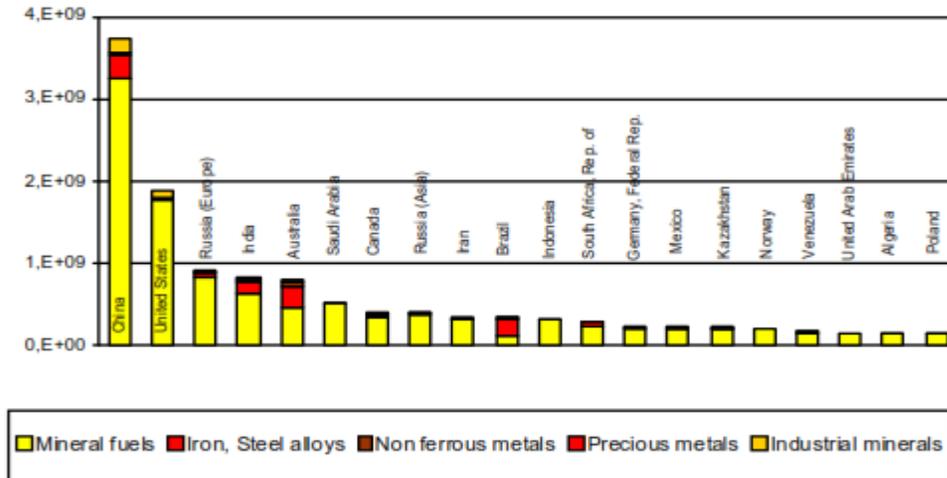


CHAPTER-15

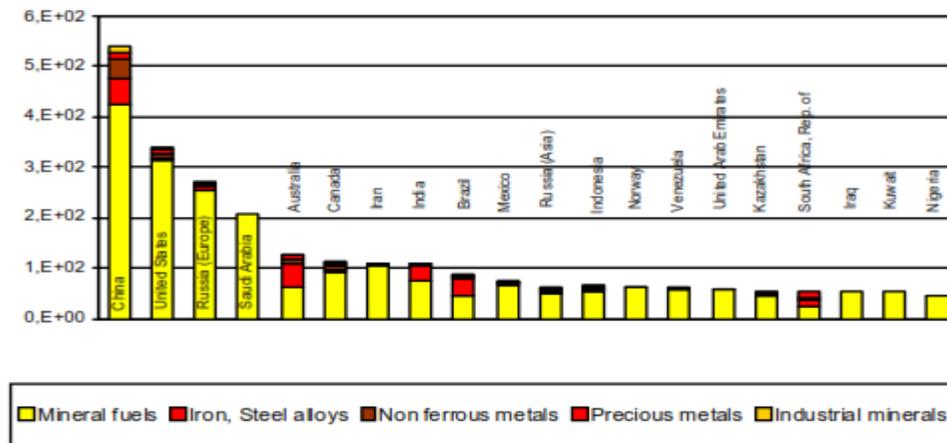
MINING

15.1 World scenario & India : Minerals are valuable natural resources being finite and non renewable. Besides catering to the energy requirements of the world, they are valuable inputs for diverse industrial activities. Natural endowment of minerals increases the potential wealth of a country but their distribution across the world varies substantially. As per Report on Mineral Production by International Organizing Committee for the World Mining Congress, India ranked 4th amongst the mineral producer countries on the basis of volume of production. However, it ranked 8th position on the basis of value of Mineral production during 2009.

**Twenty largest producer countries 2009
(without construction minerals, in metric t)**



**Twenty largest producer countries 2009
(without construction minerals, in Billion US \$)**



15.2 Significance of Mining Sector in India : Even though performance of Indian economy is not exceedingly dependent on mining , as is the case in some middle eastern countries like Saudi Arabia , Mining continues to be an important sector of Indian economy. With about 0.6 per cent share in employment during 2009-10 , share of Mining sector in GDP was higher at about 2.3 per cent .

Employment in the Industrial Sector									
	Persons employed (million)			Share in employment (%)			Share in GDP (%)		
	1999-2000	2004-2005	2009-2010	1999-2000	2004-2005	2009-2010	1999-2000	2004-2005	2009-2010
Mining	2.3	2.6	2.9	0.6	0.6	0.6	3.0	2.9	2.3
Manufacturing	43.8	56.1	52.4	11.0	12.2	11.4	15.1	15.3	16.0
Electricity	1.0	1.2	1.3	0.3	0.3	0.3	2.3	2.1	2.0
Construction	17.5	26.1	44.2	4.4	5.7	9.6	6.5	7.7	7.9
Industry	64.6	85.9	100.7	16.2	18.7	21.9	26.9	27.9	28.1

Source : The numbers have been derived applying NSSO segment-wise workers population ratios and Labour force participation rates to the population.

Note : Employment as per usual principal and subsidiary status (UPSS) basis.

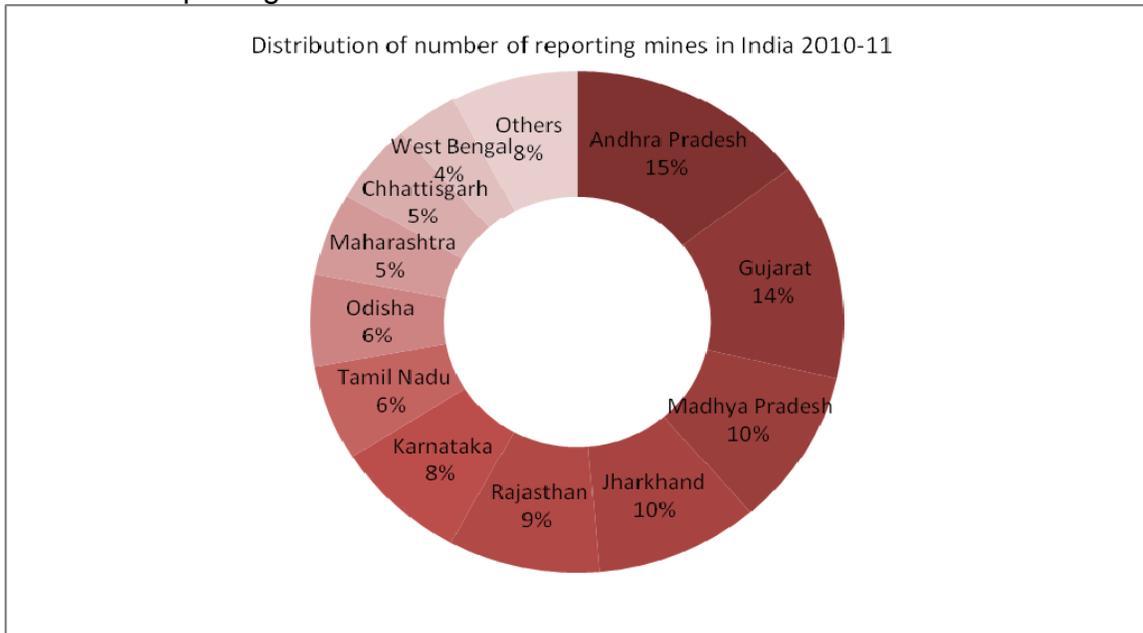
15.3 India produces as many as 87 minerals, which includes 4 fuel, 10 metallic, 47 non-metallic, 3 atomic and 23 minor minerals (including building and other materials) and is the world's largest producer of mica blocks and mica splittings. With the recent spurt in world demand for chromite, India has stepped up its production to reach the second rank among the chromate producers of the world. Besides, India ranks, 3rd in production of Coal & Lignite and Steel, 2nd in Barites, 4th in Iron ore, 6th in Bauxite and crude Steel, 5th in Manganese ore and 7th in Aluminum and 8th in Copper Ore on the basis of production of minerals during 2009-10.

Trends During Last Decade & Present Status:

No. of Reporting Mines:

15.4 Number of mines has not changed substantially over the years, because as new mines are explored, empty ones are closed down. Number of reporting mines during the last decade has been around 3000 to 3200. However, during 2010-11, it was 2928, out of which, 573 were fuel mines, 687 were mines for metals, and 1668 mines for extraction of non-metallic minerals. Of the total number of about 90 minerals, three minerals viz coal (560 mines – 19% of total number), limestone(553 mines - 19% of total number) & iron ore(316 mines – 11 % of total) comprised about half of the total number of reporting mines. No. of mines engaged in extraction were also significant in cases of bauxite (189), manganese (141) , dolomite (116) & Steatite (113).

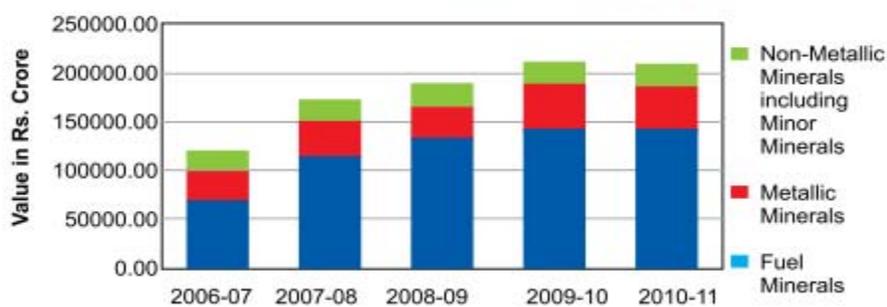
15.5 Statewise Distribution : Four States viz Andhra Pradesh, Gujrat, MP & Jharkhand comprise about half of total number of reporting mines and the eleven states shown in the figure below account for more than 90 per cent of total number of reporting Mines in India.



15.6 Mineral Production : During 2000-01 to 2010-11 Index of Mineral Production (Quantum Index, Base Year 1993-94=100) increased from 131 to 205 for all minerals. During the period index for fuel minerals increased from about 130 to 195, for metallic minerals from 130 to about 300 and for non metallic minerals from 142 to 259 . Index for some minerals like gold decreased marginally whereas that for diamond decreased to about one third . During the same period ,index for production of iron ore increased from 135 to about 350.

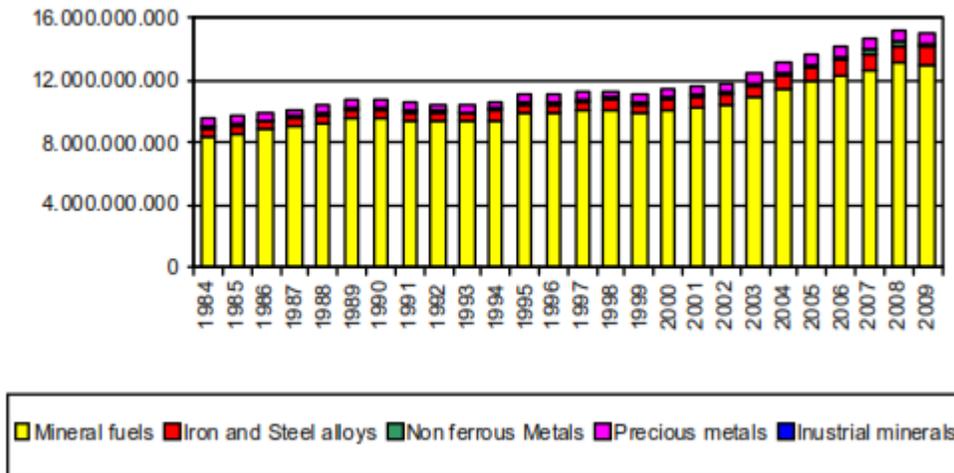
15.7 On the basis of significance in terms of production value , fuel minerals were given weight of 857, metallic minerals 80, non metallic minerals 42 & minor minerals weight of about 20 for construction of the index (Base Year 1993-94). The relative importance seems to continue as reflected by the production over the years, though the share of metallic & non metallic minerals has increased .

Value of Minerals Production (by groups)



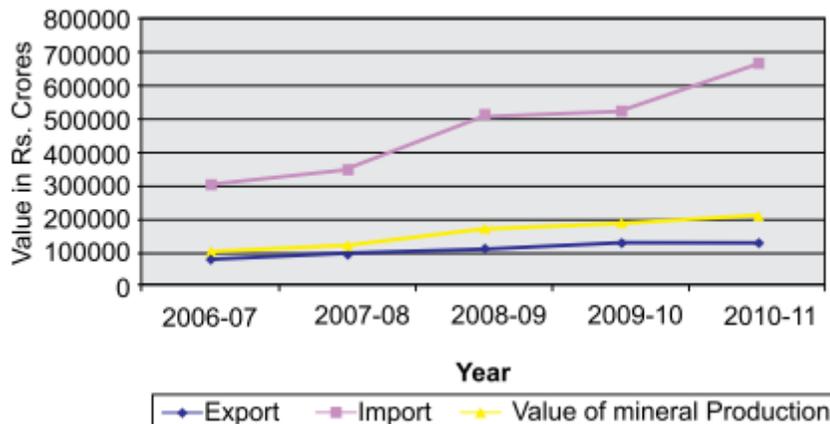
15.8 Similar feature is reflected in the overall world mineral production also where mineral fuels have primacy with much less share of metallic & non metallic minerals, whose share continues to be less despite of increase over the years.

**World Mining production 1984-2009 by groups of minerals
(without construction minerals, in metric t)**

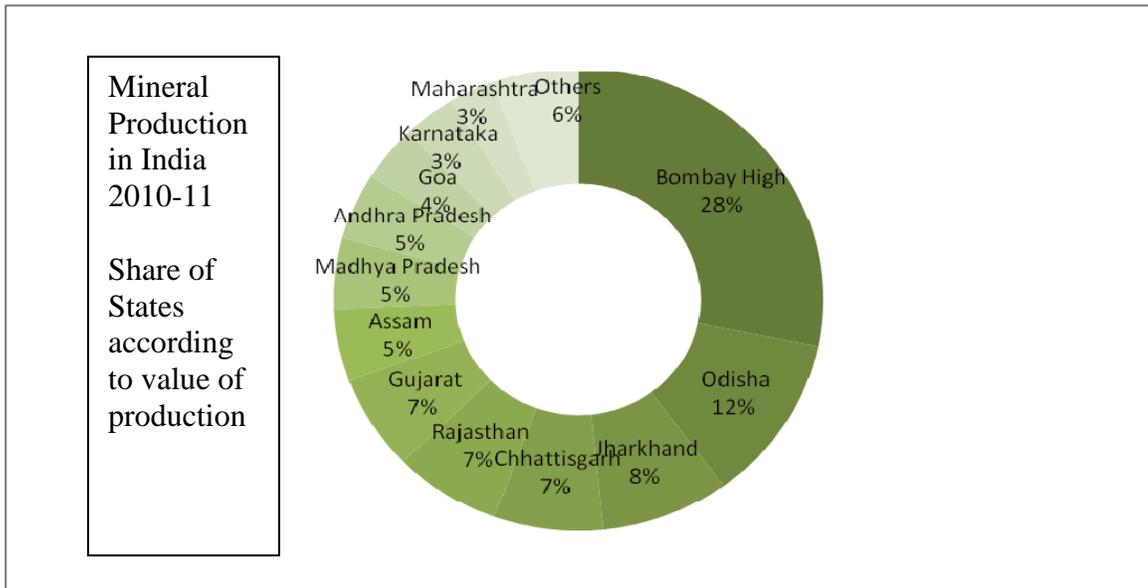


15.9 **Imports & Exports** : Even though India continues to be largely self sufficient in minerals which constitute primary mineral raw material to industries like iron ore, ferro alloys , aluminium , cement etc and mineral fuels like coal (except low ash coking coal) etc. , its value of imports still far exceeds its production .But the high value of imports is largely due to only two minerals crude petroleum & diamond . Together they accounted for more than 85 per cent of the import. Petroleum (accounting for 63 % of import value) is essential to meet the energy requirements whereas the import of raw diamond is for value added re-exports.

Trends in Value of Mineral Production, Exports & Imports

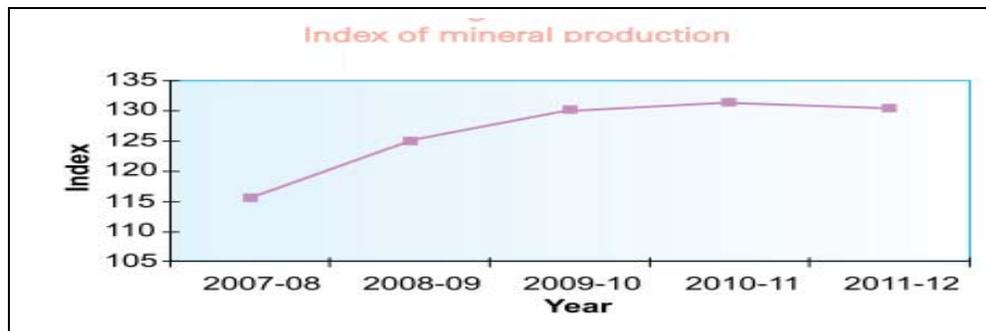


15.10 **Statewise Distribution** : Andhra Pradesh, Gujarat & Madhya Pradesh, the top three states in respect of number of reporting mines, with 15%, 14 % and 10 % share , account for much lesser share in mineral production with 5% share each for Andhra & MP and 7% share of Gujarat. During 2010-11, Bombay high along with top five mineral producing states viz Odisha, Jharkhand, Chhattisgarh, Rajasthan & Gujarat comprise more than 70 per cent of the total value of mineral production(Million Rs 1929568.15) in India. Out of the 32 reporting states, 11 States indicated in the figure below (including offshore areas) accounted for 94% of total value of mineral production. Offshore areas continued to be in leading position, in terms of value of mineral production in the country with the share of 28% in the national output.



Performance of Mining Sector during 2011-12 :

15.11 Based on the overall trend so far, the **index of mineral production** (base 2004-05) for the year 2011-12 is estimated to be 130.38 as compared to 131.36 for 2010-11 showing a **negative growth** of 0.75%. The decline in production is due to the restriction on exports, temporary discontinuance of mining for want of environmental clearance etc.



15.12 In the case of 'mining and quarrying', the **Index of Industrial Production** of Mining (IIP Mining) also reveals the same with a decline of 2.0 per cent during 2011-12 .

15.13 During 2010-11, petroleum, coal , iron ore and natural gas contributed significantly to the overall value of mineral production with share of 35%, 27%, 19 % and 10% respectively . Their combined share in overall mineral production was 91 %.

15.14 State-wise analysis revealed that during the year 2010-11, the value of mineral production in most of the mineral producing States have shown a mixed trend as compared to that in the previous year. The States which have indicated an increase in the value of mineral production over previous year are Chhattisgarh (41.94%), Himachal Pradesh (41.81%), Bihar (32.77%), Odisha (31.64%), Karnataka(26.20%), Uttar Pradesh (9.95%) and Tripura (8.36%). However, some of the principal mineral producing States revealed decrease in value of mineral production compared to previous year . Some of those are Jammu & Kashmir (33.67%), Kerala (11.25%), Arunachal Pradesh (7.19%), Andhra Pradesh (6.52%), West Bengal (6.35%), Maharashtra (2.82%) and Assam 1.42%.

Sources of Data :

15.15 **Indian Bureau of Mines (IBM)**, a subordinate office of Ministry of Mines, is the principal government agency responsible for compiling exploration data and mineral maps and for providing access to the latest information in respect of mineral resources in respect of **Major Minerals under Mineral Conservation & Development Rules, MCDR 1988**. Besides statistical activities, IBM offers technical expertise and proven experience in the fields of geology, mine planning and feasibility studies. The geological services of IBM include survey and preparation of mine plans, preparation of geological plans, preliminary geological appraisal of mineral properties, including the formulation of an initial scheme of detailed exploration with estimate of cost and preliminary reconnaissance, quick survey to determine potential areas out of large properties etc.

15.16 Amongst the mineral fuels , information on Coal & lignite production is obtained from **Office of Coal Controller**, Kolkata whereas that for production of petroleum & natural gas is obtained from **Ministry of Petroleum & Natural Gas**.

(The Ministry of Mines is responsible for the survey and exploration of all minerals (other than Natural Gas and Petroleum), for mining and metallurgy of Non-ferrous metals like Aluminum, Copper, Zinc, Lead, Gold, Nickel, etc., and for the administration of the Mines and Minerals, other than Coal, Natural Gas and Petroleum. **Geological Survey of India, GSI**, another subordinate office of

Ministry of Mines, helps through assessment of geological and regional mineral resources of the country through scientific surveys and research and for locating mineral resources & geological mapping. **Mineral Exploration Corporation Limited MECL** is a public sector company, which undertakes detailed exploration of various minerals / ores by drilling and exploratory mining. It is also engaged in proving the existence of reserves for their eventual exploitation. Exploration is taken up both on a promotional basis on behalf of the Government of India and on contractual basis for other agencies)

Acts & Rules Governing Mining Sector :

15.17 **The Mines and Minerals Development and Regulation Act, 1957, ('MMDR')** and the **Mines Act, 1952**, together with the rules and regulations framed under them, constitute the basic laws governing the mining sector in India. The relevant rules in force under the MMDR Act are the **Mineral Concession Rules, 1960**, and the **Mineral Conservation and Development Rules, 1988**. The health and safety of the workers is governed by the **Mines Rules, 1955** created under the jurisdiction of the Mines Act, 1952.

15.18 The Mineral Concession Rules, 1960 outline the procedures and conditions for obtaining a Prospecting License or Mining Lease. The Mineral Conservation and Development Rules, 1988 lays down guidelines for ensuring mining on a scientific basis, while at the same time, conserving the environment. The provisions of Mineral Concession Rules and Mineral Conservation and Development Rules are, however, not applicable to coal, atomic minerals and minor minerals. The minor minerals are separately notified and come under the purview of the State Governments. The State Governments have for this purpose formulated the Minor Mineral Concession Rules.

15.19 **Issues with Mining Sector** : Mining, unless properly regulated, can have adverse environmental and social consequences. On the one hand, mining disturbs the soil, water and ecological regimes and on the other hand, unless accompanied by proactive measures to promote inclusiveness through social education, health and other interventions, it can lead to alienation of the local population and assume socially unacceptable dimensions. Issues of Technology for zero waste or low waste mining, relief & rehabilitation, mine closure which otherwise leads to land degradation are important issues which require continuous attention.

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