Minerals are valuable natural resources being finite and non-renewable. They constitute the vital raw materials for many basic industries and are a major resource for development. The history of mineral extraction in India dates back to the days of the Harappan civilization. The wide availability of the minerals in the form of abundant rich reserves made it very conducive for the growth and development of the mining sector in India.

The country is endowed with huge resources of many metallic and non-metallic minerals. Mining sector is an important segment of the Indian economy. Since independence, there has been a pronounced growth in the mineral production both in terms of quantity and value. 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).

Mineral Production

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. The trend of index of mineral production for the last five years is depicted in Figure 3.1.

The total value of mineral production (excluding atomic minerals) during 2011-12 has been estimated at `210334.55 crore, which shows a decrease of about 1.02% over that of the previous year. The decline in value of mineral production is due to the restriction on exports, temporary discontinuance of mining for want of environmental clearance etc. During 2011-12, estimated value for fuel minerals account for `143498.21 crore or 68.22%, metallic minerals, `41954.50 crore or 19.94% of the total value and non-metallic minerals including minor minerals `24881.84 crore or 11.83% of the total value. Information on production and value of selected minerals from 2007-08 to 2011-12 is given in Annexure 3.1. The details of Export and Import of Minerals during the period 2006-07 to 2010-11 is given at Annexure 3.2 and Annexure 3.3. The trend of value of mineral production for last five years is depicted in Figure 3.2. The value of Minerals by groups for the last five years is given in Figure 3.3.

Figure 3.1
Index of mineral production
(Base 1993-94 = 100)

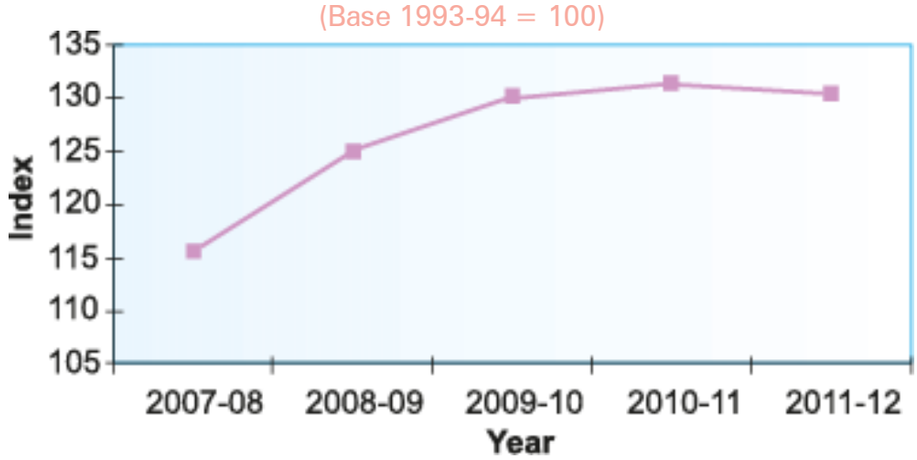


Figure 3.2
Trends in Value of Mineral Production, Exports & Imports

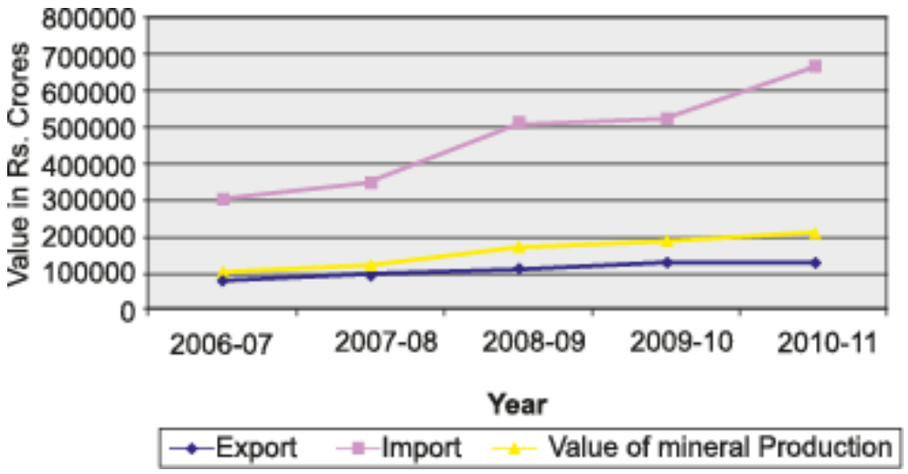
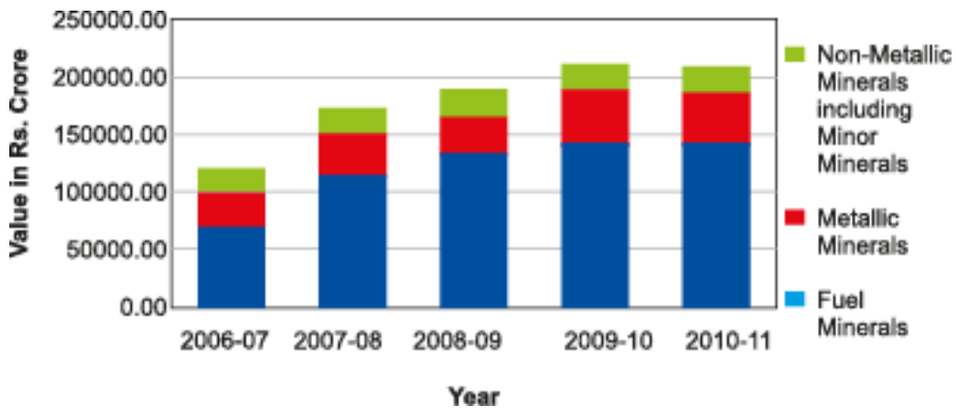


Figure 3.3
Value of Minerals Production (by groups)



PRICE TREND

The Office of the Economic Advisor, Ministry of Commerce and Industry has, already, shifted the base year from 1993-94 to 2004-05. The Wholesale Price Index (WPI) for minerals (base 2004-05=100) stood at 310.5 in November, 2011 and the corresponding index was 263.2 for November, 2010. The minerals included in the wholesale price index are bauxite, chromite, iron ore, copper ore, zinc concentrate, manganese ore, barytes, dolomite, fireclay, gypsum, kaolin, limestone, magnesite, phosphorite, graphite and sillamanite. The Wholesale Price Index (WPI) for metallic minerals was 385.8 in November, 2011 as compared to 394.4 in November, 2010 and that of other minerals was 165.7 in November, 2011 as compared to 162.8 in November, 2010.

The WPI for Coal stood at 184.6 in November, 2011 as compared to 163.0 in November 2010. The wholesale price index of mineral oils stood at 188.9 in November, 2011 and it was 158.1 in November, 2010.

GROSS DOMESTIC PRODUCT FROM MINING & QUARRYING SECTOR

The Gross Domestic Product (GDP) accrued from mining and quarrying sector at 2004-05 prices is estimated by Central Statistical Office (CSO). The advance estimates of GDP (at 2004-05 prices) for the first two quarters of the year 2011-12, indicated that the mining and quarrying sector accounted for about 2.10% of GDP. The contribution of mining and quarrying sector to GDP for the year 2011-12 is estimated at `51606 crore. This indicated a decline of 0.5% over that in the previous year. Similarly, the advance estimates of GDP (at current prices) for the first two quarter of the year 2011-12, indicated that the mining and quarrying sector accounted for about 2.63% GDP. The contribution of mining and quarrying sector to GDP for the first two quarter the year 2011-12 estimated at `102663 crore indicated an increase of 14.1% over that in the previous year.

Mining

Indian mining industry is characterized by a large number of small operational mines. The number of mines which reported mineral production [excluding minor minerals, petroleum

(crude), natural gas and atomic minerals] in India was 2076 in 2011-12 as against 2355 in the previous year. Out of 2076 reporting mines, 354 were located in Andhra Pradesh followed by Gujarat (308), Rajasthan (241), Madhya Pradesh (225), Karnataka (180), Tamil Nadu (156), Odisha (119), Jharkhand (106), Chhattisgarh (99), Maharashtra (86) and Goa (70). These 11 States together accounted for 93.64% of total number of mines in the country in the year 2011-12. The numbers of reporting mines are given at Table 3.1. Area wise distribution of Mining Leases all over India pertaining to all Minerals excluding fuel, atomic and minor Minerals is given at Table 3.2 and distribution of Mines by size (Major mineral only excluding Coal) State wise is given at Annexure 3.4.

Table 3.1
Number of Reporting Mines

Sector	2009-10(R)	2010-11(P)	2011-12(P)
Coal (including Lignite)	560	573	573
Metallic Minerals	701	687	553
Non-Metallic Minerals	1779	1668	1523
All Minerals Total*	3040	2928	2649

*Excluding atomic minerals, petroleum (crude), natural gas (utilized) and minor minerals.

Table - 3.2
Area wise Distribution of Mining Leases* (Frequency in Hect.) as on 31st March, 2010 (All India)

Frequency Group (Area in Hect.)	Number of Mining Leases	Percent-age of Total Leases	Area in '000 Hects.	Percent-age of Total Area
0 - 10	6339	60	25	4
10 - 20	1009	10	15	3
20 - 50	1334	13	44	9
50 - 100	890	8	66	13
100 - 200	436	4	60	12
200 - 500	281	3	86	17
Above 500	199	2	211	42
All Groups Total	10488	100	507	100

* Excluding Fuel, Atomic & Minor Minerals

The number of Underground Mines in operation Mineral wise (excluding fuel, atomic and minor minerals) is at Table 3.3.

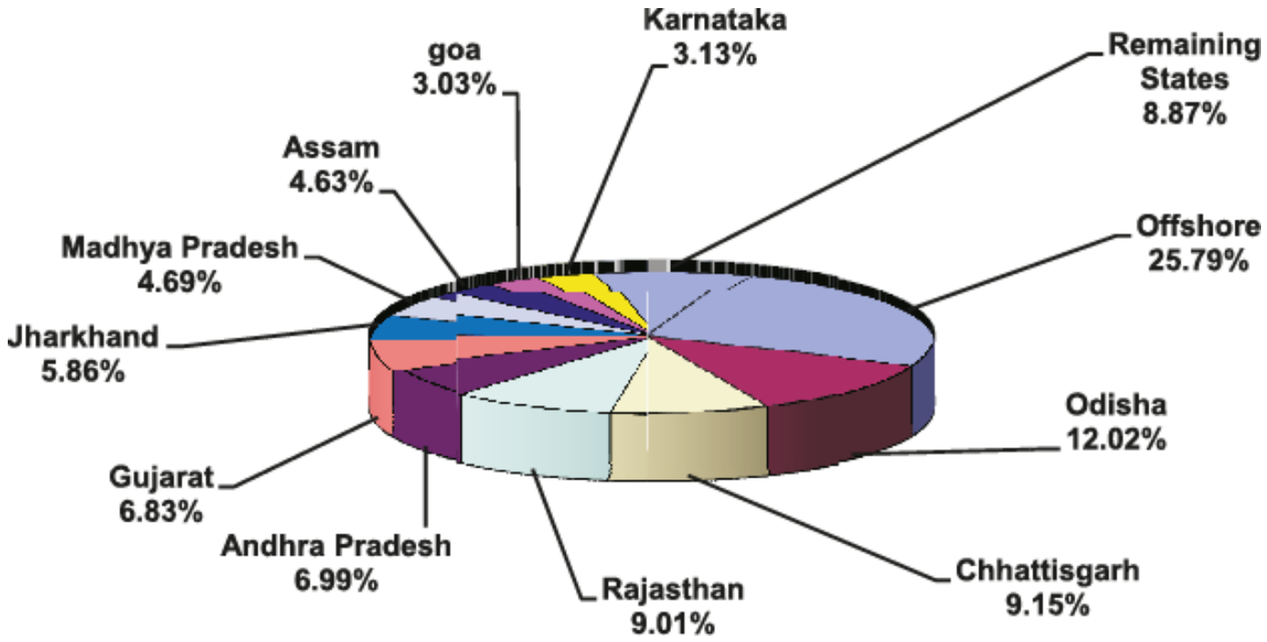
Table 3.3

Mineral	Cat. A	Cat. B	Total
Apatite	-	1	1
Asbestos	1	2	3
Ball Clay	-	1	1
Chalk	-	1	1

Chromite	5	-	5
Copper Ore	3	-	3
Gold	3	1	4
Lead & Zinc	5	-	5
Manganese	8	5	13
Mica	3	22	25
Rock salt	-	1	1
Steatite	2	19	21
Total	30	53	83

During the year 2011-12, mineral production was reported from 32 States/Union. Territories (actual reporting of MCDR & Fuel minerals from 22 States and estimation of minor minerals for all 32 States/Union Territories) of which the bulk of value of mineral production of about 91.41% was confined to 11 States (including offshore areas) only. Offshore areas are in leading position, in terms of value of mineral production in the country and had the share of 25.79% in the national output. Next in order was Odisha with a share of 12.02% followed by Chhattisgarh (9.15%), Rajasthan (9.01%), Andhra Pradesh (6.99%), Gujarat (6.83%), Jharkhand (5.86%), Madhya Pradesh (4.69%), Assam (4.63%), Goa (3.30%) and Karnataka (3.13%) in the total value of mineral production. Remaining 22 States and Union Territories having individual share of less than 3% altogether accounted for 8.59% of total value during the year under review. The contribution of States/Regions in the value of mineral production during 2011-12 is pictorially shown in Figure 3. 4.

Figure 3.4
Share of States in Value of Mineral Production 2011-12(estimated)



State-wise analysis revealed that during the year 2011-12, the value of mineral production has 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, are Chhattisgarh (36.23%), Odisha (12.07%) , West Bengal (11.37%), Gujarat (6.7%), Himachal Pradesh (5.30), Rajasthan (3.91%), Jammu & Kasmir (1.10%), Bihar (1.02%), Kerala (0.89%). However, some of the principal mineral producing States revealed decrease in value of mineral production and those includes Meghalaya (71.54%), Jharkhand (24.85%), Arunachal Pradesh (22.68%), Maharashtra (19.25%), Madhya Pradesh (12.08%), Andhra Pradesh (11.37%), Tamil Nadu (9.29%), Tripura (8.46%), Goa (6.30%), Karnataka (5.31%), Uttar Pradesh (3.82%) and Uttarakhand 2.58 %. The all India Reserves and Resources of various minerals as on 1st April, 2010, as per UNFC System, is given in at Annexure 3.5.

During the year 2010-11, the Public Sector continued to play a dominant role in mineral production accounting for 66.51% or `128271 crore in the total value. Small mines, which were mostly in the private sector, continued to be operated manually either as proprietory or partnership ventures. The minerals which were wholly mined / recovered by the public/joint sector in 2010-11 were Copper ore and concentrate, Diamond, Dunite, Fluorite (graded) & concentrate Phosphorite/Rock Phosphate, Rock salt, Selenite and Sulphur. By and large, almost the entire production of Sand (others), Lignite, Gold (primary and secondary of indigenous origin) and Gypsum was from Public Sector. In 2010-11, the Public Sector accounted for sizeable 91% production of coal, 81.78 of Tin concentrate, 74.33% of petroleum(crude), 68.79% of Kyanite and 62.34% of Magnesite.

India's ranking in 2009 as compared to world production was second in barytes, chromite and talc/steatite/ pyrophyllite, third in coal & lignite and steel (crude), fourth in iron ore and kyanite/ andalusite/ sillimanite, fifth in manganese ore and zinc slab, sixth in bauxite, and seventh in aluminium. The statistics on indigenous and world production of principal minerals and metals are given in at Annexure 3.6.

Self-Reliance in Minerals & Mineral Based Products

India continued to be wholly or largely self-sufficient in minerals which constitute primary mineral raw materials to industries, such as, thermal power generation, iron & steel, ferro-alloys, aluminium, cement, various types of refractories, china clay-based ceramics, glass, chemicals like caustic soda, soda ash, calcium carbide, titania white pigment, etc. India is, by and large, self-sufficient in coal (with the exception of very low ash coking coal required by the steel plants) and lignite among mineral fuels; bauxite, chromite, iron and manganese

ores, ilmenite and rutile among metallic minerals; and almost all the industrial minerals with the exception of chroysotile asbestos, borax, fluorite, kyanite, potash, rock phosphate and elemental sulphur. Despite high degree of self-sufficiency, some quantities of flaky and amorphous graphite of high fixed carbon, kaolin and ballclay for special applications, very low silica limestone, dead-burnt magnesite and sea water magnesia, battery grade manganese dioxide, etc. were imported to meet the demand for either blending with locally available mineral raw materials and /or for manufacturing special qualities of mineral-based products. To meet the increasing demand of uncut diamonds, emerald and other precious and semiprecious stones by the domestic cutting and polishing industry, India continued to depend on imports of raw uncut stones for their value-added re-exports. The degree of self-sufficiency in respect of various principal minerals and metals/ferro-alloys in 2009-10 is given in at Annexure 3.7.

PRODUCTION TRENDS

Metallic Minerals

The value of metallic minerals in 2010-11 at `45156 crore increased by about 42% over the previous year. Among the principal metallic minerals, iron ore contributed `37534.34 crore or 83.12%, Zinc concentrate `1763.39 crore or 3.91%, manganese ore `1369.58 crore or 3.04%, chromite `2295.57 crore or 5.08%, Bauxite `473.75 crore or 1.05%, copper (concentrate) `546.93 crore or 1.21%, Silver `543.77 or 1.20%, Gold `331.39 crore or 0.95%, while the remaining was shared by Lead and tin concentrates.

The production of iron ore at about 207.99 million tonnes in 2010-11 registered a decrease of 4.83% over the previous year. About 4.83% of the total production was shared by Public Sector Companies like SAIL (including IISCO), NMDC, etc. The share of Private Sector was 72% which included Tata Steel (formerly TISCO). Almost the entire production of iron ore (97%) accrued from Andhra Pradesh, Chhattisgarh, Goa and Jharkhand during the year. The remaining 3% production was reported from Karnataka, Odisha, Madhya Pradesh and Maharashtra.

The production of copper concentrate an 136.86 thousand tonnes in 2010-11 was increased by about 9.86% as compared to the previous year. Average metal content in copper concentrate was 23.16% Cu. The production of chromite at 4.26 million tonnes in 2010-11 increased by 24.42% as compared to the previous year. Odisha reported almost entire output of chromite (99%) in the country. A nominal production was reported from Karnataka. Mining of chromite was mostly dominated by private sector producers; viz, Tata Steel (formerly TISCO), IMFAL, Balasore Alloys Ltd., Jindal Strips Private Ltd. and FACOR having their own plants. They jointly accounted for 82% of total production during 2010-11. Three Public Sector Companies; viz, Odisha Mining Corporation (OMC), Mysore Mineral Ltd. (MML) and Industrial Development Corp. of Odisha Ltd. (IDCOL) together reported 18% of the total production in 2010-11. The production of manganese ore at 2.88 million tonnes in 2010-11 increased by about 15.61% compared to that in the previous year. MOIL continued to be the largest producer of manganese ore with a share of 38% of the total production in 2010-11 followed by Tata Steel (11%), SIMIOR (9%), OMM (6%), and GMDCL 6%. Of the total production of manganese ore in 2010-11, Madhya Pradesh contributed 25%, Odisha contributed 23%, Maharashtra 22%, Karnataka 14% and Andhra Pradesh 10%. The remaining 7% was jointly shared by Goa, Gujarat, Rajasthan and Jharkhand.

The production of primary gold at 2239 kg (excluding by-product gold recovery from imported concentrates) in 2010-11 registered increase of about 7.44% as compared to the previous year. Karnataka was the leading producer of gold accounting for 99% of the total production. The remaining production was reported from Jharkhand. The production of bauxite at 12.64 million tonnes in 2010-11 decreased by 10.50% compared to the previous year. Five major companies, namely NALCO, HINDALCO, BALCO, Ashapura Minechem Ltd. and Gujarat Mineral Development Corporation Ltd. dominated the total mining activities of bauxite of the country in 2010-11. Odisha accounted for 38% of the total output of bauxite during 2010-11 followed by Maharashtra 17%, Chhattisgarh 17%, Jharkhand 14% and Gujarat 7%.

During the year 2010-11, the production of lead concentrate at 145 thousand tonnes increased by 8.3% and that of zinc concentrate at 1420 thousand tonnes showed an increase of 10.96% over the previous year. Average metal content in lead concentrate was 57.46% Pb and that in zinc concentrate was 51.16% Zn. Rajasthan accounted for the entire production of lead concentrate and zinc concentrate during the year 2010-11.

Non-Metallic Minerals

The value of production of non-metallic minerals at `4892.19 crore during 2010-11 increased by 4.75% as compared to the previous year. Limestone retained its leading position by contributing 65.4% of the total value of non-metallic minerals in the year 2010-11. The other non-metallic minerals in the order of importance were phosphorite/rock phosphate (11.3%), barytes (5.4%), dolomite (3.07%), gypsum (2.67%), garnet (abrasive) (2.45%), talc/ soapstone/ steatite (1.21%), natural kaolin (1.03%), silimanite (0.87%) and Silica Sand (0.70%) The remaining was from other non-metallic minerals.

The production of limestone was at 238 million tonnes in the year 2010-11 increased by 2.07%, as compared to that in the previous year. Limestone is widely produced in India. As much as, 87% of the total output in the year 2010-11 was contributed by seven principal States; viz, Andhra Pradesh (22%), Rajasthan (18%), Madhya Pradesh (13%), Gujarat (9%), and Tamil Nadu, Chhattisgarh and Karnataka (8% each). The remaining 14% of the total production was shared by other limestone producing States. About 54% of total production was reported by principal producers, namely, Ultra Tech Cement Limited (17%), Ambuja Cement (8%), ACC Limited (7%), Jaiprakash Associates Limited (5%), Shri Cement Limited & The India Cement Limited (4% each), Kesoram Cement Limited, Binani Cement Limited and Madras Cements Limited (3% each).

The production of phosphorite/rock phosphate at 215 thousand tonnes increased by 34.05% in the year 2010-11 as compared to the previous year. The entire production was from Public Sector. Jhamarkotra mine of Rajasthan State Mines & Minerals Ltd. (RSMML), alone accounted for 94% of the total production in India and the entire production of Rajasthan during the year 2010-11. Madhya Pradesh contributed the remaining 6% of the production. The production of dolomite at 5065 thousand tonnes in 2010-11 registered 14.33% decrease as compared to the preceding year. Steel Authority of India Ltd. is the major producer of dolomite accounting 24% of total production followed by the Bisra Stonelime Co. Ltd. 12%, Rastriya Ispat Nigam Ltd. 10%, Tata Steel 9%, South West Mining 4% and Manish Singh 3% during 2010-11. Andhra Pradesh (21%), Chhattisgarh (27%), and Odisha (22%) were the principal producing States of dolomite. The remaining 30% was contributed by Seven States during the year, namely, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Uttarakhand and Rajasthan.

The production of kaolin in 2010-11 was at 2522 thousand tonnes decreased by 9.87%, as compared to that in the previous year. Nearly, 50% of total output of kaolin in 2010-11 was reported from Gujarat followed by Kerala (27%) and by Rajasthan (17%). Production of gypsum at 4.35 million tonnes in 2010-11, registered a increase of 28.97% as compared to the previous year. By and large, the entire production of gypsum was reported from Rajasthan (99%). The remaining 1% was from Jammu & Kashmir and Gujarat. Two Public Sector Companies, namely, RSMML and Fertilizer Corporation of India Ltd. accounted for almost the entire production. The production of magnesite was at 230 thousand tonnes during 2010-11 decreased by 23.69% as compared to the previous year.

The production of talc/soapstone/ steatite in the year 2010-11 was at 896 thousand tonnes increased by about 2.2% over the previous year. Rajasthan, the principal State accounted for 74% of the total production in 2010-11. Five principal producers in Rajasthan; namely, Associated Soapstone Distributing Co. (P) Ltd. (30%), Udaipur Mineral Development Syndicate (P) Ltd. (19%), %), Rajasthan Mineral and Company (4%), Katiyar Mining and Industrial Corporation (4%) and Nalwaya Mineral Industry Pvt. Ltd. (4%) together accounted for 61% of the total production of talc/ soapstone/ steatite in the year 2010-11.

Minor Minerals

The value of production of minor minerals was estimated at ` 19623.91 crore in the year 2010-11. Andhra Pradesh with share of 38.5% in the value of minor minerals produced in the country occupied the top position. Rajasthan was at second place and had a share of 23.4% in the value of minor minerals. Next in the order was Uttar Pradesh with a share of 14%, Madhya Pradesh 8.7%, Kerala 4.6%, Gujarat 3.7%, Maharashtra 1.6% and Chattisgarh 1.3 %. The contribution of remaining States and UTs was less than one percent each.

Mineral-wise analysis revealed that Road metals had the largest share of 24.6% to the value of minor minerals followed by Building Stone 23.8%, Brick-earth 12.4%, Ordinary Sand 11.2%, Marble 5.9%, Gravel 5.1%, Quartzite & Sand Stone 4.2%, Lime Stone 3.9%, Murrum 2.8, Kankar 1.9% and Ordinary Earth 1.7 %. The individual share of remaining minerals was less than 1.0% which together contributed 2.5 % of value of minor minerals. The share of minor minerals in the value of mineral production was estimated at Rs 19623.91 crore for 2009-10 and 2010-11.