# Indian Minerals Yearbook 2013

## (Part- I : GENERAL REVIEWS)

## 52nd Edition

# INDIAN MINERAL INDUSTRY & NATIONAL ECONOMY

## (FINAL RELEASE)

**GOVERNMENT OF INDIA**
**MINISTRY OF MINES**
**INDIAN BUREAU OF MINES**

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# 1 Indian Mineral Industry & National Economy

## NATIONAL ECONOMY

The Indian economy had suffered a rough phase recently and culminated in less than 5% growth of GDP at factor cost (at constant prices) for two consecutive years, i.e., 2012-13 and 2013-14 after achieving an unprecedented growth of over 9% for three successive years between 2005-06 and 2007-08. Though, triggered by global financial crisis, Indian economy made swift recovery in 2008-09 offsetting the slump phase, caused primarily due to domestic structural and external factors. Two successive years of sub (-)5% growth were witnessed for the first time in 25 years.

Gross Domestic Product (GDP) is a key indicator by which a nation's economic performance is gauged. Economic policies bring about pronounced changes in the industrial climate, foreign trade, domestic and international taxation policies, monetary exchange rates, etc., that have far reaching effects on the overall growth of an economy. As per advance estimates in India's Economic Survey 2013-14, GDP growth rate at factor cost (at constant 2004-05 prices) touched 4.5% in 2013-14 as against 8.9% in 2010-11, 6.7% in 2011-12 and 4.5% in 2012-13.

Economic parameters as per advance estimates published in Economic Survey 2013-14 reveal that the GDP in 2013-14 at current market prices and at factor cost at constant 2004-05 prices was 1,13,55,073 crore and 57,41,791 crore, respectively.

Industrial performance in 2013-14 remained lackluster for the second successive year. As per the latest GDP data, the Industry Sector registered a growth of 1% in 2012-13. It receded further to 0.4 % in 2013-14. The key reasons for poor performance was contraction in mining activity and deceleration in manufacturing output. The GDP's of both Manufacturing and Mining Sectors declined by 0.7% and 1.4% respectively in 2013-14. Mining Sector's output contracted for the third successive year and in 2013-14 declined by 0.6%. Contraction in mineral index in the past three years has been mainly on account of lower or moderate production in coal & lignite, crude petroleum, iron ore and natural gas.

Electricity generation increased by 6.1% in 2013-14 as compared to 4% growth registered in the previous year. Power generation has improved mainly on account of significant capacity addition made in recent years and robust increase in hydro-power generation during 2013-14.

The Agricultural and Allied Sectors achieved a growth of 4.7% in 2013-14. Compared to its long run average of around 3% (between 1999-2000 and 2012-13) the sector posted a rise mainly due to favourable monsoon. The share of the Agriculture and Allied Sectors in GDP has been consistently declining. During the eight years between 1999-2000 and 2007-08, the share of agriculture and allied sectors in GDP declined by 6.4 percentage points, while that of Industry and Services increased by 1.9 and 4.4 percentage points, respectively.

The average growth rate of eight core industries viz. coal, fertilizer, electricity, crude oil, natural gas, refinery products, steel and cement was 5% in 2011-12 and 6.5% during 2012-13. The index of eight core industries grew by only 2.7% during 2013-14. The moderation in growth occurred mainly on account of negative growth witnessed in natural gas ( (-)13%) and crude oil ( (-)0.2%) and low growth in coal (0.7%), fertilizers (1.5%) and refinery products (1.7%).

The 2008 global financial crisis and subsequent slowdown in the world economy left world trade (both merchandise and services) shattered with a steep fall to a negative 19.8% in 2009. For five years before the crisis (2003-07) world trade value grew at a robust 16.6% (compound annual growth rate – CAGR) and for five years after the crisis (2009-2013) it grew at a subdued rate of 9.9 percent. Mirroring the global trend, India's exports (merchandise and services) which also had robust growth of 30.1% in the five pre-crisis years (2003-2007) decreased to 16.0% in the five post-crisis years (2009-13).

India's merchandise trade has been growing in importance over the years with its share in world exports and imports increasing, though gradually, from 0.7% and 0.8% respectively in 2000 to 1.7% and 2.5% respectively in 2013. As per the World Trade Organisation (WTO), India's ranking in the top merchandise exporters and importers in the world has also improved from 31st in 2000 to 19th in 2013 in exports and from 26th to 12th for imports in the same years. There has also been marked improvement in India's total merchandise trade to GDP ratio from 21.8% in 2000-01 to 44.1% in 2013-14.

In the last five years, India's export growth has seen ups and downs. It slided in the negative territory twice in 2009-10 as an aftershock of the 2008 crisis and in 2012-13 as a result of the euro zone crisis and global slowdown. India's exports were US$ 312.6 billion against a target of US$ 325 billion set for 2013-14. Though they grew by a positive 4.1%, as compared to the negative growth of 1.8% during the previous year. Import growth decelerated sharply from 32.3% in 2011-12 to 0.3% in 2012-13 and fell to a negative 8.3% in 2013-14, owing to the fall in non-oil imports by 12.8 percent. Among the major items of import, the value of petroleum, oil and lubricants (POL), which constituted 36.7% of total imports in 2013-14 grew marginally by 0.7 percent. This marginal growth was on account of moderate quantity growth of POL (2.6%) despite the moderation in crude oil prices with the average price of crude oil (Indian basket) falling to US$ 105.5/bbl in 2013-14 sfrom US$ 108/bbl in 2012-13.

Moderate revival of exports, coupled with decline in imports helped to improve net exports. The share of exports in GDP increased from 24% in 2012-13 to 24.8% in 2013-14, while the share of imports declined from 30.7% to 28.4%, resulting in an improvement in net exports by 3.1 percentage points of GDP.

The sharp fall in imports and moderate export growth in 2013-14 resulted in a sharp fall in India's trade deficit by 27.8 percent. In absolute terms trade deficit fell to US$ 137.5 billion from US$190.3 billion during 2012-13. However, there was not much change in the POL deficit which was hovering at around US$ 100 billion in the last two years. With the fall in imports of both gold and capital goods, non-POL deficit fell sharply to US$35 billion in 2013-14 from US$ 87.2 billion in 2012-13.

In 2013-14, there was good growth of exports to North America (9.1%) and Africa (7.2%), low growth to Europe (4%) and Asia (1.7%), and negative growth to Latin America (-20%) and the CIS and Baltics (-4.7%). While export growth to the US was 8.3%, it was just 2.2% to the EU 27 as a result of the slowdown in the EU. Exports to the UAE fell to a negative 16 percent. Exports to Asia still constitute around 50% of India's exports. While India's exports to ASEAN (Association of South East Asian Nations) grew by a small 0.5 percent.

Exports to South Asia grew robustly with high growths to all the four major SAARC (South Asian Association for Regional Co-operation) countries viz, Sri Lanka, Bangladesh, Nepal and Pakistan, besides Bhutan. There was also good export growth to China and Japan at 9.5% and 11.7% respectively. Region-wise, imports from all five regions declined, with the highest decline of (-)19.3% in imports from Europe.

Total foreign direct investment(FDI) inflows into major infrastructure sectors registered growth of 22.8% in 2013-14 as compared to the contraction of 60.9% during 2012-13.

During 2013-14, total FDI inflows (including equity inflows, reinvested earnings, and other capital) were US$ 36.4 billion. FDI equity inflows were US$ 24.30 billion, showing an increase of 8% as compared to the previous year. Cumulative FDI inflows from April 2000 to March 2014 stood at US$ 323.9 billion. Net FDI inflows were US$ 21.6 billion during 2013-14.

## MINING INDUSTRY

Mineral production in the country has slightly decreased. The index of mineral production (with revised base year 2004-05=100) for all minerals (excluding atomic minerals) stood at 125.46 points in 2012-13 as against 128.45 points in 2011-12 registering a decrease of about 2%.

Index for metallic minerals and crude petroleum & natural gas declined by 15% and 4.6% respectively over 2011-12, whereas index for coal & lignite and non-metallic minerals increased by about 3% and 5.2%, respectively.

The total value of mineral production (including minor minerals but excluding atomic minerals) showed a marginal increase in 2012-13 at ₹2,85,761 crore as against ₹2,84,570 crore in 2011-12. This was due to overall rise in the production of coal, lignite, bauxite, chromite, lead concentrate, zinc concentrate, silver, ball clay, calcite, clay (others), felspar, dolomite, diamond, kaolin, laterite, limestone, ochre, quartz, quartzite sand (others) etc. as also due to higher average value recorded by copper concentrate, manganese ore, phosphorite, barytes, chalk, fluorite, garnet (abrasive), gypsum, magnesite, pyrophyllite, silica sand and shale (Table-1).

In metallic ore, production increased in respect of lead concentrate (14%), bauxite (13%) and zinc concentrate (6%). The production of chromite increased marginally during 2012-13. However, the production dropped in case of gold (28%), iron ore (19%), copper concentrate (5%) and manganese ore (4%).

Among the important non-metallic minerals, rise in production in 2012-13 was observed in kaolin (20%), dolomite (12%) and limestone (7%), while substantial fall in production was noticed in the case of gypsum (11%), phosphorite/rock phosphate and talc/soapstone/steatite (6% each) and magnesite (5%).

**Table – 1 : Indian Mineral Industry : Value of Production*
2010-11 to 2012-13**

(In ₹ million)

| Sector | 2010-11 (R) | 2011-12 (R) | 2012-13 (P) | % change between | | Sectoral contribution to the total value in % | |
|---|---|---|---|---|---|---|---|
| | | | | 2010-11 and 2011-12 | 2011-12 and 2012-13 | 2011-12 | 2012-13 |
| **Total : All Sectors** | **2670323** | **2845702** | **2857604** | **+6.57** | **+0.42** | **100.0** | **100.0** |
| Fuels | 1685812 | 1789220 | 1826892 | +6.13 | +2.10 | 62.87 | 63.93 |
| (a) Solid fuel | 663517 | 755096 | 802301 | +13.80 | +6.25 | 26.53 | 28.07 |
| (b) Liquid & gaseous fuels | 1022295 | 1034124 | 1024591 | +1.16 | -0.92 | 36.33 | 35.85 |
| Metallic minerals | 476388 | 470320 | 435918 | -1.27 | -7.31 | 16.52 | 15.25 |
| Non-metallic minerals | 53983 | 61258 | 69890 | +13.48 | +14.09 | 2.15 | 2.44 |
| Minor minerals** | 454140 | 524904 | 524904 | +15.58 | – | 18.44 | 18.36 |

*Figures rounded off individually.*
** Excluding the minerals declared as prescribed substances under Atomic Energy Act, 1962.*
*** Earlier year's figure has been taken as estimate for 2012-13 because of non-receipt of data.*

The value distribution of mineral production in 2012-13 showed that fuels acounted for about 64%, metallic minerals about 15%, non-metallic minerals about 3% and minor minerals about 18%. In the production value of metallic minerals, iron ore accounted for about 76%, chromite 6%, lead (conc.) and zinc (conc.) together 6%, silver 5%, manganese ore 3%, bauxite 2% and copper(conc.) & primary gold 1% each. Value of tin concentrates production was nominal.

Amongst the non-metallic minerals, about 99% value was shared by 17 minerals namely, limestone (62%), phosphorite/rock phosphate (11%), barytes (8%), dolomite (3%) garnet (abrasive) & gypsum (2% each) and kaolin, talc/soapstone/steatite, magnesite, marl, ball clay, sillimanite, silica sand, laterite, ochre, felspar and diamond (about 1% each). The remaining 1% value was contributed by other non-metallic minerals. The production in respect of emerald, corundum (ruby and sapphire), garnet (gem) and pyrites was not reported.

India, in 2012-13 produced as many as 90 minerals which included 4 fuel minerals, 11 metallic minerals, 52 non-metallic (industrial minerals) including ilmenite, rutile and zircon which were categorised as atomic minerals earlier and 23 minor minerals (building and other materials).

Indian Mining Industry is characterised by a large number of small operational mines. As per the revised data published in MSMP-March, 2014 the total number of working mines, (excluding atomic minerals, minor minerals, crude petroleum and natural gas) in the country was 3,722 in 2013-14 as against 3,978 in 2012-13. Among them, 575 mines belonged to coal & lignite, 663 mines to metallic minerals and 2,484 mines to non-metallic minerals (Table-2). There were 762 mines in the Public Sector and the remaining 2,960 mines under Private Sector. The number of mines referred elsewhere in the IMYB may not tally as the data presented in mineral reviews was taken from MSMP, March-2013.

**Table – 2 : Number of Operating Mines 2012-13 and 2013-14**

| Sector | 2012-13 (R) | 2013-14 (P) |
|---|---|---|
| **All Minerals*** | **3978** | **3722** |
| Public sector | 770 | 762 |
| Private sector | 3208 | 2960 |
| Coal (including lignite) | 575 | 575 |
| Metallic minerals | 708 | 633 |
| Non-metallic minerals | 2695 | 2484 |

** Excluding atomic minerals, petroleum (crude), natural gas (utilised) and minor minerals.*
***Source:** MSMP, March-2014.*

The Public Sector continued to play a dominant role in mineral production in 2012-13 and accounted for 67% or ₹1,56,644 crore in the total value. Small mines, which are mostly in the Private Sector, continued to be operated manually as either proprietary or partnership ventures. The minerals which were wholly mined/recovered by the Public/Joint Sector during 2012-13 were copper ore, diamond, fluorite (conc. and graded), selenite and sulphur. By and large, almost the entire production of lignite, gold (primary), barytes, gypsum, kyanite and sand (others) was from Public Sector. In 2012-13, the Public Sector accounted for sizeable 91% production of coal, 91% of phosphorite/ rock phosphorite, 87% of tin (conc.), 81% of dunite, 74% of magnesite, 69% of petroleum (crude) and 64% of natural gas.

In 2012-13, the Mining and Quarrying Sector accounted for about 2.4% of the total GDP. The contribution of Mining and Quarrying Sector in the total GDP in 2012-13 was ₹2,22,416 crore showed a nominal decrease from that of the preceding year.

The contribution of minerals covered under MCDR, 1988 (which include metallic and non-metallic minerals but exclude petroleum, natural gas, coal lignite, sand for stowing, atomic minerals and minor minerals) to GDP of Mining and Quarrying Sector, during 2012-13 was about 19.6% of which metallic minerals contributed 17.4% and non-metallic minerals 2.2%. Among metallic minerals, iron ore accounted for 14% while chromite accounted for 1% in 2012-13. Among the non-metallic minerals, the share of limestone was about 1% while the remaining 1% was jointly contributed by the remaining non-metallic minerals.

In 2012-13, production of minerals covered under MCDR, 1988 was reported from 20 States. Accrual to GDP from Mining & Quarrying Sector by minerals covered under MCDR, 1988 was accounted for mainly by Odisha (41%), Chhattisgarh (19%), Rajasthan (12%), Karnataka (9%), Jharkhand & Goa (5% each), Andhra Pradesh (3%), Madhya Pradesh (2%) and Maharashtra, Tamil Nadu & Gujarat (1% each).

The average daily employment in mining sector (excluding atomic & minor minerals and petroleum (crude) & natural gas) in 2012-13 was estimated at 5,35,790 persons. The Public Sector accounted for 4,17,615 persons (78%) and the private sector the remaining 1,18,175 persons (22%).

India's ranking in 2012 in world production was 2nd in barytes and talc/steatite/ pyrophyllite; 3rd in chromite, coal & lignite and zinc; 4th in kyanite/sillimanite and steel (crude); 5th in iron ore; 6th in bauxite; 7th in manganese ore; 8th in aluminium; 10th in refined copper; and 11th in magnesite. The statistics on indigenous and world production of principal minerals and metals are detailed in Table-3.

**Table – 3 : Contribution and Rank of India in World Production of Principal Minerals & Metals, 2012**

| Commodity | Unit of quantity | Production | | Contribution (Percentage) | India's rank in order of quantum of production |
|---|---|---|---|---|---|
| | | World | India* | | |
| **Mineral Fuels** | | | | | |
| Coal & lignite | Million tonnes | 7924 | 603 | 7.6 | 3rd |
| Petroleum (crude) | Million tonnes | 4008 | 38 | 1.0 | 25th |
| **Metallic Minerals** | | | | | |
| Bauxite | '000 tonnes | 248000 | 15360 | 6.2 | 6th |
| Chromite | '000 tonnes | 25800 | 2950 | 11.4 | 3rd |
| Iron ore | Million tonnes | 2969 | 136 | 4.6 | 5th |
| Manganese ore | '000 tonnes | 48300 | 2322 | 4.8 | 7th |

(Contd.)

Table – 3 : (Concld.)

| Commodity | Unit of quantity | Production | | Contribution (Percentage) | India's rank in order of quantum of production |
|---|---|---|---|---|---|
| | | World | India* | | |
| **Industrial Minerals** | | | | | |
| Barytes | '000 tonnes | 9700 | 1739 | 17.9 | 2nd |
| Kyanite, andalusite & sillimanite | '000 tonnes | 408(e)** | 45 | 11.0 | 4th |
| Magnesite | '000 tonnes | 24500 | 213 | 1.0 | 11th |
| Apatite & rock phosphate | '000 tonnes | 215000 | 2125 | 1.0 | 13th |
| Talc/steatite/soapstone/ pyrophyllite | '000 tonnes | 7800 | 1184 | 15.2 | 2nd |
| Mica (crude) | tonne | 317000 | 1255 | 0.4 | 16th |
| **Metals** | | | | | |
| Aluminium | '000 tonnes | 47000 | 1720 | 3.7 | 8th |
| Copper (refined) | '000 tonnes | 20300 | 493 | 2.4 | 10th |
| Steel (crude/liquid) | Million tonnes | 1547 | 78.4@ | 5.1 | 4th |
| Lead (refined) | '000 tonnes | 10500 | 118 | 1.1 | 15th |
| Zinc (slab) | '000 tonnes | 12600 | 704 | 5.6 | 3rd |

***Source:*** *World mineral production data compiled from World Mineral Production, 2008-2012; British Geological Survey.*
** Figures relate to 2012-13*
*** Mineral Commodity Summary, 2014,USGS.*
*@ JPC,Kolkata April, 2013.*

# MINERAL-RELATED POLICIES

The significant developments relating to National Mineral Policy and other mineral-related policies that took place in 2012-13 are highlighted below:

## The Mines and Minerals (Development and Regulation) Bill, 2011

To reflect the objectives and reasons emanating from the new National Mineral Policy (NMP), 2008, the Mines and Minerals (Development & Regulation) Bill, 2011 prepared by Ministry of Mines to replace the existing Mines & Minerals (Development & Regulation) Act, 1957 had been approved by the Cabinet and Bill was introduced in Lok Sabha on12th December, 2011 and the same was later referred to the Parliamentary Standing Committee on Coal & Steel on 5th January, 2012. After recommendations of the Standing Committee in the form of 36th report of Lok Sabha Secretariat, it has been presented in Lok Sabha and Rajya Sabha on 7.5.2013.

Based on the recommendations of the Standing Committee and the comments / views received from the State Governments and concerned Central Ministries / Departments, the Ministry of Mines, in consultation with the Department of Legal Affairs, prepared draft official amendments to the MMDR Bill, 2011. Accordingly, a draft Cabinet Note for carrying out official amendments to the MMDR Bill, 2011 was prepared for the consideration of the Cabinet. The draft Cabinet Note was circulated to the concerned Central Ministries / Departments as part of inter – ministerial consultative process. The MMDR Bill, 2011, however, was caused to lapse with the dissolution of the XV Lok Sabha.

## Mining Tenement System

The MTS has been envisaged by the Ministry to automate the various processes associated with the mineral concession regime. This would not only give an impetus to the decision-making process but is also expected to bring transparency and efficiency. The MTS will not only enable online filing of applications but it will also help to identify the areas for various types of mineral concessions. This would involve integration of web-based technology services with Geographical Information System (GIS), so that information could be delivered spatially in the form of maps. IBM has been nominated by the Ministry as the Nodal Implementing Agency for the project.

The project for preparation of Detailed Project Reort (DPR) has been formulated and the consultant for DPR preparation was appointed in May, 2011. The inception report covering As-is-study of the Ministry of Mines and IBM has been completed and approved by the Ministry of Mines. The DPR of MTS had been approved by the Core Committee in its meeting held on 31.10.2012. M/s Ernst & Young Pvt. Ltd had been requested to prepare Expression of Interest (EOI) and Request for Proposal (RFP) as per approved DPR. RFP document for selection of an implementation agency for design, development, maintenance and operation of MTS was uploaded on Website of IBM on 8.7.2014

## Sustainable Development Framework for Mining Sector (SDF)

As per the recommendations of a High Level Committee headed by Shri Anwarul Hoda, a Sustainable Development Framework specially tailored to the Indian context was developed taking into consideration the work being done in International Council of Mining and Metals (ICMM) and International Union for the Conservation of Nature and Natural Resources (IUCN). The SDF was based on the following eight principles.

- Incorporating Environment and Social sensitivities in decision on leases.
- Strategic assessment in Key Mining regions.
- Managing Impacts at the Mine Level through sound management systems.
- Addressing land, resettlement and other social impacts.
- Community Engagement and other Social impacts.
- Community Engagement, Benefit sharing and contribution to socio-economic development.
- Mines Closure and Post Closure.
- Assurance and Reporting.

Final Sustainable Development Framework for Mining Sector for the Ministry has been prepared by ERM India Private Limited for all concerned stakeholders in Mining Sector (non-coal, non-fuel, non-atomic minerals, not covering offshore mining).

## Allocation of Coal Block

The Ministry of Coal has initiated the process of allocation of coal blocks under the amended provisions of Section 11A of MMDR Act and Rules framed thereunder. In the first round the Government proposes to allocate coal blocks to the Government Companies/ Undertakings (Central and State) for specific end-use (power) and coal mining.

Accordingly, on 1st January, 2013, it has been decided to offer 17 coal blocks with combined geological reserves of 8.5 billion tonnes (14 coal blocks with reserves of 8.2 billion tonnes for end-use i.e. for power and 3 coal blocks for mining) to different Government Companies/ Undertaking (Central and State). Earlier, Ministry of Coal had already placed the pre-determined evaluation criteria for specified end-use and coal mining along with the details to be furnished by the applicant, i.e, the Government Companies/ Undertakings on 27th December, 2012. The applications had to be submitted within thirty days (i.e. to be submitted up to 30th January, 2013) in the Ministry of Coal.

During the period from 1993 to 2011, 218 coal blocks with geological reserves of about 50 billion tonnes were allocated to eligible public and private companies under the Coal Mines (Nationalisation) Act, 1973. Out of the 218 allocated blocks, as on date, 80 coal blocks were de-allocated (18 coal blocks were de-allocated based on the recommendations of the then Review Committee and 62 coal blocks were de-allocated based on the recommendations of the Inter-Ministerial Group O). Altogether 138 coal blocks with geological reserves of about 30.77 billion tonnes have been allocated.

## Coordination-cum-Empowered Committee

The Ministry of Mines has set up Coordination-cum-Empowered Committee in order to monitor and minimise the delays in grant of various approvals by the Ministries/Departments concerned in the Central Government for grant of mineral concessions. Further, the Ministry has reconstituted the CEC as 'Coordination-cum-Empowered Committee on Mineral Development and Regulation" on 20th December, 2011. The Terms of Reference (TOR) have also been broadened, so as to bring within its ambit other important matters, viz, Sustainable Development Framework, Coordination/review of steps for prevention of illegal mining, issues arising out of the National Mineral Policy and legislation governing mineral development.

The CEC has also decided to constitute State level Coordination-cum-Empowered Committee (SEC) in each State under the chairmanship of Chief Secretary or Additional Chief Secretary/ Principal Secretary of the Mining/Industries Department with representation from all concerned Departments/institutions. Accordingly, all mineral-rich States viz. Andhra Pradesh, Chhattisgarh, Gujarat, Goa, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan and Tamil Nadu have constituted their respective SECs. The other major decisions/steps taken by the CEC relating to mineral concessions were that of calling upon the State Governments to ensure timely submission of quarterly reports on mineral concessions, prompt issuance of letters of intent (LOI) and expeditious disposal of longstanding concession cases.

## Results Framework Document (RFD)

The Central Government has adopted a Results Framework System to set goals and quantitatively monitor performances on an outcome basis. During the year 2013-14, the Ministry of Mines achieved a composite score of 72.94% and IBM achieved a composite score of 80.01%.

## Justice M.B. Shah Commission of Inquiry for Illegal Mining of Iron Ore and Manganese Ore

The Central Government has appointed a Commission of Inquiry headed by Justice M.B. Shah, Retd. Judge of the Supreme Court of India, vide Notification S.O. 2817 dated 22nd November, 2010 to inquire into the large-scale illegal mining of iron ore and manganese ore. The first sitting of the Commission was held on the 17th January, 2011 and the Commission has submitted its report on illegal mining on the State of Goa to the Government on 5th March, 2012 and 25th April, 2012.

The Commission is presently collecting and compiling information on mining from seven important mineral producing States, which is quite voluminous. The States have sought more time for supply of such information to the Commission and this has led to deferment in the finalisation of the Commission's report. Therefore, the Central Government has extended the term of the Justice Shri M.B. Shah Commission of Inquiry for a period of one year beyond the 17th July, 2012 up to the 16th July, 2013 vide notification SO 1738 (E) dated 3rd August, 2012 and subsequently up to 16th Oct, 2013 to finalise its report vide notification SO 2205(E) dated 19th July, 2013.

The Commission has submitted its 'First Interim Report' on 14.07.2011. The Report, along with 'Memorandum of Action Taken', was laid in the Lok Sabha on 20.12.2011 and in the Rajya Sabha on 30.04.2012. Further, 'Updated Memorandum of Action Taken' on the Report was laid in the Lok Sabha on 07.2.2014 and in the Rajya Sabha on 10.2.2014.

The CoI also submitted the following Reports to the Government on 14th October, 2013 which are under consideration:

1. Second Report on illegal mining of iron and manganese ores in the State of Odisha;

2. Third Report on illegal mining of iron and manganese ores in the State of Goa; and

3. First Report on illegal mining of iron and manganese ores in the State of Jharkhand.

## Special Task Force for Inspection of Mines in Endemic Areas

The Central Government through Indian Bureau of Mines (IBM) has constituted a Special Task Force for inspection of mines in endemic areas. During the year 2013-14 up to March 2014, IBM conducted 204 Special Task Force inspections in the States of Goa, Madhya Pradesh, Jharkhand, Karnataka, Andhra Pradesh, Gujarat, Rajasthan and Tamil Nadu. IBM has suspended 29 mines under Rule 13(2) of Mineral Conservation and Development Rules, 1988 for serious violations.

## Landslide Studies

As per Ministry of Mines notification no. 11/6/2012-M.I. dated 20th September, 2012, the Geological Survey of India (GSI) has been designated as the Nodel Agency for carrying out landslide studies. The National Disaster Managment Guildelines of National Disaster Managment Authority (NDMA): Under the heading of Management of Landslides and Snow Avalanches, the guidelines recommend that a high-level Scientific and Technical Advisory Committee be constituted under the chair of Secretary, Ministry of Mines, in consultation with NDMA. The Committee will serve as a think tank to nurse the landslide sector with fresh ideas and stimulus carrying cutting-edge technology.

On a rough estimate as per GSI, nearly 15% of India's landmass or 0.49 million sq km area is prone to landslide hazard. This includes 0.098 million sq km of the North Eastern Region, comprising the Arakan Yoma ranges, and 0.392 million sq km of parts of the Himalaya, Nilgiri, Ranchi Plateau and Eastern & Western Ghats. GSI carried out landslide studies in Uttarakhand, Himachal Pradesh and Jammu & Kashmir.

## Study Group on Revision of Rate of Royalty and Dead Rent

In order to review the royalty rates and dead rent, the Ministry of Mines has constituted a Study Group on revision of rates of royalty and dead rent for minerals (other than coal, lignite and sand for stowing) and to make appropriate recommendations to the Government on 13th September 2011. It was reconstituted on 4th February, 2013, with Special Secretary (Mines) as Chairperson. Apart from other terms of reference, the Study Group has also been mandated to recommend revision of rates and in case, if necessary, give additional conditional recommendations on what should be the royalty rate and the mechanism for computation of royalty rates after taking into account the liabilities on the lease- holder as envisaged in the draft MMDR Bill, 2011, in the event the Parliament approves the new draft Bill.

Other terms of reference of the Study Group included to consider the feasibility of allowing incentivised royalty rates for base metals, noble metals, REE and precious stones to encourage exploration; to suggest incentivised royalty rates on ad valorem basis for beneficiated or concentrated ore; to consider and recommend policies relevant to mineral development and administration of royalty regime; and to suggest appropriate revision in the existing rates of dead rent given in the Third Schedule to the Mines and Minerals (Development and Regulation) Act, 1957.

The Study Group has prepared a draft recommendations which were circulated to the members of Study Group on 16.5.2012 for their comments.

The Ministry of Mines has decided vide its letter No. 3/3/2011-MVI dated 4th February, 2013 to extend the tenure of the Study Group for submission of the report up to 31.3.2013. Subsequently, it has been decided by letter of

even no. dated 10th April, 2013 of Ministry of Mines to extend the tenure of the Study Group for submission of the report up to 31.6.2013.

The Cabinet Committee on Economic Affairs, chaired by the Prime Minister has approved the revision of rates of royalty and dead rent of all major minerals other than minor minerals, coal, lignite and sand for stowing, as per provisions of Mines and Minerals (Development and Regulation) (MMDR) Act, 1957 on 21st August, 2014. It also approved the application of these rates in all the States/ Union Territories (UTs). The same has been notified on 1st Sept. 2014. For details refer Chapter 2, i.e. Mineral Policy and Legislation.

### International Cooperation

During 2012-13, Ministry of Mines signed Memoranda of Understanding with Province of Canada and Republic of Peru and Quebec to enhance the bilateral cooperation in the field of Geology and Mineral Resources.

The 8th meeting of India-Australia Joint Working Group (JWG) on Energy and Minerals was held on 12th June, 2013 at New Delhi.

### New Exploration Licencing Policy (NELP)

The New Exploration Licencing Policy (NELP) provides an international class fiscal and contract framework for exploration and production of hydrocarbons. The government may offer as many as 68 blocks or areas for exploration of oil and gas in the tenth round of NELP for the year 2013-14. Of the blocks being considered for offering in NELP-X, 25 are deep water, 20 shallow water and 23 onland blocks. NELP-X is likely to be held on new terms wherein a bidder shall be asked to quote the amount of oil or gas output it is willing to offer to the government from the first day of production.

The Government has in previous nine rounds awarded 254 blocks for exploration of oil and gas. Of the 34 areas offered in NELP-IX in 2010, bids were received for 33 blocks at the close of bidding on March 28, 2011. The award of exploration blocks under NELP -IX is yet to be finalised.

## Foreign Trade Policy

### Union Budget 2014-15:

In the Union Budget of 2014-15, the basic customs duty on steel-grade dolomite, steel-grade limestone, anthracite coal and other coal, crude nephthalene, coal for pitch, forged steel rings (used in the manufacture of bearing of window operated electricity generator was reduced while that on coking coal, steam coal and bituminous coal, metallurgical coke, stainless steel flat product, half cut or broken diamond, cut & polished diamonds (including laid grown diamonds) gemstones (coloured) were increased. The basic customs duty on reformate and other goods (under subheading 2707 50 00) and CVD on anthracite coal, coking coal and other coal were also reduced. Full exemption from basic customs duty was granted on flat copperwire for use in manufacture of PV Ribbon (tinned copper inter-connect) for solar PV cells or modules and pre-form of precious and semi-precious stones.

### Notifications

"Policy for allocation of quota for import of rough marble blocks for Indian companies investing abroad in marble mining for 2013-14" and "Policy for issue of import licences of rough marbles and travertine block for 2013-14" have been notified vide S.O 2608 (E) dated 26th August 2013 and S.O 2609 (E) dated 26.8.2013 respectively by Ministry of Commerce and Industry, Department of Commerce.

Further, Ministry of Commerce and Industry, Department of Commerce has made amendment in Foreign Trade Policy, 2009-14 under various chapters of the Handbook of Procedure (Vol.I) vide Notification No.02 (RE-2013) 2009-14 dated 18.04.2013; S.O 1999 (E) dated 03.07.2013; S.O 344 (E) dated 14.11.2013; Public Notice No. 37 (RE-2013)/2009-14 dated 4.11.2013; S.O 3722 (E) dated 18.12.2013; S.O 475 (E) dated 19.02.2014 and in various chapters of ITC(HS) Code Classification, Vol. III A and III B, vide Notification F.No.01/94/180/395 dated 18.04.2013; S.O 2610 (E) dated 26.08.2013; S.O 13(E) dated 01.01.2014; S.O 919 (E) dated 27.03.2014 and S.O 920 (E) dated 27.03.2014.

Ministry of Labour and Employment (Director General of Mines Safety) made Provisions for standard of safety items to be used in underground coal mines and safety items provided in coal and metalliferous mines.

Ministry of Finance vide Notification No. G.S.R 64 (E) dated 27.01.2014 imposed 5% export duty on Export of Iron ore pellets. For details refer Chapter 2, i.e, Mineral Policy and Legislation.

## Royalty on Coal and Lignite

The Government has constituted a Study Group on 4.2.2010 for revision of royalty rates for coal & lignite. Taking into consideration the submissions made by all stakeholders, the interests of the coal producing States, the consumers and the national economy as a whole, the Study Group recommended switching over to a full-fledged ad valorem regime of royalty for coal and lignite.

Vide Gazette of India Notification G.S.R. 349. (E), dated 10th May, 2012 by the Ministry of Coal, the royalty rates of Coal including Lignite have been revised and have been made applicable for a minimum period of three years from 10.05.2012. The rate of royalty on coal shall be @ 14% (Fourteen percent) ad valorem on price of coal, as reflected in the invoice, excluding taxes, levies and other charges while that of lignite shall be @ 6% (Six percent) ad valorem on transfer price of lignite, as ratified by the Central Electricity Regulatory Commission (CERC) and for lignite sold to other consumers, the royalty shall be @ 6% (Six percent) ad valorem on the price of lignite as reflected in the invoice, excluding taxes, levies and other charges. This is applicable in all the States and Union territories, except the State of West Bengal. For West Bengal, the rate of royalty has been published separately in the said notification.

## Policy/Measures through Notifications

The Ministry of Mines, vide its Gazette Notification No.F.No.4(2)2012-M.I., dated 19th February, 2014 has decided to replace the para under the heading 'XII Geoscience for Sustainable Development' on p-48 which is related to reconstitution of Central Geological Programming Board (CGPB) and 12 Committees thereunder.

The Central Government through Ministry of Coal vide notification S.O. 491(E), dated 19th February, 2014, laid specification for production of cement, syn-gas obtained through coal gasification (underground and surface) and coal liquefaction to be end uses for the purpose of the said Act.

The Central Government through Ministry of Commerce & Industry, Department of Commerce, Notification No. 40 (RE–2013)/2009-2014, dated 6th September, 2013 (Non-insistence on sequencing of import of gold being followed by export of gold jewellery/articles of gold) and of S.O.2709(E) dated 6th September, 2013, notified subsequent amendments in Trade Policy on gold.

Ministry of Finance (Department of Revenue) subsequently amended Tariff value for Tariff items, such as, brass scrap, gold and silver vide Notification No. S.O 2761 (E) dated 29.8.2013; S.O No.3277 (E) dated 29.10.2013; S.O No.3297 (E) dated 31.10.2013; S.O No.3439 (E) dated 12.11.2013; S.O No.3442 (E) dated 14.11.2013; S.O No.3537 (E) dated 29.11.2013; S.O No.3667 (E) dated 13.12.2013; S.O No. 109 (E) dated 15.01.2014; S.O No.GSR 779 (E) dated 16.12.2013; GSR 816 (E) dated 31.12.2013; S.O No.598 (E) dated 28.02.2014 and S.O No.980 (E) dated 31.03.2014.

Ministry of Steel amended the Steel and Steel Product (Quality Control), Second Order 2012 vide S.O 3011 (E) dated 1.10.2013 and S.O 979 (E) dated 31.3.2014.

Ministry of Environment and Forests vide its Notification, S.O. 2558 (E) dated the 22nd August, 2013, declared certain areas of Andaman and Nicobar Islands as Protected Zones and restrictions were imposed on setting up and expansion of industries, operations and processes in the said Zones.

Further, Ministry of Environment and Forests issued Notifications, namely, S.O 2731 (E) dated 9.9.2013, G.S.R 185 (E) dated 14.3.2014 and S.O 3100 (E) dated 14.10.2013 regarding Mining lease area; Corrigendum for mining lease area; Amendment in Forest Conservation Rules; and Amendments in the hazardous waste (management, handling and trans-boundry movement) Rules, 2008, respectively.

Ministry of Labour and Employment vide Notification S.O 3422 (E) dated 4.11.2013 amended Factories Act (Second Schedule) and declared public utility service in the Iron Ore Mining Industry, Copper Mining Industry and Uranium Industries vide Notification No. S.O 3646 (E) dated 12.12.2013; S.O 557 (E) dated 26.02.2014 and S.O 147 (E) dated 20.01.2014, respectively.

# LEGISLATION

## MMDR Act, 1957

To replace the existing Mines and Minerals (Development and Regulation) Act, 1957, the Mines and Minerals (Development and Regulation) Bill, 2011 has been prepared by the Ministry of Mines. The Cabinet has approved the Bill and it has been introduced in Lok Sabha on 12th December, 2011, and the same has been referred to Standing Committe on Coal and Steel on 5th January, 2012. The recommendations of the Standing Committee has been presented to Lok Sabha and laid in Rajya Sabha on 7.5.2013. Further, Ministry of Law and Justice (Legislation Department) vide Gazette of India No.3 dated 12.01.2015 issued a Notification referred to as the Mines & Minerals (Development and Regulation) Amendment Ordinance, 2015.

The Mines and Minerals (Development and Regulation) Amendment Bill, 2015 was introduced in Lok Sabha on February 24, 2015 and was subsequently passed by Lok Sabha and Rajya Sabha on 03.03.2015 and 20.03.2015 respectively. The Bill amends the Mines and Minerals (Development and Regulation) Act, 1957. The salient features of the said Bill are as follows:

- The Bill replaces the Mines and Minerals (Development and Regulation) Amendment Ordinance, 2015 promulgated on January 12, 2015.

- The Mines and Minerals (Development and Regulation) Act, 1957 regulates the Mining Sector in India and specifies the requirement for obtaining and granting mining leases for mining operations.

- The Bill adds a new Fourth Schedule to the Act. It includes bauxite, iron ore, limestone and manganese ore and are defined as notified minerals. The Central Government may, by notification, amend this Schedule.

- The Bill creates a new category of mining licence i.e. the prospecting license-cum-mining lease, which is a two stage-concession for the purpose of undertaking prospecting operations (exploring or proving mineral deposits), followed by mining operations.

- **Maximum area for mining**: Under the Act, a person could acquire one mining lease for a maximum area of 10 sq km. However, for the development of any mineral, the Central Government could permit the person to acquire one or more licences or leases covering additional area. The Bill amends this Provision to allow the Central Government to increase the area limits for mining, instead of providing additional leases.

- **Lease period**: Under the present Act, a mining lease was granted for a maximum of 30 years and a minimum of 20 years and could be renewed for a period not exceeding 20 years. Under the Bill, the lease period for coal and lignite remains unchanged while all minerals other than coal, lignite and atomic minerals, mining leases shall be granted for a period of 50 years. As per the Bill on expiry of the lease, instead of being renewed, the leases shall be put up for auction.

- **Lease extensions**: The Bill specifies that any lease granted before the commencement of the Bill, shall be extended: (i) up to March 31, 2030 for minerals used for captive purpose (specific end-use) and up to March 31, 2020 for minerals used for other than captive purpose, or (ii) till the completion of renewal period, or (iii) for a period of 50 years from the date of grant of such lease, whichever is later. This provision shall not apply to mining leases for which renewal has been rejected, granted, or lapsed.

- **Auction of notified and other minerals**: The Bill states that state governments shall grant mining leases and prospecting licence-cum-mining leases for both notified and other minerals. Prospecting licence-cum-mining lease for notified minerals shall be granted with the approval of the Central Government. All leases shall be granted

through auction by competitive bidding, including e-auction.

- The Central Government shall prescribe the terms and conditions, and procedure for auction, including parameters for the selection of bidders. For mining leases, the Central Government may reserve particular mines for a specific end use and allow only eligible end users to participate in the auction, if found necessary.

- **Transfer of mineral concessions**: The Bill states that the holder of a mining lease or prospecting licence-cum-mining lease may transfer the lease to any eligible person, with the approval of the state government, and as specified by the Central Government. If the state government does not convey its approval within 90 days of receiving the notice, the transfer shall be considered as approved. No transfer shall take place if the state government communicates, in writing, that the transferee is not eligible. Only mineral concessions granted through auction will be allowed for transfer.

- **Institutions**: The Bill provides for the creation of a District Mineral Foundation (DMF) and a National Mineral Exploration Trust (NMET). The DMF is to be established by the State Government for the benefit of persons in districts affected by mining related operations. The NMET shall be established by the Central Government for regional and detailed mine exploration. Licensees and lease holders shall pay the DMF an amount not more than one-third of the royalty prescribed by the Central Government, and the NMET two percent of royalty.

## MCR, 1960

The Ministry of Mines vide Notification No.510 (E) dated 18.7.2014 substituted the Rule 24 A (6) of MCR, 1960 and inserted the words at the end of Rule 24 A (9) of the said Rules.

## The Mineral Conservation and Development Rules, 1988 (MCDR)

The Ministry of Mines while exercising the powers under Section-3 of the MMDR Act issued a Notification No.S.O. 423 (E) dated 10.2.2015 wherein it declared 31 minerals, viz, Agate, Ball Clay, Barytes, Calcareous Sand, Calcite, Chalk, China Clay, Clay (Others), Corundum, Diaspore, Dolomite, Dunite or Pyroxenite, Felsite, Felspar, Fireclay, Fuschite Quartzite, Gypsum, Jasper, Kaolin, Laterite, Limekankar, Mica, Ochre, Pyrophyllite, Quartz, Quartzite, Sand (Others), Shale, Silica Sand, Slate and Steatite/Talc/ Soapstone as minor minerals.

## Ministry of Mines Resolutions:

The Ministry of Mines vide Resolution No. 31/49/2014-M.III dated 3.11.2014 suggested and renamed the "Mines Control & Conservation of Minerals Division" as "Minerals Development and Regulation Division" and the "Ore Dressing Division" as "Mineral Processing Division". Further, Ministry of Mines vide Resolution No.31/ 49/2014-M.III dated 3.11.2014 modified the "Charter of functions of IBM".

## Preparation of Guidelines on "Environmental Aspects on Quarrying Minor Minerals – Evolving Model Guidelines"

Ministry of Environment & Forests had constituted a Group of State Secretaries of both the Environment and Mining Departments of major States under the chairmanship of Secretary (E&F), Government of India, to evolve model guidelines on environmental aspects for quarrying of minor minerals. IBM represented the Ministry of Mines as a member of the Group. The Group submitted its report in March, 2010. As a follow up, the Ministry of Mines was assigned the work of preparation of guidelines on "Environmental Aspects on Quarrying Minor Minerals–Evolving Model Guidelines" for (i) Mining framework of Minor Minerals, (ii) Framework for cluster of mining and (iii) Guidelines for reclamation and rehabilitation". IBM constituted a committee which drafted the model guidelines after obtaining comments from stakeholders and State Governments and posted it on the websites of Ministry of Mines and of its own website.

### Grant of Exploration Licence in the Offshore Areas

The Controller General, Indian Bureau of Mines is the Administering Authority for the Offshore Areas Mineral (Development and Regulation) Act, 2002. The mineral bearing blocks available for the grant of Exploration Licence in the offshore waters of Bay of Bengal and Arabian Sea were notified on 7th June 2010. In response to this, 377 applications were received for grant of Exploration Licence and Grant orders were issued for 62 blocks to 16 applicants in April 2011. Exploration Licensces are yet to be executed as the matter is sub judice.

A technical committee to frame field guidelines for exploration of offshore areas as per UNFC classification was constituted on 27.08.2010 and accordingly draft field guidelines have been prepared.

## EXPLORATION & DEVELOPMENT

GSI, DGMs of various States, Public Sector companies like NMDC, MECL, MOIL, etc. continued their efforts for surveying, mapping and exploration of new deposits and reassessment of old deposits/mines during 2012-13. In the Sector, ONGC, OIL and a few joint venture and private companies were engaged in exploration of onshore and offshore areas in 2012-13. Exploration conducted by various organisations during 2012-13 is highlighted below:

### Geological Survey of India (GSI)

The GSI is vested with the responsibility of maintaining broad-based and uniform national approach to data generation in respect of mineral resources. With the near exhaustion of resources to the proximity of surface, it has become imperative to have multidisciplinary approach to mineral exploration which comprises large-scale and detailed geological mapping aided by interpretative analysis of aerogeophysical and remotely sensed data, ground geophysical survey, geochemical prospecting and surface & subsurface exploration through pitting, trenching & drilling. During 2012-13, about 4,917 sq km large-scale mapping, 45.43 sq km detailed mapping and 70,007 m drilling were carried out in comparison to 1,880 sq km large-scale mapping, 45.10 sq km detailed mapping and 63,097 m drilling carried out in the previous year. Out of the total mappable areas of 3.146 million sq km of the country, 3.094 million sq km has been covered so far by systematic mapping bringing the total coverage to 98.42%. Additional resources were estimated for coal, gold, base metal, iron ore and manganese ore. The highlights of the resources assessed are given below in brief :

During 2012-13, GSI estimated about 3,172 million tonnes of coal resources in various coalfields of Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Odisha and Maharashtra; about 389.68 million tonnes inferred limestone resources (333) in Umphyriuh block, Jaintia Hill district, Meghalaya; about 484 million tonnes lignite in Rajasthan, Tamil Nadu and West Bengal; about 36,500 tonnes of tentative resources of rock phosphate (grade from < 0.1% to 27.44% $P_2O_5$) in Modri area, Khandwa district, Madhya Pradesh.

GSI continued its offshore geo-scientific studies both in Exclusive Economic Zone (EEZ) and Territorial Waters (TW) along the East and West Coasts of India. During 2012-13, a total of 22 cruises were undertaken using three vessels; six cruises aboard R.S. Samundra Manthan within EEZ; nine cruises aboard R.V. Samundra Kaustubh within the TW off the East Coast; and seven cruises aboard R.V. Samundra Shaudhikama within the TW off the West Coast. Surveys in the near shore zones were carried out using hired small mechanised boats.

GSI pursued its airborne geophysical surveys for generating database employing magnetic and gamma ray spectrometric techniques. Airbone survey operations could not be taken up over Western Offshore of India (Vengurla-Jamnagar) during 2012-13, as there was delay in getting the DGCA Certification further the GSI aircraft which underwent upgradation in Avionics configuration was not availble for survey operation before March, 2013 and these impeded acquiring of multisensor data during 2012-13.

## MECL

During 2012-13, MECL established about 1,132.80 million tonnes of non-coking and coking coal in Mand-Raigarh Coalfield, Chhattisgarh, North Karanpura Coalfield, Jharkhand and Wardha Valley Coalfield, Maharasthra; about 768.51 million tonnes of lignite reserves in Rajasthan; about 274 million tonnes of limestone reserves in Tongnub, Meghalaya; about 9.42 million tonnes of lead-zinc ore reserves in Tikhi and Gurla block, Rajasthan; about 561.26 million tonnes of dolomite reserves in Rupa, Arunachal Pradesh; and 56.48 million tonnes of High MgO Flux grade rock in Rajabasha block, Odisha.

## State Directorates of Geology and Mining

DGM, Chhattisgarh, established about 12.6 million tonnes coal resources in Surguja district; 2.15 lakh tonnes of bauxite in Kabirdham district and 5 lakh tonnes bauxite (metal grade) in Surguja district; about 3 lakh tonnes of iron ore reserves (31-38%Fe) in Kondagaon district; about 7 lakh tonnes of cement-grade and 71.38 million tonnes of limestone resources in Raipur, Bastar and Sukma districts; about 32 lakh cu m black granite in Bastar Kanker and Dantewada districts; about 30 million tonnes dolomite resources in Janjgir-Champa district.

DMG, Rajasthan, estimated about 101.76 million tonnes geological resources of cement- grade limestone in Nagaur district; about 1.05 million tonnes of bajri deposits in Dholpur district.

DGM, Uttar Pradesh estimated about 0.01 million tonnes of tentative reserves of platinum in Lalitpur district; about 0.3 million tonnes tentative reserves of asbestos in Jhansi district and about 50 million tosnnes tentative reserves of potash in Chitrakoot district.

DGM, Kerala established about 1.22 million tonnes tentative resources of sandy clay in Kollam district.

## Oil and Natural Gas Corporation Ltd (ONGC)

ONGC continued its operations for exploration of oil and gas and established 22 new hydrocarbon discoveries in 2012-13 which include 12 new prospects (4 offshore and 8 onshore) and 10 new pools (5 offshore and 5 onshore). As a result of these exploratory efforts, ONGC accreted the highest ultimate reserves of 84.84 million tonnes of oil equivalent from domestic discoveries.

## Oil India Ltd (OIL)

OIL continued its operations for exploration of crude oil and natural gas in 2012-13 and carried out 1,28,905 m drilling in 37 wells in onshore areas of Assam (35 wells-1,26,408 m drilling) and Rajasthan (2 wells-2,497 m drilling). Exploration resulted in significant discoveries of oil/gas within Tipam & Barail Formation; Lakadong & Therria and Langpar Formation; Kopili Formation; and Girujan Formation.

## Indian Bureau of Mines (IBM)

IBM as a facilitator to Mineral Industry (a) provided technical consultancy services in feasibility study, environmental impact assessment, environmental management plan, etc.; (b) carried out mining research on need-based aspects of mining; (c) conducted mineral beneficiation studies, including mineralogical testing and chemical analysis; and (d) prepared mineral maps. Besides, preparation of National Inventory of mineral resources is IBM's designated responsibility. The National Mineral Inventory (NMI) is brought out by IBM on a quinquennial basis. UNFC system has been adopted by IBM for resource classification. Updating of NMI of mineral resources in respect of 70 minerals based on UNFC system, as on 1.4.2010, has been completed in March, 2012.

IBM is entrusted with preparation of multimineral maps. About 100 multimineral

maps with forest outlays on 1:50,000 scale were prepared in respect of Karnataka & Odisha during 2012-13 in collaboration with Forest Survey of India. IBM has also conducted 59 ore dressing investigations, 42,771 chemical analysis, 2,509 mineralogical studies and nine in-plant studies during the year.

Further, Indian Bureau of Mines has prepared Business Development Plan Reports on Apatite & Rock Phosphate and Lead & Zinc under the Results-Framework Document (RFD) of Ministry of Mines.

### Other Agencies

GMDC estimated a total of 119.91 million tonnes of lignite resources in Bhavanagar and Kachchh districts and 40 million tonnes measured and 31 million tonnes recoverable reserves of lignite in Surat district, Gujarat.

Exploration by HGML has established 17.82 million tonnes gold ore reserves (4.2 - 5.3 g/t Au) in Hutti and Hira-Buddini ML areas in Raichur district of Karnataka and 142 kg proved and 1,687 kg probable gold ore reserves in Lalitpur district of Uttar Pradesh.

Singareni Collieries Company Ltd (SCCL) proved 45.43 million tonnes of coal reserves in Godavari Valley Coalfield, Andhra Pradesh, during 2012-13.

National Mineral Development Corporation Ltd (NMDC) has estimated 1.20 million tonnes iron ore resources in Bellary district, Karnataka.

### Reliance Industries Ltd (RIL)

Currently, conventional business portfolio of RIL includes 13 Production Sharing Contracts (PSC) blocks in India of which nine are in the active exploration/appraisal phase. There are four blocks which are under development and production including KG-D6 in Krishna-Godavari offshore basin, Panna-Mukta and Tapti in Mumbai offshore basin and NEC-25 in the Mahanadi basin. During the year, as a part of appraisal programme for 2012-13, DG block was reviewed, new 3D data was acquired and also one appraisal well was drilled. There are 4 PSC blocks in international arena, which includes 2 blocks each in Yemen and Peru.

### Coal-bed Methane

A total of 30 CBM blocks have been awarded to national, private and Joint Venture Companies in various states under four rounds of CBM bidding held so far. In addition, 2 CBM blocks were awarded on nomination basis and one block through Foreign Investment Promotion Board (FIPB) route. The estimated CBM resources are of the order of 2,600 billion cubic metres (BCM) spread across 11 states in the country. Out of these, about 280.3 BCM of CBM reserves have been established as recoverable by different operators as on 01.01.2014.

## RESEARCH & DEVELOPMENT

The Science and Technology (S&T) programmes of Ministry of Mines, Government of India, cover the disciplines of Geology, Exploration, Mining & Environment, Bioleaching, Beneficiation, Rock Mechanics, Ground Control and Non-ferrous Metallurgy. During 2012-13, a total of nine new projects have been approved by the Standing Scientific Advisory Group (SSAG) of the Ministry of Mines.

The highlights of the work carried out by IBM along with industries and National Institute of Rock Mechanics relating to mineral beneficiation and mining & environment during 2011-12 are furnished below:

## Barytes

***Beneficiation studies on low grade Baryte sample from M/S GIMPEX A P Baryte Beneficiation Pvt. Ltd, Chennai (IBM):*** The as received sample assayed 75.72% $BaSO_4$, 12.79% $SiO_2$, 3.22% $Al_2O_3$, 1.8% Fe(T), 0.60% CaO, 0.54% MgO, 0.74% S (Py) and 1.28% L.O.I. By adopting the selective speciality froth collector Armoflote-17 for flotation, a baryte concentrate assaying 92.19 % $BaSO_4$, 4.59% $SiO_2$, with baryte recovery of 75.6% (wt% yield 62) and specific gravity 4.22 could be obtained. Also a super-grade baryte concentrate assaying 97.06% $BaSO_4$(wt% - 48.0) could be obtained after regrinding of the drill mud baryte concentrate and subjecting it to flotation.

## Bauxite

***Preparation of low ferric alum from low-grade aluminium dross at JNARDDC:*** Iron content in RPU dross is found to be 6-7%. Experimental trials conducted in the scale of 100-200 g were successful and the same can be extended to various grades of aluminium dross.

## Copper-Lead-Zinc

***Generation of Bulk Cu-Pb-Zn Concentrate from Exploratory Sample of Tikhi Project, Udaipur. Rajasthan for MECL, Nagpur (IBM)*:** The as received sample assayed 0.1% Cu, 3.6% Pb, 0.8% Zn, 3.68% Fe(T), 32.6% $SiO_2$ and 56.35% acid insoluble with Ag 47 ppm , Au 0.19 ppm , Co 15 ppm , Ni 25 ppm . A bulk cleaner concentrate assaying 1.98% Cu with 84.7% Cu recovery, 54.47% Pb with 78.1% Pb recovery and 9.42% Zn with 69.76% Zn recovery could be obtained after two cleanings.

Further, Semi bulk flotation of Cu-Pb minerals, three stage cleaning followed by differential flotation of Cu mineral from Pb mineral and Zn mineral flotation and two stage cleaning yielded: (i) a copper concentrate assaying 18.49% Cu, 10.15% Pb, 1.53% Zn and 22.24% Fe(T) with 87.8% Cu recovery (wt% yield of Cu concentrate: 0.7) (ii) a lead concentrate assaying 67.88% Pb, 0.29% Cu, 0.37% Zn and 1/42% Fe (T) with 79.4% Pb recovery (wt% yield of Pb concentrate: 4.05) and (iii) a zinc concentrate assaying 45.57% Zn, 0.21% Cu, 0.54% Pb and 20.89% Fe(T) with 76.1% Zn recovery (wt% yield of Zn concentrate 1.35).

## Graphite

***Pilot Scale Spiral Classification of a Mill Feed Graphite Sample from Sivaganga, Tamil Nadu for M/s Tamilnadu Minerals Limited, Sivaganga (IBM):*** The objective of the Study was to evolve the flow sheet for separation of (-) 0.6 mm material from rod mill feed. The as received sample when subjected to dry size analysis, wet size analysis and scrubbing followed by wet size analysis over 0.6 mm screen indicated that 33%, 37.5% and 65% material finer than 0.6mm screen was present.

## Heavy Mineral Sand

***Recovery of Rutile Mineral from Heavy Mineral Sand Sample for M/s Zibal Exim, Hyderabad, A.P. (IBM):*** The as received sample assayed 59.76% $TiO_2$, 15.72% $SiO_2$, 5.91% Fe(T), 0.34% FeO, 4.85% $Al_2O_3$, 5.21% $ZrO_2$, 0.229% CaO, 0.560% MgO, 0.064% $P_2O_5$, 0.284% MnO, 0.316% $Cr_2O_3$, 0.149% $Nb_2O_5$and 2.72% LOI . The sample is close size ranged sand with very little fines below 75 micron and is coated with organic matter and has specific gravity of 3.8. A composite

concentrate of conductor and middling fraction assaying 81.19% $TiO_2$, 4.97% $SiO_2$, 0.58% Fe(T), 3.69% $Al_2O_3$, 6.72% $ZrO_2$ and 0.87% LOI with $TiO_2$ distribution of 39.5% (wt% yield 29.4) could be obtained.

## Iron Ore

***Bench-scale Beneficiation Studies on a Sub-grade Iron ore Sample from S.R.M.E. Mines, Ramgad, Sandu Taluk, Bellary District, Karnataka for M/s V.T. Industrial Corporation Limited, Bengaluru (IBM):*** The as received sample assayed 58.42% Fe (T), 1.08% FeO, 3.70% $SiO_2$, 5.88% $Al_2O_3$, 0.08% $P_2O_5$, 0.10% S(T) and 5.88% LOI. After stage grinding the sample to minus 65 mesh and subjecting it to desliming, Gravity and Magnetic separation, a concentrate assaying 64.09% Fe, 2.46% $SiO_2$, 2.98% $Al_2O_3$ and 2.92 % LOI with 62.0% Fe recovery (wt.% yield 57.2) could be achieved.

***Upgradation of Low-grade Banded Iron Ore – Quartz Sample for Use in Pellet making (IBM)*:** The as received sample assayed 35.11% Fe(T), 2.08% FeO, 47.12% $SiO_2$, 0.77% $Al_2O_3$, 0.39% CaO, 0.18% MgO, traces of $P_2O_5$ and 0.89% LOI. The sample when subjected to stage grinding in rod mill to minus 65 mesh, tabling followed by wet low intensity magnetic separation (WLIMS) yielded the magnetic concentrate assaying 65.37% Fe, 4.10% $SiO_2$, 0.15% $Al_2O_3$, & traces of S&P and 0.20% LOI with 82.3% Fe recovery (wt% yield 43.6).

## Lead-Zinc

***Upgradation of Lead-Zinc Sample from Abakaliki Project, Abbuja, Ebonyi state, Nigeria for M/s Royal Salt Limited (IBM):*** The as received sample assayed 8.52% Pb, 6.46 Zn, 0.06% Cu, 22.71% Fe(T), 9.19% S , 25.05% $SiO_2$ , 6.40% $Al_2O_3$, 4.42% CaO, 5.27% MgO, 1.12% Graphitic carbon, 0.04% Ni, 0.01% Co, 0.76% Mn, 0.13% Ti and 0.02% Cd. By adopting flotation route for concentration, a lead concentrate assaying 72.69% Pb, 0.49% Zn, 0.13% Cu, 1.42% Fe, 12.71% S(T), 1.71% $SiO_2$, 0.26% $Al_2O_3$, 0.58% CaO, 0.10 MgO, 8.23% LOI with 92.7% lead recovery (wt% yield – 10.4) and zinc concentrate assaying 53.16% Zn, 0.86% Pb, 0.07% Cu, 3.14% Fe, 25.45% S(T), 0.78% $SiO_2$, 0.11% $Al_2O_3$, 0.58% CaO, 0.10% MgO and 14.41% LOI with 94.3% Zn recovery (wt% yield – 12.4) were obtained.

## Lime Kankar

***Bench-scale Beneficiation Studies on a Lime Kankar Sample (Screen Reject) for M/s The India Cement Ltd, Tirunelveli, Tamil Nadu (IBM):*** The as received sample assayed 28.38% CaO, 2.77% MgO, 31.22% $SiO_2$, 6.55% $Al_2O_3$, 2.75% $Fe_2O_3$, 0.15% $TiO_2$ and 25.40% LOI. By adopting dry beneficiation technique, the desired grade concentrate could not be achieved. Hence, a flow sheet comprising rougher flotation at a grind of 82.4% minus 200 mesh (~67% < 325 mesh), at a pulp density of 28/20% solids, using sodium oleate as collector was adopted. The rougher float after subjecting to two cleanings at a pulp density of 18/13% solids yielded the concentrate assaying ~ 47% CaO, ~ 2.50% MgO, ~ 6% $SiO_2$, 1.70% $Al_2O_3$, 1.13% $Fe_2O_3$ & 40.20% LOI with ~ 75% CaO recovery (wt% yield ~ 45).

## Rock Phosphate

***Upgradation of Rock Phosphate Sample from La-Negra Mine, Hidalgo Mexico for M/s Ingwenya Mineral Tech Pvt. Ltd,* Bengaluru (IBM)*:*** The as received sample assayed 24.56% $P_2O_5$(T), 18.28% $SiO_2$, 40.53% CaO and 6.92% $Al_2O_3$. By employing inverse flotation, a phosphate concentrate assaying 32.58% $P_2O_5$, 11.96% $SiO_2$, 46.79% CaO, 0.29% MgO & 2.31% LOI with 48.9% $P_2O_5$ recovery (wt% yield 36.9) could be achieved.

## Environment

### *Indian Bureau of Mines (IBM)*

During the year 2012-13, Indian Bureau of Mines carried out one study for ground vibration due to blasting in mines.

A study of ground vibrations due to blasting at Sitapuram Limestone Mine, that extend to total area of 1329.28 hect. in two leases of M/s Zuari Cements Ltd., (Italcementi Group), was carried out to assess the impact of blast induced ground vibrations on the nearby structures, human settlements and to suggest control measures to minimise the adverse impact of the same.

# INFRASTRUCTURE

As the growth of the economy in general and in the Manufacturing Sector in particular is largely dependent on creation of suitable infrastructure, the policy focus in India has been on infrastructure investment. The Twelfth Five Year Plan has also laid special emphasis on infrastructure development as quality infrastructure is important not only for sustaining high growth but also ensuring that the growth is inclusive. Availability of quality infrastructure is key for the growth of industry and services. From the infrastructure development perspective, important issues like delays in regulatory approvals, problems in land acquisition and rehabilitation and environmental clearances need immediate attention, time overruns in the implementation of projects continue to be one of the main reasons for under achievement in many of the infrastructure sectors.

According to the Ministry of Statistics and Programme Implementation (MOSPI) Flash Report for February 2014, of 239 central-sector infrastructure projects costing L 1000 crore and above, 99 are delayed with respect to the latest schedule and 11 have reported additional delays with respect to the date of completion reported in the previous month. The additional delays in respect to projects relating to the Petroleum, Power, Steel and Coal Sectors are in the range of 1 to 26 months. The total original cost of implementation of these 239 projects was about L7,39,882 crore and their anticipated completion cost is likely to be L8,97,684 crore, implying an overall cost overrun of L1,57,802 crore (21.3% of the original cost). The expenditure incurred on these projects till February 2014 was L4,10,684 crore, which is 45.7% of the total anticipated cost. Among infrastructure services, growth in freight traffic by railways and cargo handled by major ports and the civil aviation sector (except import cargo) has been comparatively higher during 2013-14. In the Road Sector, the National Highways Authority of India (NHAI) posted negative growth of 33% during 2013-14 as compared to the 26.5% growth achieved during 2012-13.

## Coal

Coal production at around 556.40 million tonnes in 2012-13 was higher by 3% from that of 540 million tonnes in 2011-12. In 2012-13, out of the total production of coal, 9.3% (51.6 million tonnes) was of coking coal and the remaining 90.7% (504.8 million tonnes) was of non-coking coal. Of the 567 million tonnes despatches of raw coal in 2012-13, about 76% despatches were to Electricity Sector, 2.8% to the Steel Industry, 2.6% to Sponge Iron Industry and 2.3% to Cement Industry.

## Electricity

Electricity generation by power utilities during 2013-14 was targeted to go up by 6.9% to 975 billion units. The growth in power generation during 2013-14 (April-March) was 6% as compared to 4% during April 2012 to March 2013.

The capacity-addition target for the Twelfth Plan period is estimated at 88,537 MW, which includes 26,182 MW in the Central Sector, 15,530 MW in the State Sector, and 46,825 MW in the Private Sector, respectively. The capacity-addition target for the year 2012-13 was 17,956.3 MW, against which a record capacity addition of 20,622.8 MW (20,121.8 MW thermal and 501 MW hydro) was achieved as the highest-ever annual capacity addition. The capacity-addition target for the year 2013-14 was 18,432.3 MW against which 17,825.1 MW has been achieved.

The Ministry of Power launched an initiative for development of coal-based super critical Ultra Mega Power Projects (UMPP) of about 4000 MW capacity each. Four UMPPs, namely, Sasan in Madhya Pradesh, Mundra in Gujarat, Krishnapatnam in Andhra Pradesh and Tilaiya in Jharkhand have already been transferred to the identified developers and are at different stages of implementation. The Mundra UMPP (5 x 800 MW) is fully commissioned and is generating electricity. Three units of the Sasan UMPP (3x660 MW) have been commissioned so far. The remaining units of Sasan and other awarded UMPPs are expected to come up in the Twelfth Plan (except the last unit of the Tilaiya UMPP, which is likely to come up in the Thirteenth Plan).

## Transport

### *Railways*

Indian Railways consist of an extensive network spread over 65,000 route km (Rkm) comprising broad guage (56,000 Rkm), metre guage (7000 Rkm) and narrow guage (2,000 Rkm). During 2013-14, the total revenue-earning freight traffic moved by Indian Railways was 1,050.18 million tonnes as against revised target at 1,052 million tonnes. The freight carried shows an increase of 42.09 million tonnes over the freight traffic of 2012-13, translating into an increase of 4.18%.

### *Ports*

India's coastline of 7,517 km, spread on the western and eastern shelves of the mainland and also along the islands is studded with 12 major ports and about 200 non-major ports. Approximately, 95% of the India's trade by volume and 70% by value moved through Maritime Transport. Twelve major ports of the country handle about 75% traffic.

Cargo handling capacity at major ports was 745 million tpy in 2012-13 as compared to 690 million tpy in 2011-12. Traffic handled by major ports was 546 million tonnes in 2012-13 as compared to 560 million tonnes in 2011-12. Traffic handled at major ports relating to minerals/mineral products during 2012-13 was: POL 186 million tonnes, iron ore 27 million tonnes, coal 87 million tonnes and fertilizer 15 million tonnes.

### *Roads*

India has more than 48.65 lakh km road network making it one of the largest in the world, comprising 92,851 km National Highways/Expressways, 1,42,687 km State Highways and 46,29,462 km other roads (major district/other district/village roads). The National Highways (NHs) with a total length of 92,851 km, serve as prime arterial network of the country. The development of NHs is the responsibility of the Government of India, which has been mandated to upgrade and strengthen a total of 54,478 km of NHs, through various phases of the National Highways Development Project (NHDP). A total length of 21,787 km has been completed till March 2014 under various phases of the NHDP. The National Highways Authority of India (NHAI) awarded 5,083 km and 6,491 km of road in 2010-11 and 2011-12 respectively for development. However, the pace of awarding, which slowed down due to various reasons in 2012-13 continued even during 2013-14. While in 2012-13, a total of 1,116 km was awarded, 17 projects for a length of 1,436 km with a total project cost of ₹7,256 crore

have been awarded in 2013-14. Also a length of 1,172 km of NHs was awarded under NHDP-IV in the Ministry in 2013-14. In spite of several constraints due to the economic downturn, the NHAI constructed 2,844 km length in 2012-13, its highest-ever annual achievement. During 2013-14, a total of 1,901 km of road construction was completed.

## PERFORMANCE OF SELECTED MINERAL-BASED INDUSTRIES

### Steel

Production of finished steel (including C.R. sheets) in 2012-13 at 81.7 million tonnes was higher by about 8% from 75.7 million tonnes achieved in 2011-12. The total production of pig iron was 5.4 million tonnes and 6.8 million tonnes in 2011-12 and 2012-13, respectively. Exports of finished steel (including C.R sheet) was 4.75 million tonnes in 2012-13 as compared to 4.09 million tonnes reported in 2011-12. Also, 0.43 million tonnes and 0.82 million tonnes pig & cast iron, including spiegeleisen was exported in the corresponding periods.

### Cement

Production of cement in 2012-13 estimated at 235 million tonnes (including mini cement plants) registered an increase of about 2% over the previous year's production of 230 million tonnes. Cement Industry was going ahead with modernisation and upgradation of technology in particular to conserve energy. The country is self-sufficient in cement. India exports cement including white cement and clinker. The exports in 2011-12 and 2012-13, including clinker were about 3.4 million tonnes and 2.8 million tonnes, respectively.

### Petroleum Oil and Refineries

Crude oil production in 2012-13 at 37.8 million tonnes registered a marginal decrease of 0.6% as compared to that in the previous year. The production for natural gas (utilised) was at 40,679 million cubic metres (mcum) in 2012-13, 14.5% lower than 47,559 million cubic metres in 2011-12. The refinery crude throughput of 219.2 million tonnes in 2012-13 was 7.4% higher than 204 million tonnes processed in 2011-12. The total refining capacity in the country at around 215.06 million tpy as on 1.4.2013 was about 1% higher from that of the preceding year. Production of petroleum products (including LPG production from natural gas) was 215.35 million tonnes in 2012-13 as compared to 200.77 million tonnes reported in 2011-12.

## SELF-RELIANCE IN MINERALS & MINERAL-BASED PRODUCTS

India continued to be wholly or largely self-sufficient in minerals which constitute primary mineral raw materials that are supplied to industries, such as, 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 self-sufficient in bauxite, chromite, iron ore and ilmenite among metallic minerals; and almost all the industrial minerals with the exception of chrysotile asbestos, borax, fluorite, 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 ball clay for special applications, very low silica limestone, dead-burnt magnesite and sea water magnesia, battery-grade manganese dioxide, manganese ore, 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 & semi-precious stones by the domestic Cutting and Polishing Industry, India is dependent 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 2012-13 is provided in Table-4.

## Table – 4 : Degree of Self-sufficiency in Principal Minerals & Metals, 2012-13(P)

| Sl. No. | Commodity | Demand/Domestic consumption ('000 tonnes) | Supply/Domestic supply ('000 tonnes) | Order of self-sufficiency (%) |
|---|---|---|---|---|
| **Minerals** | | | | |
| 1 | Asbestos (chrysotile) | 104 | ++ | ++ |
| 2 | Barytes | 186 | 1739 | 100 |
| 3 | Bauxite | 11019 | 15360 | 100 |
| 4 | Chromite | 2602 | 2950 | 100 |
| 5 | Dolomite | 6805 | 6713 | 99 |
| 6 | Felspar | 465 | 1291 | 100 |
| 7 | Fireclay | 480 | 817 | 100 |
| 8 | Fluorite | 63 | 3 | 5 |
| 9 | Gypsum | 8667 | 10082[1/] | 100 |
| 10 | Ilmenite | 191 | 738 | 100 |
| 11 | Iron ore | 103399 | 136019 | 100 |
| 12 | Kyanite | 3 | 1 | 33 |
| 13 | Limestone & other calcareous minerals | 259314 | 279977[2/] | 100 |
| 14 | Magnesite | 490 | 213 | 44 |
| 15 | Manganese ore | 4177 | 2322 | 56 |
| 16 | Rock phosphate (including apatite) | 4221 | 2125 | 50 |
| 17 | Rutile | 26 | 16 | 62 |
| 18 | Sillimanite | 20 | 44 | 100 |
| 19 | Silica minerals | 2285 | 5096 | 100 |
| 20 | Sulphur | 1816 | 928[3/] | 51 |
| 21 | Talc/steatite/soapstone/pyrophyllite | 381 | 1184 | 100 |
| **Metals[4/]** | | | | |
| 22 | Aluminium | 2435 | 1720 | 71 |
| 23 | Copper (refined) | 438 | 493 | 100 |
| 24 | Lead (primary) | 248 | 118 | 48 |
| 25 | Zinc | 649 | 704 | 100 |
| **Ferro-alloys[5/]** | | | | |
| 26 | Ferro-chrome | 287 | 944 | 100 |
| 27 | Ferro-manganese | 124 | 518 | 100 |
| 28 | Ferro-silicon | 42 | 90 | 100 |

***Note:*** *Even in cases where almost entire domestic demand is satisfied by domestic supplies, some quantities of certain special quality/types of minerals and metals/ferro-alloys are imported to meet the requirement in certain specific end-uses.*

*1/ Includes mineral gypsum, by-product marine gypsum and estimated production of by-product phospho-gypsum, based on available information besides selenite.*

*2/ Excludes production of limestone as a minor mineral, calcite and chalk.*

*3/ Relates to recovery of by-product sulphur from petroleum refineries and sulphur equivalent of by-product sulphuric acid recovered from copper & zinc smelters consuming indigenous ores and concentrates.*

*4/ Apparent demand.*

*5/ Excludes production in small-scale sector.*

# FOREIGN TRADE

India's merchandise trade has been growing in importance over the years with the share in world exports and imports increasing, though gradually, from 0.7% and 0.8% respectively in 2000 to 1.7% and 2.5% respectively in 2013. India's ranking in the top merchandise exporters and importers in the world has also improved from 31st in 2000 to 19th in 2013 in exports and from 26th to 12th for imports in the same years, as per the World Trade Organisation (WTO). There has also been marked improvements in India's total merchandise trade to GDP ratio from 21.8% in 2000-01 to 44.1% in 2013-14.

## Exports

According to the data available, the total exports (including re-exports) of all merchandise in 2011-12 and 2012-13 were L14,65,959 crore and L16,34,318 crore, respectively. The ores and minerals group (including diamond, precious and semi-precious stones) earned foreign exchange worth L1,75,310 crore and L1,59,747 crore in 2011-12 and 2012-13 thereby posting a decrease of about 8.8%. Contribution of cut diamonds in 2011-12 & 2012-13 was L1,33,881 crore and L1,26,566 crore while that of iron ore was L22,185 crore and L8,783 crore, respectively.

The principal ores and minerals exported from India in order of value contribution are diamond (mostly cut), iron ore, alumina, granite, emerald (cut & uncut) and alumina. Rough diamonds imported into the country are cut and re-exported and these diamonds contributed 79.28% to the total exports of ores and minerals in 2012-13. Iron ore contributed 5.50%, followed by granite 4.97%, emerald (cut & uncut) and alumina between 1-2%. The individual share of remaining minerals was less than 1% in the total value of exports of ores and minerals from India in 2012-13.

The export of selected mineral-based products during 2011-12 and 2012-13 was valued at L2,89,436 crore and L3,24,609 crore, respectively. The exports of petroleum products, e.g., light distillates (naphtha and others), middle distillates and heavy ends, earned foreign exchange of L2,84,644 crore and L3,20,090 crore in 2011-12 and 2012-13, respectively, with more than 98% share in both the years in the export of selected mineral-based products.

India also exported metals and alloys valued at L1,02,500 crore and L1,39,496 crore during 2011-12 and 2012-13, respectively. Iron and steel with a share of about 51.05% in the total value of exports of metals and alloys followed by gold (non-monetory & monetory) 17.20%, copper & alloys (including brass & bronze) 11.28%, ferro-alloys 7.31%, aluminium, alloys & scrap 6.25%, zinc & alloys (including scrap) 1.77%, precious metals/metal clad with precious metal 1.75% and nickel and alloys (incl. scrap) 1.63% were the principal metals/alloys exported from India in 2012-13.

## Imports

The total imports of all merchandise in 2011-12 and 2012-13 were L23,45,463 crore and L26,69,161 crore, respectively. The value of imports of ores and minerals in 2012-13 increased by 19.03% to ` 11,24,137 crore from L9,44,430 crore in 2011-12. Petroleum (crude) continued to be the largest constituent item of mineral imports with a share of 72.5% in 2012-13. Its imports in 2012-13 at L8,14,867 crore rose by more than 26% over 2011-12. Next in descending order was diamond with a share of about 10.5%, followed by coal (excluding lignite) 7.2%, natural gas 3.6% and copper ore & concentrates 2.8%.

The import of selected mineral-based products during 2011-12 and 2012-13 was valued at L90,034 crore and L88,508 crore, respectively. The imports of petroleum products in 2012-13 rose by 0.4% in value over the preceding year to L68,363 crore and had a share of 77% in the value of import of selected mineral-based products during 2012-13.

The value of imports of metals and alloys at L4,43,996 crore showed an increase of 6% in 2012-13 from L4,18,310 crore in 2011-12. Share of gold imports was about 66% in terms of value, followed by iron & steel (20%), aluminium alloys & scrap (3.9%), copper & alloys (3.6%), silver (2.4%) and nickel and alloys & scrap 1.2%.

## VALUE-ADDED EXPORT TRADE

India's foreign trade includes exports of minerals, both in the raw form and semi-processed & processed forms like mineral-based primary manufactured products.

Minerals contributed significantly to India's exports trade in 2012-13 with a share of about 19.77% (i.e., L1,59,747 crore) in the total value of all merchandise. The contribution of minerals in exports in raw/unprocessed forms was about L21,663 crore and in semi-processed/processed forms was about L1,38,083 crore. The manufactured mineral-based products contributed about L4,62,797 crore in 2012-13 to the total value of exports of all merchandise. The value-added semi-processed/processed minerals figuring in India's foreign trade included cut and polished diamond/ emerald, etc., pulverised barytes, steatite, felspar (cut), garnet, calcined magnesite, magnesia (fused), magnesite (dead-burnt), magnesium oxide, slate (worked), processed mica and manufactured mica products, coke, cut and polished dimension stones, alumina, etc. The manufactured mineral-based commodities included metals and alloys and products thereof, cement, firebricks and other refractory materials, clay-bonded graphite crucibles and silicon carbide crucibles, manganese dioxide, asbestos-cement products, inorganic chemicals like lime and fluorine chemicals, refined borax and borates, elemental phosphorus and phosphoric acid, titanium dioxide, petroleum products, phosphatic and potash fertilizers, etc. Table-5 provides data on contribution of various value-added minerals and mineral-based products to India's exports during 2010-11 to 2012-13.

**Table – 5 : Contribution of Value-added (Processed) Minerals & Mineral-based Products in India's Export* Trade, 2010-11 to 2012-13**

| Sl. No. | Commodity group | Value of exports (` million) | | | Contribution (percentage) | | |
|---|---|---|---|---|---|---|---|
| | | 2010-11 | 2011-12 | 2012-13 | 2010-11 | 2011-12 | 2012-13 |
| 1. | All Merchandise | 11429219 | 14659593 | 16343188 | 100.00 | 100.00 | 100.00 |
| 2. | Minerals | 1743704 | 1753095 | 1597472 | 15.2 | 11.9 | 9.7 |
| | 2.1 Raw/Unprocessed form | 296189 | 321792 | 216636 | 2.6 | 2.2 | 1.3 |
| | 2.2. Semi-processed/ processed forms (preliminary and intermediate stages of processing) | 1447515 | 1431303 | 1380836 | 12.7 | 9.8 | 8.4 |
| 3. | Manufactured Mineral-based Commodities (final stage of transformation) | 2935184 | 3900278 | 4627973 | 24.7 | 26.6 | 28.3 |
| | 3.1 Metals/Alloys | 940524 | 1024998 | 1394959 | 8.2 | 7.0 | 8.5 |
| | 3.2 Others | 1994660 | 2875280 | 3233014 | 17.4 | 19.6 | 19.7 |

*Figures rounded off.*
** Including re-exports.*