MONTHLY SUMMARY
ON
NON-FERROUS MINERALS & METALS
JULY - 2011
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<td>5.1.1 Global</td>
<td>12</td>
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<td>15</td>
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<td>15</td>
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</tbody>
</table>
Performance of Non-ferrous Metal Sector:

1.1 Aluminium:

1.1.1 Global Scenario:

The LME prices of Aluminium were lowered during the months of June and July, 2011 in view of debt concerns in Europe and U.S., inflationary pressures in China and absence of investor inflows. In the U.S. and Canada demand of Aluminium from the construction market remains tepid and continues to be an area of concern.

Analysts believe that due to Japanese tsunami and earthquake the supply-chain for automotive parts has been severely affected. The work had to be halted by the key suppliers resulting in manufacturing disruptions across the world. These cuts in automotive production will have an impact on aluminium demand in 2011 and much of this loss in demand would be in castings. Moreover, the cuts in automotive production would also impact the growth in recycled Aluminium metal.

1.1.2 Domestic Scenario:

NALCO produced 37,048 MT, sold 26,984 MT in domestic market and exported 5,082 MT of aluminium metal in JULY, 2011.

Production of aluminium metal in the public sector unit, namely, National Aluminium Company Ltd. (NALCO) and private sector units, namely, Bharat Aluminium Company Limited (BALCO) {which has 49% Central Government equity}, Hindustan Aluminium Company Ltd. (HINDALCO), Madras Aluminium Company Ltd. (MALCO) and Vedanta Aluminium Company Ltd. (VAL) in the country, during the month of JULY, 2011 was as follows:

<table>
<thead>
<tr>
<th>Name of the Company</th>
<th>Existing Capacity</th>
<th>JULY, 2011</th>
<th>Cumulative Production Target</th>
<th>Cumulative Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>NALCO</td>
<td>438000</td>
<td>37180</td>
<td>37048</td>
<td>146810</td>
</tr>
<tr>
<td>BALCO</td>
<td>245000**</td>
<td>21480</td>
<td>20175</td>
<td>84316</td>
</tr>
<tr>
<td>HINDALCO</td>
<td>513500</td>
<td>49538</td>
<td>48195</td>
<td>194233</td>
</tr>
<tr>
<td>MALCO</td>
<td>38000</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>VAL #</td>
<td>500000</td>
<td>Trial run</td>
<td>27126</td>
<td>Trial run</td>
</tr>
<tr>
<td>Total:</td>
<td>1734500</td>
<td>108198</td>
<td>132544</td>
<td>425359</td>
</tr>
</tbody>
</table>

National Aluminium Company Limited sold 35, 475 Tonnes of Alumina / Hydrate and exported 5, 082 tonnes of Aluminium during the month July, 2011

# Vedanta Aluminium Limited (VAL) has commissioned its Smelter at Jharsuguda from April, 2008 which is presently under trial production.

@ MALCO has temporarily shut down its smelter operations since December, 2008.

** BALCO has closed down its old smelter of 1 lakh tonne per annum capacity and hence the present installed capacity of the company is 2,45,000 tonne.

* Provisional
Status of Implementation of NALCO’s second phase expansion of Bauxite Mine, Alumina Refinery and Aluminium Smelter (as on 31.07.2011) is as follows:

- Revised project cost: ₹ 4,402 crore.
- Financial Commitment ₹ 4,276 crore during April to July, FY 2010-11 (cumulative)

OVERALL PHYSICAL PROGRESS:

<table>
<thead>
<tr>
<th>S. N.</th>
<th>PROJECT SEGMENT</th>
<th>CUMULATIVE UP TO JULY, 2011</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mines &amp; Refinery</td>
<td>100</td>
<td>Bauxite charging to 4th stream of Refinery under 2nd Phase Expansion Project at M&amp;R Complex achieved on 30th June, 2011 with feeding of slurry to 4th Stream pre-desilication.</td>
</tr>
<tr>
<td>2</td>
<td>Smelter</td>
<td>100</td>
<td>All 240 pots have been commissioned by December, 2009.</td>
</tr>
<tr>
<td>3</td>
<td>CPP</td>
<td>100</td>
<td>Unit # 9 and Unit # 10 commissioned in August, 2009 and August, 2010 respectively.</td>
</tr>
</tbody>
</table>

1.2 Downstream Products

The main downstream products are Fused Alumina, Special Alumina / refractory raw material, Aluminum & non-ferrous casting for automobiles, rolled products, wheels extrusions foils, castings, alloys, sections, sheets, home appliances, strips etc. In the past the integrated and secondary players were separate constituents, with little overlap between them. Recently, a spate of mergers and acquisitions has virtually made the downstream segment the preserve of the integrated producers.

1.2.1 Global Scenario-

In the global sector

Accuride Corporation a leading manufacturer and supplier of commercial vehicle components in North America, has announced a $13 million aluminum wheel capacity expansion plan. The plan entails the addition of aluminum wheel machining and polishing equipment.

1.2.2 Domestic Scenario-

Presently, Hindalco is producing different value-added products and services, namely, Fresh wrap aluminum foil, Everlasting aluminum roofing sheets, Permachield aluminum waterproofing membrane sheeting, and Al Planet, an exhibition showcasing aluminum products for the construction industry.
Hindalco’s foil business and packaging division (like Superwrap, Freshwrap and Freshpakk semi-rigid containers) delivers versatile solution to meet the multi-pronged needs of customers. It also offer packaging solutions to well-known brands in the pharmaceuticals, healthcare, dairy, confectionery, processed foods, personal products, tobacco industries and also serve the HVAC (heat, ventilation and air conditioning) segments with radiator and AC fin stock.

In future downstream projects, National Aluminum Company Limited (NALCO) and the Orissa government formally set up the joint venture (JV) company Angul Aluminum Park at an estimated cost of ₹ 75 crore. Nalco has 49.5 percent stake and the Orissa government-owned Industrial Infrastructure Development Corporation (IDCO) has 50.5 percent stake. The park would host ancillary and downstream industries like coal tar pitch, aluminum fluoride, aluminum conductors, aluminum castings, extrusion, slugs and circles. Nalco will supply hot metal from its smelter to the aluminum processing units in the park to ensure considerable savings in consumption of power.

Similarly Hindalco would set up a ₹ 1000 crore aluminum downstream project near its existing smelter at Hirakud. The project envisages setting up of rolling mill to manufacture high quality aluminium flat rolled products (FRP) and cans

2.1 Copper Ores:

2.1.1 Global Scenario:

World mine production grew by around 2% in the first four months of 2011 compared with that in the same period of 2010: concentrate production grew by 3% while solvent extraction-electro winning (SX-EW) declined by 1.5%. In part, this modest net increase reflects operational constraints that reduced production in 2010 in Australia and Mexico. Production in Chile, the world’s leading producer, was down by 1.4%. Production was also down in other major producers such as the United States (-4.5%), Indonesia (-18%) and the Democratic Republic of Congo (-16%). On a regional basis, mine production increased by 0.7% in the Americas, 5.7% in Europe, and 22% in Oceania but decreased by around 0.5% in both Africa and Asia. The mine capacity utilization rate increased slightly in April and the average for the 1st four months of 2011 was unchanged from that in the same period of 2010. World mine production of Copper Ore in April, 2011 in terms of copper content was 1,325,000 tonnes.

2.1.2 Domestic Scenario:

HCL is the only domestic producer of Copper Ore. The production of Copper Ore during July, 2011 was 3.02 lakh tonnes against a production of 2.88 lakh tonnes during the same period of financial year 2010-11: an increase by about 5%.

2.2 Copper Metal

2.2.1 Global Scenario:

During the first four months of 2011, world refined production grew by 1% as compared with that in the same period of 2010: Primary production remained practically unchanged and secondary production (from scrap) increased by 4.7% production increased by 4.7%. Production increases of 57% in Australia (recovery from low 2010 level), 12% in China, and 6% in India were practically offset by declines in Chile (-4%), the United States (-11%), Canada (-28%) and Japan (-16%). Refined production
capacity utilization in the first four months of 2011 was around 78% as compared with 79% in the same period of 2010. World refined production in April, 2011 was 1,574,000 tonnes.

2.2.2 Domestic Scenario:

The size of Indian Copper Industry (consumption of refined copper per annum) is around five lakh tones, which as percentage of world copper market is only three percent. Sterlite Industries, Hindalco and Hindustan Copper are major producers of refined copper in India. India has emerged as net exporter of copper from the status of net importer on account of rise in production.

The production of Copper Metal (Cathode) by HCL during the month of July, 2011 is 1783 tonnes, out of which 279 tonnes has been produced through job work. The production of Copper Metal (Cathode) by HCL including production through job work during the same period of financial year 2010-11 was 2682 tonnes: a decrease by about 33.5%.

As of the end of June, 2011, copper stocks held at the major metal exchanges (LME, COMEX, SHFE) totalled 616,912 tonnes, an increase of 48,730 tonnes from stocks held at the end of December, 2010. Compared to the May levels, stocks were down at three exchanges.

Factors Influencing Copper Markets:

• Copper prices in India are fixed on the basis of the rates that rule on LME and Rupee & US Dollar exchange rate.

• Economic growth of the major consuming countries such as China, USA, Japan, Germany, India etc.

• Growth and development in the Infrastructure, Real-estate, Telecom and Electrical Industry.

Price Outlook:

• The average LME price in July, 2011 was US$ 9619 per MT compared to average LME of US$ 9045 per MT in June, 2011. The average LME price during the year 2010-11 was US$ 8140 per MT.

Overall Performance of Hindustan Copper Limited:

During the month of July, 2011 production of Metal in Concentrate, Cathode and CC Wire Rod was 103%, 100% and 76% of the target respectively. The sales achievement during the month of July, 2011 was 98% of the target. The Company has earned net profit (after tax) of ₹ 10.37 crore against the target of ₹15.47 crore.
The Physical and Financial performance of Hindustan Copper Limited are given as under:-

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</thead>
<tbody>
<tr>
<td>HCL</td>
<td>49500</td>
<td></td>
<td>1500</td>
<td>1504</td>
<td>5900</td>
<td>5812</td>
<td>3464</td>
</tr>
<tr>
<td>Tolled</td>
<td></td>
<td>*17500</td>
<td>948</td>
<td>279</td>
<td>3922</td>
<td>2724</td>
<td>2358</td>
</tr>
<tr>
<td>Total</td>
<td>49500</td>
<td>29414</td>
<td>2448</td>
<td>1783</td>
<td>9822</td>
<td>8536</td>
<td>5822</td>
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**PHYSICAL PERFORMANCE**

**COPPER CATHODES: (MT)**

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<tbody>
<tr>
<td>Own</td>
<td>49500</td>
<td>*17500</td>
<td>1500</td>
<td>1504</td>
<td>5900</td>
<td>5812</td>
<td>3464</td>
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<tr>
<td>Tolled</td>
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<td>29414</td>
<td>2448</td>
<td>1783</td>
<td>9822</td>
<td>8536</td>
<td>5822</td>
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**FINANCIAL PERFORMANCE: (₹ Crore)**

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<tbody>
<tr>
<td>Turnover</td>
<td>1320.00</td>
<td>105.72</td>
<td>76.12</td>
<td>439.11</td>
<td>378.02</td>
<td>297.72</td>
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<tr>
<td>Gross Margin</td>
<td>410.00</td>
<td>30.30</td>
<td>26.89</td>
<td>134.50</td>
<td>147.95</td>
<td>94.77</td>
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</tr>
<tr>
<td>Net profit/(Loss)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Before tax (PBT)</td>
<td>319.58</td>
<td>23.16</td>
<td>15.35</td>
<td>104.89</td>
<td>101.90</td>
<td>65.35</td>
<td></td>
</tr>
<tr>
<td>Net profit/(Loss)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>after tax (PAT)</td>
<td>213.45</td>
<td>15.47</td>
<td>10.37</td>
<td>70.06</td>
<td>70.78</td>
<td>43.65</td>
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</tr>
</tbody>
</table>

* Only ICC plant of capacity 18,500 MT is in operation. KCC plant of capacity 31,000 MT is not in operation on economic consideration.

The production of copper cathode in the organized sector by the public sector unit, Hindustan Copper Ltd. (HCL), and private sector units, Hindalco Industries Ltd. (HINDALCO), (Unit: Birla Copper) and Sterlite Industries (India) Ltd. (SIL) in the country, during the month of **JULY, 2011** was as follows:

<table>
<thead>
<tr>
<th>Name of the Company</th>
<th>Installed Capacity (Annual)</th>
<th>July, 2011</th>
<th>Cumulative Production Target</th>
<th>Cumulative Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCL</td>
<td>49500</td>
<td>1500</td>
<td>1504</td>
<td>5900</td>
</tr>
<tr>
<td>HINDALCO</td>
<td>500000</td>
<td>**</td>
<td>16831</td>
<td>**</td>
</tr>
<tr>
<td>SIL</td>
<td>400000</td>
<td>31622</td>
<td>26634</td>
<td>125839</td>
</tr>
<tr>
<td>Total</td>
<td>949500</td>
<td>33122</td>
<td>44969</td>
<td>131739</td>
</tr>
</tbody>
</table>

** (Depends upon various economic factors)
2.3 Downstream Products

2.3.1 Global Scenario-

China’s Xiangguang Copper plant is expanding to downstream products and started building a complex in Yanggu with total annual capacity of 320,000 tonnes of semi-finished and finished copper products.

Sanfeng Copper Industry Co., Ltd., Henan Province, China is expected to manufacture 100,000 tons of high-precision ultra-thin copper plates in different types with a product line covering electronic copper bands and red copper bands such as radio-frequency cable straps, brass bands for socket connectors, bands for transformers, brass plates, red copper plates etc., which will be widely used in such industries as electronics, electrics, auto terminals, etc.

2.3.2 Domestic Scenario:-

In domestic front, Hindustan Copper Limited, a public sector enterprise of the Government of India, produces a variety of by-products like copper sulphate, sulphuric acid, reverts & anode slime. Likewise Hindalco’s produces a variety of copper product which includes copper cathodes and continuous cast copper rods. It also produces precious metals, sulphuric acid, phosphoric acid, di-ammonium phosphate (DAP) and other phosphotic fertilizers.

3.1 Lead & Zinc Ore

Lead & Zinc are the most widely used non-ferrous metal, after aluminum & cooper. Both are traditional metals with modern applications. Lead is primarily used in battery industry while the main use of Zinc (Zn) is for coating iron and steel products in order to make them corrosion resistant. Other uses are in brass alloys, die casting alloys, chemicals and rolled zinc products.

3.1.1 Global Scenario:-

The world’s reserve base of lead is estimated at 170 million tonnes. Australia leads with 35% world reserve base of lead, followed by China (21%), USA (11%) and Kazakhstan (4%).

Zinc is 24th most abundant element in Earth's Crust. The world’s reserve base is estimated at 480 million tonnes. Australia accounts for 21% of world’s zinc reserve base, followed by China and USA (19% each), Kazakhstan (7%), Canada (6%), Mexico and Peru (5% each).

3.1.2 Domestic Scenario:-

Rajasthan is endowed with the largest resources of lead-zinc ore amounting to 468.51 million tonnes (90%), followed by Bihar 11.43 million tonnes (2%), Maharashtra 9.272 million tonnes (2%), Madhya Pradesh 6.920 million tonnes (1%) and Andhra Pradesh – 6.620 million tonnes (1%). Resources are also established in Gujarat, Meghalaya, Orissa, Sikkim, Tamil Nadu, Urrarakhand and West Bengal.
The total resources of lead & Zinc ores are estimated at 522.580 million tones as on 1.04.2005.

The details are as below-

<table>
<thead>
<tr>
<th></th>
<th>Reserves (Million tonnes)</th>
<th>Remaining Resources (Million tonnes)</th>
<th>Total Resources (Million tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ore</td>
<td>125.754</td>
<td>396.826</td>
<td>522.580</td>
</tr>
<tr>
<td>Lead Metal</td>
<td>2.59055</td>
<td>4.617</td>
<td>7.20725</td>
</tr>
<tr>
<td>Zinc Metal</td>
<td>11.09289</td>
<td>13.167</td>
<td>24.25968</td>
</tr>
</tbody>
</table>

3.2. Lead & Zinc Metal

3.2.1 Global Scenario:-

Lead:-

Production and consumption of lead is increasing worldwide. Total annual production is about 8 million tonnes; about half is produced from recycled scrap. The top lead producing countries are Australia, China, USA, Peru, Canada, Mexico, Sweden, Morocco, South Africa and North Korea, Australia, China and the United States account for more than half of primary production. Global Lead Production during the year was 8.827 million tonnes.

<table>
<thead>
<tr>
<th></th>
<th>Year</th>
<th>Quantity (Tones)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2007</td>
<td>8.12 Million Tones</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>8.67 Million Tones</td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td>8.82 Million Tones</td>
</tr>
</tbody>
</table>

Zinc:-

As per Mineral commodity Summary of United States Geological Survey, Largest Producer of Zinc in 2009 was China 2.8 million tonnes whereas the global production during the year 2009 was 11.13 million tonnes.

3.2.2 Domestic:-

Zinc Metal:-

In India, the main producers of Zinc are

(i) Hindustan Zinc Limited (HZL) (Govt. of India holds 29.54% of equity share)

(ii) Binani Zinc Limited (BZL) (Private Sector)

Production details of above companies are as below-

<table>
<thead>
<tr>
<th></th>
<th>Company</th>
<th>Existing capacity</th>
<th>JULY, 2011</th>
<th>Cumulative Production Target</th>
<th>Cumulative Production</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HZL</td>
<td>879000</td>
<td>69090</td>
<td>60046</td>
<td>263330</td>
</tr>
<tr>
<td></td>
<td>BZL</td>
<td>38000</td>
<td>2593</td>
<td>2305</td>
<td>10518</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>917000</td>
<td>71683</td>
<td>62351</td>
<td>273848</td>
</tr>
</tbody>
</table>

* Provisional


**Lead:**

The main producers of Lead are

(i) Hindustan Zinc Limited (HZL) (Govt. of India holds 29.54% of equity share)

(ii) Indian Lead Limited (ILL) (Private Sector)

Production details of above companies are as below-

<table>
<thead>
<tr>
<th>Company</th>
<th>Existing capacity</th>
<th>July, 2011</th>
<th>Cumulative Production</th>
<th>Cumulative Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>HZL</td>
<td>93000</td>
<td>11223</td>
<td>5341</td>
<td>29193</td>
</tr>
<tr>
<td>ILL</td>
<td>24000</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>117000</td>
<td>11223</td>
<td>5341</td>
<td>29193</td>
</tr>
</tbody>
</table>

* Provisional

3.3 **Downstream Products**

3.3.1 **Domestic:**

Hindustan Zinc, a Vedanta Group company, has urged the Rajasthan government to allow them to set up a Metal park for ancillary units, downstream metal product manufacturers and silver jewellery industry in the state. The company has assured the government supply of zinc, copper and silver, besides electricity. The government will also gain as this type of ventures will generate huge employment.

4.1 **Gold**

4.1.1 **Global:**

The estimated reserve base for gold was about 90,000 tonnes metal. Out of the total world resources of gold, 15 to 20 % was obtained as a by-product during extraction of other metals. In addition, ground stocks of 34,000 tonnes of previously mined gold were held by Central Banks and 74,000 tonnes was available in the form of coin, bullion, jewellery and scrap.

The world’s top five producing gold mining companies include: Barrick Gold, Goldcorp, AngloGold Ashanti, Newmont Mining Corporation and Kinross Gold Corporation
4.1.2 Domestic:-

The only gold producing mine in India is Hutti Gold Mines Limited (HGML). It has reserves of approximately 600 tons and produces on an average 3 tons of gold a year. India may import 500-550 tonnes of gold in 2010. Deccan Gold Mines Ltd expects to start gold production by end-2010. The company is targeting 4 tonnes of gold production annually. Gold is also produced as a by-product in copper smelting.

The production of Gold during JULY, 2011 was 1.043000 tonnes.

<table>
<thead>
<tr>
<th>Name of the Company</th>
<th>Production JULY, 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>HGML</td>
<td>0.219000</td>
</tr>
<tr>
<td>HINDALCO</td>
<td>0.824000</td>
</tr>
</tbody>
</table>

(Hutti Gold Mines Ltd. (HGML) has intimated that the gold production for the month of JULY, 2011 is less than the target.

4.2 PGE

The platinum group metals (abbreviated as the PGMs sometimes collectively refers to six metallic elements clustered together in the periodic table). The six platinum group metals are ruthenium, rhodium, palladium, osmium, iridium, and platinum. They have similar physical and chemical properties, and tend to occur together in the same mineral deposit. Significant quantities of platinum group metals – Ruthenium, Rhodium and Palladium are formed as fission products in nuclear reactors. With escalating prices and increasing global demand, reactor produced noble metals are emerging as an alternative source.

4.2.1 Global:-

The largest reserves of PGMs are located in Bushveld Complex in South Africa. The world reserve base of PGMs is estimated at 80,000 tonnes concentrated mostly in South Africa (87.5%), followed by Russia (8%) and USA (2.5%)

PGE deposits are widespread; however, deposits with economically recoverable platinum-group elements (PGEs) are limited. Canada, Russia, South Africa, and the United States accounted for about 97 percent of the world’s platinum production and 95 percent of the world’s palladium production.

4.2.2 Domestic:-

In India, appreciable values of platinum group of elements (PGE) were traced in the Precambrian mafic/ultramafic complexes in Sukinda and Nuasahi sectors of Orissa and Sitampudi in Tamil Nadu. Sampling of chromite ore bodies and their associated rocks revealed occurrence of PGE in these areas. However no production of PGE is reported.
5.1 Other Metals (Molybdenum, Cobalt, etc)

5.1.1 Global:-

Molybdenum

Molybdenum occurs in nature only in chemical combination with other elements. A number of molybdenum-bearing minerals have been identified, but the only one of commercial significance is molybdenite (MoS2) - a natural molybdenum sulfide.

The world reserve of Molybdenum was over 19 million tonnes, located mainly in China, USA, Chile, Canada, Armenia, Russia, Peru & Mexico.

Cobalt

The identified world cobalt resources are about 13 million tons. The vast majority of these resources are in nickel-bearing laterite deposits, with most of the rest occurring in nickel-copper sulfide deposits hosted in mafic and ultramafic rocks in Australia, Canada, and Russia, and in the sedimentary copper deposits of Congo (Kinshasa) and Zambia.

5.1.2 Domestic:-

Molybdenum

The total resources of molybdenum ore in the country as on 1.4.2005 are estimated at about 19.29 million tonnes containing about 12,640 tonnes MoS2. Of these, 1.5 million tonnes are in reserves category and 17.79 million tonnes in resources category. Molybdenum resources are mainly located in Tamil Nadu (9.97 million tonnes), Madhya Pradesh (8 million tonnes) and Karnataka (1.32 million tonnes).

Cobalt

The total resources of cobalt ore in the country as on 1.4.2005 are estimated at about 44.91 million tonnes out of which 30.91 million tonnes (about 69%) located in Orissa while remaining are available in Jharkhand & Nagaland.

5.1.3 Rare Earth Element:-

Global Scenario:-

As per reports in Nature Geosciences by Mr. Yasuhiro Kato, Associate Professor of Earth Science, University of Tokyo, vast deposits of rare earth minerals have been found on the floor of the Pacific Ocean. Rare earths are relatively abundant in the Earth’s crust, but discovered minable concentrations are less common than most other ores. U.S. and world resources are contained primarily in bastnäsite and monazite. Bastnäsite deposits in China and the United States constitute the largest percentage of the world’s rare earth economic resources, while monazite deposits in Australia, Brazil, China, India, Malaysia, South Africa, Sri Lanka, Thailand, and the United States constitute the second largest segment. Apatite, cheralite, eudialyte, loparite, phosphorites, secondary monazite, spent uranium solutions, and xenotime make up most of the remaining resources. Undiscovered resources are thought to be very large.
China holds the leading position among producers of rare earths followed by Brazil, Malaysia and India. Rare earths are also produced in Russia, Kazakhstan, Kyrgyzstan and Thailand.

**World Mine Production and Reserves (in Tonnes):**

<table>
<thead>
<tr>
<th>Country</th>
<th>2008</th>
<th>2009</th>
<th>Reserves *</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>120,000</td>
<td>120,000</td>
<td>36,000,000</td>
</tr>
<tr>
<td>India**</td>
<td>2,700**</td>
<td>2,700**</td>
<td>3,100,000**</td>
</tr>
<tr>
<td>Brazil</td>
<td>650</td>
<td>650</td>
<td>48,000</td>
</tr>
<tr>
<td>Malaysia</td>
<td>380</td>
<td>380</td>
<td>30,000</td>
</tr>
<tr>
<td>United States</td>
<td>--</td>
<td>--</td>
<td>13,000,000</td>
</tr>
<tr>
<td>Australia</td>
<td>--</td>
<td>--</td>
<td>5,400,000</td>
</tr>
<tr>
<td>CIS</td>
<td>--</td>
<td>--</td>
<td>19,000,000</td>
</tr>
<tr>
<td>Other Countries</td>
<td>NA</td>
<td>NA</td>
<td>22,000,000</td>
</tr>
<tr>
<td>Total</td>
<td>1,24,000</td>
<td>1,24,000</td>
<td>99,000,000</td>
</tr>
</tbody>
</table>

*Reserves data for Australia, China, and India were updated based on data from the respective countries.*

**Source:** Mineral Commodity Summaries, 2010

*Though Mineral Commodity Summaries 2010 still showing the Indian production as 2700 tonnes & reserves as 3.1 Million tonne, however as per Department of Atomic Energy, Mumbai the production of rare earth in India in 2008 was only 35 tonnes while estimated reserves has increased to 10.21 million tonne.*

**INDIAN SCENARIO:-**

In India, monazite is the principal source of rare earths and thorium. The mineral monazite is a prescribed substance as per the notification under the Atomic Energy Act, 1962. AMD has been carrying out its resource evaluation for over five decades. It occurs in association with other heavy minerals, such as ilmenite, rutile, zircon, etc. in concentrations of 0.4 - 4.3% of total heavies in the beach and inland placer deposits of the country. The resource estimates of monazite in the beach and inland placer deposits have been enhanced from 7.90 million tonnes in 2002 to 10.21 million tonnes.

IREL, a Government of India Undertaking and KMML, a Kerala State Government Undertaking, are actively engaged in mining and processing of beach sand minerals from placer deposits. IREL produced 35 tonnes rare earths viz, RE fluoride, cerium oxide, cerium hydrate from conversion of rare earths chloride, in 2007-08 against 1,800 tpy installed capacity.

**Production and Value of Rare Earths**

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantity (tonne)**</th>
<th>Value* (lakh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-06</td>
<td>93</td>
<td>157</td>
</tr>
<tr>
<td>2006-07</td>
<td>45</td>
<td>48</td>
</tr>
<tr>
<td>2007-08</td>
<td>35</td>
<td>65</td>
</tr>
</tbody>
</table>

*Produced by IREL.*

**Mainly Rare Earths fluoride, cerium oxide & cerium hydrate from conversion of Rare Earths chloride.*

**Source:** Department of Atomic Energy, Mumbai.
India consumed about 200 tonnes of rare earth products in 2004. The country imports all its current requirements from China and mostly uses rare earths in consumer goods industries, petroleum refineries and the car industry. As per Department of Atomic Energy, India consumed 222 tonnes of rare earth in the year 2007-08.

Indian Rare Earths, producer of REE which halted output in 2004 in the face of cheaper competition from China, is now stepping back into the picture with investment of Rs140 crore in a 5,000-tonne capacity plant it hopes to start production by 2012.

To give boost to increasing domestic output, the government is open to private players forming JVs with state-run companies for extraction and processing of rare earths minerals. Private players could form a “JV with PSU companies”, with private players holding a “minority stake” in the JV.

Future Outlook:-

Though China is having only 37% reserves of rare earths, it produces around 97% of world’s supply of rare earth. Concerns have mounted about the supply of rare earths as its predominant supplier China has announced its regulation on export and it will crack down on smuggling. On September 1, 2009, China announced plans to reduce its export quota to 35,000 tons per year in 2010-2015, ostensibly to conserve scarce resources and protect the environment. It was reported that China will “further reduce quotas for rare earth exports by 30 percent from next year to protect the precious metals from over-exploitation”.

As a result of the increased demand and tightening restrictions on exports of the metals from China, searches for alternative sources in Australia, Brazil, Canada, South Africa, and the United States are ongoing.

Another recently developed source of rare earths is electronic waste and other wastes that have significant rare earth components. New advances in recycling technology have made extraction of rare earths from these materials more feasible, and recycling plants are currently operating in Japan. It is an estimated that 300,000 tons of rare earths is stored in unused electronics waste.

6.1 Survey, Exploration & Production of Minerals:

Geological Survey of India, Atomic Mineral Division, DGM’s of various States and Public Sector Companies undertake exploration activities in the country. In the Ministry of Mines, GSI and MECL carry out regional exploration and detailed exploration respectively

6.1.1 Geological Survey of India:

(a) Mineral Investigation: - During the month of July, 2011, 32.05 sq km large scale mapping and 0.675 sq km detailed mapping, 5502.20 m of drilling were carried out against monthly target of 0 sq km, 0 sq km and 5034.77 m, respectively.
(b) **Regional Geological Mapping:** - 0 systematic geological mapping (on 1:50,000 scale) was carried out against 0 sq km monthly prorata target and 102 sq km specialized thematic mapping was carried out against 0 sq km monthly prorata target.

(c) **GSI Portal:** - GSI’s portal is now operational at [www.portal.gsi.gov.in](http://www.portal.gsi.gov.in) and data available includes map metadata and reports and spatial data. The following improvements were made in the portal design during the month a) A section for Indian Geology was created; b) Detailed information dossier for Diamond and Iron Ore uploaded and c) Draft annual programme of GSI for Field Season 2009-10 uploaded. The following elements of data were added to the Portal during the month; a) Case studies of different regions were uploaded, b) Minutes of all Committees of Central Geological Programming Board [CGPB] were uploaded, c) Contents of Indian Journal of Geoscience (formerly Indian Minerals) were uploaded and d) In the intranet of GSI, legacy GSI and extended abstracts, web data of unpublished reports, 1: 50 K Geological maps data are being uploaded.

6.1.2 **Mineral Exploration Corporation Limited**

During **July, 2011** MECL achieved actual production of 19695 m drilling and 639 m in development mining against target of 23000 and 615 respectively.

6.1.3 **Production of Minerals**

The total value of mineral production covering metallic-ferrous and industrial minerals, but excluding fuel minerals, minor minerals and atomic minerals, in **July, 2011** is estimated at `4258 crore as against `3029 crore for July, 2010.

7.1 **Merger & Acquisition:**-

7.1.1 **Indian Acquisition Abroad:**

Essar Group has acquired 100 percent of Trinity Coal that hold an estimated 200 million tons of coking and thermal coal. The company currently produces 7 million tons a year and has plans to increase that to 10 million tons.

7.1.2 **Foreign Direct Investment:**-

As per DIPP, the FDI in the mining sector during the current year (2011-12) has been reported to 96.83 million dollar up to May 2011.

(S. K. Srivastava)
Additional Secretary
Tel. No. 23387158