

ALUMINIUM & ALUMINA



Indian Minerals Yearbook 2012

(Part- II : Metals & Alloys)

51st Edition

ALUMINIUM & ALUMINA

(FINAL RELEASE)

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

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1 Aluminium and Alumina

The aluminium industry in India is strategically well-placed and ranks seventh largest in the world with discernible growth plans and prospects for the future. India's rich bauxite mineral base renders a competitive edge to the industry as compared to its counterparts globally. The aluminium industry in India scaled lofty notches since the establishment of the first manufacturing company, namely, Indian Aluminium Company (INDAL) in 1938. All business activities of INDAL have been merged subsequently with Hindalco Industries Limited (Hindalco).

Three major primary producers, National Aluminium Co. Ltd., Hindalco Industries Ltd and Vedanta Aluminium Ltd (VAL) are at the forefront of aluminium production. The primary producers have a strong presence in the sheet business and are enlarging their roles in the foil segment. The primary producers are also in the extrusion segment in which a large number of secondary manufacturers participate with fragmental capacities.

The overall total annual installed capacity of aluminium in the country has risen to 18.56 lakh tpy during 2011-12. The actual production of aluminium comes from a plant capacity of 17.16 lakh tpy as 1.40 lakh tpy capacity is presently non-operational. Producer-wise capacity of aluminium is given in (Table-1).

The installed capacity of alumina plants in the country was 48.85 lakh tpy, out of which plant capacity of 46.00 lakh tpy reported alumina production during the year. Alumina capacity of 2.85 lakh tpy remained non-operational (Table-2).

PRODUCTION

Aluminium

The production of aluminium at 16.54 lakh tonnes in 2011-12 registered an increase of 2 % as compared to that in the previous year. Five plants reported production of aluminium during the year. Of these, one plant in public sector accounted for about 25% of the total production in 2011-12. The remaining 75% was reported by the private sector (Tables - 3 & 4).

During the year under review, Vedanta and Hindalco (Renukoot & Hirakud) recorded higher production as compared to the previous year.

Table – 1 : Installed Capacity of Aluminium, 2011-12 (By Producers)

(In '000 tonnes)		
Producer	Plant	Annual capacity
Total		1856.4
Public Sector		
National Aluminium Co. Ltd	Angul (Odisha)	460
Private Sector		
Bharat Aluminium Co. Ltd	Korba (Chhattisgarh)	350**
Hindalco Industries Ltd	Renukoot - 345 (Uttar Pradesh) Hirakud (Odisha)-161.4* Alupuram (Kerala) - closed	506.4
Madras Aluminium Co. Ltd	Mettur (Tamil Nadu)	40#
Vedanta Aluminium Ltd	Jharsuguda (Odisha)	500

Source : Information received from the companies/Annual Reports.
***Korba plant-I capacity of 100 thousand tonnes per year is non-operational.*
MALCO has closed its smelter since December, 2008
**Proposed expansion to 213 thousand tonnes per year*

Table – 2 : Installed Capacity of Alumina, 2011-12 (By Producers)

(In '000 tonnes)		
Producer	Plant	Annual capacity
Total		4885
Public Sector		
National Aluminium Co. Ltd	Damanjodi (Odisha)	2100
Private Sector		
Bharat Aluminium Co. Ltd	Korba (Chhattisgarh)	200#
Hindalco Industries Ltd	Renukoot - 700 (Uttar Pradesh) Belgaum - 350 (Karnataka) Muri - 450 (Jharkhand)	1500
Madras Aluminium Co. Ltd	Mettur (Tamil Nadu)	85#
Vedanta Aluminium Ltd	Lanjigarh (Odisha)	1000

Source : Information received from the companies/Annual Reports/Ministry of Mines Annual report.
Plants remained non operational during the year.

Alumina

The production of alumina estimated at 39.31 lakh tonnes in 2011-12 increased by about 10% as compared to the previous year. Three plants viz. Vedanta, Hindalco and the plant of NALCO reported higher production of alumina as compared

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to the previous year. NALCO continued to be the leading producer of alumina accounting for 53% of the total production during the year under review. MALCO reported nil production during the year (Tables- 5 & 6).

**Table – 3 : Production of Aluminium
2009-10 to 2011-12**

(Quantity in tonnes; value in ₹'000)

Year	Production	
	Quantity	Value
2009-10	1480568	123771762
2010-11	1621033	162844955
2011-12(P)	1654156	183657146

(P): provisional

**Table – 4 : Production of Aluminium
2010-11 and 2011-12
(By Plants)**

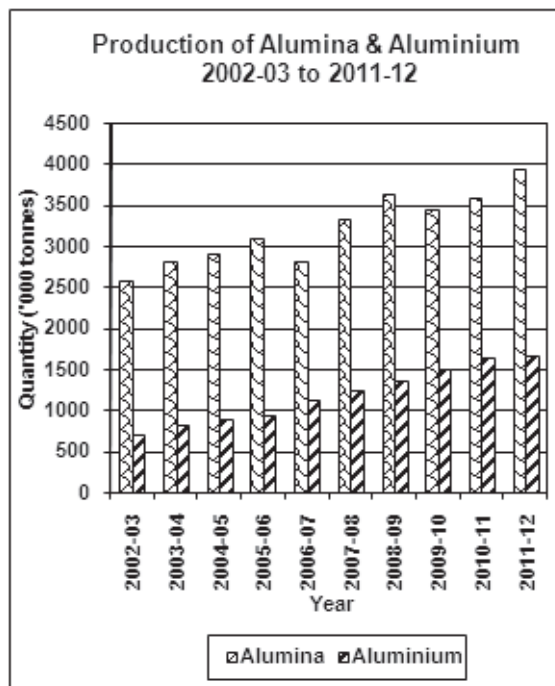
(In tonnes)

Producer	Plant	Production	
		2010-11	2011-12(P)
National Aluminium Co. Ltd	Angul	443600	413089
Hindalco Industries Ltd	Renukoot	410475	418268
	Hirakud	128461	155661
Bharat Aluminium Co. Ltd	Korba	253136	246579
Vedanta Aluminium Co. Ltd	Jharsuguda	385361	420559

**Table – 5 : Production of Alumina
2009-10 to 2011-12**

(Quantity in tonnes; value in ₹'000)

Year	Quantity	Value
2009-10	3432716	40173809
2010-11	3576890	50805325
2011-12(P)	3930950	62722574



**Table – 6 : Production of Alumina
2010-11 and 2011-12(P)
(By Plants)**

(In tonnes)

Producer	Plant	Production	
		2010-11	2011-12(P)
National Aluminium Co. Ltd	Damanjodi	1516100	1648000
Hindalco Industries Ltd	Renukoot	724427	698234
	Belgaum	376200	377200
	Muri	253550	280000
Vedanta Aluminium Co. Ltd	Lanjigarh	706613	927516

INDUSTRY

Five aluminium smelters of total installed capacity of 18.56 lakh tpy operated by four companies were operational in the country in 2011-12. Of these, NALCO is the only company in the Public Sector with installed capacity of 460,000 tpy. BALCO, earlier a Public Sector company, is now under Private Sector with stake holdings apportioned between Sterlite Industries (India) Ltd (51%) and Government of India (49%). The remaining three smelters of Hindalco and Vedanta Aluminium Ltd are in the Private Sector. The aluminium plants of NALCO and BALCO have their alumina-aluminium complexes at Damanjodi-

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Angul (Odisha), and Korba (Chhattisgarh), respectively.

Hindalco operates two smelters – one at Renukoot (Uttar Pradesh) and the other at Hirakud (Odisha). The third smelter of Hindalco at Alupuram (Kerala) is closed. The Korba-I plant of BALCO's smelter with 100,000 tpy capacity is not operational while the 250,000 tpy Korba-II plant is presently operating. MALCO is a Vedanta Group Company. It did not report production of alumina and aluminium during 2011-12. It now operates in commercial power generation. It generates 100 MW power from 4 units of 25 MW each and is one of the largest private sector power suppliers in Tamil Nadu.

Hindalco has a conductor redraw capacity of 56,400 tpy at Renukoot plant and sheet rolling capacity of 205,000 tpy spread over at Renukoot (80,000 tpy), Belur (45,000 tpy), Taloja (50,000 tpy)

and Mauda (30,000 tpy) plants. The company also has extrusion capacity of 31,000 tpy (comprising units at Renukoot with 23,000 tpy capacity and Alupurum, 8,000 tpy capacity).

Hindalco's foil unit located at Silvassa has an installed capacity of 30,000 tpy and produces foils with thickness varying from 9 microns to 200 microns. Additionally, Hindalco's Kalwa plant in Thane district (Maharashtra) has foil capacity of 6,000 tpy. Kollur plant in Medak district, Andhra Pradesh has capacity of 4,000 tpy and produces an array of high-quality foils, from cigarette and blister foil to lidding foil in thicknesses from 50 to 7 microns.

Jindal Aluminium Ltd is also a leading producer and exporter of aluminium extrusions with a total capacity of 82,000 tpy. It also meets more than 25% domestic demand of extrusions. The available information on installed capacity of semis is given in (Table-7).

Table – 7 : Capacity for Aluminium Semis during 2011-12

(In tonnes)

Producer/product	Annual installed capacity
Hindalco Industries Limited	
Rolled product	205000
Extruded products	31000
Conductor redraw rods	56400
Aluminium foils	40000
Aluminium wheels (No. of pieces)	-
NALCO	
Aluminium wire rods	100000
Aluminium billets	30000
Aluminium strips (smelter)	26000
Aluminium strips (RPU)	52000
Rolled products	45000
MALCO	
Rolled products	12000
Properzi rods	36000
Bus bars	-
Aluminium wire rods	32850
BALCO	
Extruded products	8000
Rolled products	72500
Properzi rods	111500
Foil product	600
Conductors	1200
Aluminium wire rods	43200
JINDAL ALUMINIUM Ltd	
Extruded products	82000

Source: Information received from individual plants/Annual Reports.

Development & Expansion

NALCO's expansion activities are as per schedule. The company augmented aluminium production capacity from 4.025 lakh tonnes to 4.6 lakh tonnes per year and alumina refinery capacity from 15.75 lakh tonnes to 21 lakh tonnes per year. Capacity of aluminium smelter is being upgraded from 4.6 lakh tonnes to 5.67 lakh tonnes per year under current-amperage upgradation project and expansion of alumina refinery capacity from 21 lakh tonnes to 22.75 lakh tonnes per year under 4th stream upgradation project and that of bauxite mine capacity from 63 lakh tonnes to 68 lakh tonnes are under progress. The augmentation of company's power generation capacity is from 960 MW to 1200 MW. NALCO has started production of new variety of rolled products named as chequered sheets with thickness ranging from 0.60 mm to 3.0 mm. The new products have high demand in automobile industry, vehicle manufacturing and industrial flooring. NALCO has been granted mining lease over Gudam and KR Konda bauxite reserves in Andhra Pradesh. Based on bauxite reserve, the company plans to set up a 42 lakh tpy bauxite mines and 14 lakh tpy alumina refinery complex in Andhra Pradesh. The company has port facilities at Visakhapatnam to export alumina at the rate of one million tpy. NALCO is planning to set up a green field smelter and power plant in Sundargarh district of Odisha and 1.0 million tonne alumina refinery in Gujarat, based on supply of bauxite from Kachchh region by Gujarat Mineral Development Corporation (GMDC).

Hindalco's plans to expand alumina refinery capacity at Belgaum from 3.5 lakh tpy to 6.5 lakh tpy are on hold, awaiting government's approval relating to bauxite mines.

Hindalco's greenfield projects have made significant progress. Utkal Alumina, 1.5 million tpy alumina refining project made considerable headway. The company is also setting up 3.59 lakh tpy smelter and 900 MW captive power plant at Mahan in Madhya Pradesh, based on captive coal consumption (JV) from Sidhi district,

Madhya Pradesh. Mahan Aluminium project and Utkal Alumina project are now close to the stage of commissioning. The other integrated aluminium project, namely, Aditya Alumina & Aluminium Project, alumina refinery at Koraput, 3.59 lakh tpy aluminium smelter at Lapanga, Odisha and 900 MW captive power plant was on schedule. A joint venture agreement on bauxite mines was signed with OMC. The company is also developing and mining coal for captive consumption jointly with Mahanadi Coalfields Ltd and Neyveli Lignite Corporation Ltd. Another greenfield project, viz Jharkhand Aluminium Project at Sonahatu, 55 km from Ranchi, entails setting up a 7.20 lakh tpy aluminium smelter with 1650 MW captive power plant. It is supported by 5 million tpy captive coal mine of Auranga Coalfields in Jharkhand in JV with Tata Power. Land acquisition was in progress, and for other clearances application was filed. The project is likely to be commissioned in mid-2015. In addition, company's ongoing brownfield expansion is progressing well; the Hirakud Smelter expansion from 1.55 lakh tpy to 1.61 lakh tpy has been completed in 2011.

BALCO of Vedanta Group (controlled by Sterlite Industries (India) Ltd) is undertaking programmes for modernisation and expansion. The present capacity of the Korba smelter is 3.5 lakh tpy. The Korba-I plant of BALCO's smelter capacity of 100,000 tpy is not operational, while the 250,000 tpy Korba-II plant is presently operating. In addition, BALCO is constructing a thermal coal-based 1200 MW captive power plant along with an integrated coal mine, in the state of Chhattisgarh. Environment clearance for the 211 million tonnes coal block has been received and second stage of forest department clearance is under progress.

Vedanta Aluminium Ltd (VAL) has 10 lakh tpy alumina production capacity at Lanjigarh in district Kalahandi, Odisha and the new 5 lakh tpy capacity aluminium smelter and 1215 MW captive power plant at Jharsuguda. In addition, Vedanta Aluminium has plans to invest to expand its alumina refining capacity from 10 lakh tpy to

50 lakh tpy, subject to government approval by increasing the capacity of the current alumina refinery from 10 lakh tpy to 20 lakh tpy through de-bottlenecking and by constructing a 30 lakh tpy alumina refinery and an associated 210 MW captive power plant. The construction of alumina refinery project is on hold and awaiting approvals. Work on setting up another 12.5 lakh tpy aluminium smelter in Jharsuguda, Odisha is under progress.

Further, Vedanta Aluminium entered into an agreement with the Orissa Mining Corporation (OMC) regarding the establishment of the alumina refinery, an aluminium smelter and associated captive plants in the Lanjigarh and Jharsuguda district of Odisha.

USES

Aluminium has wide applications in various areas, such as, transport and building & architectural sectors; packaging; food & chemical industries; electrical sector; machinery & equipment; consumer durables and also in defence sector in addition to its possible new use in wagon making by Indian Railways. In automobile industry, aluminium is gradually replacing steel. Aluminium body makes car lighter and more fuel-efficient. Other important application areas are lithographic (offset) plates required in printing, solar panels, fibre composites & reflectors and gas cylinders. India has pioneered the replacement of copper by aluminium in power transmission & distribution which has enhanced the demand for aluminium. There are 600 cable and conductor manufacturing units in the country, having a total capacity of 400,000 tpy. The major end-use of aluminium is as rolled sheets, extrusions and foils. India Foils, Pennar Aluminium and Century Extrusions are the major players in the extrusion & foil market.

Foil is a very thin sheet of rolled aluminium supplied in its pure form or as alloys. The thickness of foil ranges from the thinnest currently produced at about 0.0065 mm to thickest 0.2 mm. Material thicker than 0.2 mm is defined as sheet or strip.

CONSUMPTION

In advanced economies, aluminium is increasingly replacing wood and steel in building sector. Aluminium cans and containers are used extensively world over. Aluminium is also the ideal packaging material for pharmaceuticals and processed foods.

In India, aluminium was consumed mainly in the electrical sector (48%), followed by transport sector (15%), construction (13%), consumer durables (7%), machinery & equipment (7%), packaging (4%) and others (6%). The per capita consumption of aluminium in India is among the lowest in the world with only 1.3 kg as compared to world average of 12-15 kg.

Alumina is produced from bauxite. About one tonne of alumina is produced from three tonnes of bauxite and about one tonne of aluminium from two tonnes of alumina.

RESEARCH & DEVELOPMENT

The Hindalco's research and development work was mainly aimed at new product development; conservation of materials and resources; improvement in energy conservation; waste minimisation and reutilisation; environment preservation and sustenance etc.

NALCO is exploring to set up world class, state-of-the-art research and development centre in the field of bauxite, alumina, aluminium, downstream products, power, waste utilisation, and allied areas. Some of the in-house R & D activities carried out by NALCO in Alumina and Smelter plant are as follows:- (i) studies to establish solubility of CaO from different source of lime (ii) impurity identification and salt removal studies starting with V_2O_5 (iii) study on impact of surface mined bauxite process (iv) preparation of low alpha special alumina for ceramic use (v) regular characterisation of baked anode and monitoring of its quality (vi) improvement in quality of raw material to carbon plant (vii) anode bench studies (viii) fuel oil saving by use of magnetic resonator in cast house furnaces (ix) development

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of chequered sheet as new products. Similarly collaborative, in-house R & D activities like pilot-scale development of constructional block, brick, and chips, from red mud in collaboration with JNARDDC, Nagpur; plasma smelting of red mud for production of pig/cast iron and alumina-rich slag in collaboration with IMMT, Bhubaneswar; large scale study on alumina tri-hydrate productivity using catalyst by IMMT, Bhubaneswar and development of nano alumina and aluminium composites for auto application with IIT, Kharagpur.

RECYCLING

The Working Group for XII Five Year Plan (2012-17) on Non-ferrous Metals set up by the Ministry of Mines, Government of India, had made strong recommendation on the need to encourage recycling in India as a long-term solution for conserving energy and resources. In India, though aluminium industry is over six decades old, the recycling sector with modern state-of-the-art technology is still in its nascent stage.

Aluminium recycling process is lesser capital intensive than primary metal production as the process requires only 5% of energy, between 13-15 thousand units of power for producing one tonne of aluminium through primary route. Besides, it keeps the emission levels of green house gases to a low of 5% from the actual emission experienced during primary production. Further, recycling facilitates reduced stress on the use of bauxite and thereby preserving six lakh tonnes of bauxite resources every year.

In the year 2011-12 Aluminium recycling is still limited to the unorganised sector, catering mostly to the utensil and casting industries. The proportion of recycled aluminium has been increasing over the years. It is expected that in the years to come, it will reach a figure of about 35-40% of total aluminium consumption. Even today there is only one recycling unit of Hindalco in organised sector at Taloja with 25,000 tonnes annual capacity. Although the plant at Taloja was suffering due to want of scrap, the production from the unit has improved and the plant is now operating at 80% of the rated capacity as against 60% capacity earlier.

**Table – 8 : World Production of Aluminium (Primary)
(By Principal Countries)**

(In '000 tonnes)			
Country	2009	2010	2011
World: Total	37200	41700	45200
Australia	1943	1927	1945
Bahrain	848	851	881
Brazil	1536	1536	1440
Canada	3030	2963	2988
China	12891	16244	18062
Iceland	805	826	781
India*	1481	1621 ^e	1660 ^e
Norway	1090	1400	1982
Russia	3815	3947	3992
South Africa	809	807	810
UAE	1010	1400	1750
USA	1727	1727	1990
Other countries	6215	6451	6919

Source : World Mineral Production, 2007-2011.

** During 2009-10, 2010-11 and 2011-12 India's production of aluminium was 1,481, 1,621 and about 1,654 thousand tonnes, respectively.*

**Table – 9 : World Production of Alumina
(By Principal Countries)**

(In '000 tonnes of Al ₂ O ₃)			
Country	2009	2010	2011
World : Total	77200	85200	82100
Australia	19939	19806	18727
Brazil	8618	9433	1018
Canada	1233	1417	1473
China	23793	29065	34172
India*	3433	3577	3970 ^e
Ireland	1240	1864	1922
Jamaica	1774	1591	1960
Kazakhstan	1608	1640	1670
Russia	2794	2857	2825
Spain	1300	1300	1300
Suriname	1536	1486	1421
Ukraine	1524	1534	1601
USA	3064	3950	4360
Venezuela	1376	1244	1222
Other countries	3968	4436	4459

Source : World Mineral Production, 2007-2011.

** During 2009-10, 2010-11 and 2011-12 India's production of alumina was 3,433, 3,577 and about 3,931 thousand tonnes, respectively.*

Most recycling units in India operate on outdated, or primitive technology which leads to high levels of pollution and energy consumption. This is an area that needs to be addressed by the Indian aluminium industry. Due recognition of recycling could encourage users of aluminium particularly in transport, housing, packaging and durable sectors to broaden the organised markets for the scrap generated.

WORLD REVIEW

Globally, primary aluminium production has increased marginally to 45.2 million tonnes from 41.7 million tonnes in 2010. The principal producers were China (40%), Russia (9%) and Canada (7%) (Table- 8). The world production of alumina decreased considerably to 82.1 million tonnes in 2011 in terms of contained Al_2O_3 from 85.2 million tonnes in 2010. China accounted for 42%, followed by Australia (23%), USA (5%) and Russia (3%) in the production of alumina in 2011 (Table-9). The world aluminium consumption in 2010 and 2011 was 40.96 million tonnes and 44.92 million tonnes respectively. The country-wise developments in Aluminium & Alumina sector are as follows:-

Argentina

Aluminio Argentino S.A.I.C. (Aluar) has completed the expansion of Puerto Madryn smelter to 455,000 tpy from 425,000 tpy.

Australia

Shipment of aluminium from Rio Tinto's 550,000 tpy Boyne smelter were disrupted during flooding of roads and railroads between smelter and Brisbane in January 2011.

Azerbaijan

Ganja smelter of Det. AL. Group (Detail) started production of 100,000 tpy at the end of fourth quarter 2011. Detail planning to restart Sumgait smelter of 60,000 tpy and Sumgait alumina refinery 450,000 tpy during the year 2011.

Bahrain

Aluminum Bahrain BSC (Alba) has upgraded the capacity of the smelter to 970,000 tpy from 880,000 tpy. With this total production for the year 2011 increased to 4% compared to 2010.

Brazil

Production of Companhia Brasileira de Alumínio's (CBA) 400,000 tpy smelter at Sorocaba has decreased owing to some technical issue. Total production for CBA during the year 2011 was 13% less than that of 2010. Brazil collected and recycled 239,100 tonnes of UBCs, the equivalent of 17.7 billion aluminium cans. For the tenth consecutive year, Brazil had the highest aluminium can recycling rate among countries that do not have mandatory recycling laws. Novelis announced it would expand its recycling facility and rolling mills in Pindamonhangaba to 390,000 tpy from 200,000 tpy by year end 2013.

Canada

Rio Tinto was going ahead with construction of a new smelter in Saguenay, Quebec. The first phase of smelter operation would be in early 2013, with a capacity of 60,000 tpy. British Columbia would expand the capacity of the smelter to 420,000 tpy from 277,000 tpy. Production from this smelter is expected to start in the first half of 2014.

China

The Government of China announced a policy to permanently shut down 600,000 tpy of primary aluminium smelting capacity that used obsolete technology. As per the policy, approximately 270,000 tpy capacity identified for elimination. In Hubei Province, 47,000 tpy smelter capacity at the Hubei Huasheng Aluminium- Electric Co. Ltd in Qianjiang and 60,000 tpy capacity at the Huangshi Yangxin Hongjun Aluminium Co. Ltd smelter were ordered to shut down. In Liaoning Province, Aluminium Corp. of China (Chinalco) was ordered to shut down 30,000 tpy capacity at the Fushun smelter. In Shanxi Province, Jinyuan Aluminium Co. Ltd was ordered to eliminate 20,000 tpy capacity at its smelter in Weinan. In Shanxi Province, shutdown would include 17,500 tpy at Shanhe Aluminium Co. Ltd; 51,000 tpy at Shanxi Guanly Aluminium Co. Ltd; 10,000 tpy at Shuangshan Jiaolv Ltd and 19,600 tpy at Shanxi Yangquan Aluminium Co. Ltd.

The purpose of the policy was to remove the least efficient potlines, limit energy consumption, reduce pollution emission and reduce oversupply.

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Several Chinese government agencies took action to stop construction of 23 aluminium smelter projects which would have had a combined capacity of 7.74 mtpy. The action was taken to prevent over capacity of aluminium smelter as well as to limit power consumption and pollution. The National Development and Reform Commission announced a policy prohibiting local government from establishing preferential power rates for energy intensive industries including aluminium smelting and alumina refining.

Chinalco shutdown obsolete pots of having capacity of 140,000 tpy in Liancheng smelter in Gansu Province. Meishan Aostar Aluminium Co. Ltd restarted its smelter in Meishan province. Faxiang Aluminium Co. Ltd restarted 30,000 tpy of capacity at its 100,000 tpy smelter during the year which had been closed in 2010 owing to power shortages. Jiaozhuo Wanfang Aluminium Co. Ltd restarted 140,000 tpy smelting capacity that had been shut down during the year 2010 at its 420,000 tpy smelter owing to power shortages. Construction of 200,000 tpy smelter of Xichuan Xinyuan Aluminium Co. Ltd, completed in 2010. East Hope Group Ltd smelter in Baotou, inner Mangolia increased capacity to 800,000 tpy from 500,000 tpy. Huanghe Xinye Aluminium Co. Ltd increased production capacity to 500,000 tpy from 250,000 tpy. Qingmai Aluminium Co. Ltd, increased capacity of its smelter to 580,000 tpy from 270,000 tpy. Shaanxi Yulin Co. Ltd completed construction of 650,000 tpy aluminium smelter in 2010. Gansu Dongxing Aluminium Co. Ltd in Dingxi Gansu Province completed the expansion of its smelter to 190,000 tpy from 110,000 tpy and an additional expansion increasing capacity to 270,000 tpy completed in this year. Another expansion to increase capacity 360,000 tpy was being considered.

Shandong Yili Aluminium & Power Co. Ltd. completed construction of 400,000 tpy smelter in Longkou, Shandong Province. Chinalco received approval to modernize the Guizhou smelter by replacing 180,000 tpy capacity. Datang Shaanxi Power Co. Ltd; Jinyuan Aluminium Co. Ltd. and

Qusheng Power Co. Ltd announced that they would build a 200,000 tpy smelter in Chengcheng province.

Ghana

Volta Aluminium Co. Ltd.(Valco) started production from 200,000 tpy smelter in January 2011.

Iceland

Rio Tinto started an expansion and modernization of the ISAL smelter in Straumsvik which is expected to be completed by July 2014. The capacity of the smelter would increase to 230,000 tpy from 190,000 tpy.

Iran

Salco and China non-ferrous metal industry's foreign Engineering and Construction Co. signed a contract to construct a smelter capacity of 276,000 tpy.

FOREIGN TRADE

Exports

Exports of alumina decreased drastically to 8.9 lakh tonnes in 2011-12 from 27 lakh tonnes in the previous year. Exports in 2011-12 were mainly to Iran (51%), Bahrain & China (17% each), and UAE (10%). Exports of aluminium and alloys including scrap increased in 2011-12 to 5.06 lakh tonnes from 4.3 lakh tonnes in 2010-11. Exports in 2011-12 were mainly to Korea (14%), USA, Singapore & Malaysia (7% each) and China (5%) (Tables - 10 to 12).

Imports

Imports of alumina increased to 5.5 lakh tonnes in 2011-12 from 2.81 lakh tonnes in the previous year. Imports were mainly from Australia (79%) and China (9%) in 2011-12. Imports of aluminium & alloys and scrap increased slightly to 11 lakh tonnes in 2011-12 from 8.81 lakh tonnes in the previous year. The imports were mainly from China (13%), UAE (10%), UK (8%) and Saudi Arabia & USA (6% each) (Tables - 13 to 15).

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**Table – 10 : Exports of Alumina
(By Countries)**

Country	2010-11		2011-12	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
All Countries	2660432	41867818	886412	16437230
China	433332	6604804	152957	2655345
Iran	919734	14455031	453286	8183559
Bahrain	854010	13116872	149966	2707960
USA	9503	250727	10312	313533
Thailand	4050	119095	5839	164895
UAE	31097	896943	92790	1763229
Saudi Arabia	849	27760	2110	72816
South Africa	4097	106740	3060	86026
Japan	890	33624	1545	58115
Indonesia	1190	37022	1559	51770
Other countries	401680	6219200	12988	379982

**Table – 11 : Exports of Aluminium and Alloys Incl. Scrap
(By Countries)**

Country	2010-11		2011-12	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
All Countries	428253	56530539	506310	72024819
Rep. of Korea	89293	10317694	70113	8134800
USA	15242	3303017	34905	6940897
Singapore	34317	3676606	35238	4245336
Malaysia	47518	4872915	35342	4091991
China	3573	442497	23678	2781513
Kenya	14160	1656792	21424	2597633
Nigeria	17194	2234928	18882	2573531
UAE	12476	2257732	16301	2497057
Turkey	7496	961736	18182	2145523
Vietnam	6908	725131	16684	1981033
Other countries	180076	26081491	215561	34035505

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**Table – 12 : Exports of Aluminium
(By Items)**

Item	2010-11		2011-12	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
All Items	428253	56530539	506310	72024819
Aluminium & alloys: unwrought	266409	30239969	269923	31569080
Aluminium ingots	247615	27788231	228378	26501611
Aluminium unwrought, NES	1567	182276	7957	986006
Aluminium alloys unwrought	17227	2269462	33588	4081463
Aluminium powder & flakes	3149	484342	4365	732276
Aluminium & alloys: worked (bars, rods, plates, profiles, etc.)	59945	9224416	85188	13196398
Aluminium & alloys, worked, NES	96351	16346348	142379	26024377
Aluminium scrap	2399	235464	4455	502688

**Table – 13 : Imports of Alumina
(By Countries)**

Country	2010-11		2011-12	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
All Countries	281285	6924573	548891	13215746
Australia	195243	3383175	432079	8545807
China	43618	1542635	49802	1836299
Netherlands	18413	689965	21973	811984
Germany	9805	487259	10881	610233
USA	2723	326768	5346	457201
Indonesia	-	-	21483	448920
Japan	87	36091	374	68396
France	757	63732	983	66034
Canada	165	25587	521	49480
Austria	216	25680	310	41686
Other countries	10258	343681	5139	279706

ALUMINIUM & ALUMINA

**Table – 14 : Imports of Aluminium and Alloys Incl. Scrap
(By Countries)**

Country	2010-11		2011-12	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
All Countries	881144	101220027	1108292	141716112
China	71399	11770623	144535	24625266
UAE	122460	12817006	113847	13222184
UK	61468	6028751	86081	8886319
Saudi Arabia	54434	5309039	68424	7736848
USA	39945	3955216	62029	7111147
Germany	32576	5053774	42505	6964900
Korea	24881	4819039	32741	6939275
Thailand	50749	6068244	44299	5898952
South Africa	28747	2982761	48748	5419686
Bahrain	35189	4463595	33195	4290940
Other countries	359296	37951979	431888	50620595

**Table – 15 : Imports of Aluminium
(By Items)**

Item	2010-11		2011-12	
	Qty (t)	Value (₹ '000)	Qty (t)	Value (₹ '000)
All Items	881144	101220027	1108292	141716112
Aluminium & alloys: unwrought	228251	25404781	242531	29222260
Aluminium ingots	211720	23417600	218780	26197102
Aluminium unwrought, NES	5472	604117	5411	662725
Aluminium alloys, unwrought	11059	1383064	18340	2362433
Aluminium powders & flakes	460	86000	774	139929
Aluminium & alloys: worked (bars, rods, plates, profiles, etc.)	148960	26106208	194822	38640776
Aluminium & alloys, worked, NES	33199	8917323	42496	12990863
Aluminium scrap	470274	40705715	627669	60722284

FUTURE OUTLOOK

As per the industry sources, the primary aluminium demand in India is expected to reach 6 million tonnes by 2025, which equates 4.1 kg of per capita aluminium consumption in 2025, whereas at present per capita aluminium consumption is around 1.3 kg and aluminium demand of 1.8 million tonnes underscores the immense potential for demand growth in India.

India occupies fifth position in terms of bauxite reserve with deposit of about 3 billion tonnes with a share of 3.19 % of world reserves. Odisha and Andhra Pradesh accounts for more than 90% of country's metallurgical grade resources. While gibbsitic bauxite resources in the world are depleting, vast gibbsitic deposits in India assume particular interest because of its ease in processing. Since gibbsitic

bauxite processing has specific advantage of low energy consumption, the alumina refineries enjoy sustainable comparative cost advantage.

It is projected that aluminium production capacity in India at the end of the 12th Plan Period viz, 2016-17 would be about 4.7 million tonnes. This would require about 9.2 million tonnes of alumina. So, if all the announced alumina capacity additions fructify, India would be surplus in alumina and would be a significant player in alumina trade. To produce 13.3 million tonnes of alumina at the end of the 12th Plan period, the bauxite requirement would be about 40 million tonnes. The Report of the Sub Group for the 12th Plan Period has recommended that all efforts should be directed towards ensuring bauxite availability to the alumina refineries.