

12 Aluminium and Alumina

The aluminium industry in India is strategically well-placed and ranks eighth largest producer of Aluminium 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, NALCO, Hindalco and Vedanta Aluminium Ltd (VAL) are at the forefront in the production of aluminium metal. 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 17.805 lakh tpy. Producerwise capacity of aluminium is given in Table-1. The installed capacity of alumina in the country was 44.60 lakh tpy (Table-2).

PRODUCTION

Aluminium

The production of aluminium at 14.81 lakh tonnes in 2009-10 registered an increase of 10 % 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 27% of the total production in 2009-10. The remaining 73% was reported by the private sector.

During the year under review, all the smelters except that of MALCO and BALCO recorded higher production as compared to the previous year.

Table – 1 : Installed Capacity of Aluminium, 2009-10 (By Producers)

(In '000 tonnes)		
Producer	Plant	Annual capacity
Total		1780.5
Public Sector		
National Aluminium Co. Ltd	Angul (Odisha)	402.5*
Private Sector		
Bharat Aluminium Co. Ltd	Korba (Chhattisgarh)	350
Hindalco Industries Ltd	Renukoot - 345 (Uttar Pradesh) Hirakud (Odisha)- 143 Alupuram (Kerala) closed	488
Madras Aluminium Co. Ltd	Mettur (Tamil Nadu)	40
Vedanta Aluminium Ltd	Jharsuguda (Odisha)	500

Source : Information received from the companies/Annual Reports.

* Expansion proposed to 460 thousand tonnes.

Alumina

The production of alumina at 34.33 lakh tonnes in 2009-10 decreased by about 5% as compared to the previous year. Two plants of Hindalco and one plant of Vedanta reported higher production of alumina as compared to the previous year. NALCO continued to be the leading producer of alumina accounting for 38% of the total production during the year under review. MALCO reported nil production during the year.

Table – 2 : Installed Capacity of Alumina, 2009-10 (By Producers)

(In '000 tonnes)		
Producer	Plant	Annual capacity
Total		4460
Public Sector		
National Aluminium Co. Ltd	Damanjodi (Odisha)	1575*
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)	1100

Source : Information received from the companies/Annual Reports/M.O.M. Annual report..

* Expansion proposed from 1,575 thousand tonnes to 2,100 thousand tonnes.

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**Table – 3 : Production of Aluminium
2007-08 to 2009-10**

(Quantity in tonnes;value in Rs. '000)

Year	Production	
	Quantity	Value
2007-08	1239581	112101116
2008-09	1347127	122673933
2009-10 (P)	1480568	123771762

**Table – 4 : Production of Aluminium
2008-09 and 2009-10
(By Plants)**

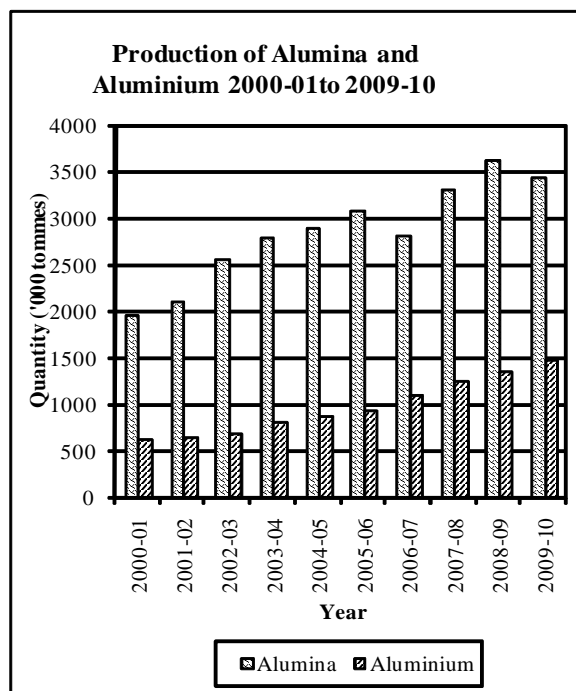
(In tonnes)

Producer	Plant	Production	
		2008-09	2009-10(P)
National Aluminium Co. Ltd	Angul	362062	396018
Hindalco Industries Ltd	Renukoot	389127	399689
	Hirakud	134950	157205
Bharat Aluminium Co. Ltd	Korba	355732	263311
The Madras Aluminium Co. Ltd	Mettur	23224	–
Vedanta Aluminium Co. Ltd	Jharsuguda	82032	264345

**Table – 5 : Production of Alumina
2007-08 to 2009-10**

(Quantity in tonnes;value in Rs.'000)

Year	Quantity	Value
2007-08	3320169	32871939
2008-09	3620252	41852471
2009-10 (P)	3432716	40173809



**Table – 6 : Production of Alumina
2008-09 and 2009-10 (P)
(By Plants)**

(In tonnes)

Producer	Plant	Production	
		2008-09	2009-10(P)
National Aluminium Co. Ltd	Angul	1556100	1320300
Hindalco Industries Ltd	Renukoot	719038	710123
	Belgaum	374500	378700
	Muri	143700	218500
Bharat Aluminium Co. Ltd	Korba	197940	42898
The Madras Aluminium Co. Ltd	Mettur	43377	–
Vedanta Aluminium Co.	Jharsuguda	585597	762195

INDUSTRY

Six aluminium smelters of total installed capacity of 17.805 lakh tpy were known to be in operation in the country. Of these, NALCO is the only company in the Public Sector with installed capacity of 402,500 tpy. BALCO, hitherto a Public Sector company, is now in Private Sector with stake holdings apportioned between Sterlite

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Industries (India) Ltd (51%) and Government of India (49%). The remaining four smelters of Hindalco and MALCO are in the Private Sector. The aluminium plants of NALCO, BALCO, and MALCO have their alumina-aluminium complexes at Damanjodi-Angul (Odisha), Korba (Chhattisgarh) and Mettur (Tamil Nadu), respectively. MALCO is a Vedanta Group Company and did not report production of alumina and aluminium during 2009-10. 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 operates two smelters– one at Renukoot (Uttar Pradesh) and the other at Hirakud (Odisha). The third smelter of Hindalco at Alupuram (Kerala) has been shut down but the 8,000 tpy extrusion unit is operating.

Hindalco, with effect from 10.3.2006, acquired the 30,000 tpy rolling mill and 14,000 tpy conductor rod plant at Mauda, near Nagpur, Maharashtra, from

Pennar Aluminium Co. Ltd. This has enhanced the flat-rolled capacity of the company to 200,000 tpy thus taking the value-added products capacity to 60% of operating primary metal capacity. The plant is not in operation at present. Sheets and foils are produced by primary producers and extrusions by primary as well as secondary producers. The installed capacity for semis was approximately 119,200 tonnes extrusions, 224,900 tonnes rods and 307,000 tonnes rolled products. The capacity for foils was around 57,700 tonnes. India Foils, Pennar Aluminium and Century Extrusions together control over 70% of the market for extrusions & foils. The product offering of Vedanta Aluminium Ltd comprises ingots (75%), billets (13%) and wire rods (12%) of the production. Jindal Aluminium Ltd is also a leading producer and exporter of aluminium extrusions with a total capacity of 75,000 tpy. The available information on installed capacity of semis along with production by major plants is given in Table-7.

**Table – 7 : Production Facility for Aluminium Semis
2008-09 and 2009-10**

(In tonnes)

Producer/product	Annual installed capacity	Production	
		2008-09	2009-10
Hindalco Industries Limited			
Rolled product	205000	181784	205265
Extruded products	31000	35895	38909
Conductor redraw rods	56400	74968	91903
Aluminium foils	40000	22046	N.A
Aluminium wheels (No. of pieces)	300000	141031	N.A
NALCO			
Aluminium wire rods	100000	-	-
Aluminium billets	30000	-	-
Aluminium strips (smelter)	26000	-	-
Aluminium strips (RPU)	52000	-	-
Rolled products	45000	13795	N.A
MALCO			
Rolled products	12000	-	-
Properzi rods	36000	N. A.	-
Bus bars	-	-	-
BALCO			
Extruded products	8000	-	-
Rolled products	72500	-	-
Properzi rods	111500	-	-
Foil product	600	-	-
Conductors	1200	-	-

Source: Information received from individual plants/Annual Reports.

Development & Expansion

NALCO's expansion activities were on schedule and have augmented aluminium production capacity from 3.45 lakh tonnes to 4.025 lakh tonnes per year. Expansion of alumina refinery capacity from 15.75 lakh tonnes to 21 lakh tonnes per year and that of bauxite mines capacity from 48 lakh tonnes to 63 lakh tonnes per year is in advanced stage as also the augmentation of its power generation capacity from 960 MW to 1200 MW. NALCO is understood to have received an in-principle approval of Government for a second greenfield aluminium project in Odisha. The project to be set up at a cost of Rs.16,000 crore has a proposed 5 lakh tpy smelter capacity and will be located near Brajrajnagar in the district of Jharsuguda. NALCO plans to set up 42 lakh tpy bauxite mines and 14 lakh tpy alumina refinery in Andhra Pradesh. Feasibility study of the project was under progress. The company at Visakhapatnam has port facilities to export alumina at the rate of 1 million tpy. The company has also signed an MoU with Govt. of Sumatra, Indonesia to set up 5 lakh tpy smelter and 1250 MW captive power plant in Indonesia.

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, the 1.5 million tpy alumina refining project reportedly made considerable headway with land acquisition mostly completed. The commissioning of the plant is expected by early 2012. The other integrated aluminium project, namely, Aditya Alumina & Aluminium Project with 1.5 million tpy alumina refinery at Kans, 3.59 lakh tpy aluminium smelter at Lapanga and 900 MW captive power plant was on schedule. The smelter is expected to be commissioned by end of 2012 and the alumina refinery by end of 2014. 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. 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. It will be commissioned in 2011. Another greenfield project, viz Jharkhand

Aluminium Project at Sonahatu, 55 km from Ranchi, entails setting up a 3.59 lakh tpy aluminium smelter with 900 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.

BALCO of Vedanta Group and controlled by Sterlite Industries (India) Ltd is undertaking programmes for modernisation and expansion. The present capacity of the smelter is 3.5 lakh tpy. The company had effected capacity addition at Korba with a new 2.45 lakh tpy capacity aluminium smelter, for which the technology was provided by Guiyan Aluminium-Magnesium Design & Research Institute (GAMI), China. Modernisation and upgradation of existing pot and pot Control Systems are expected to enhance the smelter capacity. Vedanta Aluminium Ltd (VAL), has 11 lakh tpy alumina production capacity at Lanjigarh in Kalahandi district, Odisha and the new 2.5 lakh tpy aluminium smelter capacity at Jharsuguda is expanded to 5 lakh tpy. The company intends to fully integrate the smelting capacity to 2.6 million tpy in near future. Construction of 1.1 million tpy smelter expansion is currently under progress.

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 new 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.

Indian aluminium foil industry is a growing sector in the country. According to conservative estimates, the domestic foil industry is expected to grow at about 8-9% per annum in the coming 5-8 years. Hindalco Industries Ltd, after the merger of INDAL, has become the biggest supplier for both domestic and export markets. The main exportable market is for high-value laminates for cigarette and chocolate foils while the demand in domestic market is for foils and semi-rigid foil containers. The other significant producer is Sterlite Industries (India) Ltd. The two major aluminium producing companies namely, Hindalco and Sterlite Industries (I) Ltd jointly account for about 90% of the country's foil capacity. India Foils Ltd has capacity of around 19,000 tpy and is the single largest capacity for foil production in India today. Hindalco's foil unit located at Silvassa, has an installed capacity of 5,000 tpy and produces foils with thickness varying from 7 microns to 200 microns and with average thickness of 45 microns. Additionally, Hindalco's Kalwa plant in Thane district (Maharashtra) has foil capacity of 9,000 tpy. Kollur plant in Medak district, Andhra Pradesh has capacity of 4,000 tpy.

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 (31%), followed by transport sector (18%), durables (12%), building (13%), packaging (11%) and machinery & equipment (6%). In contrast, the global consumption pattern was transportation (26%), building & construction (20%), containers & packaging (20%), electrical (9%) and others (24%). The per capita consumption of aluminium in India was only 0.7 kg which is among the lowest in the world (world average 12-15 kg). The per capita consumption in the western countries was 15-32 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's in-house R&D units located at M & R Complex, Damanjodi and S&P Complex, Angul were into development of Integrated Technology for processing East Coast Bauxite for production of alumina in collaboration with JNARDDC, development of process for extraction of vanadium sludge, recovery of TiO₂ from plant sand, recovery of alumina from partially lateritised khondalite, characterisation of baked anode for process monitoring, determination of cell factor for prediction of net carbon consumption, etc. Manufacture of Ordinary Portland Cement (OPC) from NALCO's red mud was established. Lab scale studies related to Gallium recovery were completed by NALCO in collaboration with M/s NML, Japan. Lab scale development of constructional blocks, bricks & chips from Red mud and pilot scale development is in progress in collaboration with JNARDDC, Nagpur. Similarly, in-house R & D activities like studies on utilisation of fly ash in alumina plants of NALCO, Anode bench scale studies at smelter plants for impact of different qualities of C.P. coke etc. were also on. The company also has future plans to set up 10,000 tpy nickel carbonate production plant based on the know-how of modified Caron process, developed by IMMT, Bhubaneswar. NALCO has entered into an agreement with Bharat Earth Movers Ltd (BEML) for the production of aluminium rail wagons. As per the agreement, products would be jointly developed by these two PSUs.

Recycling

The Working Group on Non-ferrous Metals set up by the Ministry of Mines, Government of India, made strong representation 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 has not really taken off. Worldwide, the fully developed and organised recycling operations

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contribute about 32% metal requirement for the global downstream sector, i.e., 6 million tonnes. About 20% of India's aluminium requirement is met through recycling. In India, scrap collection activities are still nascent. The utensil industry and casting industry are the major consumers of scrap.

Organised scrap segregation activity could generate considerable quantity of scrap every year in the country which could further be channelled for recycling to produce aluminium. These processes are energy-efficient and environment-friendly.

Recycling process requires only about 5% of the 15,000 units consumed for every tonne of metal produced through the bauxite-alumina route in a modern smelter. Besides, it keeps the emission levels of green house gases to a low of 5% from the actual emission experienced during primary production. Further, for every one lakh tonne of aluminium produced annually through recycling, about six lakh tonnes per annum of bauxite resources can be conserved. Besides, recycling process does not require pollution control equipment, such as, scrubbers, which are mandatory to control emissions in smelting operations.

About 3.40 lakh tonnes scrap are said to be imported and used for recycling in addition to about 40,000 tonnes secondary metal produced by recycling of domestic scrap. Aluminium recycling is still limited to the unorganised sector, catering mostly to the utensil and casting industries.

Most recycling units in India operate on outdated, or primitive technology that entail 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 decreased by 7% in 2009 in the wake of financial crisis. In 2009, world production of aluminium (primary) decreased to 36.9 million tonnes from 39.6 million tonnes in 2008. The principal producers were China (35%), Russia (10 %) and Australia (5%) (Table- 8).

The world production of alumina also decreased to 76.8 million tonnes in 2009 in terms of contained Al_2O_3 from 82 million tonnes in 2008. China accounted for 31%, followed by Australia (26%), Brazil (11%) and USA (4%) in the production of alumina in 2009 (Table-9).

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

(In '000 tonnes)

Country	2007	2008	2009
World Total	38100	39600	36900
Australia	1957	1974	1943
Brazil	1655	1661	1536
Canada	3083	3120	3030
China	12559	13178	12846
India*	1240	1347	1302 ^e
Norway	1362	1368	1090
Russia	3955	4190	3815
South Africa	899	811	809
USA	2554	2658	1727
Other countries	8836	9293	8802

Source : World Mineral Production, 2005-2009.

** During 2007-08, 2008-09 and 2009-10, India's production of aluminium was 1,240 thousand tonnes, 1,347 thousand tonnes and 1,481 thousand tonnes, respectively.*

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

(In '000 tonnes of Al_2O_3)

Country	2007	2008	2009
World : Total	78000	82000	76800
Australia	18884	19446	19939
Brazil	7078	7822	8625
China	19453	22788	23793
India*	3208	3000	3000
Ireland	1800	1890	1240
Jamaica	3941	3995	1774
Kazakhstan	1544	1608	1706
Russia	3332	3112	2794
Spain	1300	1300	1300
Suriname	2178	2154	1536
Ukraine	1656	1673	1524
USA	4236	4298	3064
Venezuela	1751	1591	1370
Other countries	7639	7323	5135

Source : World Mineral Production, 2005-2009.

** During 2007-08, 2008-09 and 2009-10, India's production of alumina was 3,320 thousand tonnes, 3,620 thousand tonnes and 3,433 thousand tonnes, respectively.*

World's primary aluminium production growth is projected to average around 4 percent a year from 2010 to 2014 reaching 46.1 million tonnes in 2014.

Chinese government announced that new capacity expansions of Aluminium Smelters would not be permitted for 3 years.

With the takeover of Canada-based Alcan Inc., Rio Tinto Alcan is now the largest aluminium producer in the world. It is also a significant producer of alumina and the largest bauxite miner in the world. Global miner Rio Tinto plans to build 674,000 tonnes per annum capacity aluminium plant in Paraguag which will be largest plant of the company and is scheduled to start operating in 2016. United Co Rusal, a Russian aluminium producing company plans production in Guangri, China and the first 2 lakh tpy phase is expected to start by the end of 2012.

In Brazil, CBA completed Sorocaba smelter's capacity expansion to 400,000 tpy. The capacity is to be raised further to 600,000 tpy in the next two years.

Owing to declining demand and falling prices, Alcoa Inc. (Pittsburg) closed its 215,000 tonnes per annum capacity smelter at Alcoa.

FOREIGN TRADE

Exports

Exports of alumina decreased to 7.03 lakh tonnes in 2009-10 from 9.68 lakh tonnes in the previous year. Exports in 2009-10 were mainly to China (45%), Iran (18%), Romania (17%). Exports of aluminium and alloys including scrap increased in 2009-10 to 4.41 lakh tonnes from 4.29 lakh tonnes in 2008-09. Exports in 2009-10 were mainly to China (15%), Singapore (14%), Rep. of Korea (12%) and Malaysia (6%) (Tables - 10 to 12).

Imports

Imports of alumina increased to 3.37 lakh tonnes in 2009-10 from 2.13 lakh tonnes in the previous year. Imports were mainly from Australia (83%) and China (9%) in 2009-10. Imports of aluminium & alloys and scrap increased to 7.27 lakh tonnes in 2009-10 from 5.65 lakh tonnes in the previous year. The imports were mainly from UAE (12%) and China, South Africa and Australia (7% each) (Tables- 13 to 15).

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

Country	2008-09		2009-10	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Countries	968245	15823892	702657	9576723
China	524146	8197124	316032	4226704
Iran	160470	2763495	123858	1541303
Romania	67200	1102088	121188	1232740
Egypt	30332	532986	57758	826090
Bahrain	14	409	30001	590851
Georgia	60588	747051	32987	537913
U S A	11516	282518	5130	157034
Thailand	5572	147746	2660	81338
UAE	61529	1061899	962	28628
Ukraine	29988	512017	–	–
Other countries	16890	476559	12081	354122

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

Country	2008-09		2009-10	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Countries	429433	53404671	440762	49177673
China	9193	793782	66992	5842086
Korea, Rep. of	3863	297647	52597	5273720
Singapore	153602	14642229	62260	5271043
Malaysia	42099	4622553	27042	2702742
UAE	17071	2780629	17046	2514194
USA	15747	3179481	12576	2414808
Nigeria	19080	2417266	15599	1893282
Vietnam	6374	825424	20175	1838949
Bangladesh	14683	1518465	17063	1808747
UK	10712	1820287	6009	1053681
Other countries	137009	20506908	143403	18564421

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

Item	2008-09		2009-10	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Items	429433	53404671	440762	49177673
Aluminium & alloys : unwrought	233758	22829257	284902	25923965
Aluminium ingots	228222	22265076	281712	25552818
Aluminium unwrought, NES	2734	224694	827	94921
Aluminium alloys unwrought	2802	339487	2363	276226
Aluminium powder & flakes	2079	404263	1865	337147
Aluminium & alloys : worked (bars, rods, plates, profiles. etc.)	92107	13690929	63368	8871488
Aluminium & alloys, worked, NES	100551	16362969	88666	13873801
Aluminium scrap	938	117253	1961	171272

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

Country	2008-09		2009-10	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Countries	212502	4392750	337072	6790221
Australia	140567	2055295	279725	4332620
China	25759	948398	29244	935366
Netherlands	7217	204096	12370	402559
Germany	7798	376379	6895	371014
U S A	3169	251566	5104	349528
France	1716	86295	1166	184654
Japan	200	57903	213	75591
Italy	466	44390	160	19408
Belgium	142	31966	286	12213
Croatia	23769	263262	–	–
Other countries	1699	73200	1909	107268

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

Country	2008-09		2009-10	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Countries	564928	68722275	726656	72160299
China	71545	11944638	48096	8460692
UAE	84191	6873981	88348	7255053
Thailand	38200	4916046	40854	4315121
Australia	36770	3695283	51766	4292453
Germany	16458	3812201	28588	4173204
South Africa	45580	5328586	53469	4009175
UK	26855	3142906	44302	3989689
Bahrain	23869	2867858	36968	3895012
Korea, Rep. of	9232	2310799	19871	3229850
Saudi Arabia	28640	2419437	40101	3160134
Other countries	183588	21410540	274293	25379916

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

Item	2008-09		2009-10	
	Qty (t)	Value (Rs. '000)	Qty (t)	Value (Rs. '000)
All Items	564928	68722275	726656	72160299
Aluminium & alloys : unwrought	183875	20987932	240705	20885414
Aluminium ingots	172408	19456672	220452	18861258
Aluminium unwrought, NES	2520	272202	6561	670504
Aluminium alloys unwrought	8947	1259058	13692	1353652
Aluminium powders & flakes	253	60533	1347	162621
Aluminium & alloys : worked (bars, rods, plates, profiles, etc.)	104613	20445873	116493	19698818
Aluminium & alloys, worked, NES	26143	7806016	28488	8006647
Aluminium scrap	250044	19421921	339623	23406799

FUTURE OUTLOOK

China influences the world's aluminium demand. Domestic aluminium prices follow international prices. A major strategic imperative for the Indian aluminium industry today is to become globally competitive. India, backed by its six decades of collective experience in the industry, is suitably positioned with regard to skilled manpower at reasonable cost within the country. However, it is still dependent, to a large measure for want of state-of-the-art technology and sourcing funds at internationally competitive rates. Presently the plummeting LME prices have come very close to or even below the production cost level of most of the Indian domestic producers, thereby, affecting their operating margins.

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.

As per the industry sources, the present domestic consumption is estimated at around 7 to 8 lakh tonnes and is expected to grow further. The main segments driving aluminium demand in the country are construction, consumer goods and power & electrical segments. In order to increase its payload capacity & save fuel, aluminium wagons are likely to be inducted in Indian Railways. However, a cost benefit study would require to be taken as stainless steel wagon, costs less but aluminium wagons can carry about 8% to 10% more load. Indian alumina producers are looking beyond meeting of domestic smelting needs, by increasing substantially their exports of metallurgical as well as speciality-grade alumina.