PRESENTATION ON THE INDIAN ALUMINIUM SCENARIO
Indian Aluminium Industry

INDIA:
STARTED ALUMINIUM PRODUCTION IN 1943

BECAME SELF-SUFFICIENT IN ALUMINIUM IN 1989

PRESENTLY A NET EXPORTER OF ALUMINIUM
Bauxite Reserves & Alumina - Aluminium Production (2013)

<table>
<thead>
<tr>
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<th>INDIA</th>
<th>WORLD</th>
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</thead>
<tbody>
<tr>
<td>Bauxite Reserves</td>
<td>900</td>
<td>29000</td>
</tr>
<tr>
<td>Alumina Production</td>
<td>3.7</td>
<td>100.09</td>
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<tr>
<td>Aluminium Production</td>
<td>1.70</td>
<td>50.11</td>
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</table>

**India:**
- Bauxite reserves: 3.1% of world reserve
- Alumina Production: 3.7% of world production
- Aluminium Production: 3.39% of world production

Source: CRU, Indian Minerals Yearbook, USGS Mineral Commodities Summary
Production of Aluminium

Alumina from India

Gas in Middle East

Opportunities for creation of JV’s

Cheap sources of energy in South-East Asia

Aluminium production shifting from West to East due to

Rising power & labour costs, environment costs, alumina prices & logistics.
Production & Consumption of Aluminium

( Lakh tonnes)

**INDIA**

THE PRODUCTION CAGR IN LAST 5 YEARS HAS BEEN 5.04% AS AGAINST THE CONSUMPTION CAGR OF 8.10%

**WORLD**

THE PRODUCTION CAGR IN LAST 5 YEARS HAS BEEN 5.87% AS AGAINST THE CONSUMPTION CAGR OF 7.82%

Source: Industry Sources & CRU
Per Capita Consumption

(in Kg)

World average: 8 Kg.

EVEN IF INDIA REACHES HALF OF THE WORLD AVG. BY 2020 IT WOULD IMPLY ALUMINIUM CONSUMPTION OF 5.5 MILLION TONNES OR 3.2 TIMES THE CURRENT LEVELS.
Aluminium Consumption Pattern in India (2012)

The end-use Sectors

The Indian Market is still evolving....

Construction & Transport sector is likely to have more impact.

Construction: Real Estate to grow at a CAGR of 11.6% during 2010-20

Transport: To grow @ CAGR of 13% during 2012-21

Electrical: Power Demand to grow at a CAGR of 7.5% during 12th plan

Present share - 48%

Present share - 15%

Present share - 13%

SOURCE: AAI & IBEF
Aluminium Consumption Pattern in India (2012)
The end-use Sectors

......Contd

Packaging:
Annual Growth rate to be 15%

Present share - 4%

Other share is 6%

Consumer durables
Present share - 7%

Machinery & Equipment -
Present share - 7%

SOURCE : AAI & IBEF
EXPECTED CAPACITY ADDITIONS IN INDIA BY 2017 - ABOUT 9 MILLION TONNES.
MOST OF THESE PROJECTS COMING UP IN THE EASTERN COAST

SMELTER MAY BE ESTABLISHED IN PLACES WHERE CHEAP SOURCE OF POWER IS AVAILABLE.

INTEGRATED BAUXITE & ALUMINA COMPLEXES WILL HAVE A MORE FAVOURABLE COST POSITION COMPARED TO BROKEN VALUE CHAINS DUE TO ADDITIONAL TRANSPORT BETWEEN MINE & REFINERY
EXPECTED CAPACITY ADDITIONS BY 2017- ABOUT 2.9 MILLION TONNES.

MOST OF THESE PROJECTS LIKELY TO COME UP IN THE EASTERN & CENTRAL INDIA SUBJECT TO ENERGY AVAILABILITY.

ENHANCEMENT OF GROWTH IN PACKAGING, ELECTRICAL, AUTOMOBILES & CONSTRUCTION – INCREASE IN DEMAND OF ALUMINIUM

HAVING GOOD RESOURCES OF ALUMINA:
LOOKING FORWARD FOR JV OPPORTUNITIES IN PROBABLE DESTINATIONS OF CHEAP ENERGY
Strategic & operational themes across the entire value chain

CAPACITY TRENDS:
CAPACITY CURTAILMENTS & EXPANSIONS DEPENDING ON DEMAND & PRICE.

COST OPTIMIZATION:
COST REDUCTION IN ALUMINIUM VALUE CHAIN ASSETS LIKELY TO BE MOST DOMINANT CHALLENGE.
Indian Aluminium Industry - The Way Forward

- Collaboration on technological improvements in Aluminium Smelting/Alumina Refining
- Investment in Greenfield Aluminium Smelter at Places of Cheap Power
- Partnership for Value additions: forward and backward integration
NALCO Integrated Operations

Bauxites 6.8 MT

0.92 MT

Alumina 2.275 MT

1.355 MT export & domestic sale

CPP 1200 MW

Aluminium 0.46 MT

Power input to Smelter (also wheeled to Refinery)

Vizag Port
**Brief Profile of NALCO**

- **Established**: 7th January 1981
- **Paid-up Share Capital**: $204.5 Mn
- **Authorised Share Capital**: $476.2 Mn
- **Government of India holding**: 81.06 (%)
- **Turnover (FY 2012-13)**: $1150 Mn
- **Net profit (FY 2012-13)**: $94.13 Mn
- **Net worth as on 31.3.2013**: $1894 Mn
- **Manpower as on 31.10.2013**: 7,447 nos
- **Zero debt company**: Since March 2005
PRODUCTS

- Aluminium:
  - Ingot/ Sow/ T-ingot
  - Wire Rod
  - Billet
  - Flat Rolled Products

- Alumina:
  - Alumina Hydrate
  - Calcined Alumina
  - Specialty Hydrates
  - Specialty Aluminas
  - Zeolite
CALCINED ALUMINA

PRODUCTS

WIRE ROD

STANDARD INGOT
PRODUCTS

BILLET

FLAT ROLLED PRODUCTS

CHEQUERED SHEET

ALLOY INGOT
Areas of Interest to NALCO

- Investment opportunities in Mining and Metal sectors in Canada – acquisition or JV
- Looking for opportunity to set up a Greenfield Aluminium smelter - availability of cheap energy
- Mineral assets of interest:
  - Bauxite
  - Thermal Coal
  - Copper
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Thank You