Aluminium Downstream Sector on Growth Trajectory

- Metalworld Research Team

While the growth looks imminent in aluminium consumption especially through value added products, India's downstream processing industry is likely to witness a phenomenal progress in coming years.
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. By contrast, aluminium is 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%) in India. 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. So, there is a tremendous scope for increase in aluminium consumption in India from the existing level of 2.1 million tonnes. The major growth, however, is expected to come from downstream sector through both primary and secondary aluminium production.

Downstream Going Up

Downstream activities of the aluminium include its processing after tapping from the electrolysis cell. Main downstream activities are classified as refining, melting, alloying casting, forming, joining, product making, end applications etc. The main objective of the downstream division is to carry out applied research on downstream application of aluminium alloys, improving the quality and yield of the product, provide technical inputs to the downstream industries through R&D projects and mathematical modelling. Scientists in the department have expertise in the field of alloy

development, primary casting such as billet casting, strip casting, forming such as extrusion and rolling, joining of aluminium using friction stir welding technique. Department also offers testing and consultancy services to the downstream industries through sophisticated and state of art laboratory facilities like Scanning electron microscope, Universal testing machine, hardness testers, metallography with image analysis and extrusion modelling software like "Hyderxtrude". Downstream department offers service for structure property co-relation for various casting, forming, joining and other related R&D activities to develop new alloys and to improve the existing downstream processes. Other important facilities include induction melting furnace, milling machine, lathe, conductivity meter and roughness meter etc.

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Changing Fortunes of Downstream Producers

The Indian Aluminium industry is forging ahead with rapid expansion in both primary metal and downstream sectors. With the continuing trend of economic growth, the demand and consumption of aluminium is expected to increase rapidly. Higher consumption levels in building & Infrastructure, automotive packaging, power, consumer durables and other industrial sectors will contribute towards increase in Consumption. Aluminium demand in India is anticipated to grow more than five times by 2030. The downstream capacity in the aluminium industry spurted earlier due to sufficient duty differential between aluminium ingots or primary metal and value added downstream products. In March 1993 while the duty on aluminium ingots was 25% the duty on downstream products was 70%. However with the change in the tariff structure undertaken in the 1997 budget, duty on semi-fabricated metal was lowered to 25%. This change adversely affected the fortunes of the downstream producers.

Major Players

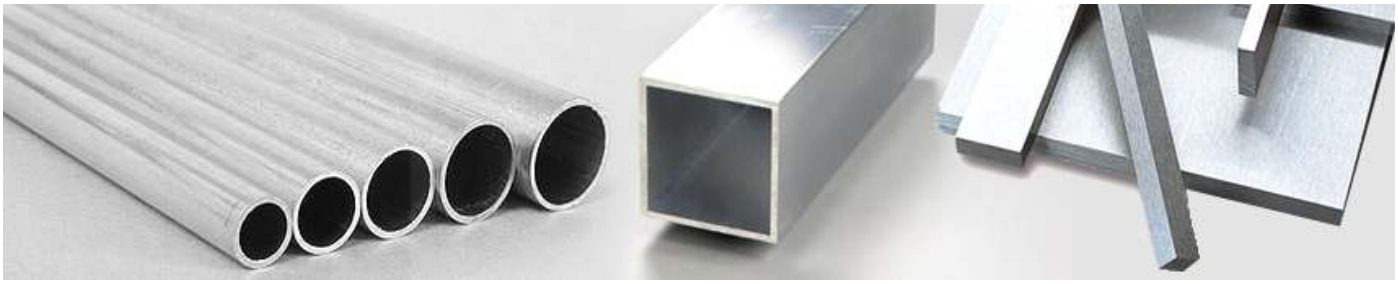
Hindalco Industries Limited is an integrated aluminium company. It all started with the acquisition of Indal (an Alcan company) in 2000, increasing stakes in Utkal Alumina to 100 per cent from 20 per cent, acquiring Pennar Aluminium. In 2007, Hindalco touched a new frontier with the acquisition of Novelis, thus becoming the world's largest rolling company with a strong presence in 5 continents and entering the league of top seven global players. Currently, Hindalco has invested Rs.42,000 crore for its greenfield investments.

One of the cornerstones of Hindalco's long term strategy has been its focus on downstream products. Customer centricity is the essence of this strategy. The R&D efforts in this area are focused towards new product introductions in line with customer expectations, improving the quality and life of the existing products through constant research and bringing in developed world products to the emerging market in a calibrated manner through adaptive innovations.

The company's investments are into both upstream and downstream facilities, and are mostly in the eastern part of India which is rich in natural resources. With a strong downstream product portfolio, Hindalco has been a pioneer in many aluminium applications in the country. Promoting aluminium through new application development is one of the top agendas. The company has a focused approach in finding opportunities for deepening the usage of aluminium in various applications to convince the potential users on aluminium's value proposition. Hindalco participates in the design of the applications and to support the users in every way - especially during the initial phase of trials.

That's the way to convert the potential of aluminium consumption in India into a reality. Over 41 per cent of aluminium is currently consumed in the power sector in Indian market while the world has moved from power to transportation, packaging and construction. Hence, there is a huge opportunity for aluminium to grow in the transportation sector in BiW (body in white) and cans. Hindalco has invested in a new mill to produce can-stock, first in India, which is another endeavour to promote and give a boost to the consumption of aluminium in the economy. Another opportunity lies in the role of aluminium in building and construction products. The capacity and performance of downstream industries in India has not been well documented, except where the primary producers and some of the major secondary producers are in downstream operations. Primary producers having downstream production are in better position to capitalize on value-addition compared to stand alone secondary producers who face fluctuations in metal prices, high import duty on primary metal and lately, the entry of multinationals in aluminium goods.

Nalco has acquired International Aluminium Products Ltd. (IAPL), a company promoted by Mukand Ltd. in a partially completed condition in March 2000.The capacity of this project is 50,000 TPY of various cold rolled products like sheets, coils, slugs and foils. This unit has been commissioned in 2005-06 and is in the process of achieving the rated production capacity. Recently a special purpose vehicle has been formed by NALCO and Industrial Development Corporation of Odisha to establish Angul Aluminium Park near NALCO Smelter plant to boost downstream industries



in the region. Hindalco has become the world's largest aluminium rolling company with its acquisition of Novelis, the global leader in value-added high-end aluminium flat rolled products and aluminium can recycling. The combined volume of sales of flat rolled products in the world market is about 3 million tonnes, and the market share is more than 20 per cent. Hindalco plans to introduce Eternia branded range of windows and door systems in addition to an all-aluminium façade for large buildings through its brand Novelis in India.

Aluminium Castings which consumes up to 4,50,000 tonnes of aluminium is an area of low technology and poor quality in India. But with growth in automotives, there is significant scope for this segment among the downstream industries to look up with better technology and advanced quality control measures. The electrical conductor industry is estimated to have about 250,000 T capacities. This sector being highly dependent on the financial health of Electricity Boards and other distribution companies, the industry has lagged developments particularly in shifting to alloy conductors. On the whole much is desired to be done in the downstream sectors of Indian aluminium industry.

Win – Win Situation

This is again a win-win proposition for the industry as well as environment. While the medium-term prospects on the demand-side as well as supply-side are very bright, there are many challenges that the industry is going through in the interim. The large projects are being implemented at a time when the industry has been globally witnessing an acute pressure - driven by rising input costs, on one side, and the fall in metal prices on the London Metals Exchange (LME), on the other. Many global aluminium majors have reported losses or significant contraction in margins. Alongside these global trends, the local environment for the industry has become extremely challenging. Deterioration in the law and order conditions has made it difficult to implement projects on the ground — leading to delays in execution and the associated financial stress. The movement of critical inputs for the plants is being regularly disrupted in certain geographies. Getting the right kind of talent at remote locations poses an additional challenge for the industry. Of course, most of these challenges are common to the large-scale manufacturing sector in India. In the case of aluminium industry, perhaps its criticality increases due to the fact that aluminium manufacturing is a continuous process; and disruptions are far costlier than in many other industries.

The industry needs to tackle the challenges around the local environment and issues related to availability of and access to key resources. Its R&D (research and development) efforts need to focus on improving energy efficiency and other resource related efficiencies. At the same time, a wider stakeholder consultation and development approach will be critical to manage the local environment. The resource-based nature of the industry has implications in terms of the social aspect of sustainability. In fact, this was a major driver for the shift of the industry from the developed West to the developing countries. Most mines and upstream plants are located in resource-rich, but remote locations where the industry has to shoulder the additional responsibility of the overall social development of the community in which it operates.

India is one of the fastest growing economies in the world. Its GDP grew at 8.6 per cent in 2009-10; 9.3 per cent in 2010-11 and 6.2 per cent in 2011-12. Even a 5 per cent growth in 2013-14 is much better than many economies of the world. A revival of manufacturing is necessary to put the country back on the growth path. The aluminium industry can contribute to stoke the revival of the manufacturing sector. India has the potential to become global hub for aluminium production as India is home to one of the largest reserves for high quality bauxite and coal. With a substantial investment by Indian players in the aluminium segment, India is well positioned to realise the dream of becoming a globally competitive player and be a major exporter of aluminium and aluminium products. The expected quantum leap in the Indian aluminium industry will surely contribute in putting India and Indian economy back on the growth trajectory.

Significance of 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 recyling 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.

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. 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.