Chapter - I

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Among all modern non-ferrous metals, aluminium occupies the pride of place in the industrial scene by sheer virtue of its versatility.

Aluminium has a very fascinating history. It was first discovered in Denmark in 1825 but the real breakthrough came in 1886 when two scientists, Heroult of France and Hall of U.S. working simultaneously found its structural properties. It became a Kitchen metal for the masses in early 20th century, within a span of 40 years, aluminium became the most sought after metal for industrial use. During the times of Napolean aluminium was not the common mans metal as it is today. It was time consuming and expensive to recover aluminium and it was costlier than gold and other precious metals. The story suggests that Napolean had once
honoured the king of Spain by feasting him in trays and cutlery made of aluminium. Napoleon himself used aluminium buttons in his uniform.

Now of course aluminium has became common metal in every day use. It is used in a variety of ways and forms. In fact aluminium has already posed a formidable challenge to the monopoly of steel in various sectors.

The total world production of Aluminium in 1886 was only 17 tonnes. In 1996 it has risen to a phenomenal 24.31 million tonnes. India’s aluminium production is not very satisfactory mainly because of the shortage of power. In 1984-85 its production was a little over 270000 tonnes.

Industrial capacity, production, capacity utilisation, total availability and share of imports in total availability of Aluminium Industry in India are not comparable to would standard.
Plan Focus on Aluminium:

Production of aluminium increased from 192000 tonnes in 1979-80 to 275500 tonnes in 1984-85, though it fell short of the target of 300,000 tonnes envisaged in the sixth plan. On account of the shortage of power, the overall capacity utilisation during the major period of the sixth plan ranged between 60 and 65 per cent. The position however, improved in the terminal year when capacity utilisation increased to 76 per cent. There was also slack demand. As against the sixth plan projection of 450000 tonnes for the year 1984-85 the anticipated demand is expected to have been only around 310000 tonnes, mainly because of the short fall in offtake by the power sector.

The major development in the aluminium industry during the sixth plan period was the taking up of a new project in the public sector.
in Orissa the project was expected to be completed during eighth plan period.

The Gandhamardan bauxite mines project of BALCO was taken up to replace the existing capture mines of the company which are nearing exhaustion. 270 MW capacity captive power plant has been taken up for construction at BALCO's smelter at Kobra to relieve it of the severe constraint of non availability of power grid.

During the Seventh plan period the 41000 tons of aluminium capacity was added in the private sector raising the installed capacity to 362000 tone, as against the capacity target of 35000 tonnes.

The Orissa Aluminium/alumina complex of NALCO captive power plant at Korba Smelter of BALCO and Gandhamardau bauxite project of BALCO are expected to be completed during the Seventh plan period. In the private sector
modernisation and expansion of alumina calciner of HINDALCO is expected to be taken up and completed. NALCO may have to set up additional down stream facilities.

The demand for aluminium is up from 310000 tonnes in 1984-85 to 4500000 tons in 1989-90. The uses of metal in India are still at an early development stage with major use being in the electrical sector. There is considerable increase in the use of the metal in other industries like transport, railways, marine application and building and construction. To stimulate demand, it would be necessary to pay special attention to the development of various alloys, product development and application engineering. Both BALCO and NALCO will have to take active step in this area.

Important aspect to increase demand is the process parameter involving, reduction energy consumptions production development and
application engineering. The demand of Aluminium would not be fulfilled unless determined efforts are made to increase production to 1200 lakh tonnes to reduce dependence on imports. The fast expanding automobile industry, the communication system and power sector are making heavy demands on Aluminium Industries. In the first decade of the 21st century the per capita consumption of Alumium must substantially go up because it is good substitute for copper. It is rightly said that neglect of Aluminium Industries is to undermine the critical growth of the economy in the future.

**Statement of The Problem:**

The thesis delves into the problem areas:

1. The problem of production highlights cost behaviour of Aluminium Industry in India. It makes an enquiry into the relationship of fixed cost and variable cost to find out the
impact of utilisation of capacity and management an manufacturing cost.

2. The thesis further goes into the aspects of the strength of consumer market by making critical study of sales performance of Aluminium Industry.

3. The thesis makes micro study of Aluminium by actual relation of the value in terms of revenue. It relates total revenue, average and marginal revenue to the cost of production in a bid to determine the level of optimum operation of Aluminium Industry.

4. Problem of working capital management is taken up for study in the thesis because marketing and production are reflected by the amount of working capital which the Aluminium Industry has to maintain to finance its production and marketing strategies
5. Lastly summary of the problems and suggestion have been presented with corroborating facts in support of the findings and suggestions.

Scope:

The scope of the study is vastly extensive encompassing the production and marketing both. The cost behaviour is studied with a view to provide an insight into the type of technology. The assumptions that cost is universally related to the advancement of technology provided the industry is engaged in modernisation and innovations. The cost determines the rock bottom line for marketing aluminium product at a price which must be above the datum fixed by the marginal cost. Conversely speaking, larger the scale of operation, greater would be the decline in the average fixed cost leaving a margin of adjustment in prices to absorb the competitive forces in a liberal economy. Since, Aluminium
Industry of India has failed to take note of this aspect of cost. It has lately suffered erosion in its capital base. For this reason Aluminium units in the public sector have been marked for partial disinvestment - 3 - 5 per cent of the capital.

The scope of the thesis makes stride in the marketing aspects of Aluminium Industry products. The study begins with an enquiry into the sales of the industry as a whole. The substantial increase in the sale has underscored the fact that the market is hungry for Aluminium products. The government is forced to import Aluminium to satisfy the industrial demand. Keeping in view the emphasis on development of infrastructure, marketing is going to be a complex problem. The results of marketing are concluded in terms of revenue -- total revenue average revenue and marginal revenue. The rate of return is taken as a measure of efficiency of organisation and management. The huge amount of working
capital is also brought into sharp focus which emphasizes that Aluminium Industry is facing the problem of erratic supply of critical input like bauxite. A substantial part of working capital is locked in inventory. The study makes searching enquiry into the aspect of recovery of credit sales from the government department. In a few words, the scope of the thesis is comprehensive and extensive.

**Objectives of the Study:**

The thesis is undertaken with the objectives as given below:

1. It is the objective of the thesis to determine the extent of capital investment utilised by Aluminium Industry in carrying out its operations both in public and private sectors.

2. To measure the efficiency of organisation and management in terms of cost efficiency.
3. To find out the achievement of Aluminium Industry in terms of sales so far as marketing is concerned.

4. To find out the optimum level of operation by comparing marginal revenue with marginal capital. It is final test of coordination between marketing and production activities of Aluminium Industry.

5. To determine the causes of mounting working capital which is usually recorded as diversion of funds into unproductive channels. It also reflects the attitude of management towards cash flow.

**Hypothesis To be Tested:**

The Research Scholar begins to study the problems and prospects of Aluminium Industry to test the hypothesis that production must be optimised at minimum cost and marketing operation should be optional at maximum return.
The progress of any industry is circumscribed by the cost behaviour. Usually increasing average and marginal costs are attributed to escalating input cost or declining in the labour productivity. Technology has also its role in influencing the cost. The most sophisticated technology is capital intensive technology. The Aluminium Industry of India has to combine better technology with maximum number of jobs within the parameters of social constraints to create jobs. Though public sector is making substantial contribution in terms of physical production, it has not come up to the mark in generating surplus. The hypothesis suggests that the high cost of public sector units leaves little room for surplus when the products are sold at competitive price. The Aluminium Industry has also suffered because of the administered price. There is no fair logic to keep the price fixed without marketing efforts to keep the cost of input steady. The losses were subsidised before liberalisation of the economy.
which runs counter to the hypothesis that subsidies induce inefficiency on the one hand and become a source of rental income for the efficient units. Both inefficiency and rental income cannot be supported by the logic of hypothesis of fair allocation of cost to consumers. The net income must be earned by Aluminium Industry through efficiency and best services to consumers. It calls for rationalisation of both production and marketing of Aluminium Industry products in India.

**Research methodology:**

The Research Scholar has made extensive use of the financial reports of the Aluminium Industry in India and the material furnished by relevant government agencies. The Annual Reports of the Aluminium Industry, under survey have been made good use of. The journals and periodicals of repute have also been consulted.
The data furnished in the study have been logically and analytically presented to arrive at the cogent conclusion.

**Scheme of Chapterisation:**

The problems have been set out for discussion in the following chapters:

* Chapter-1 highlights development of Aluminium Industry in India. It substantiates the hypothesis that growth and prospects of an Industry can not be separated from the production and marketing.

* Chapter-2 deals with the cost behaviour of Aluminium Industry in India with an emphasis on break up of the cost into critical inputs and factor inputs.

* Chapter-3 is the study of sales performance of Aluminium Industry.
* Chapter 4 studies the revenue generated by Aluminium Industry from its marketing operations.

* Chapter-5 presents the logical impact of marketing and production on working capital of Aluminium Industry of India.

* Chapter-6 summarises the problems of production and marketing of Aluminium products in India and makes suggestions.

**Utility and Significance:**

India after becoming nuclear power is at the threshold of making stride in the space. The dream of the future would be realised by making use of best metals for structural strengths. Aluminium Industry offers the magic wand to make the dream come true. It is not a good rating that India lags far behind other countries in terms of consumption and production of Aluminium per capita. The Research scholar has
made projections that demand for Aluminium would increase multiple times. The economy would perform excellently if production capacity is enlarged to meet the targets for 21st century.

**Conclusion:**

To sum, this chapter has dealt with the framework of the study covering the aspects such as statement of problem, scope, hypothesis, objectives and research methodology. The forthcoming chapter has thrown light on problem of production; cost behaviour of Aluminium Industry in India.