## Annexure-1 to the Directors' Report

## Management Discussions and Analysis

### Overview

During the period the plant has operated at 22.50 % capacity (peaked to 52 %) with 16,909 MT copper cathodes production of consistent quality conforming to the LME Grade 'A' specifications.

The flexibility of the plant in processing various types of raw materials was demonstrated during the period. The smelter processed besides reverts, concentrates with high insolubles, irony copper, copper dross, copper cake, blister and other copper bearing raw materials.

The modifications were carried out in the Kaldo Furnace for making it suitable for processing the electronic scrap. Further, with the introduction of Continuous Charging System, the yield has also improved.

During the period, the copper cathodes were sold at premium over LME, though the company's brand is not yet registered with LME.

The company has established itself as a reliable buyer of raw materials from reputed vendors and quality suppliers of cathodes to its customers.

### Absorption of Technology

The company has successfully absorbed technology of smelting of various raw materials through Top Blown Rotary Converter (Kaldo) and Refining technologies envisaged in the design. Kaldo and Converter have been successfully operated with different types of raw materials.

The Refinery has consistently operated at higher current efficiency and time efficiency than envisaged in the operating parameters.

### Status of Working Capital Finance

The company continued to face shortage of working capital finance compounded by LME prices of copper continuing at higher levels and withdrawal of working capital facilities by IDBI Bank Limited. The Management has taken several measures to bridge the gap from alternate sources and has been successful in tying up of trade financing arrangements with a leading trading house for import / domestic procurement of raw materials.

### Raw Materials Market Scenario

The raw materials used by the company, although different in nature as compared to the raw materials used by conventional copper smelters, have linkage to the international markets and the treatment and refining charges (TC/RCs) of the raw materials used by the company depend on TC/RCs of concentrates used by conventional copper smelters.

During the period, in several countries there were disruptions in copper mines due to natural calamities, labour unrest and lowering of ore grades adversely affecting the concentrates supplies and TC/RCs. The TC/RCs of the secondary materials also remained at lower levels during the period. Further, during the period, China's unexceptionally huge copper demand surpassed all expectations adversely affecting the availability of high grade copper and secondary materials in the world markets.

The adverse market trends continued to put pressure on company's terms of sourcing of the raw materials. The Management, therefore, explored the option of tolling of raw materials to produce copper cathodes by sourcing raw materials from other domestic Smelters both from public and private sectors and has been successful in converting their copper bearing wastes / secondaries to copper cathodes.

During the period, the company has received approvals from the Environment Authorities for processing of electronic wastes/ electronic scrap and has become the only Smelter in India to have such permission.

### Demand and Supply of Copper

It is estimated that the consumption of refined copper in India is expected to grow by approx. 6% as against the global growth of approx. 5 % due to increased focus on infrastructure development. The government's rural electrification plan coupled with the urbanization of semi-developed cities is expected to drive copper demand over the next decade.

The consumption of refined copper in India is estimated at 6,00,000 MT per annum in coming years. However, since the Smelters have increased their production capacities with estimated domestic production at 8,00,000 MT per annum, India has become a net exporter of the refined copper.

## Safety and Occupational Health

The company has implemented policy of laying considerable emphasis on operational, safety and organizational health. The company has also adopted a philosophy of Zero Accident. The Management is committed to promote safety, occupational health and proper environment management as priority value in the design, planning, training and completion of all work tasks. The protocol systems are being vigorously followed for all critical activities. Training is imparted to workmen in various new techniques and systems. Further, during the period, for increasing the safety consciousness, regular safety reviews were carried out as also frequent inspections and follow up to checks were carried out of the physical condition of tools, equipments and housekeeping at various micro levels.

During the period, health checks were carried out for all the employees and no occupational disease has been detected till date.

The efforts of the company in maintaining highest standards of safety and health were acknowledged by continuing OHSAS 18001:1999 certification by DNV.

## Environmental Issues

During the period, the company continued emphasis on implementation of sound environmental management practices for treatment of waste gases, water, and solid / hazardous wastes. The treatment of waste gases from furnace through scrubber or through bag filters was continued for ensuring adherence to the norms set by Environment Authorities. Your company has a zero discharge plant. This was acknowledged by continuing ISO 14001:2004 certification by DNV.

## Energy Conservation

During the period, based on the detailed energy audit of the plant by Confederation of Indian Industries and its various recommendations, several energy conservation projects were taken up. Few of the projects taken up were as under.

a. Replacement of fan operated cooling tower by spray jet type cooling tower.

b. Installation of intermediate size compressor to meet air requirements during non-peak period.

c. Installation of low capacity cooling water pumps at main cooling tower.

d. Projects on reduction of transformer losses and reduction of lighting power / air-conditioners.

## Research and Development

During the period, the company has undertaken seminal R&D projects having relevance to the existing operations. The feasibility of this project is being examined and once the preliminary feasibility being established, the detailed project can be taken up. The company is also sponsoring post graduate engineers from eminent educational institutes for taking up various projects under guidance of eminent faculty as also company's senior technical executives.

It is also being planned to setup R&D Team with focus on reduction of production cost, improvement in operational efficiencies and production of new metals.