CHAPTER - VI
C. Hindustan Zinc Limited

1. Introduction

1.1 Hindustan Zinc Limited (HZL) was incorporated in January, 1966 as a public sector company after the takeover of the erstwhile Metal Corporation of India Limited, to develop mining and smelting capacities and to substantially meet the domestic demand of zinc and lead metals. The company is also operating a small rock phosphate mine. It is one of India's leading base metal producers, and is unique in the context of its technological versatility coupled with vertical integration in several metals. HZL has been signing Memorandum of Understanding (MoU) with the Government since 1991-92. The Company has been declared a "Mini Ratna".

1.2 The authorised share capital of HZL is Rs. 500 crores. The paid up capital is Rs. 422.53 crores. The Government holds 76% of the equity. The Government has recently decided to disinvest further 25% of its equity in the domestic market to small investor and employees of the company.

1.3 HZL, with its headquarters at Udaipur, operates five lead-zinc Mines with a total lead-zinc ore production capacity of 3.49 million tonne per annum (tpa) and four smelters with combined installed capacity of 152,000 tpa zinc 43,000 tpa lead. The Company offers a wide range of lead metal grades to its customers, besides a range of by-products. The ore production capacity of HZL mines is shown at Table-1.

Table-1

<table>
<thead>
<tr>
<th>Mines</th>
<th>Ore Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zawar Group of Mines District Udaipur (Rajasthan)</td>
<td>4000</td>
</tr>
<tr>
<td>Rajpura-Dariba Mine, District Rajsamand (Rajasthan)</td>
<td>2400</td>
</tr>
<tr>
<td>Rampura Agucha Mine, District Bhilwara (Rajasthan)</td>
<td>4500</td>
</tr>
<tr>
<td>Sargipali Lead Mine, District Sundergarh (Orissa)</td>
<td>500</td>
</tr>
<tr>
<td>Agnigundala Lead Mine, District Guntur (Andhra Pradesh)</td>
<td>240</td>
</tr>
</tbody>
</table>
1.4 Zinc and lead metal production capacity of the HZL is shown at Table-2.

Table-2

HZL-Smelterwise Metal Production Capacity (tpa)

<table>
<thead>
<tr>
<th>Smelters</th>
<th>Metal Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Zinc</td>
</tr>
<tr>
<td>Debari Zinc Smelter, District</td>
<td>49,000</td>
</tr>
<tr>
<td>Udaipur (Rajasthan)</td>
<td></td>
</tr>
<tr>
<td>Vizag Zinc &amp; Lead Smelter, District Visakhapatnam</td>
<td>33,000</td>
</tr>
<tr>
<td>(Andhra Pradesh)</td>
<td></td>
</tr>
<tr>
<td>Chanderiya Lead-Zinc Smelter,</td>
<td>70,000</td>
</tr>
<tr>
<td>District Chittorgarh (Rajasthan)</td>
<td></td>
</tr>
<tr>
<td>Tundoo Lead Smelter, District</td>
<td>-</td>
</tr>
<tr>
<td>Dhanbad (Bihar)</td>
<td></td>
</tr>
</tbody>
</table>

*Closed down from 1 August 1999 due to pollution problem and economically unviable operations.

2 Physical/Financial performance highlights (April-December, 1999)

- MoU performance rating provisionally works out to be "Very good".
- Net profit earning (PBT) of Rs. 143 crores, compared to the budget of Rs. 100 crores
- Sales turnover of Rs. 1081.47 crores, compared to the budget of Rs. 922.52 crore.
- Zinc metal production at 121% of the target.
- Zinc metal sale at 108% of the target.
- Declaration of the Company as "Mini Ratna"
3.1 The physical performance of the Company is at Table-3.

Table 3

HZL—Production of lead-zinc ore, concentrate and lead-zinc metals

(Figures in tonnes)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead- Zinc Ore</td>
<td>2467729</td>
<td>2644883</td>
<td>2755000</td>
<td>1891667</td>
</tr>
<tr>
<td>Lead-Zinc</td>
<td>353025</td>
<td>412617</td>
<td>421040</td>
<td>303934</td>
</tr>
<tr>
<td>Zinc Metal</td>
<td>136271</td>
<td>141806</td>
<td>138000</td>
<td>106099</td>
</tr>
<tr>
<td>Lead-Metal</td>
<td>35766</td>
<td>39010</td>
<td>43500</td>
<td>25583</td>
</tr>
</tbody>
</table>

3.2 The lead-zinc ore and concentrate production are estimated at 97% and 98% respectively of annual targets. Zinc and lead metal production is estimated at 100% and 83% respectively of annual target during the current year. Lead production at Vizag Smelter has been stopped from 1 August, 1999 as per directive of Andhra Pradesh Pollution Control Board.

4 Financial Performance

4.1 The financial performance of the Company is given at Table-4.

Table-4

(Rupees in Crores)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>1300.33</td>
<td>1346.05</td>
<td>1198.91</td>
<td>1081.00</td>
</tr>
<tr>
<td>Operating Cost</td>
<td>1014.66</td>
<td>1120.91</td>
<td>1029.02</td>
<td>810.38</td>
</tr>
<tr>
<td>Interest</td>
<td>26.74</td>
<td>15.24</td>
<td>10.30</td>
<td>9.00</td>
</tr>
<tr>
<td>Depreciation</td>
<td>57.16</td>
<td>58.75</td>
<td>60.07</td>
<td>46.47</td>
</tr>
</tbody>
</table>
5 Export/Import Performance

5.1 The Company expects to export about 30,000 tonne zinc concentrate during the current year. Imports made by the Company are shown at Table-5

Table-5

HZL-Imports

(Rs. in Lakh)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Material</td>
<td>477.29</td>
<td>615.00</td>
</tr>
<tr>
<td>Components, stores &amp; spares</td>
<td>4465.01</td>
<td>2012.00</td>
</tr>
<tr>
<td>Capital goods</td>
<td>11.07</td>
<td>1792.00</td>
</tr>
<tr>
<td>Total</td>
<td>4953.37</td>
<td>4419.00</td>
</tr>
</tbody>
</table>

6. Sales Performance

6.1 Zinc sales during the period April-December 1999 were 1,06,707 tonnes. It is expected sale for the year will be 1,32,000 tonnes. The company expects to export about 30,000 tonn zinc concentrate during the current year. Lead sales during the period April-December 1999 wer 22,148 tonnes. Expected sale during 1999-2000 are 29,000 tonnes.

7. MoU Rating

7.1 The MOU rating achieved by the Company during the last two years is given below:

Year MOU Rating

1997-98 Excellent

1998-99 Very Good (Provisional)

8 Projects
8.1 Kayar lead-zinc prospect, district Ajmer, Rajasthan

8.1.1 HZL acquired mining lease over an area of 4.875 sq. km for Kayar lead-zinc prospect Ajmer. In order to delineate the deposit with fair degree of confidence and establish firm geological, geo-technical and metallurgical parameters for preparation of techno-economic feasibility report, an exploration programme comprising 16,800 m of drilling at an estimate of Rs. 12 crores has been taken up.

8.2 Jagpura Gold Prospect

8.2.1 HZL is continuing its exploration campaign in Jagpura area, district Banswara where a prospecting licence over 43.10 sq. km. After completing target drilling for oxidised ore in northwest and northeast blocks, exploration is continuing in the southwest and southeast blocks. A total of 10,924.53m of drilling has been carried out under the project so far.

8.3 Zinc Smelter Expansion at Debari & Vizag

8.3.1 As part of augmenting zinc-smelting activities HZL has taken up expansion of its smelter at Debari from present capacity of 49,000 tpa to 59,000 tpa. Similarly capacity of zinc smelter at Vizag is being expanded from its present capacity of 33,000 tpa to 43,000 tpa.

8.4 New Zinc Smelter of 1,00,000 tpa capacity

8.4.1 Based on the detailed feasibility report prepared by M/s Kvaerner Metals, UK. The Company has proposed a new smelter of 1,00000 tpa capacity. The report on Rapid Environment Impact Assessment/Environment Management Plan (EIA/EMP) has been completed and Public Hearing has been successfully held. No Objection Certificate from Rajasthan Pollution Control Board (RPCB) has been received. Application has been filed with Ministry of Environment and Forest (MOEF) for environmental clearance. The Government of Rajasthan has already allotted the Government land. Acquisition proceedings for the private land have already been initiated. No proposal is being examined for approval for investment decision.

8.5 Nickel Technology Proving Plant (Nickel-TPP)

8.5.1 The Nickel-TPP plant has been mechanically completed in September 1999 and no-load testing of equipment carried out. Plant operations were started during October 1999 and visit of Multiple Hearth Furnace (MHF) commissioning experts was also planned. However, due to damages to the plant by the super cyclone, plant operations got disrupted, and visit of expert to be postponed. On completion of repair jobs, the experts visited the plant in December 1999 the MHF was started for heating and commissioning. The MHF is now ready for process commissioning with chromite overburden (COB) feeding.

8.6 100 MW Power Project

8.6.1 An MOU was signed between HZL and Rajasthan State Mines and Minerals Limited (RSMML) in February 1997 to set-up a 100 MW Power plant. Ministry of Petroleum & Natural Gas has approved allocation of 1,25,000 TPA Naphtha for the project in November 1998. The Government of Rajasthan has finalised and notified the revised captive power plant policy in 1999. In terms of this policy, the State Government of Rajasthan has cleared in December
9 International Cooperation

9.1 HZL-BHPM Joint Venture

9.1.1 MOU was signed in October 1994 between HZL and BHP Minerals (BHPM), Australia for carrying out regional exploration in parts of Rajasthan. As per the terms and conditions of the MoU, BHPM will bear the entire expenditure of prospecting/exploration of the completion of pre-feasibility study. In case, mineral discovery and the results of pre-feasibility study warrant detailed feasibility study and mine development, all expenditure thereon will be shared by HZL and BHPM in proportion to their participative interest of 40:60, respectively. Airborne geophysical surveys were conducted in two phases (Phase I and II) in 1997-1998 and 1998-1999 respectively. The processing of data generated by aerial surveys and interpretation resulted in identification of anomalies for detailed ground follow-up work by geological, geophysical and geochemical techniques. In all, 53 boreholes were drilled to test 39 anomalies. Thus, so far except for traces of base metal mineralisation, no intersection of economic mineral zone has been encountered in tested anomalies. Further ground follow-up is in progress. HZL and BHPM are contemplating to carry out Phase III airborne geophysical survey, in the northern extension part, sometime in early 2000. The discussions with BHPM are under way to formulate the joint venture structure.

9.2 Pac-Lang Joint Venture, Vietnam

9.2.1 HZL has entered into an MOU with BRGM (LaSource) France and Vietnam National and Gold Corporation (VIGEGO) for a joint venture project to conduct exploration, feasibility study and undertake, if viable, commercial exploitation of Pac Lang Gold project in Vietnam, in an equity split of BRGM-40%, HZL-30%, VIGEGO-30%. Subsequent to the Vietnamese New Mineral Law coming into force from September 1996 and in line with the revised provisions, exploration and prospective licence (EL/PL) applications for 49 sq. km. respectively were submitted to the Vietnamese Government in early 1998. However, the project has not taken far, because the Government of Vietnam has not granted EL/PL. The matter is being pursued.

10 Energy Conservation

10.1 The following measures are being continued with a view to conserve energy in different units of the company:

- Load and Energy Management
- Measurement and monitoring the consumption of various forms of energy.
- Energy audit and survey.
- Plugging of losses in energy usage.
- Sizing of equipment.
- Optimisation of system power factor.
- Process improvement/modification.
- Use of energy efficient systems and equipment.

11 Computerisation
11.1 All the business application software and process control systems rolled over to year 2 (Y2K) smoothly. This was achieved by replacing old and obsolete, mini computers by the state-of-the-art Y2K compliant RISC servers with Graphic User Interface (GUI) based system software and development tools.

12 Pollution control and Environment Management Efforts

12.1 Air and water pollution control facilities and plants at all the units of the company have been operating regularly with optimum performance to maintain emissions within permissible limits. Solid wastes generated at mining units were utilised for raising tailing dam height and filling low-lying areas. Excess waste is being properly stacked and stabilised. Regular monitoring of air, water, noise, etc., is being carried out throughout the year. Nearly 8,500 numbers of new saplings were planted during the year in addition to the existing trees being kept well maintained at mining units of the company.

13 Salient Aspects of the work being done by Advisory Boards/Councils

13.1 Joint Consultative Committees are functioning in all major units of the Company. The committees consist of representatives from workmen and management, and the areas discussed include production and productivity improvement, reduction in cost of production, etc. The recommendations of the committee are generally implemented. In addition to the Joint Consultative Committees, various other bipartite committees/fora on welfare, safety, canteen management, house allotment, etc., are functioning. The unanimous recommendations of these committees are also generally implemented. The functioning of these bipartite fora have created a conducive climate for better production/productivity at all levels.

14 Research & Development Activities

14.1 Bioreactor Technology

14.1.1 The project aims at setting up a 1 tpd pilot plant at Central Research and Development Laboratory (CRDL) for recovering zinc from Agucha Plant tails through bacterial leaching. The Basic Engineering Design Package the cost for setting up 1 tpd pilot plant has increased from Rs. 95 lakhs to Rs. 158 lakhs. The committee constituted by Department of Mines for reviewing the progress of the project (PMC) decided that the techno-economics of the overall process including bioreactor leaching and solvent extraction should be worked to decide whether the project can become economically viable.

14.2 Recovery of Germanium

14.2.1 Germanium is a strategic metal and is presently priced at Rs. 3 to 4 lakhs per kg and applications in infrared optics, fibre optics, gamma-ray spectroscopy, etc. Our entire requirement is imported. Waelz Kiln Oxide, an intermediate generated in zinc smelter Visakhapatnam, has identified as potential source (Germanium, 40-50 parts per million). Discussions were held with C-MET, Hyderabad for developing flow sheet for Germanium extraction. Analysis of Germanium tetrachloride solution is in progress at C-MET, Hyderabad as also generation of design data distillation column for purification.

14.3 Manganese Nodule
14.3.1 At the instance of Department of Ocean Development (DOD), a pilot plant of 500 kg/day capacity will be set up at CRDL for recovering Copper (Cu), Nickel (Ni), and Cobalt (Co) from ocean bed Manganese nodules for which processes have been developed by RRL, Bhubaneswar and Bhabha Atomic Research Centre (BARC), Mumbai. EIL has prepared the basic engine and front-end engineering packages for the pilot plant, which is expected to be commissioned September 2000.

14.4 Cobalt Metal Recovery

14.4.1 A project on improving cobalt metal recovery was conceived with financial assistance by Technology Information, Forecasting and Assessment Council (TIFAC) of the Department of Science and Technology. For achieving this objective, the project monitoring committee suggested creation of facilities in the solvent extraction plant at CRDL. Facilities for performing three leaching have been created at the solvent extraction plant. DEHPA, solvent needed in the process, is expected in the near future, following which, plant operations will commence.

15 Industrial Relations

15.1 Industrial relations in the Company have been peaceful and cordial during the period. Voluntary Retirement Scheme (VRS) for Stripper/Laddler of zinc smelter at Debari was introduced and 28 workmen opted and were released. Further, VRS was also introduced for workmen at Agnipundara Mine and 42 workmen opted and were released.

15.2 VRS was also introduced for the Executives of E-0 to E-3 level and 41 executives opted and were released on 30 November 1999 and 170 executives were released in December 1999.

15.3 The pay revisions of Executives and Workmen have become due and pending pay revision, Interim Relief has been granted with effect from 1 January, 1997 and 1 July, 1997 respectively.

16 Women Welfare

16.1 The women employees of the Company are given better welfare amenities. They are being sent for training, both in-house and outside. Participation by female employees in various national fora is also encouraged.

16.2 To take care of medical facilities of female employees, the Company has lady doctors in its hospitals/dispensaries.

17 Welfare of Tribals and Minorities

17.1 Various welfare measures including free medical aid, drinking water, school facilities, operative provision store facilities, etc., are being extended to the tribals and minorities residing in the adjacent areas of the units.

18 Wellbeing of the older persons

18.1 To take care of the medical needs of retired employees, a medi-claim policy has been taken through Unit Trust of India (Senior Citizen Unit Plan) under which the retired employee and spouse can get medical treatment/hospitalisation charges up to Rs. 5.00 lakhs.
19 Employment in the Company

19.1 The manpower employment in the Company as on 30 September 1999 was 11,816 out of which 1,827 belonged to SC and 1,513 to ST.

20 Progressive Use of Hindi

20.1 100% compliance of Section 3(3) of the Official Languages Act has been achieved in all units including Head Office. The progress of Hindi correspondence of the various units is as follows: Head Office-32.6%, CRDL-38.8%, Debari-46.8%, Maton Mines-63%, Zawar Mit 78.3%, Dariba Mines 75.7%, Chanderiya-31%, Agucha Mine 39.6% and Tundoo Smelter 3 The same in non-Hindi speaking units is Vizag-76.6%, Agnigundala Mines-31% and Sargij Mines- 46.4%.

20.2 Eight employees appeared for Hindi typing examination conducted under Hindi teaching scheme of the Government.

20.3 18 Hindi workshops were organised from time to time in all units of the Company in which 188 employees took part.

20.4 All the units of the Company observed Hindi week in a befitting manner. On this occasion Rajbhasha seminars/competitions/Hindi workshops were organised.

20.5 Active cooperation is extended to Udaipur Town Official Language Implementation Committee constituted by Rajbhasha Vibhag, Government of India.

20.6 The branches of Kendriya Sachivalaya Hindi Parishad, New Delhi are active in several including head office and various competitions have been organised from time to time.

20.7 Official Language Implementation Committees have been formed in all units of the Company and quarterly meeting are held regularly.

20.8 Following number of employees were awarded under the various incentive schemes:

- Hindi teaching scheme(Hindi teaching) 8
- Hindi teaching scheme(Hindi typing/Stenography) 8
- Hindi Cheque incentive scheme 8
- Monthly allowance scheme for Hindi typing/stenography 54