REPORT OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA

UNION GOVERNMENT

NO. 4 (COMMERCIAL) OF 1996

KUDREMUKH IRON ORE COMPANY LIMITED

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PREFACE

Audit Boards are set up under the supervision and control of the Comptroller aand Auditor General of India (CAG) to undertake Comprehensive Appraisals of the performance of the Companies and Corporations suject to audit by CAG.

The report on Kudremukh Iron Ore Company Limited was prepared by an Audit Board consisting of the following members:

Chairman, Audit Board	1. Shri C.K.Joseph	December 1993 - March 1995
	2. Shri Ramesh Chandra	April 1995 - December 1995
	3. Dr.B.P.Mathur	January 1996 till date
IA&AD Members		
Additional Deputy Comptroller & Auditor General (Commercial)	Shri J.S.Mathur	March 1996 till date
Member, Audit Board, Bangalore	1. Smt.Sudha Rajagopalan	Upto August 1994
	2. Shri K.G.Mahalingam	August 1994 - May 1995
	3. Shri R.Chandramouli	June 1995 till date
Member, Audit Board-III, New Delhi	1. Shri Kanwal Nath	Upto October 1994
	2. Shri S.Satyamoorthy	October 1994 - January 1995
	3. Shri Surinder Pal	January 1995 till date
Part-time Expert Members		
Shri N.Neelakantan	Director (Planning) (Retd.), National Mineral Development Corporation	July 1992 till date
Shri G.L.Tandon	Former Chairman, Coal India Limited	July 1992 - October 1993
Shri P.C.Gupta	Former Chairman-cum-Managing Director, National Mineral Development Corporation	May 1996 till date
Secretary, Audit Board		
Shri R.Chandramouli	Asst.Comptroller & Auditor General (Commercial)	July 1993 - June 1995
Shri Jagbans Singh	Asst.Comptroller & Auditor General (Commercial)	July 1995 - May 1996

OVERVIEW

1. The concentrate plant at Kudremukh was designed to produce 7.5 million tonnes of iron ore concentrate of a certain specification. Due to production of several specifications of concentrate, the Board of Directors had approved de-rating of capacity to 6.8 million tonnes. The Audit Board recommends that (i) an independent Technical Committee be constituted to fix the rated capacity of the concentrate plant, and (ii) the revised rated capacity be got approved from the Ministry of Steel. During discussion, the Ministry accepted the recommendation.

(Paras 4.1 to 4.4).

2. The Pellet Plant at Mangalore was designed to manufacture 3.0 million tonnes of pellets of Direct Reduction (DR) grade. The Plant was, however, mainly producing Blast Furnace (BF) grade pellets.The Ministry stated that the quality of the pellets was dependent on the feed stock viz. the pellet feed, and not the plant technology and that though it was technically possible for the Company to produce DR grade pellets, the Company was restricting the production of DR grade pellets on strategic considerations.

(Paras 4.5 & 4.6)

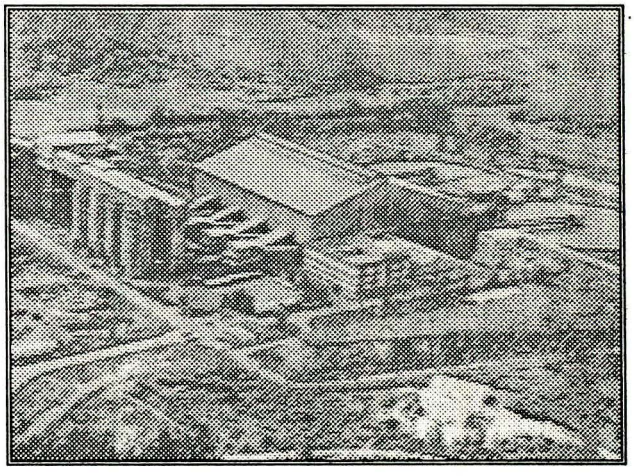
3. The Company has established itself as a reliable supplier of quality iron ore concentrate in the international market. It has reduced its reliance on a single market and diversified its exports to other countries like Iran and China to get a market presence and better prices. The Company has also penetrated several markets - China, Turkey, Australia, Taiwan, etc. with its Blast Furnace Grade Pellets. Its marketing strategy has shifted perceptibly to selling more pellets instead of concentrate to tap a more diversified market and take advantage of the larger mark-up on Pellets.

(Paras 5.4 to 5.7)

1. INTRODUCTION

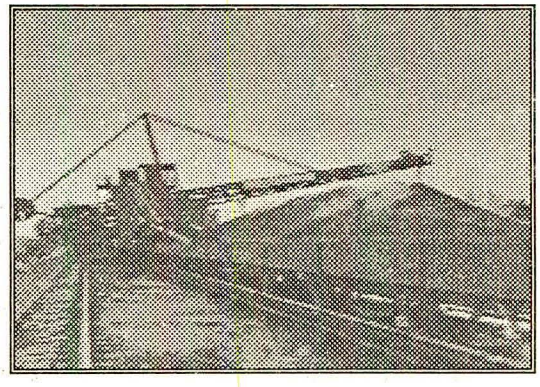
1.1 The Kudremukh Iron Ore Company Limited was established in April 1976. The Company is currently exploiting low grade magnetite (iron ore) deposits in the Aroli Gangamula range of the Western Ghats in Karnataka, and exporting beneficiated ore as concentrate and pellets. The Company's facilities essentially comprise the following:

- Mining facilities at Kudremukh, including crushing and transport of run-of-mine ore to a concentrate plant through conveyor belts.
- A concentrate plant for benefitiating the run-of-mine ore to improve its iron content and reduce other impurities to tolerable levels



· the output of the plant is iron ore concentrate that is transported in slurry form to the Company's Mangalore plant through a 67.5-km pipeline.

- A filter plant at Mangalore to convert part of the iron ore concentrate into an exportable form by reducing the moisture content in the slurry for direct export as concentrate or as raw material to the pellet plant.
- A pellet plant at Mangalore to convert part of the concentrate into pellets.
- Storing and loading facilities at its Mangalore plant to manage its sea-borne exports of concentrate and pellets, including a captive berth.



1.2 The metallurgical processes involved in extracting the metal from the ore and in pelletising are described in greater detail in Appendix-A.

SCOPE OF AUDIT

1.3 The Company's performance is being reviewed by the Audit Board for the first time . The Audit Board has reviewed the operations of the Company mainly between 1991-92 and 1995-96. This report is based on the review by the Audit Board and has been prepared after taking into account the discussions of the Audit Board first with the Management and thereafter with Secretary, Ministry of Steel, Government of India.

2. OBJECTIVES AND PLANS

2.1 The Company's activities are guided by the following:

- Memorandum of Association
- Two Corporate Plans covering the calendar years from 1982 to 1991 and financial years from 1990-91 to 1999-2000.
- Annual Memoranda of Understanding with the Government of India from 1991-92 onwards.

2.2 The main objective of the Company as per its Memorandum of Association is to acquire mineral fields, mine and process crude ore and export.

2.3 The two Corporate Plans had differing priorities, understandably due to the widely varying business circumstances confronting the Company when they were formulated:

- The Company was formed for exploitation of Iron Ore deposits for producing a single product for a single overseas customer viz. Iran who would also fund the investment. When Iran stopped disbursement of credit pledged (US $ 630 millions) after partially funding the project (US$ 255 millions) and also refused to lift the contracted quantity of concentrate, the Company was left with the problem of finding market for its product. This was the backdrop for the First Corporate Plan.
- The Second Corporate Plan was formulated when the Company had started making profits and building internal resources for expansion, having successfully diversified from a single-product single-customer profile to a multi-product multi-customer Company.

2.4 The First Corporate Plan focused on overcoming the major handicap by setting up a

pellet plant (the construction of which had already started), improving the quality of the concentrate and getting the Mangalore Port developed to handle larger ships. The Plan did not envisage any profit during the plan period. The Second Corporate Plan sought to

- continue and maintain the Company's identity as the largest 100% EOU of the Country and increase it's share in the International market;
- diversity to more value added products; and
- promote R & D efforts to bring down the cost and increase the quality.

2.5 The Company has been signing MOUs with Government of India annually from the year 1991-92. The activities and the performance criteria for evaluation have been evolving over the years since then. While the activities listed in the MOU have been fairly stable over the last 3 years, the weights and the performance criteria have been changing, reflecting the changes in the expectations of the Government from the Company. Some of the changes are highlighted below:

- From 1993-94, financial performance acquired significant weightage; Gross Margin and Net profit to capital employed together carried 50% weight during 1993-94 and 1994-95 and increased to 60% during 1995-96.
- Production and Export which had a weightage of 50% during 1991-92 declined to 10% during 1995-96; however, their importance continued to be partially reflected in the weightage for financial performance which is critically dependent on exports.
- Excavation was included as a separate activity from 1993-94 to assess mining performance distinctly from overall production performance.
- Environment and anti-pollution measures, which are significant in the context of the Company's operations, were also included in the MOUs from 1993-94.

Appendix-B contains a comparative listing of the activities, weights and performance criteria

for the "Very Good" rating.

2.6 The performance of the Company vis-a-vis MOU targets are discussed in the co chapters, wherever significant. The overall scores of the Company determined with re to the MOU targets are as under:

Year	Composite Score	Overall Rating
1991-92	1.80	Very Good
1992-93	2.38	Very Good
1993-94	1.41	Excellent
1994-95	1.23	Excellent
1995-96	1.06 (provisional)	Excellent

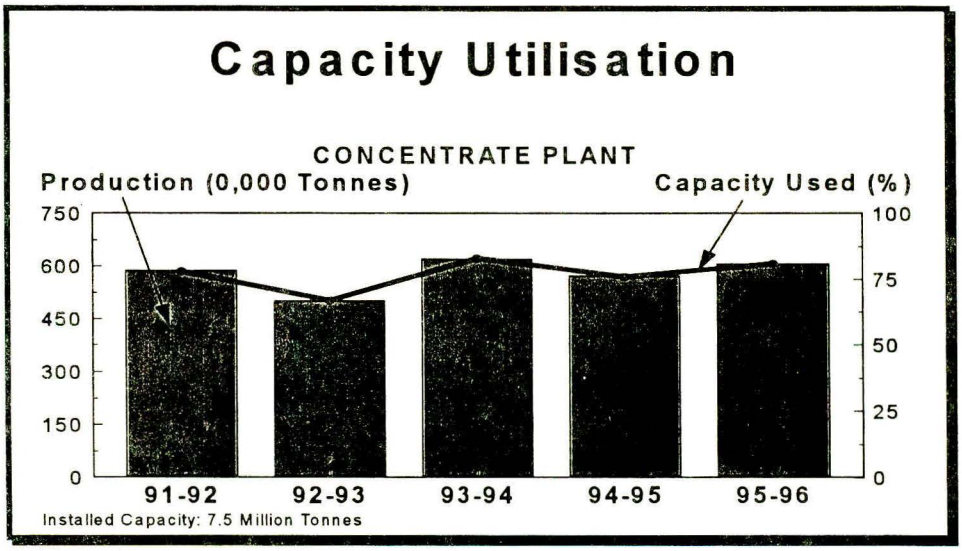
3. ORGANISATION

3.1 The Company is headed by a full time Chairman-cum-Managing Director. The Board of Directors comprises *inter alia* representatives of the Ministry of Steel and a representative of the Forest Department of the Government of Karnataka who has expertise in ecology and environmental protection. Two part-time Directors who are expert in Mining and Management are also members of the Board of Directors. For day to day management, the CMD is assisted by (i) three functional Directors in charge of Production & Projects, Finance and Commercial and (ii) General Managers in charge of projects and various divisions.

4. CAPACITY UTILISATION

CONCENTRATE

4.1 As per the detailed project report, the installed capacity of the concentrate plant was 7.5 million tonnes per annum. This capacity had been determined with reference to 66.5% Fe and 4.5% silica content in the concentrate. The capacity utilisation in the concentrate plant, depicted in the figure below, reveals that production could not reach the installed capacity in any of the years.



4.2 The Audit Board was informed (May 1996) that the Company cannot achieve 7.5 million tonnes capacity due to the following factors:

- The DPR capacity was for a single product viz. concentrate with 66.5% Fe and 4.5% silica, whereas the Company had diversified to four products with higher Fe content and lower silica content. (Greater beneficiation of the ore and reduction of silica content mean reduction in output of the concentrate plant. Production of pellets also involves grinding the ore more in the concentrate

plant.)

- The DPR envisaged a recovery rate of 38%, i.e. the ratio of concentrate recovered to crude ore crushed, whereas the recovery rate had come down to 34% over the years.

4.3 The Management had also cited earlier (May 1994) a few more reasons:

- the run-of-the-mine ore had become coarser than expected thereby consuming extra time and effort for grinding to bring it to the required specifications; and
- the trucks could carry only 80 tonnes of ore as against the envisaged capacity of 120 tonnes due to the higher-than-anticipated water content.

4.4 The Company has been treating the installed capacity as only 6.8 million tonnes with the approval of the Board of Directors based on the recommendation of an in-house technical committee. While the production of different specifications of concentrate is bound to reduce the installed capacity of the concentrate plant, the installed capacity has not been determined

- for different product mixes, or
- by an independent agency, external to the organization.

Further, no formal de-rating of capacity has been approved by the Ministry of Steel. The Audit Board, therefore, recommended **that (i) an independent Technical Committee be constituted to fix the rated capacity of the concentrate plant, and (ii) the revised rated capacity be got approved from the Ministry of Steel. During discussion, the Ministry accepted the recommendation.**

PELLETS

4.5 A pellet plant was established in September 1981 with capacity to produce 3 million tonnes pellets per annum, as a diversification measure and as a strategy to cater to the pellet market as a value-added product. The plant went into commercial production in April

1987. As per the Project Report, the plant was to manufacture pellets that can meet the specification necessary for Direct Reduction (DR) quality. During the trial runs in 1986-87, the pellets produced were not meeting the requirement of DR plants; hence, these were sold as Blast Furnace (BF) grade pellets. Subsequently, the plant was mainly used for producing BF grade pellets.

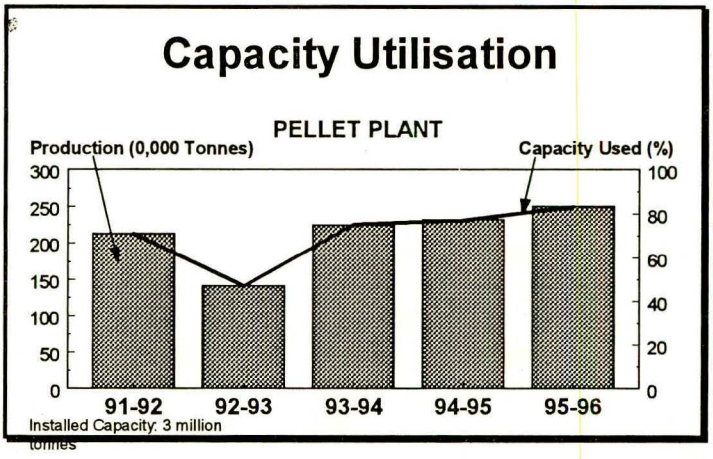
4.6 The quantities and value of pellets of both grades sold were as follows:

	BF grade		DR grade	
	(million tonnes)	(Rs.in crores)	(million tonnes)	(Rs.in crores)
1991-92	1.344	108.88	0.808	95.11
1992-93	1.135	102.89	0.24	25.49
1993-94	1.846	154.58	0.491	51.89
1994-95	1.615	135.58	0.631	66.48
1995-96	1.884	187.92	0.695	83.80

The Management stated (March 1993) that as the Company had not been able to produce good quality DR grade pellets and orders for DR grade pellets were not forthcoming, the Company had been obtaining orders for and producing BF grade pellets. The Ministry stated (April 1996) that the quality of the pellets was dependent on the feed stock viz. the pellet feed, and not the plant technology and that though it was technically possible for the Company to produce DR grade pellets, the Company was restricting the production of DR grade pellets on strategic considerations:

- enriching the ore for producing DR grade pellets would entail higher grinding cost and lower yield, the marginal advantage in sales price being partly offset by the increased cost of production; and
- resorting to selective mining (for better quality ore) on a large scale would damage the product in future years and reduce the life of the mine.

4.7 The pellet production and capacity utilisation in the pellet plant are depicted in the figure below:

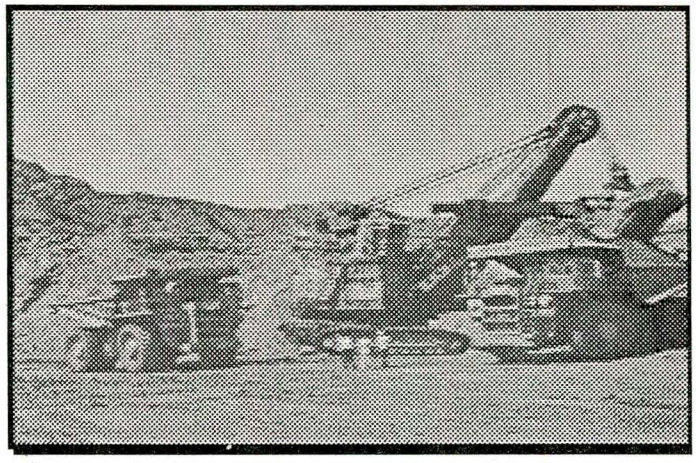


4.8 With a steadily growing pellet market, higher margins on pellets, and high capacity utilisation, the Company's Board of Direct-ors approved a proposal to install a 3-million tonne second pellet plant at a cost of Rs.333 crores. The proposal was, however, kept in abeyance due to problems of tailing disposal and huge investment required to commission the plant. Subsequently, the Company decided to modify the existing plant, at an estimated cost of Rs.34.94 crores, to achieve savings in cost of production and to increase its capacity by 0.5 million tonnes. The Company is presently executing the expansion which is expected to be completed by the end of 1996. The Audit Board was informed (May 1996) that the capacity of the plant is proposed to be increased further to 4 million tonnes. The Company is also planning to add a new 0.5 million tonne pellet plant, with a vertical shaft pelletising furnace, at an estimated cost of Rs.40 crores; this plant is expected to achieve substantial saving in cost of pellet production.

4.9 **The Audit Board endorsed (May 1996) the view of the Management that it was preferable to go in for gradual enhancement of capacity from 3.0 to 3.5 and then to 4.0 million tonnes instead of going into a higher capacity plant entailing heavy capital outlay.**

MACHINE UTILISATION

4.10 The mining operations are performed through heavy duty mining equipments namely shovels, 120 Tonne trucks, 35 Tonne Haulpak, etc. Though the project report envisaged a net working time of 18 hours per day for 250 days in a year, the Company worked on all 365 days. Responding to the Audit Board's apprehension that regular maintenance of machinery may be neglected, the Management assured (July 1994) that regular/periodical scheduled maintenance has been carried out and that the Company has not neglected preventive maintenance even though the Company is working on all the 7 days in a week.

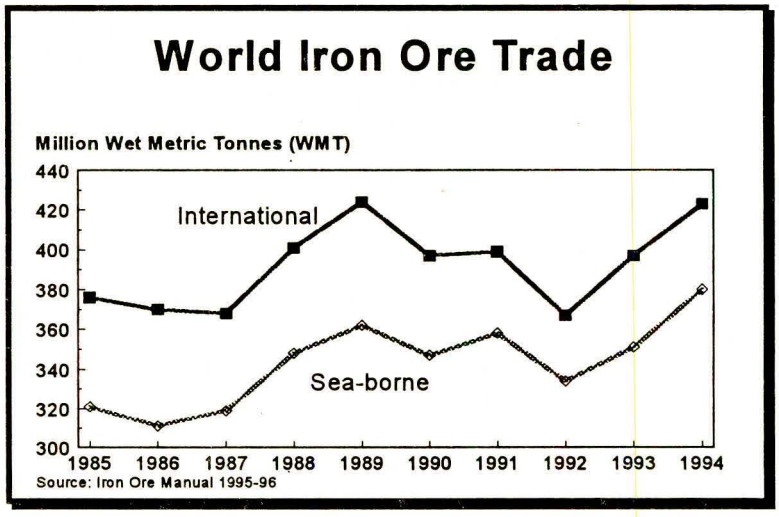


Heavy Mine Equipment

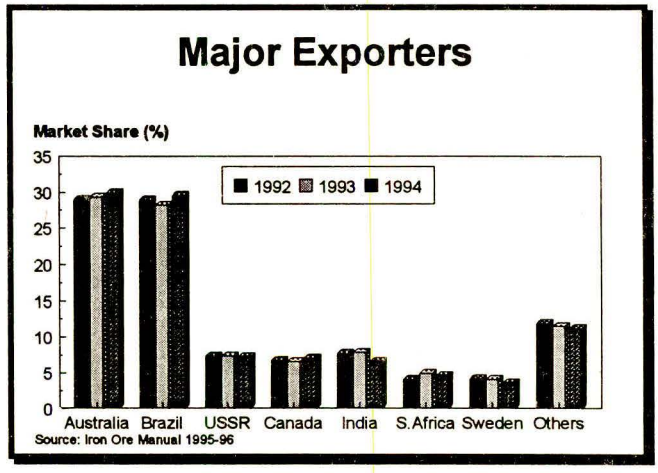
5. SALES PERFORMANCE AND PRICING

WORLD SCENARIO FOR IRON ORE

5.1 The international market for iron ore has been steady over the last 18 to 20 years with buyers intelligently keeping demand below supply. The iron trade volume, including sea borne trade, during the last decade is shown below:

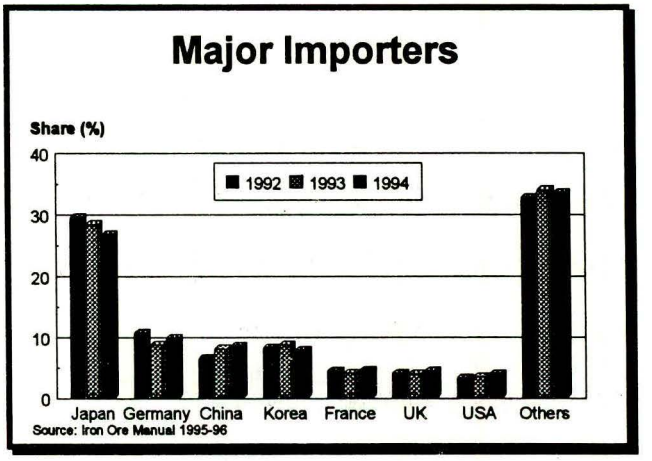


5.2 The major exporters of iron ore and the trend of their market share between 1992 and 1994 are shown alongside. As can be seen from the chart, Australia and Brazil are the Company's main competitors in the world market. While Australia supplies ore to Japan in the form of lumps and fines, supplies from Brazil go to Europe. The Company's ore is very fine and



different from that of Australia and Brazil; it is better suited for pelletisation than for sinter mix, as it contains a consistent percentage of Fe (barely plus or minus 0.5% variation), very low alumina (less than 0.5%), low sulphur (less than 0.03%) and no phosphorus. The run-of-the-mine ore is not marketable as such and is, therefore, beneficiated into iron ore concentrate. The concentrate can be used in blast furnace by mixing with sinter but cannot be used in Direct Reduction (DR) steel plants.

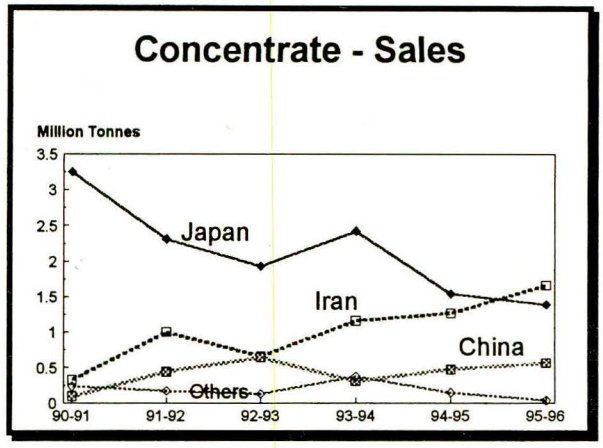
5.3 The major importers and their share of the total imports between 1992 and 1994 are shown alongside. Japan continues to be the biggest buyer but several other countries like China are also growing in importance. USA is not a big player in the world market, with its 150 million tonnes requirement for steel industries being met from its internal sources (except for pellets acquired from Canada).



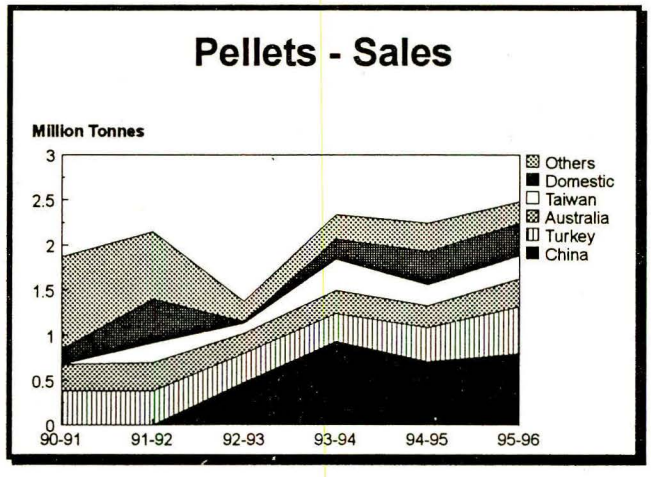
THE COMPANY'S SALES STRATEGY

5.4 The Management stated (May 1994) that it had a long term contract with Japan for supplying 2.8 to 4.0 lakh tonnes of pellets, but their prices were the lowest and they were likely to be overtaken by China as the market leaders. The Audit Board was informed (May 1996) that the Company was trying to reduce its reliance on a single market viz. Japan; despite being the biggest market, it did not give a remunerative price because of the freight element which controlled the prices. The Company had therefore gradually brought down the

sales to Japan to 1.39 million tonnes. The Management clarified that the Company was diversifying its exports to other countries to get better prices and that it expected to gain substantially from its early association with China. The chart alongside indicates the trend of sales to Japan, Iran, China and other customers.



5.5 The Company's marketing strategy has also shifted perceptibly to selling more pellets instead of concentrate to tap a more diversified market and to take advantage of a larger mark-up on pellets. For pellets, the Company has penetrated several markets as shown in the chart alongside. As in the case of concentrate, the Company is concentrating on China; China which was not in the scene upto 1991-92 has emerged as the largest customer followed by Turkey, Australia,Taiwan and domestic consumers. The Company had been declared a 100% export-oriented unit in March 1982 entitling it to exemption from payment of customs and central excise duty on imported and indigenously procured capital goods, raw materials and components for production and finished products; so, sales within the country are effected



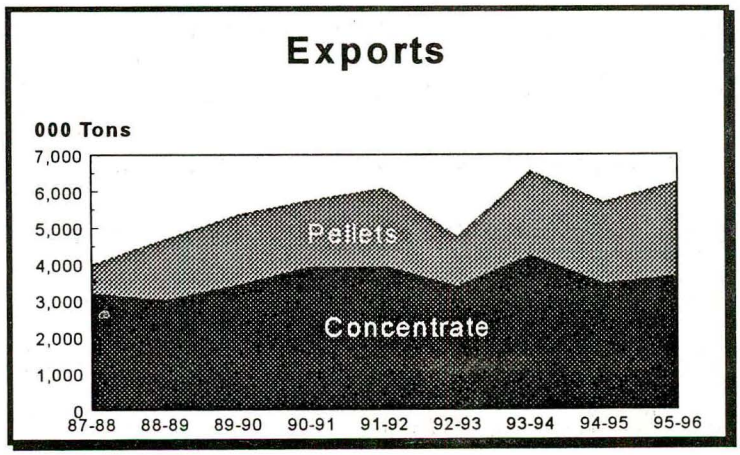
against export/import permit and are considered as *deemed exports*.

5.6 The Management stated (March 1996) that because of its high export earnings and continued thrust in locating new international markets, the Company had been awarded the status of Star Trading House, entitling it to inter alia special import licence in respect of net foreign exchange realisation; these licences are saleable sometimes at a premium. The Company has applied for the licence for Rs.28.80 crores for the net foreign exchange realisation during 1994-95.

5.7 The Management further stated (June 1996) that

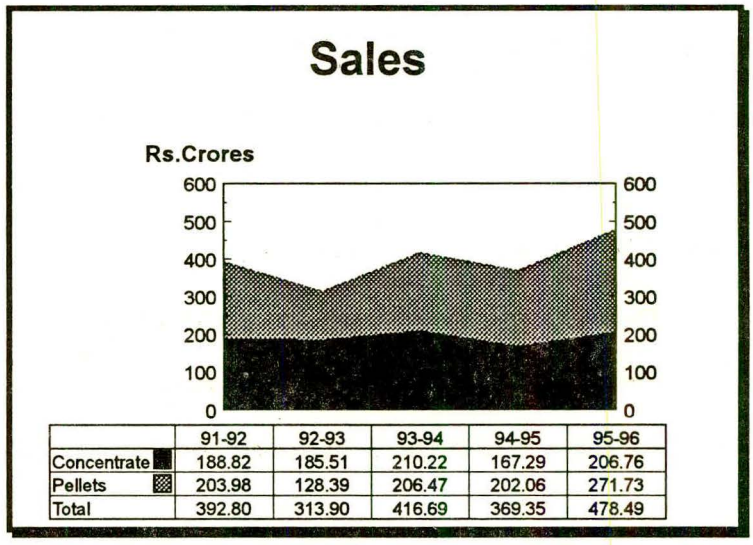
- the Company was able to adapt itself to the exacting specifications demanded by various customers in the international market and thus establish itself as a reliable supplier of quality iron ore concentrate; and
- the Company not only upgraded its quality to gain global acceptance, it had also maintained the programme of quality improvement in order to keep pace with the increasingly stringent quality requirements of the international buyers.

5.8 The trend of the Company's exports of pellets and concentrate is shown in the chart below:



The Company has been utilising the services of agents in promoting the sales of concentrates and pellets to different countries, on payment of agency commission of a fixed percentage on the FOB value of the shipments of the contracts entered into through the Agent's efforts.

5.9 The Company's turnover has been registering a growing trend as evident from the chart below. However, production declined in 1992-93 due to a Lakya Dam crisis and in 1994-95 due to exceptionally heavy rainfall:



	91-92	92-93	93-94	94-95	95-96
Concentrate	188.82	185.51	210.22	167.29	206.76
Pellets	203.98	128.39	206.47	202.06	271.73
Total	392.80	313.90	416.69	369.35	478.49

PRICING

5.10 The Company has freedom to negotiate with international buyers and its exports are not canalised through the Metals and Minerals Trading Corporation Limited. The rates are usually settled through negotiations, taking into account the international prices and the C&F cost to the buyer. Price setting is influenced largely by Japan and Europe. Freight rates are a major factor in influencing the buyers' determination of the source of procurement; in turn, freight rates are influenced by the size of ships that can be handled at the supplier's and customer's ports and the availability of carriers.

5.11 The Company usually formulates its Marketing Plan for the ensuing year in the third quarter of the previous year; the price fixation is based on assumptions about the fluctuation of international prices. The Management stated (May 1994) that it was able to get and maintain good prices for its products and it had a mix of long term contracts, annual contracts and spot contracts. The Management further stated that sometimes its pricing is also influenced by the consideration that, by slightly reducing output quality, the Company can use lesser grade ore that would otherwise have been abandoned.

5.12 The Company's marketing strategy, as has been mentioned earlier, is to reduce reliance on a single market and also to diversify exports to more countries to get better prices. Again, the strategy is to sell more pellets than concentrate in view of the higher mark-up on the pellets; the sales realisation per *Fe* unit has remained consistently higher for pellets than for concentrate and, over the last two years, has increased greater for pellets than for concentrate.

5.13 Sales during 1995-96 reveal that Iran has become the Company's best buyer for concentrate. However, Japan remains an important customer, being the largest international importer and a very stable market for the Company. The Company also sells a significant quantity of concentrate to China and to a lesser extent to Bahrain and Australia. The sale price, which is influenced considerably by the freight cost to the buyer, varies widely from about Rs.450 per tonne to Rs.650 per tonne.

5.14 Sales of pellets during 1995-96 reveal that China has become the largest buyer of BF grade pellets, followed by Turkey, Australia and Taiwan. Like concentrate, the sale price varies from about Rs.900 to Rs.1000 per tonne. The Company also sells DR grade pellets to Indonesia and to a few domestic customers. On DR grade pellets, the Company incurs additional cost of production of about Rs.40 to Rs.50 per tonne for extra grinding. The sale

price of DR grade pellets is over Rs.1100 per tonne; on domestic sales, the Company also collects and remits excise duty in addition to the above price.

5.15 Though the Company has been realising attractive prices for its pellets from the domestic customers, the Company has to pay income tax on the profit on such sales at about 46%. Further, the Company also has to forego export incentives on such sales. **The Audit Board expressed a view (May 1996) that there could be a hidden margin for the private parties on the purchase of DR grade pellets from the Company and felt normative pricing based on cost of imported pellets could be adopted. The Ministry stated (May 1996) that the Board of Directors was already examining the matter and had asked the Company to prepare a paper on this issue to enable them to consider the optimum price that should be charged from the domestic purchasers.**

5.16 The Company has also been a beneficiary of the favourable trends in foreign exchange variations. The table below shows the sales realisation per tonne, converted to constant FE rates, adopting 1991 as the base year.

Year	Sales realisation Per tonne		Sales realisation per tonne at constant FE rates with base 1991. (US $ 1 = Rs.19.43)	
	Concentrate	Pellets	Concentrate	Pellets
	Rs.	Rs.	Rs.	Rs.
1990-91	288.20	605.13	288.20	605.13
1991-92	482.18	884.84	308.48	566.10
1992-93	552.95	929.84	344.46	579.25
1993-94	500.41	883.48	311.23	549.49
1994-95	487.01	899.62	301.93	557.74
1995-96	566.47	1053.40	323.25	601.10

(NB: The closing Dollar Rupee conversion rates of all years are taken to work out the sales realisation at constant foreign exchange rates with Dollar-rupee conversion rate of 1990-91 as base)

During the year 1991-92, when the company made a profit of Rs. 140.23 Crores, the Management admitted that the increase in the profit was occasioned largely on account of

devaluation of rupee. During 1995-96, foreign exchange variation has contributed Rs.28.74 crores out of the net profit before taxes of Rs.105.82 crores. As the Company is in the extraction industry where the raw material is the mined ore and only spares and a few other consumables are imported, rupee devaluation helps increase sales realisation.

Penalties

5.17 Contracts for sale of iron ore concentrate and pellets specify the acceptable chemical properties and provide for bonus for better quality and penalties for inferior quality in respect of (i) the iron content, (ii) free moisture loss, (iii) size, and (iv) impurities in composition such as silica, alumina, sulphur, phosphorous and other metals. The Company has been paying penalties every year for not adhering to guaranteed specifications,as shown below:

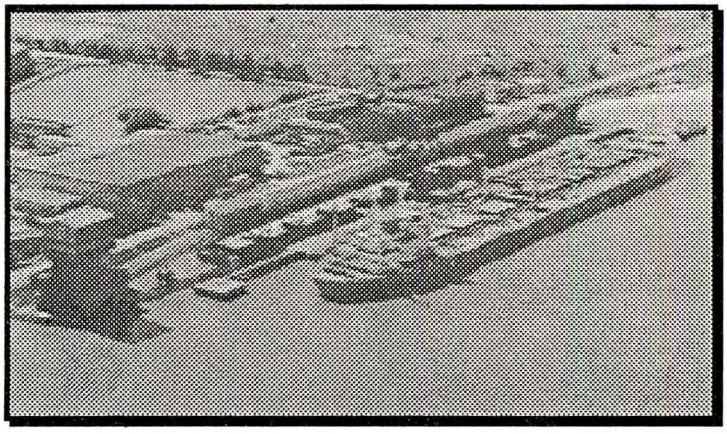
(Rs. in lakhs)

	1991-92	1992-93	1993-94	1994-95	1995-96
Moisture penalty	61.42	37.05	45.98	9.94	12.05
Silica penalty	68.30	86.54	118.37	50.44	343.52
Sulphur penalty	14.35	22.99	98.66	24.78	7.81
Others					49.78
Total	144.07	146.58	263.01	85.16	413.15

The Managament stated that due to failure of the Iranian market, the Company had to accept the stringent quality parameters imposed by buyers (silica-alumina in the range of 2.5 to 3.0% compared to 4.5 to 5.0% for Iran) with the full knowledge that part of sales realisation would be lost in the form of penalties, and that as a percentage of sales realisation, penalties ranged between 0.23% and 0.86%. The reply is not convincing. The Company is now fairly well-established in the international pellet market and is also in a position to reasonably forecast the specifications of the concentrate that it can produce during the year. The company's claims regarding process improvements should get reflected by elimination of any penalty on account of quality. The Company should make efforts to meet the quality specifications contracted with the buyers and sustain its reputation as a supplier of quality ore.

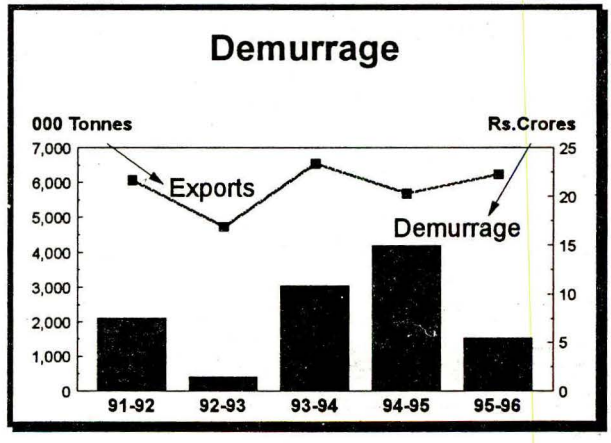
Demurrage

5.18 The Company has a dedicated berth in the Mangalore Port for its sea-borne exports. The berth is equipped with an automatic loader which draws the concentrate and pellet from the storage yard through a conveyor belt. The berth can handle ships upto a capacity of 60,000DMT.



Mangalore Port - Company's Berth

The Company has been incurring heavy expenditure as demurrage during the period 1991-92 to 1995-96. The demurrage shot up during 1994-95 despite the reduction in exports but has come down significantly during 1995-96 even though exports have increased during the year. The following chart shows the trend of demurrage and the relationship to the quantum of exports:



The major causes for the incidence of demurrage were lack of stock, bunching of vessels, break-down of loading equipment, power failure and rain. Demurrage due to lack of stock

and bunching of vessels could have been avoided through better co-ordination of production and commitments, effective monitoring and advance stock piling.

5.19 The Ministry stated (April 1996) that "in practice, annual contractual commitments are made in advance on the basis of estimated production for the year. Actual production may not correspond to the commitments for a variety of reasons but the customer cannot be expected to reschedule his production programme. Rescheduling of vessels would amount to KIOCL saving demurrage at the cost of operational inconvenience to the customer. Hence it may be commercially inadvisable and imprudent to expect the customer to suffer for KIOCL's problems."

5.20 The Audit Board was informed (May 1996) that

- the capacity of the Mangalore port was not responsible for the bunching of vessels and consequent payment of demurrage; and
- though contracts for sale were entered into at the beginning of the year and schedules of ships were also finalised in the beginning of the year, rains and other force majeure conditions sometimes caused delays in shipments with cascading effects on other shipments.

5.21 The reply is not convincing as the Company produces mainly for exports against long term or annual contracts concluded in the beginning of the year and should, therefore, be able to better coordinate production with commitments. This is also reinforced by the fact that demurrage had been brought down from Rs14.93 crores in 1994-95 to Rs.5.40 crores in 1995-96. The Company should make efforts to avoid paying any demurrage.

6. MATERIAL MANAGEMENT AND INVENTORY CONTROL

6.1 A purchase manual codifying the procedure for purchase of equipment and other materials was compiled in the year 1977 and revised in January 1994. The materials procured for various activities have been broadly classified into the following categories: (a) sourcewise - i.e. indigenous and imported, and (b) usagewise - i.e. project and non-project items.

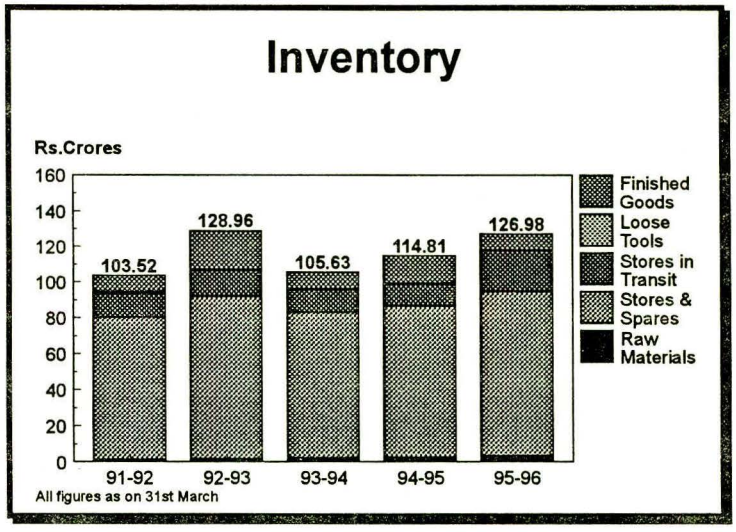
6.2 The purchase manual lays down the procedure for inviting tenders, accepting tenders, awarding orders, maintaining approved list of suppliers, etc. The indenting departments are responsible for the quality, suitability and performance of complicated machinery, equipments or structures.

6.3 A stores manual indicating the procedures for inspection, custody, issue and controlling of materials was compiled in the year 1977. Revision of the stores manual has been taken in hand having regard to Company's operational experience and procedural formalities applicable for export-oriented units (EOU).

6.4 Inventory issues and balance are being valued on weighted average method; however, according to the stores manual, the issue of material would be on first-in first-out basis. The Management clarified (May 1994) that necessary corrections required in the manual would be made.

INVENTORY

6.5 The trend of inventory from 1991-92 to 1995-96 is depicted in the following chart:



6.6 The Company set up a committee in June 1990, responding to an assurance given to audit, to review the inventories at Kudremukh and Mangalore for examining ways and means to reduce inventories and to streamline procedures for indenting spares and other materials for production units. The committee submitted its report in March 1991 recommending certain measures to reduce the inventory. The Management stated (June 1994) that they had taken action on the recommendations.

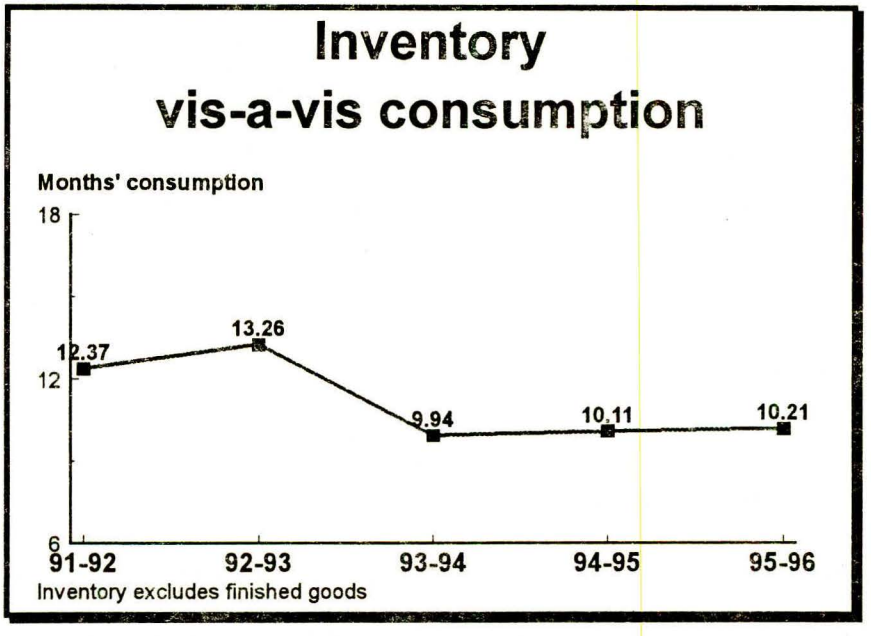
6.7 No norms have been laid down by the Company vis-a-vis consumption for raw materials and stores and spares; the latter formed the major part of the inventory over the years. The Ministry stated (April 1996) that though specific norms have not been laid down for the level of inventory, there is an improvement in inventory turnover every year in terms of consumption. The Ministry also observed as under:

- About 6501 items (spares and consumables) are under automatic replenishment system. In case of consumables, planning for procurement is

done based on the re-order level and in respect of spares, annual Material Purchase Requisition is raised and periodical review is conducted to take care of any abnormally high or low consumption.

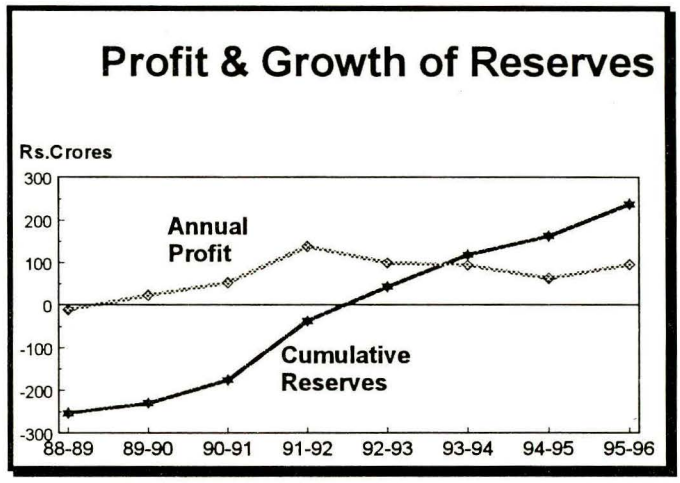
- In respect of other items, planning for procurement is done by User departments and the required quantity is projected after taking into account the stock and dues position in respect of each item.
- Surplus items in respect of inventory, used equipments, scrap, etc. are identified and necessary disposal action is taken from time to time.
- Taking into account the long lead time as well as the shipment time being arranged through Transchart/Conference vessels, the inventory holding of regular moving spares appears to be optimum and within reasonable limits.

6.8 The inventory in terms of months' consumption which was 89.62 in 1984 has come down significantly in recent years and appears to have reached a plateau as shown in the chart below:

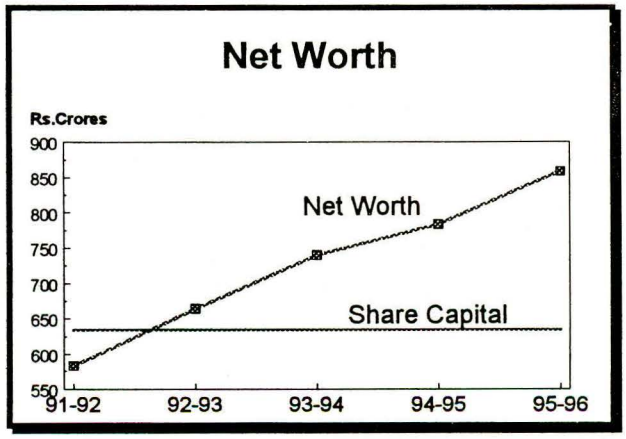


7. FINANCIAL PERFORMANCE

7.1 The Company started commercial production from 1st October 1981, incurred losses from the beginning and accumulated loss of Rs.252.91 crores upto 31st March 1989. From 1989-90, the Company started earning profits and had wiped out the accumulated losses by 1992-93. Making a remarkable turnaround, the Company has built up reserves of Rs.238 crores as on 31st March 1996. The declining trend of annual profits since 1991-92 has also been reversed with an upswing in 1995-96. The increase in profit during 1995-96 has been aided by a higher sales realisation of Rs.79.46 per tonne of concentrate and Rs.153.78 per tonne of pellets, compared to 1994-95.

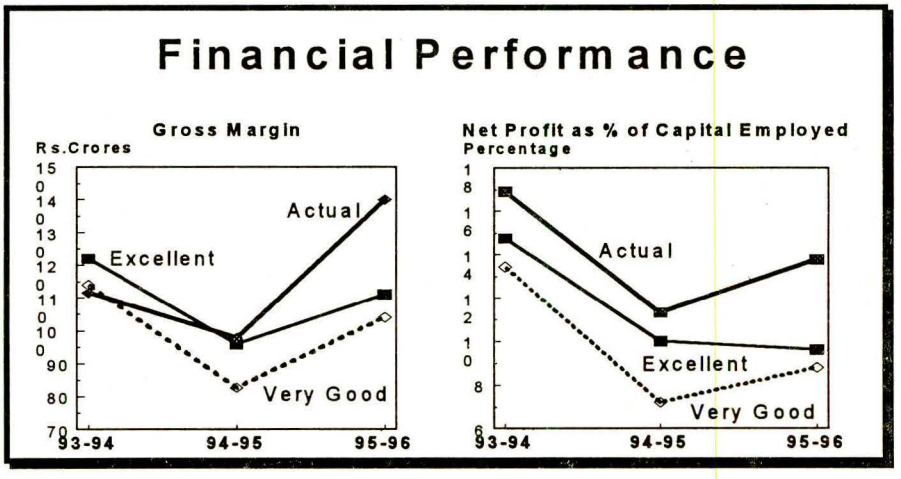


7.2 The change in the Company's fortunes since 1989-90 has caused the Company's net worth to grow steadily as shown below:



The Company has also paid dividend of 3% each for the years 1992-93 to 1994-95 and 3.25% for 1995-96.

7.3 Since 1993-94, the Government of India has been placing greater emphasis on financial performance by significantly enhancing the weights for Gross Margin and Net Profit/Capital Employed in the MOU; the weights were collectively 50% for 1993-94 and 1994-95 and were further increased to 60% for 1995-96. The Company's performance in respect of these indices is depicted in the following chart alongwith the MOU criteria for "excellent" and "very good" ratings.



The Company's overall rating - excellent since 1993-94 - has been considerably influenced by these performance indices and MOU weigths. However, the targets have been conservative during 1994-95 and 1995-96 as evident from the chart above. The drop during 1994-95 reflects the problems caused by exceptionally heavy rainfall; the targets for 1995-96 apparently reflect the uncertainties and concern regarding power supply. Appendix-B contains the MOU targets for "Very Good" rating alongwith the changes in weights over the years.

Appendix - C contains key financial statistics for 10 years upto 1995-96.

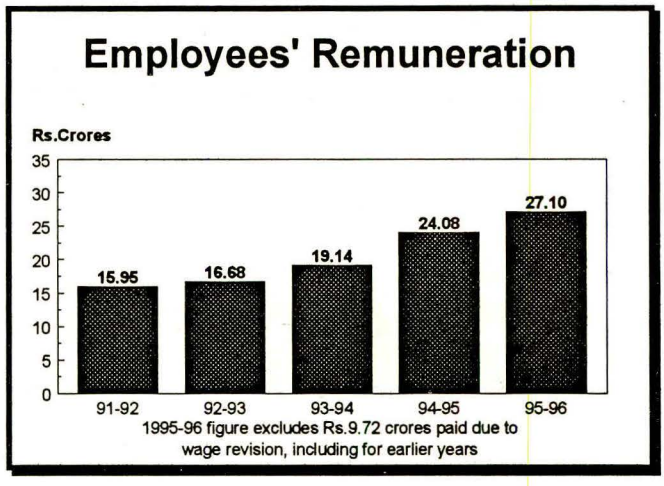
CAPITAL STRUCTURE

7.4 The Company was registered in April 1976 with an authorised capital of Rs.150.00 crores. Due to major unexpected reverses the Company had on the Iranian contract, Government of India converted into equity in March 1985, long term loans of Rs.238.97 crores and overdue interest of Rs.88.34 crores upto 31st March 1984; the authorised capital was increased to Rs.675.00 crores in 1984-85. The paid-up capital on 31st March 1996 was Rs.634.51 crores, out of which 61,60,900 equity shares of face value of Rs.10 each (about 1%) had been transferred in 1995 from the President of India to other investors including employees.

7.5 Although BPE norms suggest a debt equity ratio of 1:1, the Company has been functioning as a 100% equity Company with no long term loans since 1991-92. **The Audit Board felt that the Company's large equity base might help the Company to raise resources to finance heavy capital investment projects by floating loan from the market and, therefore, suggested that this strength of the Company could be used to finance some joint ventures with other PSUs under the administrative control of the Ministry of Steel, such as a joint venture with Rashtriya Ispat Nigam Limited for conversion of surplus hot metal into steel. The Management agreed to consider the suggestion.**

8. MAN-POWER

8.1 Manpower costs constitute a relatively small proportion of the overall expenses of the Company. The expenditure on employees' remuneration and benefits during the last 5 years was as under:



8.2 The manpower strength during these five years was as under:

Year	Executives	Non-Executives	Total
1991-92	428	1895	2323
1992-93	429	1948	2377
1993-94	442	1991	2433
1994-95	455	1992	2447
1995-96	497	1977	2474

The Company has also been deploying contract labour by awarding work orders to contractors for items of works such as reclamation of ore materials, clearing of spillage materials, loading, unloading and stacking of materials at stores, etc. The expenditure on contract labour was 3.64%, 3.53% and 3.34% of the salaries in 1991-92, 1992-93 and 1993-94.

8.3 The Ministry stated (April 1996) that (a) the manpower sanction has been kept to the

barest minimum by not providing for jobs which are periodic in nature, and (b) such jobs are required to be taken up on need basis and are envisaged to be carried out by contractors.

8.4 Training for executives and non-executives is one of the important activities included in the Company's annual MOU with Government of India. In all the five years, the Company has exceeded the targets in terms of mandays of training.

9. COSTING

9.1 The Company has not introduced a system of standard costing. However, the Company prepares monthly cost reports and determines the unit cost of production as under:

For Concentrate:

- The monthly consumption of power, water and issue of materials are aggregated under the major cost centres viz. Mining, Crushing & Conveying, Concentrator, Port facilities, Technical services and General.
- Other expenses such as salaries and wages, repairs and maintenance, rent, rates, taxes etc. are accumulated under General Head.
- Cost of technical services is appropriately allocated or apportioned while arriving at the cost of mining and cost of concentration.

For Pellets:

- The monthly consumption of raw materials, furnace oil, power and stores and spares are aggregated under the major cost centres viz. Raw Material handling, Lime Bentonite Grinding Plant, Pelletisation Plant, Finished Goods handling and General.
- Other expenses like salaries and wages, repairs and maintenance, rent, rates, taxes, etc. are accumulated under General Head.

9.2 A year-end overall reconciliation of monthly cost reports with financial accounts is done to ensure that all expenses are being accounted for in the monthly cost reports. However, cost centre-wise comparison of actuals with budgets is not being done to contain the expenditure within budgeted limits; analysis of variances is not also done to fix responsibility in each cost centre. Further, the Company does not ascertain the cost of production of

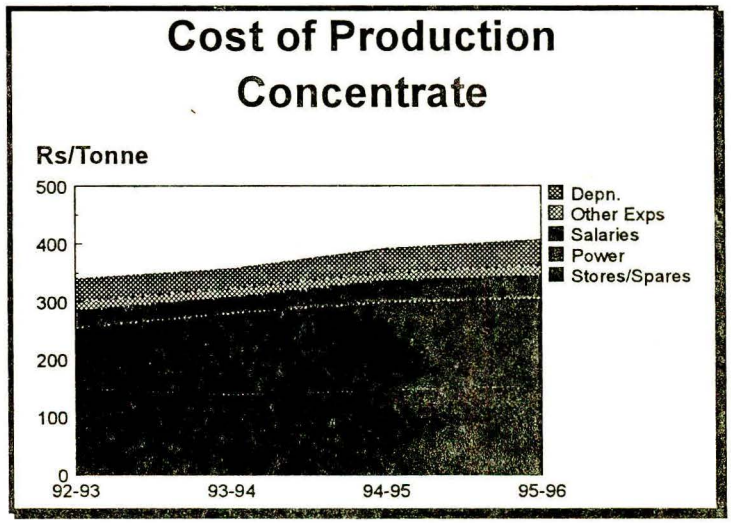
different specifications of concentrate and different grades of pellets; only the costs of production of concentrate and pellets as two products are determined.

9.3 The Management stated (November 1992) that the cost reports indicate the budgeted cost per tonne of the entire operation and the variations between the budgeted and actual cost are being analysed by each user department but not recorded. The Ministry stated (April 1996) that no standard costing system is contemplated as the product is of different specifications and of a non-repetitive type. The reply is not convincing as the different specifications are not only repetitively produced but also priced differently; for proper decision-making regarding pricing and product-mix, the Company should collect the costs separately for each specification of concentrate and grade of pellet.

9.4 The Finance and Accounts Manual prepared by the Company covers only the construction phase. A separate Cost Accounts Manual dealing with production accounting and cost accounting procedures is yet to be prepared by the Company (May 1996).

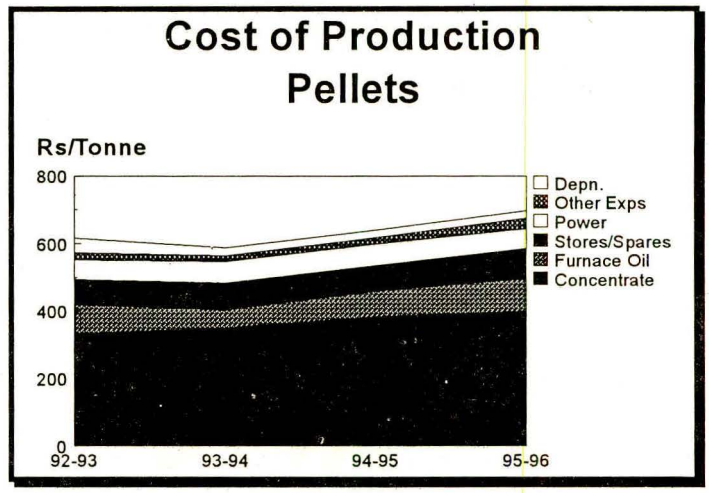
COST OF PRODUCTION

9.5 The significance of the various elements of cost in the production of concentrate is indicated in the chart below:

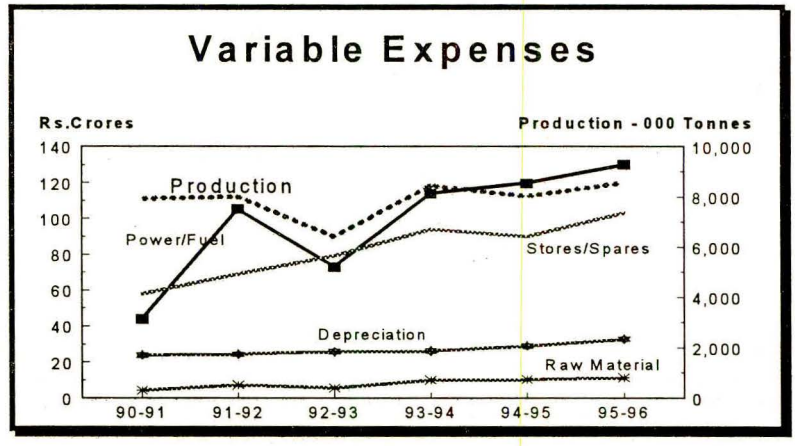


Stores & spares and power constitute the most significant costs in the production of concentrate, as evident from the above chart..

9.6 For production of pellets also, besides the cost of concentrate, power, stores & spares and furnace oil constitute the main items of cost as can be seen from the following chart:



9.7 The following chart shows the behaviour of these critical components of cost, relative to the production of the Company as a whole:



Power and fuel cost have been rising continuously despite the reduction in production in 1994-95.

Norms for consumption of explosives, grinding balls, lime, bentonite, etc:

9.8 The norms assumed in the Project Report were regarded by the Management as not valid as the products being manufactured are different from the one envisaged in the Project Report. The Ministry also stated (April 1996) that fixation of norms is possible and relevant only for standard products and, therefore, is not practicable at the present juncture as products of various specifications and quality are manufactured. However, **the Audit Board felt that the specifications of different products were not only known but the products were being repetitively produced and, therefore, suggested (May 1996) that norms should be refixed for important items for proper control and analysis of performance. The Management and Ministry agreed that a technical committee would be constituted to fix the norms which would then be got approved by the Board of Directors.** A Committee has since been constituted (June 1996).

Energy Conservation

9.9 As already mentioned above, energy is a major item of the Company's costs. Electricity, diesel and furnace oil are the main sources of energy used by the Company for its mining and other connected activities and have deservedly received considerable attention.

9.10 Based on the recommendations of the Inter-Ministerial Working Group on an action plan to restrain the growing demand for crude and petroleum products, the Ministry of Steel suggested (November 1990) that the Company may formulate an Energy-cum-Oil Reduction plan comprising short, medium and long term plans including operational and investment plans to achieve this objective. Accordingly, the Company had drawn up (January 1991) a plan for conservation of energy covering electricity, diesel and furnace oil.

Saving Electricity

9.11 The norm for consumption of electrical energy in production of concentrate was set at 76 KWH/tonne of filtered cake. By changing over to gravity pipeline for pumping water and achieving higher capacity utilisation, it was expected to reduce the consumption to 70 KWH/tonne of filtered cake in the long term; this was expected to save about 25 million units/year in the short term and about 40 million units/year in the long term. With improved operations, the power consumption in the pellet plant was proposed to be brought down to 36 KWH/tonne as against the original estimated norm of 42 KWH/tonne. By using bentonite and limestone fines as additives instead of hydrated lime, power consumption was expected to be reduced to 35KWH/tonne in the long term which would save about 15 million units/year in the short term and 20 million units/year in the long term.

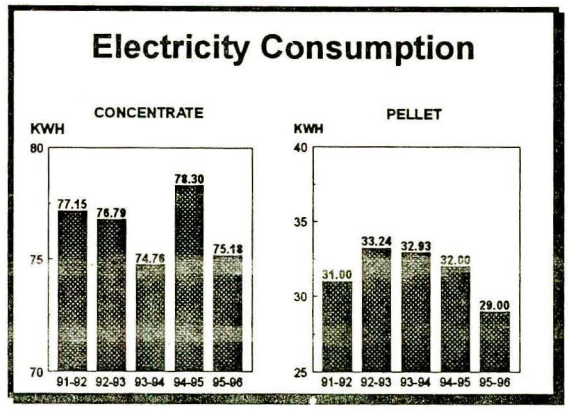
9.12 Management had attributed (August 1992) the increase in the consumption of electricity to the following causes:

- Weight recovery from the crude ore came down leading to more energy consumption per tonne of concentrate;
- Percentage of lean and hard ore in the ore body increased leading to higher grinding to liberate silica;
- Extension of tailing disposal pipeline to a distant location, consequent to filling up of the tailings reservoir; and
- Increased production of pellet feed requiring fine grinding.

The Ministry stated (April 1996) that as of 31st March 1994, there was significant improvement in consumption of electricity; for concentrate, it had come down from 76.78KWH/tonne to 74.76KWH/tonne and for pellets from 33.24 KWH/tonne to 32.93 KWH/tonne. While the consumption for production of pellets has improved significantly, the

consumption for production of concentrate of 70KWH/tonne is still much below the target of 70KWH/tonne.

9.13 The consumption of electricity in the concentrate and pellet plants are shown in the following chart:

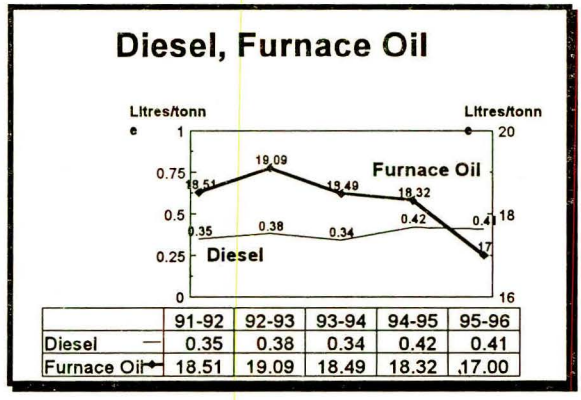


Saving Diesel & Furnace Oil

9.14 The norm for consumption of diesel for haulage at full capacity was set at 0.4 litre/tonne ore hauled. By improving the tonnage of ore hauled per dumper trip, the Company proposed to reduce the consumption by 7.5% in the short term and 10% in the long term; this would yield a saving of diesel by 5000 KL/year in the short term and 7500 KL/year in the long term.

9.15 The norm for consumption of furnace oil was set at 24 litres/tonne of pellets at 100% capacity utilisation (3 million tonnes per annum). With increased capacity utilisation and by use of alternative additives, i.e. bentonite and limestone, consumption of furnace oil was expected to be reduced to 22 litres/tonne with an expected saving of about 5000 KL/year. In the long term, coke/coal were to be used in the pellet feed raw mix in addition to the use of limestone fines and bentonite as additives; this was expected to reduce consumption of furnace oil resulting in saving of about 10,000 KL/year in the long term.

9.16 The actuals are given alongside. Consumption of Diesel has been around the targeted level but significant savings have been achieved in the consumption of furnace oil (target: 22litres per tonne)



	91-92	92-93	93-94	94-95	95-96
Diesel	0.35	0.38	0.34	0.42	0.41
Furnace Oil	18.51	19.09	18.49	18.32	17.00

9.17 The MOU targets reflect the importance of energy conservation; energy consumption both for production of concentrate and pellet and heat consumption per tonne of pellet are three of the important criteria for assessing performance carrying a weightage collectively greater than the production or export of concentrate and pellets. Appendix-B contains the details.

10. RESEARCH AND DEVELOPMENT

10.1 One of the objectives of the Corporate Plan (1990-2000) of the Company is to promote R & D efforts with a view to reducing the cost of production, improving the quality of products and developing technology to establish production units in the line of manufacture of the Company. R&D Process Improvement is also one of the activities in the MOU on which the Company's performance is evaluated.

10.2 Responding to a suggestion from the Ministry in November 1991, the Company has established a separate R&D Department headed by a senior officer of the rank of an Additional General Manager. The Ministry stated (April 1996) that the Company has budgetary allocation for capital R&D schemes as per the Annual Plan agreed with the Government.

10.3 The following efforts were considered as R & D activities by the Management:

- Flotation of concentrate in spirals to improve product quality and recovery.
- Studies on upgradation of tertiary magnetic separator system.
- Recovery of iron values from the tailings.
- Use of various additives for reduction in moisture content of the filtered cake.
- Increase in autogenous mill throughput by increasing the quantity as well as size of steel grinding balls and speeding up of conveyors.
- Use of Bentonite, limestone and coal as additive.
- Use of organic binder and dolomite as additive in pellet making.

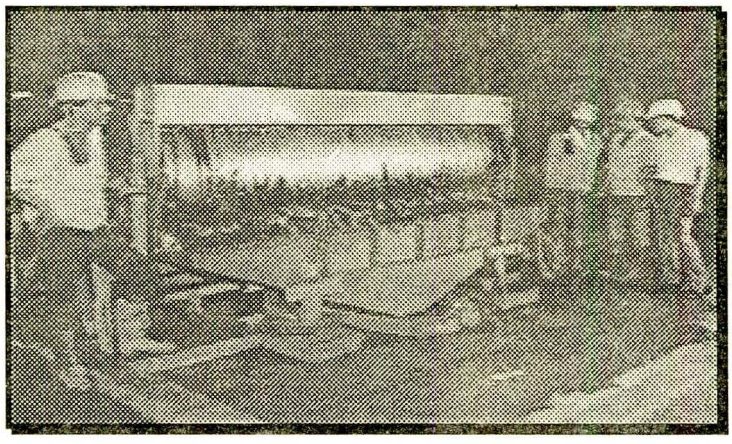
Of these, three significant projects are discussed in greater detail below.

Flotation unit for one Mill line in Concentrate Plant

10.4 A Floatation Unit in one mill line was installed in December 1990, after successful laboratory and pilot plant tests, for improved recovery and reduced silica in the spiral concentrate produced in the Concentrate plant. The techno-economic analysis of this project had projected a net benefit of Rs.1.65 per tonne of concentrate; at 5 million tonnes per year, the estimated investment of Rs. 1.20 crores was envisaged to be paid back in two years. Trials with the system indicated that concentrate of good quality containing about 67% Ferrous content and about 2.5% silica could be obtained. The total expenditure on this unit was Rs. 1.43 crores.

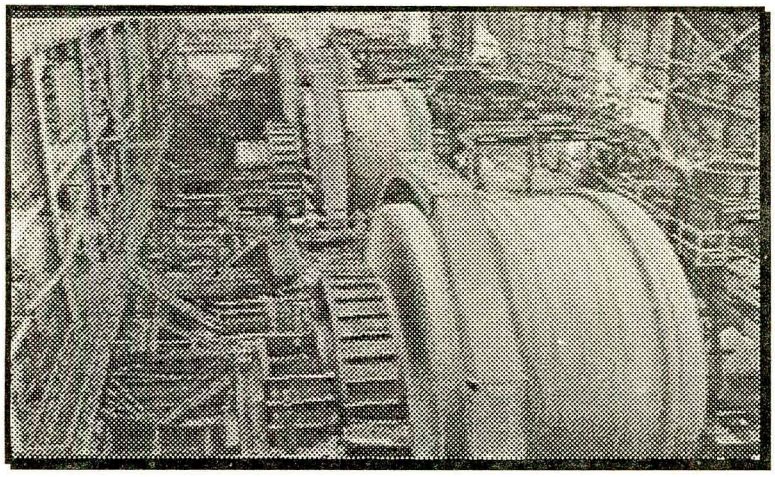
Tertiary magnetic separation system:

10.5 The Project was taken up for upgrading the magnetic portion of the concentrate (estimated cost: Rs.250 lakhs). The tertiary magnetic separation system (10 drums) was installed for treating part of the magnetic concentrate and has resulted in improvement in the quality of the magnetic concentrate - an increase of about 0.5% in Fe and reduction in silica by about 0.5%. 14 additional drums have also been installed to treat the entire magnetic concentrate.



Increase in the throughput of Autogenous Mill.

10.6 In order to increase the throughput of the autogenous mills, this project tried to speed up the mill conveyors, at an estimated cost of Rs.90 lakhs. The speeding of the feed conveyors has been done for three mill lines. The average mill throughput has gone up from 900-950 tph to 1025-1100 tph.



11. CONCERNS ABOUT THE FUTURE

LIFE OF LAKYA DAM RESERVOIR VIS-À-VIS MINE RESERVES

11.1 The dam across the river Lakya serves both as a depository for the tailings from the concentrate plant and as a reservoir for water for the plant. As per an assessment by the Company in January 1994, the residual life of the mine would be 13.5 years from 1st Jan 1994 yielding ore required for producing 87.2 million tonnes of concentrate; the tailings produced in the process would be 135 million cubic metres. On the other hand, the residual tailings capacity of the dam was estimated at only 8 years from 1st January 1994. Consequently, 100 million tonnes of ore reserves would be unexploitable. Further, at the current rate of production (and generation of tailings), the required industrial water would also not be available from the reservoir beyond December 1997. The Company has plans to construct a new reservoir called Singsara dam (125 million cubic metre capacity). However, this dam is estimated to take 4 years to construct and is also linked to the exploitation of an alternate ore deposit in a contiguous area which is yet to be cleared for exploitation.

11.2 The Audit Board expressed apprehension (May 1996) that the continued operation of the mines and concentrate plant could be jeopardised by the lack of water and space for tailings disposal in the Lakya reservoir. The Management explained that the problem of tailings disposal would be sorted out by shifting the spillway upstream, tailing disposal at different places, introduction of cyclones and construction of multi-purpose Singsara Dam by 1997. The Management also informed the Audit Board (May 1996) that the Company was actively considering the report of an Australian firm about the recovery of tailings from the reservoir. The Company is also exploring the possibility of using the tailings for fabrication of glazed tiles.

MINE RESERVES

11.3 Responding to the concern of the Audit Board about the ore reserves available for mining after the present mine is exhausted, the Management informed the Audit Board (May 1996) that the Company had already started prospecting Nellibeedu iron ore deposits (adjacent to the existing mine) and was also confident of getting Gangrikal deposits after the Ministry of Environment cleared the project. The Management observed (March 1996) that the innumerable procedural aspects in locating and obtaining new mineral deposits is one of the important constraints for the Company.

CAPACITY OF MANGALORE PORT

11.4 The Company's dedicated berth in Mangalore port can only handle ships of 60,000 DWT. This limitation had been perceived, from time to time, as a major limitation affecting the Company's competitive edge in the international market. Of late, however, the Company has been de-emphasising the issue. The Management assured the Audit Board (May 1996) that the capacity of the port was not a limiting factor any more as the ports of destination at Iran and other countries, including some in Japan, were not able to unload ships of more than 60,000 DWT. The diversification of exports to several countries and the shift to sale of pellets appear to have removed a potential limitation.

PRODUCTION OF DR GRADE PELLETS

11.5 The Audit Board expressed concern that the unsuitability of Kudremukh ore for production of DR grade pellets could affect the Company's market share in view of the world-wide trend towards preference for DR grade pellets. The Management informed the Audit Board (May 1996) that with improvement of facilities, the Company would succeed in beneficiating the ore upto 69% Fe which would be fed for the DR grade pellet. Of course, with

the increase in the production of DR grade pellets, the capacity of the concentrate plant would go down further due to the extra processing required for the DR grade pellets.

12. JOINT VENTURE COMPANY FOR PIG IRON

12.1 Urged by its successful diversification to pellet production caused by Iran's failure to lift the iron ore concentrate, the Company is continuing its efforts of diversification into value added products like Pig Iron and Ductile Iron Spun Pipes. The Company has formed a joint venture Company - Kudremukh Iron and Steel Company Limited (KISCO) - with two other PSUs viz. Metallurgical and Engineering Consultants India Limited (MECON) and MSTC Limited, to produce annually 227,850 tonnes of low phosphorous-low sulphur pig iron and 50,000 tonnes of ductile iron spun pipes (DISP). This pig iron will be demanded mainly by manufacturers of castings for automobile applications and a part of it would be used for the manufacture of DISP. DISP would be sold mainly to water supply boards which would use them to supply water. Both products are also likely to have export potential.

12.2 The proposed plant will be located in the Baikampady Industrial Area near Mangalore, 2.5kms from the Company's pellet plant from where nearly 65% of the plant's requirement of raw materials will be transported on an overland conveyor system. The plant's requirement of water will also be transported from the pellet plant through a pipeline to be laid along the conveyor gallery.

12.3 The total project cost is expected to be Rs.328.16 crores out of which Rs.50 crores would be financed by the promoters - KIOCL, MECON and MSTC Limited - in the ratio of 45:2.5:2.5; the balance would be funded through various loans including partially convertible debentures. The Company (KIOCL) has contributed Rs.16.24 crores (as on 31st March 1996) towards its share of promoters' contribution. The Pig Iron plant is expected to commence commercial production by October 1997 and the DISP Plant by April 1998. A number of activities have already been taken up or even completed such as land acquisition, site levelling,and environmental clearances.

13. OTHER TOPICS OF INTEREST

ENVIRONMENTAL PROTECTION AND ECOLOGY

13.1 The Company is very conscious of, and prides itself on its record of environment protection. The Company has taken several measures to prevent and control pollution, and to preserve and promote the ecological balance in and around the project sites:

- The dam across the Lakya river has been constructed for depositing tailings and to prevent heavy run off of rain water from the hill slopes into the Bhadra reservoir. Two rock-filled dams have also been constructed to arrest the flow of mine run-off into the main river; these two dams filter water and the arrested silt is reclaimed periodically for recycling through the system.
- The slopes of the concentrator plant site have been stabilised to avoid scouring and wash of soil into Bhadra river. Turfings have been done in all critical earthfill areas to prevent massive earth slips and protect the freshly filled-up areas from sliding.
- To avoid air pollution, mine roads are regularly sprinkled with water.
- Afforestation is undertaken to act as a buffer to arrest the dust particles on the ore body and to prevent soil erosion. Besides buffer plantation between township and concentrator plant site, noise pollution is also checked by planting trees along cleared roads, catchments of tailing dam and around township and having belts of trees of different height as well as shrubs. Over 75 lakh seedlings have been planted in the Kudremukh area and the plantation continues to be done at the rate of 5 lakh seedlings every year.

- With the approval of the Karnataka State Board for Prevention and Control of Water Pollution, necessary sewage/disposal systems were provided for Kudremukh township, plant works and Mangalore works/residential colony.
- For disposal of effluents at Mangalore, a system of onland and submarine pipelines has been designed; air monitoring and water testing are also done regularly to check pollution.

SETTLEMENT WITH IRAN

13.2 The disputes on the initial sale and purchase agreement and financial agreement were settled in August 1989 through negotiations between the Governments of India and Iran, culminating in a Memorandum of Understanding (MOU) between the two countries. The salient features of the MOU were:

- against the original contract for the purchase of 150 million tonnes of concentrate by Iran over a period of 21 years, the MOU provided for purchase of only 25 million tonnes of concentrate over a period of 15 years;
- lifting of concentrate would commence from 1989 as against 1980 in the original agreement; and
- the concentrate price would be US $17.25 per tonne instead of the original price of US $22 per tonne, based on the prevailing conditions at the time of signing the MOU.

13.3 The Iranian purchaser was liable to pay penalty for reduced offtakes, as per Article 15 of the Sale and Purchase agreement of November 1975. The quantities scheduled and lifted were:

Year	Scheduled (Tonnes)	Lifted (Tonnes)	Percentage
1989-90	45,000	31,015	68.92
1990-91	750,000	331,992	44.27
1991-92	1,250,000	1,000,973	80.08
1992-93	1,500,000	656,861	43.79
1993-94	1,500,000	1,155,732	77.05
1994-95	1,500,000	1,270,705	84.71
1995-96	1,500,000	1,699,567	113.30

13.4 The Company did not prefer any penalty claim for 1989-90 but preferred claims for the years 1990-91 to 1993-94 as detailed below:-

Year	Amount (US $)
1990-91	2,362,327
1991-92	296,250
1992-93	3,281,652
1993-94	472,151
Total	6,412,380

No claim was preferred for 1994-95 as the shortfall was not much and the Iranian purchaser had accommodated the Company's requests for re-scheduling shipments caused by bunching of vessels at Mangalore. The claims preferred are yet to be settled (May 1996). The Management stated (March 1993) that the Iranian purchaser could not lift the scheduled quantities due to the after-effects of the war with Iraq and limitations of port capacities. The Management further stated (May 1996) that the .claim is being pursued by the Indo-Iranian Joint Commission. **The Audit Board recommended that a high level delegation of Ministry and Company officials may visit Iran and try to arrive at a negotiated settlement so that the problem could be resolved once for all.**

INVESTMENTS

13.5 The Company had advanced Rs.55 crores as Inter-Corporate Deposit to Ms.Andhra Bank Financial Services Limited in July 1992 after the securities scam broke out. The investment was to be realised in September/October 1992. However, against the principal and interest, the Company could realise only Rs.1.60 crores so far. The Audit Board was informed (May 1996) that

- the Company had sought permission from the Committee of Secretaries (COS) to file a civil suit for recovery of dues from ABFSL but COS did not accord permission and instead directed the Department of Economic Affairs (Banking Division) to work out a package as it had done in the past in similar cases;.
- in view of the above direction, Ministry of Steel has sought the views of the Department of Economic Affairs on a proposal received from Fairgrowth Financial Services Limited who had offered to pay Rs.30 crores upfront and the balance in 4 six-monthly instalments, with interest upto the end of the original agreement, in respect of the dues from ABFSL; and
- the Ministry is yet to receive the opinion of the Banking Division.

13.6 The Company had also invested Rs.18 crores with Ms.Hindustan Photo Films Manufacturing Company Ltd. (HPFC) in four instalments between 6th April and 10th June 1992 for 3 months. Extension for repayment of the loan was granted upto 30th June 1993. HPFC has repaid neither the loans nor the interest amounting to Rs.5.57 crores due on 31st March 1994, the date upto which the Company had accounted for the interest income on accrual basis.

14. CONCLUSIONS AND RECOMMENDATIONS

14.1 The Kudremukh Concentrate Plant was initially designed to produce 7.5 million tonnes per annum of iron ore concentrate with 66.5% Fe and 4.5% silica for export to Iran. As the agreement with Iran fell through, the Company was forced to diversify to the production of different specifications of concentrates with higher Fe and lower silica content and also to the production of pellets. The Audit Board noted that the Company has been treating the installed capacity as only 6.8 million tonnes with the approval of the Board of Directors based on an in-house committee's recommendation. The Audit Board recommends that capacity should be approved by the Ministry of Steel on the basis of the recommendation of an independent Technical Committee which should scientifically assess the rated capacity in the light of the diverse products now being manufactured.

14.2 The Company had established a plant in September 1981 to produce 3 million tonnes per annum of pellets as part of its diversification plans. Though the Board of Directors had later approved a proposal to install another 3 million tonne pellet plant at an estimated cost of Rs.333 crores, the Company eventually decided to modify the existing plant and increase its capacity by 0.5 million tonnes. The Company also has plans to increase the capacity of the plant further to 4 million tonnes. A new 0.5 million tonne pellet plant using a vertical shaft pelletising furnace at an estimated cost of Rs.40 crores is also under construction. The Audit Board endorses the strategy of the Company of enhancing its pellet production capacity in gradual increments with lower capital outlay in preference to an addition of a large capacity plant entailing higher capital outlay.

14.3 The Company has pursued a marketing strategy that has reduced reliance on a single market and established its product in strategic markets. The Company has been able to tap a diversified market with its BF grade pellets and increase its margins. The Company has also

developed a market for its DR grade pellets, including some private domestic customers. With the shift in strategy towards selling more pellets, the Company has been able to improve its financial performance as well. However, the Audit Board notes that the Company's sales of DR grade pellets to domestic customers may contain an element of subsidy and recommends that the price to be charged to the domestic customers be rationalised. Further, the Company should improve its costing system so that the costs of different specifications of concentrate and different grades of pellets can be properly collected and assessed to enable the Management to take informed decisions about the pricing of its products.

14.4 As a 100% export oriented unit, the Company is functioning in a highly competitive international market where buyers, especially Japan and European countries, influence price setting significantly. Freight charges also influence the buyer's choice of supplier. To sustain its market, the Company has to be competitive in price and maintain quality of both product and service. On the quality front, the Audit Board notes that the Company has been paying penalties for not adhering to guaranteed specifications. Although the penalties are a small proportion of the exports, the Company has to make further efforts to meet the quality specifications contracted with the buyers in order to sustain its reputation in the internatonal market as a supplier of quality ore. As regards cost of production, while it has succeeded in reducing the consumption of both furnace oil and electricity in the pellet plant, the consumption of electricity in the concentrate plant has not shown consistent improvement and remains mugh higher than the target. The Company has not determined the norms for consumption for several important items like explosives, grinding balls, limestone, etc. on the ground that the diversity of the products renders it impractical. The Audit Board recommended that, for proper managerial control, norms be fixed by a technical committee. The Company has since constituted the committee as recommended.

14.5 The Company has been incurring heavy expenditure as demurrages due to a variety of reasons like lack of stock, bunching of vessels, power failure, breakdown of loading equipment, etc. As the Company produces mainly for exports against long term or annual contracts concluded in the beginning of the year, it should be able to better coordinate production with commitments in order to mitigate demurrage due to lack of stock or bunching of vessels. The Company has to carefully co-ordinate the production and storage of different products with the scheduling of ships so that the limitations of its storage mechanism do not lead to demurrages.

14.6 Iran has become an important customer for the Company. The Company had preferred penalty claims against the Iranian customer for failure to lift contracted quantities between 1990-91 and 1993-94. As the claims are yet to be settled, the Audit Board recommends that, in the interest of good customer relations, the problem should be resolved quickly through the intervention of a high level delegation of the Ministry and Company officials.

14.7 The Company had advanced Rs.55 crores to the Andhra Bank Financial Services Limited (ABFSL) as inter-corporate deposit in July 1992 but has been able to realise only Rs.1.60 crores against principal and interest. The Committee of Secretaries had denied permission to the Company to file a civil suit for recovery and has directed the Department of Economic Affairs (Banking Division) to work out a settlement package. Hindustan Photo Films Limited has also not repaid a sum of Rs.18 crores principal and Rs.5.57 crores interest upto 31st March 1994. The Audit Board recommends that these recoveries be pursued vigorously.

14.8 The Company has achieved a turn around, wiping out the accumulated losses of Rs.252.91 crores as on 31st March 1989 and building up reserves of Rs.238 crores as on 31st March 1996. The Audit Board notes that the Company is setting up a joint venture

project - KISCO - with two other PSUs for the production of low-sulphur low-phosphorus pig iron and ductile iron spun pipes, for further value-addition and as a diversification effort. The Company should closely monitor implementation of the project within the time schedule and cost estimates on the basis of which Government approval was given.

14.9 The Company has constructed a dam across the Lakya river to serve as a depository for the tailings from the concentrate plant and as a reservoir for water for the plant. The Company's assessments as late as January 1994 had indicated a potential mismatch between the residual capacity of the reservoir and the residual life of the mines, threatening inability to exploit the reserves completely. The Audit Board notes that the Management is ***now*** confident that the tailing disposal and availability of industrial water will not jeopardise the exploitation of the reserves. The Audit Board also notes that the Company is prospecting the Nellibeedu iron ore deposits adjacent to the existing mine and is confident of also getting the Gangrikal deposits to sustain the Company after the current reserves are exhausted. As these problems viz. tailing disposal, industrial water and adequate ore reserves, vitally affect the future of the Company, the Ministry and the Management should expedite the resolution of these potential problems.

NEW DELHI

(SAMIR GUPTA)
Deputy Comptroller & Auditor General
-cum-Chairman, Audit Board

Countersigned

NEW DELHI

(V.K.SHUNGLU)
Comptroller & Auditor General of India

Appendix-A

METALLURGICAL PROCESSES FOR EXTRACTING IRON FROM THE ORE

Metallurgical processes consist of two operations: concentration, separating a metal or metallic compound from the useless waste rock material, or gangue, which accompanies it in the ore; and refining, producing the metal in a pure or nearly pure state suitable for use. Three types of processes are employed both for concentration and refining: mechanical, chemical, and electrical. In most cases a combination of these methods is used.

One of the simplest methods of mechanical separation is gravity separation. This process is based on the difference in specific gravity between native metals and metallic minerals, and the other rock materials with which they are mixed. When crushed ore or ore concentrates are suspended either in water or an air blast, the heavier metal or metallic mineral particles fall to the bottom of the processing chamber, and the lighter gangue is blown or washed away. The prospector's technique of panning gold from gold-bearing sand, for example, is a small-scale gravity-separation process. Similarly, by virtue of its higher specific gravity, magnetite, a mineral of iron, may be separated from the gangue rock in which it occurs.

Flotation is the most important present-day method of mechanical concentration. In its simplest form, flotation is a modified gravity process in which finely ground ore is mixed, usually with a liquid. The metal or metallic mineral floats while the gangue sinks, although the reverse is true in some instances. In most modern flotation processes, the floating of either the metal or gangue is aided by an oil or other surface-active agent. By this means, comparatively heavy substances can be made to float on water. In one typical process, a finely ground ore containing copper sulphide is mixed with water, to which small amounts of oil, acid, or other so-called flotation reagents are added. When air is blown through this

mixture, a froth is formed on the surface that has the property of mixing with the sulphide but not with the gangue. The latter material settles, and the sulphide is collected from the froth. Use of the flotation process has made possible the exploitation of many ore deposits of low concentration, and even of the wastes from processing plants that used less efficient techniques. In some cases, by means of differential flotation, different minerals can be concentrated from one complex ore in a single process.

Ores, such as magnetite, that have marked magnetic properties are concentrated by means of electromagnets that attract the metal but do not attract the gangue.

Agglomeration of ore fines (fine particles) is accomplished by sintering or pelletising. In the sintering process, fuel, water, air, and heat are used to fuse the ore fine into a porous mass. In pelletising, moistened fine is formed into small pellets in the presence of limestone flux and then fired.

Performance Criteria for VERY GOOD rating					ANALYSIS OF WEIGHTS IN MOUs						
1995-96	1994-95	1993-94	1992-93	1991-92	Activity	Unit	1995-96	1994-95	1993-94	1992-93	1991-92
					PHYSICAL						
20	20	19.8			Excavation	Mill.Tons	5	6	6		
					Production						
6.2	6.2	6.2	6.2	6.1	Concentrate	Mill.Tons	2	4	4	10	10
2.3	2.3	2.15	2.15	2.1	Pellets	Mill.Tons	3	5	5	10	10
					Exports						
3.6	3.8	4.05	4.05	3.9	Concentrate	Mill.Tons	2	5	5	5	15
2.3	2.2	2.15	2.15	2.1	Pellets	Mill.Tons	3	5	5	10	15
					FINANCIAL						
104	89.26	114			Gross Margin	Rs.Cr	30	20	20		
8.8	8.08	13.44			Net Profit(after tax)/Cap.Emp.	%	30	30	30		
					DYNAMIC						
					Energy Consumption/ton						
81	82	80	78	72	Concentrate	KWH	2	2	2	2	3
33	33.5	33.5	34	38	Pellets	KWH	2	3	3	3	3
180	180	169	170		Heat Consumption/tonne of pellets	K.Cal/000	2	2	2	5	0
					Environment/Anti-pollution						
8	7.7	7.7			Desilting	Lakh tons	2	2	2	0	0
0.95	1.9	1.9			Saplings	Lakhs	1	2	2	0	0
16					Green Cover Bed	Hectares	1	0	0	0	0
					R&D PROCESS IMPROVEMENT		2	2	2	5	0
					HRD TRAINING						
1225	1350	1200	1100	1000	Executives	Mandays	2	2	2	5	4
4700	5250	5100	4900	4700	Non-executives	Mandays	2	3	3	combined	combined
					PROJECT IMPLEMENTATION		5	3	3	5	5
130	185	145			**IMPORT SUBSTITUTION**		1	1	1	0	0
15-Dec-95	15-Dec-94	15-Dec-93			**TIMELY SUBMISSION - MOU DRAFT**		2	2	2	0	0
02-May-95	02-May-94	02-May-93			**TIMELY SUBMISSION - EVAL REPORT**		1	1	1	0	0
			88		Net FE Earning	Mill.$				5	
			143	140	Internal Resource Generation	Rs.Cr				5	5
			17	114	NPBT/Net Worth	%/Rs.Cr				15	15
			24	26	Gross Margin	%				15	10
					Cost Reduction/ton						
				4	Concentrate	%					2.5
				4	Pellets	%					2.5
					Total		100	100	100	100	100

'10 years statistics KIOCL

Balance Sheet

	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96
Sources of funds:										
Shareholders Funds										
Share Capital	63451.38	63451.38	63451.38	63451.38	63451.38	63451.38	63451.38	63451.38	63451.38	63451.38
Reserves & Surplus	4.37	4.39	4.41	4.42	4.63	4.77	4375.96	11864.76	16318.03	23802.29
Loan Funds:										
Secured Loans	425.77	2752.23	1990.07	0.00	923.58	1617.49	2467.21	2698.48	2241.28	3609.19
Unsecured Loans	4385.43	3886.29	3387.15	2888.02	628.97	314.49	0.00	0.00	1350.55	-
Total	68266.95	70094.29	68833.01	66343.82	65008.56	65388.13	70294.55	78014.62	83361.24	90862.86
Application of Funds:										
Fixed Assets:										
Gross Block	47641.53	58997.82	59191.32	59472.49	60879.07	61338.32	63957.84	66105.89	82687.87	84900.11
Less: Depreciation	17387.63	20166.89	22541.19	24908.71	27243.68	29626.54	32208.19	34805.80	37638.56	40393.03
Net Block	30253.90	38830.93	36650.13	34563.78	33635.39	31711.78	31749.65	31300.09	45049.31	44507.08
Capital work in Progress at	11683.15	160.47	387.60	752.78	412.28	4117.51	8995.17	15840.01	11156.31	16677.42
Cost:						4775.00	4775.00	4775.00	4775.00	4775.00
Investments at cost										
Current Assets,Loans & Advances:										
Inventories	4064.90	5462.01	5776.97	7534.39	9343.57	10351.71	12895.72	10563.93	11480.33	12698.09
Sundry Debtors	831.07	1079.17	1125.98	1422.51	1949.98	3709.61	2971.63	3631.17	3435.59	4622.60
Cash & Bank balances	2.96	1.31	3.74	145.03	3401.22	1194.50	5.98	9.44	5.52	46.43
Other Current Assets	174.05	127.64	309.84	201.50	262.10	4748.15	8094.87	8181.58		
Loans & Advances	159.19	234.04	227.68	234.60	1400.61	10299.08	9902.47	9972.92	14640.81	16671.53
	5232.17	6904.17	7444.21	9538.03	16357.48	30303.05	33870.67	32359.04	29562.25	34038.65
Less: Current Liabilities and provisions										
Current Liabilities	2047.53	1807.30	2767.88	3113.36	4531.22	10654.28	10470.96	7571.08	8472.61	10436.63
Net Current Assets	3184.64	5096.87	4676.33	6424.67	11826.26	19648.77	23399.71	24787.96	21089.64	23602.02
Miscellaneous Expenditure	1718.01	1853.57	1828.38	1687.18	1562.27	1433.42	1375.02	1311.56	1290.98	1301.34
`(to the extent not written off or adjusted)										
Profit & Loss Account	21427.25	24152.45	25290.57	22915.41	17572.36	3701.65				
Total	68266.95	70094.29	68833.01	66343.82	65008.56	65388 13	70294.55	78014.62	83361.24	90862.86

Profit & Loss Account

	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96
INCOME:										
Sales - Concentrate	5737.11	7762.08	5337.16	7684.55	11257.10	18882.32	18551.58	21022.24	16728.70	20675.66
- Pellets	0.00	0.00	6302.27	9755.46	11640.69	20398.46	12838.64	20647.14	20205.52	27172.62
	5737.11	7762.08	11639.43	17440.01	22897.79	39280.78	31390.22	41669.38	36934.22	47848.28
Other Income	83.28	152.17	147.58	140.71	368.88	3177.15	3298.68	2025.47	2235.99	1518.93
Accrtn/(Decrtn) to Stock	-119.99	118.06	-75.38	185.30	814.91	-131.35	1250.87	-1245.55	597.84	-618.49
Income for the year	5700.40	8032.31	11711.63	17766.02	24081.58	42326.58	35939.77	42449.30	39768.05	48748.72
EXPENDITURE:										
Consumption of Raw Mtls.	1858.28	241.74	398.95	474.55	434.16	736.65	563.89	1001.90	1016.92	1149.32
Consumption of Stores & Spares	0.00	2408.66	3024.60	4435.71	5782.65	6897.32	7928.18	9395.46	8988.49	10314.82
Engineering Fees	90.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Employees rem. & benefits	519.06	712.66	791.67	1027.90	1171.80	1594.63	1668.44	1913.63	2408.44	2709.85
Power & Fuel	1117.82	2071.19	2584.00	3326.16	4402.17	10525.08	7300.23	11390.15	11962.03	12997.42
Other expenses	498.31	710.77	716.42	1046.84	1376.41	1950.14	2544.91	2891.26	2307.64	3199.45
Oscean Freight on Exports	252.84	283.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excise Duty	0.00	0.00	86.92	0.00	479.91	1354.21	56.77	306.03	340.11	405.55
Port Charges, Sampling	708.25	823.61	965.93	191.43	48.70	0.00	0.00	0.00	0.00	0.00
Survey, Export Duty & Cess	0.00	0.00	0.00	1113.43	1218.37	1766.40	2629.27	1831.16	1409.97	2192.03
Demurrage on Exports	0.00	0.00	651.29	620.00	99.43	754.04	144.17	1084.44	1493.10	540.23
Depreciation	2356.24	2791.42	2412.19	2417.32	2384.51	2439.10	2582.38	2620.88	2894.61	3278.09
Interest	22.97	598.83	636.75	485.88	255.30	153.23	318.90	463.76	228.10	349.69
Miscellaneous Expenditure	59.95	99.27	127.95	132.09	123.24	128.85	58.40	63.46	62.41	56.31
Expenditure for the year:	7484.12	10741.81	12396.67	15271.31	17776.65	28299.65	25795.54	32962.13	33111.82	37192.76
Less: Transfer to Pellet Plant under construction	291.40									
Net Profit/Loss before extra-ordinary items	7192.72	-2709.50	-685.04	2494.71	6304.93	14026.93	10144.23	9487.17	6656.23	11555.96
Extra Ordinary items							129.63			971.08
Net Profit/Loss for the year	-1492.32	-2709.50	-685.04	2494.71	6304.93	14026.93	10014.60	9487.17	6656.23	10584.88
Net prior period adjustments (PPA)	45.05	15.70	453.08	119.55	961.88	156.22	39.59	95.91	75.32	2.39
Net profit/loss for the year after PPA	-1537.37	-2725.20	-1138.12	2375.16	5343.05	13870.71	9975.01	9391.26	6580.91	10582.49
Less: Income Tax	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	225.00	855.00
Net Profit/loss after income tax	-1537.37	-2725.20	-1138.12	2375.16	5343.05	13870.71	9975.01	9391.26	6355.91	9727.49
Brought forward Loss	19889.88	21427.25	24152.45	25290.57	22915.41	17572.36	3701.65	0.00	0.00	0.00
Income Tax for earlier years	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	181.06
Loss Carried to Balance Sheet	-21427.25	-24152.45	-25290.57	-22915.41	-17572.36	-3701.65	0.00	0.00	0.00	0.00
Profit available for appropriation							6273.36	9391.26	6355.91	9546.43