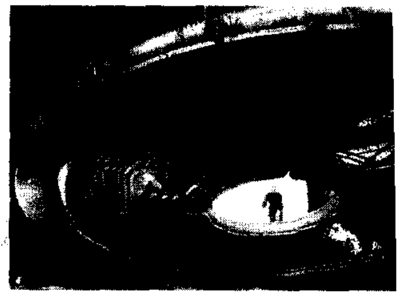
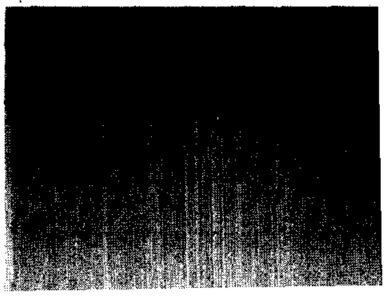
25th Annual Report 2000-2001
Essar Steel Limited





ESSAR

BOARD OF DIRECTORS

Shashi Ruia	*Chairman*
Ravi Ruia	*Vice Chairman*
Jatinder Mehra	*Managing Director*
Prashant Ruia	
S. V. Venkatesan	
I. C. Jain	
Sanjeev Shriya	
V. P. Singh	*Nominee – IDBI*
Sanjivi Sundar	*Nominee – UTI*
Sonjoy Chatterjee	*Nominee – ICICI*
S. N. Puri	*Company Secretary*

REGISTERED OFFICE

Post : Hazira Pin : 394 270
Dist : Surat
Gujarat
Tel : 0261-8326260/882400
Fax: 0261-8326462/882796

CORPORATE OFFICE

Essar House
11, Keshavrao Khadye Marg
Mahalaxmi
Mumbai 400 034

Contents

BANKERS

State Bank of India
Punjab National Bank
Bank of India
Allahabad Bank
State Bank of Patiala
State Bank of Mysore
Indian Bank
State Bank of Saurashtra
State Bank of Indore
Sakura Bank

AUDITORS

Lovelock & Lewes
Chartered Accountants
1104, Raheja Chambers
Nariman Point
Mumbai 400 021

INTERNAL AUDITORS

M/s. B.P. Jain & Co.
Chartered Accountants
A-16, Everest, Tardeo Road
Tardeo, Mumbai 400 034

SOLICITORS

M/s. Crawford Bayley & Co.
State Bank Buildings
NGN Vaidya Marg
Mumbai 400 023

TRANSFER AGENTS

Data Software Research Co. Pvt. Ltd.
Sree Sovereign Complex
No. 22, 4th Cross Street
Trustpuram, Kodambakkam
Chennai 600 024
Tel.: 044-4834487/3738
Fax : 044-4834636
E-mail : dsrcmd@md3.vsnl.net.in

Visit us at our website

http://www.essar.com

Please send in your e-mail address to : webmaster@essar.com to keep you informed about the progress of the Company.

Chairman's Statement

Dear Shareholder,

I am happy to state that during the year, the company significantly improved its performance. This was possible mainly on account of a shift to value-added grades and higher volumes both in production and sales. The production at 16.80 lakh tonnes (15.30 lakh tonnes in the previous year), a growth of 10% and sales volumes at 16.32 lakh tonnes (16.16 lakh tonnes in the previous year), a growth of 1%. The company has exported 6.99 lakh tonne (6.45 lakh tonnes in the previous year), a growth of 8%. The income from exports at Rs. 886.27 crore (Rs.764.26 crore in the previous year), registering a growth of 16% thus maintained its lead as the largest exporter of HR coils for the last five years.

During the year 2000-01, the financial performance of the company has shown significant improvement over that of 1999-00. The company focused on areas to improve efficiency which helped reduce the cost. Similar focus was given to improving the product mix with a view to improve the contribution. These measures have borne fruit which is reflected in the increase of operating profit at Rs. 607.70 crore over the previous year's operating profit of Rs.370.07 crore, a growth of 64%. While the operations of the company have improved, the stagnating demand and surplus capacity of over 30% in the domestic market have led to severe drop in HRC prices by over 20% from the third quarter of the year. Otherwise the results would have been much better. Thus negatively impacting the bottomline.

While on the operations front, every effort is being made to improve the performance, it has become equally necessary to restructure the Balance Sheet with a view to correcting the mismatch between the assets and liabilities. Accordingly, the company has approached the Institutions and Foreign Lenders for restructuring their loans which would provide a longer maturity, reducing interest rates so as to help the company to maintain its operations under the adverse market conditions.

The debt restructuring exercise undertaken by the company have largely been completed. Essar Steel first approached unsecured lenders of USD 250 million – FRN holders for extension of maturity. The maturity of this debt has since been extended for a further 5 year term.

After successful restructuring the FRNs, the company approached Domestic secured lenders with a similar request. The lead institution, IDBI, has communicated their approval for extension of maturity by a further period of 8 years on similar maturity profile as given to other steel makers and reduction of interest to 14% as interest rates are falling. The company has approached other lenders for similar terms. With the lead institution approving the plan, we have reason to believe that the other lenders will follow suit. Subsequently, partly secured creditors of USD 262 million have also agreed for extension of maturity by 5-6 years.

Essar Steel has thus achieved a milestone. With this, the anomaly, in project financing stands corrected and defaults rectified. The average maturity of debt is extended by 8 years and the interest rate has reduced from an average of 17% to 14% in line with the prevailing rate of interest.

In India, there is a surplus capacity of 4 million tonnes which has pulled down the price by over 20% from the third quarter of the year. When viewed in this context, the performance of the company is admirable by any standard. However, the surplus is likely to get absorbed in the domestic market in the course of the next 3 to 4 years which will restore the demand supply equilibrium.

The scene in rest of the world is no different than in India. The fortunes of steel industry has gone into a tailspin since I last communicated with you. The buoyancy of the first half did not last long. The steel prices started sliding since then. By the end of the year, the prices had fallen by almost 38% from USD 320/t in the beginning of the year to as low as USD 200/t. The slow down in US economy and consequent trade barriers clamped by them, Anti Dumping measures by Canada, trade barriers in Europe etc. added to the pressure on the steel prices. Every steel producing nation tried to protect their domestic steel industry. The root cause of the problem lies in the availability of surplus capacity globally. As per recent estimates of International Iron and Steel Institute, the global surplus capacity is to tune of 85 million tonnes. All the major steel companies posted negative bottomline during the current year. The prices in the countries with weaker currencies became benchmark for pricing world over. It requires correction world-wide to restore normalcy in the steel sector. The surplus capacity has had three major effects -- a delay in price recovery, a surge in raw material prices, and the Section 201 probe by the Bush administration. As each country has applied its anti-dumping and countervailing legislation, the surplus steel has moved on to another region giving rise to more trade problems. Furthermore, the problem of high cost excess capacity exists in the market. This represents a serious threat to the long-term viability of the industry and to the supply of steel that is vital for the world economy. Consequently, steel prices have fallen dramatically and many steel companies are struggling to survive. And so are economies that are so closely linked to industrial growth and the steel industry in particular.

As I said 3 to 4 years are tough and to manage this period will be a test of our ability and capability. I seek support of all the stake holders, i.e. investors, employees, the government to support the company during this period of its efforts to sail through the difficult times. Let me assure you that we at Essar are watching the situation and strategising and taking action as much as we can to make Essar Steel the great company that it really is and can stands on its own against the vagaries as mentioned above.

With warm regards

Yours Sincerely

S. N. RUIA
Chairman
Mumbai, 17th August, 2001

NOTICE

NOTICE is hereby given that the **Twenty-fifth Annual General** Meeting of the Members of **ESSAR STEEL LIMITED** will be held at the Registered Office of the Company at Post Hazira, *Pin 394 270, Dist. Surat,* ***on Friday, September 21, 2001 at 2.30*** **p.m.** to transact with or without modifications, as may be permissible, the following as :

ORDINARY BUSINESS :

1. To receive, consider and adopt the Audited Balance Sheet as at March 31, 2001 and the Profit and Loss Account for the year ended on that date and the Reports of the Directors and Auditors thereon.
2. To appoint a Director in the place of Mr. S.N.Ruia, who retires by rotation as a Director and, being eligible, offers himself for reappointment.
3. To appoint a Director in the place of Mr. Sanjeev Shriya, who retires by rotation as a Director and, being eligible, offers himself for reappointment.
4. To appoint Auditors of the Company and to fix their remuneration.

SPECIAL BUSINESS

5. To consider and, if thought fit, to pass with or without modification(s), the following as an ordinary resolution:-

   "RESOLVED THAT consent of the Company be and it is hereby accorded to the Board of Directors of the Company, subject to such approval, if any, as may be required by the Central Government and other authorities, as applicable, to change the method of depreciation other than straightline or written down methods, as may be deemed fit and in the interest of the Company, with effect from April 1, 2000.

   RESOLVED FURTHER THAT the Board of Directors of the Company be and they are hereby authorised to do from time to time all such acts, deeds and things necessary or expedient or proper in respect of the above proposal including varying the said proposal or otherwise either in part or in full as they may, in their absolute discretion, deem necessary to give effect to this resolution."

NOTES :

1. The Explanatory Statement pursuant to Section 173(2) of the Companies Act, 1956 relating to the Special Business under Item No. 5 is annexed herewith.
2. A MEMBER ENTITLED TO ATTEND AND VOTE AT THE MEETING IS ENTITLED TO APPOINT A PROXY AND VOTE INSTEAD OF HIMSELF ON A POLL ONLY AND THE PROXY NEED NOT BE A MEMBER OF THE COMPANY. Proxy forms should be deposited at the Registered Office of the Company not less than 48 hours before the time fixed for the meeting.
3. Register of Members and Share Transfer Books of the Company will remain closed from September 13, 2001 till September 21, 2001 (both days inclusive).
4. All documents referred to in the accompanying notice and the explanatory statement are open for inspection at the Registered Office of the Company on all working days between 11.00 a.m. and 1.00 p.m. upto the date of the Annual General Meeting.
5. Members who have not encashed the dividend warrants prior to March 31, 1995 are requested to claim the amount from the Registrar of Companies, Ahmedabad, Gujarat. Members who have not encashed their dividend warrants for the period ended 31st March, 1995, 31st March,1996 & 31st March, 1997 may approach Company's R & T Agents for revalidating the warrants and / or for obtaining duplicate warrants.
6. The Company's shares are listed with Ahmedabad, Baroda, Bangalore, Calcutta, Delhi, Chennai, Mumbai & National Stock Exchanges. The Company has paid the listing fees for the year 2001-2002 to all the aforesaid Stock Exchanges.
7. The Companies (Amendment) Act, 1999 has introduced through section 109A, the facility of nomination to shareholders. Nomination Form 2B is attached to the notice.
8. **Members are requested to notify any change in their address to the Company's R & T Agents, Data Software Research Co. Pvt. Ltd., Sree Sovereign Complex No. 22, 4th Cross Street, Trustpuram, Kodambakkam, Chennai 600 024.**
9. Members / Proxies should bring the Attendance Slip duly filled in for attending the meeting.
10. Members desiring any information as regards the Accounts are requested to write to the Company at least 15 days before the date of the meeting, as to enable the management to keep the information ready.

By Order of the Board

Mumbai
26th June, 2001

S.N. Puri
Company Secretary

ANNEXURE TO NOTICE

EXPLANATORY STATEMENT

Pursuant to Section 173 (2) of the Companies Act, 1956 the following Explanatory Statement sets out the material facts relating to Item No. 5 mentioned under the heading as **SPECIAL BUSINESS** :

Item No. 5

The Company intends to change the method of depreciation from straight-line method in respect of HRC Plant to Units of Production method. Under Section 205 of the Companies Act, 1956, the Central Government is authorised to approve any other method of depreciation other than straight-line/written down methods. The Company has obtained an opinion from an eminent Chartered Accountant, who has concurred with the Company's view of providing depreciation under Units of Production method. Providing of depreciation under Units of Production method is also recognised by the Accounting Standard 6-Depreciation Accounting, issued by the Institute of Chartered Accountants of India. The Company, accordingly, in terms of Section 205, filed an application with the Central Government, Department of Company Affairs, Ministry of Law, Justice and Company Affairs, New Delhi, seeking approval for adopting Units of Production method. The said Department has advised the Company to obtain an approval from the members of the Company for change in method of depreciation. According to the Companies Act, 1956, no such approval is required to be obtained from the members for change in method of depreciation. However, in order to comply with the requirement of Department of Company Affairs, your Directors propose a resolution to this effect under Item No. 5, for your approval.

A copy of the application made by the Company to the Central Government for the above proposal is available for inspection.

None of the Directors is interested or concerned in this resolution.

By Order of the Board

Mumbai,
26th June, 2001

S.N. Puri
Company Secretary

DIRECTORS' REPORT

To the Members of **ESSAR STEEL LIMITED**

Your Directors have pleasure in presenting the Twenty-fifth Annual Report of your Company together with the Audited Statement of Accounts for the year ended March 31, 2001.

OPERATIONS ENVIRONMENT & PERFORMANCE

❖ Plant Operations Highlights

During the year under review, the Company faced a multitude of challenges on the operating and market front. The steel industry globally faced difficult times in this period, owing to increased product availability and declining selling prices. This phenomenon was replicated in the domestic market, as prices declined sharply owing to increased availability and slowing down of growth in steel consumption. Further, anti-dumping proceedings launched by various developed nations resulted in deceleration of our steel exports.

There was also a devastating earthquake in the state of Gujarat, as a result the general business activities remained paralysed for almost a fortnight.

In order to overcome these challenges your Company continued its focus on reducing cost and increasing both production and sales. In-house initiatives launched during the year by way of technological and process improvements at both the Hot Briquetted Iron (HBI) and Hot Rolled Coils (HRC) plants yielded very favourable results. The power consumption reduced considerably due to improvement in processes, as mentioned below :

- Increased Hot Direct Reduced Iron (DRI) charging
- Better slag practices resulting in yield improvement
- Hot charging of slabs

During the year under review, the key element in reducing the specific consumption of power has been charging of hot DRI in steel making. At the HBI end, hot DRI resulted in savings of approx. Rs.100 PMT in the operating cost and at the steel making end, the usage of hot DRI resulted in savings of approx. Rs. 500 PMT in the operating cost of liquid steel. In order to unlock more value, improvements in the method of feeding hot DRI for steel making has been undertaken for implementation during FY' 2001-02.

Apart from internal improvements, the contract with Gujarat State Petroleum Corporation Limited for Hazira on/offshore natural gas was executed successfully. Besides, an additional quantity of 0.7 million m^3 per day firm allocation of natural gas was received from Gas Authority of India Limited. This served as a cheaper alternative fuel to naphtha (prices of naphtha increased with rising oil prices). Use of natural gas led to significant reduction in the fuel cost & power cost to the order of approx. 8%.

Efforts to reduce cost despite the rising prices of controlled inputs viz. iron ore, fines, natural gas, etc. was successfully achieved during the year under review. Your Company was able to absorb these hikes by cutting and controlling costs elsewhere due to the above process improvement and economical procurements. The overall cost reduction on the total cost of hot rolled coils, achieved during the year vis-à-vis last year was approx. 6%.

During the year under review, your Company achieved a 10% increase in the production of hot rolled coils at 16.80 lakh tonnes (15.30 lakh tonnes in the previous year) and 5% increase in the production of HBI at 16.62 lakh tonnes (15.82 lakh tonnes in the previous year).

The capacity at the Company's HBI Plant has been enhanced to 2.2 million tons after implementing modifications in the modules in the Plant. The production of 1,67,300 tonnes of HBI in the month of March, 2001 has already established the rate of annual production capability of over 2.0 million tonnes. With further improvements scheduled during the FY 2001-02, your Company plans to expand the capacity to 2.4 million tonnes from 2.2 million tonnes. Similarly, the production of 1,73,800 tonnes of HRC in the month of June, 2000 has established the rate of annual production capability @ 2.1 million tonnes. Further production value will be unlocked during FY 2001-02 to achieve HRC levels of 2.4 million tonnes.

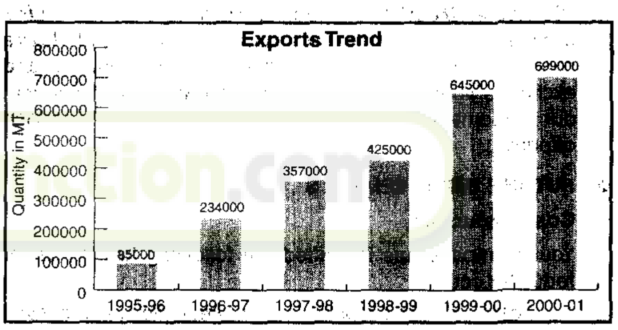
Your Company was re-approved for ISO 9002 by DNV during the year under review.

❖ Marketing & Sales Highlights

During the year under review both the domestic & export steel markets were under severe price pressure. The financial year under review started on a good note with markets firming up in terms of consumption & price realisations. However, surplus availability resulted in severe downward pressure on the global as well as domestic steel prices. The prices dropped from a high of US $320 PMT FOB to US $200 PMT FOB in the international steel market. Signs of recovery appeared only during the last quarter of the financial year.

Export Performance Highlights

Though your Company has excellent track record in the overseas markets, anti-dumping actions initiated by the developed nations have thwarted our efforts to export.



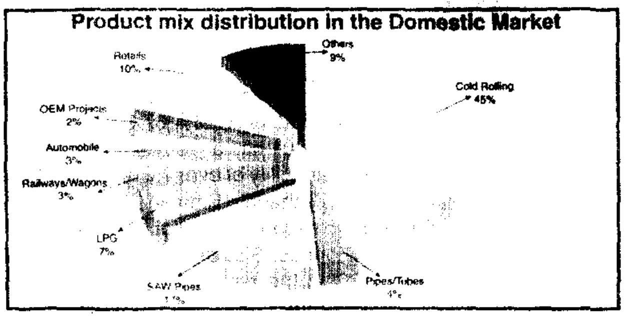
However, your Company's strategy to maintain presence in all major steel markets enabled us to tap the opportunities in alternate markets viz. the M E Asia and the S E Asia incl. China. During the year, your Company achieved a handsome growth in its exports registering an increase of about 8.3% over previous year to 6.99 lacs MT from 6.45 lacs MT and also registered an increase of over 5% in its average export realisation compared to previous year. This was possible as your Company maintained its focus on high value added grades of steel in niche markets enabling it to command a premium for its products.

Domestic Sales Performance Highlights

The depressed market conditions globally had its effect on the domestic market scenario as the price realisations slumped in the subsequent quarters from a strong sentiment during the first quarter of the year under review.

In continuance of its marketing strategy adopted during the previous year, your Company focused on high value grades viz. High silicon steels, API grades for line pipes, LPG cylinder grade, extra deep drawing for cold rolled & galvanizing

Product mix distribution in the Domestic Market



applications, etc. to command premium over base grade products thereby enhancing its price realizations. During the year, your Company also focused on the development of steel for automobile sector applications, which demand high quality, & high performance steels.

The domestic sales volume shrunk due to conscious decision to shift from base grade to high value added products resulting in marginal reduction in sales volume. The price realisations improved by 5% over last years' levels.

Marketing Performance Highlights

During the year under review, your Company successfully launched the **"CRM – Customer Relationship Management"** module to provide internet based information system to view order & despatch status for all customers.

Successful **"Co-branding"** with Kirby Building Systems, a Hyderabad based pre-fabricated building systems producer for our high tensile steel products, was launched during the year.

"Customer Meet" for our valued customers from the LPG cylinders segment was successfully organized at Hazira during the year. The meet provided a platform to interact and exchange improvements and obtain views/suggestions from our customers to further improve our product & service offerings.

❖ FUTURE IMPROVEMENTS

Cost Reduction

Your Company has identified the following key areas for reducing cost :

- Cost of metallics inputs viz. iron ore, pellets, etc. to steel making
- Improvement in yield factors across the plant
- Specific consumption of power
- Reduction in fixed costs

Installation of Grade Separator, Tube Changer Device, On-line temperature measurement, Auto Mold Width Adjustment, Breakout Prediction System were successfully carried out to enhance the productivity & yield at the Caster Plant. This is expected to have a favourable impact on the cost.

New Products & Market Development

New products were added to the existing basket of high value steel products, which are guaranteed to provide value to your Company's revenue streams in future. Some of these products are improvements over the existing products to provide value to our customers and help them reduce their costs. Other products are aimed to develop new markets or provide competitive edge in the marketplace.

Specific achievements during the year under review in the area of product & market development are as follows :

- Successful rolling of electrical stamping steel & cold rolling application in the ferritic zone.
- Rolling of 1.2 mm thick coils to substitute cold rolled products in certain applications.
- Rolling of coils > 20 mm thick for SAW pipes.
- Successful trial rolling of interstitial free (IF) grade steel for auto body applications. Your Company plans to commercialise this grade during FY 2001-02.
- Commercial production of high strength low alloy (HSLA) for pre-fabricated building applications.
- Successfully supplied coils for API 5L X70 & X52 (sour gas application).

Marketing Strategy

Co-Branding

To enhance brand equity for "Essar 24 Carat Steel" brand and to ensure long term relationship with our customers, your Company plans to launch more campaigns during FY 2001-02.

Market Penetration through "Steel Distribution Centers"

Your Company's vision to broaden the distribution of all steel products in the country, especially to achieve deeper penetration in the rural market segments was implemented as the "Web-enabled Distribution Centers" concept was launched during the year under review. The concept envisages on-line marketing of steel & steel related products to large number of small consumers throughout the country from a network of steel distribution centers to be setup in each steel consuming location through the internet based information & execution systems. To start with, your Company has selected its natural market – Gujarat to test run this concept and plans to open 17 distribution centers in the state, out of which 2 are fully operational.

FINANCIALS

THE FINANCIAL RESULTS

(Rs. in crores)

Particulars	Year ended March 31, 2001	March 31, 2000
Gross Profit before Finance cost (net) Depreciation, Deferred Revenue and Taxation	607.70	370.07
Less : Finance cost (net)	647.07	588.09
Profit/(Loss) before Depreciation, Deferred Revenue and Taxation	(39.37)	(218.02)
Less : Deferred Revenue Expenses	67.44	32.89
Less : Depreciation (Net of write back of earlier years)	239.10	329.81
Profit/(Loss) before Taxation	(345.91)	(580.72)
Less : Provision for Taxation (for earlier years)	–	0.52
Profit/(Loss) after Taxation	(345.91)	(581.24)
Add : Balance Brought Forward from previous year	(867.19)	(285.95)
Balance carried forward to next year	(1,213.10)	(867.19)

In view of the losses, your Board of Directors has not recommended any dividend.

STATUTORY ANNUAL AUDIT

The Auditors observations on the accounts have been extensively dealt with in the notes and since they are self-explanatory, they are not commented upon.

SUBSIDIARY COMPANY

During the year under review, Hy-Grade Pellets Limited (HGPL) ceased to be a Subsidiary of the Company consequent to allotment of 51% of its equity capital to Stemcor Minerals Limited, the other joint venture partner in HGPL.

DIRECTORS

Mr. S.N. Puri, Whole-time Director of the Company since June, 1997 and Mr. D.D. Udeshi, who was on the Board since June, 1983 have tendered their resignations from the Board, effective September 22, 2000 and March 29, 2001 respectively. The Board accepted their resignations and placed on record its appreciation of the contributions made by them during their tenure.

ICICI Limited withdrew its nomination of Ms. Chanda Kochhar from the Board with effect from April 5, 2001 and IDBI withdrew its nomination of Mr. T.M. Nagarajan from the Board with effect from May 18, 2001. The Board also places on record its appreciation of the contributions made by them to the deliberations of the Board.

IDBI nominated Mr. V.P. Singh, Executive Director of IDBI, as a Director on the Board with effect from May 18, 2001.

Mr. S.N. Ruia and Mr. Sanjeev Shriya, retire by rotation and, being eligible, offer themselves for reappointment.

DIRECTORS' RESPONSIBILITY STATEMENT

Pursuant to the requirements under Section 217(2AA) of the Companies Act, 1956, the Board of Directors of the Company hereby state and confirm that

i. in the preparation of the Annual Accounts, the applicable accounting standards have been followed along with proper explanation relating to material departures.

ii. the Directors have selected accounting policies and applied them consistently and made judgements and estimates that are reasonable and prudent so as to give a true and fair view of the state of affairs of the Company at the end of the financial year and of the Profit or Loss of the Company for the year under review.

iii. the Directors have taken proper and sufficient care for the maintenance of adequate accounting records in accordance with the provisions of the Companies Act, 1956 for safeguarding the assets of the Company and for preventing and detecting fraud and other irregularities.

iv. the Directors have arranged preparation of the accounts for the financial year ended March 31, 2001 on a "going concern" basis.

AUDITORS

M/s. Lovelock & Lewes, Chartered Accountants, Auditors of the Company hold office until the conclusion of the ensuing Annual General Meeting. The Company has received a letter from them to the effect that their appointment, if made, would be within the prescribed limits under Section 224(1-B) of the Companies Act, 1956.

PERSONNEL

As required by the provisions of Section 217(2A) of the Companies Act, 1956 read with Companies (Particulars of Employees) Rules, 1975, as amended the names and other particulars of the employees are set out in the Annexure to the Directors' Report. However, as per the provisions of Section 219(1)(b)(iv) of the Companies Act, 1956, the report and accounts are being sent to all shareholders of the Company excluding the aforesaid information. Any shareholder interested in obtaining a copy of the particulars may write to the Company Secretary at the Registered Office of the Company.

ENERGY, TECHNOLOGY & FOREIGN EXCHANGE

Details of energy conservation and research and development activities undertaken by the Company along with the information in accordance with the provisions of Section 217(1) (e) of the Companies Act, 1956 read with the Companies (Disclosure of Particulars in the Report of the Board of Directors) Rules, 1988, are given in the Annexure, forming part of this report.

CORPORATE GOVERNANCE

Your Company is required to publish the report on Corporate Governance pursuant to Clause 49 of the Listing Agreement with the Stock Exchanges with effect from March 31, 2002. Your Company has already taken steps to comply with the said provisions and does not foresee any problem in compliance with the directions issued and the timeframe prescribed by the Stock Exchanges, where your Company's shares are listed, for implementation of Corporate Governance.

ACKNOWLEDGEMENT

Your Directors would like to express their grateful appreciation for the assistance and co-operation received from the Financial Institutions, Banks, Government Authorities and Shareholders during the year under review. Your Directors wish to place on record their deep sense of appreciation to all the employees for their commendable teamwork, exemplary professionalism and enthusiastic contribution during the year.

For and on behalf of the Board

Mumbai	**J. MEHRA**	**R. N. RUIA**
26th June, 2001	*Managing Director*	*Vice-Chairman*

ANNEXURE TO DIRECTORS' REPORT

Particulars required under the Companies (Disclosure of Particulars in the Report of Board of Directors) Rules, 1988

A. CONSERVATION OF ENERGY:

a) Energy Conservation measures taken :

1. **Hot DRI charging :** The %age of Hot DRI in EAF charge mix increased by providing additional vessels for Hot DRI transportation and minimizing the transit time by modifying the transit route. The power saving due to Hot DRI charging is observed up to 100KWH for each ton of Hot DRI charged at EAF.
2. **IBF removal :** In module III IBF removed to increase the furnace volume, resulting in better throughput and avoids the unnecessary cooling of reducing gas due to IBF shaft cooling system.
3. **NG bundle :** In module III NG bundle inserted in recuperator to recover the waste heat of fuel gas.
4. **Hot cone bleed system :** Hot cone bleed systems have been installed in module II & III. By removing the cold carburizing gas, the undesirable cooling of furnace center bed is avoided. About 1% NG saving is observed due to removal of this cold gas furnace cone.
5. **Top gas fuel chiller :** In module III top gas fuel chiller installed to reduce the temperature and thereby moisture percentage of top gas fuel. It has resulted in about 5°C temperature drop and thereby less volumetric load on fuel gas fan and higher net calorific value of top gas fuel.
6. **EAF :** Better foamy slag practice by installing water cooled lances in all the three furnaces resulting in covering of arc in slag and reduced losses.
7. **Hot Slab Charging :** Hot slabs were charged in both the reheating furnaces in HSM and efficiency was increased by 23% and thereby saving in power consumption.
8. **Extra Deep Drawing (EDD) & cold rolling grades :** Slabs reheating temperature reduced by 20°C to 30°C resulting in lower fuel consumption.
9. **Lime Kiln –1 :** Installation of fuel max magnet based on neodynamium resonance technology resulted on 2.7% NG saving.
10. **Oxygen Plant :** 4 number of oxygen storage vessels of 500 m3 capacity were installed to store the excess production. Consequently, 20 lacs nm3 of oxygen vented to atmosphere per month has reduced to 5 lacs nm3 resulting in monthly saving of Rs. 40-45 lacs.

b) Additional Investments and proposals being implemented for reduction in consumption of energy:

1. Hot cone bleed system, IBF removal, NG bundle and Top gas fuel chiller will be implemented for remaining modules.
2. CO_2 Removal System: Study is under progress to remove CO_2 from spent gas of furnace which contains about 60% reductants - CO & H_2, and 33% of which is being used as fuel for reformer at present. After CO_2 removal the CO & H_2 will be used as reductants only and not as fuel, which will save the energy required to convert equal quantity of CO & H_2 from Natural gas.
3. To install online Oxygen analyser in the waste gas system and fuel saver by which combustion air will be controlled.
4. To install fuel saver by which combustion of fuel will be done very efficiently. By this we are expecting to save minimum 2% of fuel consumption.
5. Water cooled super sonic lances, modular lances and short lances will be implemented in the furnaces. These are expected to yeild energy savings of 25 KWH / MT of steel.

c) Impact of measures at (a) and (b) above for reduction of energy conservation and on the cost of production of goods :

As mentioned in (a) & (b) above

B. TECHNOLOGY ABSORPTION:

The Company has fully absorbed the MIDREX technology obtained from Voest Alpine, Austria for the production of HBI. It has also absorbed technology supplied by METCHEM for HRC plant including DC-Electric Arc Furnace (s), Continuous Casters and the Hot Strip Mill. The Company has emerged as the largest user of HBI in DC EAF and developed satisfactory technology for the same.

C. FOREIGN EXCHANGE EARNINGS AND OUTGO:

I) Activities relating to exports, initiatives to increase exports, developments of new export markets for products and services and export plan.

The export activities of the Company during the year resulted in increased export volume to 0.70 MMT as against 0.65 MMT during the previous year. During the second half of the year the prices weakened, but still the Company was able to maintain price realisation at levels similar to earlier year. This was possible by diversifying the product and market mix and focussing on value added products.

Anti-dumping action has been initiated by US and Canada on Hot Rolled Coils from number of countries including India. While the Company is contesting the anti-dumping action together with other Indian companies, the possibility of avoiding same is uncertain. Therefore the Company has changed its market focus to newer markets in Iran, Iraq and China where demand for value added grades like API grade steel for the Oil industry and corrosion resistant steel for containers has increased. The Company exported nearly 70,000 MT of corrosion resistant steel to China and 60,000 MT of API grade steel to Iran during the year.

For the year 2001-02 considering the international market scenario the Company has decided to focus on the value added grades and maintain export volumes at around the same level as last year.

II) Total Foreign exchange used and earned

		(Rs. in Crores)
a)	Total Foreign exchange directly earned	698.75
b)	Foreign exchange earned through third party Exports	126.31
c)	Others	14.23
	Total foreign exchange earned (a + b + c)	839.29
d)	Total foreign exchange used	
	i) For import of plant and machinery/ technical know-how	4.30
	ii) Others including raw materials and interest	543.21
	Total Foreign Exchange used	547.51

Particulars with respect to Conservation of Energy :

FORM A

A. Power and Fuel Consumption

	Current Year	Previous Year
1. Electricity		
a) Purchased		
Unit (Lakhs)	**332.64**	199.08
Total Amount (Rs. in crores)	**35.95**	24.59
Rate/Unit (Rs.)	**10.81**	12.35
b) Own generation		
(i) Through diesel generator		
Unit	—	—
Units per Ltr. of diesel oil		
Cost/Unit (Rs.)	**N.A.**	N.A.
(ii) Through gas turbine/ generator		
Unit (Lakhs)	**1,992.76**	1,948.33
Units/SM3 of gas	**3.57**	3.63
Cost of Fuel/Unit (Rs.)	**0.89**	0.65
(iii) Through third party on conversion basis		
Unit (Lakhs)	**14,648.29**	16,460.34
Units/Ltr. of NGL/HSD/NG	**4.45**	4.12
Cost of fuel/Unit (Rs.)	**0.65**	1.23
2. Coal (specify quality and where used)		
Quantity (tones)	—	—
Total Cost	—	—
Average Rate	—	—
3. Furnace Oil		
Quantity (K. Ltrs.)	—	—
Total Cost (Rs. Crs.)	—	—
Average Rate (Net of Modvat)	**N.A.**	N.A.
4. Others		
Quantity (NGL) - MT	**37,465.08**	47,840.60
Total Cost (Rs. Crs.)	**47.96**	48.10
Rate/Unit	**12,800**	10,054
Quantity (NG) - '000 SM3	**75,434.89**	23,596.33
Total Cost (Rs. Crs.)	**24.94**	5.58
Rate/Unit	**3.31**	2.36

B. Consumption per unit of Production

	Standard (If any)	**Current Year**	Previous Year
Product : Hot Briquetted Iron	Unit Per MT	Unit Per MT	Unit Per MT
Electricity	125	**113**	120
Furnace Oil	—	—	—
Coal (specify quality)	—	—	—
Diesel Oil	—	—	—
Others - Natural Gas (SM3)	325	**305**	306
Others - Naptha (Kg)	—	—	1.73
Product : Hot Rolled Coils	Unit Per MT	Unit Per MT	Unit Per MT
Electricity	—	**898**	952
Furnace Oil	—	—	—
Coal (specify quality)	—	—	—
Diesel Oil	—	—	—
Others – NGL (Ltr.)	—	**31**	43
Other – NG (SM3)	—	**45**	15

FORM B

RESEARCH AND DEVELOPMENT (R & D) :

The Company has well equipped Laboratory facilities with a highly qualified team of engineers and technologists who are conducting developmental work continuously.

1. **Specific areas in which R & D carried by the Company**
   (a) **Online super data :** Online process monitoring software 'Super Data' developed to monitor the process, considering the all plant modifications.
   (b) **Product fines feeding :** System developed to feed the product fines and convert it in briquettes, which has higher sales realization.
   (c) Modification in the blower filter was done to save energy.
   (d) Trial was done by decoupling the motor of bag filter's centrifugal fan to get the natural draft utilizing the pressure of the kiln and was successful.
   (e) Necessary interlocking were provided to avoid unnecessary running of equipment.
   (f) *Design and installation of Supersonic Oxygen lancing* system in all three Electric Arc Furnaces.

2. **Future plan of action**
   (a) **Baby furnace :** Design work is under progress to erect a small capacity furnace to study the oxide characteristics like, optimum reducing temperature, decrepitation and temperature resisting capacity.
   (b) **CO_2 Removal System :** Study is under progress to remove CO_2 from spent gas of furnace which contains about 60% reductants – CO & H_2, and 33% of which is being used as fuel for reformer at present. After CO_2 removal the CO & H_2 will be used as reductants only and not as fuel, which will save the energy required to convert equal quantity of CO & H_2 from Natural gas.
   (c) Slag grading plant to crush the EAF slag into 5 different sized for better utilisation.
   (d) Briquetting of lime/dolime fines and FES dust for usage in EAF, which will reduce the air pollution.

TECHNOLOGY ABSORPTION, ADAPTATION AND *INNOVATION* :

1. **Efforts, in brief made towards technology absorption, adaptation and innovation**
   (a) The Company has fully absorbed the MIDREX technology obtained from Voest Alpine, Austria for the production of HBI.
   (b) The Company has fully absorbed the METCHEM technology obtained from METCHEM Inc. Canada for the production of HRC.

2. ***Imported technology***

Product	Technology from	Year of import	Status of absorption/ adaptation
HBI (Sponge Iron)	MIDREX Corpn. U.S.A./Voest Alpine, Austria	1989-90	Fully absorbed
HRC	METCHEM Inc. Canada	1991-94	Fully absorbed