Production & Techno-economics
## MAJOR PRODUCTION FACILITIES IN SAIL

(Qty in 000 T)

<table>
<thead>
<tr>
<th>Facilities /Products</th>
<th>BSP</th>
<th>BSL</th>
<th>DSP</th>
<th>RSP</th>
<th>ISP</th>
<th>SAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pig Iron for Sale</strong></td>
<td>630</td>
<td>823</td>
<td>212</td>
<td>75</td>
<td>213</td>
<td>1953</td>
</tr>
<tr>
<td><strong>Solid Steel</strong></td>
<td>3925</td>
<td>4360</td>
<td>1302</td>
<td>1900</td>
<td>434</td>
<td>12421</td>
</tr>
<tr>
<td><strong>Saleable Steel</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A) Semis For Sale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B) Finished Steel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) Flat Products</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Wide &amp; Heavy Plates</td>
<td>950</td>
<td></td>
<td>299</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- H R Sheets/Strips</td>
<td></td>
<td></td>
<td>2120</td>
<td>341</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- C R Sheets/Strips</td>
<td>1390</td>
<td></td>
<td></td>
<td>433</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Galvanised sheets</td>
<td>170</td>
<td></td>
<td></td>
<td>160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- H R Elec Steel Sheet</td>
<td></td>
<td></td>
<td></td>
<td>150</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>- Silicon steel</td>
<td></td>
<td></td>
<td></td>
<td>74</td>
<td>74</td>
<td></td>
</tr>
<tr>
<td>- ERW Pipes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>- Spiral Welded Pipes</td>
<td></td>
<td></td>
<td></td>
<td>55</td>
<td></td>
<td>55</td>
</tr>
<tr>
<td>Sub Total(i)</td>
<td>950</td>
<td>3780</td>
<td>180</td>
<td>1671</td>
<td></td>
<td>6581</td>
</tr>
<tr>
<td>ii) Non-flat Products</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>- Medium Structurals</td>
<td>250</td>
<td></td>
<td>207</td>
<td>22</td>
<td>229</td>
<td></td>
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<tr>
<td>- Heavy Structurals</td>
<td></td>
<td></td>
<td></td>
<td>61</td>
<td>311</td>
<td></td>
</tr>
<tr>
<td>- Merchant Products/</td>
<td>500</td>
<td>280</td>
<td></td>
<td>128</td>
<td>908</td>
<td></td>
</tr>
<tr>
<td>Bars/ Rounds/LT.Struc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Wire Rods</td>
<td>400</td>
<td></td>
<td>126</td>
<td>400</td>
<td></td>
<td></td>
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<tr>
<td>- Heavy Rails</td>
<td>500</td>
<td></td>
<td>15</td>
<td>515</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Wheels &amp; Axies</td>
<td></td>
<td></td>
<td>58</td>
<td>58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Sleepers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Fish Plates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Special Section</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sub Total(ii)</td>
<td>1650</td>
<td>545</td>
<td>248</td>
<td></td>
<td>2443</td>
<td></td>
</tr>
<tr>
<td><strong>Total Saleable Steel (A+B)</strong></td>
<td>3153</td>
<td>3780</td>
<td>1586</td>
<td>1671</td>
<td>314</td>
<td>10504</td>
</tr>
</tbody>
</table>
SAIL turnover set to cross Rs 30,000 cr

SAIL plans Rs 25,000 cr capacity expansion
Confident consolidation in 2004-05

DEVELOPMENT OF SAIL IN 21ST CENTURY-A VIEW

Sail in 2004-05 Confident Consolidation.
Financial & Production Review and capital Schormo.
Strategic Alliances And vigilance Activities.
Sail in 21ST Century-Prospect & future Plan 1012
After achieving the biggest corporate turnaround in Indian industry in the year 2003-04, SAIL successfully consolidated its performance further in the just-concluded FY '05. Though the financial results of the company for 2004-05 are presently being finalised and are expected to be announced in May after final audit, indications of an all-time record performance are clearly evident from the unaudited results up to Q3 and the operational milestones achieved during the full year. In fact, the company is likely to achieve its highest-ever turnover of over Rs 30,000 crore during 2004-05 against Rs 24,178 crore of 2003-04. During the first nine months of 2004-05, SAIL recorded highest-ever net profit of Rs 4,139 crore.

SAIL had received 'excellent' rating for achieving targets set in the MoU with the Government for the year 2003-04. Considering the sustained growth demonstrated by the company during 2004-05, a similar rating is expected this year as well.

During 2004-05, while maintaining capacity utilisation at 104%, the company focused on the production of finished steel, lower energy consumption and reduction in coke rate, increased production through the continuous cast (CC) route and improved the product mix during 2004-05. The salient features and operational highlights of the year are as follows:

**Production -**

The market remained buoyant, but rising steel production worldwide put tremendous pressure on availability of essential inputs like coking coal. Despite facing a severe coking coal crisis during the first half of 2004-05, however, the SAIL plants achieved all-time best performance by optimising operations and laying a thrust on value addition in downstream units such as production of finished steel, plates, rails, structural steel, etc.

Total finished steel production went up by 4 lakh tonnes to a record level of 9.28 million tonnes (MT), a growth of 5% over the previous year. The proportion of 9.0 finished steel production in total steel went up to 84% during 2004-05 from a level of 80% achieved in 2003-04. The SAIL plants showed marginal increase in production of crude steel as well as saleable steel - 21,000 tonnes and 4,000 tonnes respectively.

The four main integrated steel plants of SAIL produced a record 7.53 MT of steel through the concast route during the year. This was 4% higher than the CC
production of the previous year. As a result, the proportion of BOF-CC production went up to 64% of total crude steel production. In fact, 2004-05 saw best-ever average capacity utilisation of continuous casting facilities at 125%.

Production of value-added items like plates, bars & rounds and railway products recorded growth. Plate production at 2.12 MT was the highest ever, with a growth of 15%. Bhilai Steel Plant also produced 864,000 tonnes of rails, the highest so far and 7% more than the production in 2003-04. The first consignment of 65-metre long rails welded into 130-metre panels was despatched by BSP to the Indian Railways during the year. Production of wheels & axles by Durgapur Steel Plant at 29,000 tonnes was the highest ever and 38% more than that of 2003-04.

The long product plants also produced the highest-ever volume of 5.4 lakh tonnes of bars & rounds during the year recording a growth of 8%. A total of 6 lakh tonnes of structural were produced by SAIL in 2004-05, 3% higher than the previous year and the highest so far.

The three special steel plants of SAIL at Durgapur, Salem and Bhadravati together produced 3.79 lakh tonnes of saleable steel, the highest ever and 27% more than their achievement of 2003-04, contributing substantially to the company's cumulative production performance.

The total iron ore requirement of the SAIL plants was met from captive sources. The company's mines produced 19.83 MT of iron ore, the highest ever, during the year. The mines of Raw Materials Division in the eastern part of the country together produced nearly 13 MT of iron ore, showing a growth of around 1.2% over the previous year and setting a record. While all the RMD mines registered best-ever yearly output, Barsua Iron Mine deserves special mention for showing highest growth of 14.5% with a production volume of 1,341,000 tonnes.

The special thrust laid by RMD during 2004-05 on quality enhancement measures and cost reduction resulted in better productivity and effective mitigation of the company's variable input costs. Among the various steps taken by RMD to enhance efficiency were better mine planning, development of mines in new areas, improved processing facilities, and replacement of old heavy earthmoving machinery with new equipment. Adoption of various cost cutting measures led to substantial savings.

During 2004-05, SAIL became the first industrial enterprise in the country to wheel surplus power from one of its captive units to another through the national grid. Generation of power by the captive power units at 525 MW was also the highest ever, showing a growth of 6% over 2003-04.
Jewel in the Crown

- Winner of PM's Trophy for Best Integrated Steel Plant 3 times in 4 years
- Winner of Shram Ratna twice in succession after it was 1st awarded in 1997-98
- Winner of INSAAN award for a record 6 times in last 7 years
- Winner of SAIL Paryavaran award for 6th consecutive year
- Not a single manday lost in last 7 years
- Working over rated capacity since last 5 years

Once is never enough for Bhilai Steel Plant, it appears. And these achievements form only a fragment of the canvas of its accomplishments. Not for nothing has BSP achieved the distinction of being the most consistently profitable among all the SAIL plants. Much planning, dedication and discipline has gone into making it SAIL's pride which others envy.
Techno-economic parameters -

Coke rate: Lowest-ever rate of 536 kg/tonne of hot metal was achieved during the year, an improvement of 1% over 2003-04.

Refractory consumption: At 16.7 kg/tonne of crude steel, was lowest ever, 9% lower than the consumption in 2003-04, due to significant increase in BOF lining and ladle life at all the plants.

Energy consumption: The SAIL plants together consumed only 7.28 giga calories per tonne of crude steel on an average, which was 2% lower than the previous year, in spite of the increase in production of value-added steel which consumes higher energy.

Financial feats-

SAIL recorded highest-ever profit before tax of Rs 5,739 crore during April-December '04 against the Rs 1,544 crore achieved in the corresponding period of the previous year. This was a whopping growth of 272%. Quarterwise, there was progressive improvement -from Rs 1,205 crore in Q1 to Rs 1,823 crore in Q2 and to Rs 2,711 crore in Q3-despite stability in steel prices during the period. Q4 performance is also expected to be encouraging.

Continued emphasis on production of value-added items helped the company to maximise profitability. Other factors such as cost control measures, market-oriented product mix, rationalisation of manpower, reduction in interest charges, etc., also contributed in improving profitability.

The company's turnover for 2004-05 is likely to exceed Rs 30,000 crore, scaling a new height. Higher volumes of finished steel production and sales, better product mix with improvement in proportion of value-added items and increased NSR resulted in 27% growth in sales turnover during the first nine months of 2004-05 (Rs 21,558 crore) over CRY(Rs 16,934 crore).

The profit after tax of Rs 4,139 crore achieved by SAIL in the first nine months of FY '05 surpassed the highest-ever profit earned in any financial year, recording a growth of 176% over CPLY (Rs 1,498 crore).

SAIL reduced its overall debt from Rs 15,082 crore (year 2000) to a level below Rs 6,000 crore as on 31.3.05. The company achieved a reduction of about Rs 2,800 crore in market borrowing during 2004-05 through improved physical and financial performance, resulting in healthy internal accruals. Interest cost/finance charges
during FY '05 were also lower by about Rs 300 crore as a result of repayment/restructuring of costlier loans after negotiation with banks/financial institutions. Prudent cash management enabled the company to earn about Rs 175 crore as interest on surplus funds during the year.

As a result of these achievements and initiatives, the company's debt-equity ratio came down to below 1:1 after a long gap. The DE ratio, which was at the level of 0.81:1 as on 31.12.04, is expected to be in the range of 0.5:1 as on 31.3.05, according to indications. Continuous thrust on reduction in borrowings and improved profitability in the last couple of years have helped SAIL in significantly reducing its DE ratio from a high level of 6.5:1 as on 31.03.03.

The price of a SAIL share increased from Rs 34.25 as on 1.4.04 to Rs 64.65 as on 28.3.2005, resulting in enhanced shareholder value of Rs 12,500 crore during this period.

Cost effectiveness -

The thrust on improving efficiency of cost management launched by SAIL during the downturn in the steel sector continued during the year. New schemes were identified and existing schemes reviewed and revised to offset the impact of the sharp rise in input prices, particularly in the case of coking coal, ferro alloys, etc., during the year, resulting in savings of about Rs 130 crore.

SAIL's cost management endeavours once again received recognition at the national level. The Institute of Cost & Works Accountants of India adjudged SAIL as being the second best company in the public sector in India during 2004 in this parameter and presented the company its National Award for Excellence in Cost Management. SAIL had received the winner's trophy last year for excellence in cost reduction during 2003.

Marketing muscle -

Consumption of finished steel in the country is estimated to have crossed the 33 MT mark during 2004-05 - a growth of about 6% over the previous year. In line with the increased level of consumption, SAIL established a new domestic sales record of 10.3 MT, an increase of 8% over the achievement of the previous year.

To ensure higher availability of steel in the domestic market, SAIL consciously contained exports at a minimum level during the year. The company shipped only about 4 lakh tonnes of steel during the year against 11 lakh tonnes in 2003-04.
SAIL sold a total volume of 8.6 MT of finished steel during 2004-05 recording a growth of 8%. The major product categories in which sales growth took place were plates (32%), HR coils (8%), TMT (30%), wheels & axles (33%) and heavy structurals (20%). Supplies of rails to the Indian Railways increased by 5% over the previous year to 7.3 lakh tonnes, including long rails up to a length of 78 metres.

A thrust was given on supplying steel on priority to user segments of national importance such as government, PSUs and state small-scale industry corporations (SSICs). As a result, there was a 25% increase in supplies of SAIL steel to the government sector and 65% to SSICs. Along with 40% higher supplies to projects, SAIL was able to hike supplies to consumers by 17% during the year on an overall basis.

During the year, all the branches, stockyards and offices of CMO were linked to a centralised database. This will help online availability of data; consistent data integrity and seamless information flow across all applications, leading to increased efficiency in serving customers.

Appointment of over 200 new dealers at 99 district locations for distribution of branded products in common use helped expand the company's dealer network.

For the first time, sales of special steels made by SAIL crossed the 1 MT level. This translated into a growth of 31% over the previous year. Major growth was seen in sales of grades like SAIL TOWER/HT for TLT sector, high tensile plates and structural for construction and fabrication segments, boiler grade steel for pressure vessels, API quality coils for pipelines, auto component grades for auto sector, etc.

**Human resource management** -

Around 4,700 employees separated from the company during FY '05, around 1,440 voluntarily. SAIL's total manpower at the end of the year thus stood at around 127,000, showing a reduction of about 48,000 since 1998.

The company's labour productivity grew by 4% to 142 tonnes/man/year in 2004-05. To equip employees with higher technical skills, SAIL has signed an agreement with Corus/UK and VAI/ Austria for provision of specialised training.

Sharing of prosperity with employees was a major management thrust during 2004-05. Among the initiatives taken in this regard were payment of wage/salary arrears for the period 1.1.1997-31.12.2000, restoration of earned leave encashment, enhancement in conveyance expenses, mining allowance, reimbursement of night shift expenses, enhanced incentive payments, etc.
A rolling trophy was introduced to encourage managerial excellence amongst young managers of the company. A team from Bhilai Steel Plant lifted the inaugural Chairman's Trophy for Young Managers for the year 2004 from amongst 130 contesting teams across the organisation.

Ten SAIL employees were selected by the Ministry of Labour for the nation's highest awards recognising exceptional achievements of workmen for the year 2004. Three BSP employees will receive the Shram Vir while 7 employees (5 from BSP and 2 from VISL) will receive the Shram Shri title later this year.

**Business plan -**

To take off from the platform of turnaround effected during 2003-04, SAIL formulated Corporate Plan 2012 as a part of its growth strategy. Achievement of the envisaged levels of production will enable SAIL to maintain its dominant position in the Indian steel industry in the years to come.

As reported earlier, CP-2012 envisages an investment of Rs 25,000 crore for upgrading existing facilities and expanding some of the units to ensure a competitive edge and sustained viability of the organisation in future. The plan envisages:

- Hot metal production to increase from the present level of 13 MT to 20 MT
- Saleable steel output from the 4 integrated steel plants to go up from 10.7 MT to 17.4 MT.
- Finished steel component to increase to a level of 96% of total steel produced.
- 100% steel production through BOF-CC route.
- Increasing product capacities in growth segments like construction, cold reduction and oil and gas sector.
- Development of mines to meet enhanced requirement of iron ore and fluxes.

A number of steps have been initiated for speedy implementation of CP-2012, including introduction of the 'key driver' concept across the organisation, B2B meet with suppliers/vendors, joint ventures/strategic alliances, etc. As part of this effort, SAIL signed an MoU with BMP Billiton/Australia for developing iron ore mines in India and coal mines abroad. Another MoU with KIOCL was signed for development of iron ore mines at Kalta and Taldih. Looking at the rising prices of coal and energy, SAIL also signed an MoU with Gas Authority of India Ltd for supply of gas from
2006-07. Moreover, SAIL took a decision to implement Enterprise Resource Planning in a phased manner.

The company's proposal for merger of IISCO with SAIL is under active consideration by the Government of India.

Major schemes under implementation

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Cost (Rs/crore)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbo generator at BSP</td>
<td>48</td>
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<tr>
<td>Merchant Mill schemes at BSP</td>
<td>19</td>
</tr>
<tr>
<td>Bloom caster and ladle furnace at DSP</td>
<td>293</td>
</tr>
<tr>
<td>ERW pipe plant at RSP</td>
<td>89</td>
</tr>
<tr>
<td>Coke oven batteries at RSP, BSL &amp; BSP</td>
<td>530</td>
</tr>
<tr>
<td>Cast house slag granulation plants at RSP &amp; BSL</td>
<td>50</td>
</tr>
<tr>
<td>Nitrogen compressor at RSP</td>
<td>13</td>
</tr>
<tr>
<td>Upgradation of BF # 4 at RSP &amp; BF # 7 at BSP</td>
<td>288</td>
</tr>
<tr>
<td>Wire Rod Mill and Plate Mill schemes at BSP</td>
<td>139</td>
</tr>
<tr>
<td>AOD at ASP</td>
<td>54</td>
</tr>
<tr>
<td>CDI in BF # 5 at BSL</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>1555</td>
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</table>

**Investment proposals approved in principle**

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Cost (Rs/crore)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slab caster at BSP</td>
<td>387</td>
</tr>
<tr>
<td>CRM modernization, automation &amp; Mae west Block at BSL</td>
<td>326</td>
</tr>
<tr>
<td>Revamping of SP-1 RSP and SP-2 at BSP</td>
<td>228</td>
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<tr>
<td>Pipe coating plant at RSP</td>
<td>59</td>
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<tr>
<td>CDI at DSP</td>
<td>150</td>
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<tr>
<td>Desulphurisation at BSL</td>
<td>76</td>
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<tr>
<td>Galvanizing plant at RSP</td>
<td>53</td>
</tr>
<tr>
<td>Section Mill up gradation at DSP</td>
<td>23</td>
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<tr>
<td>Computerised process control at SMS -II at BSL</td>
<td>17</td>
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<tr>
<td>ESP at Sinter Plant, BSL</td>
<td>72</td>
</tr>
<tr>
<td>Loco procurement at BSP</td>
<td>24</td>
</tr>
<tr>
<td>Air and oxygen compressors at BSL</td>
<td>81</td>
</tr>
</tbody>
</table>
More proposals for technological upgradation and increase in production matching Corporate Plan 2012 are under evaluation.

**Capital projects**-

Corporate Plan 2012 envisages implementation of a number of projects in phases. These include both brown and greenfield activities. Thrust is being given to implement the schemes on the basis of the directional schedule drawn in CP-2012. A number of major projects were completed during 2004-05 at a total cost of around Rs 400 crore:

- Long Rail Mill schemes at BSP costing Rs 320 crore were completed and the facilities brought onstream. These facilities will enable production of long rails and welded rail panels up to a length of 260 metres.
- Commissioning of turbo alternator (Rs 32 crore) in RSP's CPP-1 has helped step up generation of power.
- GDI installed in BF # 7 at BSP at a cost of Rs 10 crore.
- Tar injection technology introduced in 2 BFs at BSP and in 1 BF at BSL (Rs 15 crore).
- BF relining (Rs 37 crore) at BSL and VISL.
- Replacement of palm oil system in Tandem Mill at RSP (Rs 4 crore).
- Replacement of corroded gas pipeline at BSP (Rs 9 crore).

**Research & development** -

R&D projects undertaken during 2004-05 focused on process improvement, cost competitiveness, product quality, product development and basic research for improvement in techno-economic parameters to increase capacity utilisation. Major initiatives aimed at cost competitiveness included:

- Improvement in lining life of converter to 2,000 heats in SMS-II at RSP in cluding steel ladles at RSP & BSP by technological initiatives.
- Raising productivity of DSP Sinter Plant to 1.36 tonnes/mYhr (peak 1.6 tonnes).
- Increase in BF productivity at RSP by process changes in furnace working to central working from peripheral working, reversal off BUT matrix and other changes in charging system.
- Technological initiatives like hot charging of wheels, modification of ingot design, etc., helped in record production of wheels & axles at DSP.
- Reduction in HSM roll spalling at BSL
- Measures to obtain increased campaign length and reduced roll consumption at BSL.
- Installation of automation of hot saws in BSP's Rail & Structural Mill.

Cast products at BSL received attention by RDCIS for quality improvement. The initiative helped in improving production as well. Similarly, measures were developed to reduce off-corner cracks in cast billets at DSP.

Product development efforts by RDCIS included the following:

- SAIL-HITEN 690 AR grade plates at BSP.
- Spring steel at DSP.
- High strength cold rolled steel (HSCR-35) at BSL.
- Steel noise barriers for roads/highways.
- DMR-249 for Indian Navy warships.

During 2004-05 RDCIS presented 198 technical papers, filed 32 patents and 26 copyrights, and received 9 awards for innovations and research. RDCIS also received the Golden Peacock Innovation Award from the Institute of Directors for excellence in R&D activities.

Environment management:

SAIL is committed to providing a healthy environment in and around its steel plants. Over 2 lakh trees planted in 2004-05 added further substance to the company's efforts in this direction. Around 13 million trees have been planted so far by SAIL at different plant/unit/mine locations.

The SAIL plants/units maintained their thrust on controlling pollution during the year. Some of them even received awards for excellence in pollution control measures. They are:

- Gold award in metal sector for outstanding achievement in environment management for 2003-04 by Greentech Foundation/New Delhi to BSP and RSP.
• Indira Gandhi Memorial National Award-2004 for Excellent Pollution Control Implementation Gold Award by International Greenland Society (IGS)/Hyderabad to BSP and RSP.

• Indira Gandhi Memorial National Award for Excellent Environmental & Ecological Implementation Gold Award by IGS to Barsua Iron Mine.

Legal matters -

SAIL's corporate law executives proactively helped the management in taking decisions on several critical business issues of the company during 2004-05. As a result, a number of judgments were awarded in favour of SAIL, including all the 8 cases heard in the Supreme Court. These judgments covered important issues such as ICC arbitration, payment of enhanced compensation to the land losers at Bokaro, levy of central sales tax, extension of time limit for operation of coke oven battery at RSP, status quo against the rejection orders for mining lease at Chiria, Manoharpur and Gua, etc. Other major achievements by our legal eagles were:

• 8% reduction in litigation cases.

• Holding of seminars/workshops on topics such as 'Alternate Dispute Resolution', 'Principles of Natural Justice', etc.

Vigilance -

SAIL's Vigilance Dept took a number of initiatives to bring about greater transparency in the overall working of the company and to strengthen confidence amongst decision makers. Interaction with customers/vendors were organized to bring in higher transparency in transactions and for further improving the image of the company. Based on the outcome of the 3,425 checks undertaken during the year by the Dept, actions were taken for improvements in systems and disciplinary proceedings were initiated in some cases.

Public relations -

To reinforce employee morale, internal communication activities were further strengthened. A planned approach yielded excellent results, with appreciative feedback from employees at all levels on the initiatives taken and themes selected to motivate, inform and instill pride in the workforce.

Wide and focused communication through both print and electronic media strengthened the image of the organisation amongst the company's stakeholders and general public. Revival of the television ad campaign There's a little bit of
SAIL in everybody's life in the later part of the year, re-inforced the company's image as the industry leader in viewers' minds due to its excellent recall value. Other campaigns such as the one highlighting SAIL's turnaround as the most impressive in Indian industry, Steel Green and Steel In Need, SAIL In Deed were well received by the target audiences. A radio jingle in Hindi, Safetypin se flyover..., also generated popular response.

**Sports -**

Continuing with its efforts to promote sports as a part of its corporate social responsibility programme\^, SAIL participated in a number of Sporting events at the local, state and national level. The company made its presence felt in the Davis Cup tournament, cricket matches, ITF junior tennis tournament, India-Pakistan Veterans' ODI at Patna, etc. SAML won the prestigious under-17 Subroto Mukherjee Cup as well as the All India Public Sector Undertaking Football Tournament.

**Looking ahead -**

With SAIL attaining newer peaks in production, difficulties are being encountered in the areas of inputs like boiler/coking coal, availability of railway wagons, etc. Efforts are being made to introduce technology for injection of alternate fuels like coal dust, coal tar, oil, etc., in all the SAIL blastfurnaces progressively, so as to partially substitute coking coal. Action has also been taken to broaden the coking coal suppliers from various countries/sources.

The company's requirement of wagons in the next few years has been projected to the Indian Railways for incorporating in their plan so that adequate number of wagons are available for uninterrupted operation of the SAIL plants/mines. Actions are also being taken to improve loading/unloading systems to reduce detention time of wagons.

**SAIL aims for 10% hike in saleable steel prodn in FY'06 -**

The occasion was the annual business planning exercise; the venue Surajkund in Faridabad, Haryana. Introducing the theme of the meet, Mr V. Shyamsundar, ED (Corp. Planning)/SAIL, described this year's exercise as a rare occasion when the annual planning was done amidst the most favourable circumstances.

"The steel market today is buoyant and we are hopeful that the same will continue during the year 2005-06 as well," said Mr Ashis Das, Dir (Pers.)/SAIL. "Although the market is upbeat, it may be difficult to expect further upward movement in prices beyond a limit. At the same time, the uptrend in prices of inputs, specially
that of coal, during 2005-06 will exert pressure on the company's bottomline. Therefore, the company has to plan for newer methods for offsetting this escalation in cost of production."

SAIL Chief Mr V.S. Jain set the ball rolling by complimenting the company collective for the performance during 2004-05. "We had the problem of availability of coal during the initial months of the financial year. But towards the later part of the year, there has been impressive improvement in production and productivity," he said. "Our company has emerged as the fourth largest profit making organisation in the country and the expectations of the stakeholders is high. We must remove the impression that our success was only due to market resurgence and for this performance of the company should keep on speaking for itself."

While drawing attention to the value of speedy decision-making, he observed that delayed decisions are always more expensive. "Look at the company's inherent ability and potential.... No other organisation can have the expensive and experience which SAIL can boast of having acquired over the years. Therefore, with planned efforts the organisation can always be ahead of others in the industry."

Rs. 180- Crore investment approved -

The SAIL Board of Directors gave in-principle approval for two projects - revamping of Sinter Plant-2 in Bhilai Steel Plant and installation of air turbo compressor and oxygen turbo compressor at Oxygen Plant in Bokaro Steel Plant - at a total indicative cost of more than Rs 180 crore on 10 March 2005.

With this, the total planned investment in different projects approved, either in-principle or final, during 2004-05 stands at over Rs 2,500 crore. These projects form a part of SAIL's corporate plan, which aims at enhancing the company's hot metal production to 20 MT by 2011-12. Achievement of the various milestones identified in the plan would entail a total estimated investment of Rs 25,000 crore.

The revamping of Sinter Plant-2 will enable Bhilai Steel Plant (BSP) to increase the annual production of sinter from the present level of 2.5 MT to 3.1 MT and help improve the quality of sinter as well. This will also contribute to additional production of around 77,000 tonnes of pig iron from the three sinter making units of BSP. The increased sinter burden is also expected to enhance the productivity of blast furnaces, effecting a substantial reduction in the cost of sinter production and coke rate. The significant benefit will, however, accrue from the installation of electrostatic precipitators in all the four sinter machines of Sinter Plant-2, which will further reduce the present level of stack emission to below the permissible level of 100mg/Nm3.
Installation of one air turbo compressor and one oxygen turbo compressor at Bokaro's Oxygen Plant will help meet the enhanced requirement of compressed air to augment oxygen production. This has become necessary due to the ongoing thrust on implementing auxiliary fuel injection methods such as coal dust or tar injection facilities in all the blast furnaces. The requirement of oxygen will further increase with the enhancement of oxygen enrichment in all the blast furnaces.

**GAIL to supply natural gas to SAIL plants -**

GAIL (India) Ltd and SAIL entered into a Heads of Agreement (HoA) on 10 February 2005 for supply of natural gas/R-LNG to various plants of SAIL, which is the first steel producer in India to opt for use of natural gas as an alternative to coking coal for steel making.

SAIL had approached GAIL to explore the possibility of obtaining natural gas for bulk usage in its four integrated steel plants. With growing demand for coking coal world over, there has been a shortage of this vital input used for steel making. SAIL had faced major difficulty in availability of coking coal during the major part of 2004, prompting it to opt for use of alternate fuels like coal dust injection (CDI), coal tar, etc. Once the natural gas is available under the agreement, SAIL can further bring down the consumption of coking coal to the extent of around 1 MT per annum.

**Shaping SAIL's IT roadmap -**

The following broad directions for a comprehensive IT roadmap in SAIL emerged from a two-day workshop organised by the Computer, Communication & Control (CC&C) and Admin departments of Corporate Office on 28-29 January 2005 at Crowne Plaza Surya in New Delhi:

- SAIL should have one uniform ERP package across plants/units
- BSP should go ahead with its plan for implementation of ERP
- All other integrated steel plants to follow BSP depending on their readiness to implement ERP
- Steering committee at BSP to have members from other plants/units
- Standard uniform ERP package for finance to be implemented at all ISPs & Corporate Office under the guidance of Dir (Fin.)/SAIL.
- Detailed plan for PPC & MES to be made by individual plants
- Outsourcing/engagement of consultant if required.
• Developing solutions for challenges through brainstorming in syndicate groups and building consensus on the way forward in the field of IT.
• Drawing an IT roadmap in the form of an integrated action plan.
• Critical factors for success of IT implementation programmes
• IT options
• Change management
• Usage of IT in global steel industry
• Lessons from successful practices of IT-intensive organizations
• Issues emanating from large IT initiative
• Global best practices in SCM, CRM, APS & MES for steel industry.

Plant file -

BSL recently took yet another significant step forward in its modernisation programme under SAIL’s Corporate Plan 2012, with the bhoomi-poojan for installation of a cast house slag granulation (CHSG) plant in BF # 4. The project will significantly cut time and cost in slag circuit management, leading to greater productivity in the BFs. Further, the installation of CHSGs in BSL will lay the foundation for setting up a slag-based cement plant at Bokaro, for which efforts are afoot to forge a JV with a reputed cement company. SAILCON has been entrusted with designing and providing expert advice for this project, which is to be executed by the Projects group of BF Dept in Bokaro.

Special grade plates for navy warships -

Bhilai Steel Plant has started commercial production of ABA grade steel plates for warship building following a firm order from the Indian Navy for supply of 5,000 tonnes of the material.

The Indian Navy uses different grades of steel plates for various strategic applications. These plates are presently being imported. However, the Navy has been facing problems with regard to delivery and price.

In order to indigenise such grades, BSP, in association with the Indian Navy and Defence Metallurgical Research Laboratory (DMRL)/Hyderabad, had embarked upon the job of developing ABA grade of steel plates through thermo-mechanical control-
led processing for naval warship applications. This grade is a low-carbon micro-alloyed steel containing nickel and characterised by a very high level of impact toughness at sub-zero temperatures as low as -60°C.

Initial trials were conducted with heats made through secondary refining, further treated for inclusion shape control and thermo-mechanically rolled into plates. After extensive testing, the plates fully met the stipulated requirements of the grade. In addition, various other tests were conducted both at BSP and DMRL for studying the product characteristics.

**RSP CR strip quality improves** -

Commissioning of the environment-friendly synthetic oil project in the Tandern Mill of Rourkela Steel Plant's CRM has helped the surface quality of CR strips produced here to improve substantially and strip breakage to reduce significantly. Lower cost of production, reduction in work roll consumption, easy maintenance, less power consumption and enhancement of production of thinner gauges are some other benefits of this new system.

A new ground charger has been commissioned at the north end of IISCO's SMS. The charger will ensure uninterrupted and simultaneous operation of the two twin hearth furnaces in the SMS.

The charger has been manufactured for the first time in India by lindo-German industries of Asansol based on detailed drawings of existing chargers available at IISCO. An old, redundant trolley available at DSP was procured for preventing uniform oil film formation on the rolls and resulting in poor output.

**SAIL named for SCOPE award** -

SAIL has been chosen to receive the silver Trophy of the SCOPE Award for Excellence and Outstanding Contribution to Public Sector Management for the year 2003-04 in the category of Special Turnaround.

The SCOPE Awards have been conceptualized and instituted to recognize the contribution of public enterprises and the encourage outstanding persons for their hard work and leadership qualities.

**New equipment for R&D, Plants** -

* RDCIS

SAIL's R&D unit has acquired a hot dip process simulator (HOPS), which is state-of-the-art research equipment, under the Steel Development Fund Projects Pro-
gramme of the Ministry of Steel. Supplied by Iwatani International Corp. of Germany, the equipment allows laboratory simulation of all important functions of the annealing and (hot dip) coating process such as cleaning, annealing, cooling, hot dip coating, galvanising etc. occurring in production lines. It was inaugurated on 17 January 2005.

The HOPS serves process and product improvement and development; the results obtained by simulation can be used for the commercial production of galvanising coils by steel producers in India. The consumption of operating materials is extremely small compared with mini or largescale production lines and valuable production capacities do not need to be used.

Presently this equipment is being utilised to determine optimum process parameters for production of full hard galvanising coils on a commercial scale. This equipment will also be used to impart training to Indian galvanising industry personnel on application/use of HOPS for improving HDG products.

◆ Bhilai Steel Plant

A new gas pipeline has been commissioned in BSP on 19 January 2005. In the first phase of the project, a 1.1-km-long coke oven gas line was erected and commissioned in 16 months' time, 2 months ahead of schedule, at a cost of Rs 9.73 crore. In the second phase, a 1.1-km BF gas line and 0.48-km coke oven gas line was erected in 17 months, also ahead of schedule, at a cost of Rs 9.55 crore. A total of 130 jobs were undertaken under the project.

◆ Durgapur Steel Plant

The new magnetic separator commissioned in the BOF slag conveyor J27C1 of DSP's RMHP on 22 January 2005 is expected to further strengthen the plant's position as the only SAIL unit to use BOF slag after crushing with existing facilities in the flux crushing circuit. The separator plays an important role by segregating embedded and free metal scrap in BOF slag before crushing in the flux crushers of RMHP. This helps in improving the crushing quality of the slag as well as reduces crusher damage due to the presence of scrap material in the BOF slag.

SAIL bags ICWAI national award again

SAIL's cost management efforts have received national recognition for the second consecutive year, with the Institute of Cost & Works Accountant of India (ICWAI) adjudging it as the second best company in the public sector during 2004 to excel in this area. SAIL had received the winner's trophy last year for excellence in cost reduction during 2003.
This year's award underscores the unrelenting efforts made by the SAIL collective over a period of time to set new standards of excellence in the field of cost management. The company's success in consistently curtailing cost over the last several years has been due to a number of innovative steps resulting in substantial benefits.

A major step in this direction has been the continuous accent on R&D, which enabled SAIL to reduce cost through process improvement, quality improvement, and introduction of innovative techniques such as auxiliary fuel injection to reduce specific consumption of expensive inputs. SAIL has also benchmarked various areas like BF productivity, coke rate, energy consumption, power consumption, etc., in its plants for its thrust on exploiting the full potential of the assets.

Simultaneously, the company saved significantly with the success of several other initiatives such as performance-based procurement, consolidating business transactions through e-commerce, competence enhancement through HRD initiatives, enhanced automation, manpower rationalisation and waste management. SAIL also achieved significant reduction in interest cost and finance charges by prepaying or restructuring costlier loans.

Innovative products, services bring Golden Peacock to RSP-

Rourkela Steel Plant was presented the Golden Peacock National Award by the Institute of Directors (IOD) during the 15th World Congress on Total Quality held in Mumbai from 14-16 January 2005.

The Golden Peacock National Awards have been instituted by the IOD in association with World Environment Foundation to recognise sustainable excellence in both manufacturing and services sectors. Selection of the awards is by an eminent jury comprising some of India's most distinguished personalities in industry and public life.

Bhilai wins CII award for best practices in IR -

Bhilai Steel Plant was awarded the second prize for Best Practices in Industrial Relations by the Confederation of Indian Industries (Eastern Region) at a function held in Kolkata on 5 March 2005. The plant had been ranked first in the initial stage of the two-part contest held at Raipur. The other contestants at the zonal final in Kolkata included Tata Motors, INDAL/Vellore, L&T, JK Papers and Tata Tin Plate, among others. BSP was the only public sector unit in the fray.

Besides recent achievements, Bhilai's presentation featured details of initiatives taken in the areas of peripheral development, arts, culture and sports and the role of the members of the Bhilai collective in bringing about a change. The plant's
success in surmounting recent challenges through initiatives like direct communication with employees, incentive schemes, superior management, focus on improving facilities for workers and efforts to get the employees involved in the business interests of the plant were also highlighted. The presentation also dwelt at length on BSP's HR philosophy and policy and widespread use of IT for employee information, besides initiatives as Anytime Employee Information System and Local Agreement. In its comments, the panel of judges said that Bhilai Steel Plant has been able to fully measure as per the yardstick whereby its big concerns and actions have resulted in similarly big effects.

**SAIL QCs excel at national meet**

Twenty-eight QCs from SAIL -16 representing Bhilai Steel Plant, 6 from Bokaro Steel Plant, and 5 from Rourkela Steel Plant and 1 from Durgapur Steel Plant - were conferred awards for their respective projects and presentation skills at the 18th National Convention of Quality Circles (NCQC) held in Mumbai during 28-30 December 2004. The convention, organised by the QCFI, saw participation by 441 QCs in 200 organisations operating in various sectors like manufacturing, bank, hospitals, educational institutions, etc., including the likes of Tata Steel, HAL, Godrej, Naval Dockyard, Exide and NTPC, among others.

Among the Bhilai teams, Nishkarsh from SP-III and Lakshya from M&HS Dept bagged Par Excellence awards in the QC case presentation category. Lakshya's case study on 'Problem of prolonged hospitalisation of newborns suffering with physiological jaundice' also bagged the Sushila Girnikar Memorial Award for best ladies team, 13 other BSP QC teams received the Excellent award while one was chosen for the Distinguished Award.

**Bhilai medics shine at industry meet**

Three doctors from Bhilai Steel Plant's Medical Dept won awards at the XXVI All India Steel Medical Officers' Conference held at Rourkela on 11 -13 February 2005.

Various key medical messages were conveyed by the Bhilai team during the convention - that infections in hospitals can be prevented by simple, useful, cost-effective systems and procedures; safety measures at the workplace can decrease accidental burn injuries; patients of breast cancer can benefit a lot by attending follow-up clinics regularly; patients undergoing hernia surgery under local anaesthesia can go home by evening; prompt treatment of snakebites with anti-snake venom can save valuable lives; patients with enlarged prostate can be relieved to a great degree with modern drugs.
RMD mines win over 30 Safety prizes -

The mines of Raw Materials Division won more than 30 prizes in the different competitions held in the Chaibasa region by the Directorate of Mines Safety to observe Mines Safety Week 2004. The programme included inspection of mines by an inter-mines team, evaluation of publicity and awareness programmes, as well as various contests on slogans, cartoons, posters, poems, models of mines and first aid. Competition in the trade test of employees was also part of the programme.

Leading the RMD mines that won prizes was Kiribur Iron Ore Mines, which bagged the first prizes in explosive handling, injury rate performance and Safety cultural programme & exhibition get-up categories.

Meghahatuburu Iron Ore Mines got the first prize for best illumination, best trade test performance, best safety cultural programme & exhibition get up. The mines were also adjudged second in overall performance, general working, plant maintenance, low injury rate performance, training centre, and publicity/propaganda. Three first and one second prize were conferred on MIOM employees for individual performance.

Barsua Iron Mines won first prizes for best plant maintenance, best equipment maintenance and workshop facility, and best dust suppression.

MEMC awards for RMD mines -

Barsua Iron Mine (BIM) won eight prizes during Mines Environment & Mineral Conservation (MEMC) Week 2004-05 organised by the Indian Bureau of Mines/ Bhubaneswar region during 3-9 January 2005, in the category of fully mechanised group 'A' with total excavation more than 1.5 million cu.m. The group consists of nine iron ore, bauxite, chromite, limestone and rare earth mines.

BIM was adjudged the winner in publicity & propaganda, runners up in waste dump management and overall performance, and third in sedimentation and water management.

Bhawnathpur Limestone Mines and Tulsidamar Dolomite Mines came out with flying colours in the MEMC Week observed in the Ranchi region. BLM won the first prize for dust suppression arrangement, sedimentation of entrained solids, SPM before discharge of water, and stall exhibition. TDM was adjudged first in publicity & propaganda.
SAIL TMT Rebar: Product perfect

The qualification of TMT indicates that a steel bar has been thermo-mechanically treated during its production process. This treatment provides extra high strength to bars and eliminates any cold twisting. TMT bars also possess the unique property of uniform elongation. All these characteristics ensure that TMT bars are best suited for applications that require withstanding seismic activity.

TMT bars have excellent workability and bendability in particular. They can withstand bending and rebending with internal diameter of 1D and 4D, respectively (where D = diameter of the bar). The feature of higher weldability is afforded by the carbon component being restricted to 0.2% (max), eliminating loss of strength at joints during welding. These bars also have high fatigue resistance to dynamic loading due to high ductility.

SAIL TMT bars are produced by Bhilai Steel Plant and Durgapur Steel Plant. At DSP, TMT bars are produced in the diameter range of 16-28 mm in the Merchant Mill. The Wire Rod Mill at BSP produces thinner diameter ranges from 28 mm to 45 mm. BSP also produces TMT bars in larger diameters, ranging from 28 mm to 45 mm, in its Merchant Mill.
FINANCIAL REVIEW

The year 2004-05 witnessed a growth of about 32% in sales turnover at Rs. 31,800 crore (previous year Rs. 24,178 crore), which was the highest ever turnover achieved by your Company. Company has recorded a Net Profit after Tax (PAT) of Rs. 6,817 crore during the year as compared to Rs. 2,512 crore in the previous year, recording an improvement of 171% mainly through increase in sales volume in the domestic market, improved product-mix, buoyancy in steel market, cost reduction measures and reduction in borrowings.

Thrust on reduction in borrowings continued and there was a reduction of Rs. 2,920 crore during the year. This has been achieved by all round improvement in sales and better cash management. Reduction in debt resulted in interest savings of Rs. 296 crore. Debt equity ratio has improved to 0.58:1 (as on 31.03.05) from 1.87:1 (as on 31.03.04). Considering short term deposits with Banks of surplus funds of Rs. 5,670 crore, your company is virtually a debt free company.

The company continued its thrust on cost control management. Cost control measures focused on reduction in usage of coke rate/other raw materials, improvement in yields and techno-economic parameters, reduction in energy consumption and control on administrative expenditure etc. The Institute of Cost and works Accountants of India (ICWAI) recognized SAIL's Cost Management efforts for the second year consecutively. The company has taken major IT initiatives and is planning to implement ERP in phases starting with the Bhilai Steel Plant.

Company paid maiden interim Dividend @ 15% during the year and directors have further recommended a final dividend @ 18% of paid up equity capital subject to approval of shareholders, thus making the total year 2004-05, which is the highest ever since inception. A sum of Rs. 700 crore has been transferred to the General Reserve during the year.

The year witnessed a growth of in the sales turnover, which was the highest ever achieved by Company. This was possible due to higher sales volume, better product mix and higher steel prices. The Company made a cash profit of Rs. 831 crore during the year as compared to a cash loss of Rs. 551
croe in the previous year. The net loss after tax at Rs. 304.31 crore (previous year Rs. 1706.89 crore) recorded an improvement of Rs. 1402.58 crore indicating reduction of over 82% over the previous year. This was after providing for interest of Rs. 1334.02 crore (previous year Rs. 1562.03 crore) and depreciation of Rs. 1146.66 crore (previous year Rs. 1155.89 crore). In view of the loss, the directors do not recommend dividend.

During the year capital gains of Rs. 144 crore (previous year Rs. 662 crore) accrued on sale of surplus houses/other assets. After adjustment of such capital gains, the improvement in operating performance was Rs. 1921 crore. Such a significant improvement in the turnover and financial performance was due to improved production and sales volume, market oriented product mix, intensive cost control measures, rationalization of manpower, reduction in borrowings, supported by external factors viz. growth in steel demand, and firming of international and domestic prices.

Thrust on reduction in borrowings continued and there was a decline during the year. Interest charge is also lower by Rs. 256 crore including Rs. 228 crore on operation account. This reduction has been possible through prudent cash management, substitution by borrowings carrying lower interest bearing instruments etc.

Steel Authority of India Ltd. (SAIL) continued its thrust on intensive cost control and revenue maximisation measures resulting in benefit of about Rs. 451 crore during the year. Cost control measures focused on reduction in usage of coking coal/other raw materials, improvement in yields and techno-economic parameters, reduction in energy consumption and control on administrative expenditure. Substantial savings were also achieved in the non-conventional areas like higher volume of waste utilisation, control on arisings and maximising in-house manufacturing of spares & refractories.

Management expects that with the improvement in market demand, increase in net sales realization and through continuous cost control efforts, your Company would achieve even better performance and turnaround in the financial year 2003-04.
PRODUCTION REVIEW

Steel Authority of India Limited (SAIL) faced major challenge in operations as worldwide upsurge in steel production put tremendous pressure on availability of coking coal in 2004-05. SAIL plants converted the challenge into opportunity by optimizing operations, better value addition in downstream units and initiating measures to reduce coke consumption by adopting alternate fuels like tar and coal dust injection in Blast furnaces and using sponge iron and higher percentage of scrap. Further, production through efficient process route of continuous casting was maximized, product-mix was enriched by higher finished steel production and techno-economic parameters improved further to achieve all time best production performance during the year.

SAIL plants recorded the highest ever production of 12.10 million tones of crude steel and 11.03 million tones of saleable steel during the year. In the integrated steel plants, continuous casting units operated at 125% of capacity with best ever production of 7.52 million tonnes - an increase of 4% over previous year and forming 64% of crude steel - against 61% in the previous year. Energy consumption came down by 2% over previous year to the lowest ever 7.29 G. cal per tonne of crude steel (tcs). Coke rate reduced by 1% over previous year to the best ever 536 kg per tonne of hot metal. There was significant improvement in Basic Oxygen Furnace (BOF) lining life at all the plants with refractory consumption coming down to the lowest ever 16.5 kg/tcs, a reduction of 10% over previous year. Captive power generation in SAIL was the highest at 525MW, a growth of 5.6 % over previous year. SAIL became the first industrial enterprise to wheel its surplus power form captive power plant at Durgapur to its sister plant at Bhilai through inter regional Transmission Line, taking advantage of Open Access under the provision of Electricity Act 2003. Total of 82 million units of power were wheeled during the year.

The product-mix was further improved during the year. Finished steel production of the integrated steel plants was the highest ever at 8.90 million tones, with a growth of 4% , forming 84% of saleable steel against 80% in 2003-04. Plate production rose by 10% to highest ever 2.12 million tones. Highest ever Rails production of 868 thousand tones was achieved, with a growth of 7% over last year. Bhilai steel plant started dispatch of 78 meter long rails to Indian Railways during the year and became the only pro-
ducer of upto 260 meter welded rail panels in the world. Wheel & Axle production also went up by 34% to highest ever 28,400 tonnes during 2004-05.

There was a commensurate improvement in the performance of captive mines. During 2004-05, total Iron Ore production from captive mines of the Company was 19.84 million tonnes. The flux production and dispatch during the year was a record 2.35 million tonnes and 2.31 million tonnes respectively. Iron Ore requirement of the integrated steel plants was fully met from captive sources.

The saleable steel production during the year increased, keeping pace with the market upswing. The production crossed 10 million tonne mark for the first time, with highest ever production of 10.35 million tonne - a growth of 7% over previous year. This improvement was possible through better input and logistic management, technological innovations and greater exploitation of potential of the assets. Production of hot metal and crude steel at 12.2 million tonne and 11.3 million tonne respectively, with a growth of 6% each over previous year, was also the highest.

There has been significant improvement in the product-mix. Finished steel production went up by 10% over previous year and its proportion in saleable steel increased from 77% to 80%. Rails production at Bhilai steel plant went up by 32% to a record level of 769,000 tonne.

SAIL continued with its thrust on improvement in efficiency parameters. Continuous cast production increased to 59% of total crude steel. Coke rate declined by 3.4% over previous year to the lowest ever level of 538 kg/thm. Overall energy consumption reduced by 2.5% and was 7.5 Gcal/tcs, the lowest ever achieved so far.

SALES & MARKETING REVIEW

During the financial year 2004-05, your company achieved domestic sales of approximately 10.3 million tonnes achieving growth of 9% over the corresponding period last year. Exports were restricted to a level of approximately 4.6 lakh tonnes against 11.7 lakh tonnes in 2003-04 in order to boost the availability of steel in the domestic market. During the year, significant increase in domestic sales was achieved in Railway materials, Plates, TMT, HR coils and GC Sheets.
Sales of value added special quality steel materials in 2004-05 increased by 38% over the corresponding period of last year.

On railway request, SAIL augmented the facilities at BSP's rail and structural mill for production of long rail which are safer due to less welding joints and also enable movement of higher speeds.

During the year 2004-05, SAIL has successfully developed and supplied 1000 tonnes of special grade plates DMR 249 A to Indian Navy for manufacturing of Aircraft Carrier and Warships. The material was earlier being imported by the Indian Navy. Upsurge in domestic sales brought down the inventory level of steel to its lowest ever level since inception.

SAIL Consultancy Division (SAIL CON) is the Todal agency for marketing of technical, management and training services available from SAIL plants and units to clients globally. In addition to executing consultancy work in India, SAILCON executed assignment during 2004-05 in Egypt, Saudi Arabia, Qatar, Nigeria and Georgia. Efforts were also made in non-steel sectors and orders were secured from petroleum sector besides steel sector.

SAIL, a pioneer among Public Sector Undertakings (PSUs) in the country in introducing e-Commerce based procurements, has further widened its coverage in 2004-05 by doing e-Procurements worth Rs.298 crore and e-Selling worth Rs.1156 crore. All open tender documents are being hosted on the SAIL website with downloading option facilitating wider publicity. E-Payment implementation is in progress in both collection/release of payments.

HUMAN RESOURCES MANAGEMENT REVIEW

SAIL has always believed that human resource is the most important resource and continues to work for its development. The functioning and activities were further aligned to company's business objectives. The ongoing thrust on rationalization of manpower with focus on proper utilization, continued with implementation of Voluntary Retirement (VR) scheme. The manpower strength as on 31st March, 2005 was 1,26,857 comprising 14,329 executives and 1,12,528 non-executives. The total reduction in manpower achieved during the year stood at 5053, which included separation of 1440 employees through VR. The labour productivity saw an improvement by around 5% over previous year to 144 Tonnes Crude Steel/man/year.
The Human Resource Development activities focused on multi-skill training, performance improvement workshops, 'Learning from each other' training modules and basic engineering skills. Reports on critical skill gap analysis was finalized and work towards enlisting skills needed to be addressed on urgent basis by the major plants/units of SAIL was also initiated. Providing opportunities for open interaction, communication and feedback have been highlights of Human Resource Development (HRD) intervention at all plants/units. To encourage managerial excellence among the young managers of SAIL "Chairman's Trophy for Young managers" was introduced in 2004-05. The inaugural trophy was won by the team from Bhilai Steel Plant. The pro-active interventions and close coordination through a process of mutual dialogue with different agencies including Trade Unions and Officers Associations, ensured conductive Industrial Relation climate. To keep up the morale of the employees, motivation measures such as payment of wage arrears arising out of wage/salary revision effective from 1.1.97, restoration of encashment of earned Leave, review of House Building and Conveyance Advance, introduction/revision of Mining Allowance, revising rates of Local Travelling Expenses/Transport Expenses/Night Shift Allowance, etc. were taken. To address the issue of stagnation and growth among the senior workmen of SAIL, S-11 grade was introduced.

The talent and innovation of all employees got recognition at the national level in the form of awards. In 2004, SAIL won 4 Prime Minister's Sharam Awards -2 Sharam Veer and 2 Sharam Shree. Besides, your company was selected amongst the best 4 organizations for presenting Excellence in HR Practices by ISTD-FICCI and it was the only Public Sector Organization to have been selected for presenting by DMA-Watson Wyatt for Innovative HR Practice. Further Rourkela Steel Plant of the company was awarded the 'Golden Peacock Award' for Innovative product and Services by Institute of Directors.

SAIL has always keep in view that human resource is one of the most important resources and continues to work for its development. Ongoing restructuring process of the organisation also focuses greatly on proper utilisation of human resource and its rightsizing to make the company healthy.
Providing opportunity for open interaction, communication and feedback have been highlights of HRD intervention during the year. Communication exercises have been accepted as a continuous process to keep the employees informed of the challenges being faced by the company and also motivate them to take up higher responsibilities, in tune with the requirements of the company.

The manpower strength as on 31st March, 2003 was 1,37,496 (comprising 15,078 executives and 1,22,418 non-executives) a reduction of 10,105 employees compared to the number at the beginning of the year. The manpower productivity at 123 tonnes of crude steel per man per year registered an increase of 9.75 percent over the previous year. With a view to optimising the manpower and reducing the labour cost, Voluntary Retirement Schemes were launched whereby 5814 employees separated.

Need based training was provided to employees to equip them to meet the challenges of the competitive environment. Over 69,000 employees were trained during the year.

The Company continued its efforts in the implementation of Official Language Policy of the Government of India. Emphasis was laid on creating an environment in which employees adopt Hindi in their office work. Official Language shield and cup was awarded to your company for excellent performance in this area. Department of Official Language, Ministry of Home Affairs has also awarded Corporate Office, RMD, DSP, BSL, RSP, RDCIS and Branch Sales Office (BSO), Patna separately for their performance.

Presidential Directives on Scheduled Castes and Scheduled Tribes continued to be implemented and monitored on regular basis. Out of the total manpower, 14.6 per cent were Scheduled Castes and 11.5 per cent were Scheduled Tribes.

One of our colleagues, Ms. Teejan Bai, of BSP was conferred the Padma Bhushan award during the year. Also, six of our employees were decorated with Shram awards for the year 2001.

Your Company continued its efforts to promote the various disciplines of sports in tune with its passion for the all round personality development of an individual. Around 50 medal winning SAIL wards were awarded.
sports scholarships for furtherance in sporting events. With its philosophy of "Catching them Young", the Company is running three major Sports Academies - one each at Bhilai, Rourkela and Bokaro where players of different disciplines are developed and imparted training. The Company participated in prestigious sports events like IFA League, Subroto Cup, Beighton Cup, All India Public Sector Tournaments, etc. during the year under review.

Consistent efforts were made by SAIL Safety Organisation for improving safety standards in the Company specific by taking measures like intensive safety drives in works area, introduction of Risk Control Grading System in Bhilai, Durgapur and Rourkela Steel Plants, conducting safety audit, workshop & training etc. During the calendar year 2002, there was 33.1% reduction in injuries on Works compared to year 2001. A number of safety training programmes, workshops and seminars covering heads of shops, line managers, safety personnel and trade union leaders were organised. Safety audits were conducted in hazardous departments of different plants and mines. Activities of Joint Committee on Safety, Health & Environment were intensified with a view to promote safety consciousness among wider cross section and inculcate safety culture.

**PROJET MANAGEMENT -**

Project worth over Rs. 3,000 crore are at various stages of implementation and approval in the Company.

**The major ongoing schemes are:**

**Bhilai Steel Plant (BSP)**

- Rebuilding of Coke Oven Battery - 5
- Upgradation of Blast Furnance - 7
- Revamping of B-Strand of Wire Rod Mill

**Durgapur Steel Plant (DSP)**

- Bloom Caster with Associated facilities

**Rourkela Steel Plant (RSP)**

- Rebuilding Coke Oven Battery -1
- Capital repair of BF-4
- Upgradation of ERW pipe Plant

**Bokaro Steel Plant (BSL)**
- Rebuilding of Coke Oven Battery- 5
- Revamping/ modification of Mae West Block System and housing machining in Finishing Stands F6-F12.

The major schemes which have been accorded 'in principle' approval are:

**Bhilain Steel Plant (BSP)**
- Upgradation of Slab Caster, RH Degassing and ladle Furnace
- Modernisaton of Sinter Plant -II
- Desulphurisation Unite in SMS - II

**Durgapur Steel Plant (DSP)**
- Coal Dust injection in Blast Furnace (3 & 4)

**Rourkela Steel Plant (RSP)**
- Installation of Hot metal Desuphurisation Unit at SMS - II

**Bokaro Steel Plant (BSL)**
- Upgradation of Tandem Mill & Picking line in Cold Rolling Mill (CRM)
- Installation of Coal Dust injection in Blast Furnace (2 & 3).

**CORPORATE PLAN- 2012**

To ensure long term growth, with cost and quality competitiveness, SAIL has drawn a Corporate Plan with perspective upto 2012. The plan envisages maintaining the market leadership of SAIL and growing in identified growth segment. SAIL shall achieve a growth in production to about 20 MT of hot metal with commensurate enhancement in the production of Crude steel and saleable steel and increase the percentage of Finished steel in its product- mix, by de-bottlenecking and selective investments. Further, to
improve competitiveness the focus would be on Cost competitiveness and Quality enhancement. Further, functional strategies in the areas of Marketing, Operations, Human Resources, Finance and information Technology have been evolved to support the key strategy of growth with cost and quality competitiveness.

**STRATEGIC ALLIANCES**

An MOU was signed between SAIL and BHPB on 28th September, 2004 to forge a strategic alliance between the two companies in the field of coal and iron ore. Through this alliance, SAIL will get equity of the BHPB's coking coal mine abroad, and both would work together to develop iron ore mines in India. An MOU was signed with kIOCL on 28th September, 2004 for development of iron ore mines of SAIL at Taldih, Kalta & Barsuna. Natural gas in an alternative auxiliary fuel for which Heads of Agreement (HOA) was signed between SAIL & GAIL on 10th February, 2005 for supply of 3,563 MMSCMD of natural gas for SAIL ISPs. SAIL has also signed an MOU with MTNL & BSNL on 19th August, 2004 to enable BSNL and MTNL to provide SAIL the full gamut of telecom services, including but no limited to basic telephony, mobile telephony, leased line circuit, broad band services, internet services etc.

**ENVIRONMENT MANAGEMENT**

Company continued to give thrust to environmental compliance in its Plaats and Mines during 2004-05. Implementation of SAIL's commitment to Ministry of Environment & Forests (MoEF)/Central Pollution Control Board (CPCB) for fulfillment of the charter of Corporate Responsibility for Environment Protection (CREP) was the Major thrust areas during the year. Overall environmental scenario has further improved over the previous year in the following areas -

- Pollution load has reduced by 16%
- Fugitive emissions in Coke Ovens declined. This will further go down after commissioning of the on-going re-building programmes.
- Specific water consumption in the plants is well below the CREP norms for long (5m3/TCS) products.
Various Environment Impact Assessment (EIA)/Environment Management Plan (EMP) studies for the mines and plants of SAIL have been undertaken by Environment Management Division. Out of these studies, Environmental Clearance from MoEF has been obtained for capacity augmentation of Hirri Dolomite Mine. The Company is coordinating with Neeri, ZSI, BSI & other statutory bodies regarding the EIA/EMP studies for Chiria and Rowghat mine projects. The company has signed and agreement with Delhi University and the Department of Technology (DBT), Government of India for environmental protection and ecological rehabilitation of mined out areas in various locations.

Improvement in environmental performance over last year is also evident through reduction in Particulate Matter Emission (18%), reduction in Specific Water Consumption (12%), reduction in Specific Effluent Discharge (7.4%) and increased recycle/reuse or commercial disposal of process solid wastes (over 70% utilisation).

Another important milestone is the partnership of SAIL with the Ministry of Environment & Forests. SAIL is one of the signatories to National Charter on Corporate Responsibilities floated by Ministry of Environment and Forest whereby SAIL and the other Indian steel players are to implement a time bound voluntary action plan for Pollution Control in the Steel Industry.

During the year, various environmental awareness programmes, afforestation drives, and observance of World Environment Day, Earth Day, International Ozone Layer Protection Day, Environment Month, Mines Environment & Mineral Conservation Week etc. have been organised in SAIL to mark the consciousness towards a better and cleaner environment. In addition, several training programmes have been organised to sensitise the SAIL collective on environmental issues.

CORPORATE COMMUNICATION -

While the wide media coverage boosted the image of the company, there was a planned effort to support it thought limited advertising campaign focusing on spectacular turnaround of the company. Other advertisement campaigns viz. "STEEL GREEN" 'Steel in Need SAIL in Deed' etc. were carried on to promote the corporate brand image for the company. The company re-launched the electronic media campaign, 'There's little bit of SAIL in everybody's life', which retained a
high recall value. The effort to re-establish SAIL brand reached a new high with SAIL successfully supporting the major international events such as Chennai Tennis Open and Indian team for the Davis Cup, ITF Junior Tennis Tournament and One Day India Pakistan veterans' International cricket match at Patna.

VIGILANCE ACTIVITIES -

The Company adopted a Pro-active approach to bring vigilance awareness among employees, vendors & customers. For this purpose, large number of programmes where organized in the Plants, Units and different marketing offices across the country.

Thrust has been given to e-commerce and e-Payment. This has increased transparency in company's mode of conduction business.

System improvement and intensive examination of high value contracts and purchases continued to be the thrust area for the Vigilance Administration during the year. Important Procedures were reviewed and wherever required further simplification has been undertaken for faster and transparent decision-making.

During the year, the focus was on reducing the pending cases, streamlining the system and providing flexibility to Plant/Units to perform better, ensuring transparency in every sphere and activities. The effort was in building the confidence across the Company which is the need of the hour for faster decision making.

Special drive was taken for timely clearing of all the pending investigations and departmental enquiries to reduce hardship to the employees. Emphasis was given for computerisation of vigilance activities which included completion of computerisation of Immovable Property Returns and development of data base for MIS.

Interactions were organised between the Vigilance Executives and the Line Managers on regular basis to demystify the role of vigilance and to lay importance on the need for following policies and guidelines laid down by the Company. Vigilance Awareness Week was observed in all the Plants and Units.
Net Worth Per Share (Rupees)

Return on Net Worth (%)
Raw Materials

During 2002-03, total iron ore production and despatch from captive mines were 11.8 million tonne and 11.75 million tonne respectively. These were the best since inception with a growth of 6% both in production and despatch over the previous year. The flux production and despatch during the year 2002-03 were 1.12 million tonne and 1.2 million tonne respectively achieving growth of 17% and 35% in production and despatch respectively.

SAIL continued its efforts to put constant thrust on the improvement in stores and spares management including inventory control and achieved all time low inventory of Rs. 881 crore. Sale of idle assets of Rs. 72 crore has been achieved during the year.

Purchase Cost Optimisation

A new concept of e-procurement/Reverse Auction (RA) introduced during 2001-02, has been quite successful venture for the company. SAIL is the pioneer among all PSUs/Govt. sector to introduce procurement through Reverse Auction. During the year SAIL conducted RAs worth Rs. 42 crore. The process is being carried forward and RAs worth Rs. 150 crore are expected during 2003-04. Forward Auctions (FA) have been started for sale of secondary steel and Commercial Quality Stainless Steel of SSP resulting in higher realization than conventional mode. The process of FA would be extended with greater thrust during 2003-04.

CAPITAL SCHEMES

The Company incurred a capital expenditure of Rs. 241 crore during the year. At Durgapur Steel Plant (DSP), with the upgradation of Blast Furnace-3, productivity of the furnace increased from 0.9 to 1.3 t/m3/day. Its Cast House Slag Granulation Plant has also been commissioned. Wheel testing facilities of Wheel & Axle Plant had also been augmented to meet Railways requirement for testing operations as per their revised specifications of IR-R-19-93 and IR-R-34-99.

At Bhilai Steel Plant (BSP), the capital schemes of Long Rails Facilities to produce rails of length upto 78 M length and welded rail panels upto length of 260 M with Class-A quality as per Railways specification IRS-T-12-1996 has been approved. Orders for major facilities have been final-
ised and construction activities are progressing as per schedule. Also De-scaling System at Rail & Structural Mill has been installed for ensuring good surface finish and elimination of defects. Further, Carbide Saw was installed for cutting the rails to size. Plant-wide Fibre Optic Cable Networking was also completed under assistance/guidance from Electronic Research & Development Corporation of India (ER&DCI) to achieve increased output, reduction in rejection/mix ups of metal.

At Rourkela Steel Plant (RSP), rebuilding of Coke Oven Battery No.1 has been taken up to incorporate pollution control measures for meeting the statutory emission norms. Also the work for upgradation of ERW Pipe Plant to produce higher quality pipes (API-5L upto X-70 grade) has been awarded. Basic engineering has been completed and detailed engineering is in progress. Orders for major imported equipment have been finalised and construction work is in progress. Further two nos. of Stoves (one for BF-4 and one for BF-2) had been upgraded for increasing the hot blast temperature to 1,000°C which in turn would result in higher furnace productivity and lower coke rate.

At Bokaro Steel Plant (BSL), erection work has been completed for Reheating Furnace No.2. Further, Combined Blowing facilities in the Converters of SMS-II were installed to improve the quality of steel.

**IN HOUSE DESIGN & ENGINEERING/MARKETING OF SERVICES**

Centre for Engineering & Technology (GET) has been providing its services in the areas of modernisation, technological upgradation and additions, modifications and replacement schemes, to plants and units within SAIL and clients outside SAIL - both in India and abroad.

Major projects implemented during 2002-03 include upgradation of BF-3 with increase in useful volume and installation of INBA Cast House Slag Granulation Plant at BF-3 at DSP, installation of De-scaling Unit before 950 mm Roughing Stand of Rail & Structural Mill of BSP and installation of Combined Blowing Technology in Converter No. 2 at SMS-II of BSL.

The major ongoing projects are Finishing of Long Rails at Rail & Structural Mill at BSP, provision of Tension Levelling Facilities in Side Trimming cum Slitting Line No.3 in CRM and installation of Walking Beam type Reheating Furnace No. 2 at BSL and Replacement of Turbo-Alternator in CPP-1 at RSP.
Besides above, GET also provided consultancy for some of the projects under implementation for clients outside SAIL like installation of 3rd Cowper Stove at Chanderiya Zinc Smelter of M/s. Hindustan Zinc Ltd and installation of 0.3 Mtpa Romelt Plant of M/s. National Mineral Development Corporation.

During the year, the company obtained orders in India and abroad for providing technical assistance for setting up a 7 m tall Coke Oven Battery to M/s Ghaem Al Reza, Iran; design, engineering and other services for a BF gas based power plant to Kalyani Steel, Pune; technical assistance for stabilisation of VAD/VOD at BHEL, Haridwar; technical training in Georgia to Petroleum India International, Mumbai; study for shifting of EAF-CCP facilities to a new location to EGITALEC, Egypt; design & engineering services for upgradation of Coal Handling Plant to NTPC SAIL Power Company Pvt.Limited (NSPCL), Durgapur.

RESEARCH & DEVELOPMENT

Research & Development Centre for Iron & Steel (RDCIS), of the company, completed 93 R&D projects during the year. These projects provided technological inputs to the company’s plants/units with thrust on cost reduction, value addition, quality improvement and development of new products. The Centre has filed 24 patents and 20 copyright proposals during 2002-03, which included 4 patents from the plants.

During the year, 8 prestigious national awards were bagged by RDCIS collective and 201 technical papers were published/presented.
Sail in 21st Century

SAIL has always believed in structured planning for achieving organisational growth and, consequently, the culture of planning is well entrenched in the company's work ethos. This has also contributed significantly to national interests, given the steel sector's strong backward and forward linkages and SAIL's position as the leader of the Indian steel industry.

Changes in business environment call for periodical review of long-term plans and setting of new goals. The company had earlier drawn up two such plans, one in 1987 and the second in 1992. The perspective of the latter was the need for SAIL to enhance its competitiveness and global outlook in the backdrop of a liberalised steel business scenario in India. The steel industry, however, went through a prolonged recession starting around 1997. With buoyancy now having returned to the steel market, and with encouraging growth projections emerging for steel on a global level, re-formulation of SAIL's long-term outlook was a natural outcome.

SAIL's 'Corporate Plan-2012' has been formulated with the objective of enhancing the company's position in a growing market. The plan is the blueprint of the company's business activities over the next few years. The company's long-term strategic orientation is for building a robust organisation with strong fundamentals. Corporate Plan-2012 aims to bring the company closer to this goal by building sustainable competencies based on growth by exploiting fully the potential of available assets, differentiation through quality and service, profitability by excellence in operations and cost reduction, and leveraging the skill and knowledge base of the company's human resources.

Here SAIL News provides a summarised overview of Corporate Plan-2012,

The 21st century is widely perceived to be the century of Asia, and India is being looked upon as one of the economies with the most promising prospects. This poses a formidable challenge as well as opportunity to the Indian corporate sector. SAIL, as the leading steel maker, is well positioned to fulfill its role in the nation's quest for higher growth and development in the new millennium.
Though projections indicate persistence of marginal overcapacity in the international steel market, the domestic demand in the next few years is expected to remain robust at around 8%, with the supply position remaining somewhat tight. Also, there are expectations that India may become a manufacturing hub, providing the opportunity for indirect export of steel in large volumes. Long-term growth and development of the Indian steel industry, however, would continue to depend largely on its cost and quality competitiveness.

By 2012, the consumption of finished steel in India is expected to reach around 55-60 million tonnes (MT), nearly double the current level. Given its available infrastructure and skill base, SAIL has the comparative advantage to supply additional volumes at the most competitive cost to the nation. Besides, the Centre for Policy Research, in its November 2002 report dealing with perspectives up to 2025, indicates that the construction, cold-reducing and oil & gas transportation segments are poised for major growth in India. TMT bars & rods, structuralal, HR/CR coils, plates and pipes have been identified as the key growth products for the domestic steel industry. For SAIL, which is an established and significant player in these product segments, the scenario holds a huge potential for growth.

Analysis of competitors' growth plans and activities indicate increasing competition from all existing domestic players. SAIL, which is the leader of the 30 MT Indian steel market with a share of around 26%, proposes to not only maintain its position but strengthen it in this challenging future scenario.

The company has envisaged increasing its market share to about 27% by 2011-12, in tandem with the growth projection with respect to domestic consumption of finished steel. The goal is planned to be achieved through a mix of measures, including stepped-up production, further intensification of market-orientation, and improved cost and quality competitiveness, supported by rational investment and multiple managerial interventions to optimise resource utilisation.

SAIL's newly announced Corporate Plan-2012 sets out the blueprint for this growth plan. According to Mr Ashls Das, Director (PersonneO/SAIL who also heads the corporate planning function, a major factor that prompted formulation of Corporate Plan-2012 was the continual improvement in
operating efficiency achieved by the company. "As pointed out by Chairman in many forums, exceeding rated shop capacity has become more of a norm rather than exception in the SAIL plants," he says. Also, the culture of cost reduction and improvement in business processes has helped the company build up its internal resources which will contribute to achievement of the growth plan. For realistic accomplishment of targets set, the plan has been split into two stages - Stage-1 pertaining to the period up to 2006-07 and Stage-2 up to 2011-12.

The plan defines the following key strategic goals for SAIL:

♦ To continue in the business of steel and steel-related activities
♦ To enhance market share in growth segments
♦ To improve profits by cost reduction and high value added products
♦ To achieve excellence in quality across the value chain
♦ To secure availability of key raw materials, and alleviate infrastructure bottlenecks which may constrain long-term growth
♦ To build customer-centric processes, systems, structure and procedures

A significant feature of the plan is that it covers the 11th Five-Year Plan period.

Production

Corporate Plan-2012 envisages production of hot metal from the integrated steel plants of SAIL reaching an aggregate level of about 20 MT per annum by 2011-12 against the current level of 13 MT. This would be achieved through optimal utilisation of assets coupled with marginal capacity expansion. Plant-wise break-up of hot metal production would be as follows:

<table>
<thead>
<tr>
<th>Integrated Steel Plant</th>
<th>Current level (2003-04)</th>
<th>Projected level (2011-12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bhilai Steel Plant (BSP)</td>
<td>4.9</td>
<td>7</td>
</tr>
<tr>
<td>Durgapur Steel Plant (DSP)</td>
<td>1.98</td>
<td>3.2</td>
</tr>
<tr>
<td>Rourkela Steel Plant (RSP)</td>
<td>1.73</td>
<td>3</td>
</tr>
<tr>
<td>Bokaro Steel Plant (BSL)</td>
<td>4.1</td>
<td>6.5</td>
</tr>
<tr>
<td>Total</td>
<td>12.71</td>
<td>19.7</td>
</tr>
</tbody>
</table>
The envisaged growth in volumes is to be achieved by:

- Realisation of full potential of existing assets
- De-bottlenecking
- Linked facilities for value addition
- Capacity enhancement in growth segments.

Based on the above, crude steel production by SAIL is planned to reach a level of 18.7 million tonnes per annum (MTPA) by 2012 from the current level of 11.83 MT, leading to saleable steel production of 17.38 MTPA against the level of 10.73 MT achieved in 2003-04.

In view of emerging market requirements, SAIL has also planned to raise its output of finished steel to 16.6 MTPA by 2011-12 from the current level of 8.6 MT, and reduce generation of semi-finished steel from 20% of saleable steel to 5%. This will enable inclusion of more value-added products in the company's product basket.

Broadly, this would enable SAIL to achieve 30% market share in flat products and 23% in longs by 2011-12.

**PROJECTED SAIL'S OF SAIL STEEL VIX-A-VIS MARKET/CENTERED DEMAND IN 2012**

**Flat Products**

<table>
<thead>
<tr>
<th>Product</th>
<th>Market demand*</th>
<th>SAIL sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate</td>
<td>3.6 (2.4)</td>
<td>2.78 (1.5)</td>
</tr>
<tr>
<td>HR coil/sheet &amp; Skelp</td>
<td>19.7 (7.5)</td>
<td>5.18 (2.6)</td>
</tr>
<tr>
<td>CR coil/sheet</td>
<td>5.7 (3-6)</td>
<td>1.97 (0.9)</td>
</tr>
<tr>
<td>GP/GC/coated</td>
<td>2.6 (1.7)</td>
<td>0.43 (0.3)</td>
</tr>
<tr>
<td>CRNO</td>
<td>0.4 (0.2)</td>
<td>0.15 (0.07)</td>
</tr>
<tr>
<td>Tin plate</td>
<td>0.5 (0.3)</td>
<td>0.2 (0.04)</td>
</tr>
<tr>
<td>Pipe</td>
<td>3.6 (1.0)</td>
<td>0.33 (0.08)</td>
</tr>
<tr>
<td>Total Flats</td>
<td>36.2 (16.7)</td>
<td>11.04 (5.43)</td>
</tr>
</tbody>
</table>
Longs & Railway Products

<table>
<thead>
<tr>
<th>Product</th>
<th>Market demand*</th>
<th>SAIL sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar &amp; rod</td>
<td>16.4 (11.4)</td>
<td>3.7 (1.05)</td>
</tr>
<tr>
<td>Structural</td>
<td>5.1 (2.7)</td>
<td>1.0 (0.6)</td>
</tr>
<tr>
<td>Railway material</td>
<td>0.9 (0.9)</td>
<td>0.9 (0.8)</td>
</tr>
<tr>
<td>Total Longs</td>
<td>23-8 *(15.1)</td>
<td>5.56 (2.48)</td>
</tr>
<tr>
<td>Semis</td>
<td></td>
<td>0.58 (1.7)</td>
</tr>
</tbody>
</table>

Note:
(i) Figures in parenthesis ( ) represent domestic sales in 2003-04;
(ii) * Based on CPR study; (Hi) # Includes products like flat/square, not produced by SAIL

Investment-

SAIL has estimated that the measures to be taken to achieve the targeted levels of growth and sustain higher levels of cost and quality competitiveness will require investment in the region of Rs 25,000 crore by 2011-12. The immediate priority schemes, to be taken/ completed by 2006-07, have been estimated to be around Rs 4,300 crore.

The capital expenditure envisaged will be financed mainly through internal accruals, and will be supplemented by market borrowing if the need arises. Care will be taken to ensure that the company's debt-equity ratio attains, and is maintained at, a level of 1:1.

The plan for capital expenditure covers upgradation/modernisation of some existing assets as well as installation of some new facilities. The areas broadly identified for investment pertain to:

- Development of iron ore mines
- Rebuilding Coke Oven Batteries at BSP, DSP and RSP
- Revamping of iron & steel making facilities at BSP, DSP and BSL
Installation of one blast furnace at RSP
Installation of auxiliary fuel injection systems in all blast furnaces in a phased manner
Installation of new finishing mills.

Among new finishing mills planned to be set up are:

- BSP: Thin slab casting/inline Hot Strip Mill (1.1 MT), Bar & Rod Mill (1 MT), Pipe Plant (0.2 MT)
- DSP: Bar & Rod Mill (1.4 MT), Structural Mill (0.4 MT)
- RSP: Plate Mill (0.7 MT), CRNO Mill (0.075 MT)
- BSD Hot Strip Mill (2.5 MT), CRM Line (0.6 MT)

While the Corporate Plan identifies the specific areas for development, it is entirely directional in nature, and implementation will depend on the results of detailed feasibility studies, rigorous techno-economic evaluation and merit of each case in the context of the business environment prevailing at the time.

Cost & quality competitiveness-

The key to the success of Corporate Plan-2012 is to attain higher levels of growth in output with focused attention on quality and cost competitiveness. The following interventions have been planned in this direction:

Cost competitiveness will be attained by -

- Reduction in fixed cost through volume growth, reduction in manpower cost and financial charges.
- Reduction in variable cost through
  - Technological interventions like 100% production through BOF-CC route, coke rate reduction through GDI, oxygen enrichment, auxiliary fuel injection, etc.
  - Process control computerisation/automation
  - New units with state-of-the-art cost efficient technology
→ Enhancement of operating efficiency.
◆ Assured supply of imported coking coal through strategic alliance and enhanced supplies from Coal India Ltd.
◆ Reduction in procurement cost by enhanced use of e-commerce, total cost of ownership concept, centralised procurement for select items, etc.

Quality competitiveness will be attained by -
◆ Technology & input quality improvement across the value chain
◆ Thrust on special quality steel and new products
◆ Thrust on consistent operations
◆ Pre- and post-treatment of metal
◆ Advanced online testing and quality control facilities
◆ Standardisation/automation/ process control & IT

Technology upgradation will result from high capacity mechanised mines, facilities for introduction of pellets in BF, auxiliary fuel usage in BF and cast house slag granulation, 100% EOF route, 100% continuous casting with secondary metallurgy facilities, and modern finishing facilities, in line with the market requirements.

Raw materials

The growth plan and achievement of quality/cost competitiveness of SAIL to a significant extent will hinge on the availability, quality and cost of key inputs like coal and iron ore. Higher quantities of iron ore will be required for the planned increase in hot metal production. For this, new mines have to be developed and supplies from existing mines augmented. Development of the Chiria mines of IISCO and Rowghat mines will be of strategic importance in this context. Corporate Plan-2012 states that, wherever required, strategic alliances will be considered for the process of development of the mines. Improvement in iron ore quality and installation of two pellet plants (one to feed DSP, RSP and BSL and another to supply to BSP) will also be necessary interventions.
Augmenting the availability of key raw materials, especially metallurgical coal and high-grade iron ore, to achieve and sustain enhanced level of production envisaged under the Plan would be an area deserving highest priority. For ensuring long-term availability of imported coal in required quantity, strategic tie-ups, including equity participation in coal mines abroad, will be considered on priority. For iron ore, international joint venture participation will be invited for mines development to infuse world-class competence in mining operations.

SAIL has the largest iron ore mining operations in India. "To enable production of around 20 MT of hot metal by 2012, substantial development of mines to increase the iron ore production to a level of around 33 MT, including 6-7 MT of lump ore, will have to be taken up," informs Mr Ashish Das, Dir (Pers.)/ SAIL who heads the area of raw materials.

To meet the requirement, SAIL has planned to adopt following strategies:

- Development of new blocks / mines
- Increased production from existing mines to their potential
- Improving the quality of iron ore by suitable beneficiation
- Achieving operating efficiencies by economic scale of operations

"Improvement in the existing mines will be effected by full utilisation of existing facilities and installation of beneficiation technologies like jigging, magnetic separation, etc.," elaborated Mr Das. "One of the focus areas will be reduction in alumina and silica content in BF burden to less than 2% each. The new mines areas will have state-of-art technology. Further, to utilise micro-fines and reduce dependence on lump, use of pellets in blast furnaces will be introduced in a big way. For this, two pelletisation plants, one at BSP and another at a suitable location like Manoharpur, are planned."

The investment plan for development of new mines as well as for augmenting the production facilities from the existing mines has been drawn out. According to Mr Das, around Rs 2,200 crore would need to be spent in this area.
"Further," he adds, "for the development of new mines as well as for increased production from the existing mines, adequate infrastructure needs to be developed. Necessary support from state/central government would be obtained to address the issues, of power, road and rail network.

Coal India Ltd (CIL) is the single source of domestic supply of coking coal, the other major input, to SAIL. "CIL is currently unable to fulfill SAIL's total requirement," points out Mr Das. "Though efforts have been initiated by CIL to augment domestic production of coal, SAIL has to depend on imports for a major part of its requirement. The total requirement of coking coal (including coal for GDI) by 2011-12 is expected to go up to a level of over 16 MTPA, an addition of around 4 MT from the current level. Apart from following up with CIL to ensure supplies at current level, efforts will be made to ensure long-term availability of imported coal, through various means including JVs with coal companies abroad," he adds.

Human resources-

Human resource is and will continue to be the most vital key in realisation of the targets set for the company. According to Mr Das, "There are certain specific areas and issues that are critical in achieving the long-term goals set by the company in which actions need to be initiated. Some of these are:

◆ Adjusting to progressive reduction in manpower for supporting existing/enhanced levels of production.

◆ Preparation to work with state-of-the-art technology.

◆ Identification and bridging the skill gap.

◆ Focus on profitability and value creation in all the activities.

◆ Correction in age-mix (from the current average age of 45-46 years to 40 years).

◆ Ensuring availability of a committed and motivated work force to meet the challenges of the business environment.

◆ Continued thrust on multi-skill training for ensuring optimal utilisation of manpower."
With changes in technology and work practices, the company will have to develop systems, policies as well as a culture which encourages newer ways of doing things, he points out. "SAIL acknowledges that creation of an equitable, progressive and motivating working environment that values and empowers people at all levels is the essence of human resources management. This involves, amongst other measures, recruiting and developing high quality staff with relevant competencies, and managing and rewarding their performance effectively."

Among the HR strategies identified by Corporate Plan 2012 to achieve the abovementioned ends are:

- Improving labour productivity to a level higher than 170 tonnes/man/year
- Manpower rightsizing by redeployment and separation of surplus employees through VR
- Attaining works, non-works ratio of 80:20 from present level 65:35
- Bringing down average age to about 40 years from current level of 45-46
- Restructuring and strengthening of the Projects organisation, particularly at plants, for speedy implementation of new projects.
- Outsourcing of non-critical functions/activities
- Thrust on appropriate training and development of employees - competence mapping and skill gap identification
- Continuous innovation and implementation of HR initiatives to enhance job satisfaction, career growth, commitment and motivation amongst all employees.

Implementation-

Corporate Plan 2012 has considered the following major risk factors in achievement of the targeted growth have been identified as -

- Declining global steel demand and prices.
- Constraints in availability, and cost of critical raw material - like coking coal, iron ore, etc.
- Infrastructure constraints, viz. ports, railways, etc.
These factors will be reviewed proactively and timely interventions will be ensured.

Elaborating on the elements of flexibility incorporated in the plan to meet sudden/rapid changes in business environment, Mr Das said: "Steel being a universal intermediary, its demand is driven by economic growth and the expansion trajectory of the industrial sector. The growth trajectory (reflected in terms of percentage of GDP growth) is essentially a range based on macro-economic parameters, government policies and global economic trends. While drawing up Corporate Plan-2012, conservative market growth projections have been considered. However, while the growth trends and macro indicators present opportunities for the company's higher growth potential, major risk factors have also been taken into consideration like decline in global steel demand and prices, non-availability/cost of major input materials like coal, etc. Therefore, in any case, SAIL's plans may have to be revised from time to time, depending on the market growth, competition, international situation, change in country's policies, resources availability, etc."

Functional Strategies -

Strategic support will be provided to the growth plan by the main functional areas. Some of the measures envisaged in these areas are briefly outlined below:

Marketing

◆ Ensuring dominant position in the Indian steel market
◆ Maintaining continuous global presence (around 10% by sales value)
◆ Building & enhancing brand value of SAIL products
◆ Laying further thrust on Key Account Management process
◆ Greater thrust on actual user sales; limiting sales through trade channels.
◆ Trading of steel by sourcing from international sources, to enable packaging for key customers
◆ Popularising SAIL products in the rural market
◆ Maximising IT-enabled customers service and interactions
Finance

* Attaining & maintaining debt-equity ratio up to 1:1
* Aiming for international cost of borrowings
* Enhancing of equity at appropriate time
* According investment priority to 'high return-low implementation time' projects
* Investment in JVs/acquisition of facilities in identified areas
* Outsourcing non-critical functions at appropriate time

Utility & Infrastructure

* Constant follow-up with government/port authorities for enhancing capacity of existing ports & opening of new ports on east coast
* Acquiring berths, storage space, etc., in ports
* Ensuring availability of rail wagons for moving planned quantity of inputs/outputs
* Consideration of owning wagons/railway lines/ railway sidings, wherever necessary
* Enhancing loading/unloading/handling capacities
* Optimising road despatch of finished goods
* Marginal investment or long-term tie-up in infrastructure, as and when required

Information Technology-

* Strengthening of IT communication network
* Establishing PPG computerisation system at BSP/ BSL/RSP
* Upgrading existing VAX process control systems at all plants
* Introducing IT-enabled processes in operations, customer relationship management, material, financial and personnel management areas
Corporate Responsibility

- Working as a socially responsible corporate citizen.
- Installation/satisfactory operation of pollution/ emission control equipment to ensure environment compliance and meet the commitment under CREP.
- Ensuring appropriate investments for environment control (e.g. rebuilding of COBs) to meet norms.
- Acquiring ISO:14001 certification in all major units by 2011-12.
- Maximising investment for installation of cast house slag granulation facilities in all BFs, and long-term tie-ups/JVs for sale of granulated slag, facilitate/ encourage private/public investment in disposing slag, identify areas for dumping slag in the event of low sales, etc.
- Facilitate/encourage private/public investment for utilisation of fly ash.

SAIL Q1 profit zooms 336% to a record Rs. 1,112 crore

Improved product mix, higher internal efficiency and improved market conditions in the steel sector helped SAIL to register a whopping 336% increase in net profit during April-June of the current financial year over the corresponding period of last year. The net profit of Rs 1,112 crore booked by the company during Q1 of the current financial year is the highest-ever earned in any quarter so far. In Q1 of the last financial year, the company had registered a profit of Rs 255 crore. SAIL's financial results for the first quarter of 2004-05 were taken on record by the company's Board of Directors on 29 July 2004.

During Q1, despite lower hot metal production as a result of coal shortage, the company achieved a turnover growth of 18% over the corresponding period of last year through higher production of value-added products and higher sales realisations. At Rs 5,633 crore, it is the highest-ever Q1 turnover achieved by SAIL so far. In April-June of the last financial year, the company had achieved a turnover of Rs 4,765 crore.
The improved performance in Q1 was the result of -

- Reduction in proportion of sales of semis by 11%
- Higher sales of value-added products from the integrated steel plants - Plate Mill plates (13%), heavy structural (38%), TMT (21%), galvanised sheets (7%), railway products (3%), CRNO steel (8%).
- Higher percentage of production through concast route at 65% (growth of 5%)
- Reduction in coke rate to 538 kg/ thm
- Energy consumption at 7.49 Gcal/ tcs (reduction of 1%)
- Higher supply to projects (an increase of 171%).

With a view to enhancing supplies to the domestic market, the company reduced exports in Q1 by 73% over the corresponding period last year.

SAIL's improved financial performance in Q1 of FY '04-05 was aided by debt reduction of Rs 960 crore, bringing the company's borrowings to a level of Rs 7,728 crore as on 30.6.04 from the level of Rs 8,689 crore at the end of the last financial year. Consequently, the company's debt-equity ratio improved further to 1.33:1 from 1.86:1 as on 1.4.2004. SAIL aims to bring its D-E ratio to a level of 1:1 by the end of the current financial year.

Responding to the robust improvement in financial performance during Q1, despite constraints like coking coal shortage and rise in cost of inputs, SAIL Chairman, Mr V.S. Jain said: "After achieving turnaround, SAIL is well set on a growth path. Our Q1 financial performance amply reflects this. It also reinforces our conviction to expand capacity and achieve steady improvement in quality and cost to match the requirements of a growing market."

SAIL bags the prestigious ICWAI national award -

A tribute to the success story of SAIL and a just recognition of the inner worth of SAIL collective was chronicled with SAIL bagging the National Award 2003 for Excellence in Cost Reduction, instituted by the premiere academic organisation, the Institute of Cost and Works Accountant of India (ICWAI). Dr Sahib Singh Verma, the Union Minister of Labour, Govt. of India, presented the award to Mr VS. Jain, Chairman, SAIL at a function
organised in Vigyan Bhawan on 13th February 2003. SAIL was adjudged winner from among 35 leading public and private sector organisations in the manufacturing sector.

Evaluated by a jury of the eminent professionals headed by Hon'ble Justice Mr. Kuldeep Singh, former judge of Supreme Court of India, the award is a testimony to the unrelenting efforts made by the company over a period of time to set new standards of excellence in the field of cost reduction. SAIL, with a turnover of over Rs 20,000 crore has been putting a thrust on cost reduction measures for several years and a number of innovative steps have been introduced within the organization resulting in substantial benefits.

A major step in this direction is continuous accent on Research and Development, which enabled SAIL to reduce cost through process improvement, quality improvement, selection of optimum coal blend and introduction of innovative techniques to reduce specific consumption of expensive inputs. SAIL used a technique of benchmarking various parameters like BF productivity, coke rate, energy consumption, power consumption etc. for its plants with a view to exploiting the full potential of its assets.

Simultaneously, the company saved significantly with the success of several other initiatives such as performance based procurement, consolidation of business transactions through e-commerce, inventory reductions, competence enhancement through HRD initiatives, enhanced automation, manpower rationalisation and waste management. Over the last five years the company rationalised its manpower, bringing it down by 45,000.

SAIL used the internal accruals to discharge high interest debts, which were taken during modernisation of various units and replaced part of it with low interest bearing loans. This helped the organisation to reduce interest charges by over Rs 300 crore in the current fiscal.