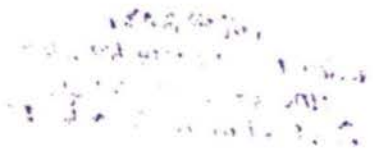


AUTHENTICATED

(DILIP RAY)
MINISTER OF STATE FOR STEEL

(DILIP RAY)
Minister of State for Steel
(Independent Charge)
Govt. of India, New Delhi

Report of the Comptroller and Auditor General of India

for the year ended March 1998

Union Government (Commercial)

(Rashtriya Ispat Nigam Limited)

No. 8 of 1999

Contents

Preface

Audit Boards are set up under the supervision and control of the Comptroller and Auditor General of India to undertake comprehensive appraisals of the performance of the Government Companies and Corporations.

2. The Audit Board set up to undertake an appraisal of the performance of Rashtriya Ispat Nigam Limited a Government Company, consisted of the following members:

1.	Dr. B.P.Mathur	Deputy Comptroller And Auditor General-Cum-Chairman Audit Board (From January 1996 to July 1996)
2.	Shri Samir Gupta	Deputy Comptroller And Auditor General-Cum-Chairman Audit Board (From August 1996 to December 1997)
3.	Shri A.K.Chakrabarti	Deputy Comptroller And Auditor General-Cum-Chairman Audit Board (From January 1998)
4.	Ms. Vijya Moorthy	Principal Director of Commercial Audit & Ex-Officio Member Audit Board, Hyderabad (From July 1994 to April 1997)
5.	Ms. Anjana Das	Principal Director of Commercial Audit & Ex-Officio Member Audit Board, Hyderabad (From-April 1997 to June 1997)
6.	Shri P. Narayana Murthy	Principal Director of Commercial Audit & Ex-Officio Member Audit Board, Hyderabad (From June 1997)
7.	Shri B.B.Pandit	Principal Director (Commercial) and Member Secretary, Audit Board
8.	Shri Rakesh Jain	Principal Director of Commercial Audit & Ex-Officio Member Audit Board, Ranchi (From March 1997)
9.	Dr. P.L.Agrawal*	Part-time Member-Ex-Chairman, Steel Authority of India Limited
10	Dr. E.R.C.Shekar*	Part-time Member-Ex-Vice-Chairman, Steel Authority of India Limited

3. This report was finalised by the Audit Board after taking into consideration the discussions with the Ministry of Steel held on 24 March 1999.

***The part-time members are appointed by the Government of India (in the respective Ministry or Department controlling the Company or Corporation) with the concurrence of the Comptroller and Auditor General of India.**

OVERVIEW

1 Introduction

(a) The construction of Visakhapatnam Steel Plant (VSP) was taken up by Steel Authority of India Limited (SAIL) in 1981 with economic and technical cooperation of erstwhile Union of Soviet Socialist Republics. A Company viz. Rashtriya Ispat Nigam Limited (RINL) was incorporated in February 1982 to take over the project from SAIL and to execute the construction of VSP.

(b) The main consideration for setting up the steel plant at Visakhapatnam was to have locational advantage of port on the coast of Bay of Bengal. However, locational advantage could not be utilised fully by the Company due to various constraints and non-development of captive harbour adjoining the plant site.

(Para 1.1)

(c) The main objectives of RINL on its incorporation (February 1982) were to take over the VSP from SAIL with all its assets, liabilities, rights and obligations and to carry on in India and elsewhere manufacturing, trading, importing and exporting of iron and steel of all qualities.

(Para 1.4.1)

(d) Apart from the main objectives, RINL set (December 1986) for itself immediate missions/objectives to commission VSP by July 1990 within the estimated cost of Rs.6281 crore, to achieve the rated capacity of 34 lakh tonne within 12 months of commissioning and to operate and maintain the plant at international levels of efficiency and to achieve and maintain labour productivity of not less than 230 tonne per man year. These missions/objectives were not achieved as the project was commissioned in July 1992 when some capital works were still pending and the estimated cost at completion was Rs.8584.05 crore. The rated capacity (34 lakh tonne of liquid steel) which was envisaged to be achieved within 12 months also remained unrealised as the maximum capacity achieved (in 1997-98) since incorporation was 25.42 lakh tonne. The highest labour productivity achieved (1997-98) was 189 tonne per man-year.

(Para 1.4.2)

2 Construction of the project

(a) The cost estimate of Rs.3897.28 crore (July 1982) underwent three revisions (1988, 1991 and 1995) and stood at Rs.8584.05 crore as on July 1995. There was thus a cost escalation of 4686.77 crore (120.25 %) of which Rs.368.13 crore was attributed to increase in quantities, addition of new items etc. and Rs.4318.64 crore was attributed to

escalation on account of exchange rate variations, increase in duties, taxes and interest burden etc. Actual expenditure on the project upto March 1998 was Rs.8258.95 crore.

(b) As against the original target date of commissioning (December 1987) the project was commissioned in July 1992. While poor fund flow was the main reason for time/cost overrun, mismatches and non-sequential completion of work etc. also led to poor project implementation.

(Para 2.1 & 2.6.1)

(c) After a mid term assessment of the project in September 1985, the Government found that at the given trend of expenditure the project would become unviable and searched for an alternative concept in project construction. Based on the findings of a high level delegation to South Korea, a Rationalised concept was envisaged (August 1986) for construction of the project. It is however not clear why the high level delegation was deputed to Korea since the production units of VSP upto SMS (upstream) were of Russian design and the rolling mills (down stream) were of German/Czechoslovakian design

(Para 2.1,2.4 & 2.5.1)

(d) The Rationalised concept was intended to reduce the capital cost by deleting/reducing certain production facilities and envisaged a reduction of project cost by Rs.1497 crore. The actual cost was, however, Rs.1734.35 crore more than the cost estimate of Rs.6849.70 crore and the completion time had extended by two years under the Rationalised concept.

(e) The revised cost estimate, under the Rationalised concept, envisaged a change in the Internal Rate of Return (IRR) from 5.1 per cent to 6.56 per cent. Against this, the actual rate of return remained negative in all the years' upto 1997-98.

(f) Owing to implementation of the Rationalised concept, certain works worth Rs.30.16 crore, which were completed or were under execution, were rendered infructuous. An additional expenditure of Rs.6.78 crore was also incurred towards shifting of delivery schedules for equipment and revising the scope of work of the Principal Consultants.

(g) On the technical front also the Rationalised concept had far reaching consequences viz. mismatch between production capacities of Blast furnaces and Steel melt shop (SMS), which had a deleterious impact on the long term viability of the entire project.

(Para 2.5.2 & 2.5.3)

(h) Some other irregularities noticed relating to the construction period were as follows:

(i) Delay in finalising the rate for extension period of contract with the Principal Consultants led to additional expenditure of Rs.5.60 crore.

(Para 2.7.1)

(ii) Claims for damaged/defective supplies of equipment were not made within time, instead fresh procurement was made from Soviet suppliers at an additional expenditure of Rs.9.80 crore.

(Para 2.7.2)

(iii) The Company made excess payment of custom duty of Rs.4.78 crore due to adoption of incorrect rates of duty for the equipment.

(Para 2.7.3)

(iv) Seven items of equipment worth Rs.22.41 crore were not put to use since procurement (7 to 12 years approx.) which resulted in blocking up of capital of Rs.22.41 crore and loss of interest of Rs.28.50 crore thereon.

(Para 2.7.4)

3 Production Performance and Machine Utilisation

Production Statistics

(a) There was a continuous low capacity utilisation of the plant in terms of production of liquid steel and saleable steel from 1992-93 to 1997-98. Under-utilisation of capacity of the plant led to a shortfall of production of Rs.32.52 lakh tonne of blooms and loss of contribution of Rs.500.45 crore thereon.

(b) Due to mis-match in capacities of Blast furnaces and SMS there was lower off-take of Hot metal by SMS in all the years. Thus more hot metal was diverted to Pig casting machines beyond the envisaged limit of 5.85 lakh tonne per annum resulting in loss of contribution of Rs.168.73 crore during the last four years ended 1997-98.

(Para 3.3.1 & 3.6.1)

COKE OVEN

(c) The number of pushings of coke oven per annum during the six years ended 1997-98 was much less than the target fixed. Due to lower yield, there was loss of production of 2.79 lakh tonne of gross coke worth Rs.98.21 crore.

(Para 3.5.1)

(d) Due to improper operation and maintenance the coke oven batteries were damaged in 1998. Consequently, the availability of coke oven gas (fuel to run the Rolling mills) was affected. The Rolling mills were forced either to stop production (MMSM in November 1998) or to run at a very low utilisation level (i.e.21% to 32% of the rated capacity of Bar mill, Wire rod mill and Billet mill in November 1998). The normal life of Coke oven batteries (12 to 15 years) was reduced to 6 to 9 years warranting heavy repairs costing Rs. 150 crore approx. and installation of one additional battery costing Rs. 350 crore approx.

(Para 3.5.1)

BLAST FURNACES

(e) As against the installed capacity of Blast Furnaces of 34 lakh tonne of hot metal, the actual production increased from 19.81 lakh tonne (1992-93) to 32.14 lakh tonne (1996-97). The production of Hot metal decreased to 31.65 lakh tonne during 1997-98. Due to mismatch in capacity of Blast Furnaces and Steel Melt Shop full potential of the Blast Furnaces could not be utilised.

(Para 3.6.2)

Steel Melt Shop (SMS)

(f) The production of liquid steel in the Steel Melt Shop (SMS) during the six years from 1992-93 to 1997-98 increased from 35 to 85 per cent of installed capacity. The lower utilisation of installed capacity was due to lack of required automation and balancing facilities.

(Para 3.7.2)

Continuous Casting Machines (CCMs)

(g) The utilisation of CCMs in 1997-98 was only 61.4 per cent and its under-utilisation had affected the utilisation of converters as well as Rolling Mills. The reasons for under-utilisation were high idle time hours and machine preparation time (38.6% of available hours in 1997-98).It was observed that the rectification of problems of CCMs identified long ago were not given proper priority.

(Para 3.7.4)

(h) The actual yield of prime blooms (excluding defective blooms) from liquid steel ranged from 82.1 per cent to 88.3 per cent during the six years from 1992-93 to 1997-98 against the DPR norm of 94 per cent. The lower yield and higher generation of scrap in the Continuous Casting Machine (CCM) resulted in loss of Rs.9.85 crore.

(Para 3.7.5)

(i) The company engaged an Austrian firm in June 1994 for providing technical assistance and training of personnel of the company for a period of three years commencing from July 1994 at a total consideration of Rs.89.55 crore with a view to gradually achieve 28.80 lakh of blooms per annum by June 1997. However the company finally achieved production of 21.80 lakh tonne blooms per annum by 1996-97. Due to non-achievement of the desired results the contract was foreclosed in March 1997 after releasing Rs. 57.92 crore.

(Para 3.7.6)

Rolling Mills

(j) The actual production of various steel products in Rolling mills during six years from 1992-93 to 1997-98 was much less than the installed capacity. The low capacity utilisation was due to absence of separate reheating facilities in Billet mill, Bar mill, absence of certain required rolls in Medium Merchant and Structural Mill (MMSM) and non availability of input material (Billet) for Wire rod mill.

(Para 3.8.2,3.8.3 & 3.8.4)

4 Manpower analysis

During the six years ending 1997-98 labour productivity increased from 110 to 189 tonne of liquid steel per man-year as against the productivity of 231 tonne of liquid steel per man-year envisaged under the Rationalised concept. The manpower cost remained high primarily due to non-achievement of the rated capacity of the plant.

(Para 4.2 & 4.3)

5 Material Management and Inventory Control

(a) Though the Company had a stores purchase procedure manual, the minimum, maximum reserve stock limits and reordering level for various items of stores and spares were not prescribed although the annual value of consumption of stores and spares was around Rs.260 crore (March 1998).

(b) The value of stores and spares (Rs.396.70 crore) at the end of March 1998 was very high at 20.1 months consumption. It included Rs.106.64 crore representing values of non-moving items, which were yet to be identified as to their requirement. It also included the value of surplus items (Rs.12.59 crore) and obsolete items (Rs.17.55 crore) which were yet to be disposed off.

(Para 5.1,5.2.1,5.3.1 & 5.4.1)

6 Marketing Activities

(a) Though the sale of steel products had been increasing since the start of commercial production (1992-93) it was significantly lower than the target set for all the years. However, the sale of Pig Iron was much higher than the targets mainly on account of production of more Pig Iron due to mismatch between BFs & SMS. The Company had been allowing discount depending upon the condition prevalent in the Steel market. The average discount per tonne increased from Rs. 67 in 1992-93 to Rs. 997 in 1997-98.The domestic sales were affected due to reduction of import duties on steel products, increase in excise duty and liberalisation of import and export.

(b) The export of steel products and pig iron had decreased since 1996-97 mainly due to crash in the South East Asian economics and substantial fall in the international prices of steel products making exports unremunerative.

(c) The Company sustained a loss of revenue of Rs.10.65 crore against export incentive schemes due to its failure to obtain endorsement of transferability for sale of four (4) numbers Quantity Based Advance Licences (QUBALs) and failure to sell one (1) number QUBAL before expiry of the validity period. In another case the Company availed of Modified Value Added Tax (MODVAT) benefit without working out the economics in respect of ten (10) numbers QUBALs resulting in loss of revenue of Rs.20.08 crore.

(Para 7.2.1,7.3.1,7.4.1,7.5.2 & 7.5.3)

7 Financial Position

(a) Due to abnormal delay in the completion of the project and heavy borrowings, the interest liability of the Project had gone upto Rs.714.42 crore against a provision of

Rs.184.34 crore made in the first revised cost estimate. The accumulated loss upto 31 March 1992 stood at Rs.1464.48 crore.

(Para 8.2.1)

(b) In July 1993 the Government approved substantial financial relief to RINL by way of restructuring of it's capital. The restructuring scheme had the impact of enlarging the equity base by Rs.2464.72 crore and reduction in annual interest charges by Rs.432.47 crore. This relief was approved based on Company's commitment to the Government to achieve certain physical and financial targets. The Company could not keep the commitment as instead of the targeted cash profit of Rs.1130 crore envisaged in the three years period (1993-94 to 1995-96) the company sustained a cash loss of Rs.233 crore in 1993-94, and earned a cash profit of Rs.50 crore in 1994-95 and Rs.226 crore in 1995-96.

(Para 8.2.2)

(c) Due to high cost of production and lower sales realisation' the company incurred heavy losses. The cumulative loss as on 30 September 1997 was Rs.3626.18 crore which worked out to 55.6 percent of the paid up capital (Rs.6527.54 crore), thereby attracting the provision of the Sick Industrial Companies (Special Provision) Act, 1985 (SICA).

(Para 8.2.2)

(d) At the request of the Company the Government of India approved (May 1998) a second package of financial relief. As a result of the second capital restructuring the equity base of the Company was enlarged by Rs.1333.47 crore thereby reducing the annual interest burden by Rs.87 crore and the Company came out of the purview of SICA.

(Para 8.2.2)

(e) The Company had been incurring losses continuously since inception. The accumulated loss as on 31 March 1998 was Rs.3598.65 crore representing 46 per cent of paid-up capital of Rs.7827.32 crore.

(Para 8.1)

(f) On Government's direction, the Company appointed (July 1998) a consultant M/s A. T. Kearney in association with MECON to suggest a comprehensive proposal for its rehabilitation. The Company had accepted the turn around strategy proposed (September 1998) by the consultants. The Government of India was yet (September 1999) to approve the proposal.

(Para 8.2)

8 Other topics of interest

(a) The Company unnecessarily reversed the correctly availed MODVAT on QUBALs aggregating Rs. 3.02 Crore and paid avoidable interest of Rs. 58 lakh thereon.

(Para 9.1)

(b) Company's failure to set right operational fault led to non-achievement of guaranteed yield of campaigns/ refractories leading to a loss of Rs. 1.65 crore.

(Para 9.3)

CHAPTER 1 : INTRODUCTION

1.1 The Prime Minister of India announced in Parliament on 17th April 1970 the decision of the Government to set up an Integrated Steel Plant at Visakhapatnam. The Government, in February 1971 appointed M/s. Dastur & Company (P) Limited as Principal Consultants, to prepare a techno-economic feasibility report. The Principal Consultants submitted the report in February 1972. A Memorandum of Agreement was signed in April 1975 between Steel Authority of India Limited (SAIL) and the Principal Consultants for preparation of the Detailed Project Report (DPR) of Visakhapatnam Steel Plant (VSP). Accordingly the Principal Consultants submitted the DPR in September 1977.

The Government of India and the Government of USSR signed a protocol in December 1978 followed by an agreement in June 1979 for setting up of 34 lakh tonne Integrated Steel Plant at Visakhapatnam. The Government of India approved the construction of the Steel Plant in June 1979. In view of the changes proposed by the Soviets a revised DPR was submitted to the Government in April 1981. The construction of VSP actually started in July 1981, i.e. 11 years after it was announced in Parliament. A new Company "Rashtriya Ispat Nigam Limited" was incorporated in February 1982 to take over from SAIL and to execute the construction of VSP.

The main consideration for setting up the Steel Plant at Visakhapatnam was to have a locational advantage of Visakhapatnam port on the coast of Bay of Bengal for import of coking coal and transport of saleable products through coastal shipping. However, the Company could not enjoy the envisaged locational advantage except for import of coking coal by sea. The Ministry explained the constraints in transporting finished goods by coastal shipping as (i) each consignment needed a minimum of 15,000 to 20,000 tonne as against the market demand for small quantities; (ii) the Coastal cargo could take 32 to 40 days as against 4 to 7 days required for rail/road transportation; (iii) the total cost of transportation was also higher for many places considering the cost of loading, transportation of goods from Plant to Port. The Ministry further stated (March 1999) that there were recent instructions from the Cabinet Secretary to transport at least 5 percent of the goods through coastal shipment and they would implement the directives in a time bound manner.

The Revised DPR envisaged future development of a captive harbour adjoining the plant site. Accordingly, the Company had approached the Government of Andhra Pradesh (A.P.) for granting permission for development of Gangavaram Port. However, the Government of A.P. declared Gangavaram as a minor port in November 1994. Thus, the captive harbour of the plant was yet to be developed (July 1999). The Ministry stated (March 1999) that the Government of A.P. would develop Gangavaram port through a private agency and the Ministry of Steel would have a say in selection of the construction agency in order to ensure that the Company enjoys a priority for handling its import and export. For this purpose Government of A.P. wanted 1100 acres of land from the Company. In its place, the Government of A.P. also agreed to give another 1100 acres of

land elsewhere to the Company. Though the Government of India accepted the proposal, the State Government was yet to identify the 1100 acres of alternative land, which was causing delay in development of Gangavaram Port.

Thus, locational advantage could not be utilised fully by the Company due to various constraints and non-development of captive harbour adjoining the plant site.

1.2 Scope of audit and main audit findings:

1.2.1 This is the first Appraisal on the working of the Company and covers a period of six years from 1992-93 to 1997-98 as well as certain aspects relating to construction of the Plant.

1.3 Organisational set-up

1.3.1 The Management of the Company was vested in a Board of Directors whose total number was not to be less than 5 and more than 14. During the period from 1992-93 to 1997-98, the actual number of Directors ranged between 7 and 11. As on 31st March 1998, the Board of Directors consisted of a Chairman-cum-Managing Director, four functional Directors (in-charge of Operations, Finance, Personnel and Commercial) and two Part-time Directors nominated by the Ministry of Steel, Government of India.

1.4 Objectives of the Company

1.4.1 The Main objectives of the Company on its incorporation were:

- To take over the Visakahapatnam Steel Project from the Steel Authority of India Ltd. with all its assets, liabilities, rights and obligations.

- To carry on in India and elsewhere the trade or business or manufacturing, prospecting, raising, operating, buying, selling, importing, exporting, purchasing or otherwise dealing.

(i) in iron and steel of all qualities, grades, types and kinds as iron mongers, iron masters, steel makers and steel converters;

(ii) in Ferro-silicon, Ferro-chrome and/or all products made of iron and steel, coking-coal, manganese, Ferro-manganese, limestone, refractories, iron ore and other alloys;

(iii) as miners, smelters, iron founders in all respective branches;

(iv) in stainless steel, silicon steel, special steel, mild steel and in allied products, fireclay, dolomite, limestone, refractories, iron ore, bauxite, cement, chemicals, fertilizers,

manures, distilleries, dye making and industrial and non-industrial gas, lime burners, stone quarrying, concrete manufacturing in all respective branches, and other allied input or other materials, and for that purpose to construct, install, operate, manage and maintain all plants, mines, establishments, work etc.

1.4.2 However, the Company in December 1986 set for itself the following immediate mission/objectives:

- to construct and commission the VSP by July 1990 within a cost of Rs.6281 crore [Base : 1st quarter 1986);
- to achieve rated capacity within 12 months of commissioning and to operate and maintain the plant at international levels of efficiency;
- to achieve a place of pre-eminence for the VSP in the Steel industry, and
- to achieve and maintain a labour productivity of not less than 230 tonne per man-year.

None of the above objectives were realised. The extent of achievement against each of the above objectives is given below:

- The plant was commissioned in July 1992 after a delay of 2 years, and its cost escalated from an estimated sum of Rs.6281 crore to Rs.8258.95 crore (March 1998). The initial cost estimate was approved by the Government in June 1979 at Rs.2256 crore. It was revised thrice from Rs.2256 crore to Rs.3897.28 crore in July 1982; to Rs.6849.70 crore in June 1988 and finally to Rs.8584.05 crore in July 1995.
- The rated capacity of 34 lakh tonne envisaged to be achieved within 12 months of commissioning of the project remained unrealised, as the maximum capacity achieved (in 1997-98) was 25.42 lakh tonne of liquid steel.
- The highest labour productivity of 189 tonnes of liquid steel per man-year achieved in (1997-98) had also been below the target of 230 tonnes of liquid steel per man-year.

The Ministry stated (February 1999) that the objectives referred to by Audit were approved by the Board of Directors for internal purpose only and the Public Investment Board (PIB) had indicated that the rated capacity was to be achieved in the fourth year of operation. The fact remains that neither the objectives approved by the Board were achieved nor the targets indicated by the Public Investment Board were adhered to.

CHAPTER 2 : CONSTRUCTION OF THE PROJECT

2.1 The construction of Visakhapatnam Steel Plant commenced in July 1981 with the target date of completion by December 1987. The Committee of Secretaries, in October 1984, reviewed the progress of construction, availability of funds for the project and costs involved for adoption of technological improvement and recommended a critical review of the project cost and time schedule. Accordingly, the Pre Public Investment Board (PPIB) undertook a critical examination in September 1985. The Government observed that estimated cost of the project had gone up substantially to Rs.7467 crore. Besides, the progress achieved upto March 1985 was very slow even as a sum of Rs. 1547 crore had been expended. The Ministry stated (February 1999/March 1999) that the progress upto March 1985 was low primarily because release of fund was not commensurate with the requirements. Fund availability was so acute that at one stage even abandoning the project was under consideration.

While poor fund flow was the main reason for the time/cost overrun the delays had also occurred due to mismatches and non-sequential completion of works/receipt of equipment as observed by the Planning commission. For example though structural fabrication recorded good progress, structural erection was not achieved in the same measure because of non-completion of civil works. Thus, release of fund on adhoc basis, mismatches and non-sequential completion of work etc. led to poor project implementation.

2.2 Details of phase-wise progress of construction as of March 1986 when the facilities required for first phase production of 12 lakh tonne of liquid steel should have been completed are given below:

Phase	Activities of work which were to be executed in sequence	Commence-ement of the project	Expected date of Completion	Cumulative Progress Achieved by March 1986	Percen-tage of Progress
Phase-I	Civil works (Concreting)	July 1981	December 1982	17,97,332 Cum.	77.6
	Structural Erection		October 1983	1,31,192 Tonne	42.7
	Equipment Erection		July 1985	34,873 Tonne	12.1
Phase-II	Civil works (Concreting)	July 1981	August 1984	59,610 Cum.	12.5
	Structural Erection		August 1985	1,817 Tonne	1.7
	Equipment Erection		July 1987	Nil	Nil

It would be seen from the above that as per the time schedule, all the activities for phase-I and II should have been completed between December 1982 and August 1985 except the equipment erection for Phase-II. Contrary to this, the actual achievement by March 1986 both under Phase-I and II was very slow. The Ministry admitted (February 1999) that the progress upto March 1986 was badly affected due to fund constraint.

2.3 A sum of Rs.187.38 crore was spent upto 1986-87 on non-priority items of works relating to construction viz. Auxiliary shops (Rs.58.51 crore), which were required three years after the commissioning of the Plant, non-sequential finalisation of contracts and premature receipt of equipment (Rs.30.39 crore), non-sequential execution of works (Rs.46.20 crore), untimely purchase of steel (Rs.50.00 crore) and construction of residential quarters (Rs.2.28 crore) without immediate need (Annexure-I). The Ministry stated (February 1999) the project implementation was being done as per the approved construction schedule, as such, the observation of Audit that money was spent on non-priority items was not correct.

The Ministry's reply is not convincing because when non availability of funds was a known constraint towards implementation of the Project as per the original construction schedule, the Company should have recast the construction schedule/readjusted the funds so as to avoid blocking up of funds on non-priority items.

2 .4 In view of the slow progress of construction and increase in overall cost of the project the Government deputed (August 1985) a high level delegation consisting of Secretary, Department of Steel, Chairman and Managing Director, RINL and Assistant General Manager (Design and Engineering) to South Korea to study the alternative models for implementation of Visakhapatnam Steel Plant on the ground that Republic of Korea during that period had achieved remarkable growth in the Steel industry. It is however not clear why the high level delegation was deputed to Korea since the production units of VSP upto SMS (upstream) were of Russian design and the rolling mills (down stream) were of German/Czechoslovakian design.

2.5 RATIONALISED CONCEPT

2.5.1 Based on the report of the delegation to South Korea, a Rationalised concept was envisaged (August 1986) to minimise the capital cost by deleting certain production facilities and making up the shortfall by obtaining higher levels of operational efficiency and labour productivity. The following important changes were envisaged:

- There would be only 1 Steel melt shop (SMS) instead of 2 shops, 3 converters each having a capacity of 150 tonne per heat instead of 5 Converters each having a capacity of 130 tonne per heat and 6 Continuous casting machines (CCMs) instead of 10 CCMs.

- The Universal beam mill (UBM) was deleted;

- Liquid steel capacity of 3.4 million tonne per annum was reduced to 3 million tonne per annum;

- Production of saleable steel was reduced to 26.56 lakh tonne per annum from 29.83 lakh tonne per annum; and

- Production of pig iron was increased to 5.56 lakh tonne per annum from 2.15 lakh tonne per annum.

2.5.2 Owing to implementation of Rationalised concept, certain works worth Rs.30.16 crore, which were completed or were under execution, were rendered infructuous. An additional expenditure of Rs.6.78 crore was also incurred towards compensation etc.as a result of shifting of delivery schedules for equipment and revising the scope of work of the Principal Consultants (Annexure-2). The Ministry stated (February 1999) decision regarding Rationalised concept was taken due to acute fund shortage and was a conscious decision. Such inevitable infructuous expenditure was kept to minimum. The Ministry further added that the object of the Rationalised Concept was to salvage the situation of abandoning the setting up of VSP at a stage when several facilities, were in advanced stage of construction.

On the technical front the Rationalised concept had far reaching consequences viz., mismatch between production capacities of Blast furnaces and SMS which had a deleterious impact on the long term viability of the entire project and certain imbalances as discussed in succeeding chapters.

2.5.3 According to the Rationalised Concept, a second revision (June 1988) of cost estimate of Rs.6849.70 crore was made. The first phase units were re-scheduled for commissioning by December 1988 and the second phase units by June 1990. The major production facilities and product mixes as envisaged in the Original concept vis-à-vis Rationalised concept are indicated in the Annexures 3 & 4.

The Rationalised Concept envisaged reduction of capital investment to the extent of Rs.1497 crore and reduction in project completion time by one year. In this connection, the following observations are made.

(i) The Rationalised concept was based on a narrow objective of saving costs to the exclusion of the other relevant factors like symmetry in production capacities. Subsequently, it proved to be costlier as the project cost had risen by Rs.1734.35 crore and the completion time had extended by two years (Annexure-5).

(ii) The Rationalised concept envisaged a change in the Internal Rate of Return (IRR). It was expected that in the first approved cost estimate IRR would be 5.1 per cent at full capacity utilisation of the plant, it was fixed at 6.56 percent in the revised approved cost estimate along with the Rationalised concept. Against this, the actual rate of return remained negative in all the years' upto 1997-98.

The Ministry, while agreeing that there were mismatches and cost/time overrun, stated that at that time the Public Investment Board had found the Rationalised Concept viable and the decision was considered when the Visakhapatnam steel plant was almost being shelved. It was further stated that the purpose behind reduction of one SMS was to reduce the project cost. The additional hot metal available in blast furnaces, due to deletion of one SMS, was proposed to be converted into Pig iron, which was in demand at that time.

The decision to delete one SMS proved wrong since the Company is going back to the original concept to have a second SMS and Rolling mill under the proposed expansion plan. The Ministry clarified (March 1999) that in order to utilise the excess capacities available in Blast Furnaces, it is proposed to install another SMS along with a new Rolling Mill to improve the viability of the Plant by producing more finished steel.

2.6 TIME AND COST OVER-RUN

2.6.1 The project was commissioned in July 1992. As on 31 March 1998 the actual expenditure was Rs.8258.95 crore. The time and cost overrun of the project is indicated below:

	Time Schedule for completion	**Estimated Cost (Rs. in crore)**
Original 1982	Dec'1987	3897.28
Revised 1988 (Rationalised Concept)	June'1990	6849.70
Revised 1991		8348.73
Revised 1995		8584.05
Time and cost over run with reference to:		
(a) Original Schedule	(a) 54 Months	(a) 4686.77
(b) Rationalised Concept	(b) 25 Months	(b) 1734.35

2.6.2 From the proceeding table it can be seen that the final cost estimate (July 1995) was Rs. 4686.77 crore higher than the original cost estimate (July 1982) representing an increase of 120.26 per cent. The accounts relating to the construction of the Project were yet to be closed however, the actual expenditure as on 31 March 1998 stood at Rs. 8258.95 crore. Component-wise break up of the cost overrun has been summarised in Annexure –6, which reveals that while the actual cost in respect of civil works as on 31 March 1998 was already higher than the original estimate by 92.80 per cent there was more than twofold increase in cost in respect of plant and equipment, custom duty, design and engineering, spares, township and off-site facilities etc.

Out of the total estimated cost overrun of Rs. 4686.77 crore, Rs. 368.13 crore was due to physical reasons like change in scope and volume of work etc., and Rs. 4318.64 crore was

attributed to monetary factors like price escalation, exchange rate variation and increase in duties and taxes etc. as indicated in the following table.

(Rs. in crore)

A. Physical reasons	
(i) Change in scope and volume of work/ specification	(-) 121.51
(ii) Increase in quantities/ estimates	344.33
(iii) Addition of new items	145.31
Total (A)	**368.13**
B. Monetary reasons	
(i) Escalation	1721.41
(ii) Exchange rate variation	812.23
(iii) Increase in duties and taxes	296.99
(iv) Increase in interest burden	530.08
(v) Other reasons	957.93
Total B	**4318.64**
Total increase (A+B)	**4686.77**

The Ministry stated (February 1999) that in a project of this magnitude, where site work had to be started along with detailed designing, the estimate had to be reviewed in stages for making investment decision and budget provision.

The reply of the Ministry is not tenable since despite adoption of the Rationalised concept, which led to deletion of certain production facilities the intended saving in time, and cost could not be achieved.

2.7 Other important points noticed on review of construction activity are mentioned below:

2.7.1 The original agreement with the Principal consultants (M/s M.N.Dastur & Co.) was to expire by June 1988. Consequent on adoption of the Rationalised concept, the commissioning schedule of the Project was revised and the Company requested (June 1986) the Principal consultants to come up with the proposal of resolving the various issues (deletion of certain units, additional works in SMS-I, revised commissioning schedule etc.). While giving their offer for such addition/deletion, the Principal consultants also included their offer for extension of the main agreement beyond June 1988 and demanded (December 1986) a fee of Rs.0.30 crore per month for their services. The Company did not finalise the said offer. The Company took up the matter again in March/April 1988, the Principal consultants quoted (April 1988) a fee of Rs.0.70 crore per month. The Management negotiated (December 1988) with the Principal consultants and settled the fee at Rs.0.44 crore per month. Delay on the part of the Management in finalising the rate for extension period resulted in additional expenditure of Rs.5.60 crore over a period of 3 years and 4 months between July 1988 and October 1991.

The Ministry stated (February 1999) that the subject of discussions for extension of running contract (main contract) during 1986 was too premature and would not have been realistic. The assessment of balance quantum of work on June 1988 would have been very approximate, had it been done in 1986 itself.

The reply of the Ministry is not correct since the fee of Rs.0.30 crore per month agreed by the Consultants was with reference to the time for completion of balance work and not with reference to the quantum of left over work. Moreover, failure to ascertain the balance work was indicative of lack of close supervision through flow charts and defect in the monitoring and evaluating the progress of left over works.

2.7.2 As per the terms of the contract with the Soviets for supply of major equipment for Sinter plant, Coke ovens, Blast furnace and SMS, claims for shortages /damages/defective supplies other than in sound packages, had to be preferred within 9 months from the date of supply. The Company, however, did not initiate action within the time limit and had to procure from the Soviets 1,236 missing and damaged items at a cost of Rs.9.80 crore.

The Ministry stated (February 1999) that the supplier's claims on the Company and the Company's claims on the supplier including the claim regarding the reimbursement of cost of 1236 missing/damaged items were discussed during the High Level Committee's meeting and considering all aspects an overall settlement was agreed upon in August 1995 and thus, it could be deemed that 1236 missing/damaged items were procured at no additional cost.

On verification of the minutes of the High Level Committee, it was, observed that the Company did not discuss the claim regarding reimbursement of cost of the 1236 missing/damaged items. Thus, the Ministry's reply that overall settlement with the supplier included this claim was not correct.

2.7.3 The Company, while filing (12) Bills of Entry for the purpose of payment of customs duty adopted incorrect rates of duty for the equipment and contract numbers which resulted in excess payment of customs duty of Rs.4.78 crore during the period from December 1987 to February 1990.

The Ministry stated (February 1999) that the bills of entry were assessed on provisional basis. Once all these contracts are finalised, the original documents will be submitted for claiming the difference. All out efforts were being made by the Company to expedite the closing of all the contracts and the work was expected to be completed at the earliest.

However, the fact remains that the settlement of the claims had been pending, even after 8 to 11 years.

2.7.4 Plant and Machinery:

Between 1985 and 1991 the Company invested Rs.22.41 crore on procurement and commissioning of 7 items of Plant and machinery which were not put to use till date (Annexure-7). Thus, blocking up of funds to the extent of Rs.22.41 crore on the items which were not required immediately resulted in loss of interest amounting to Rs.28.50 crore for different periods ranging from 85 months to 150 months as on June 1998.

The Ministry stated (February 1999) that a five member committee was constituted to go into the details of the equipment lying idle so as to suggest alternative use.

CHAPTER 3 : PRODUCTION PERFORMANCE AND MACHINE UTILISATION

3.1 The main production centres of the VSP are Coke ovens, Sinter plant, Blast furnace, Steel melt shop and Rolling mills viz., Light and medium merchant mill (LMMM), Medium merchant and structural mill (MMSM) and Wire rod mill (WRM). The sub-production centres of LMMM are Billet mill and Bar mill.

Production Process: The raw materials required in the process of manufacturing steel were Blast furnace coke, Sized iron ore, Manganese ore, Limestone and Sinter mix. These raw materials were converted into hot metal in Blast furnaces. The hot metal was fed to Steel Melt Shop (SMS) for conversion into liquid steel and also to Pig casting machines for casting Pig iron. In the SMS the requisite quality of liquid steel was determined by mixing hot metal with SMS grade lime stone/ dolomite, steel scrap and other ingredients with the help of converters to wean away impurities. The purified liquid steel was then poured into continuos casting machines to cast blooms which were sent to Rolling mills for production of semi-finished/finished steel products such as Billets. Rounds, Squares, Flats, T-Bars, Channels, Beams and Angles.

3.2 The Production process flow chart at 30 lakh tonne (liquid steel) stage and the actual input and output at each production centre for the period 1992-93 to 1997-98 along with the norms specified in the DPR are indicated in the Annexures-8 & 9.

3.3 PRODUCTION STATISTICS

3.3.1 The performance of Plant is measured in terms of growth of production and capacity utilisation. The Management earmarks annual production targets, taking into consideration working capacity of Steel melt shop (SMS) for providing suction effect on upstream production centres viz., Coke ovens, Sinter plant and Blast furnace as well as making input material for the down-stream production centres i.e., Rolling mills.

The table given below indicates the over all production performance of Plant for various iron and steel products for six years from 1992-93 to 1997-98.

Product	Installed capacity	Target/ Actual product-ion	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
	(In lakh tonnes)							
Hot Metal	34.00	TP	26.00	26.35	30.00	32.00	34.00	34.00
		AP	19.81	23.69	28.36	32.13	32.14	31.65
		(PAC)	(58)	(70)	(83)	(95)	(95)	(93)
		(PAT)	(76)	(90)	(95)	(100)	(95)	(93)
Pig Iron	-	TP	8.50	8.10	7.60	6.03	3.01	3.01
		AP	9.14	9.85	8.48	7.70	7.00	5.21
		(PAC)	(-)	(-)	(-)	(-)	(-)	(-)
		(PAT)	(108)	(122)	(112)	(128)	(233)	(173)
Liquid Steel	30.00	TP	18.00	24.00	20.00	25.00	30.00	30.00
		AP	10.52	13.55	19.40	23.81	24.23	25.42
		(PAC)	(-)	(45)	(65)	(79)	(81)	(85)
		(PAT)	(58)	(56)	(97)	(95)	(81)	(85)
Blooms	28.20	TP	16.92	22.56	19.40	23.50	28.20	27.60
		AP	9.50	12.19	17.55	21.56	21.80	23.06
		(PAC)	(-)	(43)	(62)	(76)	(77)	(82)
		(PAT)	(55)	(54)	(90)	(92)	(77)	(84)
Billets	18.57	TP	12.72	12.99	14.87	17.10	18.57	18.57
		AP	7.86	9.38	12.72	14.95	15.01	15.98
		(PAC)	(42)	(51)	(68)	(81)	(81)	(86)
		(PAT)	(62)	(72)	(86)	(87)	(81)	(86)
Bar Mill Products	7.10	TP	3.50	3.50	2.50	4.80	6.00	5.00
		AP	0.61	1.17	2.39	3.44	3.70	4.40
		(PAC)	(09)	(16)	(34)	(48)	(52)	(62)
		(PAT)	(17)	(33)	(96)	(72)	(62)	(88)
MMS Mill Products	8.50	TP	3.20	3.00	2.00	4.25	5.70	5.00
		AP	0.56	1.38	1.93	2.71	3.48	4.30
		(PAC)	(07)	(16)	(23)	(32)	(41)	(51)
		(PAT)	(18)	(46)	(97)	(64)	(61)	(86)
Wire Rods	8.50	TP	5.50	5.50	6.00	6.80	8.50	8.50
		AP	4.22	4.11	5.37	7.25	7.34	7.45
		(PAC)	(50)	(48)	(63)	(85)	(86)	(88)
		(PAT)	(77)	(75)	(90)	(107)	(86)	(88)
Saleable Steel	26.56	TP	-	15.66	17.55	22.47	25.50	26.56
		AP	-	11.84	15.60	21.36	21.36	22.50
		(PAC)	-	(45)	(59)	(80)	(80)	(85)
		(PAT)	-	(76)	(89)	(95)	(84)	(85)

TP: Targeted Production; **AP:** Actual Production; **PAC:** Percentage of actual production to installed capacity, in brackets. **PAT**: Percentage of actual production to targeted production, in brackets.

Note: The targets fixed under Memorandum of Understanding with the Ministry and targets fixed by the Management for the years 1995-96 to 1997-98 in respect of Hot Metal, Pig Iron, Liquid Steel and Saleable Steel are the same.

As analysis of production performance revealed the following trends:

(i) The percentage of achievement to targeted production was low throughout the period 1992-93 to 1997-98 although the targets fixed in respect of all products were either equal or less than the installed capacity. The loss of contribution due to shortfall in production of 32.52 lakh tonne of blooms compared to targets during the period from 1992-93 to 1997-98 worked out to Rs.500.45 crore.

(ii) According to DPR (Rationalised Concept) only 5.56 lakh tonne of pig iron was to be produced, but the Company had been producing pig iron in excess of DPR targets as the SMS was not capable of taking the hot metal due to mismatch in capacity. In view of this, the percentages of actual production of pig iron to targeted production during the six years from 1992-93 to 1997-98 rose from 108 percent to 233 percent. Forced diversion of hot metal towards production of pig iron instead of steel products led to a contribution loss of Rs.168.73 crore during the years from 1994-95 to 1997-98 as the contribution from pig iron was lower than that of steel products.

(iii) The DPR provided for a product mix of saleable steel of 26.56 lakh tonne including saleable billets to the extent of 2.46 lakh tonne. Accordingly the Ministry also fixed saleable steel production targets under MOUs from 1995-96 onwards. However, it was observed that while reporting the actual production of saleable steel against the targets fixed under MOUs during the three years 1995-96 to 1997-98, the Company included blooms of 9.64 lakh tonne, and also billets of 4.13 lakh tonne in excess of the limit of 2.46 lakh tonne per annum. As a result the Company reported saleable steel during the period from 1995-96 to 1997-98 as 65.22 lakh tonne against the actual saleable steel of 51.45 tonne.

The Ministry (February 1999) stated though the sale of blooms was not envisaged in DPR, in practice it was observed that generation of some non-rollable blooms was inevitable. Such blooms were included in saleable Steel Production. Billets produced in excess of requirement of WRM and Bar mill were included in the saleable steel production. However the percentage of semis in saleable steel came down from 38 per cent in 1992-93 to 29 per cent in 1996-97.

The Ministry's reply is factually incorrect. The reported saleable steel included not only 'non-rollable blooms' but also 'rollable blooms'. The inclusion of such rollable blooms was increasing year after year. As regards billets the Management had elsewhere stated (March 1998) that the capacity utilisation of the WRM and Bar Mill was low mainly due to non-availability of input material (i.e. Billets).

As regards non-achievement of installed capacity, the Ministry stated (February 1999) that the achievable capacity of the company was only 27 lakh tonne of liquid steel per annum as per the report of the consultants M/s A.T.Kearney appointed by the Company. The Ministry further stated (March 1999) that to achieve the rated capacity of 30 lakh tonne of liquid steel M/s A.T.Kearney had suggested some improvements requiring additional investment and until and unless the bottlenecks are taken care of, the Company can not produce 30 lakh tonne.

In this connection, it is pertinent to mention that M/s. Dastur & Co., the Principal consultants, categorically stated (1986) in their comprehensive Report on Rationalised concept that with the existing design, steel-melting shop would be in a position to produce 30 lakh tonne of liquid steel. Further M/s Tyazhpromexport, Russia who were the designers and suppliers of the SMS/CCM equipment, expressed (January 1997) in their report that, subject to exercising permanent control over the condition of the equipment, utilisation of optimum technology and proper production planning, the SMS was capable of exceeding the rated output of 30 lakh tonne of liquid steel per annum. Similarly, the opinion expressed by Dr. P.L.Agarwal, an eminent metallurgist and ex-Chairman of SAIL, in December 1996 was also the same. Further, as per the recommendations of Public Investment Board the Company invested about Rs.50 crore during 1996-97 and 1997-98 towards providing balancing facilities for achieving the installed capacity of 30 lakh tonne of liquid steel per annum. Thus, against this background of varying opinions, endorsing the view of M/s A.T. Kearney that VSP is not capable of achieving a capacity of 30 lakh tonne of liquid steel per annum needs critical examination by the Government.

3.4 UNIT-WISE PERFORMANCE

3.4.1 The performance of various production units is discussed in the succeeding paragraphs. For this purpose, the performance parameters upto Blast furnace stage were compared with norms envisaged in the Comprehensive Revised DPR (CRDPR) while from SMS onwards the performance parameters were compared with the norms envisaged in the Comprehensive report on Rationalised concept (CRRC), since the units from SMS onwards were designed, based on the Rationalised concept. In the subsequent paragraphs, the term 'DPR' had been used for the purpose of comparing the norms as per CRDPR/CRRC. The actual commissioning date of various production units is indicated in Annexure-10.

3.5 PERFORMANCE OF COKE OVENS

3.5.1 There are three batteries each having 67 ovens. Each oven has a volume of 41.6 MT and can hold 31.6 MT of dry coal charged. The carbonisation time is 15 hours. The following observations are made with reference to the performance of Coke ovens for six years from 1992-93 to 1997-98 (Annexure-11).

(i) The DPR envisaged the use of indigenous coal and imported coal in coke oven in the ratio of 80:20 to achieve 77 percent yield of gross coke. However, due to non-availability of indigenous coal the company decided (February 1991) to use indigenous and imported coal in ratio of 30:70. Despite increased use of imported coal the actual yield had declined continuously from 76 per cent in 1992-93 to 74.9 per cent in 1997-98. As a result, the Company could not produce 2.79 lakh tonne of coke worth Rs.98.21 crore.

The Ministry clarified (March 1999) that as the RINL is a port based Company, it preferred to use imported coal. It was preferred considering the low ash content and it worked out to be more economical than indigenous medium coking coal. The Management stated (March 1998) that the lower gross coke yield was mainly due to high volatile matter in imported coking coal. The Management's reply is not tenable because while the maximum volatile matter was ranging between 29.43 and 26.95 per cent, the average volatile matter in imported coking coal (24.59 to 24.26 %) was within the DPR norm of 26 per cent.

(ii) In all the years the targets fixed for pushing of ovens were much lower than the DPR norm. The Company could not even achieve the target thereby taking more carbonisation time per oven i.e.. 17.8 hours to 29.8 hours during 1992-93 to 1997-98 as against 15 hours envisaged in the DPR. The Ministry clarified (March 1999) that since the requirement of coke in Blast furnaces was reduced the number of pushing in the coke ovens were also reduced deliberately by increasing carbonisation time by maintaining low temperature.

Consequently, high cycle time did not provide the required time for servicing of batteries to meet the technological requirements for maintenance. This in effect had a direct impact on the life span of the coke oven batteries. Further, as the coke oven batteries required very high degree of operational and technological discipline, particularly for cleaning and sealing after each pushing and charging, the maintenance and upkeep of the batteries was required to be done on regular basis and any lapse in operational/technological discipline would shorten the life span of coke ovens. This observation was supported by the fact that the coke oven batteries of Plant had developed serious faults/defects within a short span of operation. The Management invited the Russian experts, who carried out the inspection of the batteries in July 1998. The Russian expert reported that the servicing of all the batteries was low which did not meet the technological requirement of maintenance leading to speedy damage of brickwork and anchorage because of the following deficiencies.

- unsatisfactory charging in coke ovens viz., non-observance of sequence charging/evenness of charging/proper regime of leveling etc.

- unsatisfactory pushing due to non-observance of cyclic stoppages, low level of exploitation, bad discipline of service teams, bad condition of coke machines etc.

- unsatisfactory heating of ovens due to long periods of heating, over/under heating of walls etc.

Thus, inadequate maintenance, improper operation, insufficient technological discipline, improper supervision and control of Coke ovens had the following effects:

(a) As against the DPR norm of 300 pushings per day, the Company achieved 262 pushings per day in 1995-96 which came down to 243 pushings per day in 1997-98 and it further deteriorated to 136 pushings per day (45 *per cent* of installed capacity) in November 1998.

(b) As a result of shortfall in production of coke (input of Blast Furnaces), the capacity utilisation of the Blast furnaces came down to the level of 47 *per cent* in November 1998.

(c) Due to poor utilisation of coke ovens batteries, the availability of coke oven gas (fuel to run the Rolling mills) was affected. Consequently, Rolling mills were forced either to stop production (MMSM in November 1998) or to run at a very low utilisation level (i.e., 21 per cent, 23 per cent and 32 per cent of the rated capacities of Bar mill, Wire rod mill and Billet mill respectively in November 1998).

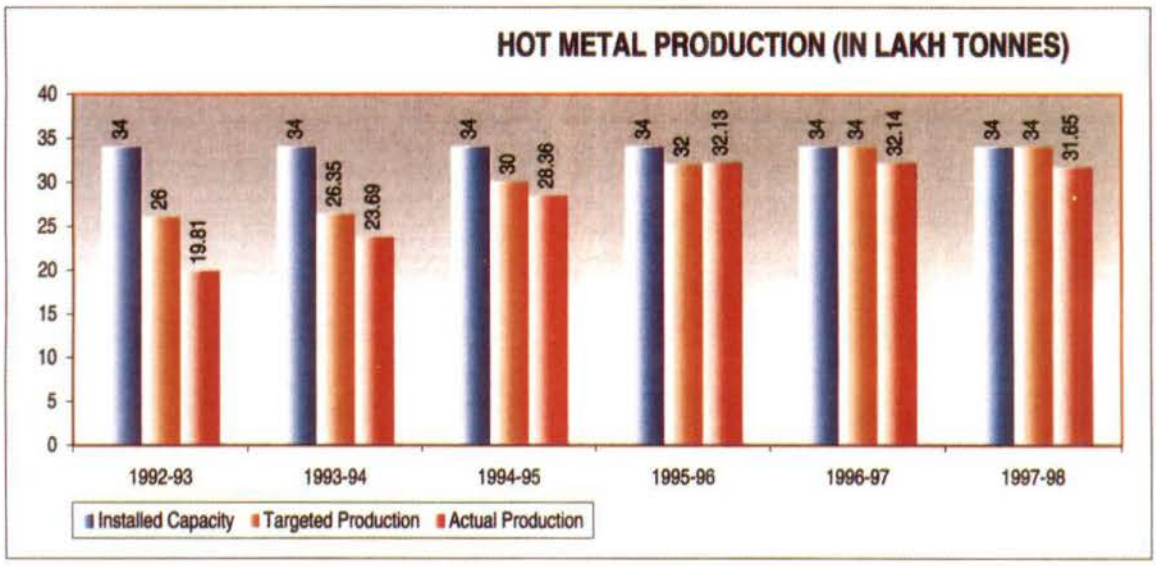
(d) The normal life of 12 to 15 years of batteries was reduced to 6 to 9 years and according to the Management itself the situation warranted rebuilding of the battery at a cost of Rs.150 crore, besides installation of one additional battery costing Rs.350 crore.

During the course of Audit Board meeting (March 1999), the Management attributed the poor performance of coke ovens to (i) industrial relation problems; (ii) strike in 1998 causing stoppage of coke ovens; (iii) delays in pushings, maintenance problems, improper sealing and (iv) vagaries of work culture in the plant. However, damage to coke ovens was a serious matter and could have occurred due to technical violation in the operation and maintenance of coke oven batteries.

3.6 PERFORMANCE OF BLAST FURNACES (BFs)

3.6.1 It was envisaged in the DPR that with the use of 80% of indigenous coking coal, the two Blast furnaces having a volumetric capacity of 2300 cum. would produce 34 lakh tonne of hot metal per annum. Out of the total production of hot metal, a quantity of 28.15 lakh tonne would be sent to Steel melting shop for production of liquid steel and the balance of 5.85 lakh tonne would be diverted to Pig casting machines for production of pig iron.

3.6.2 Production Performance: Against the installed capacity of 34 lakh tonne of hot metal, the actual production increased from 19.81 lakh tonne (1992-93) to 32.14 lakh tonne (1996-97). The production of Hot metal decreased to 31.65 lakh tonne during 1997-98.



The specific reasons for low production in the Blast furnaces were as follows:

- as against the required production per day (1.52 tonne/cum/day) the actual productivity obtained in both the furnaces ranged from 0.85 tonne (1992-93) to 1.39 tonne (1996-97);
- the actual production per cast has low in BF-I (ranging from 304 tonne to 382 tonne) as compared to BF-II (ranging from 315 tonne to 418 tonne) during the years 1993-94 to 1997-98; and
- the slag rate increased from 337 kg/tonne in 1993-94 to 375 kg/tonne in 1996-97.

The Ministry stated (February 1999) that, since SMS could not take hot metal to the extent of 28.15 lakh tonne per annum as per M/s. A.T. Kearney's report, the excess hot metal had been diverted to Pig casting machines for production of pig iron by restricting utilisation of Blast Furnaces to certain extent and that the production levels of Blast furnaces were also adjusted in view of very high stock of pig iron.

Thus due to mismatch in capacity of Blast Furnaces and SMS, company could not utilise the full potential of the Blast Furnaces.

3.7 PRODUCTION OF STEEL MELT SHOP (SMS)

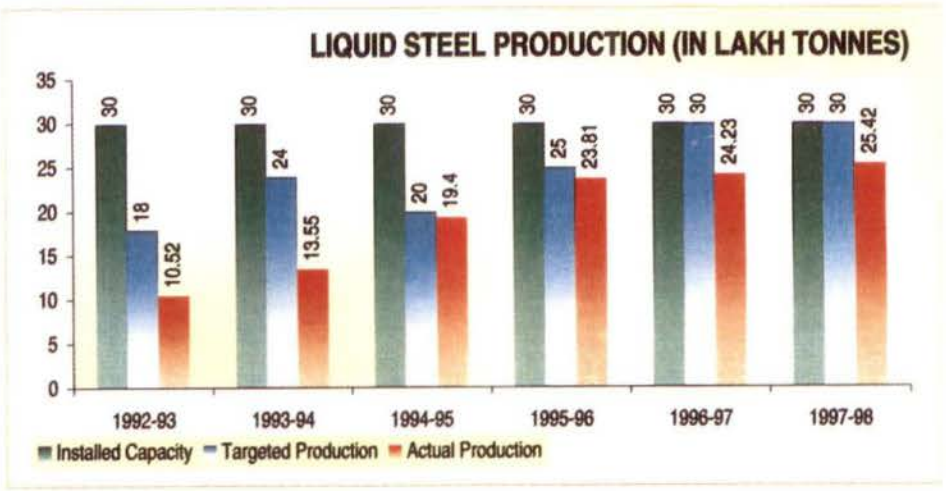
3.7.1 The Original DPR provided for installation of five Converters in SMS each having a volumetric capacity of 133 cum to produce 130 tonne of liquid steel per heat per converter. In Rationalised concept it was envisaged to produce 150 tonne of liquid steel as against 130 tonne of liquid steel per heat per converter by higher operational efficiency without increasing the volumetric capacity of the converters. The number of converters was reduced to three to match the higher operational efficiency and all other related equipment in SMS was provided to match with the revised heat size.

3.7.2 As per the Rationalised concept, the annual capacity of Steel melt shop was 30 lakh tonne of liquid steel. To produce 30 lakh tonne of liquid steel, the production centre was required to take 28.15 lakh tonne of hot metal from Blast furnace and the rest 1.85 lakh tonne was to be consumed in the form of steel scrap and other ingredients.

The production performance of Steel melt shop for the period from 1992-93 to 1997-98 is indicated below:

(In lakh tonnes)

Year	Installed capacity	Targeted production	Actual production	Percentage of actual production to	
				Installed Capacity	targeted production
1992-93	30.00	18.00	10.52	35	58
1993-94	30.00	24.00	13.55	45	56
1994-95	30.00	20.00	19.40	65	97
1995-96	30.00	25.00	23.81	79	95
1996-97	30.00	30.00	24.23	81	81
1997-98	30.00	30.00	25.42	85	85



Actual production of liquid steel increased from 45 per cent to 85 per cent of installed capacity during the five years from 1993-94 to 1997-98.

The reasons for low production in SMS were:

- high tap to tap time which ranged between 71 minutes (1997-98) and 130 minutes (1992-93) as against 50 minutes envisaged in the Rationalised concept;

- less lining life time of converters (1992-93 to 1994-95) which ranged between 179 heats (1992-93) and 249 heats (1994-95) as against 300 heats envisaged in the Rationalised concept i.e., the actual heats obtained per day ranged between 25.0 (1993-94) and 46.0 (1997-98) as against 57.2 heats per day as envisaged in the Rationalised concept.

The Ministry stated (February 1999) that

(i) Tap-to-tap time is a parameter which depends on the over all operation of the shop. Unless the shop reaches 100 per cent capacity, tap-to-tap time can not be reduced to 50 minutes.

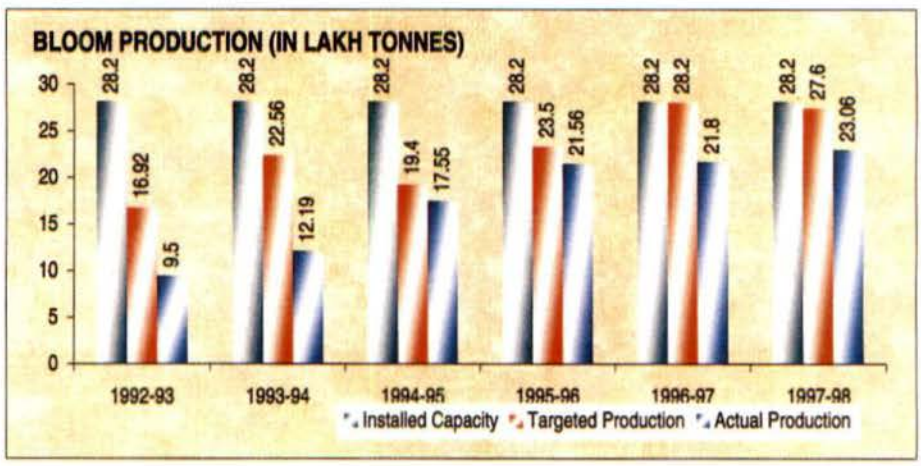
(ii) With the improvement in skill level to a considerable extent and with the provision of some of the balancing facilities, lining life improved to 316 heats in 1995-96.

(iii) Total automation is a must to synchronise both converters and CCM to achieve 100 per cent capacity utilisation.

The Ministry further added (March 1999) the height/diameter (H/D) ratio of converter in RINL was much lower as compared to the other steel plants and to achieve the rated capacity of 30 lakh tonne of liquid steel M/s A.T. Kearney, the Consultant suggested some improvement requiring additional investment. Thus until and unless the bottlenecks are taken care of the Company cannot produce 30 lakh tonne of liquid steel.

The reply of the Ministry reinforces audit's contention that a number of technical lacunae appeared because of poor planning and faulty investment decisions. Adoption of Rationalised concept led to inadequate automation and balancing facilities because of which the Company was yet to achieve full utilisation of the capacity of SMS (as discussed in detail in paragraphs 3.7.3, 3.7.4 and 3.7.5).

3.7.3 Performance of Continuous casting machines: The production centre has six Continuous casting machines (CCMs) for casting 28.20 lakh tonne of blooms out of 30 lakh tonne of liquid steel per annum. The actual production of blooms in CCMs varied from 9.5 lakh tonne (1992-93) to 23.06 lakh tonne (1997-98). To achieve the desired yield of blooms and to derive maximum benefit of sequence casting, the operations of the converters and the CCMs had to be well co-ordinated. It was, however, noticed that due to lack of synchronisation in operation of converters and CCMs, the actual number of heats cast in CCMs ranged from 5.12 to 7.69 per sequence as against the DPR norm of 10 heats per sequence during the six years from 1992-93 to 1997-98.



3.7.4 Utilisation of Continuous casting machines (CCMs): The utilisation of CCMs in 1997-98 was only 61.4 per cent and it's under utilisation been a constraint in achieving the rated capacity of the Rolling Mills. The reasons for under utilisation were high idle time hours and machine preparation time (38.6% of available hours in 1997-98). The Ministry stated (March 1999) that the main problem in casters (CCMs) was the speed viz. presently it took 110 minutes for casting one heat as against the norm of 100 minutes per cast envisaged in the Rationalised concepts. And as such lower speed in casters affected the utilisation of the Converters since the operations of the converters and casters were to be synchronised. It may be mentioned here that as per the DPR, after casting one sequence of 10 heats, the CCM has to be stopped for 1 hour 40 minutes for setting and preparation for casting next sequence, while average time taken for the same was as follows:

Year	Hours/Minutes
1993-94	11 48
1994-95	7 00
1995-96	5 36
1996-97	5 24
1997-98	4 18

The Ministry stated (February/ March 1999) that machine preparation time was reducing with the improvement in skill of the workmen and total automation was required to eliminate breakdowns, which could not be done due to non-availability of funds. Further the identified problems in CCM Casters could not be rectified due to non-availability of funds. However, the Company could invest Rs.6.5 crore to provide instrumentation/ automation in one CCM and after studying the results they would take a decision regarding other CCMs.

The Russian Experts who inspected (February 1997) the operations of SMS stated that the converters and CCMs were in an unsatisfactory condition, requiring major repairs and maintenance and replacement of worm out units. Some vital technological equipment was out of operation/though operative was phased out from the technological process. Further, Dr. Agrawal, an eminent Metallurgist and ex-Chairman of SAIL, who inspected (December 1996) the SMS, remarked (June 1997) that the reasons for low production in bloom casters was poor utilisation of bloom casters as compared to Bhilia Steel Plant. The Company must target to produce 5,50,000 tonnes of blooms per year per caster and improve the yield of prime blooms. Dr. Agrawal also stated (June 1997 and March 1999) that one of the reasons for poor performance of the bloom caster was lack of essential instrumentation, automation, and ventilation leading to high breakdowns. When the casters were started they were provided with various instruments, which went out of use in the earliest stages of operation, and some of them were damaged. Thus, under utilisation of CCMs had affected the utilisation of converters as well as Rolling Mills. It was observed that the rectification of problems of CCMs identified long ago were not given proper priority.

3.7.5 YIELD:

As per the DPR norm, the yield of prime blooms was to be 94 per cent and the balance 6 per cent was to be in form of scrap. The DPR did not contemplate generation of defective blooms, which cannot be further processed. However, the actual yield of prime blooms during the six years from 1992-93 to 1997-98 ranged from 82.1 per cent in 1993-94 to 88.3 per cent in 1997-98. Taking into consideration defective blooms the yield would go upto 90 per cent in 1993-94 and 90.7 per cent in 1997-98. The non-achievement of yield in terms of DPR norm resulted in excess generation of scrap. Since the incidence of defective blooms was on the higher side, managerial control was needed

with a view of provide input to Rolling Mills. The actual loss due to lesser yield of blooms worked out to Rs.9.85 crore. The yield of gross bloom from liquid steel was only 90.73 per cent in 1997-98 as against 95.26 per cent at Bhilai Steel Plant from Caster of similar design. The Ministry stated (March 1999) that it was improving.

3.7.6 The Company engaged an Austrian Firm in (June 1994) for providing technical assistance and training of personnel of the Company for a period of three years commencing from July 1994 at a total consideration of Rs.89.55 crore with a view to gradually achieve 28.80 lakh tonne of blooms as per annum by June 1997. At that point of time, the Management had assessed that by 1996-97 production level of 23.20 lakh tonne of Blooms per annum could be achieved without any outside assistance. However, with the assistance of the Austrian Firm, the Company finally achieved production of 21.80 lakh tonne of blooms per annum by 1996-97. Due to non-achievement of desired result the contract was foreclosed in March 1997 after releasing a sum of Rs.57.92 crore. Thus, the expenditure of Rs.57.92 crore was rendered infructuous due to Company's failure to link payment of fee with actual achievement of yield.

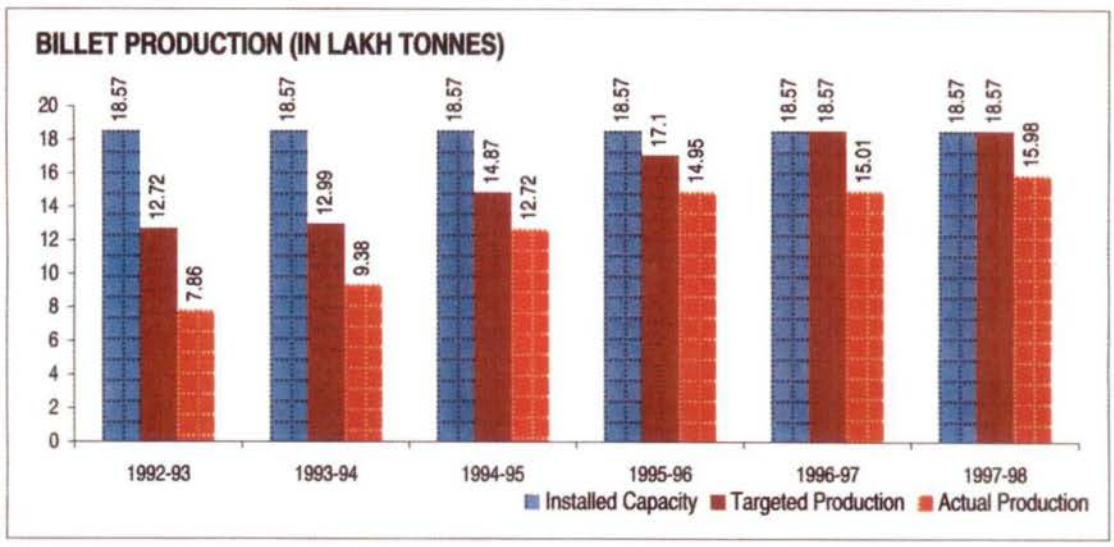
The Ministry stated (February 1999) that in order to reduce the expenditure the contract period was reduced by 3 months.

3.8 ROLLING MILLS

3.8.1 The production centre had three sub-centres, namely (a) Light and medium merchant mill (LMMM), (b) Medium merchant and structural mill (MMSM) and (c) Wire rod mill (WRM). The LMMM consisted of Billet mill and Bar mill.

3.8.2 BILLET MILL

3.8.2.1 The Billet mill had a capacity to roll 19.65 lakh tonne of blooms to produce 18.57 lakh tonne of billets per annum. This was meant for providing input to the Bar mill and Wire rod mill to the extent of 7.26 lakh tonne and 8.85 lakh tonne of Billet respectively and the balance quantity of 2.46 lakh tonne of Billet was for sale. The actual production in Billet mill increased from 7.86 lakh tonne (1992-93) to 15.98 lakh tonne (1997-98) i.e. the capacity utilisation increased from 42 *per cent* to 86 per cent during the period from 1992-93 to 1997-98.

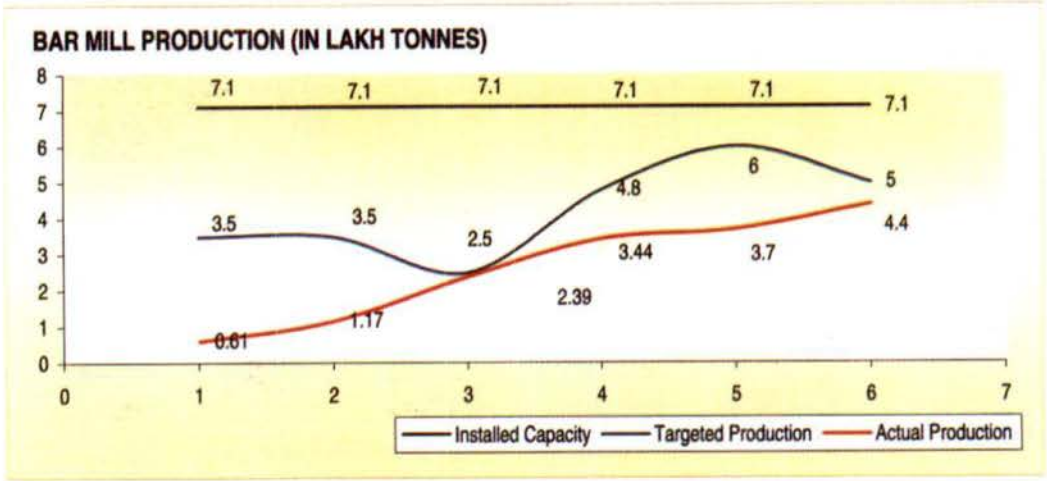


The Ministry stated (February 1999) the Billet was online with Bar mill and both were inter-dependent. Unless Bar mill achieved full capacity utilisation, Billet mill could not reach full capacity utilisation. At the time of adopting the Rationalised concept it was not foreseen that the synchronisation of Billet Mill and Bar Mill could become a problem in practice in the absence of separate reheating facility for Bar Mill input. The Management stated (May 1998) the reheating facilities could not be provided due to shortage of space.

Thus, non-provision of separate reheating facility in Rationalised concept became a constraint in achieving the rated targeted capacity of the Billet Mill.

3.8.3 BAR MILL

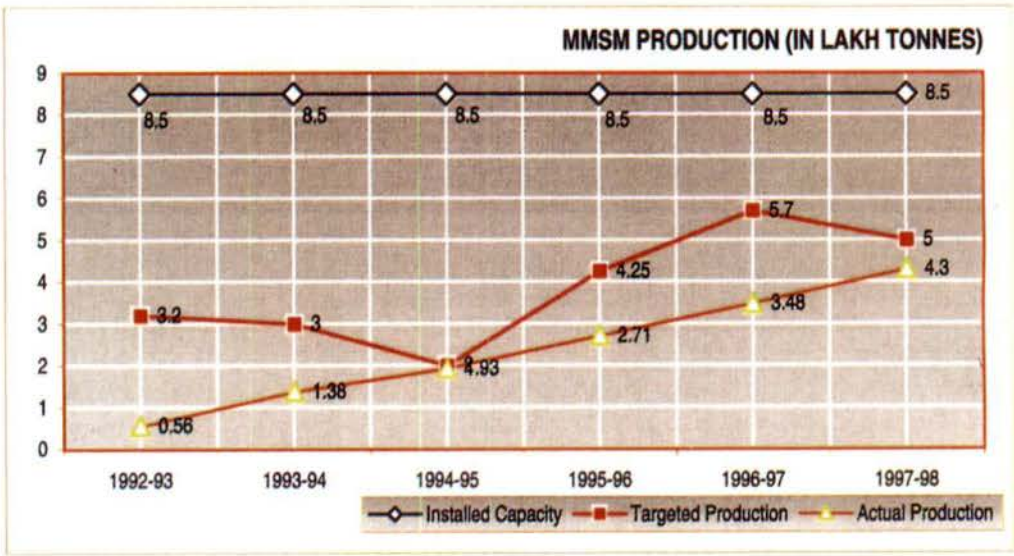
3.8.3.1 A review of the production performance as compared to installed capacity of Bar Mill for the six years from 1992-93 to 1997-98 revealed that the actual production of Bar Mill increased from 0.61 lakh tonne (1992-93) to 4.40 lakh tonne (1997-98). The capacity utilisation was very poor, it increased from 9 per cent in 1992-93 to only 62 per cent in 1997-98. The percentage of utilised hours to available hours in the Bar mill during the six years from 1992-93 to 1997-98, was also very low which increased from 20.3 per cent to 47.9 per cent. The actual hourly production (123 tonne in 1997-98) was far below the DPR norm of 157.2 tonne per hour.



The Ministry attributed (February 1999) the low capacity utilisation of Bar mill to absence of separate reheating facility.

3.8.4 MEDIUM MERCHANT AND STRUCTUAL MILL (MMSM)

3.8.4.1 The mill was designed to produce various MMSM products by rolling the blooms received from Continuous casting machines (CCMs). A review of the production performance of the MMSM as compared to installed capacity for the six years from 1992-93 to 1997-98 revealed that the actual production of MMS mill increased from 0.56 lakh tonne (1992-93) to 4.30 lakh tonne (1997-98). The capacity utilisation was very low and it increased from 7 per cent in 1992-93 to 51 per cent in 1997-98.



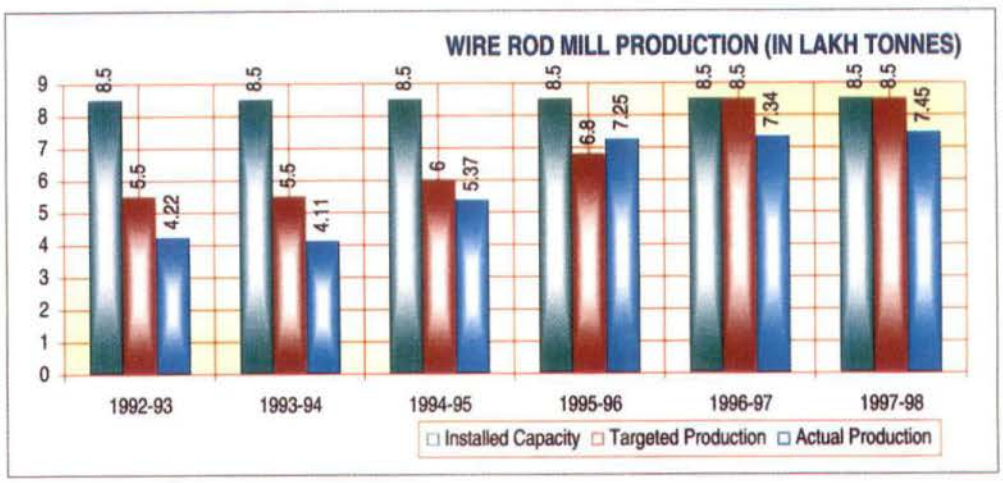
The utilised hours to available hours during six years from 1992-93 to 1997-98 were very low ranging from 19 percent in 1992-93 to 47 per cent in 1997-98. Unutilised hours were mainly due to mechanical and electrical problems etc.

The Ministry stated (March 1999) that to achieve the rated capacity some investment was required for certain rolls which were to be procured for rolling the products as per the market demand. Reply of the Ministry is not acceptable, as the Company should have

taken appropriate steps to procure suitable rolls to achieve the rated capacity and produce products as per the demand in the market.

3.8.5 WIRE ROD MILL (WRM)

3.8.5.1 A review of production performance of the Wire rod mil revealed that the Company was yet to achieve the DPR norm of 8.50 lakh tonnes per annum even after completion of 6 years of operation. The actual production of WRM increased from 4.11 lakh tonne (1993-94) to 7.45 lakh tonne (1997-98). The capacity utilisation increased from 48 percent (1993-94) to 88 percent (1997-98).



The Management stated (March 1998) that the capacity utilisation of the Wire rod mill was low mainly due to non-availability of input material (Billet) as per market demand.

The Management's reply is not acceptable as the Company sold the prime billets to a larger extent without making use of it even though these billets were rollable in Wire rod mill.

In this connection, the Ministry stated (February 1999) that billets suitable for Wire rod mill were not sold. On verification, it was seen in audit that in all the years (1992-93 to 1996-97), 14.19 lakh tonne of billets suitable for rolling in Wire rod mill were sold.

CHAPTER 4 : MAN POWER ANALYSIS

4.1 As per the Rationalised concept (August 1986), for achieving the production-level of 30 lakh tonne of liquid steel (at 100 per cent of installed capacity) the manpower requirement was assessed at 13,530 employees comprising 12,265 for works and 1,265 for non-works. An Expert Committee constituted by the Company assessed (January 1992) the manpower requirement at 18,100 comprising 15,700 for works and 2,400 for non-works. The Government of India approved (July 1995) the total manpower at 17,800. However, the actual man-power deployed as on 31st March 1998 was 17,354 comprising 14,283 for works and 3,071 for non-works; and this was at the production-level of 25.42 lakh tonne of liquid steel (at 85 per cent of installed capacity).

4.2 The Expert Committee also fixed the productivity norm of 200 tonne per man-year while it was 231 tonne of liquid steel per man-year as per Rationalised Concept. As against these, the actual productivity per man-year during the six years upto 1997-98 was 110 tonne, 118 tonne, 156 tonne, 185 tonne, 186 tonne and 189 tonne of liquid steel respectively.

4.3 An analysis of the impact of increase in wages & salaries (in real terms i.e. after excluding the Dearness Allowance) on the unit cost of producing steel at VSP revealed the following:-

Year	Cost of man power per tonne	Industrial D.A included in wage per tonne	Average wages per tonne excluding D.A.	Increase per tonne with reference to base year 1992-93		Average sale price of steel product per tonne@	Increase in average sales prices per tonne w.r.t. base year 1992-93	Percentage increase in real wages compared to increase in sale price per tonne
				Increase in man power cost per tonne	Average increase in wages excluding D.A & incentive.			
1992-93	503	104	399	-	-	9221	-	-
1993-94	555	105	450	52	51	9528	307	16.6
1994-95	610	125	485	107	86	10793	1572	5.5
1995-96	716	161	555	213	156	11337	2116	7.3
1996-97	764	138	626	261	227	11971	2750	8.3
1997-98	*960	184	776	457	377	11907	2686	14.0

@ Average sale price of steel products includes excise duty and excludes discounts allowed to customers

* Increase in wages during 1997-98 was on account of pay revision

The increase in manpower cost varied between Rs.52 per tonne (1993-94) and Rs.457 per tonne (1997-98) whereas the increase in real wages excluding Dearness Allowance varied between Rs.51 per tonne (1993-94) and Rs.377 per tonne (1997-98) during the years from 1993-94 to 1997-98 considering wages of 1992-93 as the base year. The percentage increase in real wages compared to increase in sale price per tonne during the years from 1993-94 to 1997-98 varied between 5.5 per cent (1994-95) to 16.6 per cent (1992-93). The manpower cost remained high due to under-utilisation of Plant capacity and particularly due to wage revision during 1997-98.

The Ministry stated (February 1999) that the Plant was in the process of achieving full capacity, the level of labour productivity as envisaged would be met once the total capacity was achieved.

CHAPTER 5 : MATERIAL MANAGEMENT AND INVENTORY CONTROL

5.1 The stores purchase procedure which was in existence since September 1981 was revised in October 1993 codifying the procedures for purchase of raw materials, stores and spares, equipment and other materials and also revising the delegation of powers to various authorities. The Company also maintained a Stores procedure manual codifying the procedures to be followed for receipt, custody, stock control and issue of stocks and disposal of scrap and surplus materials etc. The Company did not prescribe the minimum, maximum, reserve stock limits and re-ordering levels for various items of stores and spares, despite the fact that the value of annual consumption of stores and spares was around Rs.260 crore (March 1998).

5.2 INVENTORY OF STORES AND SPARES

5.2.1 The value of inventory and consumption of stores and spares for six years from 1992-93 to 1997-98 is indicated in the table given below:-

(Rs.in lakhs)

Year ended 31st March	Value of stores and spares excluding obsolete stock	Value of stores and spares in transit & under inspection	Total	Value of consump-tion	Stock of stores and spares in terms of months' consump-tion
1993	36101.63	4926.33	41027.96	17465.69	28.2
1994	34277.60	5900.51	40178.11	16502.46	29.2
1995	36193.63	3144.36	39337.99	20926.75	22.6
1996	35983.21	4088.33	40071.54	26167.21	18.4
1997	38282.34	6082.14	44364.48	28320.06	18.8
1998	39670.08	4019.92	43690.00	26140.22	20.1

5.2.2 No norms for holding inventory of stores and spares had been fixed by the Company. The present level of inventory of stores and spares at 20.1 months consumption as on 31st March 1998 was very high.

The Ministry stated (February 1999) that attempt was being made to limit the inventory levels to 4 months for consumables and 8 months for spares.

5.3 NON-MOVING/SLOW-MOVING STORES AND SPARES

5.3.1 As per the codified Stores procedures of the company, all general items not moving even once during last one year and spares not moving during the last three years were to be categorised as non-moving. While general items not moving for more than two occasions during the last one year and spares not moving during the last two years were to be categorised as slow-moving (identified insurance items to be excluded for the purpose).

Out of the total value of Stores and spares held as on 31st March 1998, the value of non-moving items (Rs.106.64 crore) constituted 24.4 per cent. These non-moving items, included certain initial spares valuing Rs.90.43 crore, procured alongwith the main plant during the construction stage. The non-moving items (excluding insurance spares) were lying in the Stores for periods ranging from one year to eleven years.

The Ministry stated (February 1999) that most of the non-moving and slow moving spares were received alongwith the equipment and serious efforts were being made to put these non-moving spares to alternate use before they were declared surplus. They further stated that the Company had revised the code for identification of these non-moving, slow-moving and insurance items.

However the reply of the Ministry was not convincing since no effective action was initiated except changing the code for identification. Further, there were no issue of material since the date of procurement, in respect of seven items of stores/spares valuing Rs.6.43 crore and 30 items each valuing more than Rs.0.10 crore with an aggregate value of Rs.9.41 crore procured from the Russians and 17 items with an aggregate value of Rs.2.41 crore procured from sources other than the Russians. These were lying in stores for periods ranging from 1 to 7 years without issue even on one occasion.

5.3.2 The Company had not prepared the age-wise analysis for non-moving items of stores and spares. The year-wise break-up for 116 items (each valued above Rs.0.10 crore) with an aggregate value of Rs.29.47 crore as of 31st March 1998, was analysed in Audit and the position is indicated below:

Period	No. items	Value (Rs. in crore)
1-3 years	7	1.47
4-6 years	48	10.89
7-10 years	30	8.79
Over 10 years	31	8.32

Records revealed that despite periodical reminders from the Stores department, the indenting departments had not initiated necessary action to obtain orders of competent authorities for declaring non-moving items as surplus stores, so as to enable them to initiate action for their disposal.

The Ministry stated (February 1999) that the plant having been operational for nearly six years now, attempts would be made to do the age-wise analysis.

5.4 SURPLUS/OBSOLETE STOERS AND SPARES

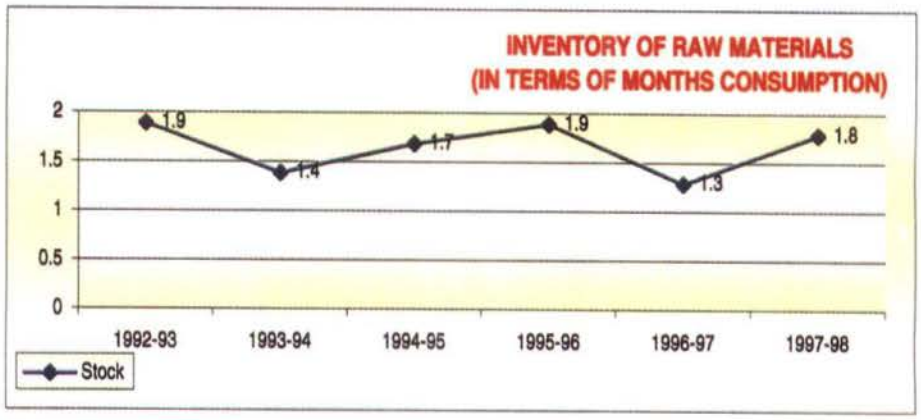
5.4.1 (i) Stores department of the Company initiated action for disposal of items declared as surplus by the concerned departments. The Company had a subsisting agreement with M/s. Metal Scrap Trading Corporation (MSTC) Limited, which conducted auctions, on behalf of the Company, for disposal of surplus material. As on 31st March 1998, the Company held 3910 items of stores and spares valued Rs.12.59 crore, which were declared as surplus.

(ii) The stores department identified obsolete items in each year and communicated to Finance department for making suitable provision in the financial accounts. The provision thus made towards obsolescence of stores and spares upto 31st March 1998 was Rs.17.55 crore. The Company was yet to initiate action for disposal of items identified as obsolete.

The Ministry stated (February 1999) that action for disposal of identified obsolete items was in progress and all out efforts would be made to complete it early.

5.5 INVENTORY OF RAW MATERIALS

5.5.1 The value of inventory and consumption of raw materials for the six years from 1992-93 to 1997-98 is indicated in the Annexure-12.



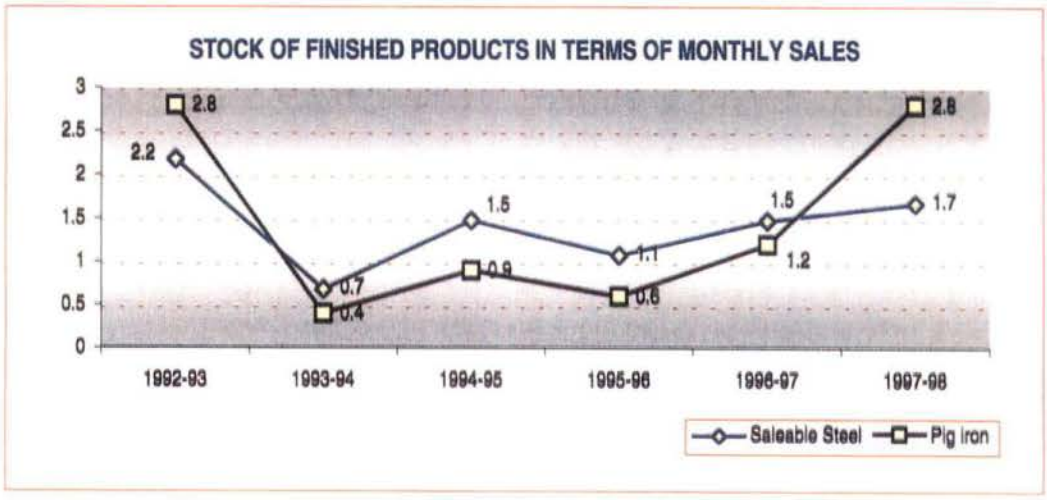
The value of stocks in terms of months consumption ranged between 1.3 (March 1997) and 1.9 (March 1996).

The Ministry stated (February 1999) that based on the experience, a level of 20 to 30 days' stock should be reasonably safe depending on the item and the source.

The fact that the existing average stock as on 31st March 1998 was equivalent to 1.8 month's consumption (54 days) indicated that the Company was yet to take any effective action towards its reduction.

5.6 INVENTORY OF FINISHED PRODUCTS

5.6.1 The value of inventory and sale of finished products for six years from 1992-93 to 1997-98 is indicated in the Annexure-13.



Except during 1993-94, the value of inventory of finished products held at the end of each of the six years from 1992-93 was more than one month's sales value. As on 31st March 1998, the value of inventory of pig iron and saleable steel was very high at 2.8 and 1.7 month's sales respectively.

The Ministry attributed (February 1999) the high levels of stock of finished products from 1994-95 to sluggish domestic demand and lost opportunities for export of materials to the South Eastern countries due to their currency crises.

The Company should have devised strategy to overcome the above situation so as to reduce its stock of finished products. On the other hand, during 1994-95 to 1997-98 the Management preferred to procure and sell 1.77 lakh tonne of finished products produced by others instead of converting the billets/blooms and as a result, the stock of blooms/billets which was 0.39 lakh tonne in 1993-94 increased to one lakh tonne and above during the years 1994-95 to 1997-98.

CHAPTER 6 : COST ANALYSIS

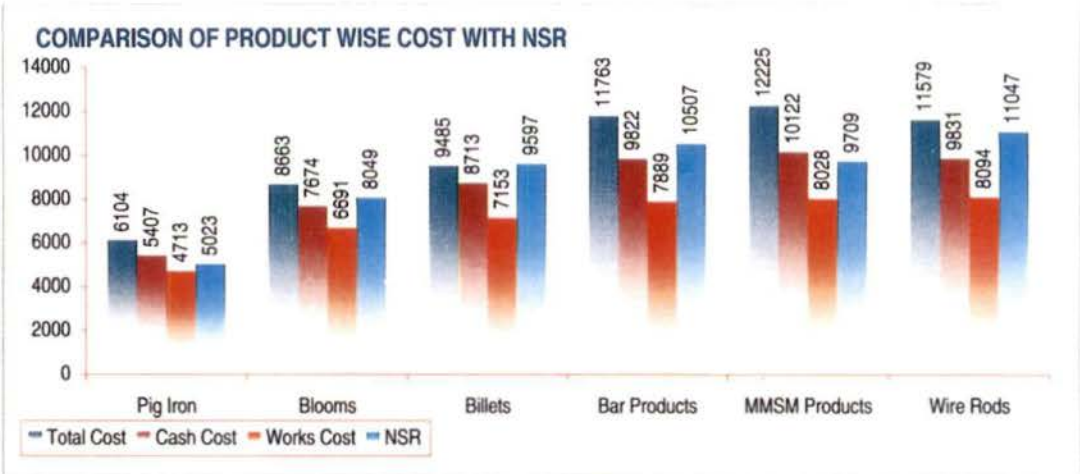
6.1 Cost Vs. Selling price: The selling prices of pig iron, steel products and by-products were fixed by the Management, based on cost plus margin subject to policies of Government. However, based on the actual market conditions, sales were affected by allowing discounts, bonus, etc.

6.2 The details of variable cost, fixed cost, interest and depreciation per tonne and also the Net sales realisation (NSR) there against in respect of various iron and steel products for the four years from 1994-95 to 1997-98 are given below:

(Rupees per tonne)

		1994-95		1995-96		1996-97		1997-98	
Product	Element	cost	NSR	Cost	NSR	Cost	NSR	Cost	NSR
Pig iron	VC	3370		3723		3894		4057	
	FC	473		516		500		656	
	Int	632	4843	616	5243	682	5060	694	
	Dep	700		643		646		697	5023
	Total	5175		5498		5722		6104	
Blooms	VC	4702		5168		5648		5746	
	FC	890		898		841		945	
	Int	1093	7583	1041	7951	1058	8241	983	
	Dep	1210		1086		1001		989	8049
	Total	7895		8193		8548		8663	
Billets	VC	4978		5486		5967		6091	
	FC	1017		1015		948		1062	
	Int	1293	8098	1223	8713	1256	9219	1164	
	Dep	1431		1277		1188		1168	8597
	Total	8719		9001		9359		9485	
Bar mill products	VC	5312		5918		6451		6488	
	FC	1493		1426		1314		1401	
	Int	2531	9888	2173	10680	2245	10061	1933	
	Dep	2803		2267		2124		1941	10507
	Total	12139		11784		12134		11763	
Wire rods	VC	5447		6003		6519		6657	
	FC	1367		1372		1285		1437	
	Int	1944	9960	1754	10271	1853	10687	1737	
	Dep	2152		1830		1753		1748	11047
	Total	10910		10959		11410		11579	
MMS mill products	VC	5561		6185		6570		6512	
	FC	1744		1770		1499		1516	
	Int	3164	8933	2837	9804	2593	10360	2094	
	Dep	3504		2960		2454		2103	9709
	Total	13973		13752		13116		12225	

VC: Variable cost; **FC:** Fixed Cost; **Int:** Interest; and **Dep:** Depreciation.



From the above table it is evident that the NSR did not cover the total cost, it covered only the total cash costs i.e., variable cost plus fixed cost plus interest in respect of all products except MMS mill products during 1994-95 to 1997-98 and for pig iron during 1996-97 and 1997-98.

The Ministry attributed (February 1999) the increase in cost of production of various products to increase in cost of raw materials, railway freight, prices of petrol, oil and diesel and wage revision. The above increases were partially offset by increasing the volume of production and achieving better techno-economic parameters year after year.

Reply of the Ministry is not entirely tenable, as there was significant scope for improvement. Had the plant achieved the rated capacity and improved it's sales position through aggressive marketing the impact of increase in cost of inputs could have been offset to a considerable extent and the plant could have generated an operating surplus.

CHAPTER 7 : MARKETING

7.1 The Marketing Department of RINL had four groups, one each for Home sales, Export sales, Marketing services and Technical services to handle activities starting from sales to customers' services. There was two Committees one for fixing prices for home sales and the other for fixing minimum prices for export sales.

7.2 SALES

7.2.1 The details of targets and actuals for the Home sales and the Export sales and the total sales in respect of pig iron, steel and other products for the six years from 1992-93 to 1997-98 are given below:

(In lakh tonnes)

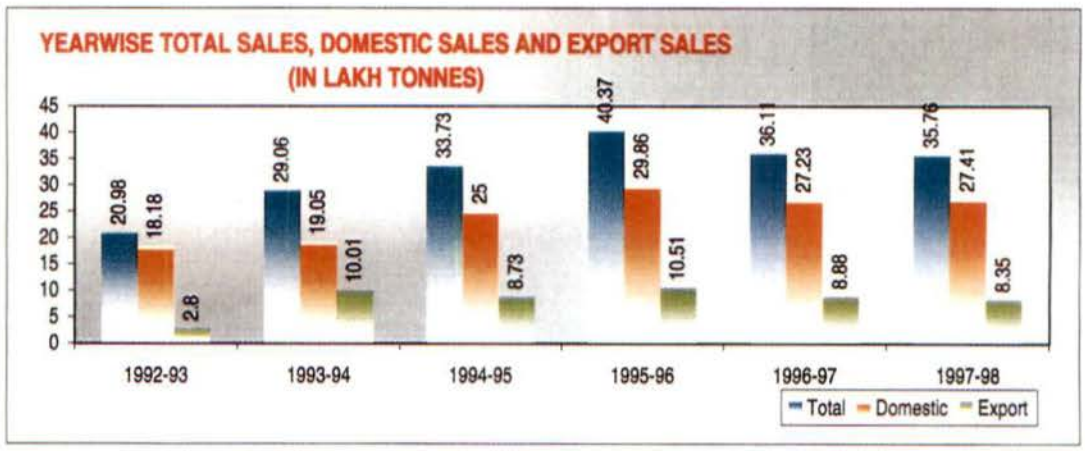
Year	Ind.	Home Sales			Export Sales			Total Sales		
		Pig iron	Steel	Others	Pig iron	Steel	Others	Pig iron	Steel	Others
1992-93	Tgt	5.00	12.65	8.59	3.00	1.25	-	8.00	13.90	8.59
	Act	7.76	5.02	5.40	0.16	2.64	-	7.92	7.66	5.40
1993-94	Tgt	8.50	6.76	13.03	-	9.00	-	8.50	15.76	13.03
	Act	5.30	8.35	5.40	6.03	3.98	-	11.33	12.33	5.40
1994-95	Tgt	3.92	12.21	10.19	5.00	5.00	-	8.92	17.21	10.19
	Act	3.37	11.56	10.07	4.67	2.99	1.07	8.04	14.55	11.14
1995-96	Tgt	4.00	18.82	17.22	2.00	3.00	-	6.00	21.82	17.22
	Act	2.22	15.36	12.28	5.03	5.21	0.27	7.25	20.57	12.55
1996-97	Tgt	1.51	21.06	15.76	1.50	5.50	-	3.01	26.56	15.76
	Act	2.17	15.54	9.52	4.06	4.82	-	6.23	20.36	9.52
1997-98	Tgt	1.44	20.81	17.03	1.57	5.50	-	3.01	26.31	17.03
	Act	0.40	17.95	9.06	4.42	3.93	-	4.82	21.88	9.06

Ind: Indicators; Tgt: Target; Act: Actual.

Notes:

(a) Others include iron scrap, steel scrap, end cuttings, by –products and other products

(b) Others under actual Home Sales also include Finished Products purchased and sold under 'Purchase and Sale scheme'.



The actual sales of steel products particularly Home sales were less than the targeted sales during the period from 1992-93 to 1997-98. But in respect of Pig iron, the actual sales were much higher than the targets mainly on account of production of more quantity pig iron due to mismatch between BFs & SMS.

The DPR did not envisage the sale of blooms but the quantum of blooms sold had been gradually increasing year after year and it ranged from 0.56 lakh tonne in 1992-93 to 3.13 lakh tonne in 1995-96. Similarly in the case of billets, the DPR limited the sale to 2.46 lakh tonne only and the balance quantity of billets were meant for conversion into finished steel products. It was, however, seen that the sale of billets was 3.44, 3.36, 3.62, 2.53 and 3.89 lakh tonne during the five years from 1993-94 to 1997-98. The contribution, on the sale of blooms, billets (semi-finished products) and Pig iron, was lower as compared to contribution from finished steel products. Thus, due to sale of large quantities of semis including pig iron, the viability of the Plant detoriated further. The Ministry stated (March 1999) that according to the Rationalised concept viability was to be achieved through higher level of operational efficiency. The Ministry further added that presently 20% of Semis were being sold and therefore to convert them into finished products M/s A.T. Kearney (Consultant) had suggested setting up of another Rolling Mill alongwith one SMS.

7.3 HOME SALES

7.3.1 Home sales were effected through corporate office as well as Branch sales offices (BSOs). The Company had been allowing discounts at rates varying from time to time and region to region depending upon the situation prevailing in the steel market. The average discount per tonne increased from Rs.67 in 1992-93 to Rs.997 in 1997-98. The increase was significantly higher during 1996-97 and 1997-98 as compared to the previous year. It was observed that during the second half of 1996-97 and 1997-98, the Company allowed heavy additional discounts ranging from Rs.223 to Rs.2212 per tonne

(1996-97) and Rs.441 to Rs.2073 per tonne (1997-98) over and above the discounts allowed during the first half of respective years.

The Ministry stated (February 1999) the performance of Steel Industry in India was the best during 1995-96 in terms of growth in production and steel consumption. Thereafter, with the announcement of liberal incentives for the development of infrastructure sector, it was expected that much more investment would be forthcoming leading to a significant pickup in Steel consumption within the Country to further boost up the Steel Industry. However, with the reduction of import duties coupled with increase in excise duty, the Customers resorted to large-scale import of Steel Product. Since 1996-97, the domestic steel industry was once again reeling under the recession mainly due to slow down in economic growth and less demand in the infrastructure and construction sectors. Sales were affected due to intense competition in the domestic market. The Ministry clarified that in case VSP would not have sold its product at market price by allowing these discounts sales volumes would have fallen and inventories would have built up.

The market share of the Company during the last five years ending 1997-98 was as follows:

(In Percentage)

Year	Pig Iron	Rerollables	Bars & Rods	Structurals	Total Sales
1993-94	45	26	18	7	19
1994-95	28	29	25	8	23
1995-96	24	30	31	15	27
1996-97	24	24	34	17	26
1997-98	6	25	38	16	29

Though the market share of the Company had been increasing since 1993-94, M/s A.T.Kearney (Consultant) in their report stated that currently the regions that sell the highest quantity are not the regions that give the highest gross margin. There is a tremendous potential to sell a greater proportion of the product in the regions where the realisation is the highest thereby additional revenue of Rs.35 crore per annum can be achieved.

The Ministry stated (June 1999) the Company's product range consists of Semis, Bars, Wire Rods and Medium and Light Structural. These products are within the production range of Secondary producers in the Country who account for almost two third of the Country's consumption. Thus the Company's main competition is from the Secondary producers. SAIL's major product line is flat product as well as Railway lines which account for almost three-fourth of their production. Thus, in long products both SAIL and

RINL face competition from the Secondary sectors. So far VSP and SAIL are concerned the items of mutual interest are discussed to minimise the competition between them.

The Ministry added (June 1999) that the following steps are being taken for improving sales in domestic market:

(i) Increasing customers' base by way of catering to all types of customers' vis-a-vis quantity/quality.

(ii) Emphasis on sale of value added products.

(iii) Thrusts on project sales.

(iv) Opening of extra outlets.

(v) Delivering to Customer's premises as per requirements.

(vi) Off the shelf availability of the products.

(vii) Quick response to the changing market situation and

(viii) Bringing most of the units of RINL under ISO 9002 fold.

The Company needs to develop a more aggressive marketing strategy to improve its overall market share.

7.4 EXPORT SALES

7.4.1 The export of the steel product had been decreasing since 1996-97 it was maximum during 1995-96 (5.21 lakh tonne of steel products and 5.03 lakh tonne of pig iron). The main reason for dwindling of exports was stated to be crash in South East Asian Economics.

The Ministry stated (June 1999) that in the International Market, the price of steel products had declined substantially and therefore it had not been worthwhile for the Company to take steps to improve export sales considering better market realisation in domestic market. The thrust on export had been substantially reduced.

7.5 DUTY EXEMPTION SCHEME

7.5.1 The Duty exemption scheme under the Export – Import (EXIM) Policy for 1992-97 envisaged the grant of Advance Licences by the Director Genreal of Foreign Trade (DGFT) for import of various inputs free of customs duty for manufacture of products to be exported against certain export obligations to be fulfilled. The following two types of Advance Licences were mainly applicable to the Company:

(i) **Value Based Advance Licences (VABALs)** which envisaged that the Licence-holder shall have flexibility to import any one or more inputs permitted to be imported in the Licence within the overall CIF value of the Licence; and

(ii) **Quantity Based Advance Licences (QUBALs)** which envisaged that the Licence-holder may import inputs permitted to be imported in the Licence within the quantity limits specified against each item and also within the overall CIF value of the Licence.

7.5.2 The Duty exemption scheme also provided for sale of Advance Licences by the Licence-holder on fulfillment of export obligations and after obtaining endorsement of transferability from the DGFT. This facility for sale in respect of a Licence was available upto the validity period of the Licence or six months from the date of endorsement whichever was later; and the scheme did not provide for revalidation of the Licence if it was endorsed for transfer. In the following cases, the Company did not take timely action for sale of Licences.

(i) The Company obtained (March – April 1994) four QUBALs for a total CIF value of Rs.39.86 crore permitting duty free import of re-rolling scrap etc., against which, export obligations were completed by February / March 1994. Although the import of rolling scrap permitted in the QUBALs was not required, the Company failed to submit to the Licensing authority, relevant documents and applications for obtaining endorsement of transferability of the Licences (for sale). Consequently, these four QUBALs could not be sold resulting in loss of revenue of Rs.7.97 crore towards premium calculated at an average rate of 20 per cent of CIF value.

The Ministry stated (February 1999) that the Company availed MODVAT credit on furnace oil (input) permitted for import and therefore, it was deprived from seeking transferability for the Licences.

The Ministry's reply is not correct since the Company did not availed MODVAT benefit on furnace oil upto April 1994 by which time the export obligation against these QUBALs was already completed.

(ii) The Company obtained (December 1993) one QUBAL permitting duty free import of re-rollable scrap for a CIF value of Rs.19.41 crore, against which it completed export obligation in February 1994 and obtained endorsement of transferability which was valid upto 26th April 1995. Against enquiries of April 1994, the Company received the highest offer with premium at 23.5 per cent from a Madras Firm for a CIF value of Rs.6.00 crore. However, the Company offered (September 1994) the Licence for a CIF value of Rs.6.00 crore to the Madras firm at the quoted premium of 23.5 per cent, with a restriction as to the use of Licence for import of re-rollable scrap of billets, blooms and slabs only. Since the Madras firm did not agree to the restriction, the sale did not materialise. Again limited enquiries were called for from 13 parties and the premium offered by various firms ranged from 18 per cent to 20 per cent. The Company made (September 1994) counter offer to other parties seeking a premium at 41 – 42 per cent for which there was no response. The Company, therefore, resorted (October 1994) to re-tender and sold (November 1994) the Licence for a CIF value of Rs.6.00 crore at a premium of 23.5 per cent to a New Delhi firm without imposing any restriction. Two

other parties, to whom the Company offered the balance CIF value of Rs.13.41 crore, did not respond and consequently, CIF value to that extent could not be sold before expiry of validity period of the Licence. This resulted in loss of revenue of Rs.2.68 crore towards premium at the average rate of 20 per cent. The Company could have avoided the loss, had it properly finalised the sale of Licence against offers of April 1994 without imposing unwarranted restriction regarding usage and in September 1994 without making a counter offer with unduly high premium.

The Ministry stated (February 1999) that inspite of taking all possible steps, the licences could not be sold to the full extent. The fact however remained that the Company sustained a loss of revenue of Rs.2.68 crore due to its failure to sell the balance value before expiry of the validity of the licence.

7.5.3 The Customs notifications issued in May 1992 under the Duty exemption scheme stipulated that in respect of VABAL, MODVAT benefit should not be availed of on any of the inputs used in the manufacture of goods exported under the Licence while in respect of QUBAL the benefit of MODVAT should not be availed of on any of the items permitted for import under the Licence, provided the Licence was proposed for sale. The Company was yet to evolve a suitable methodology in respect of each Licence proposed for sale and also for availing the advantages of various options available with a view to derive full benefits under the scheme. It was noticed in Audit that in the following cases, the Company utilised the Licences without working out the relative benefits of the alternatives available.

(i) In respect of 8 QUBALs obtained during the year 1994-95 for a total CIF value of Rs.110.04 crore, the Company utilised CIF value of Rs.30.03 crore for actual import of inputs and it could not utilise the balance CIF value of Rs.80.01 crore by sale to derive premium of Rs.16.00 crore (at 20 per cent on CIF value) due to availing of MODVAT benefit of Rs.0.90 crore on furnace oil permitted for import under these Licences.

(ii) In respect of another two QUBALs obtained during the same year (1994-95) for a total CIF value of Rs.24.92 crore, the Company had no necessity for importing any of the inputs permitted in the Licences but it could not sell the Licences to derive premium of Rs.4.98 crore (at 20 per cent on CIF value) due to availing of MODVAT benefit of Rs.1.44 lakh on furnace oil permitted for import under these Licences.

The Ministry stated (February 1999) that the Management genuinely thought the Rule 57F of excise rules permitting availment of MODVAT credit can not be taken away by a notification by another Law or Policy.

The Ministry's reply is not tenable since the presumption of the Company was not in line with the provisions of Hand Book of Procedures and the Customs Notification of May 1992 which clearly envisaged that in case MODVAT was availed of on any of the items permitted for import, the entire Licence would be disqualified from obtaining transferability for sale.

Thus, by availing MODVAT benefit of Rs.0.91 crore under these 10 QUBALs without working out the economics, the Company sustained a loss of revenue aggregating Rs.20.08 crore being the difference between the premium (Rs.20.99 crore) foregone at an

average rate of 20 per cent on CIF value of Rs.104.94 crore and the MODVAT benefit (Rs.0.91 crore) availed.

7.5.4 The Company obtained (September and December 1994) the endorsement of transferability in respect of 2 VABALs and by the time of validity period of six months from the date of the transferability expired (March/June 1995), the unutilised CIF value of the licences was Rs.2.02 crore. The request (May 1995) of the Company for extension of the validity period for another six months was rejected by DGFT, since there was no provision under the Exim Policy for extension of validity period for the licences for which transferability was endorsed. Thus, due to non-utilisation/non-disposal of the two VABALs fully within the validity period, the Company sustained a loss of revenue to the extent of Rs.0.40 crore at the then prevailing rate of 20 percent on CIF value.

The Ministry stated (February 1999) that a ban was imposed by Customs authorities from January to August 1995 on the operation of Company's licences and though Company took up the matter on several occasions for revalidation of the licences, the DGFT finally clarified that in view of the Notification of December 1997, no revalidation would be allowed on the licences where endorsement of transferability was effected. Hence, the balance CIF value of the VABALs could neither be utilised nor sold.

The Ministry's reply did not reflect and factual position. It is pertinent to mention that to obtain the benefits available under VABALs, no MODVAT benefit should have been availed of on any of the inputs used in manufacture of the goods exported. The Customs authorities imposed the ban on operation of the Company's licences, after noticing that the Company had made a wrong declaration, to the customs that no MODVAT benefits were availed though MODVAT benefit had actually been availed of. In view of the wrong declaration by the Management, the Company could not utilise the two VABALs full within the validity period resulting in a loss of revenue to the extent of Rs.0.40 crore.

CHAPTER 8 : FINANCIAL POSITION AND WORKING RESULTS

8.1 FINANCIAL POSITION

The Financial position of the Company for the six years from 1992-93 to 1997-98 is detailed below:

(Rs. in crore.)

	1992-93	1993-94	1994-95	1995-96	1996-97*	1997-98**
LIABILITIES						
1. Paid up capital incl. Advance towards share capital	6170.57	6527.54	6527.54	6527.54	6527.54	7827.32
2. Reserves & surplus	-	-	-	-	-	-
3. Borrowings	3663.35	3613.39	3841.93	3907.24	3769.13	2234.12
4. Current liabilities & provisions	691.86	659.57	837.92	895.65	1104.22	1146.44
5. Total	10525.78	10800.50	11207.39	11330.43	11400.89	11207.88
ASSETS						
1. Gross block	6156.78	7325.83	8288.71	8391.69	8547.87	8592.03
2. Less: Cumulative depreciation	1026.04	1364.76	1746.79	2176.86	2819.16	3037.22
3. Net block	5130.74	5961.07	6541.92	6214.83	5728.71	5554.81
4. Capital work in progress	2101.91	1081.28	178.87	215.73	107.35	99.10
5. Investments	-	-	-	-	-	-
6. Current assets, loans & advances	1219.84	1121.45	1487.95	1688.06	1895.29	1923.20
7. Misc. expenditure (to the extent not written off)	40.52	31.27	28.94	37.83	43.36	34.12
8. Accumulated loss	2032.77	2605.43	2969.71	3173.98	3626.18	3596.65
9. Total	10525.78	10800.50	11207.39	11330.43	11400.89	11207.88
Capital employed	5609.46	6367.76	7135.96	6899.16	6155.01	6108.11
Net worth per Rupee of paid up Capital	0.66	0.60	0.54	0.51	0.44	0.54

* The accounts for the year 1996-97 cover 18 months from April 1996 to September 1997.

** The accounts for the year 1997-98 cover 6 months from October 1997 to March 1998.

Note 1: Capital employed represents net fixed assets plus working capital.

Note 2: Net worth represents paid up capital plus reserves & surplus less capital expenditure not represented by assets and deferred revenue expenditure.

8.2 WORKING RESULTS

8.2.1 The following table indicates the working results of the Company for six years from 1992-93 to 1997-98.

(Rs. in crore)

Particulars	1992-93	1993-94	1994-95	1995-96	1996-97*	1997-98**
1. Sales	1184.84	1751.04	2208.57	3038.57	4542.56	1663.66
2. Other revenue	21.43	45.68	34.47	106.98	122.03	35.80
3. Others	353.87	(-) 49.86	215.42	59.40	302.33	184.15
4. Total income	1560.14	1746.86	2458.46	3204.95	4966.92	1883.61
5. Expenditure including prior period adjustments	1513.24	1633.24	2042.27	2572.06	4083.68	1442.29
6. Gross margin(4–5)	46.90	113.62	416.19	632.89	883.24	441.32
	-	-	-	[548.69]	[651.23]	[681.15]
7. Interest & finance charges	275.12	346.44	365.82	407.04	693.11	193.73
8. Cash profit/loss(-)	(-)228.22	(-)232.82	50.37	225.85	190.13	247.59
(6 – 7)	-	-	-	[120.34]	[181.49]	[182.67]
9. Depreciation	340.07	339.84	414.65	430.12	642.33	218.06
10. Net profit / loss (-)	(-)568.29	(-)572.66	(-)364.28	(-)204.27	(-)452.20	29.53@
(8 – 9)	-	-	-	[- 328.66]	[- 272.69]	[- 259.33]
11. Cumulative loss	2032.77	2605.43	2969.71	3173.98	3626.18	3596.65

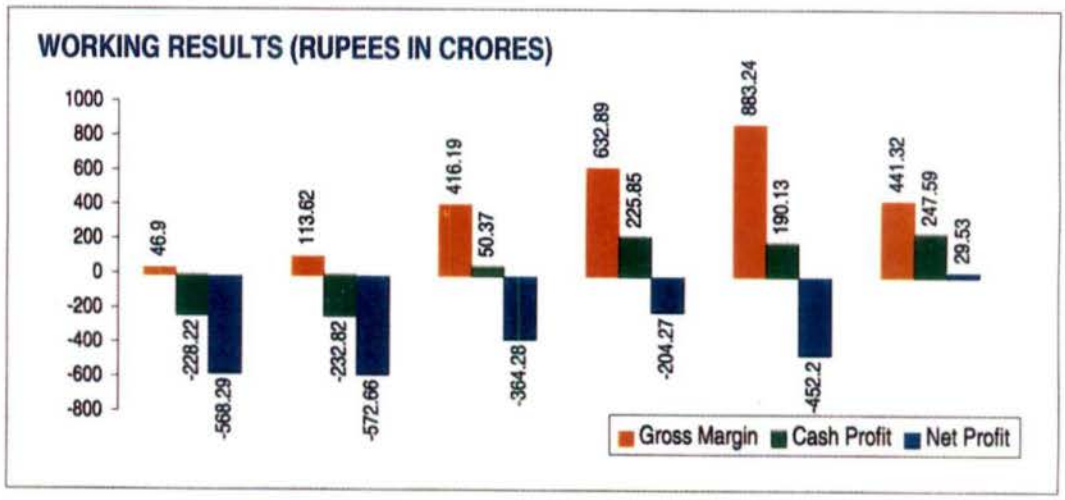
* The accounts for the year 1996-97 cover 18 months from April 1996 to September 1997.

** The accounts for the year 1997-98 cover 6 months from October 1997 to March 1998.

@ The net profit of Rs.29.53 crore made for the six month ended 31st March 1998 was not on account of trading activities but due to writing back of Rs.235.85 crore being interest Govt. of India loans, consequent on conversion of loans into share capital retrospectively.

Note: Figures in brackets [ ] indicate the MOU targets. MOU targets are for 12 months.

Due to abnormal delay in the completion of the Project and heavy borrowings, the interest liability of the Project had gone upto Rs.714.42 crore against a provision of Rs.184.34 crore made in the first revised cost estimate. The accumulated loss upto 31st March 1992 stood at Rs.1464.48 crore.



8.2.2 The Company requested the Government (November 1987/ August 1990) for financial relief in terms of grant of moratorium on payment of interest on Government loans and Conversion of loans into equity to make the plant viable. In response the Government of India engaged (September 1990) the SBI Capital Markets to suggest alternative schemes for capital reconstruction. Based on the report of the SBI Capital Markets, the Government approved (July 1993) the following financial relief to the Company, as a one-time measure:

- conversion of part (Rs.1184 crore) of the Government loan into equity and the balance (Rs.1185 crore) into 7 per cent non-cumulative preference shares, redeemable at the end of 10 years;

- conversion of interest of Rs.791 crore outstanding as on 31st July 1992 on the Government loans into interest free loans for a period of 7 years;

- conversion of the Government loans (Rs.95.50 crore plus Rs.325.50 crore) released after 31st July 1992 into 7 years non-cumulative preference shares, redeemable at the end of 10 years; and

- waival of penal interest payable on the Government loans for default in repayment of principal and payment of interest upto 31st March 1992 (Rs.149.40 crore).

The above restructuring scheme had the impact of enlarging the equity base of the Company by Rs.2464.72 crore and reduction in annual interest charges by Rs.432.47 crore. The above financial restructuring was made based on Company's commitment to the Government to achieve certain physical and financial targets. The Company could not achieve the commitment made during the years 1993-94 to 1995-96. Instead of targeted cash profit of Rs.1130 crore envisaged in the Commitment for the three years period, the Company sustained a cash loss of Rs.233 crore in 1993-94 and earned a cash profit of Rs.50 crore in 1994-95 and Rs.226 crore in 1995-96.

The Ministry stated (February 1999) that the cash profit could not be achieved due to increase in input prices and lower sales realisations. The Company could not achieve the selling prices envisaged in the Capital Restructuring Proposal due to long product mix, which faced stiff competition not only from other Steel majors but also from secondary producers. The Ministry further added that major changes in economic policies of the Government like liberalisation, globalisation and the de-control of steel had a suppressing effect on the selling price. Successive reduction in custom duty increased the competition from across the border. Consequently the Company could not pass the escalation including the increase in excise duty to consumers.

Thus, due to high cost of production and lower sales realisation, the Company continued to incur heavy losses.

The cumulative loss as on 30th September 1997 was Rs.3626.18 crore which worked out to 55.6 per cent of the Paid-up Capital (Rs.6527.54 crore), thereby attracting the provisions of the Sick Industrial Companies (Special Provisions) Act, 1985 (SICA). Therefore, at the request of the Company the Government of India approved (May 1998), the following further financial relief.

- Conversion of interest free loan of Rs.791 crore into seven per cent Non-Cumulative Preference Shares redeemable after 2000-01;

- Conversion of Government loans of Rs.542.47 crore released from 1993-94 to 1995-96 into seven per cent Non-Cumulative Preference Share redeemable after ten years.

As a result of the above financial relief, the Equity base of the Company was enlarged by Rs.1333.47 crore, thereby the annual interest burden was reduced by Rs.87 crore and the Company came out of the purview of SICA.

The Government, while approving the second capital restructuring directed (May 1998) the Company to submit a comprehensive proposal for rehabilitation of RINL. Accordingly, the Company appointed (July 1998) M/s. A.T.Kearney as consultants who, in association with MECON submitted (September 1998) a report on *"Turnaround Strategy for RINL"*. The salient recommendations of the turnaround strategy included:

- the cumulative loss of the Company to be written off gradually by the year 2001-2002 against the share capital held by the Government;

- an immediate loss write off of Rs.750 crore to equity;

- creation of RINL as a Holding Company for spinning off the Captive Power Plant so as to mobilise funds for its expansion schemes by disinvesting its shareholding in the subsidiary Company;

- viability of the plant to be achieved at 2.7 million tonne per year by financial year 2002, which required investment of about Rs.73.5 crore;

- capacity expansion from 2.7 million tonne per year in financial year 2000 to 4.00 million tonne by the financial year 2004 at a capital investment of Rs.1742 crore.

The Company accepted the report and submitted (October 1998) it to the Government of India for approval. The Ministry stated (March 1999) that the proposal was yet to be cleared/approved by the Ministry of Finance.

CHAPTER 9 : OTHER TOPICS OF INTEREST

9.1 INCORRECT REVERSAL OF MODVAT CREDIT

The Government issued (January 1997) a notification, allowing reversal of incorrectly availed Modified Value Added Tax (MODVAT) credit against Value Based Advance Licences (VABALs) before 31st March 1991 subject to remittance of interest at 20 per cent. However, while reversing the amount of MODVAT credit incorrectly availed under VABALs, the Company also reversed correctly availed MODVAT credit of Rs.3.02 crore under Quantity Based Advance Licences (QUBALs) and remitted Rs.0.58 crore towards interest (at 20 per cent) thereon to the Central Excise authorities. The Government's notification of January 1997, however, did not warrant such reversal of MODVAT credit under QUBALs. This resulted in unwarranted reversal of MODVAT credit of Rs.3.02 crore and payment of interest of Rs.0.58 crore.

The Ministry, while confirming the fact of excess reversal of MODVAT, stated (February 1999) that though Government's notification did not warrant reversal of MODVAT credit under QUBALs, the company reversed the same since the Customs Department threatened stoppage of exports unless certificate of non-availment of MODVAT was obtained. The Ministry further stated that the amount of MODVAT reversed on account of exports against QUBALs was Rs.4.37 crore and not Rs.3.02 crore.

The Ministry's reply is not tenable. The Company should have limited the reversal of MODVAT to the extent it had incorrectly availed of under VABALs. The Company already worked out the incorrectly availed MODVAT on QUBALs amounting to Rs.1.35 crore and reversed it correctly in July 1995 itself. Thus, there was no need for further reversal of the MODVAT.

9.2 PAYMENT OF SALES TAX ON SALE OF ADVACNE LICENCES

The Company started from 1993-94 sale of Advance Licences which were in excess of its requirement under contracts entered into with the buyers and the premium indicated in most of the contracts for sale of Licences was all inclusive. However, the Company had not taken any legal opinion in respect of recovery of current as well as future statutory levies on sale of advance licences. The Commercial Taxes (CT) Department at Visakhapatnam demanded between June 1996 and August 1996, a sum of Rs.4.95 crore towards Sales tax on Licences sold during the three years from 1993-94 to 1995-96. The Company's appeal against the demand was dismissed (December 1996) by the CT Department; consequently, it remitted an amount of Rs.1.00 crore and preferred (February 1997) an appeal with the Sales Tax Appellate Tribunal, Hyderabad (STAT) and also remitted (March 1997) a further amount of Rs.2.81 crore as directed by the STAT at the

time of granting stay order. The Company's appeal of February 1997 was pending final disposal (March 1999).

The Ministry stated that the Advocate was not very categorical as to the taxability of the sale of Advance licences. It was considered appropriate by the Company to insist on all inclusive premium and absorb the sales tax in case it was ultimately held that sales tax should be payable on sale of advance licences.

9.3 PROCUREMENT OF REFRACTORY ITEMS

The Company had been procuring certain refractory items to meet its operational requirements. It was observed that in the following cases guaranteed yield could not be achieved due to operational faults:

i) The Company used to procure campaigns* of working lining and back-up lining for use in Continuous casting machines (CCMs) with a guaranteed life for each campaign of giving 3 to 4 heats for working lining and 500 heats for backup lining. During the period from July 1994 to June 1995, out of 1500 campaigns of working lining procured at a cost of Rs.2.88 crore, guaranteed performance was achieved only in respect of 988 campaigns. From the remaining campaigns the heats obtained were short by 871 (Proportionate value: Rs.0.56 crore) compared to the guarantee heats. The Company attributed the shortfall in heats to operational faults.

ii) The Company used refractories in steel teeming ladles and each set of refractories had to give a guaranteed life to 20 heats. Out of 827 sets of refractories used during the period from September 1995 to December 1996, 144 sets had given only 14.9 heats per set. The Company attributed the shortfall in guaranteed life due to its managerial inadequacies to rectify the operational faults. The loss due to under utilisation of 144 sets worked out to Rs.1.09 crore.

Thus the total loss sustained was Rs.1.65 crore due to shortfall in guaranteed life.

The Ministry while confirming (February 1999) the amount of loss attributed the shortfall in heats to operational problems and said that the following steps were being taken to avoid such losses:

- Lower heat weight tapping in the ladles is being avoided.
- Return heats are minimised.
- Ladle Management is being improved to reduce the skulling problems of ladles.

---

* The refractory lining life between one relining and another of the converter is called Campaign.

Had the Company taken the said operational steps much earlier it would not have sustained the above-mentioned loss of Rs.1.65 crore due to shortfall in guaranteed campaigns/refractories life.

(A.K.CHAKRABARTI)
Deputy Comptroller and Auditor General
cum Chairman Audit Board

New Delhi
Dated :
8 फरवरी FEB 2000

Countersigned

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

New Delhi
Dated :
8 फरवरी FEB 2000

ANNEXURE : 1

(Referred to in Paragraph 2.3)

Statement showing the details of amount spent upto 1986-87 on non-priority items.

Scope of work in brief	Amount spent upto 1986-87 (Rs.in crore)	Remarks
a) Auxiliary and Area Repair Shops for manufacture of spares and replaceable items for capital and maintenance repairs (total amount spent Rs.121.89 crore).	58.51	These facilities were needed after a minimum period of three years from the date of commissioning of the Main Plant, as the Company had procured two years operational and maintenance spares alongwith the main equipment. Thus, the Company created these facilities ahead of requirements. The Ministry (March 1999) while confirming that Auxiliary shops were meant for maintenance of the Main Plant Units, stated that these shops were used for storing fabricated structures. The reply is not tenable. As envisaged in DPR, the Company constructed covered storage facilities (30,000 sq.mts.) in the central construction yard for storage of various construction materials, besides allocation of area (14.90 lakh sq. mts.) for providing covered storage by the contracting agencies.
b) Structural fabrication and erection	46.20	Structural fabrication upto 1986-87 was done for 2.99 lakh tonnes, while erection was done utilising only 2.33 lakh tonnes of fabricated structures and the balance could not be erected due to non-availability of civil fronts. The cost of 0.66 lakh tonnes of unerected structures by 1986-87 was Rs.46.20 crore (Rs.7000/- per tonne). The Ministry stated (February 1999) that structural fabrication work at any point of time during construction phase would be higher than erected quantities to ensure undisturbed erection works. The Ministry's reply is not tenable. Though structural erection work was scheduled to be completed by October 1985 in most of the contracts, these were not completed as per the schedule mainly due to non-availability of required civil fronts. As a result, despite completion of fabrication, heavy volume of erection work ranging between 1,12,997 tonnes (March 1986) and 47,558 tonnes (March 1989) was pending even after expiry of the scheduled time.
c) Placement of order for supply of equipment and technological structures for five major zones without technical documentation	30.39	Orders were finalised with a PSU in November 1981 covering supplies for both phases I and II. However, the contract with the Soviets for getting technical documentation was finalised for Phase-I in December 1982 and for Phase-II in November 1984. As a result

		of the placement of the order for both the Phases simultaneously, the Company paid an advance of Rs.25.24 crore (15% of the value of Phase-II equipment) in November 1981 itself, though there was a time gap of 2 years in the supply of equipment for Phase-I and Phase-II. Further, despite the Company's request during 1985-86 to the PSU not to commence supplies for Phase-II, 1681 tonnes of Phase-II equipment were supplied upto 1986 involving a further payment of Rs.5.15 crore, even though 48% of Phase-I equipment had not been received by that time. The Ministry stated (March 1999), that keeping in view the lead time of 18 to 24 months required for suppliers, the equipment were ordered early with an intention of not loosing valuable time in waiting for the receipt of the equipment before civil works were completed. The reply is not tenable since order for Phase-II was placed in November 1981 with a delivery schedule by June 1986 and thus the lead time allowed for phase-II equipment in the instant case was upto 55 months which was more than 24 months. It was also observed that non-sequential finalisation of the orders by the Company coupled with delays by the supplier in the instant case resulted in a total time over run of 60 months, besides additional expenditure of Rs.122.67 crore by way of settlements (Rs.22.00 crore) and awards (Rs.100.67 crore).
d) Procurement of Structural Steel	50.00	During 1985-86 and 1986-87 no provision was made in the budgets for procurement of structural steel, since the existing stock was considered adequate. The Company, however, procured structural steel valuing Rs.50.00 crore, despite funds constraint. This was in addition to the stock worth Rs.102.82 crore as at the end of June 1988. The Ministry stated (March 1999) that to keep the construction activity in full swing, the steel being a scarce commodity at that time was procured in such a way that fabrication work should not suffer. The reply is not tenable since the Principal Consultants of the Company in the reports of budgetary control repeatedly stated (during 1985-86 to 1987-88) that despite having adequate stocks, the Company procured structural steel without need and without budget provision and therefore recommended for disposal of surplus steel.
e) Purchase of residential quarters	2.28	The Company acquired on out right purchase basis from Andhra Pradesh Housing Board during 1980-81 and 1983-84, 664 dwelling units situated away from the project sites and not fit for immediate occupation etc. Such purchase in the context of the funds constraint lacked justification.

		The Ministry stated (February 1999) that these units were purchased much before the fund constraint came up. The reply is not tenable since the funds constraints existed right from 1981-82 onwards.
TOTAL	**187.38**	

ANNEXURE : 2

(Referred to in paragraph 2.5.2)

DETAILS OF INFRUCTUOUS/ADDITIONAL EXPENDITURE DUE TO DELETION OF PRODUCTION FACILITIES UNDER THE RATIONALISED CONCEPT.

(Rs. in crore)

I. Infructuous Works:	
a) Compensation for the work done and expenses incurred on the items deleted from the scope of supply.	8.03
b) Deletion of certain equipment of SMS-II from the scope of supply of the Soviets and consequential reduction of Rbls. 21.362 millions from the contract value as against Rbls.27.389 millions which resulted in procurement of balance items at higher landed cost.	18.86
c) Redundancy of civil and piling works done for the 4th Continuous Casting Machine.	1.49
d) Engineering charges for deletion of 4 Ladle Cranes of SMS-II	0.96
e) Proportionate payment for the basic engineering services rendered by the Principal Consultants on the Units deleted	0.46
f) Payment for 15 items of Conveyor System despatched by the supplier after communication of deletion.	0.36
Total:	30.16
II. Compensation / Additional Expenditure:	
a) Reduction in scope of supply of Gas Cleaning Plants from 5 to 3 and shifting of commissioning schedule by 2 years	2.24
b) Shifting of commissioning schedule of Instrumentation and Controls of LD Converters I & II by 8 months	0.75
c) Shifting of commissioning schedule of equipment for 4 Load Block Distribution System Nos. 2 & 3.	0.28
d) Deferring the purchase of XLPE Cable of 11 KV and shifting of commissioning schedule of one cable of (size-1x400 sq.mm)	0.50
Total:	3.77
III. Overall Settlement reached with Principal Consultants.	
a) Preparation of Comprehensive Report on Rationalised Concept.	1.77
b) Fee towards engineering and other services for additional items of work under Rationalised Concept which were needed to improve the productivity from the installed facilities for getting higher outputs than their name plate capacities.	1.00
c) Fee towards rescheduling work.	0.24
Total:	3.01
Against III (a), (b)&(c) the Ministry stated (February 1999) that the overall settlement reached with the Principal Consultant was only Rs.2.95 crore.	

ANNEXURE : 3

(Referred to in Paragraph No.2.5.3)

MAJOR PRODUCTION FACILITIES

	Original concept	**Rationalised concept**
Coke ovens	3 Batteries x 67 ovens, 7 m high, 41.6 Cum oven volume.	3 Batteries x 67 ovens, 7 m high, 41.6 Cum oven volume.
Sinter plant	2 strands x 312 sq.m grate area.	2 strands x 312 sq.m grate area.
Blast furnace	2 x 3,200 Cum.	2 x 3,200 Cum.
Steel melt shop - I	2 x 130 t LD converters 4 x 4 strand bloom casters	3 x 150 t LD converters 6 x 4 strand bloom casters
Steel melt shop - II	3 x 130 t LD converters 6 x 4 strand bloom casters	Deleted
Light and medium merchant mill	2 strand continuous mill comprising 33 stands; 2 x 200 t/hour walking beam type furnaces.	2 strand continuous mill comprising 33 stands; 2 x 200 t/hour walking beam type furnaces.
Wire rod mill	4 strand continuous mill, comprising 55 stands; 1 x 200 t/hour combined walking beam type furnace.	4 strand continuous mill, comprising 61 stands; 1 x 200 t/hour combined walking beam type furnace.
Medium merchant & structural mill.	Single strand continuous mill comprising 20 stands; 1 x 250 t/hour walking beam type furnace.	Single strand continuous mill comprising 20 stands; 2 x 130 t/hour walking beam type furnaces.
Universal beam mill	Semi continuous mill, comprising 13 stands; 1 x 300 t/hr walking beam type furnace.	Deleted.

ANNEXURE : 4

(Referred to in paragraph no.2.5.3)

The product mix as per the Original concept & the Rationalised concept

(tonnes per annum)

	As per Original concept	**As per Rationlised concept**
FINISHED STEEL		
Rounds and squares of 5.5 mm to 75 mm dia in terms of rounds	998,000	1,256,000
Flats	72,000	74,000
T bars	22,000	24,000
Equal & unequal angles	585,000	661,000
Channels	210,000	251,000
Beams	923,000	144,000
Billets	173,000	246,000
Sub-total	**2,983,000**	**2,656,000**
Pig iron for sale	215,000	555,750
Total	**3,198,000**	**3,211,750**

ANNEXURE : 5

(Referred to in Paragraph No.2.5.3 (i))

STATEMENT SHOWING THE DETAILS OF PARAMETERS ENVISAGED UNDER RATIONALISED CONCEPT VIS-A-VIS ACHIEVEMENTS

Perceived Advantages	Extent of achievement
a) Reduction of the project cost by Rs.1497 crore.	By the time the revised estimate under Rationalised Concept was approved (June 1988), the project cost had already risen to Rs.6849.70 crore. The latest approved (July 1995) cost was Rs.8584.05 crore resulting in increase in project cost by Rs.1734.35 crore (Rs.8584.05 crore minus Rs.6849.70 crore).
b) Completion of the project by June 1990 by reducing the completion time by one year.	1st Phase units were commissioned between September 1989 and October 1991 (against December 1988) with a delay of 34 months and 2nd Phase units were commissioned in July 1992 (against June 1990) with a delay of 25 months.
c) Reduction in the man power from 20900 to 13000	The actual manpower employed as on 31st March 1998 was 17354. Further the Expert Committee on Manpower had recommended a total Manpower of 18100.
d) Achievement of higher levels of output in SMS with the following parameters:	
(i) Average number of 58 heats per day from two operating converters	45.78 heats during 1997-98.
(ii) Average of 10 heats per sequence	7.96 heats during 1997-98.
e) Achieving labour productivity of 231 tonne of liquid steel per man-year.	189.10 tonne per man-year during 1997-98.

ANNEXURE : 6

(Referred to in Paragraph No.2.6.2)

TABLE SHOWING THE DETAILS OF ITEM-WISE COST ESTIMATES AND ACTUAL EXPENDITURE AS ON 31.3.1998

(Rs. in crore)

Item Description	Original Estimate (July 1982)	Ist Revised Estimate (June 1988)	Iind Revised Estimate (1991)	Last Revised Estimate (July 1995)	Increase in cost estimate w.r.t. Original Estimate	Actual expenditure-re as on 31.3.1998.
Land & land Development	44.60	109.38	102.69	102.33	57.73	102.29
Civil works	449.20	662.89	858.15	865.65	416.45	866.05
Structural works	373.94	456.00	528.58	546.85	172.91	522.20
Plants & Equipment	1901.26	3549.22	3976.67	4119.11	2217.85	4014.41
Ocean Freight & Insurance Port Clearance	59.12	73.58	57.19	60.54	1.42	49.73
Custom Duty	273.09	602.34	665.17	662.42	389.33	601.13
Design, Engg. ADC	184.00	337.76	539.94	555.72	371.72	587.06
Contigency	98.56	31.00	39.64	41.22	(-)57.34	-
Total Plant Cost	3383.77	5822.17	6768.03	6953.84	3570.07	6742.87
Other Fixed Investments:						
Spares	100.05	196.93	267.45	264.97	164.92	250.92
Construction. Facilities	23.25	33.00	32.40	32.40	9.15	30.53
Start-up & training	18.71	34.40	135.14	134.61	115.90	124.29
Township & off site facilities	72.94	193.98	269.60	297.64	224.70	270.94
Ores, Mines & Quarries	79.00	64.93	55.38	54.92	(-)24.08	55.70
SUB-TOTAL	293.95	523.24	759.97	784.54	490.59	732.38
Margin money	35.22	66.97	117.58	131.25	96.03	131.25
Interest during construction.	184.34	437.32	703.15	714.42	530.08	652.45
GRAND TOTAL	3897.28	6849.70	8348.73	8584.05	4686.77	8258.95

ANNEXURE : 7

(Referred to in Paragraph 2.7.4)

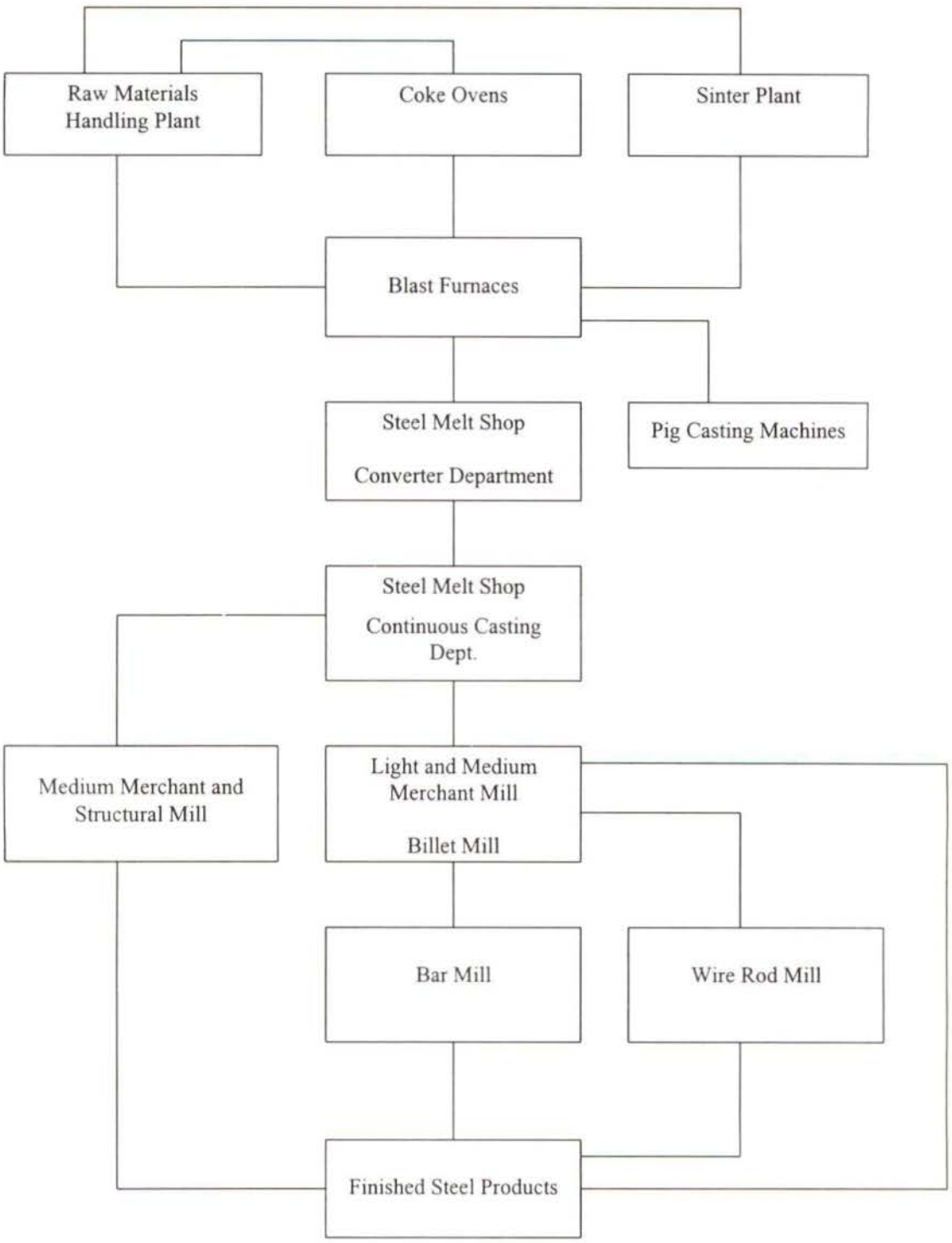
Statement showing the details of investment made on Plant and Machinery without confirming their immediate need

Description of the plant/machinery	Value (Rs.in crore)	Remarks
a) Hot Metal Desulpharisation Plant meant for reducing sulphur content in hot metal to be supplied to SMS	12.27	The DPR envisaged Hot Metal Desulpharisation Plant so as to reduce the sulphur content in Hot Metal (assuming utilisation of 80% indigenous and 20% imported coal in Coke Ovens). However, the Company, without firmly establishing sources of coal, procured and commissioned (March 1991) the Plant. During operation of Coke Ovens with use of 30% indigenous and 70% imported coal, sulphur content in Hot Metal before desulphurisation was found to be within permissible limit (maximum of 0.03%). Hence the Plant was rendered surplus.
b) Two Double Roll Crushers in the Sinter Plant meant for secondary crushing of sinter.	1.79	A test report analysis with the use of crushed/washed iron ore and blue dust it was estimated that the oversized sinter above 50 mm from primary crushers would be 62%. Accordingly two secondary crushers were procured, one each for Phase I and Phase II. One commissioned in November 1986 was taken of the line and the other was not erected. However, during the actual production of Sinter, it was found that the main raw material (i.e., iron ore fines) used were quite different from that anticipated at the time of undertaking the tests. Therefore, both the secondary crushers were lying unutilised.
c) Automatic Gas collection system in Blast Furnace aiming at better operational control of Blast Furnace	4.53	Though manual gas collection analysis system was provided in Blast Furnace-I, the Company procured from Soviets, an Automatic Gas Collection System (Potak System) similar to the one proposed for use in BF-II. The same was received between September 1989 and May 1991 i.e., after commissioning of BF-I (March 1990). The same was installed in BF-II as the system meant for BF-II could not be installed. Thus BF-I was operating with manual system (March 1995) and the automatic system meant originally for BF-II was lying idle.
d) Coil Unitising Facility in Wire Rod Mill to match high production by proper stacking.	1.90	The facility became idle since November 1990 due to its unsuitability to present market, and handling problems in usage etc.
e) Conveyor belt Vulcaniser	1.02	Lying idle since 1986 with the development of the system of cold vulcanising, which is a recent trend, the conveyor belt vulcaniser which is out dated is not being used.
f) Two Goliath Cranes	0.55	Commissioned in Central Construction Yard in 1985 for unloading wagons and were idle since then.
g) Wheel Platform for belt changing	0.35	Lying idle since 1988. As the Company had developed a system of belt changing with the available resources, specialised equipment like Wheel Platform tailor are not required.
TOTAL	**22.41**	

ANNEXURE : 8

(Referred to in Paragraph 3.2)

Process Flow Chart in respect of Major Production Centres



Annexure : 9

(Referred to in Paragraph 3.2)

Production Flow Chart of Rashtriya Ispat Nigam Limited, Visakhapatnam Steel Plant Indicating Instaled Capacities & Actuals

Blast Furnaces Hot Metal (34.0)*

Year	Actuals
1992-93	19.81
1993-94	23.69
1994-95	23.26
1995-96	32.13
1996-97	32.14
1997-98	31.85

PIG Casting Machine

Year	Input Hot Metal 5.85*	Output Pig Iron 5.56*
1992-93	9.85	9.14
1993-94	11.00	9.85
1994-95	9.28	8.48
1995-96	8.47	7.70
1996-97	7.71	7.00
1997-98	5.81	5.21

SMS Converter

Year	Input Hot Metal 28.15*	Output Lqd. Metal 30.00*
1992-93	9.96	10.52
1993-94	12.68	13.55
1994-95	19.06	19.40
1995-96	23.63	23.81
1996-97	24.41	24.23
1997-98	25.81	25.42

SMS Continuous Casting Machine

Year	Input Lqd. Steel 30.00*	Output Blooms 28.20*
1992-93	10.52	9.50
1993-94	13.55	12.19
1994-95	19.40	17.55
1995-96	23.81	21.56
1996-97	24.23	21.80
1997-98	25.92	23.06

M.M.S. Mill

Year	Input Blooms 9.05*	Output MMSM Products 8.50*
1992-93	0.62	0.56
1993-94	1.53	1.38
1994-95	2.13	1.93
1995-96	2.99	2.71
1996-97	3.75	3.48
1997-98	4.51	4.30

Billet Mill

Year	Input Blooms 19.15*	Output Billets 18.57*
1992-93	8.12	7.86
1993-94	9.69	9.38
1994-95	13.09	12.72
1995-96	15.35	14.95
1996-97	15.37	15.01
1997-98	16.43	15.83

Saleable Blooms Not envisaged in DPR

Year	Actuals
1992-93	0.76
1993-94	0.97
1994-95	2.33
1995-96	3.22
1996-97	2.68
1997-98	2.12

Bar Mill

Year	Input Billets 7.26*	Output Bar Pdts. 7.10*
1992-93	0.67	0.64
1993-94	1.26	1.17
1994-95	2.47	2.39
1995-96	3.54	3.44
1996-97	3.78	3.70
1997-98	4.49	4.40

WIRE ROD MILL

Year	Input Billets 8.85*	Output Wire Rods 8.50*
1992-93	4.38	4.22
1993-94	4.23	4.11
1994-95	5.59	5.37
1995-96	7.47	7.25
1996-97	7.56	7.34
1997-98	7.69	7.45

Saleable Billets 2.46*

Year	Actuals
1992-93	2.81
1993-94	3.84
1994-95	4.86
1995-96	3.94
1996-97	3.67
1997-98	3.80

Note : Quantities indicated in lakh tonnes.
* DPR Norm.

ANNEXURE : 10

(Referred to Paragraph No.3.4.1)

COMMISSIONING SCHEDULE OF VARIOUS PLANT UNITS OF VISAKHAPATNAM STEEL PLANT

PLANT UNIT	Original Schedule (As per Original Concept approved by Govt. in July 1982)	Revised Schedule (As per Rationalised Concept approved by Govt. in June 1988)	Actual dates of Commissioning
Coke Oven Battery 1	31.07.85	30.06.88	06.09.89
-do- 2	31.10.85	30.09.88	31.10.91
-do- 3	31.03.87	31.01.90	30.07.92
Sinter Plant 1	31.08.85	31.07.88	14.11.89
-do- 2	30.04.87	31.01.90	27.12.91
Blast Furnace 1	30.09.85	31.08.88	28.03.90
-do- 2	31.05.87	28.02.90	28.03.92
Steel Melt Shop 1	31.12.85 (Two Converters and Four Continuous Casting Machines)		
Stage – I - (1.2 million tonnes of liquid steel) Two Converters And Three Continuous Casting Machines		30.11.88 (Converters A & B and CCMs of 1, 2 & 3)	06.09.90 (Converter A) 04.03.91 (Converter B) and 06.09.90 (CCM - 3) 06.11.90 (CCM - 2) 28.01.91 (CCM - 1)
Stage – II - (3.00 million tonnes of liquid steel) One Converter And Three Continuous Casting Machines		30.4.90 (Converter C and CCMs of 4, 5 & 6)	25.07.92 (Converter C) and 30.09.91 (CCM - 4) 16.04.92 (CCM - 5) 29.06.92 (CCM - 6)
Steel Melt Shop 2	31.07.87 (Three Converters and Six Continuous Casting Machines)	Deleted	----
Light & Medium Merchant Mill	31.01.86	30.09.88	
Billet Mill			28.09.90
Bar Mill			28.10.91
Wire Rod Mill	31.10.86	31.12.88	
Strand - 3 & 4			21.11.90
Strand – 1 & 2			16.03.91
Medium Merchant Structural Mill	31.10.87	30.06.90	20.3.92
Universal Beam Mill	31.12.87	Deleted under Rationalised Concept	----

ANNEXURE : 11

(Referred to Paragraph No.3.5.1)

TABLE SHOWING THE DETAILS OF PERFORMANCE OF COKE OVENS PLANT DURING THE YEARS 1992-93 TO 1997-98

Particulars	Units	Ind	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Pushing of coke ovens	In lakh nos.	NM	1.10	1.10	1.10	1.10	1.10	1.10
		TG	0.84	0.90	0.96	1.00	1.02	0.98
		AC	0.63	0.77	0.89	0.96	0.93	0.89
Consumption of dry coal	In lakh tonnes	NM	35.99	35.99	35.99	35.99	35.99	35.99
		TG	27.33	26.85	30.69	32.11	32.70	31.31
		AC	20.71	24.49	28.69	30.91	30.05	28.54
Rate of dry coal consumption to a) Capacity								
b) Target	Percent	AC	57.6	68.0	79.7	85.9	83.5	79.3
	Percent	Ac	75.8	84.9	93.5	95.9	91.9	91.1
Output of gross coke	In lakh tonnes	NM	27.71	27.71	27.71	27.71	27.71	27.71
		TG	NA	NA	22.23	24.31	24.53	23.48
		AC	15.74	18.44	21.70	23.22	22.55	21.38
Blend of imported coking coal and ind. Coking coal.	Ratio	TG	70:30	72:28	70:30	72:28	72:28	72:28
		AC	69:31	67:33	70:30	74:26	72:28	78:22
Rate of yield	Percent	NM	77.0	77.0	77.0	77.0	77.0	77.0
		AC	76.0	75.3	75.6	75.1	75.0	74.9

Ind: Indicators; NM: Norm as per the DPR; TG: Target ; AC: Actual; NA: Not available.

ANNEXURE : 12

(Referred to Paragraph No.5.5.1)

TABLE SHOWING THE DETAILS OF INVENTORY AND CONSUMPTION OF RAW MATERIALS DURING THE YEARS 1992-93 TO 1997-98

(Rs. in lakh)

Year ended 31st March	Value of raw materials	Value of raw materials in transit / under inspection	Less: Cumulative provision for shortages	Total	Value of consumption	Value of stock in terms of no. of months consumption
1993	9449.27	3854.60	2730.79	10573.08	68016.60	1.9
1994	12633.95	2814.90	5189.95	10258.90	87539.71	1.4
1995	17395.42	5242.22	7884.93	14752.71	105852.91	1.7
1996	26180.93	5845.65	11226.71	20799.87	131068.63	1.9
1997	21580.08	6430.47	13172.97	14837.58	138456.12	1.3
1998	28543.29	7760.21	15389.14	20914.36	140530.73	1.8

ANNEXURE : 13

(Referred to Paragraph No. 5.6)

TABLE SHOWING THE DETAILS OF INVENTORY OF FINISHED PRODUCTS DURING THE YEARS 1992-93 TO 1997-98

Year ended 31st March	Value of closing stock (Rs. in lakh)		Value of sales (Rs. in lakh)		Closing stock in month's sales	
	Pig iron	Saleable Steel	Pig iron	Saleable steel	Pig iron	saleable steel
1993	10350.31	11421.36	45061.70	63481.88	2.8	2.2
1994	1760.76	5593.21	58705.20	96796.58	0.4	0.7
1995	3048.39	19160.21	42561.53	150840.36	0.9	1.5
1996	1947.04	19877.59	40278.44	216563.36	0.6	1.1
1997	3422.12	26706.27	33845.26	218588.11	1.2	1.5
1998	5582.47	35883.66	24293.09	255553.88	2.8	1.7

GLOSSARY

1	SAIL	Steel Authority of India Ltd.
2	DPR	Detailed Project Report
3	VSP	Visakhapatnam Steel Plant
4	USSR	Union of Soviet Socialist Republics
5	RINL	Rashtriya Ispat Nigam Limited
6	PIB	Public Investment Board
7	RINLCMD	Chairman-cum-Managing Director
8	SMS	Steel Melt Shop
9	CCMs	Continuous Casting Machines
10	IRR	Internal Rate of Return
11	COM	Committee of Management
12	RMHS	Raw Material Handling System
13	LMMM	Light and Medium Merchant Mill
14	MMSM	Medium Merchant and Structural Mill
15	WRM	Wire Rod Mill
16	PCM	Pig Casting Machine
17	CCD	Continuous Casting Department
18	MOU	Memorandum of Understanding
19	MECON	Metallurgical & Engineering Consultants(I) Ltd.
20	TPE	TYAZHPROMEXPORT
21	CRD PR	Comprehensive Revised Detailed Project Report
22	CRRC	Comprehensive Report on Rationalised Concept
23	BF	Blast Furnace

24	TISCO	Tata Iron & Steel Company Ltd.
25	MSTC	Metal Scrap Trading Corporation Ltd.
26	GARNs	Goods Acceptance & Received Notes
27	NSR	Net Sales Realisation
28	BSOs	Branch Sales Offices
29	HQMC	Headquarters Marketing Committee
30	MUR	METALL UND ROHSTOFF, AG
31	MMTC	Minerals and Metals Corporation Ltd.
32	EXIM Policy	Export and Import Policy
33	DGFT	Director General of Foreign Trade
34	VABALs	Value Based Advance Licences
35	QUBALs	Quantity Based Advance Licences
36	MODVAT	Modified Value Added Tax.
37	CIF	Cost, Insurance & Freight
38	SICA	Sick Industrial Companies Act
39	CT	Commercial Taxes
40	STAT	Sales Tax Appellate Tribunal
41	KIOCL	Kudremukh Iron Ore Company Ltd.
42	IAD	Internal Audit Department

42