THIRTY-SEVENTH REPORT

COMMITTEE ON PUBLIC UNDERTAKINGS (1994-95)

(TENTH LOK SABHA)

STEEL AUTHORITY OF INDIA LIMITED BOKARO STEEL PLANT

MINISTRY OF STEEL

Presented to Lok Sabha on..... 22 DEC 1994

Laid in Rajya Sabha on.....

14 FEB 1995

LOK SABHA SECRETARIAT
NEW DELHI

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CORRIGENDA TO THE THIRTY SEVENTH REPORT OF THE COMMITTEE ON PUBLIC UNDERTAKINGS (1994 95) ON STEEL AUTHORITY OF INDIA BOKARO STEEL PLANT.

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INTRODUCTION

I, the Chairman, Committee on Public Undertakings having been authorised by the Committee to present the Report on their behalf, present this Thirty Seventh Report on Steel Authority of India Limited—Bokaro Steel Plant.

2. The Committee's examination of the working of the Company was based on the Report of the Comptroller & Auditor General of India, Union Government, (Commercial) (No. 6 of 1993).

3. The Subject was examined by the Committee on Public Undertakings (1993-94). The Committee took evidence of the representatives of Steel Authority of India—Bokaro Steel Plant on 23 February, 1994. The Committee also took evidence of the representatives of the Ministry of Steel on 31st March, 1994.

4. The Committee on Public Undertakings (1994-95) considered and adopted the Report at their sitting held on 6th October, 1994.

5. The Committee feel obliged to the Members of the Committee on Public Undertakings (1993-94) for the useful work done by them in taking evidence and sifting information which forms the basis of this Report. They would also like to place on record their sense of deep appreciation for the invaluable assistance rendered to them by the officials of the Lok Sabha Secretariat attached to the Committee.

6. The Committee express their thanks to the Ministry of Steel and Steel Authority of India Limited—Bokaro Steel Plant for placing before them the material and information they wanted in connection with examination of the Company. They also wish to thank in particular the representatives of the Ministry of Steel and Steel Authority of India Limited—Bokaro Steel Plant who appeared for evidence and assisted the Committee by placing their considered views before the Committee.

7. The Committee also place on record their appreciation of the assistance rendered by the Comptroller and Auditor General of India.

NEW DELHI;
November 23, 1994
Agrahayana 2, 1916, (S)

VILAS MUTTEMWAR,
Chairman,
Committee on Public Undertakings.

CHAPTER I

INTRODUCTORY

A. Bokaro Steel Plant: Historical Background

1.1 Bokaro Steel Limited was incorporated as a limited Company on 29th January, 1964 as the fourth integrated Steel Plant in the Public Sector. In the same year, the erstwhile U.S.S.R. offered technical and financial aid and D.P.R. was received in 1965. When these things started taking shape with collaboration of U.S.S.R., construction of the plant was envisaged with a capacity of 1.7 M.T. of Ingot Steel in the first phase and upto 4 MT in the Second Phase.

1.2 The Plant was conceived as the Country's first Swadeshi Steel Plant to be built with maximum indigenisation of equipment, materials and know-how. The first phase of 1.7 MT Ingot Steel production started with commissioning of first Blast Furnace on 3rd October, 1972 and was completed on 26th February, 1978 with commissioning of 3rd blast furnace. All the units of 2nd phase upto 4 MT have been commissioned and the plant is now operating around 95% of rated capacity of crude steel and above 100% of saleable steel.

1.3 With the formation of Steel Authority of India Limited as a Holding Company in January, 1973, Bokaro Steel Ltd. became its subsidiary alongwith other Units of H.S.L. Subsequently in terms of Public Sector Iron and Steel Company's (Restructuring and Miscellaneous Provision Act, 1978), there was restructuring in SAIL. Bokaro Steel Plant became a Unit of SAIL. The plant is designed to produce flat products like Hot Rolled Coils, Hot Rolled Plates, Hot Rolled Sheets, Cold Rolled Coils, Cold Rolled Sheets, Tin Mill, Black Plates and Galvanised Plain and Corrugated (GP/GC) Sheets.

1.4 The Plant had its captive Mines of raw materials *i.e.* Iron Ore and Fluxes situated at Kiriburu, Meghahataburu, Bhawanathpur, Tulsidamar and Kuteshwar. As an internal reorganisation in SAIL, these Mines have been transferred to a new Division called Raw Material Division since 7th June, 1990.

B. Project

1.5 Against the scheduled date of December, 1970 stage I of the contruction was mostly completed only by February, 1978 due to delay in receipt of equipment, inadequate control over construction activities, faulty assessment of the volume of work involved and of the capacity of the various agencies engaged in the construction as also procedural delays in

obtaining Government sanctions, import clearances etc. Against the estimated cost of Rs. 620.63 crores the final cost of Stage-I was Rs. 981.34 crores. The cost over-run was attributed to poor estimation of costs, implementation failures, delay in sanctioning revised estimates of Stage-I by the Government, non-availability of cement and steel and labour unrest. A part of the cost and time over run was ascribed by the Management/Ministry to the learning curve in Stage-I *i.e.* reliance on indigenous resources and generating experience in Indian Technical personnel in setting up projects.

1.6 Stage-II *i.e.* the project for expansion of capacity of Plant to 4 MT per annum was taken up in 1971. All the units of Stage-II of the project were to be completed by June, 1979 except for one cold Rolling Mill which was to be completed by December, 1982. There was delay of 5 to 8 years in the commissioning of various units. The final cost of stage-II was Rs. 2198.40 crores against the estimated cost of Rs. 947.24 crores and revised estimates of Rs. 1637.55 crores as approved by Government.

1.7 The delay was attributed to delay in receipt of equipment because of involvement of different suppliers as most of the equipments were procured indigenously; financial constraints; changes in detailed engineering & implementation; inadequate control over construction activities, faulty assessment of the volume of work involved and of the capacity of various agencies engaged in construction as also procedural delays in obtaining Government sanctions, import clearances, etc.

1.8 In reply to the recommendations of the Committee on Public Undertakings made in their 68th Report (4th Lok Sabha), the Committee had been informed that the deliveries of equipment and materials by the Public Sector Undertakings to Bokaro Steel Plant were being reviewed frequently not only by BSL but also at Government level. However, it has been stated by SAIL that the delay in completion of stage-II of Bokaro Steel Plant was due to delay by a number of agencies like HEC (8 years), MAMC (7 years) and Engineering Projects India Limited (6 years).

1.9 In view of the delays in completion of Stage-II also, the Committee desired to know how the experience gained in Stage-I of the Project was utilised in construction of stage-II of the project. They were informed in written reply submitted by SAIL that experience gained during the construction of stage-I was fully utilised for arresting slippages. SAIL and Plant Authorities ensured coordination and supervision at different levels, progress was reviewed on monthly and quarterly basis by Plant, SAIL and Ministry consultancy services were utilised; monitoring was done by network techniques, adequate supply of raw materials was ensured.

1.10 It was further stated that inspite of these efforts there was time overrun in completion of 4 MT stage of Bokaro Steel Plant due to:—

(i) Increase in volume/quantum of work with respect to DPR.

(ii) Inclusion of additional unit of the oxygen plant in 4 MT stage.

(iii) Delay on the part of the Consultant in issuing drawings and specifications in time.

(iv) Delayed/Defective/Non-sequential supply of equipments by various suppliers and consequential delay in erection.

(v) Due to indigenisation approach, where the capacity and know how of the suppliers were under the developing stage, mismatching of various equipments by various suppliers was also one of the reasons for delay.

(vi) Due to inadequate resource mobilisation, financial constraints, etc. the performance of various construction agencies was always below the planned levels.

1.11 While expressing his views on the main reasons for the projects in Public Sector getting delayed, the Chairman, SAIL informed the Committee during evidence that conceptually the projects were conceived well. Many times the projects get delayed because the assessed quantities far exceed the estimates. Sometimes, there may even be attempts to initially show the cost lower. Secondly, sanction of the projects must take less time. The witness suggested that there should be a set procedure for granting sanction to a project, and if a public undertaking is not depending on budgetary support from the Government then the procedure for sanction can be simpler and if it is depending on such support from the Government then the procedure for sanction can be strict. In addition to getting any project sanction, they have to be approved by several authorities of Centre and State such as Pollution Control Board under Environment Department of the State, Forest Department of the State etc. Moreover, the time which a public sector undertaking takes to finalise a contract generally is very long because of the procedure they have to follow. If they have the freedom to select the best party or the best company, such delays can be avoided. The procedure for selection of the parties must be simplified. Apart from this, a number of preparatory steps should be taken in order to reduce the time of the project.

1.12 During evidence when the Committee enquired from the representatives of Ministry of Steel that in order to reduce the time overrun and the cost overrun, why a compact system should not be adopted to clear the projects of any public undertaking within a shortest possible time.

The Secretary (Steel) stated as under:—

Personally, I think that much larger delegation of Power has to be made to these public sector undertakings which are going to invest their own funds and are not dependent on budgetary resources."

1.13 When the Committee enquired from the Secretary, Ministry of Steel, how far the procedural delays were responsible for delays in completion of Bokaro Steel Plant, the witness conceded that procedural asepcts were also involved in delaying the sanctioning of the work of the projects. But in the last two years procedural delays have been curtailed to a great extent. Delay is inherent in the system. This is inevitable in the case of public sector undertakings because they are trying to keep their procedures transparent, open, fair and objective. Out of 7 years, which were taken in the sanctioning of the project, about 4 years were taken in the preparation of DPR itself.

1.14 In regard to sanction for stage-II of the Bakaro Steel Plant the Secretary, Ministry of Steel informed the Committee during evidence that approval to expand the plant to 4 million tonnes capacity was given by Government in May, 1970. A Principal consultant (MECON) was commissioned and in December, 1974 it submitted the capital cost estimate. After examining it, SAIL submitted the updated proposal to the Government. Then, it was sent to Planning Commission. During this period, the third revised cost estimates of Stage-I were also under process. After the PIB approved it in September, 1977, it was decided by the Ministry that it is better to combine approval for Stage-II with revised cost estimates for Stage-I. Both proposals were put up to Cabinet in March, 1978. Approval was given in May, 1978 and Government sanctioned revised cost estimates for Stge-I at Rs. 981.34 crores and Rs. 947.24 crores for Stage-II.

1.15 To a query by the Committee whether the delay was not too long in the case of Bakaro Steel Plant, the witness stated as follows:—

"I concede that it was definitely an inordinate delay."

1.16 When the Committee asked whether the Ministry has held anybody responsible for this, the witness stated that as far as sanctioning part is concerned, it would be very difficult for us to pin-point a specific responsibility on a particular individual, because no individual has been involved in that. It was the total system which had taken so much time. The witness, however, assured the Committee to examine the reasons for delay and communicate the same to the Committee.

1.17 In a reply furnished after evidence the Ministry of Steel stated as under:—

"There were time consuming procedures for clearance of estimates, involving consultation with Ministry of Finance, BPE etc. As such, no individual officer can be held responsible for delays in the issue of formal sanction for Stage-II of expansion of Bokaro Steel Plant."

1.18 In regard to timely completion of projects, the Chairman, SAIL stated in his evidence before the Committee that the project Management needs improvements in several, areas. If the project is managed well and monitored well, there is greater chance of the project being completed in time.

1.19 When asked what kind of improvements were needed for better management and monitoring of a project, a written reply was furnished to the Committee which *inter-alia* states as under:—

> "Contractors/suppliers with proven track record should be employed; micro level plans with contracts should be finalised including L-1, L-2 and L-3 level network; Updating of network through computers should be done at regular intervals; integrated project management should be ensured for better control of all facts of projects including finance, purchases etc., Progress of work should be critically reviewed on monthly and quarterly basis at SAIL and Ministry level respectively; all out effort should be made by Project Authorities to ensure coordination and supervision at different levels."

1.20 During evidence when asked whether the Ministry is also doing monitoring of the execution of the projects, the witness stated:—

> "We have streamlined the monitoring on a very regular basis."

1.21 Bokaro Steel Plant originally incorporated as a limited company in January, 1964, became a subsidiary of Steel Authority of India in January, 1973 and later a unit of SAIL in 1978. The first phase of the plant envisaged a capacity of 1.7 MT of Ingot Steel while the second phase envisaged expansion of its capacity to 4 MT. The Committee are constrained to observe that against the scheduled date of December, 1970. Stage-I of the project could only be completed by February, 1978. Apart from the delays in obtaining Government sanctions, import clearances etc, delay in receipt of equipment, inadequate control over construction activities, faulty assessment of the volume of work involved and of the capacity of the various agencies engaged in the construction were cited as the reasons for delay in completion of Stage-I of the project. The final cost of this stage also escalated to Rs. 981.34 crores against the estimated cost of Rs. 620.63 crores due to poor estimation of costs and implementation failures, non-availability of steel and cement etc. The Committee are not convinced with the reasons put forward for the time and cost over-runs in completion of the first stage since these factors could have been avoided with better anticipation and planning. The contention of the company and the Ministry that a part of the cost and time over-run was because of the learning curve in Stage-I i.e. reliance on indigenous resources and generating experience in Indian Technical personnel is not tenable in as much as huge time and cost over-runs also occurred in implementation of Stage-II of the project as brought out in the subsequent paragraph.

1.22 Stage-II of the plant i.e. the project for expansion of capacity to 4 MT per annum which was taken up in 1971 was to be completed by June, 1979 except for one cold Rolling Mill which was to be completed by December, 1982. But it is disquieting to note that here again there was a delay of 5 to 8 years in the commissioning of various units. The final cost of Stage-II was as high as Rs. 2198.40 crores as against the estimated cost of Rs. 947.24 crores and revised estimates of Rs. 1637.55 crores as approved by Government. In fact no lessons seem to have been learnt from the failure in timely completion of Stage-I since the reasons given for the delay in completion of Stage-II are almost the same as in the case of Stage-I. The Committee wonder how inspite of efforts claimed to have been made such as the SAIL and plant authorities ensuring coordination and supervision at different levels, progress being reviewd on monthly and quarterly basis by Plant, SAIL and Ministry, consultancy services being utilised, monitoring being done by network techniques and adequate supply of raw materials being ensured, there was such an inordinate delay in completion of Stage-II also. The Committee are of the view that had the project been monitored and managed well there was no reason why it could not have been completed in time. They, therefore, recommend that in future whenever such plants are set up, integrated project management should be ensured for controlling all facets of the project including finance, purchases, supply of machinery and equipment, etc. The progress of work should be critically reviewed on monthly and quarterly basis and coordination and surpervision of different levels should be ensured.

1.23 Apart from the implementation of projects, the Committee would like to emphasise another aspect *viz.* the procedure involved in the sanctioning of projects. In their various Reports, the Committee have been pointing out the need for simplifying the procedures so that the public sector projects are sanctioned expeditiously and unnecessary escalation of costs avoided. They would once again urge that in order to provide a fair chance to public sector for competition in the context of liberalisation of economy, the Government must evolve simplified procedures for speedy sanction of public sector projects.

CHAPTER II

PRODUCTION PERFORMANCE

2.1 It has been brought out by audit that production of steel was much less than the installed capacity of 4 million tonnes per annum, till recently. During the years 1978 to 1992, the shortfall in production at Bokaro Steel Plant amounted to 4.7 million tonnes. When the Committee pointed this out to the Secretary, Ministry of Steel during evidence, the witness stated that the main reasons for this shortfall were (i) inconsistent supply of indigenous metallurgical coal which had affected the furnace at Bokaro; (ii) problems of power supply from DVC, both in terms of quality and quantity; (iii) lack of coordination and (iv) lack of systematic and sustained programme for replacement or modification of old equipments.

2.2 On being drawn the attention of the Chairman, SAIL towards the production having been lower than the targets, he explained in evidence as follows:—

> "In Bokaro for 1991-92, 1992-93 the production is more than the target. In the previous period, the production was affected by the quality of coal. Partly the constraints have been removed by use of imported coal. About 37% of the charge used is imported coal. That has improved the quality of coke and productivity in blast furnace increased. Another factor which affected production was the problem of power supply. Improvement was done in the captive power plant which gives more internal generation of power and also DVC has recently improved the position."

2.3 The production performance in various units of the plants is discussed in succeeding paragraphs.

A. Steel Melting Shop:

2.4 The production of steel during 1981-82 to 1993-94 period has been as given below:—

(Figures in Lakh Tonnes)

Year	Installed Capacity	Targetted Prod.	Actual Prod.	Percentage of Actual Prod. to Installed Capacity	Targetted Prodction
1980-81					
Steel Ingots	25.00	18.20	9.23	36.92	50.71
Saleable Steel	13.55	15.00	8.44	62.29	56.27
1986-87					
Steel Ingots	31.08	26.50	20.56	66.15	77.58
Saleable Steel	20.90	21.20	17.45	83.49	82.31
1987-88					
Steel Ingots	31.08	25.60	24.18	77.79	94.45
Saleable Steel	24.50	21.85	19.68	80.32	90.07
1988-89					
Steel Ingots	33.30	8.00	27.71	83.21	98.96
Saleable Steel	26.25	23.20	22.77	86.74	98.15
1989-90					
Steel Ingots	40.00	33.00	26.54	66.35	80.42
Saleable Steel	31.56	27.94	23.25	73.66	83.21
1990-91					
Steel Ingots	40.00	34.00	28.06	70.15	82.53
Saleable Steel	31.56	28.00	24.26	76.87	86.64
1991-92					
Steel Ingots	40.00	33.00	34.17	85.43	103.55
Saleable Steel	31.56	27.00	27.30	86.50	101.11
1992-93					
Steel Ingots	40.00	35.00	35.89	93.00	103.00
Saleable Steel	31.56	29.80	29.99	95.00	101.00
1993-94					
Steel Ingots	40.00	36.50	37.12	93.00	102.00
Saleable Steel	31.56	30.50	32.05	102.00	105.00

2.5 It would be seen from the above that during the years 1980-81 to 1993-94, the percentage of actual production of steel ingots to installed capacity ranged between 37 (1980-81) to 93 (1993-94). The percentage of

actual production of saleable steel to installed capacity ranged from 62 (1980-81) to 95 (1992-93), though it picked up to 102% in 1993-94. The shortfall has been attributed by the Management mainly to lack of off-take of steel, power restriction, lower availability of converter due to premature failure of lining, poor availability of SMS grade Lime Stone, break-down of equipments, poor quality of coke and labour problems. Due to poor off-take of basic grade hot metal for use in Steel Melting Shop, hot metal was diverted to Pig Casting Machine.

2.6 When asked, whether the management ever quantified the extent of loss due to less production resulting from specific reasons, the Committee were informed in a written reply:—

> "Quantification/analysis of variations in production in different units of the plant with specific reasons is a regular and continuous process. The production is monitored on a daily basis and constraints identified for corrective action."

2.7 As far as the availability of converters is concerned it was pointed out by Audit that during the years 1978-79 to 1991-92 against 473593 hours available, converters worked for only 242209 hours. The loss of production was 46.89 lakh tonnes. Management attributed it mainly to low lining life and less utilisation of converters due to technological abnormalities and logistic control, mould set movement, hot metal shortage and mechanical and electrical break-downs. A new technique of spiral lining was developed in January, 1989 by Research and Development Centre but was discontinued after March, 1989.

2.8 Asked to state the reasons for premature failure of lining of the converter, the SAIL informed the Committee in a written reply as follows:—

> "Use of high ash coke in blast furnace made out of poor quality indigenous coal invariably results in production of high silicon hot metal. Blowing of such metal in converter leads to faster erosion of its lining and consequent premature failure."

2.9 When the Committee enquired about the steps taken to improve lining life and the position during 1992-93 it was stated:—

> "To improve the lining life of converters the primary step was to bring down the silicon content in hot metal by using low ash imported coal."

In addition, the following steps were also stated to have been taken internally:—

(a) Use of dolo flux;

(b) Reduction in turn down time of blow finish to tap start;

(c) Improvement in other operating parameters;

(d) Improved lining practice.

With these efforts, the status of lining life has improved from 251 heats in 1989-90 to 298 during 1992-93 in SMS-I and 250 to 453 in SMS-II during the same period."

2.10 When the Committee desired to know the technique of spiral lining and the cost involved in developing this technique, the SAIL informed the Committee in a written reply as under:

"The spiral lining was not a package or a project purchased from outside. This was a trial with the use of modified brick-shapes within the same quantity of materials. The technique was developed in house by R&D Centre for Iron & Steel of SAIL. Hence, there was practically no significant additional cost."

2.11 According to Audit, Foreign technology was imported by the Company at a cost of Rs. 1.80 crores for doubling the life of converters and improving the life of the lining of refractories at Bokaro Steel Plant. But subsequently, it was found that dry compressed air or nitrogen was required to operate the chamber pumps and cement cariers. In the meantime, the lining material for converters was changed and it achieved the objective of doubling the life of the lining of the converters in Bokaro. It is understood that no use of the imported technology has so far been made rendering expenditure of Rs. 1.80 crores infructuous.

2.12 On being enquired as to what was the need for importing the technology when the life of the renewing of converters could be doubled by changing the lining material, the Committee were informed in a note that foreign technology related to import of Flame Gunniting Technology from USSR by Research and Development Centre for Iron & Steel (RDCIS) was done with Government approval. The objective of importing the technology was to double the life of converters and improving the life of the lining of refractories at BSL. This was a new technology and it was only later that non-availability of dry compressed air or nitrogen at BSL could come to notice and a decision was taken to instal the technology at Bhilai Steel Plant.

2.13 The equipment arrived in Bhilai Steel Plant in October, 1987 and Bhilai Steel Plant is trying to get the facility installed with the help of Karganda Steel Plant experts.

2.14 The Committee desired to know when the lining material for converters was changed at Bokaro and improvement noted thereafter. The SAIL informed the Committee in written reply:

"The lining material for converters was changed during the year 1991-92. 60% of the total lining was adopted with 100% Magnesia Carbon Bricks and the balance 40% lining was composite of Magnesia Carbon and Magnesia Chrome Bricks. Due to this, the converter availability improved considerably and utilisation of SMS-I increased from 66% of the available hours in 1991-92 to 79% in 1992-93 and that of SMS-II increased from 79% in 1991-92 to 80.1% in 1992-93.

The number of heats increased from 13341 in 1991-92 to 14006 in 1992-93 in SMS-I and from 5570 heats in 1991-92 to 5878 heats in 1992-93 in SMS-II."

2.15 Normal tap to tap time of the 100 tonne converter is 60 minutes per heat and that of 300 tonne converter is 80 minutes per heat. In practice the actual tap to tap time of 100 tonne converters was longer i.e. between 70 to 86 minutes. The Management attributed the increase in tap to tap time to high silicon content in hot metal necessitating adoption of double de-siliconising which in turn consumed additional time, increase in heat weight and logistic problem.

2.16 When asked about the steps taken by the Management to overcome the constraints resulting in higher tap to tap time, following steps are stated to have been taken by the management:

(i) "Use of low Si hot metal which results in reduction of blowing time.

(ii) Improvement in quality of tap hole material (95% Mgo) which resulted in enhancement of the tap hole life.

(iii) Close monitoring and feed-back analysis.

(iv) Timely track dozing and mouth ring dropping;

(v) Adherence to preventive maintenance schedule to improve reliability of equipment;

(vi) Arresting/minimising slag carry over from hot metal to SMS."

2.17 With adoption of these measures, reduction in tap to tap time during last three years was stated to be as under:

"(Minutes)

ON AVAILABLE HRS.	1990-91	1991-92	1992-93
SMS-I	136	118	112
SMS-II	114	96	89"

2.18 When asked about the reasons for high silicon content in hot metal it was stated as under:

(i) "Use of lower % of imported coal in the coal blend in the earlier years resulting in high coal ash;

(ii) Use of high silica limestone from Bhawanathpur mines."

2.19 Steps taken to bring down the silicon content in the Hot Metal and the result thereof have been explained as under:

"The main step to reduce silicon content was the gradual increase in consumption of imported coal.

2.20 In addition, other steps taken to help reduce silica content are:

(i) Installation of BLT System in three Blast Furnace and fourth BF will also have BLT in 1994-95.

(ii) Use of higher percentage of sinter in burden from 73.4% in 1991-92 to 73.9% in 1992-93 and 76.2% during the current year upto February 1994.

(iii) Improvement in Blast Temperature.

(iv) Improvement in coke & sinter screening facilities.

As a result of the above measures silicon in hot metal reduced to 0.98% in 1993-94 (January 94) from 1.29% in 1990-91."

B. Coke Oven Batteries

2.21 Audit has brought out that the production of Blast Furnance (BF) Coke (25 mm and above) has been lower than the rated capacity and also the targetted production in all the years since 1978-79 except in 1992-93. The details of production of BF coke during the last 8 years are as given below:—

"(Figure in Lakh Tonnes)

Year	Rated Capacity	Targetted Production	Actual output
1985-86	34.80	28.91	24.67
1986-87	34.80	28.25	24.80
1987-88	34.80	26.96	26.62
1988-89	34.80	26.80	25.59
1989-90	34.80	27.82	23.34
1990-91	34.80	27.11	21.96
1991-92	34.80	24.56	24.48
1992-93	34.80	25.26	25.64"

2.22 Management has stated that production was regulated as per the requirement of Blast Furnace and inter-plant transfers. During 1978-79 to 1991-92 the coking time ranged between 18.52 to 23.49 hours against 16.1 to 16.9 hours estimated in project report. The higher coking time leading to lesser production was due to poor quality of coal and poor organisation and Management.

2.23 When the Committee enquired about the action taken to imporve the quality of coal and other constranits, they were informed as under:

"Consistent efforts are being made to improve the quality of coking coal from indigenous sources. In spite of close interactions between the Ministry of Steel, Ministry of Coal and Coal controller, the quality of indigenous coal has not shown visible improvement and has rather deteriorated. The indigenous coal linkages for Bokaro from Washeries at Dugda, Munidih, Kathara and Mahuda have been showing decline in quality and higher ash over the years.

The quality of coking coal charged in the batteries are being maintained by using imported coal in the % range of 34 to 38 since 1990-91 onwards."

2.24 Bokaro Steel Plant has been using imported coal continuously for a number of years. The quantity and value received for last three years are as under:

	"Quantity. ('000 t)	Value (Rs/Crs)
1990-91	1434	235.17
1991-92	1444	317.34
1992-93	1415	358.15"

2.25 Asked about the coking time during 1992-93 and the reasons for the coking time being higher even with imported coal, the Committee were informed that the average coking time during 1992-93 at Bokaro was 18 hrs & 27 minutes. The coking time was higher than the DPR norm due to ageing of the Batteries and equipment which were commissioned between 1972 and 1985 and provision of no reserve batteries for rebuilding of old batteries.

C. Blast Furance

2.26 The rated capacity of the three blast furnaces in stage I was to be 18.5 lakh tonnes of basic grade and 8.85 lakh tonnes of foundry grade hot metal. After Stage II annual production was envisaged at 37 Lakh tonnes of basic grade and 8.85 lakh tonnes of foundry garde hot metal.

2.27 The rated capacity, targetted production and actual production of hot metal during the years from 1985-86 to 1993-94 are stated as below:

(Figures in lakh tonnes)

Year	Rated Capacity	Targetted Production	Actual Production of hot metal					
			Basic grade	Foundry grade	Off grade	Total Hot metal	Off grade to total hot metal (%)	% age of production rated capacity
1985-86	44.30	29.00	5.76	14.17	5.31	25.24	21.04	56.98
1986-87	45.85	32.50	8.39	13.67	6.07	28.13	21.58	61.35
1987-88	45.85	33.30	7.13	18.06	6.04	31.23	19.34	68.11
1988-89	45.85	35.00	17.23	7.34	7.64	32.21	23.72	70.25
1989-90	45.85	38.00	17.26	6.70	8.04	32.00	25.13	69.79
1990-91	45.85	38.50	11.71	11.16	9.80	32.67	30.00	71.25
1991-92	45.85	35.00	15.71	8.35	12.67	36.73	34.49	80.11
1992-93	45.85	37.00	19.33	8.26	10.97	38.56	28.00	84.00
1993-94	45.85	39.00	30.36	5.26	4.84	40.40	16.00	88.00

2.28 In Blast Furnace, the percentage of actual production of Hot Metal to rated capacity ranged between 57% (1985-86) and 88% (1993-94) during

the period of 1985-86 to 1993-94. The percentage of off grade production to total Hot metal ranged between 16% and 34.5% during the same period.

2.29 Low Production was attributed to lower furnace availability due to poor off take of hot metal and break downs; poor and inconsistent quality of coke and raw materials and non-availability of sufficient quantity of sinter. Blast Furnace operation is continuous process and should not be stopped. If operated at low capacity the Productivity comes down. Production of off grade hot metal was also due to fluctuation in input quality *i.e.* lower as well as non-uniformity of 'Fe' content in ore.

2.30 According to the Ministry after the use of imported coal there was a distinct improvement from 1985-86 onwards. But, though there was increase in overall production, the production of off grade metal has also increased.

2.31 When asked the reason for non achievement of rated capacity of hot metal in Blast Furance since 1978-79 the Committee were informed in a written reply that the rated capacity of hot metal in Blast Furnaces during 1978-79 to 1992-93 could not be achieved mainly due to poor and inconsistent quality of indigenous coal, coke and raw materials.

2.32 In response to a query by the Committee, the measures taken by bringing homogenous Fe content in the charge, were enumerated as under:

(i) 100% blending of Iron Ore Lump and Fines received from different captive sources.

(ii) Blending of Manganese ore with Iron Ore Lump.

(iii) Introduction of micro processor based weighing system in 4 blast furnaces; and in the 5th blast furnace to be introduced during 1994-95.

2.33 Due to these measures the homogeneity of Fe content in the charge is being achieved and standard deviation is being maintained at 0.5%.

D. Slag Granulation Plant

2.34 The utilisastion of the slag Granulation plant commissioned in July, 1979 at a cost of Rs. 9.64 crores, ranged between 1.26 and 27.70 percent of rated capacity. Management has stated that this was due to viscous quality of slage and lack of market for granulated slag as also poor availability of railway rakes for disposal of granulated slag. During 1992-93 the production further came down by 12.60%.

2.35 When enquired whether market potential was not considered before installation of such a costly plant the Committee were informed in a note by SAIL that:

> "The slag granulation facilities had been installed in July 1979 to meet the requirments of cement plants expected to be set up in the vicinity of Bokaro Steel Plant. The expected capacity for cement

production did not come up. The Chunar plant of U.P. State Cement Corporation Ltd., which was one of the major buyers of granulated slag, also ran into difficulties affecting off-take of granulated slag."

2.36 On being enquired about the measures taken to improve the quality of slag and the results there of SAIL stated in a written reply as follows:—

(i) With increase in percentage of sinter in burden the quality of slag has improved and there is increase in slag temperature resulting in increased yield of granulated slag from 10T to 12T per ladle in 1993-94;

(ii) Homogeniety of inputs because of better blending.

(iii) Improved distribution of burden material inside the furnace due to installation of BLT system in Blast Furnace.

2.37 With regard to wagon constraint the Committee have been informed that BSL is in constant touch with Railways for providing Box "N" rakes for various destinations. Railways, however, show their inability to provide requisite number of wagons for movement of granulated slag. BSL continues to pursue with the Railways.

2.38 During evidence when the Committee asked how best utilisation of granulated slag could be made, Chairman, SAIL submitted:

"Granulated slag is not steel. It is a raw material for making cement. Alongwith limestone clinker granulated slag can be used for making cement. It is a by-product and except cement nothing can be made out of it. Unfortunately, in the areas around the steel plants, there are not many cement plants excepting in Bhilai. Freight charges for transportation over long distances make it uneconomical. We hope that we would be able to market the granulated slag much better than in the recent past."

2.39 The Managing Director Bokaro Steel Plant further elaborated:

"Till five years back, slag used to be dumped as a waste and was adding to environment pollution. To control pollution, steel plants started making granulated slag which goes to the cement factories as raw materials. They are having the capacity to convert all their slag into grantulated slag and thus salvaging a product which was earlier thrown out."

2.40 Chairman SAIL also submitted that it would be worth while to have cement plants located near stee plants. Instead of SAIL investing, it can be done as a private or Joint venture. Diversification of this kind will improve utilisation of waste products and increase the profits of the companie.

2.41 When enquired whether SAIL has forwarded any proposal to the Govt. for setting up of future cement plants near the steel plants to utilise the granulated slag, SAIL has replied in negative and stated that recently

they have received a proposal from a private party for setting up a one million tonne cement plant utilising granulated slag produced at Bokaro Steel Plant. The proposal is under their examination.

2.42 In a post evidence reply SAIL has further explained its position on setting up Cement Plants near steel plants to utilise the granulated slag in making cement that Government of India, Ministry of Industry, Deptt. of Industrial Development had issued a letter of intent in August, 1990 to SAIL. RSP granting permission for production of cement at Chilhati/ Rourkela in the state of MP/Orissa. Later on while the project was under evaluation by SAIL, the Govt. transferred the project to Cement Corporation of India in October, 1993, however, the project ultimately could not be included in the VIIth Plan and had to be dropped.

2.43 Bihar State Industrial Development Corporation (BSIDC) with a letter of intent for setting up a slag Cement Plant formed a joint venture co, with SAIL in April, 1988 for using Bokaro Granulated Slag. But Jadunathpur limestome deposit have been declared as Sanctury Zone by Central Govt. and no other lime stone deposits were found suitable, SAIL, decided to abondon the project and drop its participation in the Joint venture.

E. Rolling Mills

2.44 The Rolling Mills consist of Slabbing Mill, Hot Strip Mill, Hot Rolled Coil Finishing Mill and Cold Rolling Mill commissioned between December 1974 and December 1988. Against an input of 4 million tonnes of steel ingots, the Rolling Mills are designed to produce 3.15 million tonnes of finished and semi-finished products while the rest goes as scrap. According to Audit, the arising of scarp was higher in slabbing Mill (Except 1986-87 and 1991-92) due to improper deoxidation and in Hot Strip Mill and other Finishing Mill in all the years due to formation of cobble and equipment problem.

2.45 The reasons for high arising of scrap has been stated to be the erratic behaviour of the weigh scales of ferro-alloys charging systems resulting in the poor deoxidation in Steel Melting Shop. In the Hot Strip Mill, there was problem of dead and worn out table rolls which has since been replaced.

2.46 Regarding remedial efforts made to rectify the weigh scale of ferro-alloys charging system the Committee have been informed:—

> "The weighing scales for Ferro Alloys charging system in both shop I and II of SMS were replaced with electronic system in December 1993 and September 1993 respectively. These are working satisfactorily."

2.47 On replacement of the Table rolls in Hot Strip Mills to reduce the production of scrap, SAIL has informed the Committee as follows:—

> "There was bunching of dead and worn out table rolls in the Hot Strip Mill. In phased manner from 91-92, such table rolls have been replaced during shut down and Capital repairs."

2.48 Correct weighment of ferro alloys, improved pit side practices, proper de-oxidation at steel melting shop, judicious shear of slabs at slabbing mill etc. were stated to be the other measures taken for reducing scrap generation. This has shown a decline in generation of scrap in the HSM from 2.0% to total production in 1991-92 to 1.9% in 1992-93 and 1.7% in 1993-94 (upto January, 1994).

(i) *Slabbing Mill*

2.49 The Slabbing Mill with rolling capacity of 4 million tonnes was commissioned in December, 1974. The connected facilities like soaking pits were commissioned in phases between December, 1974 to February, 1985. The production over the years 1980-81 to 1993-94 has been as given below:

"(Fig. in lakh tonnes)

Year	Rated capacity	Annual target	Annual production	percentage of Rated capacity	prod. to Annual target
1980-81	14.65	16.32	8.56	58.43	52.45
1986-87	21.55	22.03	16.40	76.10	74.44
1987-88	26.79	21.80	19.76	73.76	90.64
1988-89	28.70	23.91	22.72	79.16	95.02
1989-90	34.49	28.48	22.40	64.95	78.65
1990-91	34.49	29.60	23.45	67.99	80.67
1991-92	34.49	27.79	27.63	80.11	99.42
1992-93	34.49	—	29.05	84.23	95.43
1993-94	34.49	—	29.64	85.70	—

2.50 The production figures show that the plant did not produce to its rated capacity or meet the target in any of the years. The actual production to the rated capacity ranged between 58% (1980-81) and 85.70% (1993-94) during 1980-81 to 1993-94.

2.51 Elaborating on the reasons for non-achievement of rated capacity during 1990-91 to 1993-94, SAIL in a written reply has stated as follows:

> "The primary reason for not achieving the rated capacity of the Slabbing Mill was shortage of power and gas and premature refractory failures resulting in poor pit availability."

2.52 Steps taken to achieve the rated capacity of the Slabbing Mill were stated as follows:

(i) Power availability through dual source i.e. from DVC and own captive generation.

(ii) Enriching the BF through injection of Naphtha.

(iii) Pits have been converted with castables to improve upon the efficiency and availability of soaking pits.

(ii) *Hot Strip Mill*

2.53 The Hot Strip Mill was commissioned in December, 1975. The production of Hot Rolled Strip over the years has been as given below:

Year	Rated capacity	Annual target	Annual production	% of production to	
				Rated capacity	Annual target
1980-81	14.30	15.67	7.41	51.82	47.29
1986-87	21.04	20.20	15.27	72.58	75.59
1987-88	26.12	21.05	18.33	70.94	88.03
1988-89	27.99	22.73	21.66	77.38	95.29
1989-90	33.63	28.05	22.31	66.34	79.54
1990-91	33.63	27.50	23.84	70.89	86.69
1991-92	33.63	27.37	26.66	79.27	98.41
1992-93	33.63	—	28.25	84.00	—
1993-94	33.63	—	29.85	88.80	—

2.54 The production of Hot Rolled Strip was lower than the rated capacity and also the annual target in all the years. It ranged between 52% (1980-81) to 89% (1993-94) of the rated capacity. Some of the reasons for low production were stated to be lack of orders, power shortage and gas shortage. It has also been stated that a portion of the ingots and slabs unsuitable for rolling in Slabbing and Hot Strip Mills had to be disposed off. Ingots and slabs were also transferred to other plants.

2.55 When asked to state the reasons for production of ingots/slabs unsuitable for rolling, the Committee were informed in a written reply that this was due to:

(a) Teeming practices at pit side;

(b) Sticker formation due to high temperature of liquid steel;

(c) Quality of ingot moulds and bottom plates;

(d) Bend and camber slabs.

2.56 In another note the position regarding the stocks of ingots and slabs unsuitable for rolling in Slabbing and Hot Strip Mills lying with plant was explained as under:

> "Generation of small quantity of ingots/slabs not suitable for further rolling is a part of the process because of certain unavoidable reasons like sudden power failure, break down of the equipment etc.

Defective ingots/slabs are disposed off by remelting of ingots/selling of ingots and slabs.

Present stocks of defective ingots and slabs is 3000 T and 2000 T respectively valued at Rs. 1.65 crores and 1.14 crore respectively."

2.57 As regards the scheme drawn up for revamping and modernisation of Hot Strip Mill and for installation of continuous shop, the Committee have been informed as under:

"Installation of continuous casting facility in SMS-II alongwith modernisation of Hot Strip Mill has been approved by the Government of India on 23rd July, 1993.

The scheme is estimated to cost Rs. 1625.79 crores with completion schedule of 48 months. Action for award of works are in hand and it is as per schedule."

(iii-iv) **Hot Rolled Coil Finishing and Cold Rolling Mill:**

2.58 The production of HR Sheet, Plates and Slit Coils has been as given below:—

(Figures in lakh tonnes)

Year	Rated capacity	Annual target	Annual production	% of production to	
				Rated capacity	Annual target
1980-81	8.80	5.25	2.70	30.68	51.42
1986-87	14.96	7.70	5.87	39.34	76.23
1987-88	14.96	7.95	5.52	36.90	69.43
1988-89	14.96	6.20	6.44	43.05	103.87
1989-90	14.96	8.10	6.88	45.99	84.94
1990-91	14.96	9.10	7.31	48.86	80.33
1991-92	14.96	8.00	8.45	56.48	105.62
1992-93	14.96	8.30	7.52	50.28	90.00

2.59 The production of Cold Rolled products has been as follows:

(Figures in lakh tonnes)

Year	Rated capacity	Actual target	Actual production	% of production to	
				Rated capacity	Annual target
1	2	3	4	5	6
1980-81	4.93	3.85	1.49	30.22	38.70
1986-87	4.93	4.24	2.48	50.30	58.49
1987-88	4.93	4.34	3.33	67.55	76.73
1988-89	8.93	6.23	4.36	48.82	69.98

1	2	3	4	5	6
1989-90	16.60	6.41	5.05	30.42	78.78
1990-91	16.60	7.07	5.34	32.17	75.53
1991-92	16.60	7.45	6.88	41.45	92.35
1992-93	16.60	10.63	6.53	39.34	69.43

2.60 The actual production of Hot Rolled Plates and Slit Coils as compared to rated capacity (14.96 lakhs tonne per annum) ranged between 31% and 56% during 1980-81 to 1991-92. The production during 1992-93 further declined to 50% of the rated capacity. Similarly in the Cold Rolling Mills rated capacity for production of 16.60 lakh tonnes per annum the actual production to rated capacity ranged between 30% during 1980-81 and 41% during 1991-92.

2.61 When asked to state the reasons for low production as compared to the rated capacity in all these years on both the units, the SAIL, in a written reply has explained the position as under:

(iii) *Hot Rolled Coil Finishing*

2.62 Production of HR plate/HR sheet is directly linked with the volume of production of HR Coil at Hot Strip Mill and prevailing order position. Since the production at Hot Strip Mill itself is below rated capacity, judicious distribution of HR Coil produced has to be made depending upon the market requirement for cold rolled and hot rolled products.

(iv) *Cold Rolling Mills (CRM)*

2.63 Main reasons for low production have been stated as follows:

(i) Severe power restrictions from Damodar Valley Corporation (DVC) specially for 2-3 months in summer.

(ii) Late commissioning of some units HDGL having capacity of 1,70,000T has been commissioned in February, 1990 and DCR Mill having capacity of 1,00,000 T in September, 1991.

(iii) Feed material for CRM is planned as per the market of CR products, there have been instances of low market availability of CR products, consequently saleable steel is planned more in HR products.

2.64 In another written reply information on investigation done to find out other reasons for further fall in production in HRCF and CRM and remedial steps taken by SAIL were furnished as under:

> "Production of HR plate/HR sheet during 1992-93 was regulated as per market demand. During the year there was more emphasis on the production of Coil for sale and Cold Rolled products. Thus, total HR coils were distributed as per the market requirement, reducing the production from HRCF lines.

Production of CR products (Saleable) in 1991-92 was 0.85 million tonnes and that in 1992-93 was 0.88 million tonnes. Hence there is a positive growth of 3.5%."

2.65 When the Committee asked the remedial measures taken by the management to improve the production in HRCF and CRM and the progress made in this regard, the position was explained by SAIL as under:

a. Hot Rolled Coil Finishing (HRCF)

2.66 Following measures have been taken:

(i) Zonewise stacking of HR Coils in Coil Yard/additional coil yard.

(ii) 70% of coil despatch to be done from additional coil yard.

(iii) Availability of coils in one size lot for shearing lines.

(iv) Shearing to be done strictly as per shearing programme to avoid NCO generation.

2.67 Stage I modernisation of the plant is a step towards improving production and quality at the Hot Strip Mill which is the feeder for HRCF and CRM.

b. Cold Rolling Mills (CRM)

2.68 (a) Feed material i.e. HR coils are being planned meticulously to feed different units of CRM which need variety of HR coils with reference to grade and size.

(b) Marketability of CR Products both in domestic and global market is being explored and developed.

(c) Penetration into new markets i.e. Car, Scooters/Cycle Industries, Furniture etc. in domestic market and also export to countries like USA and China.

(d) Upgrading, technology to improve production/productivity and quality."

F. Coke Oven bye-products

2.69 The audit have noted that the yield of Ammonium Sulphate in the plant linked to coke oven battery ranged between 6 to 9.4 Kg. per tonne of dry coal charge as against the original norm of 11.66 kg per tonne and the revised norm of 9.5 Kg per tonne. The loss amounted to Rs. 26.72 crores during the years 1981-82 to 1991-92, compared to original norm. The yield of crude tar ranged between 24.50 Kg per tonne to 27.20 Kg per tonne as against the norm of 32 Kg per tonne and revised norm of 29 Kg per tonne. Loss of production was Rs. 82.26 crores during the year 1979-80 to 1991-92. Compared to original norm. Thus the total loss of production due to lower production of Ammonium Sulphate and crude tar amounted to Rs. 108.98 crores during the years 1979-80 to 1991-92.

2.70 According to the Management the volatile matter in coal turned out to be lower than norm and with use of imported coal the yield of tar and Ammonium Sulphate came down further.

2.71 When asked to explain as to why the original norms were revised from 11.66 Kg. per tonne to 9.5 Kg.per tonne for the yield of Ammonium Sulphate in the plant linked to coke oven battery and from 32 Kg per tonne to 29 Kg. per tonne for yield of crude tar, the SAIL stated in a written reply as follows:

> "The norm for yield of Ammonium Sulphate per tonne of dry coal charge was reduced from 11.66 Kg (DPR) to 9.5 Kg due to low volatile matter in the coal blend. DPR provide for VM of 27.9% whereas the actual VM is below 24%. Hence the yield of crude tar had to be revised from 32 KG/T to 29 Kg per tonne."

2.72 In a further note the reasons for less production of crude tar even after the use of imported coal, was explained as under:

> "The yield of coal tar mainly depends on:
>
> (i) V.M. content in the coking coal which remained below 24% against the DPR norm of 27.9%.
>
> (ii) Battery condition/Ageing of the Coke Oven Batteries.
>
> Blending ratio of imported coal has come down hardly by 1 to 2% which does not have significant impact on the yield of coal tar."

2.73 When the Committee desired to know the efforts made to avoid losses due to low production of by products in future, they were informed by SAIL as under:—

> (i) "In Ammonium Sulphate Plant, centrifuge has been replaced;
>
> (ii) Leakage from saturators has been eliminated;
>
> (iii) Spillage of tar minimised by reclamation system."

2.74 the consumption of Sulphuric Acid should have been 770 Kg. for production of one tonne of Ammonium Sulphate. However, according to Audit, the excess consumption of acid during the years 1979-80 to 1991-92 valued at Rs. 1.95 crores. The excess consumption was attributed to non-availability of equipment like saturator centrifuge belt conveyor.

Further, the production of Naphthalene from distilled tar during the years 1984-85 to 1991-92 was only 30.50% to 48.06% of anticipated production.

2.75 When enquired whether saturator centrifuge belt conveyor had been procured and if so, whether the consumption of Sulphuric Acid had since reduced, the SAIL furnished a written reply as under:—

> "After capital repair of Saturators, replacements of one centrifuge and replacement of various pipe-lines, consumption of acid per tonne of Ammonium Sulphate has reduced from 814 Kg/tonne of Ammonium Sulphate in 1990-91 to 811.0 Kg/tonne in 1992-93 and

during current year it has come down to 780 Kg. per tonne upto Feb. 1994."

2.76 The reasons for the lower production of Naphthalene were stated as follows:—

(i) "Due to low V.M. content in the coking coal, Naphthalene content was only 5 to 6% in the coal tar against the anticipated Naphthalene content of 10 to 12%.

(ii) Production of crude tar for distilation purpose was much less than its anticipated production.

Thorough investigations have been made and various actions were taken to repair the equipments for maximising the Naphthalene production. As a result the production improved from 2081 tonnes in 1990-91 to 2558 tonnes in 1992-93."

G. Sulphuric Acid Plants

2.77 The production of Sulphuric Acid from the Sulphuric Acid Plants (costing Rs. 7.09 crores) during 1980-81 to 1991-92 was between 24.8% to 39.53% of the capacity. The annual requirement of Sulphuric Acid was met by operating only one unit in all the years. The other unit has been lying idle.

2.78 The second acid plant was commissioned only in January 1980. In the beginning of 1979, the plant was aware that Hydrochloric Acid would be better for pickling. Though Management decided to go in for Hydrochloric Acid pickling instead of Sulphuric Acid Pickling in the future, it was not very confident of managing a Hydrochloric Acid Plant and the second Sulphuric Acid Plant was set up. The management stated that it was a part of learning curve.

2.79 When asked the reasons for non-disposal of the unit lying idle since January, 1980, SAIL furnished a written reply as follows:

"During the operation and maintenance of the 2nd Sulphuric Acid Plant, some of the parts of the first one were cannibalised and its present disposal value is being assessed. This is in progress. As soon as the assessment is completed, the disposal action will be taken."

2.80 Asked about non-setting up of Hydrochloric Acid Pickling Plant when it was known to be better than the Sulphuric Acid in Pickling, the Committee were informed as under:

"In the original DPR, both the Pickling Lines were based on use of Sulphuric Acid. At that time, use of Hydrochloric Acid in Pickling Line operation was not well established. Subsequently, with technological developments superiority of Hydrochloric Acid Pickling was established. As such, in the expansion of C.R.M., Pickling Line-II was converted from Sulphuric Acid to Hydrochloric Acid base."

H. Ingot Moulds and Bottom Plates

2.81 The production of ingot moulds was less than rated capacity during the years 1979-80 to 1991-92 (except of 1987-88) and the production of bottom plates was less than rated capacity during the years 1988-89 to 1991-92. But, consumption of ingot moulds and bottom plates was very high compared to the norms, despite measures like better tapping temperature control, higher mould cycle time, increased air cooling of the moulds and stricter quality control taken by the Management in 1983 which made little impact on the consumption of ingot moulds during the years 1984-85 to 1991-92.

The extra expenditure due to excess consumption of ingot moulds and bottom plates from 1979-80 to 1990-91 amounted to Rs. 56.94 crores.

2.82 When asked by the Committee, various measures taken to reduce consumption of ingot moulds and bottom plates were explained as follows:—

(i) Strict compliance of 100% hydro-cleaning of moulds.

(ii) Graphite based coating on ingot moulds.

(iii) Intensified repair and maintenance of moulds.

(iv) Strict adherence to technological parameters *viz*, tapping temperature, mould cycle time and increased air cooling of mould.

(v) Improvement in the quality of IM & BP manufactured from captive sources.

2.83 The various measures taken could reduce the consumption rate of Ingot Moulds and Bottom Plates from 36.55 Kg/TCs during 1990-91 to 31.53 in 1993-94 (upto January, 1994). Besides this, SMS is measuring temperature of heat before teeming which has also helped to reduce mould consumption.

2.84 The Committee are perturbed to observe that the production of steel at Bokaro Steel Plant has been much less than the installed capacity of 4 million tonnes per annum and the shortfall in production during the years 1978 to 1992 amounted to 4.7 million tonnes due to various reasons, such as inconsistent supply of indigenous metallurgical coal, problems of power supply from DVC, lack of coordination and lack of systematic and sustained programme for replacement or modification of old equipments. Although some improvement in production is stated to have been achieved, it still remains below the installed capacity in respect of ingot steel. The Committee fail to understand why the factors which have now been identified for lower production could not be identified all these years so that remedial steps could be initiated in time and shortfall in production avoided. They desire that the matter should be looked into with a view to find out as to when the factors responsible for lower production were identified

and when the remedial measures were initiated and the Committee be apprised of the same.

2.85 It is a matter of concern to observe that during the period 1980-81 to 1992-93, the percentage of actual to installed capacity ranged from 37 to 93 in respect of steel ingots and from 62 to 95 in respect of saleable steel. Among other factors the shortfall has been attributed to lower availability of converters due to premature failure of lining, poor availability of SMS grade lime stone, poor quality of coke and labour problems. The premature failure of lining of the converters and other technical abnormalities resulted in loss of production of 46.89 lakh tonnes. In order to double the life of converters and improve the life of lining of converters, foreign technology was imported at a cost of Rs. 1.80 crores. The Committee are astonished to find that no use of this technology could be made due to the non-availability of dry compressed air and nitrogen at Bokaro Steel Plant which were required to operate the chamber pumps and cement carriers. Strangely, this fact was discovered only after the technology had been imported thus rendering the expenditure of Rs. 1.80 crores infructuous. In fact the objective of doubling the life of the lining of converters was achieved by changing the life of the lining material during 1991-92 which means the import of foreign technology was not at all necessary. The Committee recommend that in future foreign technology should be imported only after ensuring that it is unavoidable and can be used gainfully in the project for which it is being imported. Apart from the low lining life of converters the tap to tap time of converters at Bokaro was also higher compared to norms. Although during 1991-92 and 1992-93, the tap to tap time is stated to have been reduced by using low silicon hot metal, low ash imported coke, close monitoring and feed-back analysis and certain other steps, it still remains well above the norms. The Committee desire that concerted and urgent efforts should be made to bring the tap to tap time within norms.

2.86 The production of Blast Furnace Cock (25mm. and above) has always been lower than the rated capacity of 34.80 lakh tonnes since 1978-79 to 1992-93. The production which ranged from 21.96 lakh tonnes to 26.82 lakh tonnes was even less than the targets fixed except in the year 1992-93. The Committee are not convinced with justification for lower production given by the company that the production was regulated as per the requirement of Blast Furnace and inter-plant transfers. As has been brought out by Audit against 16.1 to 16.9 hours of coking time estimated in the project report, the actual coking time ranged between 18.27 to 23.49 hours during 1978-79 to 1991-92. The lesser production was due to this higher coking time which was attributed first to the poor quality of coal and then to the ageing of batteries and equipments. The Committee wonder why the quality of coking coal changed in the batteries which is not being maintained by using imported coal, the percentage of which has been ranging between 34 to 38 percent since 1990-91 could not be maintained earlier although Bokaro Steel Plant has been using imported coal for a

number of years. Equally disturbing is the fact that no reserve batteries were provided for rebuilding of old batteries due to which the production could not pick up even after using imported coal in the desired proportion. The Committee have no doubt that this situation could have been avoided had the management taken proper remedial steps at the right time. They would recommend that a schedule should now be drawn up for rebuilding of old batteries at the earliest.

2.87 The performance of the Blast Furnace has also not been very satisfactory. While the percentage of total production of hot metal to rated capacity increased from 57 in 1985-86 to 88 in 1993-94, the percentage of off grade production to total hot metal also increased from 21% to 34.5% during the same period, though it is stated to have shown some improvement subsequently. The Committee have been given to understand that the shortfall in production compared to the rated capacity was due to poor and inconsistent quality of indigenous coal, coke and raw materials as also due to lower availability of sinter. The fluctuation in input quality of Fe content in ore also resulted in production of off-grade metal. They urge that the efforts initiated by the company for maintaining the homogeneity of Fe content in the ore should be intensified. They also recommend that the quality of coal used in the Blast Furnaces should also be maintained, if necessary, by blending it with imported coal, as is now being done in the coke oven batteries.

2.88 A Slag Granulation Plant was commissioned by Bokaro Steel Plant in July, 1979 at a cost of Rs. 9.64 crores with the expectation of cement plants being set up in the vicinity of Bokaro Steel Plant. The expected capacity for cement production did not come up and since granulated slag can only be used for making cement, the Slag Granulation Plant remained largely unutilised. Its capacity utilisation ranged between 1.26 to 27.70 percent of rated capacity upto 1991-92 and during 1992-93 it came down to as low as 12.60%. The Committee strongly deprecate the decision of the company for going in for this plant on the basis of expectations without verifying the actual market potential. Before setting up the plant, the sale of the granulated slag produced at the plant should have been tied up. Cement plants being the only users of granulated slag, the Committee desire that the suggestion of Chairman, SAIL for setting up future cement plants near the Steel plants should be seriously considered keeping all other relevant factors in view. The Committee also recommend that the problem of avilability of Railway rakes for disposal of granulated slag should be taken up at the highest level.

2.89 The Rolling Mills at Bokaro which consist of Slabbing Mill, Hot Strip Mill, Hot Rolled Coil Finishing Mill and Cold Rolling Mill were commissioned between December, 1974 and December, 1988. Against an input of 4 million tonnes of steel ingots, the Rolling Mills are designed to produce 3.25 million tonnes of finished and semi-finished products, while the rest goes as scrap. The Committee are constrained to observe that the

generation of scrap has been higher in the slabbing Mill almost every year till recently due to improper deoxidation in Steel Melting Shop caused by the erratic behaviour of the weigh scales of ferro-alloys charging systems. The production of scrap in Hot strip Mill and other finishing mills was also high in all the years. It was only in late 1993 that the ferroalloys charging systems in both the Steel Melting Shops were replaced with electronic system, similarly the dead and worn out table rolls leading to higher production of scrap in Hot Strip Mill have now been replaced in a phased manner starting as late as from 1991-92. These along with some other measures have resulted in some decline in scrap generation. The Committee wonder why it took so long for taking the remedial measures when the scrap generation in the Rolling Mills has been higher continuously for so many years. They desire that responsibility for such inaction should be fixed and suitable action taken against the delinquent officials under intimation to the Committee.

2.90 Not only was the generation of scrap in the Rolling Mills higher, but the production performance of the various units has also been none too happy. The production in the Slabbing Mill ranged between 58% to 86% of the rated capacity during the years 1980-81 to 1993-94 primarily due to shortage of power and gas and premature refractory failures. The Committee urge that with the availability of power and efficiency of soaking pits having now been improved, all out efforts should be made to achieve the rated capacity of the Slabbing Mill, similarly the production of hot rolled strip in the Hot Strip Mill ranged between 52% to 89% during 1981-82 to 1993-94. The Committee desire that pending completion of the modernisation scheme which also includes modernisation of Hot strip Mill, suitable measures should also be taken to minimise generation of defective ingots and slabs which are unsuitable for rolling in slabbing and Hot Strip Mills.

2.91 In the Hot Rolled Coil Finishing and Cold Rolling Mills also, the capacity utilisation has been far from satisfactory. In the former, the production ranged from 31% to 56.48% of rated capacity during 1980-81 to 1991-92 and declined to 50% in 1992-93. In the case of cold rolled products, the production declined from 68% of rated capacity in 1987-88 to 39% in 1992-93. It is worthwhile to note that the utilisation of both the Hot Rolled Coil Finishing and Cold Rolling Mills has fallen during 1992-93 compared to the previous year. Therefore, SAIL's contention that the production of HR coil at Hot Strip Mills being itself below rated capacity, judicious distribution of HR coil produced has to be made depending upon the market requirement for cold rolled and hot rolled products is not tenable. The Committee, therefore, recommend that the exact reasons for the low utilisation of Hot Rolled Coil Finishing Mill and Coil Rolling Mill should be identified and remedial action taken without delay.

2.92 Ammonium Sulphate, crude tar and Napthalene are produced as by-products from coke oven. It is distressing to observe that the original norms for production per tonne of dry coal charge had to be revised from 11.66 kg to 9.5 kg in the case of Ammonium Sulphate and from 32 kg to 29 kg for crude tar due to lower volatile matter in the coal blend than provided for in the DPR. The Committee are unhappy to note that even the revised norms could not be achieved. The production per tonne of coal charge ranged between 6 kg to 9.4 kg for ammonium sulphate and between 24.5 kg to 27.2 kg for crude tar. The loss of production during the period 1979-80 to 1991-92 compared to original norms amounted to about Rs. 109 crores. Likewise, the production of Naphthalene from distilled tar during the years 1984-85 to 1991-92 was only 30.50% to 48.06% of anticipated production. The Committee would like to be informed of the improvement in production of by-products after the steps taken recently for repair and replacement of various equipments.

2.93 The Committee regret to observe that the excess consumption of sulphuric acid compared to norms of 770 kg per tonne of ammonium sulphate produced during 1979-80 to 1991-92 amounted to Rs. 1.95 crores. What is more surprising is that though the excess consumption was known to be due to certain defects in equipment, remedial action has been taken only recently which has resulted in some reduction in consumption of sulphuric acid. The Committee desire that the matter should be thoroughly investigated and the responsibility be fixed for not taking timely action for maximising the production of by-products and bringing the consumption of sulphuric acid within norms.

2.94 The Committee are perturbed to find that the production of sulphuric acid ranged from 24.89% to 39.53% only during 1980-81 to 1991-92. In fact the second acid plant commissioned in January, 1980 has been lying idle. The Committee fail to understand why the second plant was set up when the requirement of sulphuric acid could be met by only one plant. What is worse, no action has so far been initiated for disposal of this plant although it has been lying idle since its commissioning in 1980. It was only when the Committee took up Bokaro Steel Plant for examination that the assessment of its present disposable value has been undertaken. The Committee would like this exercise to be completed soon. Action taken in this regard should be intimated them within 3 months of presentation of this Report.

2.95 It is a matter of concern that inspite of the strict quality-control measures taken by the management in 1983, consumption of ingot moulds and bottom plate continued to be higher than norms. During the period 1979-80 to 1990-91 alone the extra expenditure due to excess consumption of ingot moulds and bottom plates amounted to Rs. 56.94 crores. Though the

consumption of ingot moulds and bottom plates has been reduced to 31.53 kg/TCs in 1990-91, the Committee take a serious view of the laxity of the management in not taking timely corrective actions to keep the consumption of these materials within limits.

They would now urge upon SAIL to ensure strict adherence so that the consumption of ingot moulds and bottom plates is brought down further.

CHAPTER III

RAW MATERIAL MANAGEMENT

A. Iron Ore Mining

3.1 The Bokaro Steel Plant obtains its iron ore from its captive mines from Kiriburu, Meghahatuburu and also SAIL Mines i.e. Gua and Bolani Iron Ore Mines. The production at Kiriburu Iron Ore Mines as a percentage of rated capacity of mines (17.50 lakh tonnes lumps and 25.00 lakhs tonnes fines) ranged between 10.35% and 64.50% during the period 1979-80 to 1991-92.

3.2 In Meghahatuburu Iron Ore Mines, production ranged between 8.05% and 55.21% of the rated capacity (13.40 lakh tonnes lumps and 29.00 lakh tonnes fines).

3.3 The shortfall in production of iron ore has been attributed to non-avaibility of Quaternary crusher, power interruption, jamming in primary crusher, break-down in primary crusher, over-time restriction, low availability of drills, shovels, dumpers, less off take at Kiriburu mines.

At Meghahatuburu mines, the shortfall has been stated to be due to shortage of manpower, inadequate equipment, break-down of equipment, basic design and erection defects and flowability problems.

3.4 When the Committee pointed out the need for improving the utilisation of mines, Chairman, SAIL stated in his evidence as follows:—

> "The utilisation of mines has to improve. We are at it. We have substantially improved. But this is an endless process."

3.5 Because of low production of iron ore, purchase of substantial ores at higher cost involving additional expenditure of Rs. 61.92 crores had to be made during 1980-81 to 1990-91 to avoid loss of production in steel plant. Now all the requirement of iron ore was being met from captive mines only. Purchase from outside were stated to be result of failure of Railways to supply adequate wagons. The Committee were also informed that the quality of iron ore purchased from outside was not better and the purchase had to be made due to movement difficulty.

3.6 The Committee desired to know how the purchases from outside were transported. They were informed by SAIL in a written reply that purchases of iron ore were mainly from Barajamda iron ore sector. The additional wagons of this sector could be separately catered by the

Railways which in totality was not possible by South Eastern Railway to move since the entire requirement had to be met through the single tract dieselised steep gradient Railway line between Kiriburu/Meghahatuburu-Bandamunda Section which is difficult.

3.7 When asked by the Committee whether the matter was taken up with Railway Board, the SAIL forwarded a written reply as under:—

> "The matter of non-availability of railway wagons was taken up regularly with appropriate levels of Railways. As a result of this, the wagon availability has gone up to 4.6 BOX "N" rakes per day for Kiriburu & Meghahatuburu mines as against previous supply in the range of 3 to 3.5 "N" rakes/day upto 1992-93."

3.8 The lower availability of Railway wagons was stated to have been a continuous phenomena right from 1972 when BSL started taking ore from Kiriburu. This sector needed 5 box "N" rakes per day to move iron-ore from Kiriburu-Meghahatuburu mines complex to BSL.

3.9 One of the contracts for development, stipulated a ceiling of 5% on the escalation but the ceiling was withdrawn and cost over-run beyond 5% and to the extent of Rs. 10.46 crores was incurred. According to company, the ceiling clause was withdrawn because of change in design and increase in scope of work due to sophistication in system more than that envisaged in the contract. But an Enquiry Committee appointed in May 1987 attributed the cost over run to tardy process of approval of drawings, slow release of drawings and under estimates of costs.

3.10 However, the Ministry clarified in March, 1993 that on the basis of the report of Enquiry Committee some of the agencies, who were given contracts were also responsible for the time and cost overrun but it has not been found possible to apportion the responsibilities.

3.11 Asked to state the exact position in this regard, SAIL informed the Committee in a written reply as under:—

> "In May, 1978 when BSL took over Meghahatuburu Iron-Ore Mines at a cost of Rs. 51 39 crores from NMDC, it was found that the provision made for different components of the projects were not adequate in the detailed projects Report. The change in the scope of work and design of equipment was considered necessary. After a detailed study by various committees, a revise investment proposal involving change in design, scope and quantities of work at a cost of Rs. 121.94 crores was approved by Government in the year 1987"

3.12 On being asked why the ceiling of 5% was waived, the Committee were informed in a note by SAIL that due to working difficulties

experienced on account of steep slope of the hill, manning, handling, stringent conditions imposed by Forest and Mining Department of the State Government during construction stage, under estimation of scope of work. EPI, one of the major contractors stopped the work and pleaded that unless certain relaxations were given to them, they would not be able to take up the work. After thorough scrutiny, in order to go ahead with the work BSL had to delete the ceiling clause.

3.13 In this connection the Secretary, Ministry of Steel informed the committee in evidence that EPI a public sector undertaking, pleaded its inability to continue with the works unless relaxations were given. They also mentioned other difficulties in the scope of work etc. In the interest of this work getting completed in time, midway through the project and bearing in mind the change in scope and design and quantities of work etc, at that time, Bokaro took a decision to remove ceiling clause.

3.14 The witness further elaborated:

> "An enquiry was constituted which held Bokaro and EPI and other implementing agencies jointly responsible. The Ministry of steel came to the conclusion which was also noted by the Cabinet Committee on Economic Affairs, that the concerned agencies like Bokaro EPI etc., should be held responsible for the project though it has not been found possible to apportion the responsibility in detail among the different agencies. The Cabinet Committee had taken a note of it. We have advised all the Ministries that this is a opinion of the Cabinet that your agency has been held responsible."

3.15 When the Committee asked whether any further action was taken in this regard, the witness submitted:

> "I do not see need for any further action."

3.16 When asked by the Committee whether the recommendations of the Enquiry Committee regarding cost and time over-run have been implemented and if so, the results thereof, SAIL stated in a written note that an Enquiry Committee (Banerjee Committee) on cost and time over-run on (Meghahatuburu Iron Ore Mines) MIOM submitted its report to the Ministry of Steel and SAIL. A technical Committee was constituted to recommend measures for imporving productivity of the mines. Recommendations of the Technical Committee are under finalisation. Some of the interim suggestions given by technical committee like introduction of slow speed classifiers have been implemented.

B. Lime Stone Mining

3.17 Lime Stone to Bokaro Steel Plant is supplied from the mines at Kuteshwar and Bhawanathpur. There was shortfall in extraction of

high grade lime stone at Kuteshwar mines to the extent of 3 million tonnes during the years 1979-80 to 1991-92 as a result of which 6.64 lakh tonnes lime stone was procured from outside at additional expenditure of Rs. 8.04 crores during 1987-88 to 1990-91.

3.18 The reasons for low extraction of limestone at Kuteshwar Mines during 1979-80 to 1991-92 period were furnished in a written reply stating that Kuteshwar Mine had faced a threat of inundation from Bansagar Dam and so investment were not made and it remained a manual mine with a limited capacity of about 5 to 6 lakh tonnes with the setting up of a protection bandh mining activity has been intensified with mechanised operations, in addition to manual one. Production is expected to be around 740,000 tonnes during 1993-94 and will progressively go up to a million tonnes per annum in the near future.

3.19 Bhawanthpur mine was to supply 2.345 million tonnes per annum to three steel plants by 1994-95. But original specification for limestone was changed due to deterioration in the quality of Indian Coal, (high ash content). Higher alkali contents was noticed in limestone. Crushing problems in sintering plant due to higher hardness of limestone were noticed resulting in decision to introduce higher grade limestone in mixed flux.

3.20 It has also been stated that with selective mining, Bhawanthpur limestone can be used in Blast Furnance. Alternative for making the BNP limestone are also being explored. BF grade limestone to the tune of 4,99,000 tonnes will be supplied from Bhawanthpur during 1994-95 to BSL, DSP and IISCO.

3.21 When asked by the Committee why the higher alkali content could not be visualised at the time when the limestone mine at Bhawanthpur as surveyed, it was stated that earlier Blast Furnance practice with low productivity did not have emphasis on alkali content in burden. With higher volume Blast Furnace and higher blast temperature, the alkali content in the limestone becomes important. Earlier the role of alkali in blast furnace burden was not clearly known.

3.22 The operating cost in Bhawanthpur was estimated at Rs. 13.55 per tonne of saleable limestone. First stage of development of mines was sanctioned by Government for Rs. 7.80 crores but was completed at a cost of Rs. 16.63 crores. The Second Stage of development was expected to cost Rs. 38.82 crores. Due to various reasons it did not achieve the designed capacity of 1.45 million tonnes per annum. The cost per tonne of limestone raised was Rs. 269.72 per tonne (1991) against Rs. 212.97 per tonne for procurement from raising manually through contractor. Further the plant did not meet the quality required for Blast Furnace. Purchase of limestone from others resulted in additional expenditure of Rs. 4.27 crores upto 1990-91. The out put has not improved because of inferior quality of limestone deposits.

3.23 When asked whether the lower availability of Railway Wagons was for a particular period or a continuous phenomenon and whether the matter was taken up with Railways at appropriate level and if so, with what results? SAIL furnished a written reply to the Committee as under:—

> "Lower availability of Railway Wagons at Khanabanjari used to be periodic in nature particularly in last quarter of the financial year due to heavy movement of coal from nearby collieries. This problem continued till March, 1993. Wagons supply used to improve intermittently whenever Railways were approached from various levels of SAIL. Inspite of all efforts 80,000 tonnes of limestone were accumulated at Khanabhanjari (Kuteshwar Mines) by 1992-93 end. During 1993-94, however, the position has been eased and despatches from Khanabhanjari had registered a significant growth of about 43%."

C. Inventory

3.24 It has been observed by the Audit that advance to suppliers of stores & spares amounted to Rs. 82.90 crores as on 31st march, 1992 and the supply of goods had not been adjusted for several years from such advances and credit balances in the book amounting to Rs. 89.05 crores were yet to be adjusted.

3.25 The disposal of stock of non-moving and surplus items was very slow. The disposal ranged between Rs. 0.37 crores (total stock Rs. 61.74) during 1987-88 and Rs. 5.21 crores (total stock Rs. 66.56 crores) during 1991-92.

3.26 Management has stated that they were trying to reduce the level of stores and spares to 9 to 10 months consumption and the surplus stores which were causing concern would be disposed off soon.

3.27 Regarding disposal of surplus items during 1992-93 and thereafter, and the quality and value thereof, Committee have been informed that 1306 surplus items of the value of Rs. 2.99 crores were disposed off during 1992-93 and 315 surplus items of value of Rs. 1.72 crores were disposed off during 1993-94(till Sept. 93). As on 30-9-93 the number of surplus stores was 47789 for a value of Rs. 23.75 crores.

3.28 There were discrepancies in the stock of raw materials. The committee constituted for the purpose of investigating into the reasons of discrepancies in Raw Material suggested various remedial measures to prevent the recurrance of the incidences.

3.29 When asked by the committee, whether the remedial measures to prevent discrepancies in the raw materials as recommended by the Committee have been accepted and implemented and if so with what result, SAIL informed in a written reply that the recommendations of the Committee constituted in connection with the shortages of raw material were accepted by the Board in August, 1990. The norms of shortages as

revised by the Committee were approved by the Board of Directors and as suggested by the Committee Bokaro Steel Plant is now furnishing the information of shortages of raw material.

3.30 The Committee was also stated to have recommended certain measures to reduce the shortages. Most of these recommendations were given effect of by Bokaro Steel Plant as per the following details.

(a) Very strict weighment supervision at the loading point.

(b) The weigh bridges at the loading points as also at the receiving ends are calibrated at frequent intervals.

(c) Higher content of moisture than agreed is subjected to recovery from supplier bills.

(d) The gredient of the tippler has been increased so as to empty the wagons completely at the time of tippling.

(e) Consumption is calculated based on the weightometers installed at various consuming ends as far as practicable.

(f) The accounting of dolomite and limestone is now being done on composite basis to avoid discrepancy on their mix up.

All these measures have resulted into decrease in shortages of major raw-materials from year to year.

3.31 During evidence, Chairman, SAIL further elaborated:

"At the loading point, the supervision is being done by the SAIL representatives, particularly in case of imported coal, new electronic weigh bridges have been put up and they are regularly caliberated. In case of indigeneous coal weighment is done and reported back to coal India. In fact, SAIL has differences of opinion with Coal India in this regard. In regard to having independent inspection agencies for the supervision at loading points and for weighment, we have not yet done this. Tare weight of the wagons is also done alongwith the Railways regularly after every five or six months. Steps have also been taken so that mix up of raw material does not take place."

3.32 The requirement of iron ore for Bokaro Steel Plant is mainly met by Kiriburu and Meghahatuburu the captive mines of Raw Material Division of SAIL. It is distressing to find that during the period 1979-80 to 1991-92 the utilisation in Kiriburu Mine ranged between 40.35% to 64.50% while it was 8.05% to 55.21% in the case of Meghahatuburu Mine. Low production of iron ore was one of the reasons for purchase of substantial quantity of ore at higher cost involving additional expenditure of Rs. 61.92 crores during 1980-81 to 1990-91 to avoid loss of production in steel plant. The Committee strongly urge upon SAIL to ensure availability of adequate equipments and its maintenance at the mines to facilitate increased utilisation of iron ore mines.

3.33 Another problem due to which purchase of iron ore had to be made from outside was stated to be the inability of Railways to move adequate wagons from the captive mines due to the single track steep gredient railway line between Kiriburu/Meghahatuburu-Bandamunda section. The Committee are, however, astonished to observe that though the lower availability of Railway wagons persisted right from 1972 when Bokaro steel started taking ore from Kiriburu, the availability has only now gone up to 4.6 Box "N" sales per day to move iron ore from Kiriburu-Meghahatuburu mines complex to BSL. The Committee recommend that as pointed elsewhere in this Report the matter regarding the availability of Railway wagons and their movement should be taken up at the highest level and a permanent solution found out. The Committee would like to be informed of the outcome of the matter.

3.34 One of the contracts for development stipulated a ceiling of 5% on the escalation. But the Committee are dismayed to find that the ceiling was withdrawn and cost over-run beyond 5% and to the extent of Rs. 10.46 crores was incurred.

3.35 The original cost of the project had been revised to Rs. 121.94 crores only after a detailed study by various committees involving change in design, scope and qualities of work. It is strange that inspite of such a detailed study having been done before the cost was approved, the work was subsequently stopped by EPI, one of the major contractors mainly on the plea of difficulties in working conditions and under estimation of scope of work. BSL also readily agreed to their condition and waived the 5% ceiling on escalation. The Committee are unhappy over the haste on the part of BSL in waiving the ceiling clause which resulted in extra expenditure of Rs. 10.46 crores. They desire that in future, the company should be more vigilant in enforcing the contract. The Committee are astonished to observe that though an enquiry Committee held Bokaro, EPI and other implementing agencies responsible for the cost escalation no further action was taken by the Ministry to fix the responsibility and the concerned Ministries were simply informed of the fact. The Committee desire that a thorough probe should be conducted in regard to implementation of this project and agencies/persons responsible should be identified to avoid recurrence of such cases in future.

3.36 The Committee express their displeasure over the fact that the recommendations of the Enquiry Committee (Banerjee Committee) regarding cost and time over-run on Meghahatuburu Iron Ore Mines are yet to be implemented. Recommendations of the Technical Committee constituted in pursuance of the Enquiry Committee recommendations for suggesting measures for improving productivity of mines are still under finalisation. The Committee desire that the

Banerjee Committee recommendations should be implemented without delay under intimation to them.

3.37 The performance of the limestone mines at Kuteswar and Bhawanathpur was also below anticipation. During the years 1979-80 to 1991-92 there was shortfall in production at Kuteswar mines to the extent of 3 million tonnes. The extraction of lime stone was stated to have been low since no investments were made for mechanising the mine due to threat of inundation from Bansagar Dam. In this connection, the Committee would like to point out that Kuteswar mines could have been protected simply by putting up a bundh as has now been done and the expenditure of Rs. 8.04 crores on procurement of lime stone could have been avoided. Similarly Bhawanathpur mines did not achieve the designed capacity of 1.45 million tonnes per annum. The operating cost of the mine was higher than estimated and it did not meet the quality required for Blast furnace necessitating additional expenditure of Rs. 4.27 crores upto 1991 on purchases from other resources. The Committee have been informed that with the selective mining being resorted to now, Bhawanathpur limestone can be used for blast Furnace. Here the Committee would like to caution that with extensive selective mining, the remaining deposits may be rendered completely unsuitable for use in the Blast Furnaces. They would therefore, suggest that instead the possibility of modifying the Blast Furnaces should be explored in order to make them compatible with the limestone available at the mines.

3.38 The Committee are unhappy over the tardy disposal of stock of non-moving and surplus items. Only 315 surplus items of value of Rs. 1.72 crores were disposed off during 1993-94 (upto Sept., 1993) and 47789 items were lying surplus, valued at Rs. 23.75 crores. The Committee desire that the level of surplus stores and spares should be brought within the prescribed limits within three months of the presentation of this Report. They would also like to be furnished with figures showing the extent to which discrepancies in the stock of raw material have been brought down after the implementation of recommendations of the Committee constituted for this purpose. In the case of coal, they suggest that electronic weigh bridges should also be put up in the case of indigeneous coal as in the case of imported coal, in order to eliminate the discrepancies on this account.

CHAPTER IV

FINANCIAL MATTERS

A. Financial Performance

(i) Profits

4.1 Bokaro Steel Plant has been earning profits since 1981-82 consistently. As on 31.3.1992, the cumulative profit was Rs. 1264.49 crores of which profit of Rs. 298.50 crores was due to various reliefs granted by Government. The net profit earned by BSL for the year ended on 31st March, 1993 was Rs. 380 crores as against the net profit of Rs. 423 crores for SAIL as a whole.

4.2 When asked, how do these figures of profits compare with the budgeted profits during these years, the Committee were informed as under:

> "Bokaro Steel Plant earned a net profit of Rs. 180 crores, Rs. 230 crores and Rs. 380 crores compared to budgeted profits of Rs. 304 crores Rs. 226 crores and Rs. 271 crores during 1990-91, 1991-92 and 1992-93 respectively. It would be observed that except for 1990-91 actual profit was higher than the budget. The actual profit lower than the budget during 1990-91 was due to lower volume of production. However, production during 1991-92 and 1992-93 was more than the budget resulting in better profits."

4.3 During evidence, the Secretary of Ministry of Steel informed the Committee that from 1978 to 1992, the shortfall in production amounted to 4.7 million tonnes, the estimated reduction in profit is about Rs. 598 crores.

B. Pricing

4.4 The Committee were informed by Chairman, SAIL during evidence that there has been a recession in the Steel Industry the world over and the demand has stagnated around 15 million tonnes in India against a capacity of 22 million tonnes. As a result there is lot of competition from indigenous producers as well as others since the customs duties have come down.

4.5 The prices of steel products used to be fixed and announced by the Joint Plant Committee till January, 1992 when control over pricing and distribution was removed. The ex-works prices of Steel are now fixed by the manufactures taking into account the market forces. The levies like excise duties contribution to Steel Development Fund(SDF), Engineering Goods Export Assistance Fund (EGEAF) and other pool funds are added

to the ex-works prices. Outward freight is charged on actual basis subject to maximum freight (w.e.f. 1st April, 1993) of Rs. 1210/T even though the actual freight may be higher.

4.6 Asked to state whether SAIL is satisfied with the present pricing arrangements, the Committee were informed in a written reply that SAIL is not satisfied with the present pricing arrangement due to the following reasons:

> (i) "With high incidence of excise duty and contributions to SDF and EGEAF, SAIL was not able to increase the prices of steel even to compensate fully for the increase in input costs. The input cost escalation, since May, 1992 to January, 1994 have been of the order of Rs. 1106/tonne whereas the increase in steel prices including the recent increase in January, 1994 has been only Rs. 764/tonnes.
>
> (ii) Maximum freight that can be charged is Rs. 1210/tonne while actual freight in certain cases is higher, putting the company to loss."

4.7 As regards the effects of duty structure in the 1994-95 budget, the Secretary (Steel) informed the Committee during evidence:

> "It has an adverse effect, the prices will be increased because of increase in excise duties. At the same time there is reduction in import duties from 80% to 50%. From the two sides, there has been an effect on Indian Steel manufacturers, not only on the SAIL but on the entire steel industry".

4.8 The Secretary (Steel) further elaborated that studies have indicated that the demand for steel is price in-elastic and that in the past also, the consumer had been able to absorb certain normal increases. But in some particular varieties of steel or segments of Industry the new budget would definitely have a rather serious effect. When the prices of scrap increased with a 12 and a half percent import duty on them plus the increase in power tarrif, it resulted in the closure of about 45 mini steel plants in the last two years. As far as SAIL is concerned impact of new budget was stated to be of the order of a little over Rs. 300 crores. Inspite of introduction of MODVAT, SAIL would still have to bear an additional burden of Rs. 100 to 120 crores.

4.9 Secretary, Ministry of Steel further explained:

> "Our Steel Minister has represented the whole case to Finance Ministry. Thereafter, I have interacted with the officials of the Finance Ministry and have recommended the appropriate duty structure required. The matter is under consideration of the Finance Ministry."

4.10 When the Committee asked the representative of Ministry of Steel during evidence to clarify the position on pricing of steel in the present situation, the witness explained:

> "After the decontrol, there is no control on prices excercised by the Government or any of its agency. As far as public sector undertakings are concerned, they fix their own prices, depending on the cost of production and the capacity of the market to absorb the price. For imported steel, it is between the importer and the exporter to fix it on the basis of the on-going international price. Government does not fix any price now."

C. Capital Restructuring

4.11 The Committee have been informed that the SAIL has an equity base of Rs. 3985.89 crores. It has proposed to the Government that the equity base be reduced by converting a part of the equity to loans which they will pay back to the Government and a part to 7% preference shares. This was stated to be under consideration of the Government.

4.12 During evidence, Chairman, SAIL further elaborated their point of view stating that SAIL had a plan of raising Rs. 12300 crores for investment including for modernisation. It needed some budgetary support from the Government which the Government could not give it. If the Government is unable to give budgetary support let there be private capital involved.

4.13 In a post evidence reply the SAIL has further informed the Committee that the initial poroposal for financial restructuring of SAIL was forwarded to Ministry of Steel in December, 1992. Discussion were held on the proposals and the matter is still under the consideration of the Government.

4.14 On a query of the Committee on converting a part of equity into loans as suggested by SAIL, the witness explained:

> "We have discussed the matter thoroughly with them (SAIL). It is a major decision and we have to look at various possible things. It is not a simple issue of equity, it is a question of loan and of interest to be charged, etc. The interests of shareholders have also to be kept in mind. Restructuring is for strengthening the SAIL and to raise resources from the open market more easily. The idea is to serve shareholders properly. At present the service is not satisfactory.

4.15 While the Committee appreciate that Bokaro Steel Plant has been earning profits since 1981-82 consistently and the cumulative profit was Rs. 1687 crores as on 31st March 1993 but the painful fact remains that had the production been upto the rated capacity, the profits would have been higher by at least about Rs. 600 crores. The factors due to which this has not been possible such as quality of coal and other raw materials, availability of power and Railway wagons have been dealt with by the

Committee in different sections of this Report. The Committee have received an unmistakable impression that if the causes for lower capacity utilisation like defects in equipments etc. could have been identified early and quick remedial actions taken, much of ills which the plant had to suffer from for a long time could have been avoided. They expect that with the use of imported coal, the reported improvement in the availability of power and wagons and the various other remedial steps underway, the plant would now be able to further step up the production and increase its profitability.

4.16 According to the present pricing policy of steel, there is no control on prices being exercised by Government or any of its agencies. The ex-works prices of steel are fixed by the manufacturers taking into account the capacity of the market to absorb the price. SDF, EGEAF and other pool funds are added to the ex-works prices. The Committee have been informed that as a result of this policy SAIL has not been able even to compensate fully for the increase in input costs. Due to the ceiling of Rs. 1210/tonne on freight also, the company has to suffer loss in some cases. Apart from this, the reduction in import duties from 80% to 50% has adversely affected the steel industry as a whole. The matter is stated to have been taken up with the Ministry of Finance. The Committee would recommend that the matter should be examined in its entirety and they be informed of the final decision arrived at. At the same time SAIL should also gear itself to the new situation and make concerted efforts to reduce the input costs so that its prices remain competitive.

4.17 The Committee have been informed that SAIL, which has an equity base of Rs. 3985.89 crores has submitted a proposal for its financial restructuring to Government in December 1992. It has proposed that its equity base be reduced by converting a part of the equity to loans to be paid back to Government and a part to 7% preference shares. SAIL also has a plan of raising of Rs. 12,300 crores for investment on modernisation. The restructuring proposal is still under consideration of Government. The Committee desire that a final decision in the matter should be taken without any further delay.

CHAPTER V

MISCELLANEOUS

A. Corporate Plan

5.1 Bokaro Steel Plant is stated to have developed its Unit perspective Plan which has been incorporated in Corporate Plan of SAIL upto 2005 AD.

5.2 The salient features of the Corporate Plan particularly in regard to achieving higher capacity utilisation are as follows:

"The Corporate Plan 2005 targets the crude steel production at Bokaro at 5.25 MT by 2005. Around 0.20 MT of saleable pig iron will also be produced. The supporting production of hot metal is planned at 5.36 MT.

In terms of factors leading to improved capacity utilisation, investments in the primary area targetted towards taller coke oven Batteries 9 and 10 with modern facilities as a replacement for obsolete older COBs. In the case of Sinter Plant, the focus would be on automation and process control and on technological improvements to raise the productivity levels to 1.34 MT/Hrs./ Sq. m. The thrust in the BF area would be on increasing the useful volume of BFs (by around 12.5%) and raising the average BF productivity to a level of 1.36/t/cu.m./day by measures such as: higher share of sinter in the burden, higher hot blast temperatures, improvements in raw materials quality and preparation, introduction of bell less top charging, CDI and natural gas injection, cast house slag granulation, oxygen enrichment of blast and improvements in operating practices.

After the completion of modernisation early in the 9th Plan, the liquid steel production at Bokaro would be around 4.5 MT. The ingot casting and slabbing mill would be completely phased out and 100% continuous casting introduced. With technological measures such as pre-treatment of hot metal, combined blowing in the BOF, optimum use of ladle metallurgy process etc., it is planned to raise the level of liquid steel production to 5.5 MT by 2005. An additional caster would be installed for handling the incremental liquid steel production.

On the finishing side, Hot rolling capacity would be expanded for processing the incremental crude steel production beyond modernisation. An additional coil yard and a shearing line would be

installed in the Hot Rolled Coil Finishing Mill area for increasing the production of value added hot rolled products for sale. In the Cold Rolling Mill complex, new technologies like Galavalume and Plastic Coating etc. would be introduced.

Bokaro's net profit at the end of the Corporate Plan *i.e.* in 2004—2005 is estimated at Rs. 500 crores at constant input and output prices prevailing on 1st January, 1992."

5.3 During the evidence the Chairman, SAIL further explained:

"As far as the Steel Authority of India Limited is concerned, the corporate plan upto 2005 aims at a capacity of 19 million tonnes of steel. So far as Bokaro Steel Plant is concerned, it is aimed at a capacity of 5.25 million tonnes by 2005. In Bokaro, main area would be strengthening of hot metal making capacity, improvement of blast furnaces, introduction of continued casting and modernisation of the mills. It will also envisage improvement of productivity in blast furnances, there is also plan to have additional coke ovens in order to have consistently required quantity of cokes."

B. Modernisation Plan

5.4 Modernisation of BSL has been envisaged in two phases (stage I & II). Modernisation project (stage I) has been approved by Government on 23.7.1993 with cost estimate of Rs. 1625.79 crores (including Foreign Exchange Component of Rs. 283. 50 crores) — base date 1st quarter, 1993 with completion schedule of 48 months *i.e.* by July, 1997.

5.5 Production of liquid steel after modernisation will go up to 4.5 million tonnes after phase I.

5.6 Committee were further informed by Chairman, SAIL during evidence that the SAIL has gone to Government with the proposal of stage I & II together but they have received approval for stage I only and they have to go with a proposal for stage II separately.

5.7 When asked to state the reasons for not approving stage I and stage II of the modernisation plan together Secretary, Steel stated in his evidence as follows:

"The basic reason was that when we proposed the Stage-I and Stage-II combined modernisation programme, it was to be financed from the 1200 million rouble assistance from the former Soviet Union. With the disintegration of the Soviet Union it did not materialise. The revised proposal was sent in July, 1991. In January, 1992 it was considered. An alternative strategy was worked out in consultation with appraising agency. Seeing the resources in Eighth Plan it wad decided to go ahead with the implementation of the

Stage-I in the Eighth Plan and the Stage-II to be taken up in the Ninth Plan. Before we consider the fact of total cost of the project for Stage-II we should consider the overall picture."

5.8 In the 1st Phase the process of modernisation in Steel Melting Shop No. 2 has started.

5.9 The total project was stated to have been split in 4 global and 25 indigenous packages. Offers for all four global packages are stated to have been received and under scrutiny by BSL. Letter of intent for one global package was to be placed by February, 1994 and for three by July, 1994.

5.10 Order for most of the indigenous packages are to be completed during 1994-95 to match with the four global packages.

5.11 When the Committee desired to know the procedure for finalisation of the tenders and how best the delay in this regard can be minimised so as to avoid the cost escalation of the modernisation process, the Chairman SAIL explained that the procedure they are compelled to follow in public undertakings takes a very long time to finalise any contract. They have to go in for global tenders, short-list the parties, give the tender specifications and then go through a process. There are compulsions of the procedure which delay the project.

5.12 The witnesses further elaborated :

"Many times the projects get delayed because the assessed quantities far exceed the estimates. Sometimes there may even be attempt to initially show the cost lower. Secondly, there should be a set procedure for granting sanction to a project and if a public sector company is not depending on any budgetary support from the Government then the procedure should be simpler. Procedure for selection of parties must be simplified. Companies should be allowed to go for the best technology available, initiate and go ahead, as is being done in private sector as well as by foreign companies. These decisions may be taken by a group which may be from the Government or from somewhere else."

5.13 During evidence, the representative of Ministry of Steel also clarified the position regarding delegation of financial powers for investments in projects in public undertakings:

"The SAIL has the power to sanction investment in new projects upto Rs. 50 crores and for schemes involving replacement and renewal of assets, it may sanction investment upto Rs. 100 crores, Investment Schemes beyond this come to the Ministry. There, the appraisal is done by Financial Adviser and Additional Secretary and after his recommendation, the matter is submitted to Public Investment Board (PIB) which calls the meeting of all the concerned parties, such as the Ministry of Finance, Planning commission etc.,

After appriasing the project from various aspects, PIB gives the clearance. Once the clearance is given by PIB the Ministry issues the sanction letter. The Government feel that a certain amount of control on investment has to be exercised to see that public sector undertakings do not take up much more than what they can actually do."

5.14 To another query of the Committee, Secretary (Steel) clarified during evidence that so far as operations like creation of posts, appointments (below board level), pricing, marketing sale etc., are concerned the public undertakings have full powers to operate, the Ministry exercise control only in the area of investments, based on the directives issued by Department of Public Enterprises in this regard.

5.15 As regards the finalisation of Stage II of the modernisation of Bokaro Steel Plant, the SAIL in a written reply has submitted that no separate proposal for stage II of modernisation of BSL has been submitted to the Government. With a view to expedite Government sanction, a MoU is being signed between the Government and SAIL indicating the date by which the Government approval of the project is expected to be received. The selection of parties will be done by SAIL depending on technocommercial aspects of the offers.

5.16 During evidence, the representative of Ministry of Steel explained the position as under :

"SAIL is continously engaged in modernisation programme of its integrated plants, like Rourkela, Bokaro etc., SAIL prepares a detailed plan as to which area require modernisation. The available technologies are examined to choose the best/cost effective options. SAIL is given expert advice by its inhouse R & D Centre at Ranchi and its centre for Engineering Technology (CET). After that a Committee looks into it and then the bid documents are prepared and quotations invited."

5.17 When asked about the availability of funds for modernisation, the representative of SAIL explained that they are trying to do the modernisation of all the Steel Plants including Bokaro without any budgetary support from the Government. They generate their resources through (a) internal resources *i.e.* profit plus depreciation; (b) borrowings from Steel Development Fund; and (c) External borrowings mostly in the form of suppliers credit.

C. New Technologies

5.18 Centre for Engineering & Technology (CET) has finalised agreements for two new technologies namely "CAS-OB" technology for secondry refining of steel at SAIL PLANTs' and "Galvalume technology for galvanising line at Bokaro Steel Plant" for producing Zinc-Aluminium coated sheets for better corrosion resistance and higher marketability.

5.19 Agreements for CAS-OB and Galavanising technologies have been entered into with M/s Mitsui & Co. Ltd., of Japan and M/s BIEC International Inc., USA and M/s John Lysanght, Australia, respectively.

5.20 When asked about costs involved in their implementation the Committee were informed that since the investment proposals for these technologies are yet to be formulated, it is not possible to assess the cost involved in their implementation. However, the payments to be made to collaborations of CAS-OB and Galvalume technology had been approved at Japanese Yen 679.45 lakhs and US dollar 3.60 million respectively.

5.21 As regards the time by which these technologies would be made operational in Bokaro Steel Plant and profits expected to be earned by this plant after the implementation of these new technologies, Committee have been informed as under:

> "The Galvalume Technology is scheduled to be implemented at BSL in November 1995. The adoption of this technology will result in savings in variable cost of production by almost Rs. 1100 per tonne. The CAS-OB technology is to be implemented in Bhilai Steel Plant. As regards its implementation at Bokaro Steel Plant, a view is yet to be taken."

D. Manpower

5.22 The Total manpower employed in Bokaro Steel Plant as at the end of the years 1990-91 to 1993-94 was as given below:

Year	Manpower
1990-91	46553
1991-92	46701
1992-93	47713
1993-94 (1.1.94)	48504

5.23 The plant was expected to achieve 95% to 100% of the rated capacity of 4 million tonnes only in 1993-94. The labour productivity was low compared to the estimates in the project report.

5.24 The management informed Audit in June, 1991 that productivity was low, but the level of technical and non-technical man power employed already was adequate and no additional man power would be recruited to achieve production of 4 million tonnes per annum.

5.25 When asked by the Committee that instead of reduction in labour there was substantial increase of 1012 manpower *i.e.* 47713 in 1992-93 as compared to 46701 during 1991-92 and it further increased to 48504 as on 1.1.1994, the SAIL furnished a written reply as under:

> "The increase in manpower of 1012 in 1992-93 over 1991-92 is due to regularisation of trainees after completion of training period and

regularisation of casual labour after one year of continuous service. The regular manpower as on 1.1.94 is 47784 and the total manpower including trainees and NMR/Casual is 48504."

5.26 The Company has also informed the Committee that there is a strict control on manpower requirements and every care is being exercised to ensure that no deptt./unit gets more manpower than is fixed for it by the detailed Industrial Engineering studies.

E. Power Supply

5.27 One of the major problems which this plant has been facing is in the area of power. The power supply has not been consistent. In the recent past there is some improvement, but shortage of power will always keep the production down.

5.28 During evidence the representative of Ministry of Steel told the Committee that for Bokaro Steel Plant, Damodar Valley Corporation is supplying sufficient quantity of power and problem is under control. SAIL is planning to set up a Joint Venture power plant at Bhilai to have an uninterrupted power supply, to Bhilai Steel Plant. At Bokaro also SAIL is examining such proposal.

5.29 In a post evidence reply, the trippings and loss of saleable steel production during the last three years has been stated to be as follows:

Year	Total Interruption	Loss of Production (Tonnes)
1991-92	5	71560
1992-93	3	193900
1993-94	10	35620

Loss of production includes loss due to power supply restrictions imposed by Damodar Valley Corporation.

5.30 Subsequently, the Committee were informed in a written reply by the Ministry that to improve power availability at Bokaro Steel Plant following efforts are being made by SAIL:

1. "Maximisation of captive Power Generation by
   i) revamping of old Boilers in Power Plant-I.
   ii) installing on line cursher in the coal handling plant for power plants.
2. Improving the realiability of Power Supply System from DVC.
3. Bokaro Steel Plant is also planning to go for 220 KV power supply to meet future power requirement of the steel plant. The realiability of power supply system at 220 KV is expected to be higher."

5.31 The reason for the energy consumption rates in the plant were not comparing favourable with plants abroad, was attributed by the

Management to poor quality of coal. However, according to Audit, the energy consumption rates during the year 1992-93 was on higher side in all the mills as compared to the DPR norm inspite of various steps taken to decrease the consumption rate.

F. Supply of Coal

5.32 It has been brought to the notice of the Committee that Bokaro Steel Plant is losing the advantage of being very close to the coal mines in Dhanbad area, because of deteriorating quality of coal. This is a very major handicap now and may continue in future also and will hamper achievements of 100% capacity utilisation.

5.33 When the Committee reminded that prior to the transfer of washeries at Dugdha, Pitherdih and Bhojudih from SAIL to BCCL, they were producing better quality of coal with less ash contents; and after merger with BCCL, the quality has deteriorated, and whether Ministry of Steel has taken up the issue with Ministry of Coal for transfer of these washeries to SAIL. The Secretary (Steel) explained the position as under:

5.34 The subject of transferring the washeries to us was examined by a technical group which observed that the, "issue of taking over is open but the present *status quo* will continue in view of the expertise available in the coal sector."

5.35 The witness further stated:

> "We had a meeting with the Chairman of SAIL and his officers. We also discussed with the Coal Secretary and came to the conclusion that for ensuring best quality of coal, we should take over these coal washeries alongwith the coal mines. But the Ministry of coal feels that they have the expertise."

5.36 Coal imported at Paradeep and Haldia Ports weighed short by 2,04,873 tonnes compared to what was paid for. Value of shortage during 1985-92 amounted to Rs. 31.73 crores.

5.37 Regarding fixing of any responsibility for the extra payment, the Committee have been informed that coal unloaded from the cargo at the port is despatched to the plant by Rail. One reason for the shortage is the reduction in moisture content during transit. Though the moisture content of 2% or 3% is taken into account while calculating the rates, under-loading of wagons to some degree also accounts for the shortage. Besides, some pilferage enroute can not be ruled out. Hence, no responsibility can be fixed.

5.38 Steps taken by Management to prevent short receipt of imported coal in future, have been stated as under:

> " (i) Intensified weighment of the incoming wagons containing imported coal at the receipt end.

(ii) Quarterly reconciliation of raw-materials including imported coal.

(iii) Enhancement of supervision at the loading point.

(iv) Reduction in handling loss.

As a result of these measures shortage was reduced to 1.27% in 1992-93 from 4.53% in 1990-91 and 2.12% in 1991-92, the shortage in 1991-92 and 1992-93 was stated to be within the norm prescribed by the Board."

5.39 Bokaro Steel Plant has developed its unit corporate plan which has been incorporated in the corporate plan of SAIL upto 2005 AD. Out of a capacity of 19 million tonnes envisaged for SAIL by 2005 AD, Bokaro Steel Plant aims at a capacity of 5.25 million tonnes. In order to achieve this capacity Bokaro Steel Limited proposed to Government modernisation in two Stages, Stage I for going up to capacity of 4.5 million tonnes and Stage II for going up to a capacity of 5.25 million tonnes. But due to constraint of resources Government gave its approval in July, 1993 to Stage I only with cost estimates of Rs. 1625.79 crores with completion schedule of 48 months i.e. by July, 1997. This stage envisages phasing out of ingot costing and slabbing mill and introduction of 100% continuous casting. The Committee expect that SAIL would have learnt lessons from past experience and that stage I would be completed within the stipulated cost and time schedule. They are, however, concerned to note that no corporate proposal has yet been submitted to Government for stage II of modernisation. The Committee need hardly emphasise the need for timely action in regard to stage II so as to achieve the envisaged capacity by 2005 AD.

5.40 The Centre for Engineering and Technology (CET) has finalised agreements for two new technologies, one of which is Galvalume technology for producing Zinc-Aluminium coated sheets for better corrosion resistance and higher marketability. The adoption of this technology is expected to result in savings variable cost of production by almost Rs. 1100 per tonne. It is, however, strange to notice that though the technology is scheduled to be implemented at Bokaro Steel Plant in November, 1995, the investment proposals are yet to be formulated. The Committee strongly recommend that in order to avoid any delay in implementation of this cost saving technology, the investment proposals should be formulated and got sanctioned without any further delay. They also desire that final decision in regard to implementation of the other technology viz. CAS-OB technology for secondary refining of steel at Bokaro should be expedited.

5.41 The Management of Bokaro Steel Plant informed Audit in June, 1991 that the level of technical and non-technical manpower employed already was adequate and no additional manpower would be recruited to achieve production of 4 million tonnes. The Committee are dismayed to note that inspite of this the manpower continued to increase persistently and it

was 48504 as on 1.1.1994 against 46553 as on 31.3.1991. This is despite the claim that there is a strict control on manpower requirements. The Committee, therefore, suggest that a fresh assessment of the manpower requirement of the plant should be made and efforts be made to keep the manpower to the optimum level.

5.42 The Committee have been informed that one of the problems which the plant has been facing was inconsistent power supply, of late, there has been some improvement in power supply from Damodar Valley Corporation. However, the loss of production due to the inconsistency in power supply during the years 1991-92 to 1993-94 has been 71560 tonnes, 1,93,900 tonnes and 35620 tonnes respectively. The Committee desire that the setting up of a captive power plant at Bokaro to have an uninterrupted power supply which is presently under consideration of SAIL, should be expedited. Besides, efforts should be further intensified for reducing the energy consumption rates which were higher even in 1992-93 compared to Detailed Project Report (DPR) norms.

5.43 As has been brought out in the preceding chapters of this report, the poor quality of coal has been a major handicap in stepping up production of steel at Bokaro. The Committee are given to understand that at a discussion between the Ministry of Steel and Ministry of Coal, it was concluded that for ensuring best quality of Coal, SAIL should take over these washeries alongwith the coal mines. It is surprising that inspite of Bokaro Steel Plant suffering from poor quality of coal over the years and it being known that SAIL would be able to produce the desired quality, why the issue is still being kept open and *status quo* being maintained. The Committee desire that a firm decision in the matter be taken soon and whichever Ministry retains control of the coal mines and washeries, all out efforts should be made for improving the quality of coal so that huge amounts being spent on import of coal could be reduced to the minimum. The Committee also desire that SAIL should also explore the possibility of having their own capative mines.

5.44 The Committee are concerned to learn that there was a short receipt of 2.05 lakh tonnes of imported coal at Paradeep and Haldia ports during 1985-86 to 1991-92 resulting in extra payment of Rs. 31.73 crores. What is more surprising is that no responsibility was fixed for such short receipt of coal. The Committee desire that the matter should be enquired into and action taken against the persons found guilty. They also desire that foolproof arrangements be made so as to completely eliminate such short-receipt in future.

"5.45 As a result of the examination of the subject, the Committee are constrained to find various lapses as a result of which the performance of Bokaro Steel Plant has not been upto the mark. They desire that responsibility should be fixed for such lapses and appropriate action taken against the erring officials."

NEW DELHI;
November 23, 1994

Agrahuyana 2, 1916(Saka)

VILAS MUTTEMWAR,
Chairman,
Committee on Public
Undertakings.

APPENDIX

Statement of Conclusions/Recommendations of the Committee on Public Undertakings contained in the Report

Sl. No.	Reference to Para No. in the Report	Conclusions/Recommendations
1	2	3
1.	1.21	Bokaro Steel Plant originally incorporated as a limited company in January 1964 became a subsidiary of Steel Authority of India in January, 1973 and later a unit of SAIL in 1978. The first phase of the plant envisaged a capacity of 1.7 MT of Ingot Steel while the second phase envisaged expansion of its capacity to 4 MT. The Committee are constrained to observe that against the scheduled date of December, 1970, Stage I of the project could only be completed by February, 1978. Apart from the delays in obtaining Government sanctions, import clearances etc. delay in receipt of equipment, inadequate control over construction activities, faulty assessment of the volume of work involved and of the capacity of the various agencies engaged in the construction were cited as the reasons for delay in completion of Stage I of the project. The final cost of this stage also escalated to Rs. 981.34 crores against the estimated cost of Rs. 620.63 crores due to poor estimation of costs and implementation failures, non-availability of steel and cement etc. The Committee are not convinced with the reasons put forward for the time and cost over-runs in completion of the first stage since these factors could have been avoided with better anticipation and planning. The contention of the company and the Ministry that a part of the cost and time over-run was because of the learning curve in Stage-I *i.e.* reliance on indigenous resources and generating experience in Indian Technical personnel is not tenable in as much as huge time and cost over-

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		runs also occured in implementation of Stage II of the project as brought out in the subsequent paragraph.
2.	1.22	Stage II of the plant *i.e.* the project for expansion of capacity to 4 MT per annum which was taken up in 1971 was to be completed by June, 1979 except for Cold Rolling Mills one unit which was to be completed by December, 1982. But it is disquieting to note that here again there was a delay of 5 to 8 years in the commissioning of various units. The final cost of Stage II was as high as Rs. 2198.10 crores as against the estimated cost of Rs. 917.24 crores and revised estimates of Rs. 1637.55 crores as approved by Government. In fact no lessons seem to have been learnt from the failure in timely completion of Stage I since the reasons given for the delay in completion of Stage II are almost the same as in the case of Stage I. The Committee wonder how inspite of efforts claimed to have been made such as the SAIL and plant authorities ensuring coordination and supervision at different levels, progress being reviewed on monthly and quarterly basis by Plant, SAIL and Ministry, consultancy services being utilised, monitoring being done by network techniques and adequate supply of raw materials being ensured, there was such an inordinate delay in completion of Stage II also. The Committee are of the view that had the project been monitored and managed well there was no reason why it could not have been completed in time. They, therefore, recommend that in future whenever such plants are set up, integrated project management should be ensured for controlling all facets of the project including finance, purchases, supply of machinery and equipment etc. the progress of work should be critically reviewed on monthly and quarterly basis and coordination and supervision of different levels should be ensured.
3.	1.23	Apart from the implementation of projects, the Committee would like to emphasise another aspect viz. the procedure involved in the sanctioning of projects. In their various Reports, the Committee

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		have been pointing out the need for simplifying the procedures so that the public sector projects are sanctioned expeditiously and unnecessary escalation of costs avoided. They would once again urge that in order to provide a fair chance to public sector for competition in the context of liberalisation of economy, the Government must evolve simplified procedures for speedy sanction of public sector projects.
4.	2.84	The Committee are perturbed to observe that the production of steel at Bokaro Steel Plant has been much less than the installed capacity of 4 million tonnes per annum and the shortfall in production during the years 1978 to 1992 amounted to 4.7 million tonnes due to various reasons, such as inconsistent supply of indigenous metallurgical coal, problems of power supply from Damodar Valley Corporation, lack of coordination and lack of systematic and sustained programme for replacement or modification of old equipments. Although some improvement in production is stated to have been achieved, it still remains below the installed capacity in respect of ingot steel. The Committee fail to understand why the factors which have now been identified for lower production could not be identified all these years so that remedial steps could be initiated in time and shortfall in production avoided. They desire that the matter should be looked into with a view to find out as to when the factors responsible for lower production were identified and when the remedial measures were initiated and the Committee be apprised of the same.
5.	2.85	It is a matter of concern to observe that during the period 1980-81 to 1992-93, the percentage of actual to installed capacity ranged from 37 to 93 in respect of steel ingots and from 62 to 95 in respect of saleable steel. Among other factors the shortfall has been attributed to lower availability of converters due to premature failure of lining, poor availability of SMS grade lime stone, poor quality of coke and labour problems. The premature failure of lining of the converters and other technical abnormalities resulted

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		in loss of production of 46.89 lakh tonnes. In order to double the life of converters and improve the life of lining of converters, foreign technology was imported at a cost of Rs. 1.80 crores. The Committee are astonished to find that no use of this technology could be made due to the non-availability of dry compressed air and nitrogen at Bokaro Steel Plant which were required to operate the chamber pumps and cement carriers. Strangely, this fact was discovered only after the technology had been imported thus rendering the expenditure of Rs. 1.80 crores infructuous. In fact the objective of doubling the life of the lining of converters was achieved by changing the life of the lining material during 1991-92 which means the import of foreign technology was not at all necessary. The Committee recommend that in future foreign technology should be imported only after ensuring that it is unavoidable and can be used gainfully in the project for which it is being imported. Apart from the low lining life of converters the tap to tap time of converters at Bokaro was also higher compared to norms. Although during 1991-92 and 1992-93, the tap to tap time is stated to have been reduced by using low silicon hot metal, low ash imported coke, close monitoring and feed-back analysis and certain other steps, it still remains well above the norms. The Committee desire that concerted and urgent efforts should be made to bring the tap to tap time within norms.
6.	2.86	The production of Blast Furnace Coke (25 mm and above) has always been lower than the rated capacity of 34.80 lakh tonnes since 1978-79 to 1992-93. The production which ranged from 21.96 lakh tonnes to 26.82 lakh tonnes was even less than the targets fixed except in the year 1992-93. The Committee are not convinced with justification for lower production given by the company that the production was regulated as per the requirement of Blast Furnace and inter-plant transfers. As has been brought out by Audit against 16.1 to 16.9 hours of coking time estimated in the project report, the actual coking time ranged between 18.27 to 23.49 hours during

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		1978-79 to 1991-92. The lesser production was due to this higher coking time which was attributed first to the poor quality of coal and then to the ageing of batteries and equipments. The Committee wonder why the quality of coking coal changed in the batteries which is not being maintained by using imported coal, the percentage of which has been ranging between 34 to 38 percent since 1990-91 could not be maintained earlier although Bokaro Steel Plant has been using imported coal for a number of years. Equally disturbing is the fact that no reserve batteries were provided for rebuilding of old batteries due to which the production could not pick up even after using imported coal in the desired proportion. The Committee have no doubt that this situation could have been avoided had the management taken proper remedial steps at the right time. They would recommend that a schedule should now be drawn up for rebuilding of old batteries at the earliest.
7.	2.87	The performance of the Blast Furnace has also not been very satisfactory. While the percentage of total production of hot metal to rated capacity increased from 57 in 1985-86 to 88 in 1993-94, the percentage of off grade production to total hot metal also increased from 21% to 34.5% during the same period, though it is stated to have shown some improvement subsequently. The Committee have been given to understand that the shortfall in production compared to the rated capacity was due to poor and inconsistent quality of indigenous coal, coke and raw materials as also due to lower availability of sinter. The fluctuation in input quality of Fe content in ore also resulted in production of off-grade metal. They urge that the efforts initiated by the company for maintaining the honogeneity of Fe content in the ore should be intensified. They also recommend that the quality of coal used in the Blast Furnaces should also be maintained, if necesary, by blending it with imported coal, as is now being in the coke oven batteries.

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8.	2.88	A Slag granulation Plant was commissioned by Bokaro Steel Plant in July, 1979 at a cost of Rs. 9.64 crores with the expectation of cement plants being set up in the vicinity of Bokaro Steel Plant. The expected capacity for cement production did not come up and since granulated slag can only be used for making cement, the slag Granulation plant remained largely unutilised. Its capacity utilisation ranged between 1.26 to 27.70 percent of rated capacity upto 1991-92 and during 1992-93 it came down to as low as 12.60%. The Committee strongly deprecate the decision of the company for going in for this plant on the basis of expectations without verifying the actual market potential. Before setting up the plant, the sale of the granulated slag produced at the plant should have been tied up. Cement plants being the only users of granulated slag, the Committee desire that the suggestion of Chairman, SAIL for setting up future cement plants near the Steel plants should be seriously considered keeping all other relevant factors in view. The Committee also recommend that the problem of availability of Railway rakes for disposal of granulated slag should be taken up at the highest level.
9.	2.89	The Rolling Mills at Bokaro which consist of slabbing Mill, Hot Strip Mill, Hot Rolled Coil Finishing Mill and Cold Rolling Mill were commissioned between December, 1974 and December, 1988. Against an input of 4 million tonnes of steel ingots, the Rolling Mills are designed to produce 3.15 million tonnes of finished and semi-finished products, while the rest goes as scrap. The Committee are constrained to observe that the generation of scrap has been higher in the slabbing Mill almost every year till recently due to improper deoxidation in Steel Melting Shop caused by the erratic behaviour of the weigh scales of ferro-alloys charging systems. The production of scrap in Hot Strip Mill and other finishing mills was also high in all the years. It was only in late 1993 that the ferro-alloys charging systems in both the Steel Melting Shops were replaced with electronic system, similarly

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		the dead and worn out table rolls leading to higher production of scrap in Hot Strip Mill have now been replaced in a phased manner starting as late as from 1991-92. There alongwith some other measures have resulted in some decline in scrap generation. The Committee wonder why it took so long for taking the remedial measures when the scrap generation in the Rolling Mills has been higher continuously for so many years. They desire that responsibility for such inaction should be fixed and suitable action taken against the delinquent officials under intimation to the Committee.
10	2.90	Not only was the generation of scrap in the Rolling Mills higher, but the production performance of the various units has also been none too happy. The production in the Slabbing Mill ranged between 58% to 86% of the rated capacity during the years 1980-81 to 1993-94 primarily due to shortage of power and gas and premature refractory failures. The Committee urge that with the availability of power and efficiency of soaking pits having now been improved, all out efforts should be made to achieve the rated capacity of the Slabbing Mills, similarly the production of hot rolled strip in the Hot Strip Mill ranged betwen 52% to 89% during 1981-82 to 1993-94. The Committee desire that pending completion of the modernisation scheme which also includes modernisation of Hot Strip Mill, suitable measures should also be taken to minimise generation of defective ingots and slabs which are unsuitable for rolling in slabbing and Hot Strip Mills.
11	2.91	In the Hot Rolled Coil Finishing and Cold Rolling Mills also, the capacity utilisation has been far from satisfactory. In the former, the production ranged from 31% to 56.48% of rated capacity during 1980-81 to 1991-92 and declined to 50% in 1992-93. In the case of cold rolled products, the production declined from 68% of rated capacity in 1987-88 to 39% in 1992-93. It is worthwhile to note that the utilisation of both the Hot Rolled Coil Finishing and Cold Rolling Mills has fallen during 1992-93 compared to the previous year. Therefore, SAIL's contention that

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		the production of HR coil at Hot Strip Mills being itself below rated capacity, judicious distribution of HR coil produced has to be made depending upon the market requirement for cold rolled and hot rolled products is not tenable. The Committee, therefore, recommend that the exact reasons for the low utilisation of Hot Rolled Coil Finishing Mill and Cold Rolling Mill should be identified and remedial action taken without delay.
12	2.92	Ammonium Sulphate, crude tar and Naphthalene are produced as bye-products from coke oven. It is distressing to observe that the original norms for production per tonne of dry coal charge had to be revised from 11.66 kg to 9.5 kg in the case of Ammonium Sulphate and from 32 kg to 29 kg for crude tar due to lower volatile matter in the coal blend then provided for in the DPR. The Committee are unhappy to note that even the revised norms could not be achieved. The production per tonne of coal charge ranged between 6 kg to 9.4 kg. for ammonium sulphate and between 24.5 kg to 27.2 kg for crude tar. The loss of production during the period 1979-80 to 1991-92 compared to original norms amounted to about Rs. 109 crores. Likewise, the production of Naphthalene from distilled tar during the years 1984-85 to 1991-92 was only 30.50% to 48.06% of anticipated production. The Committee would like to be informed of the improvement in production of bye-products after the steps taken recently for repair and replacement of various equipments.
13	2.93	The Committee regret to observe that the excess consumption of sulphuric acid compared to norms of 770 kg per tonne of ammonium sulphate produced during 1979-80 to 1991-92 amounted to Rs. 1.95 crores. What is more surprising is that though the excess consumption was known to be due to certain defects in equipment, remedial action has been taken only recently which has resulted in some reduction in consumption of sulphuric acid. The Committee desire that the matter should be thoroughly investigated and the responsibility be fixed for not taking

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		timely action for maximising the production of bye-products and bringing the consumption of sulphuric acid within norms.
14	2.94	The Committee are perturbed to find that the production of sulphuric acid ranged from 24.89% to 39.53% only during 1980-81 to 1991-92. In fact the second acid plant commissioned in January, 1980 has been lying idle. The Committee fail to understand why the second plant was set up when the requirement of sulphuric acid could be met by only one plant. What is worse, no action has so far been initiated for disposal of this plant although it has been lying idle since its commissioning in 1980. It was only when the Committee took up Bokaro Steel Plant for examination that the assessment of its present disposable value has been undertaken. The Committee would like this exercise to be completed very soon. Action taken in this regard should be intimated them within 3 months of presentation of this Report.
15	2.95	It is a matter of concern that inspite of the strict quality-control measures taken by the management in 1983, consumption of ingot moulds and bottom plate continued to be higher than norms. During the period 1979-80 to 1990-91 alone, the extra expenditure due to excess consumption of ingot moulds and bottom plates amounted to Rs. 56.94 crores. Though the consumption of ingot moulds and bottom plates has been reduced to 31.53 kg/TCs in 1990-91, the Committee take a serious view of the laxity of the management in not taking timely corrective actions to keep the consumption of these materials within limits. They would now urge upon SAIL to ensure strict adherence so that the consumption of ingot moulds and bottom plates is brought down further.
16	3.32	The requirement of iron ore for Bokaro Steel Plant is mainly met bv Kiriburu and Meghahatuburu captive mines of Raw Material Division of SAIL. It is distressing to find that during the period 1979-80 to

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		1991-92 the utilisation of Kiriburu Mine ranged between 40.35% to 64.50% while it was 8.05% to 55.21% in the case of Meghahatuburu Mine. Low production of iron ore was one of the reasons for purchase of substantial quantity of ore at higher cost involving additional expenditure of Rs. 61.92 crores during 1980-81 to 1990-91 to avoid loss of production in steel plant. The Committee strongly urge upon SAIL to ensure availability of adequate equipments and its maintenance at the mines to facilitate increased utilisation of iron ore mines.
17	3.33	Another problem due to which purchase of iron ore had to be made from outside was stated to be the inability of Railways to move adequate wagons from the captive mines due to the single track steep gredient railway line between Kiriburu/ Meghatuburu-Bandamunda section. The Committee are, however, astonished to observe that though the lower availability of Railway wagons persisted right from 1972 when Bokaro steel started taking ore from Kiriburu, the availability has only now gone up to 4.6 Box "N" sales per day to move iron ore from Kiriburu-Meghahatuburu mines complex to BSL. The Committee recommend that as pointed elsewhere in this Report the matter regarding the availability of Railway wagons and their movement should be taken up at the highest level and a permanent solution found out. The Committee would like to be informed of the outcome of the matter.
18	3.34	One of the contracts for development stipulated a ceiling of 5% on the escalation. But the Committee are dismayed to find that the ceiling was withdrawn and cost over-run beyond 5% and to the extent of Rs. 10.46 crores was incurred.
19	3.35	The original cost of the project had been revised to Rs. 121.94 crores only after a detailed study by various Committees involving change in design, scope and qualities of work. It is strange that inspite of such a detailed study having been done before the cost was approved, the work was subsequently stopped by EPI, one of the major contractors mainly

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		on the plea of difficulties in working conditions and under-estimation of scope of work. BSL also readily agreed to their condition and waived the 5% ceiling on escalation. The Committee are unhappy over the haste on the part of BSL in waiving the ceiling clause which resulted in extra expenditure of Rs. 10.46 crores. They desire that in future, the company should be more vigilant in enforcing the contract. The Committee are astonished to observe that though an enquiry Committee held Bokaro, EPI and other implementing agencies responsible for the cost escalation, no further action was taken by the Ministry to fix the responsibility and the concerned Ministries were simply informed of the fact. The Committee desire that a thorough probe should be conducted in regard to implementation of this project and agencies/persons responsible should be identified to avoid recurrence of such cases in future.
20	3.36	The Committee express their displeasure over the fact that the recommendations of the Enquiry Committee (Banerjee Committee) regarding cost and time over-run on Meghahatuburu Iron Ore Mines are yet to be implemented. Recommendations of the Technical Committee constituted in pursuance of the Enquiry Committee recommendations for suggesting measures for improving productivity of mines are still under finalisation. The Committee desire that the Banerjee Committee recommendations should be implemented without delay under intimation to them.
21	3.37	The performance of the lime stone mines at Kuteswar and Bhawanathpur was also below anticipation. During the years 1979-80 to 1991-92 there was shortfall in production at Kuteswar mines to the extent of 3 million tonnes. The extraction of lime stone was stated to have been low since no investments were made for mechanising the mine due to threat of its inundation from Bansagar Dam. In this connection, the Committee would like to point out that Kuteswar mines could have been protected simply by putting up a bundh as has now been done and the expenditure of Rs. 8.04 crores on procurement of lime stone could have been avoided.

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		Similarly Bhawanathpur mines did not achieve the designed capacity of 1.45 million tonnes per annum. The operating cost of the mine was higher than estimated and it did not meet the quality required for Blast furnace necessitating additional expenditure of Rs. 4.27 crores upto 1991 on purchases from other resources. The Committee have been informed that with the selective mining being resorted to now, Bhawanathpur lime stone can be used for Blast Furnace. Here the Committee would like to caution that with extensive selective mining, the remaining deposits may be rendered completely unsuitable for use in the Blast Furnaces. They would, therefore, suggest that instead the possibility of modifying the Blast Furnaces should be explored in order to make them compatible with the lime stone available at the mines.
22	3.38	The Committee are unhappy over the tardy disposal of stock of non-moving and surplus items. Only 315 surplus items of value of Rs. 1.72 crores were disposed off during 1993-94 (upto Sept. 1993) and 47789 items were lying surplus, valued at Rs. 23.75 crores. The Committee desire that the level of surplus stores and spares should be brought within the prescribed limits within three months of the presentation of this Report. They would also like to be furnished with figures showing the extent to which discrepancies in the stock of raw material have been brought down after the implementation of recommendations of the Committee constituted for this purpose. In the case of coal, they suggest that electronic weigh-bridges should also be put up in the case of indigeneous coal as in the case of imported coal, in order to eliminate the discrepencies on this account.
23	4.15	While the Committee appreciate that Bokaro Steel Plant has been earning profits since 1981-82 consistently and the cumulative profit was Rs. 1687 crores as on 31st March, 1993 but the painful fact remains that had the production been upto the rated capacity, the profits would have been higher by at least about Rs. 600 crores. The factors due to which this has not been possible such as quality of coal and

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		other raw materials, availability of power and Railway wagons have been dealt with by the Committee in different sections of this Report. The Committee have received an unmistakable impression that if the causes for lower capacity utilisation like defects in equipments etc. could have been identified early and quick remedial actions taken, much of the ills, which the plant had to suffer from for a long time, could have been avoided. They expect that with the use of imported coal, the reported improvement in the availability of power and wagons and the various other remedial steps underway, the plant would now be able to further step up the production and increase its profitability.
24	4.16	According to the present pricing policy of steel, there is no control on prices being excercised by Government or any of its agencies. The ex-works prices of steel are fixed the manufacturers taking into account the capacity of the market to absorb the price. Steel Development Fund, Engineering Goods Export Assistance Fund and other pool funds are added to the ex-works prices. The Committee have been informed that as a result of this policy SAIL has not been able even to compensate fully for the increase in input costs. Due to the ceiling of Rs. 1210/tonne on freight also, the company has to suffer loss in some cases. Apart from this, the reduction in import duties from 80% to 50% has adversely affected the steel industry as a whole. The matter is stated to have been taken up with the Ministry of Finance. The Committee would recommend that the matter should be examined in its entirety and they be informed of the final decision arrived at. At the same time SAIL should also gear itself to the new situation and make concerted efforts to reduce the input costs so that its prices remain competitive.
25	4.17	The Committee have been informed that SAIL, which has an equity base of Rs. 3985.89 crores has submitted a proposal for its financial restructuring to Government in December, 1992. It has proposed that its equity base be reduced by converting a part of the equity to loans, to be paid back to Government and a

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		part to 7% preference shares. SAIL also has a plan of raising Rs. 12,300 crores for investment on modernisation. The restructuring proposal is still under consideration of Government. The Committee desire that a final decision in the matter should be taken without any further delay.
26	5.39	Bokaro Steel Plant has developed its unit corporate plan which has been incorporated in the corporate plan of SAIL upto 2005 AD. Out of a capacity of 19 million tonnes envisaged for SAIL by 2005 AD, Bokaro Steel Plant aims at a capacity of 5.25 million tonnes. In order to achieve this capacity Bokaro Steel Limited proposed to Government modernisation in two stages, Stage I for going up to capacity of 4.5 million tonnes and Stage II for going up to a capacity of 5.25 million tonnes. But due to constraint of resources Government gave its approval in July, 1993 to stage I only with cost estimates of Rs. 1625.79 crores, with completion schedule of 48 months i.e. by July, 1997. This stage envisages phasing out of ingot casting and slabbing mill and introduction of 100% continuous casting. The Committee expect that SAIL would have learnt lessons from past experience and that stage I would be completed within the stipulated cost and time schedule. They are, however, concerned to note that no corporate proposal has yet been submitted to Government for stage II of modernisation. The Committee need hardly emphasise the need for timely action in regard to stage II so as to achieve the envisaged capacity by 2005 AD.
27	5.40	The Centre for Engineering and Technology (CET) has finalised agreements for two new technologies, one of which is Galvalume technology for producing Zinc-Aluminium coated sheets for better corrosion resistance and higher marketability. The adoption of this technology is expected to result in savings variable cost of production by almost Rs. 1100 per tonne. It is, however, strange to notice that though the technology is scheduled to be implemented at Bokaro Steel Plant in November, 1995, the investment proposals are yet to be formulated. The

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		Committee strongly recommend that in order to avoid any delay in implementation of this cost saving technology, the investment proposals should be formulated and got sanctioned without any further delay. They also desire that final decision in regard to implementation of the other technology viz. CAS-OB technology for secondary refining of steel at Bokaro should be expedited.
28	5.41	The Management of Bokaro Steel Plant informed Audit in June, 1991 that the level of technical and non-technical manpower employed already was adequate and no additional manpower would be recruited to achieve production of 4 million tonnes. The Committee are dismayed to not that inspite of this, the manpower continued to increase persistantly and it was 48504 as on 1.1.1994 against 46553 as on 31.3.1991. This is despite the claim that there is a strict control on manpower requirements. The Committee, therefore, suggest that a fresh assessment of the manpower requirement of the plant should be made and efforts be made to keep the manpower to the optimum level.
29	5.42	The Committee have been informed that one of the problems which the plant has been facing was inconsistent power supply, of late, there has been some improvement in power supply from Damodar Valley Corporation. However, the loss of production due to the inconsistency in power supply during the years 1991-92 to 1993-94 has been 71560 tonnes, 1,93,900 tonnes and 35620 tonnes respectively. The Committee desire that the setting up of a captive power plant at Bakaro for an uninterrupted power supply which is presently under consideration of SAIL, should be expedited. Besides, efforts should be further intensified for reducing the energy consumption rates which were higher even in 1992-93 compared to detailed Project Report norms.
30	5.43	As has been brought in the preceding chapters of this report, the poor quality of coal has been a major handicap in stepping up production of steel at Bakaro. The Committee are given to understand that at a discussion between the Ministry of Steel and

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		Ministry of Coal, it was concluded that for ensuring best quality of Coal, SAIL should take over these washeries alongwith the coal mines. It is surprising that inspite of, Bokaro Steel Plant suffering from poor quality of coal over the years and it being known that SAIL would be able to produce the desired quality, why the issue is still being kept open and *status quo* being maintained. The Committee desire that a firm decision in the matter be taken soon and whichever Ministry retains control of the coal mines and washeries, all out efforts should be made for improving the quality of coal so that huge amounts being spent on import of coal could be reduced to the minimum. The Committee also desire that SAIL should also explore the possibility of have their own captive mines.
31	5.44	The Committee are concerned to learn that there was a short receipt of 2.05 lakh tonnes of imported coal at Paradeep and Haldia ports during 1985-86 to 1991-92 resulting in extra payment of Rs. 31.73 crores. What is more surprising is that no responsibility was fixed for such short receipt of coal. The Committee desire that the matter should be enquired into and action taken against the persons found guilty. They also desire that foolproof arrangements be made so as to completely eliminate such short receipt in future.
32	5.45	As a result of the examination of the subject, the Committee are constrained to find various lapses as a result of which the performance of Bokaro Steel Plant has not been upto the mark. They desire that responsibility should be fixed for such lapses and appropriate action taken against the erring officials.