REPORT OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA

UNION GOVERNMENT
No. 10 (COMMERCIAL) OF 1995

CENTRAL COAL FIELDS LIMITED

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PREFACE

Audit Boards are set up under the supervision and control of the Comptroller and Auditor General of India(CAG) to undertake comprehensive appraisals of the performance of the Companies and Corporations subject to audit by CAG.

2. The report on Central Coalfields Limited was prepared by an Audit Board consisting of the following members:

1. Shri N.Sivasubramanian	Deputy Comptroller and Auditor General-cum-Chairman, Audit Board from 29th July 92 to 31st May,1993.
2.Shri U.N.Ananthan	Deputy Comptroller and Auditor General-cum- Chairman,Audit Board from Ist June 1993 to 30th November,1993.
3.Shri C.K.Joseph	Deputy Comptroller and Auditor General-cum-Chairman,Audit Board from 13th December 1993 till date.
4.Shri Ravi Saxena	Principal Director of Commercial Audit and Ex-Officio Member Audit Board-I, Ranchi from 24th February 1992 to till date.
5.Shri U. Bhattacharya	Principal Director of Commercial Audit and Ex-Officio Member,Audit Board-II, Calcutta from 19th November, 1990 to 30th June, 1994.
6.Shri B.K. Chattopadhyay	Principal Director of Commercial Audit and Ex-Officio Member, Audit Board-II,Calcutta from 8th July 1994 till date.
7. Shri R.Chandramouli	Asstt. Comptroller and Auditor General(Comml) and Secretary, Audit Board from 2nd August, 1993 till date.
8. Shri S. Radhakrishnan	Part-time Member
9. Shri G.S. Marwah	Part-time Member

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

3. The report was finalised by the Audit Board after taking into consideration the discussions held with the Ministry of Coal on 19th May, 1994.

4. The Comptroller and Auditor General of India wishes to place on record his appreciation of the work done by the Audit Board.

OVERVIEW

1. INTRODUCTORY

Central Coalfields Limited (CCL) is a subsidiary of Coal India Limited and has (March '94) 14 areas, 72 collieries, five washeries and six workshops in Bihar.

(Para 1)

2. OBJECTIVES

Objectives of the Company include development of coal reserve, raising production of coal through introduction of improved technology, and to generate surplus.

(Para 2)

3. The Company's record was not very successful as several efforts to modernise mines were not fruitful inspite of heavy investment, much of the coal produced has not been sold and is only added, none of the fire projects taken up to prevent burning of coal deposits could be completed.

(Para 5,5.04 & 8.01)

4. CAPITAL STRUCTURE

The entire paid up capital of Rs.940 crores as on 31.3.1994 was held by C.I.L. Loans outstanding as on 31.3.1994 were Rs.943.84 crores.

(Para 4)

5. PLANNING AND DEVELOPMENT OF PROJECTS

i) After nationalisation, till March, 1993, 132 projects were santioned out of which 44 projects were completed. Of the remaining 88 projects, 28 projects were not being properly monitored. 47 marginal schemes (each costing upto Rs.one crore) santioned by the C.M.D. from 1988-89 to 1991-92 were not included in the Annual Action Plan of the Company.

(Para 5.01)

ii) As on March, 1994, 5 projects had suffered cost over-run and 12 projects had suffered time over-run of three years or more. The underground mines were primarily responsible for the Company's losses. In several cases the company tried but failed to introduce modern underground mining technique like simple face mechanisation and longwall mining.

Para 5.03)

iii) In respect of six underground mines (Out of seven) which were completed by the Company after nationalisation, their present coal production was less than half of what these mines produced.

(Para 5.03)

iv) (a) Karo Special Underground Mine Project was to be completed for Rs.5.56 crores in 1982-83 for production of 0.25 MMT of coking coal and 0.25 MMT of non-coking coal annually. Even after investing Rs.4.69 crores and seven years after the scheduled year of completion the annual production of the project was in the range 0.11 MMT to 0.12 MMT of coal.

(Para 5.02.1)

(b) Rajarappa Opencast Project mine sanctioned at a cost of Rs.41.60 crores to be completed in 1983-84 to produce 3 MMT of coking coal to be supplied to Rajarappa Washery was completed in 1989-90 for Rs.113.13 crores, excluding the washery. Instead of adjusting production according to requirements the company went ahead and produced more coal than could be consumed. As a result, 1.54 MMT of coal stock piled up by 1987-88 of which 0.31 MMT of coal valuing Rs.8.13 crores was declared un-saleable due to ageing and written off in May 1989.

(Para 5.02.2)

(c) Selected Dhori (Kalyani) Opencast Project was working with a surplus man power of 1735 persons. There had been a delay of 9 to 30 months in handing over the site for the construction of C.H.P. in the absence of which the work continued to be handled by private contractors (September 1994) on which the Company incurred an expenditure of Rs.6.89 crores during the years 1989-90 to 1993-94.

(Para 5.02.3)

(d) K.D., Heshalong Opencast, (Expansion), Project was completed during 1989-90 at a total cost of Rs.45 crores. C.H.P. was still under construction (November 1994). A railway siding completed (September, 1992) at a cost of Rs.7.55 crores was not being utilised as wagon loading arrangements of the C.H.P. was not yet completed (November 1994).

(Para 5.02.4)

(e) Dhori, West, (Amlo)Project was completed in 1991-92 at a revised cost of Rs.66.82 crores. The mine produced 3.01 MMT of coal and removed only 6.15 MM^3 of overburden damaging the profile of the quarry.

(Para 5.02.5)

(f) Laiyo Colliery (Underground) Project was sanctioned in 1981 at a cost of Rs.9.68 crores for an annual coal production of 0.38 MMT of coking coal, produced only 0.06 MMT of coal in 1989-90.

(Para 5.02.6)

(g) Kathara Mine Project

Deficiencies identified in the working of Kathara Mine included patchy working of the mine small strike length (0.3 Km) against the original planned strike length of 3 Kms, steep angle of working edge, steep gradient of haul roads, huge volume of backlog of over-burden removal, etc. Soviet Experts put the backlog in over-burden removal of 25 MM3. These factors resulted in shortfall in coal production

necessitating fresh investment of Rs.19.85 crores to make up the shortfall in production of coal in Kathara.

(Para 5.02.7)

v) Fire Projects

In order to release 112.61 MMT of coal for mining and to prevent destruction of underground coal by fire, four fire projects viz. Kurse, Selected Dhori Fire, Kargali Fire and Sirka fire were sanctioned at a cost of Rs.21.99 crores. Physical progress of work done was not indicated in any of the records of project and planning division although an investment of Rs.14.31 crores was made upto February 1994 largely on procurement of heavy earth moving machineries.

(Para 5,04)

6. WASHERIES

(i) The company has five washeries (viz. Rajarappa, Giddi, Kargali, Kathara and Swang) to supply washed coal to steel plants. Average annual input of raw coal to washeries was 84.45 lakh tonnes against installed capacity of 123.10 lakh tonnes and output of clean coal was 45.41 lakh tonnes against designed out put of 73.94 lakh tonnes. Due to high content of ash and short receipt of washed coal, consignees made deductions from the Company's bills and levied charges.

(Para 6.01 & 6.02)

(ii) Kedla Washery (2.6 MMT of raw coal capacity) was sanctioned by the Government of India in 1980 for Rs.32.27 crores to be completed in 1982-83. The washery was yet to be completed (November 1994) inpsite of the fact that total expenditure of Rs.54.62 crores (March'93) has already been incurred including Rs.10.21 crores for machineries procured in 1983-84 and lying idle.

(Para 6.05.1)

(v) Swang Washery

At Swang Washery a pre-washing plant for raw coal was installed at a cost of Rs.1.75 crores in December, 1985; to make it work, an over size restriction plant was installed at a cost of Rs.1.99 crores in August, 1989, even thereafter the plant could not work for want of adequate electric power.

(Para 6.05.2)

7. **ABNORMAL DELAY IN REPAIRING OF H.E.M.M.**

Inspite of having well equipped workshops and adequate manpower, the company was not carrying out repair of H.E.M.M.in time.

(Para 7.02)

8. **SALE PERFORMANCE**

(i) There was an imbalance between production of coal and its off-take over the years leading to heavy build up stock.

(Para 9)

(ii) The company produces hard coke from its coke oven plant of Giridih which is working at less than 50% of its capacity due to non-availability of raw coal from near-by mines; to run the plant, coal is being transported from collieries situated at a distance of about 100 Kms. The loss suffered by the Company, on account of production and selling of hard coke was Rs.5.47 crores during 1989-90 to 1993-94.

(para 9.03)

(iii) The company also suffered deductions from power houses on account of underloading/overloading charges of Rs.32.61 crores, during 1989-90 to 1993-94 inspite of the

fact that in almost all the loading points weighbridges/electronic weighbridges were installed.

(Para 9.06)

9. ACCOUNTING:

In each area, unitwise trial balances remained incomplete owing to non-inclusion of amount of sales, debtors, stock etc.

(Para 10.03)

10 MATERIAL MANAGEMENT

Washery and H.E.M.M. spare parts amounting to Rs.6.23 crores, surplus to the requirement of the Company, were lying un-used for over five years (as on 1.4.1994). In some cases delays in placing purchase orders for procurement of materials/spares, ranged between 8 and 20 months.

(Para 12.02 to 12.03)

11 MANPOWER

Total manpower was 95676 at the end of 1993-94 as against 1,00.592 in 1989-90. Manpower actually deployed in some collieries (viz.Kedla opencast, Pundi O.C.Rajrappa K.D.etc.) was more than envisaged in sanctioned project reports.

(para 14.02)

1. INTRODUCTION

1.01 The Central Coalfields Limited (CCL), one of eight subsidiary companies of Coal India Limited, is the successor to the erstwhile National Coal Development Corporation Ltd. (NCDC) and the Central Division of the then Coal Mines Authority Limited.

1.02. NCDC was set up in 1956 as a Government-owned company in pursuance of Industrial Policy Resolution of 1948 and 1956. NCDC started with a nucleus of 11 Railway-owned collieries having a total annual production of 2.9 million tonnes and an authorised capital of Rs. 50 crores. With the formation of Coal Mines Authority Limited in June 1973, NCDC became a wholly owned subsidiary of that company and it formed part of the Central Division of the CMAL. With the reorganisation of the coal industry from 1.11.1975, the name of the holding company was changed to Coal India Ltd., NCDC's Sudamdih and Moonidih Projects were transferred to Bharat Coking Coal Limited, some projects were transferred to Western Coalfields Limited, while some taken over mines were transferred to NCDC and NCDC was converted into a subsidiary company of Coal India Limited and renamed Central Coalfields Limited. In 1985, the collieries of Singrauli and Talcher coalfields were taken out of the fold of CCL.

1.03. Presently the company's activities are confined mainly in Bihar. It had on 31.3.1994, 14 areas, 72 colliery units, five washeries and six workshops.

1.04. Scope of the appraisal : The main areas which have been examined in this Report are development and planning of the coal mines, washeries, fire projects, their performance via-a-vis targets and the financial performance of the company, during the last five years.

2. OBJECTIVES.

The objectives of CCL are :-

i) to promote the development and utilisation of coal reserves in the country for present and likely future requirement of the national economy with due regard to the need for conservation of non-renewable resources and safety of mine workers.

ii) to raise the production of coal mining and related activities through introduction of improved technology, streamlining of organisation and management and improving the skills and motivation of work-force.

iii) to generate surpluses by optimum utilisation of production capacity, improving efficiency of operations and adopting appropriate cost reduction and cost control methods.

iv) to make efficient arrangements for marketing and supply of coal so that coal, coke and other similar derivatives are available to consumers throughout the country conveniently and at reasonable prices.

v) to promote research and development activities on a continuating basis in the areas of coal mining, beneficiation, development of new coal-based products or by-products, fuel technology or any other area having a bearing on conservation, development or utilisation of the coal reserves of the country.

3. ORGANISATIONAL STRUCTURE.

The company has a board of directors with a Chairman-cum-Managing Director and four functional Directors for Finance, Technical-Operations, Technical-Planning and Projects and Personnel.

4. CAPITAL STRUCTURE.

The authorised and paid up capital of CCL were Rs.1100 crores and Rs. 940 crores respectively as on 31.3.94. The entire share capital is held by Coal India Limited, the holding company and its nominees. Coal India Limited granted loans to CCL from time to time to meet the requirements of capital expenditure and working capital. The balance of loans outstanding at the end of March 1994 was Rs. 943.84 crores. CCL also has a cash credit arrangement upto a limit of Rs. 7.57 crores with the State Bank of India to meet its working capital needs.

5. PLANNING & DEVELOPMENT OF PROJECTS.

5.01 Projects sanctioned after nationalisation

The CMD of the Company is empowered to sanction projects costing up to Rs. 1 crore. The power to sanction projects costing beyond Rs. 1 crore and up to Rs. 20 crores rests with the Board, while projects costing more than Rs. 20 crores but up to Rs. 50 crores is sanctioned by CIL and projects costing more than Rs. 50 crores is sanctioned by the Ministry.

Since nationalisation till March 1993 132 projects (involving an aggregate capital outlay of Rs. 2506 crores) costing Rs. 1 crore and above had been sanctioned by the Board of Directors of the Company/CIL/Government. Out of these 132 projects, 96 projects with capital outlay of Rs. 2042.57 crores were mining projects and 36 projects with a capital outlay of Rs. 463.43 crores were non-mining projects.

Up to March 1993, 34 mining projects with sanctioned capital outlay of Rs.715.48 crores and 10 non-mining projects with sanctioned capital outlay of Rs. 148.61 crores were completed by the company.

Out of the remaining 88 projects, only 60 projects were monitored by Projects and Planning Department of the Company. The expenditure incurred on these 60 projects is summarised below :-

Sl. No	Particulars	No.	Sanctioned capital outlay (Rs. in crores)	Expenditure incurred upto 2/94 (Rs. in crores)	Designed Capacity of production (in MMT) (Rs. in crores)
1	Projects costing Rs.100 crores and above:				
	Mining	2	954.46	506.03	8.25
	Non-mining	1	130.42	62.83	--
2	Projects costing Rs.20 crores to Rs.100 crores.				
	Mining	9	361.22	61.79	5.71
	Non-mining	3	128.91	100.24	--

Sl. No	Particulars	No.s	Sanctioned capital outlay (Rs. in crores)	Expenditure incurred upto 2/94 (Rs. in crores)	Designed Capacity of production (in MMT) (Rs. in crores)
3	Projects costing Rs.10 crores to Rs.20 crores.				
	Mining	10	185.30	53.39	5.29
	Non-mining	7	106.41	29.57	--
4	Projects costing Rs.5 crores to Rs.10 crores.				
	Mining	12	85.55	29.35	1.44
	Non-mining	3	20.46	4.15	--
5	Projects costing below Rs.5 crores.				
	Mining	4	16.34	3.91	0.15
	Non-mining	9	31.15	17.59	--
	Total :Mining	37	1602.87	654.47	20.84
	Non-mining	23	417.35	214.38	--
Grand Total		60	2020.22	868.85	20.84

The balance 28 projects costing between Rs. 1 to 2 crores with a total sanctioned capital outlay of Rs. 49.70 crores were not being monitored by the Projects and Planning Department of the Company with the result that financial as well as physical progress achieved and the present status of these projects could not be ascertained.

The Chairman and Managing Director of the Company excercising powers delegated to him in the 195th meeting of the Board of Directors held on 20th April 1983 had sanctioned 47 schemes during 1988-89, 1989-90, 1990-91 and 1991-92, termed as marginal schemes, each of which was having a capital outlay of less than Rs. 1 crore. Out of these 47 schemes, 22 were mining schemes and 25 were non-mining schemes. The mining schemes involving an investment of Rs.20.16 crores envisaged production of 2.94 million matric tonnes (MMT) of coal per year. It was observed that none of these schemes were included either in Annual Action Plan or annual budget of the company. It was further observed that the progress of these schemes was not being monitored and the company's accounts did not show, distinctly, even at project level, the expenditure incurred

on these schemes. Production achieved by these schemes was also not reported and no monitoring system to watch the progress of these schemes, even at area level, was in existence.

5.02 Execution of Major Projects.

5.02.1 Karo special underground mine project.

The feasibility report prepared by CMPDIL in April 1975 for an annual production of 0.50 MMT of coal was approved by the Government of India in February 1978 at a capital outlay of Rs. 5.56 crores. The project was to be completed in 1982-83.

The total mineable reserve, particulars of seams, annual production from each seam and quality of coal were as follows :-

Seam No.	Total mineable reserve	Annual Production	Quality of coal.
III	5.81 MMT	0.25 MMT	Coking (superior)
V	4.81 MMT	0.25 MMT	Non-coking (inferior)

The main aim of the scheme was to extract the superior quality of coal (medium coking to be used in the steel plant after washing) occurring in seam - III. The extraction of coal of seam-V, which was of power grade (non-coking), was incidental to the main purpose.

The project envisaged introduction of longwall method of mining, mechanised system of underground loading with the help of face chain conveyor, stage loaders and endless haulages, installation of a main pump in between seam-III and seam-V for drainage of water, drivage of three inclines

in each seam and a capital outlay of Rs. 111.20 per tonne of coal.

A review of the project revealed that :-

(i) The longwall system of mining could not be implemented due to adverse geo-mining conditions and extraction of coal was being done by conventional bord and pillar method. Moreover, in place of mechanised loading involving face chain conveyor, stage loaders, and endless haulage the manual loading of coal was continuing.

(ii) As the colliery could not produce the target quantity of 0.5 MMT of coal even seven years after the scheduled year of completion (1982-83) and the production was in the range of only 0.11 MMT to 0.12 MMT yearly, mainly of the inferior variety, it was decided (December 1990) by the Management to confine the project to 0.20 MMT. which was completed in 1990-91 after investing Rs.4.69 crores.

The Ministry stated (May 1994) that consequent upon introduction of longwall method of mining without required geological investigation the technology failed.

5.02.2 Rajarappa opencast project.

The feasibility report prepared in January 1975 by CMPDIL for a targeted production of 3 MMT of coking coal to be achieved in 1981-82 at a capital cost of Rs. 41.60 crores was approved by the Government in July 1977 i.e. after almost two years; achievement of target accordingly, was shifted to 1983-84. The mine was linked to a proposed pit head washery of raw coal input capacity of 3 MMT which was sanctioned by the Government in July 1977. The entire coal production of the mine was to be fed into the proposed washery to be commissioned in 1979-80.

A review revealed that :-

(a) The original cost estimate of Rajarappa mine of Rs. 41.60 crores was revised to Rs. 133.63 crores and sanctioned

by the Government in September 1989. The increase of Rs. 92.03 crores was mainly due to price escalation (Rs.29.81 crores), additional procurement (Rs. 0.40 crores) and change in norms (Rs. 11.96 crores).

The mine was completed in 1989-90. At the close of the year (31.3.90) the total expenditure incurred on the mine was Rs. 113.13 crores and production achieved was 2.57 MMT only against 3 MMT annually as provided for in the original project report (also in the revised project report) to be achieved by 1984-85. As a consequence of this significant time and cost over run, the per tonne projected investment works out to be Rs.445.43 as against Rs. 138.67 envisaged in the original project report.

(b) The Rajarappa mine was to be a captive mine for the proposed Rajarappa Washery. The entire coal production was to go to this washery but due to delay in construction of the washery the coal produced in the Rajarappa mine was diverted to other washeries of CCL. Even after despatching Rajarappa coal to other washeries the coal stock accumulated at the mine. The substantial accumulation of pit head stock of coal at Rajarappa mine from 0.13 MMT (in 1979-80) to 0.82 MMT (1983-84) resulted in not only blocking up of capital but exposing the stock to the risk of spontaneous fire. Despite this, no corrective action was taken during subsequent years and the pit head stock went upto 1.54 MMT by 1987-88. Further, the company had even engaged its employees on over time on Sundays and holidays and Rs. 96.40 lakhs was paid on this account from 1984-85 to 1986-87 for production though the off take from the mine was generally not compatible with actual production. In a spontaneous fire that occurred in 1987-88, a stock of 0.59 MMT of coal worth Rs. 12.06 crores was destroyed.

Further, inadequate despatches as compared to production resulted in ageing of the coal stock and mixing up with shales, etc. causing 0.31 MMT of coal valuing Rs.

8.13 crores to be subsequently written off by the Board in May 1989.

The Ministry stated that the accumulation of stock at Rajarappa colliery was due to non-completion in time of the washery which was to consume the coal from the colliery.

5.02.3 Selected Dhori (Kalyani) opencast project.

The feasibility report prepared by CMPDIL in August 1979 for an annual coal production of 2.25 MMT was approved by the Government in August 1981 for a capital outlay of Rs. 24.38 crores. The mine was to produce power grade coal to be supplied to Bokaro Thermal Power Station of D.V.C. and was scheduled for completion in 1989-90.

The feasibility report envisaged:

(a) mechanised extraction/removal of coal by shovel and bottom discharge coal haulers and removal of overburden by shovel and dumpers combination.

(b) production of 2.25 MMT of coal annually out of a total mineable reserve of 58.98 MMT with an average stripping ratio of 0.60 M3/te.

(c) construction of a coal handling plant at a cost of Rs. 3.40 crores for screening, sizing and loading of coal into wagons.

(d) construction of a railway siding.

A review of the implementation of the project revealed that :-

(i) as against the targeted coal production of 2.25 MMT in 1989-90, the project produced 2.08 MMT of coal during that period.

(ii) the production of coal was to by engaging manual coal loaders and deploying tipping trucks, purchased at a cost of

Rs.0.47 crores although there was no provision for them in the approved project report. As a result, against the sanctined manpower strength of 1054, the actual manpower was 2789. The reason for the excess manpower of 1735 was stated to be engagement of these coal loaders by the erstwhile colliery in 1971. Even after the lapse of a considerable period, these coal loaders had not been shifted to the other adjoining projects which were in the process of being developed.

(iii) it was decided (November 1982) that the CHP should be equipped with rapid loading arrangements as required by D.V.C. and the extra expenditure on this account was to be reimbursed by D.V.C. In February 1984, tenders were invited and in May 1985 the CCL Board approved the award of the construction work of CHP on a turnkey basis to M/s. ICB Pvt. Ltd. (contract entered into on 29.6.1985) at a capital cost of Rs. 12.17 crores (as against Rs. 3.40 crores provided in the project report) to be completed within 22 months. CCL was to hand over the clear site in three months from the date of signing of contract i.e. by 30.9.85, but the site could not be handed over within the stipulated period and could be made available in phases after delay of 9 to 30 months. The delay in handing over of the site was attributed to removal of a large quantity of overburden dumped at site, excavation and demolition of houses, diversion of road etc. Due to the delays, the company accepted a price escalation claim of Rs. 1.01 crores payable to the contractor.

In the absence of CHP, 5.74 MMT of coal were manually handled at a cost of Rs. 8.47 crores during 1989-90 to 1993-94.

(iv) the capital cost increased to Rs.53.13 crores . The increase of Rs.28.75 crores was on account of escalation (Rs. 20.16 crores) and change in scope, norms and additions (Rs.8.59 crores).

The Ministry stated that the initial backlog in the removal of O.B.R. to the extent of 1.55 MM3 upto 1989-90

have been made good in subsequent years and attributed the delay in the commissioning of CHP to the belated handing over of site due to difficulties experienced in demolition of houses, diversion of road, blasting and excavation of sub-grade work.

5.02.4 K.D. Heshalong Opencast (Expansion) Project

At the time of nationalisation, K.D. Heshalong opencast mine was producing 0.20 MMT of coal annually by semi-mechanised methods. To meet the increasing demand of power grade coal, a feasibility report for an annual production of 1.5 MMT of coal was approved by the Government at a capital outlay of Rs. 14.44 crores in January 1979. The targeted production was to be achieved by 1982-83.

The main features of the project were ;

(a) the mine comprised of three coal seams viz. Dakra (Reserve; 39.9 MMT), Bukbuka (reserves; 9 MMT) and Bisrampur (reserves; 1.4 MMT). 1.50 MMT of coal was to be extracted annually with a stripping ratio of 0.82 m3/te.

(b) production of coal and removal of overburden were to be done mechanically i.e. by shovel and dumper combination.

(c) for screening, crushing and loading of coal into wagons a coal handling plant was to be constructed at a cost of Rs.1.29 crores, and

(d) construction of a 44 box wagon capacity railway siding.

A test check revealed that:-

(i) In 1982-83, the actual production was 1.18 MMT. The capital cost actually incurred upto 1989-90 when the project was declared completed was Rs. 45.00 crores against the initial sanctioned cost of Rs. 14.44 crores. The cost of the mine had been revised upward in the year 1983 and was subsequently approved by the Government in November, 1988 for Rs. 37.56 crores.

(ii) The mine could not maintain the time schedule of completion and slipped considerably due to change in scope and under provisioning of some of the items (viz. provision for land reclamation, demand for additional water, specification change in CHP etc.) and CHP/Railway siding remaining incomplete,

(iii) Against a project report provision of Rs. 1.29 crores for the construction of CHP the work was awarded in December 1982 for Rs. 8.92 crores (Rs. 6.50 crores for additional items/capacity and Rs. 1.13 crores for escalation) to be completed by 1984. But the CHP was yet to be completed even after an expenditure of Rs. 8.87 crores.

(iv) The project report provided for construction of the railway siding at an estimated cost of Rs. 0.46 crores. However the estimate for the work submitted by the Railways in January 1983 indicated the cost would be Rs. 4.55 crores (Rs. 2.77 crores for escalation and Rs. 1.32 crores for changes in scope of work). The railway siding was completed in September 1992 at a total cost of Rs. 7.55 crores but no benefit of this investment accrued to the company as the CHP was still incomplete (Nov. 1994).

(v) The Dakra seam which contained a coal reserve of 39.9 MMT caught fire in 1983. The fire was being dealt with by quenching through piped water and deployment of a fire tender. The colliery which was to produce 1.5 MMT coal yearly as per the approved feasibility report, actually produced 2.03 MMT 2.03 MMT and 2.15 MMT of coal in 1991-92, 1992-93 and 1993-94 respectively. The extraction of coal beyond the target set by the Government and the consequent expansion of the quarry exposed a large length of coal benches to the hazards of fire. Till 1990, 0.55 MMT of coal valuing Rs. 1.07 crores was lost due to fire and it was only in December 1989 that the company came out with a scheme for dealing with the fire at a cost of Rs. 1.99 crores.

Because there was no monitoring of the fire fighting scheme separately its effectiveness could not be assessed.

Meanwhile, the fire is still raging (September 1994). The perils of fire and effective ways of dealing with it did not find a mention in the project report.

The Ministry agreed that there was inordinate delay in the commissioning of the CHP and ineffectiveness of fire fighting efforts.

5.02.5 Dhori West (Amlo) Opencast Project.

The feasibility report prepared by CMPDIL in December 1979 for an annual production of 1.5 MMT of coal was approved by the Government in August 1981 for a capital outlay of Rs. 33.30 crores. The mine was scheduled for completion in 1989-90. The important features of the project were :-

(i) the mine consisted of three seams having total mineable reserve of 45.31 MMT of coal and 64.55 MM3 of overburden giving an average stripping ratio of 1.425 M3/te. The coal was non-coking graded F grade to be supplied to power houses. The life of the mine was estimated at 35 years.

(ii) the overburden and coal were to be removed/extracted by shovel and dumper, bottom discharge coal haulers combination.

(iii) construction of a coal handling plant and a railway siding to deal with 1.50 MMT of coal yearly.

As against the projected extraction of 3.77 MMT of coal and overburden removal of 11.48 MM3, (during 1983-84 to 1989-90) the mine actually produced 3.01 MMT of coal and with only 6.15 Mm3 of overburden removal.

The mine was scheduled for completion in 1989-90 but was declared completed in 1991-92. The reasons for slippage were delay in land acquisition and non-availability of area where the railway line could be constructed. Consequently, the project cost was revised to Rs. 66.82 crores (in June 1988); the reasons for the cost increase included cost

escalation of Rs. 29.60 crores, and increase due to change in scope and norms of Rs. 5.99 crores. The project was completed at a cost of Rs. 27 crores (excluding cost of Railway siding and C.H.P.).

5.02.6 Laiyo Colliery (Underground) Project

To meet the growing demand for coking coal Laiyo mine was proposed for being re- organised at a capital outlay of Rs.9.68 crores to produce 0.38 MMT coking coal yearly. The project was scheduled to be completed in 1989-90, coal was to be extracted from seam X using longwall method and seam XI using bord and pillar method. A review revealed that the longwall method in seam X was not resorted to due to geological problems and the mining was carried on by the conventional method. Total actual production was 0.41 MMT during the last six years ending 93-94; average annual production being 0.067 MMT as against the target of 0.38 MMT. Before reorganisation the mine had been producing about 0.02 MMT of coal yearly from underground mine which was started in 1976, the meagre increase in production achieved hardly justified an investment of such magnitude.

The Ministry stated that on account of the presence of a number of small faults, the longwall method of mining could not be adopted.

5.02.7 Kathara Mine Project

Kathara Open Cast Mine, the first mechanised mine was started in 1957 with a rated output of medium coking coal 1.5 MMT per annum . A supplementary project report was approved in 1962 for the extraction of 3 MMT of coal per year of mineable reserves of 52.5 MMT for 25 years at a capital Cost of Rs.8.89 crores which was revised (June 81) to Rs.35.37 crores . The revision took place due to price escalation (Rs.25.72 crores) and change in the scope of work (Rs.1.01 crores)

The target of production of 3 MMT of coal was never achieved. From a production of 2.37 MMT during 1986-87 the production dropped to 1.4 MMT, 1.4 MMT, 1.30 MMT and 0.90 MMT during the succeeding years i.e. 1990-91, 1991-92 and 1992-93 and 1993-94 respectively. A team of Soviet Experts which went into the working of the Kathara Opencast Mine to find out ways and means of achieving an annual production of 3.00 MMT observed (June 1989) that this downward trend in production was mainly due to shortfall in removal of matching overburden, patchy working of the mine over the years, non-observance of the designed slopes, unplanned dumping of overburden on the floor of Kargali seam led to fall in production and necessitated fresh induction of Rs. 19.85 crores as capital to work the mine.

The Ministry stated (May 1994) that a revised reorganisation report on Kathara was under study.

5.03 Execution of Other Projects

An examination of the execution of other projects has revealed the following important features :-

Non-achievement of capacity.

During Seventh Plan period i.e. 1985-86 to 1989-90 the company completed 15 mining projects of total annual production capacity of 10.79 MMT (three underground mines of 1 MMT capacity and 12 opencast mines of 9.79 MMT capacity). In the following mines the production achieved during 1993-94 was much lower than the capacity :-

(in MMT)

Sl. No.	Name of the Projects	Ultimate capacity	Production during 1993-94	Shortfall during 1993-94	Percentage of short-fall 1993-94
1	K.K. U/G	0.36	0.06	0.30	83
2	Pindra	0.36	0.10	0.26	72
3	A.K.U/G	0.28	0.06	0.22	78
4	Gidi 'A'	0.60	0.38	0.22	37

5	Sirka O.C.	1.00	0.81	0.19	19
6	Kedla O.C.	0.70	0.16	0.54	77

The Ministry stated that the underground projects were formulated after nationalisation on limited geological data and consequently their development was affected.

Excess over estimates.

The actual expenditure of the following on-going projects exceeded the original estimates substantially necessitating the revision of estimates. The actual expenditure upto February 1994 exceeded even the revised estimates in respective of Captive Power Plant Kathara.

(Rs. in crores)

Sl.	Name of the projects	Original Estimate	Revised Estimate	Actual Expenditure upto February 1994
1	Ray Bachra UGRPR	8.35	30.19	10.78
2	Kedla Washery	32.27	130.41	62.83
3	Captive Power Plant Kathara	49.20	58.80	70.89
4	Jarangdih Phusro Rly. line Diversion	15.93	48.78	29.35
5	Damodar River Diversion A.A.	2.00	9.27	7.31

The Ministry stated that Captive Power Plant Kathara was completed in March 1994. The plant was yet to be commissioned (September 1994).

Delay in execution.

Many of the projects of the company were not completed by the scheduled year of completion. Projects which were delayed by three years or more are detailed below:-

Sl. No.	Name of the projects	Year of completion as per schedule.	Anticipated year of completion	Slippage in years as on 31 March 1994
1	Kedla Washery	1983-84	1995-96	13
2	Captive Power Plant Kathara	1989-90	1993-94	5

3	Jarangdih Phusro Rly. Line Diversion.	1984-85	1994-95	11
4	Uchitdih OC	1992-93	1995-96	4
5	Jhirki OC	1992-93	1996-97	5
6	Churi UGRO	1988-89	1996-97	9
7	Shifting of Kargali Bazar	1990-91	1994-95	5
8	Central Rly Siding Kedla - Dania	1992-93	1995-96	4
9	Regional Workshop Kuju	1992-93	1995-96	4
10	Pipradih OC	1989-90	1993-94	5
11	Bhurkunda UGRO	1989-90	1993-94	5
12	Damodar River Diversion	1983-84	NA	11

In most of the cases delay in land acquisition, adverse geomining conditions and fund constraints contributed to the delay.

Six Underground Projects

After nationalisation (June 1973) the company completed 7 underground mining projects. Details of six completed mining projects (the project report of Swang underground project could not be made available to audit) is given in the Annexure 'A'. It would be seen there from that all these mines were taken over from private owners and at the time of nationalisation the total annual production obtained from them was 1.60 MMT and the capital invested was Rs. 2.63 crores. The project reports for reorganisation of these mines were prepared by CMPDIL seeking to increase the annual production to 3.34 MMT with an additional investment of Rs. 26.41 crores.

As on 31.3.90 the total capital invested in these mines was Rs. 23.39 crores and coal produced by them during 1993-94 was 0.58 MMT. At present the combined production of all these six mines is even less than 31% of their production under private ownership when these mines were nationalised despite the fact that company invested Rs.20.76 crores in their reorganisation on the basis of project reports prepared by CMPDIL. The production achieved by these mines was less than even 18% of the capacity envisaged in their project reports. Consequently, the loss suffered (as per cost records)by these mines during 1991-92, 1992-93 and 1993-94 was Rs. 49.17 crores.

The Ministry stated (May 1994) that no major investments were made in these mines and failure to achieve projected capacity was due to non-availability of adequate geological data.

5.04 .Fire Projects.

Preservation of coal was one of the objectives of nationalisation of coal mines. At present four fire projects as detailed in the Annexure B are under implementation by the company. Their successful execution would release 112.61 MMT of coal besides prevention of destruction of underground coal seams by fire. A sum of Rs. 14.31 crores has been spent on them upto February 1994 against the project report provision of Rs. 21.99 crores.

In this context the following observations are made :-

(a) Physical progress of work achieved in these fire projects was not indicated in any of the records of project and planning division indicating an inherent deficiency in the monitoring system.

(b) The amounts spent upto date on these projects were mostly for purchasing heavy earth moving machinery. About 71% of the HEMM as provided for in the project report has already been acquired, the Ministry stated that the machinery was transferred to other projects.

(c) In case of Sirka and Kargali, the slippage in scheduled year of completion had been more than seven years and in case of Kurse and Selected Dhori it was two years. The Ministry stated that the delay in implementation of the projects was due to various reasons such as problems in acquisition of land, geological factors, etc..

5.05 Introduction of Improved Technology.

Most of the collieries taken over on nationalisation were underground mines which by their nature of operation were labour intensive as compared to mechanised open cast mining. Due to meagre production obtained from underground mines the cost of production of coal of these mines was very high. Consequently, all the 32 underground mines of the company, excepting Dakra and Religarha, were incurring heavy losses. The total production obtained from these 32 working underground mines during 1987-88 to 1993-94 was 4.03 MMT, 4.55 MMT, 4.72 MMT, 4.5 MMT, 4.42 MMT, 4.42 MMT and 4.33 MMT respectively. The losses incurred by these mines during 1991-92, 1992-93 and 1993-94 were Rs. 61.58 crores and Rs.81.68 crores and Rs. 90.24 crores respectively. The low production from these mines was mainly due to difficult mining conditions leading to very low out put per manshift.

The company's effort in this respect centered round :-

(a) introduction of longwall method of mining; and

(b) simple face mechanisation and other related mining technology.

Longwall method of mining.

For greater production at a sustained rate, the company decided to introduce longwall method of mining in place of the traditional bord and pillar method in Kedla, Pipradih, Associated Karanpura, Karo Special Underground, Govindpur, Laiyo and Churi Underground mines on the basis of project reports prepared by CMPDIL. But the longwall method of mining could not be introduced in any of these cases. Adverse geo-mining conditions were stated to be the reason for failure of the longwall method.

Evidently, the geological investigations (detailed drilling etc.) which preceded the preparation of project

reports for these mines were not precise or detailed enough to indicate the geo-mining conditions likely to be encountered.

Simple face mechanisation.

After nationalisation, the company implemented the following reorganisation reports prepared by CMPDIL which featured (apart from Longwall method) several mechanised mining techniques designed to replace the manual method :-

U n i t	New mining technique proposed.
1.Khas Karanpura colliery.	Scraper loader and chain conveyor
2.Kedla colliery	Introduction of mine car hauled by electric locomotive.
3.Pipradih colliery	Scraper and chain conveyor.
4.Pindra Colliery	Scraper and chain conveyor.
5.C.Saunda Colliery	Crushing facility for over burden for stowing in lieu of sand and hydraulic stowing shaft sinking.
6.Associated Karanpura Colliery	Scraper loading and chain conveyor.
7.Churi Underground	Working of sub-level caving panels by blasting gallary method.
8.Govindpur Underground.	Armoured face, conveyors and scraper
9.Bhurkunda Underground.	Pneumatic stowing.
10.Ray Bachra Underground.	Coal cutting machine, chain conveyor and coal haul dumper.

However, the technology proposed could not be successfully introduced in any of the mines, and consequently the aim of the company of reorganising these taken over mines on modern lines for improving production and profitability could not materialise.

As regards the failure of longwall method of mining and simple face mechanisation, the Ministry told the Audit Board (May 1994) that so far as CCL was concerned at present there was no underground project which was being developed on longwall system of mining. However, a committee constituted by the Ministry has already submitted its report in this regard.

5.06 Project Monitoring

The progress of implementation of each project was required to be monitored at regular intervals with reference to the project report which contains the details about the geological reserves, mining methods to be adopted, type of machinery to be deployed, anticipated investment under different heads and finally the economic viability of the project on the basis of which the approval by the Board or Government was given. The financing of these projects in some cases was done by Government.

It was observed that these monitoring reports which were submitted to the Board of Directors as well as Government were found wanting in some respects.

(1) No monitoring was done for some projects and for marginal schemes and as a result there was no system to watch the progress of their implementation. The system of accounting and costing followed by the company did not provide for any mechanism to record the expenditure incurred on these schemes separately nor was there any costing record to assess the cost of production of coal produced by these schemes. Production of coal by these schemes also did not figure separately in the annual statistics of production of the Company.

(2) Physical progress of work in respect of fire projects was not indicated in the monitoring reports.

In the Board of Directors report to the shareholders for the year 1989-90 Kathara Interim Open Cast and Religara Interim Open Cast Mines were stated to be completed during the year but the Project Monitoring Report of December 1990 showed them as still incomplete.

Similarly, while the Board of Directors' Report for the year 1990-91 indicated Belt Transport Scheme, Kathara as complete, the Project Monitoring Report of September 1991 showed the scheme was yet to be completed. In fact, during local audit of the kathara area, it transpired that the scheme was not to be implemented at Kathara.

6. WASHERIES

6.01 In order to meet the requirements of steel plants for coal with an ash content of 17% +/-0.5%, the company has 5 washeries to wash medium coking coal having higher ash percentage.

6.02 The requirement of washed coal as communicated by the Ministry of Energy was as below :-

(in Lakh Te's)

1989-90	1990-91	1991-92	1992-93	1993-94
41.00	42.30	45.00	48.00	50.00

The washeries had the following designed input capacity of raw coal with corresponding designed output of clean coal :-

(In lakh tonnes)

	Designed input of raw coal	Designed output of Clean coal	Wt. %ge of clean coal
Rajarappa	30.00	16.14	53.81%
Kargali	27.20	19.80	72.80%
Giddi	28.40	18.00	63.40%
Kathara	30.00	15.00	50%
Sawang	7.50	5.00	66.6%
	123.10	73.94	

The designed output of clean coal from the washeries was higher than the requirement. The actual input and output for the last five years are shown in Annexure C.

The main reason for the shortffall in input was stated to be less supply of coal from the mines. This happened despite the heavy stock of washery grade coal with the collieries supplying in coal to these washeries. The reason given for the shortfall in the output was stated to be power

failures which resulted in closure of the washery which was also not tenable as Kargali and Swang washeries were equipped with diesel generating sets.

6.03 a) The ash content in the clean coal actually produced by the washeries was much higher than the designed ones as shown in the table below

	Designed ash content	1989-90 %	1990-91 %	1991-92 %	1992-93 %	1993-94 %
Rajarappa	16.55	17.5	18.2	18.17	17.8	19.0
Giddi	17-19	18.6	19.3	19.50	19.7	20.2
Kargali	16-17	18,94	19.24	19.70	19.5	20.2
Kathara	15	18.20	18.50	19.10	18.9	19.8
Swang	15-17	18.7	18.9	19.2	18.8	19.5

The shortfall in the quality of the output was attributed by the Management mainly to the poor quality of raw coal input, and also to the ageing of the washery plants.

b) Substantial amounts as detailed below were deducted by customers (viz. steel plants) on the account of higher ash content of the clean coal supplied by the washeries. The higher ash content was established by joint sampling done at the consignee's end and the washeries accepted the deductions.

Deduction for ash content

(Rs. in lakhs)

	1989-90	1990-91	1991-92	1992-93	1993-94 Upto February 1994)
Rajarappa	55.92	179.83	253.22	829.17	1427.83
Giddi	185.60	132.01	171.09	261.79	553.86
Kargali	306.86	297.11	356.25	1255.72	2106.87
Kathara	27.39	83.99	91.86	134.22	429.28
sawang	8.11	1.92	49.33	149.99	319.95

The deductions indicated that there was much scope for improvement in the performance of the washeries. The Ministry stated that the company was thinking of putting up deshaling plants and froth floatation machines to improve the quality of washed coal.

c) Though the washeries were equipped with electronic weighbridges they suffered deductions from the bills by the consignees on account of shortage in the weight of consignments when weighed at the consignee's end. In addition they also suffered deductions from their bills on account of underloading charges and overloading penalties. These deductions could not be disputed by washeries as the weigh bridges of the washeries were either not functioning or were found to be malfunctioning during the related periods.

During 1989-90 to 1993-94 washeries suffered on account of deductions made by steel plant for short receipt of coal of Rs. 16.06 crores, underloading charges of Rs.1.73 crores and overloading penalties of Rs. 0.56 crores.

6.04 As a result of low capacity utilisation, production of clean coal with higher ash content, deductions on account of underloading and penalties for overloading, the washeries suffered losses in their operation as shown below :-

Losses incurred by washeries

(Rs. in lakhs)

	1989-90	1990-91	1991-92	1992-93	1993-94
Rajrappa	(-) 202	(+) 317	(+) 378	(-) 157	(+) 214
Giddi	(-) 213	(+) 92	(+) 334	(+) 305	(+) 127
Kargali	(-) 483	(-) 402	(-) 30	(-) 302	(-)1215
Kathara	(-) 609	(-) 135	(-) 498	(-)1085	(-)2139
Swang	(+) 710	(+) 461	(+) 845	(+) 769	(-)1026

The Ministry stated that instructions had been given to the company for enforcing proper discipline in loading and despatch of washed coal, and to take necessary steps to ensure optimum performance of washeries.

6.05 Other topics of interest in the performance/establishment of washeries.

6.05.1 Delay in completion of Kedla Washery

The scheme for the construction of Kedla Washery was approved (April 1980) by Govt. of India with an estimated cost of Rs.32.27 crores. The washery was to commence commercial operations from Ist April 1983. In order to complete the job within the scheduled time, the construction work of Kedla Washery was awarded in July 1980 to M/s. HEC (a Central Govt. Undertaking). Due to a land dispute, the work could not be started and as a result, M/s. HEC increased their offer from Rs. 21.25 crores to Rs. 46.00 crores in May 1983 on account of escalation in prices. The management did not agree to this huge increase and terminated HEC's contract in December 1983 and decided to get the work executed departmentally through different agencies on "Split contract basis". While keeping HEC as consultant, civil and structural work of Kedla Washery was awarded to M/s. HSCL in March 1986; according to the agreement, the washery was to be completed by 1.9.1987. However, due to non-furnishing of design & drawings by HEC and other necessary data by the company, the date of completion of the Washery was deferred to March 1990.

In terms of the consultancy contract with HEC plant and equipment were to be procured by the company on the basis of NIT prepared by HEC. The tendering and technical evaluation of offers by HEC, placement of supply orders by the company, finalisation of motor data by HEC on the basis of information furnished by the equipment suppliers and finalisation of general arrangements drawings & load data for all the Plant and Machinery took considerable time and these activities could be completed in March 1989 only.

Meanwhile as the contract between HEC and their German collaborator had expired, the German Collaborator did not start supply of statistical calculation of preliminary foundation drawings till a fresh agreement was signed

between them and HEC in January 1990. This necessitated updating the cost estimates and accordingly CMPDIL revised these estimates to an amount of Rs. 107.28 crores in August, 1991. The revised estimates included an amount of Rs. 78.06 crores which is solely on account of cost escalation due to time overrun of the project.

The Ministry while accepting the fact (in January 1990) of considerable delay in implementation of the project due to land acquisition problems and substantial escalation in the cost of washery, stated that fresh instructions have been issued regarding execution of such projects in 2 stages where by advance action would cover acquisition of land and resettlement of evictees before the main project was taken up for sanction.

The total expenditure incurred upto March 1993 has been Rs. 54.62 crores against an estimated expenditure of Rs. 107.28 crores. The washery is expected to be completed by March 1996.

Out of the total plant and machinery valuing Rs. 36.47 crores, machinery worth Rs. 10.21 crores received during 1983-84 was lying idle.

6.05.2 Blocking of capital at- Swang washery

In order to improve the quality of raw coal feed to the Swang Washery by segregating shales etc. present in it, a contract was awarded to company, "A" for the construction of a prewashing plant at a total cost of Rs. 1.48 crores plus usual taxes and duties.

The plant, although completed in July 1983, at a cost of Rs.1.75 crores could not be taken over by the company before 31.12.1985 due to delay in installation of pumps and transformer, delay in making arrangements for guarantee test as well as lack of manpower. Even after 31.12.1985, the plant could not be operated due to flow of oversized coal into it from the secondary crusher. The Management

attributed the flow of over sized coal to the prewashing plant to the receipt of more oversized coal from opencast mine, and failure of the existing crusher to crush the coal to the required size due to ageing of the crusher.

In July 1985 another agreement was entered into with the same firm for erection of an "Oversize Restriction Plant" at a total cost of Rs. 1.64 crores plus normal taxes, to make the prewashing plant operative by restricting the flow of oversized coal. This plant scheduled to be completed by February 1987, was actually completed in August 1989 at a cost of Rs. 1.99 crores. The time and cost overrun in the completion of the plant was due to delay in procuring the import license.

But the systems of oversize restriction and prewashing arrangement could not work together upto October 1989 due to inadequate supply of power. Hence, in October 1989 the Management indented for one diesel generating set at an estimated cost of Rs. 0.8 crores. The D.G. set has not yet been procured (Sept. 1994).

Thus, the entire investment of Rs.3.74 crores on the construction of pre washing plant and creation of 'oversize restriction plant' had become idle for the last nine years due to poor planning.

The Ministry stated (May 1994) has stated that due to inadequate supply of power the prewashing and the oversize restriction plants could not be operated in time.

7. UTILISATION OF HEAVY EARTH MOVING MACHINES

7.01 Incorrect reporting of the actual utilisation.

fficiency in use of Heavy Earth Moving Machineries is determined on the basis of -

a) Availability percentage i.e. total hours when the machine is fit to be put to use vis-a-vis total shift hours and

b) Percentage utilisation of available hours i.e. hours for which machine is actually used against the total available hours.

Norms adopted by CMPDIL for the planning of opencast mines were based on 300 days (excluding Sundays and 7 national holidays) per year and 3 shifts (of 8 hours each) per day, or maximum available machine hours of 7200.

The net available machine hours were fixed by CMPDIL after making allowance for factors like shift change, seasonal factors like monsoon, blasting time, scheduled maintenance etc. as follows :

	Gross Hours	CMPDIL norms (hrs.)
Shovel	7200	4158 (58% of gross hours)
Dumper	7200	3600 (50% of gross hours)
Dozer	7200	3240 (45% of gross hours)

This basis was adopted by CIL while fixing targets for utilisation of HEMM by its subsidiaries.

In all the opencast mines of the company, working Sundays and holidays has been a regular feature. Sundays and Holidays working has been excluded from net available machine hours of 7200 which was fixed by CMPDIL on the basis of 25 days working only. However, while computing the hours of use, the working hours on Sundays and Holidays have been included. Consequently, the actual utilisation percentage of HEMM reported by the company was inflated.

The Ministry agreed with the contention of audit and stated (May 1994) that the holding company (CIL) has been directed to amend the existing practice of reporting the performance of HEMM so as to truly reflect the utilisation pattern with reference to total number of hours/day actually used.

7.02 Abnormal Delay in Repairing of HEMM

As on 1.4.1993 the status of HEMM on the roll of the company was as follows:-

Sl. No.	HEMM on rolls	Nos working	Nos under Breakdown		
			For more than 3 months.	less than 3 months	Total No.s under B/D.
1	Dumper - 1027	693	240	94	334
2	Dozer - 224	125	72	27	99
3	Drill - 180	141	28	11	39
4	Shovel - 156	135	16	5	21

At the beginning of each year, an action plan is prepared for repairing/rehabilitating of equipment which is under breakdown for more than 3 months. The work of repairs/rehabilitation is carried out either by the Company itself or contractually through original equipment manufacturers.

A review of all such repairs/rehabilitation carried out during 1992-93 has revealed the following position :--

Sl. No.	HEMM	Rehabilitation/ Repair	Time lag between date of breakdown and rehabilitation		
			less than 6 months	6 months to 1 year	More than a year.
1	Shovel	3 No.s	2 No.s	1 No.s	-
2	Dumper	97 No.s	13 No.s	19 No.s	65 No.s
3	Dozer	22 No.s	5 No.s	7 No.s	10 No.s
4	Drill	8 No.s	4 No.s	2 No.s	2 No.s

The management stated that due to non-availability of spares to re-commission the equipment under breakdown, delay by manufacturer in carrying out the joint inspection for rehabilitation, fund constraints, delay in supply of spares etc, HEMM remained under breakdown.

Evidently the period for which HEMM'S remained under breakdown inspite of company's having adequate repairing facilities was abnormally high. Stress should have been given to rehabilitation in the company's own workshops as the company has six workshops in its fold.

8. PRODUCTION PERFORMANCE.

8.01 The annual production, off-take and year end stock 1986-87 onwards were as shown below :-

(in million tonnes)

Year	Production	Off-take	Stock
1986-87	25.14	24.22	9.16
1987-88	27.27	25.31	10.26
1988-89	28.07	26.71	7.69
1989-90	28.59	28.10	7.91
1990-91	30.09	28.13	10.48
1991-92	31.22	28.84	12.87
1992-93	32.42	32.90	11.90
1993-94	33.50	33:44	11.44

(Reduction in stock during 1988-89 was due to write-off of 2.73 MMt of coal as non vendable)

There was an imbalance between production of coal and its off-take over the years leading to heavy build up of stock.

It would be seen that in each of the years the company has been carrying stock equivalent to more than 3 months production on an average against the norm of 3 weeks. Besides, blocking working capital, mounting up of heavy stocks would lead to deterioration of quality due to ageing,destruction of coal due to spontaneous fire and risk of pilferage.

The company had been engaging its workers on Sundays and holidays (apart from overtime on normal working days) for production of coal. In 1990-91 alone, in 13 collieries the company paid Rs. 3.80 crores as overtime for working on Sundays and holidays irrespective of the fact that coal

stock in all these collieries during 1990-91 increased significantly as compared to that of 1989-90.

In the case of Kathara, the Soviet experts had recommended the suspension of coal production for three years and concentration on overburden removal so that the mine could be brought to a workable shape. Obviously, the company had been neglecting the removal of overburden (which was a pre-requisite for planned development of opencast mines) and concentrating on the production of coal much of which could not be sold in the market.

The Management stated that by existing guidelines, the company may have one month's production as maximum stock. Further, deterioration in quality due to ageing has been minimised as coal is generally despatched on first in-first out (FIFO) basis and additional investment has been made to increase the overburden removal in Kathara Opencast. Coal is, however, not being despatched on FIFO basis.

The Ministry stated (May 1994) that unless the practice of storing coal in one heap was given up the FIFO method might not be possible.

8.02 Stock of coal written off due to shortage, fire and non-vendability.

According to the policy followed by the holding company CIL and its subsidiaries, the book stock of coal is taken for the purpose of closing stock where the variance between the book stock and physical stock is within +/- 5%. In case the variation is more the physical stock is taken as book stock and an enquiry into the causes of shortages is conducted.

A quantity of 5.157 MMT of coal valuing Rs.97.64 crores was written off from 1986-87 till 1990-91 due to shortage beyond permissible limits, non-vendability and fire. Successive Inquiry Committies set up to inquire into the shortages and non vendability attributed it to the presence

of shale and stone in the coal. The company did not evolve a satisfactory system for separating stone and shale from the coal. The Ministry stated that it was difficult to eliminate the presence of shale/stone in totality.

9. SALES PERFORMANCE.

9.01. The table given below indicates the position of supply of coal by the company to different sectors from 1989-90 to 1993-94 :-

(Million Tonnes)

Sector	1989-90	1990-91	1991-92	1992-93	1993-94
Power	15.46	13.73	14.71	18.24	20.17
Steel	4.72	5.11	5.43	5.86	5.56
Cement	0.63	0.74	0.87	0.58	0.59
Fertiliser	0.96	0.82	0.83	1.20	1.08
others	4.44	4.79	4.69	5.54	4.33
	26.21	25.19	26.53	31.42	31.73

9.02 Sale of Hard Coke and Soft Coke.

During the years 1990-91 to 1993-94 the sales of soft coke and hard coke were as follows :-

(Qty. in MMT) (value in Rs. crores)

	1990-91		1991-92		1992-93		1993-94	
	Qty.	value	Qty.	Value	Qty.	Value	Qty.	Value
Soft Coke	0.34	5.99	0.34	5.90	0.24	4.25	0.24	4.16
Hard Coke	0.02	2.39	0.01	2.17	0.02	3.73	0.01	2.60

The company undertook the manufacture and sale of soft coke to discharge its statutory obligation which the Government had imposed as a welfare measure. In the absence of actuals with regard to the manufacture of soft coke, cost sheet is prepared on the basis of estimates, according to which the loss in this respect for the years 1990-91 to 1993-94 had been shown as below :-

(Rs. in crores)

Years	Loss
1990-91	12.24
1991-92	12.41
1992-93	11.28
1993-94	14.31

9.03 Manufacture & Sale of Hard Coke.

The company produced hard coke, from its coke oven plant at Giridih, which was renovated in 1986 at a cost of Rs. 1.42 crores to produce 50,000 tonnes of hard coke annually with input of 75,000 tonnes of raw coal. It was estimated that 40,000 tonnes of annual raw coal input would come from Kargali Area and 35,000 tonnes from Dhobidih mines of Giridih area. This mine was under development since 1979-80 to produce 60,000 tonnes of raw coal and an amount of Rs. 2.64 crores was spent upto November, 1989. But from April, 1981, to November 1989, the mine produced only 0.03 million tonnes of coal and then operation of the mine had to be suspended owing to a major geological fault leading to the whole expenditure proving infructuous. Consequently, due to non-availability of raw coal, the coke oven plant is being worked at less than 50% capacity. The entire input of coking coal for the plant at present is being transported, by engaging private transport contractors, from Bokaro and Kargali area (situated at a distance of about 100 KMs) at a considerable cost. Due to these factors the cost of production of hard coke was high (Rs. 1359.23, Rs. 1786.43, Rs. 2417.70 , Rs. 2258.84 and Rs. 3234.88 per tonne during 1989-90, 1990-91, 1991-92, 1992-93 and 1993-94 respectively. The loss incurred by the company in the production of hard coke during the years 1989-90, 1990-91, 1991-92, 1992-93 and 1993-94 was Rs. 0.37 crores, Rs. 1.31 crores, Rs. 1.00 crores, Rs. 0.48 crores and Rs. 2.31 crores respectively.

The Ministry stated that due to geological disturbances the Dhobidih Incline - an important source of raw coal to feed the coke oven plant - had to be closed.

9.04 Dues from consumers

Amounts lying outstanting against different consumers as on 31st March 1994 were as follows :-

(Rs. in crores)

Consumer	Total out-standing	Less than 3 years	More than 3 years.
Power Houses	530.41	361.22	169.19
Steel Plant	116.58	100.55	16.04
Railways	0.76	0.32	0.44
CIL Stockyard	2.28	1.50	0.77
Middlemen	0.48	-	0.48
	650.51	463.59	186.92

More than 90% of the dues were from power plants. The heavy outstandings were due to financial constraints experienced by power houses and disputes regarding the quality of coal received by the power houses, short receipt of coal by the power houses, surface transportation charges for transportation of coal from pit head to siding where the distance was beyong 3 Kms., statutory charges included in the bills on the basis of declared grade and quantity vis-a-vis charges payable on actual grade and quantity etc.

In order to tackle this problem of heavy outstanding against the power houses in the meeting convened by the then Energy Minister in 1987, it was decided that power houses would be required to open revolving letters of credit with the coal companies for supply of coal to them, but this decision was not implemented.(Sep. 94)

Coal India Ltd (CIL) had constituted (Aug. 1991) a high power committee to recommend the steps to be taken for the

recovery of dues and settlement of disputed dues of State Electricity Boards/power houses. No report had so far been submitted to CIL (Sep. 1994) The Ministry stated (May 1994) that realisation of the dues was not improving inspite of the best efforts of CCL and the Govt.

9.05 Mode of Despatch.

More than 80% of the total despatch of coal was made on rail and the rest by road. The company failed to utilise the total offer made by the Railways in regard to the supply of railway wagons and consequently, it had to pay Rs. 19.58 crores to the Railways as demurrage charges from 1986-87 to 1993-94.

The main reasons for detention of wagons were wrong booking in the declaration notes/indents, excess wagons indented, breakdown of pay loaders in the colliery, double placement of wagons, heavy rains and power failure.

The Ministry stated (May 1994) that wagons indented/requisitioned were not fully allotted by the Railways excepting in the years 1987-88 and 1988-89. Some of the wagons supplied, were also found defective/not fit for loading of coal hence these wagons were not loaded and drawn empty by the Railways. Reasons for not loading wagons within the free loading time (thereby attracting demurrage) were labour trouble, derailment of wagons, defective brakes, etc.

9.06 Underloading/Overloading of despatches

Wagons placed by the Railways for carrying coal were required to be correctly loaded up to their carrying capacity $+(-)$ 2 tonnes. In case of underloading or overloading of wagons beyond this permissible variation, penal freight is charged by the Railways from the customer receiving coal who in turn recover it from the company by making deductions from the coal bills.

In order to remove the persistent complaint of short receipt of coal by the power houses it was decided in the meeting held on 22.12.1986 between Department of Power and Department of coal under the chairmanship of the then Energy Minister that Coal India Ltd. should put up electronic weighbridges at all loading points to ensure correct recording of weight of coal loaded into wagons.

It was decided in the meeting that unweighed wagons would be weighed by the Power Plants at destination and payment made accordingly. The company during 1987-88 and 88-89 spent Rs. 1.43 crores for procuring and installing

i) 3 static Electronic weighbridges

ii) 11 Electronic print-out system to be fitted to the existing machanical weighbridges.

iii) 7 in motion weigh bridges and,

iv) 2 pitless in motion weigh bridges.

At present 22 rail loading points of the company (handling almost entire quantity of coal despatched to power houses) were equipped with electronic weighing system. Still under loading/overloading charges paid by the company during last 5 years were as follows:-

Year	Qty. despatched to Power Houses (in MMT)	Underloading/overloading charges (Rs.in crores.)
1989-90	15.46	6.53
1990-91	13.73	5.25
1991-92	14.71	3.81
1992-93	18.24	4.93
1993-94	20.17	12.09
Total:	82.31	32.61

10 COSTING, BUDGETING, ACCOUNTING AND INTERNAL AUDIT

10.01 Costing System

The company followed unit costing system for collieries and washeries while the job costing system was in vogue at Central and Regional Workshops. A review of the costing records revealed the following deficiencies.

i) Consolidated monthly cost sheets of each unit did not reflect the cost per tonne of coal produced by the unit owing to non-reconciliation of financial and costing figure and non-preparation of monthly financial accounts (Profit & Loss account and Balance Sheet) at the unit level to render this possible. As a result, information furnished by the monthly cost sheet prepared at the unit level remained tentative and the consolidated yearly cost sheet of each unit was prepared by the Headquarters independently taking into account the financial figures as appearing in the Annual Accounts of the company after their approval which in most cases took more than six months from the close of the financial year. This being so, the entire exercise that went into the preparation of monthly cost sheets at the unit level served little purpose. There was substantial variation between physical data of production of coal taken for the purpose of costing and actual production as would be evident from the following figures :

Sl.No	Name of the units	Actual production for 1990-91 (as reported to the Board)	Annual production (taken from monthly cost sheet) for 1990-91.
1	Karo Spl.	6,49,000 MT	6,35,000 MT
2	Religara	5,61,000 "	5,71,145 "
3	Kargali	7,59,000 "	7,73,153 "
4	Swang	5,65,000 "	5,84,672 "
5	Kathara	13,79,000 "	14,00,100 "
6	Ara	4,40,000 "	4,50,100 "
7	Topa	2,89,000 "	3,00,005 "

The Ministry stated that as the colliery wise financial accounts were not prepared, rconciliation between cost and financial accounts was not possible.

ii) (a) Mining being a labour intensive industry, salary and wages constituted 43.93% and 40.59% of the cost of production of coal during 1991-92 and 1992-93 respectively. The costing format in vogue in the company provides for working out the element of salary and wages in the cost per tonne of coal without giving any information about the share of different functional departments such as finance, civil, medical, electrical, stores, mining etc.

b) The element of overheads in the cost per tonne of coal produced during 1991-92, 1992-93 and 1993-94 as 6.84%, 6.84% and 6.88% respectively. No norms were prescribed.

In conclusion, it may be said that in the absence of any norm (standard), the information furnished by the costing department was far from adequate for planning and management of coal mines.

10.02 Budgeting

The Capital and Revenue budgets of the company were prepared taking into consideration the target of production fixed in the Annual Plan proposals, actual expenditure incurred during previous year with adjustment being made for increase in the cost of different items of expenditure, anticipated investment in collieries, washeries, workshops and other service units.

Actual expenditure incurred from 1989-90 to 1993-94 compared with the budget estimates is shown below :-

(Rs. in crores)

Year	Revenue		Capital	
	B.E.	Actual	B.E	Actual
1989-90	809.05	782.68	235.00	216.14
1990-91	821.58	856.22	346.00	247.41
1991-92	927.68	991.36	330.00	254.26
1992-93	1132.41	1211.72	510.00	319.53
1993-94	1203.43	1245.10	340.00	279.90

10.03 Accounting System.

The system of accounting being followed by the company provides for detailed accounting under various heads for each individual unit namely colliery,washery, regional & central workshop, hospital, water supply arrangement, regional & central store etc. separately under each area. The areawise detailed accounts so maintained form the basis for consolidated accounts of the company. It was noticed that the trial balance prepared at area level was incomplete as they did not cover important information relating to sales, sundry debtors, stock, provision for depreciation etc. There was no proper control over opening of asset cards.

10.04 Internal Audit.

The company had an Internal Audit Department manned by 11 officers and 22 staff upto 1986-87. Thereafter the audit coverage by company's own internal audit was substantially scaled down and firms of Chartered Accountants were to be engaged for conducting internal audit/continuous wage audit.

The Ministry stated (May 1994)that the chartered accountants were appointed as internal auditors due to inadequate staff in the department and the arrangement was also cost effective.

11. FINANCIAL POSITION AND WORKING RESULTS.

11.01 Financial Position.

The financial position of the company for the last three years is shown below under broad heading:

(Rs. in crores)

Liabilities	1991-92	1992-93	1993-94
a) Paid up capital	940.00	940.00	940.00
b) Reserve & Surplus			
i) Free Reserves & Surplus	-	30.39	101.65
ii) Committed Reserves	201.42	201.42	192.22
c) Borrowing from :			
i) Foreign financial institutions	161.97	319.50	433.97
ii CIL Holding Company	506.09	859.76	943.84
iii) Banks	26.69	58.59	41.56
d) Current Liability & Provision	521.63	532.61	599.19
Total [a to d]	2357.80	2941.27	3252.42
Assets			
e) Gross Block	1603.80	1752.81	2027.51
f) Less cumulative depreciation	651.26	744.98	868.70
g) Net fixed assets	952.54	1007.83	1158.80
h) Capital work in progress	196.31	389.02	516.34
i) Capitalised Expenditure to the extent not written off.	102.10	93.91	98.38
j) Investments	0.00	0.00	0.00
k) Current Assets, Loans and Advances	1095.69	1450.52	1478.91
l) Accumulated Losses	11.16	0.00	0.00
	2357.80	2941.27	3252.42
Capital Employed [g+k-d]	1526.60	1926.74	2038.52
Net worth [a+b(i)-l]	928.83	970.39	1041.65

Return on the capital employed by the company during the years 1989-90 to 1993-94 was (-) 0.90% (-)78% 6.8%, 2.16% and 3.04 % respectively.

11.02 Working Results

The working results of the company for the last three years ending 31st March 1994 are indicated below :

		(Rupees in crores)		
		1991-92	1992-93	1993-94
a)	Sales	1125.89	1614.45	1764.92
b)	Profit after prior period adjustment	103.77	41.56	62.06
c)	Percentage of profit to sales	9.22%	2.57%	3.52%

11.03 An analysis of the financial position as well as working results show that Sundry Debtors were 44.69% of sales in 1990-91, 34.15% in 1991-92, 42.01% in 1992-93 and 46.08% in 1993-94.

This would indicate that a large portion of the funds was blocked up in debtors and the company was unable to realise its debts within a reasonable period as would be evident from the fact that 70% of the debts (as on 31.3.94) is lying outstanding for more than six months.

12. MATERIAL MANAGEMENT

12.01 Purchase and store-keeping.

The Materials Management Department of Central Coalfields Limited with a purchase office at Calcutta works under the overall control of General Manager (Materials Management). The Central Stores of the company is situated at Barkakana. The company has also 12 Regional Stores and 6 Washeries Regional Stores.

12.02 Obsolete and surplus spares.

Central Coalfields Limited held a large stock of spares valuing Rs. 103.47 crores as on 1.4.1994. Out of this, washery spare parts and HEMM spares valuing Rs.6.23 crores as detailed below lying unused for over five years became surplus to the requirement.

Washery and HEMM Spares

Description	No. of items lying in stock	Value in lakh of Rs.
Dumper spares	2455 No.s	101.77
Dozer spares	1780 No.s	260.96
Shovel spares	1364 No.s	78.76
Washery spares	791 No.s	45.35
Drill spares	1799 No.s	62.38
Misc. & P&M spares	4316 No.s	73.57
	Total :	622.79

12.03 Delay in placement of purchase orders.

It was observed that there was inordinate delay ranging from 8 to 20 months in processing of indents placed by the areas for procurement of spares etc., resulting in local purchase by the Area Officer to meet their requirement.

The Ministry stated that the procurement system requires to be streamlined by CIL/CCL.

12.04 Inventory Holdings.

The table below shows that the company was maintaining spares inventory ranging from 5 and 7 months consumption of the spares :-

Year	Value of closing stock of stores & spares.	Consumption of stores & spares during the year	Closing stock of spares in terms of months' consumption.
		(Rs. in lakhs)	
1	2	3	4
1989-90	90.32	137.89	7.16 months
1990-91	89.38	149.85	6.27 months
1991-92	96.00	165.34	6.97 months
1992-93	100.22	190.82	6.30 months
1993-94	103.47	230.25	5.40 months

No norms for inventory holding in terms of month's consumption were fixed by the company so far.

13. OTHER TOPICS OF INTEREST

13.01 Loss due to non-recovery of billets from a re-roller

In 1982 M/s. Ashok Steel Pvt. Ltd., Ranchi road, Marar Distt. Hazaribagh were handed over 186.558 tonnes of billets for re-rolling into M.S. Bars to be supplied to different collieries of Kuju Area. The billets were handed over to the re-roller without any agreement or security deposit/earnest money to safeguard the interests of the company. The re-roller supplied re-rolled M.S. bars equivalent to 51.421 MT of billets only. They neither supplied re-rolled bars for 135.137 M tonnes of billets nor returned the billets.

After adjusting the unpaid amount of Rs. 0.25 lakhs due to the re-rolling firm, the company (CCL) suffered a loss of Rs. 5.03 lakhs on account of non-retrieval of the billets from the firm.

The Ministry stated (May, 1994) that an enquiry committee had fixed responsibility on certain officers and action was being against taken them.

13.02 Infructuous expenditure on 3 mini Coal Handling Plants.

To provide mechanised loading of coal into trucks, 3 mini Coal Handling Plants one each at Pindra, Topa & Kuju collieries involving a total expenditure of Rs. 22.67 lakhs were constructed in the year 1983. All the three plants were rendered useless as the mines had either to be closed or changed over to opencast mines.

Had the decision on installation of CHPs been taken after proper survey and assessment of the workability of these mines, the expenditure of Rs. 22.67 lakhs would have been avoided.

The Ministry stated (May, 1994) that the investment made in these mini CHPs was not substantial and that after they were rendered surplus the steel structurals were salvaged and re-used in other mines.

14. MANPOWER

14.01 Manpower-in-position.

The manpower position for the years from 1989-90 to 1993-94 is given below :

(fig. in No.)

Year	Executives	Non-executives	Total
1989-90	3043	97549	100,592
1990-91	2999	95790	98,781
1991-92	2985	95820	98,805
1992-93	3089	93901	96,990
1993-94	3257	92419	95,676

Though, the total manpower decreased, the number of executives, increased; in 1993-94 there was one executive for every 28 non-executives against 1 for 32 in 1989-90. The Ministry stated that due to greater emphasis being placed on open cast working increase in the number of executives was inevitable.

14.02 Productivity.

Productivity of manpower is measured by output per manshift. Annual production of coal and O.M.S. from 1989-90 to 1993-94 is shown below :

Year	Pruduction of coal (MMT)	O.M.S. (in tonnes)		Overall OMS
		Underground	Opencast	
1989-90	28.59	0.46	1.86	1.22
1990-91	30.09	0.44	1.99	1.32
1991-92	31.22	0.46	2.28	1.47
1992-93	32.42	0.48	2.28	1.47
1993-94	33.50	0.48	2.50	1.61

Increase in O.M.S. was mainly due to high production in opencast mines, which were mostly mechanised. O.M.S. in under ground mine, employing about 30.33% of the total manpower (1993-94) had been more or less constant.

The Ministry stated (May,1994) that for the improvement of O.M.S. in underground mines steps are being taken for

introducing more numbers of load haul dumpers for coal loading, extraction of thick seam by longwall sub-level caving, mechanisation of underground mines etc.

14.03 Surplus Manpower

During 1992-93, 3166 manpower were identified as surplus/redundant. Thus, the surplus manpower constituted 3.26% of the total work force of the company entailing a yearly expenditure of about Rs. 16.99 crores (1992-93).

In spite of surplus manpower, there has been fresh/direct recruitments of manpower in the company (443 persons were recruited during 1988 to 1992).

The ministry stated that steps were taken to transfer surplus employees to needy subsidiaries. It is further stated that a whole hearted attempt is being made to rationalise manpower by reduction and proper deployment.

(RAMESH CHANDRA)
Deputy Comptroller & Auditor General
-cum-Chairman, Audit Board.

New Delhi
4 MAY 1995

Countersigned

(C.G. SOMIAH)
Comptroller & Auditor General of India

New Delhi
4 MAY 1995

ANNEXURE-A

STATEMENT SHOWING DETAILS OF UNDERGROUND COLLIERIES

Sl. No.	Name of the Project	Year of sanction of projects.	Annual production before implementation of scheme(inMMT	Production to be achieved after implementation of scheme (in MMT)	Capital Investment P.R.(Rs. in crores) Existing	Addl.	Production achieved in 1993-94 (in MMT)	Capital Exp. in curred on compln. (Rs. in crores)
1	Pipradih U/G Colliery	1979	0.107 (1977-78)	0.30	0.52	2.94	Nil	2.07
2	K.K.Colliery	1979	0.192 (1975-76)	0.36	0.23	1.99	0.06	2.56
3	Kedla Colliery	1975	0.65 (1974-75	1.00	0.25	9.17	0.18	6.91
4	A.K.Colliery	1979	0.18* (1974-75	0.62	0.62	6.58	0.06	2.21
5	Pindra Colliery	1979	0.10 (1978-79)	0.36	0.40	2.82	0.10	3.88
6	Central Saunda Colliery	1974	0.37* (1973-74)	0.70	0.61	2.91	0.18	5.76
			1.599	3.34	2.63	26.41	0.58	23.39

ANNEXURE-B

(Rs. in crores)

Sl. No.	Name of the Project	Capital cost Original	Capital cost Revised	Date of completion Original	Date of completion Revised	Capital Exp. upto 2/94	Capacity (coal) in MMT	Date of Sanction by CIL.
1	Sirka Fire Opencast	8.90	14.37	83-84	83-84	9.00	0.45	30.5.83
2	Kurse Fire	3.55	-	30.3.89	-	1.16	0.821	30.4.84
3	Selected Dhori Fire	4.71	7.07	89-90	92-93	0.40	-	17.4.84
4	Kargali Fire	4.83	7.62	83-84	88-89	3.75	0.86	7.2.80

ANNEXURE C

(LAKH TONNES)

	1989-90		1990-91		1991-92		1992-93		1993-94	
	Input of Raw Coal	Output of Clean Coal	Input of Raw Coal	Output of Clean Coal	Input of Raw Coal	Output of Clean Coal	Input of Raw Coal	Output of Clean Coal	Input of Raw Coal	Output of Clean Coal
Rajarappa	12.40	7.08	17.26	9.82	18.14	10.22	17.52	10.07	16.67	9.68
Giddi	14.25	7.32	14.33	7.67	15.95	8.25	17.61	9.50	18.13	9.61
Kargali	20.99	11.44	22.32	13.66	24.19	13.21	25.41	13.94	24.53	13.51
Kathara	16.95	7.50	16.27	7.02	18.55	8.00	19.25	8.75	18.75	8.19
Sawang	10.87	7.00	10.08	6.42	10.78	6.68	10.66	6.87	10.40	7.00
Total	75.46	40.39	80.26	43.19	87.61	46.36	90.45	49.13	88.48	47.99

Average Input = 84.45 lakh tonnes

Average Output = 45.41 lakh tonnes