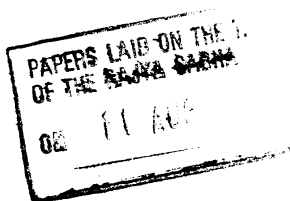


TENTH REPORT
STANDING COMMITTEE
ON ENERGY
(1994-95)

(TENTH LOK SABHA)

MODERNISATION AND GROWTH OF
COAL INDUSTRY—A CRITIQUE

MINISTRY OF COAL



Presented to Lok Sabha on 11.8.94
Laid in Rajya Sabha on 11.8.94

LOK SABHA SECRETARIAT
NEW DELHI

July, 1994/Asadha, 1916 (Saka)

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**Corrigenda to the Tenth Report of the Standing Committee
on Energy on, "Modernisation and Growth
of Coal Industry — A Critique"**

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(1994-95)

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INTRODUCTION

1. The Chairman, Standing Committee on Energy having been authorised by the Committee to present the Report on their behalf present this Tenth Report on the subject "Modernisation and Growth of Coal Industry—A Critique."

2. The subject "Modernisation and Growth of Coal Industry—A Critique" was selected by the Committee of 1993-94 and the task of examining and preparing a report on the subject was entrusted to a Sub-Committee of Standing Committee on Energy (1993-94). The Sub-Committee held 11 sittings in all of which 6 sittings were devoted to recording of evidence of the Chairman, Coal India Ltd. and the Ministry of Coal and 5 sittings for in-house deliberations. The Sub-Committee ceased to exist with the expiry of the term of the Standing Committee of Energy of 1993-94 on 7th April, 1994.

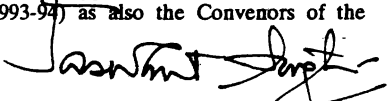
3. The Committee of 1994-95 took up the unfinished task and decided at their sitting held on 23rd June, 1994 that the draft report on the subject should be considered by the Convenor of the Sub-Committee on Coal alongwith the convenor of the Sub-Committee of 1993-94 and there after the draft report be placed before the Committee. The draft report so approved by the convenors was considered and adopted by the full Committee at their sitting held on 15th July, 1994.

4. The Committee wish to express their thanks to the Ministry of Coal, Coal India Limited, National Institute of Industry Engineering, Bombay, Central Fuel Research Institute, Dhanbad, Tata Energy Research Institute, New Delhi and Shri A.B. Shah, Retired Director (Technical), Eastern Coal Field Limited, for placing before them the requisite material/Memorandum in connection with the examination of the subject. The Committee also wish to thank in particular the representatives of the Ministry of Coal and the Chairman, Coal India Limited who appeared before the Sub-Committee for oral evidence and placed their considered views before them.

5. The Committee place on record their appreciation for the work done by the Sub-Committee on Coal (1993-94) as also the Convenors of the Sub-Committee.

NEW DELHI;
July 21, 1994

Asadha 30, 1916 (Saka)


JASWAN SINGH,
Chairman,
Standing Committee on Energy.

PART A

BACKGROUND ANALYSIS

I. MODERNISATION IN EXPLORATION

Introductory

The Coal industry in the country was nationalised in 1971 (coking coal) and 1973 (non-coking). The Government has invested Rs. 15,966 crores in the coal industry since nationalisation upto 1991-92. The primary objective of the nationalised coal sector is to achieve the required growth in coal production to meet the escalating growth in coal demand. To achieve this objective, modernisation of the coal industry is *sine-qua-non*. Some of the key areas on modernisation and growth of the coal industry are dealt with in this report.

Modernisation in Exploration

1.2 Regional exploration of coal in India is being carried out by Geological Survey of India. The data available from this is of indicative nature only. For Mine Planning and Design purpose detailed exploration is required. This helps in converting coal reserves of "Indicated" and "Inferred" categories to "Proved" category. This detailed exploration for Coal India is carried out by its Subsidiary Central Mine Planning and Design Institute Ltd. (CMPDIL) through its own rigs and through other agencies like Mineral Exploration Corporation Ltd. (MECL) and Geology and Drilling Departments of State Governments of Orissa, Madhya Pradesh, Maharashtra. About 95% of detailed drilling is done by CMPDI and MECL. Geological reports are prepared based on the detailed drilling done.

1.3 The methodology of detailed exploration of coal deposits in India is by and large the same as practised in the advanced countries except that in India all boreholes are cored holes which permit direct examination of the core and hence more reliable. As per Indian Standard procedure the number of boreholes drilled should be 6 to 8 per sq. Km. for estimating the reserves under "Proved" category. More or less the same practice is also followed by China and USSR. However, other advanced countries like U.K., USA and Germany undertake spaced non-coring drilling supplemented by geophysical well logging. Although, coring drilling is carried out in our country, the interpretation of data, wherever required, is supplemented by geophysical investigations.

1.4 Modern technologies of laboratory analysis *viz.* rapid instrumental analysis, coal petrography etc. have also been introduced by CMPDIL.

Surface geophysical survey, down hole multi-parametric geophysical logging, electrical resistivity survey have also been introduced. Remote sensing, High Resolution Seismic survey, hole and core orientation survey and other technologies are being used on a need-based basis particularly in deeper and complex deposits of Raniganj, Jharia, East Bokaro, Talcher, N. Karanpura and Kamptee Coalfields. The above methodology adopted though differing from other countries, is best suited to our country.

1.5 According to CIL as a result of introduction of faster coring drilling technology, CMPDIL's drilling productivity has increased from 77 metres per drill per month in 1973-74 to 307 metres per drill per month in 1992-93. A total of 654 blocks have reportedly been investigated by detailed exploration and a total of 65,000 million tonnes of coal reserves have been estimated for mine planning. CIL has stated that as a result of detailed exploration carried out, it has been possible to increase the production of coal from a level of 72 million tonnes at the time of nationalisation to 211 million tonnes in 1992-93.

1.6 On the basis of geological reports released by the GSI every year, potential blocks are demarcated and detailed exploration is taken up by the Central Mine Planning and Design Institute Limited (CMPDIL) in conjunction with the Mineral Exploration Corporations Ltd. (MECL) and other drilling agencies keeping in view of region-wise demand for coal during the plan periods. CMPDIL is the nodal agency for co-ordination among various exploration agencies engaged in coal exploration. CMPDIL deploys, besides its own drilling resources, the resources of MECL, State Govts. of Madhya Pradesh and Orissa and of private agencies.

1.7 The performance in the field of exploration by CMPDI and its contractual agencies during the last five years are shown below:

Year	Target (metre)	Achievement (metre)	% age	Average Drill (No.)	Productivity (MD/M)
1988-89	3,74,000	3,90,633	104	161	201
1989-90	3,45,500	3,56,866	103	151	196
1990-91	3,46,300	3,50,076	101	148	197
1991-92	2,49,433	2,78,546	112	138	168
1992-93	2,21,000	2,51,665	114	105	200

1.8 It may be observed from above that the detailed exploration undertaken by all agencies put together has steadily gone down from 3.90 lakh metres in 1988-89 to 2.52 lakh metres in 1992-93 which works out to nearly 32% decline. The productivity per drill per month has also

declined from 201 metres in 1988-89 to 168 in 1991-92 and again in 1992-93 the productivity increased to 200 metres. *i.e.* reaching the level attained in 1988-89.

1.9 As per the latest estimates made by Geological Survey of India, coal reserves of the country are placed at 196.89 billion tonnes on 1.1.1994. Category-wise break up is as under:—

	<i>As on 1.1.93</i>	(In million tonnes) <i>As on 1.1.94</i>
Proved	64853	68,047
Indicated	84913	86,079
Inferred	44011	42,766
	<hr/> 193777 <hr/>	<hr/> 196892 <hr/>

1.10 The extractable reserve is stated to be only 30,838 mts. Enquired about the reasons for extractable reserve being far less than the proved reserve. CIL stated in a written reply as under:—

“Generally 80% of the proved reserves are taken as mineable reserves. Out of this generally 80% is taken as extractable reserves for opencast mining and 50% for underground mining after allowing for reserves left for protection of surface features such as rivers, railway line, villages etc. and also due to various mining constraints and safety regulations, such as panel boundaries, safety pillars, mine boundaries, side slopes, partings rate. In case of very thick seams (above 6 metres) recovery by underground method is as low as 25—30%.”

1.11 Asked what will happen to the remaining reserve of coal and the reasons of claiming it to be non-extractable, CIL informed that coals reserves left unextracted are not likely to be recovered in future. However, with development of technology, the percentage of extraction may improve.

1.12 Out of the total proved reserves of 68047 MT, reserve for coking coal constitutes 14677 MT as shown below:

Prime Coking	—	4237 MT
Medium Coking	—	9869 MT
Semi Coking	—	571 MT
		<hr/> 14677 MT <hr/>

1.13 Proved reserves of non-coking coal constitutes 53371 MT. The Coal reserves are available within a depth range of 0 to 1200 m in our country. The depth wise break up of proved reserves as on 1.1.93 is as follows:—

Depth range m.	Proved Reserves
0—300	52333
300—600	10979
600—1200	1541
0—1200	64853

1.14 The average depth of mining in China is 350m whereas the maximum depth is 1000m. In the case of U.K. the average depth is over 400m and maximum depth is over 1000m. In Japan, the average depth of coal mining is over 500m.

1.15 According to CIL, 52,330 million tonnes of reserves of coal lies at a depth of 0—300 metres, Coal India is producing 70% of its total production from such coal reserves which are lying at an average depth of 50 metres. Enquired as to what will happen to the level of production when coal is to be extracted from deep seated reserves, CIL stated in a written reply as follows:

“It is a general established international mining practice to go from shallow depth to greater depth. Underground mining is taken up when opencast mining is not feasible or becomes uneconomic. With the improvement in opencast mining technology, sizes of equipment and increase of wages of mine workers, opencast mining is getting extended to deeper and deeper horizons for reasons of conservation, safety and economics. The situation has dramatically changed world over and so is the case with India since 50s and 60s and the this trend is likely to continue. Opencast mining operation in India have been planned in different operating projects to a depth varying from 150m to 300m. The maximum depth of opencast mining planned for mines for operation is of the order of 300m. The operation have already gone up to a depth of 140m. Thus substantial part of the reserve which would have been exploited by underground means in early days, are now being exploited by opencast method, thereby ensuring higher recovery of coal at a lesser cost. Underground operation in Coal India Ltd. have also reached to a depth of more than 600m.

1.16 To a query whether CIL is satisfied with the present technologies for drilling adopted by CIL for coal exploration, the Chairman, CIL stated during evidence that drilling technologies adopted by CIL had become outdated. CIL is stated to be planning to give certain mining complexes to foreign/private companies for exploration work.

II. MODERNISATION OF MINING TECHNOLOGY

A. Opencast Mining Technology

According to CIL, opencast mining has been playing a vital role in the recovery of coal reserves with high percentage of extraction, low gestation period, relatively lower specific investment and cost and high degree of safety. The growth of coal production in CIL in the last two decades in opencast mining has been at a very fast pace due to adoption of appropriate mining technology and equipment in line with the prevalent geological and mining conditions, size of the property, reserves and build up of demand. The technologies adopted are:

- (a) Shovel-Dumper Mining System
- (b) Dragline with Shovel-Dumper combination
- (c) In-pit crushing and convey or transport for coal

2.2 Presently CIL is operating about 170 opencast mines of various sizes angng incapacity from 0.1 Million Tonne. to over 10 Million Tonnes of oal per year. Most of these mines were designed and constructed /being onstructed with total indigenous knowhow and personnel.

2.3 In order to cater to the large variation in target capacity and the material handling requirement, different sizes of equipment are being deployed in these operations. CIL has since standardised its equipment fleet mostly on two size configurations viz. 5 cu.m. rope shovel+35-50 T Rear Dumpers, 10 cu.m. rope shovel+85T/120T Rear Dumpers and also 20 cu.m. rope shovel with 170T Dumpers in specified mines. Almost all the size range equipment with the exception of 20 cubic metre rope shovel and 170T as well as 120T rear dumpers, are available from indigenous sources.

2.4 CIL pointed out that the indigenous manufacturers of HEMM have so far not been able to meet the desired quality standards and ruggedness. The net result has been frequent unforeseen breakdowns of major components and consequent poor fleet availability.

2.5 CIL has stated that for modernisation and growth there is a need of improvement in quality of indigenous equipment, spares, after sales service etc. to international standards. The supply period for spares has also to be improved. Sophistication in the equipment by way of auto lubrication in high cost and critical equipment, introduction of various electronic sensors, early warning system to warn against premature failures, more sensitive thyristor control in place of magnetic amplifier etc. is required. The process for this can be expedited with international competition in this sphere too.

2.6 Modernisation for growth in the sphere of opencast mining is reportedly envisaged by way of upgrading the size of equipment at the time of replacement, introduction of TMMS (Total Mining Management System), condition monitoring etc. Besides above, special stress is being made in providing maintenance support by construction of Regional and Central Workshops. Human Resource Development by way of theoretical and practical training at specialised centres is being augmented.

2.7 In a note furnished to the Committee, the Ministry of Coal stated that the level of opencast modernisation in our country was stated to be quite satisfactory and some of the big opencast projects like Gerva OC (10.0 mts) and piparwar OC (6.5 mts) were not less than the standard opencast mines in the developed countries.

B. Underground Mining Technology

2.8 Underground mining technology at the time of nationalisation of coal mines was generally primitive except in the mines belonging to National Coal Development Corporation, Singareni Coal Company and some British owned Coal Companies. Immediately after nationalisation steps were taken to reorganise the mines with objective of scientific mining for conservation and safety. Planning of these recognised mines were undertaken in phases for developing them in a scientific manner for modernisation and growth. The following post nationalisation efforts were reportedly been made :

- Reorganisation/amalgamation of small collieries into physically better manageable units.
- Restructuring of the entire industry.
- Scientific approach introduced for planned mining rather than slaughter mining.
- Conservation of coal/coal seams (inferior) given due consideration.
- Safety standards improved.
- Better working conditions for workers.
- Better welfare amenities.

2.9 CIL stated that apart from the above there has been two pronged development efforts towards modernization of underground coal industry viz.

- (a) Development of SDLs and LHDs of various capacities indigenously which has met with the expected success. Even Remote Control imported LHDs have been deployed. Auger-cum-jumbo

to replace coal cutting machine has also been developed and is commercially utilised.

- (b) Introduction of powered support longwall technology at selected sites with imported equipment, has not met with much success partly because of difficult geo-mining conditions prevailing in Indian coalfields and partly due to problem of timely availability of quality spares.

2.10 Besides above steps for modernisation at coal face the modernisation of high order commensurate with needs has reportedly been done in the sphere of:

- Underground coal transport using chain and belt conveyors of appropriate capacity.
- Mine winders.
- Man riding systems.
- Electronification in mines.
- Fast speed drivages using road headers.
- Roof bolting.
- Steel supports to replace timber.
- Mine ventilation.

2.11 The actual production from underground mines against rated capacity through different methods in respect of the last three years are given below:

(Fig. in Mt.)

Method of Work	1990-91		1991-92		1992-93	
	Rated Cap/Target	Actual	Rated Cap/Target	Actual	Rated Cap/Target	Actual
(i) Manual B&P		46.05		44.40		43.76
(ii) Mechanised B&P	8.81	7.27	11.08	9.47	12.36	10.90
(iii) Individual Longwall	0.38	0.20	0.41	0.26	0.41	0.26
(iv) Mechanised L.W.	2.69	1.99	1.99	1.93	1.65	1.47
(v) Special Methods*		0.59		0.57		0.47

*The Methods include sub-level caving, Blasting gallery methods, shield mining and others.

It may be observed from the above table that out of 56.86 Mt. U.G. production during 1992-93, over three-fourth has been produced by Manual Board & Pillar Method.

2.12 According to the Ministry of Coal, the level of mechanisation/modernisation of underground mines is still a longway to catch up with the

global level. Since nationalisation mechanisation of new projects and re-organisation of some of the existing mines are being carried out by introducing longwall technology and mechanisation of Board & Pillar Workings introducing Side Discharge Loaders (SDLs), Load Haul Dumpers (LHDs) etc. Special underground mining methods like sub-level caving, Blasting gallery method, shield mining etc. have also been introduced in collaboration with leading coal producing countries of the world. Before nationalisation the overall coal production in the country was obtained mainly through underground mining and underground mines were using conventional manual Board and Pillar method of mining. In the year 1992-93, Coal India Ltd. produced 34% of its underground production through mechanisation as against almost 100% in case of Australia, Germany, U.K. and CIS.

2.13 Asked whether the Ministry consider the present state of modernisation in underground mines satisfactory, the Ministry stated in a written reply as under:

"The present level of mechanisation in underground mines cannot be considered as satisfactory. However, it has to be appreciated that it has not been possible to accelerate the pace of mechanisation of UG mines primarily due to various constraints which are:—

- (a) Most of the existing underground mines have been extensively worked in the past without any definite mine plan. As such only some of the old mines were amenable to mechanisation,
- (b) Workings of lower horizons under the exhausted upper horizons which are some time waterlogged, are posing difficulties for mechanisation of these UG mines,
- (c) Mechanisation requires suitable geomining conditions thus limiting the scope of mechanisation of UG mines,
- (d) Mechanisation of UG mines is a capital intensive activity; financial resource has been a major constraint for acceleration of mechanising UG mines,
- (e) Coal Industry since its inception in India has been labour intensive. Redundancy of manpower resource is a natural outcome of mechanisation of existing UG mines."

2.14 Asked about the constraints experienced in modernisation and growth of Coal Industry, Chairman, CIL stated during evidence:

"The first constraint is about land acquisition. It takes a long time. And the affected people have to be rehabilitated. The laid down rules take time. Therefore, our product becomes little costlier.

Number two is power supply. In the eastern region, mainly in Bengal and Bihar, where the three companies are located, we have suffered very badly for power supply. All the projects of modernisa-

tion which you undertake in these two States—mainly three companies—have had a setback at one time or the other. Even today, we do not have sufficient power and private companies have been requested to instal power stations. The third is the non-availability of equipments both opencast and underground. Unfortunately, we could not get machines and spare parts from HEC.”

2.15 CIL stated further modernisation in underground mining is proposed by way of wider application of equipment and technology found successful and economically viable, out of what has been tried. In addition it is proposed to try the following:

- Integrated bolting by roof bolters:
- Continuous miners for bored pillar development and depillaring.
- Extensible belt conveyors and/or shuttle cars in conjunction with continuous mining machines.

2.16 In order to broaden the scope of co-operation between India and China Coal Mining a Joint Working Group on Coal has been set up in Jan. 94. In order to promote mechanisation of underground coal mines in India the Chinese side would be submitting proposals in a package consisting of mine design and planning and face machinery to be identified after mutual discussion. The Chinese companies will provide guaranteed level of production from each longwall machinery alongwith guaranteed availability of spares at mine site. After making study of the geo-mining conditions, M/s. China National Coal Mining Equipment Corporation (CME) have made offer in January, 1994 to CIL for supply of two longwall packages one for Behraband and another for Churcha West mine. The China side further agreed to study the geo-mining conditions of Pathakhera and Chinakuri mines before submitting commercial offers.

2.17 Enquired how the level of modernisation compares with that of other coal producing countries, the Ministry stated in a written reply as follows:

“The concept of modernisation of mines varies from country to country depending on various factors like the availability of alternative sources of energy, geo-mining situations of coal deposits and demand of coal. For example in U.K., France and Germany production of Coal has significantly declined in past 10 years. This has happened because of easy availability of alternative sources of energy. Moreover, coal mines in these countries have gone very deep. Cost of production has steeply increased and production has also declined due to adverse economic availability of coal versus other available fuels. In case of Australia, coal is mainly being produced for exports. As such the thrust is on quick yielding investments with high volume and lower cost of production. Keeping in view this objective both opencast and under-

ground mines are highly machanised. In case of China, mechanisation of underground mines is increasing using longwall technology. At the same time, they are deploying the workforce rendered surplus through application of high technology (which is also capital intensive) to other sectors like textiles etc.”

III. MODERNISATION OF PROJECTS

A. Project Modernisation

During the VII plan 44 projects were modernised through reorganisation with an investment of Rs. 444.50 crores by CIL. According to CIL barring only a few projects, all other projects are under various stages of implementation.

3.2 Pointing out that the productivity level of the projects appeared to have declined after reorganisation, the committee enquired whether any action plan has been drawn up to improve the productivity level of modernised projects.

The Ministry stated in reply as under:

"44 underground projects were taken up for modernisation by CIL during Seventh Five Year Plan. 12 (9 new and 3 re-organisation) are under different stages of implementation. The productivity level will reach the projected level as the implementation, programme matures. 15 of the reorganised projects have improved in the performance of productivity as compared to pre-reorganisation levels. 13 of these projects could not be fully implemented due to unforeseen adverse geo-mining conditions. Because of these constraints in almost all cases, the scope of the project in terms of technology had to be downgraded. For example, many of these projects were earlier projected for longwall mining with high productivity but had to be changed with mechanised bored and pillar technology which has a lower productivity. 4 of the projects located in ECL got inordinately delayed due to problems of land acquisition and resistance by the local population. Efforts are being made to solve these problems so that projected productivity level can be achieved.

Action Plan as an on-going process is drawn to improve the productivity level by having regular reviews with the equipment manufacturers for improved supplies of spares and improvement of skill of the workforce by training."

Regarding the productivity level after modernisation, CIL stated as under:

"In case of taken over underground mines, as the mine become more extensive and deeper, it will require additional investment on transport, pumping, power supply, ventilation etc. The existing underground mines will not continue to give the same production and productivity without further investment. But for this

investment, the production and productivity would have gone down further as mining is a wasting asset and regular investment for maintaining the existing production is required. This is particularly relevant to old complex mines.”

3.3 The details of the projects costing more than Rs. 2 crores and above as on 31.12.93 in CIL and SCCL are as under:

Company	Total No. of Projects	No. of completed Projects	On-going Projects	Projects under implementation	
				On Sch.	Delayed
Mining Projects					
CIL	350	176	174	115	59
SCCS	50	20	29	16	13
Non-mining Projects					
CIL	230	46	157	85	72
SCCS	8	—	8	3	5

3.4 Asked as to how many of the existing mining and non-mining projects require modernisation/mechanisation and what will be the fund requirement, CIL informed in written reply:

“All the existing mining and non-mining projects have been planned keeping in view the modernisation of these projects to appropriate scale. Considering large projects (Costing Rs. 20 crores and above) where modernisation is significance, there are 32 opencast projects, 23 underground projects and 13 non-mining projects.”

The estimated fund requirement for above projects are stated to be as follows:

Type of Project	Rs. in crores
Opencast	6509
Underground	1769
Non-mining	782

3.5 Asked about the modernisation programme in 8th plan; CIL informed in a written note:

“Excluding the capital required for maintenance of existing mines which cover the completed projects also the outlay earmarked for on-going (both reorganisation and new) and new projects to be approved during VIII Plan is Rs. 5631 crores as detailed below:

(Rs. in crores)

On-going Project (Modern)	5099
New Projects (Modern)	532
Total	5631

All such projects are implemented with a view to modernising them to various degrees. Some of the existing mines are being reorganised to improve the technology. New mines are also implemented as well as planned with New technology.”

3.6 As modernisation is built into the various aspects of the project including in the choice of technology, equipment, training etc., it is reportedly difficult to segregate the financial component of modernisation from the total projects cost.

B. Projects Abandoned

3.7 It is observed from the information furnished by the Ministry that 47 out of 168 projects sanctioned during the 7th plan were abandoned by CIL and substantial amount (ranging from Rs. 1 crore to Rs. 12.36 crores) was spent on the 11 projects before abandonment. The reasons for abandonment are stated to be geo-mining problems, problems of land acquisition, non-availability of funds etc. Asked how so much money was spent on these projects without ensuring the availability of funds and acquisition of land; the CIL stated in a written reply:

“The total expenditure on projects sanctioned during the 7th Plan was Rs. 2386 crores. In these 47 projects the expenditure was Rs. 52.2 crores which is less than 2.5% of the total. To avoid problems arising out of delay in land acquisition, advance action proposals costing upto Rs. 10 crores are being sanctioned by Govt. for all projects costing Rs. 50 crores and above. Moreover, even for small schemes, the scheme is sanctioned by the company only when the certainty level of land acquisition is high. Fund being a constraint during implementation of project, the allocation is made on a continuous basis on prioritised projects. In doing so, sometimes those schemes sanctioned by the company for meeting the demand suffers from fund constraint.”

3.8 Enquired whether abandonment of as many as 47 projects does not indicate that something is seriously wrong in the project formulation, CIL stated in a written reply that while examining the case for 47 withdrawn projects, the following points need consideration :

- “(i) Earlier emphasis used to be on production to meet consumers’ need and economics used be considered after that. It was resumed that average viability of the industry would take care of the losses through cross subsidisation. With the change in policy now being pursued, many projects which were uneconomic have been dropped e.g. Laudoha.
- (ii) After project formulation, in a number of opencast projects land was not available. A number of projects were to be given up on this account.
- (iii) Very bad geo-mining conditions not foreseen during P.R. formulation were responsible for withdrawal of some of the projects.
- (iv) With cut in the budgetary support, it was not possible to maintain a long inventory of projects. So some of the unfavourable projects were dropped to cut down the fund requirement.
- (v) Merger with adjoining projects has also been done in some cases to facilitate economic operations.
- (vi) While remedial measures like advance action for land, power supply etc. are now being taken, it needs to be appreciated that mining is predominantly a risk investment. Some element of incertitude is inseparable from any mining venture.”

The Ministry of Coal have stated in this regard in a note as under:

“The question of deficiency, if any, in project formulation can be attributed to geo-mining conditions and associated technology problems. Geological prospecting in all these projects was carried out on traditional methods available at that point of time. Further there is always an element of uncertainty inherent in underground mining and the geo-mining conditions encountered in these mines could not have been predicted at the time of planning. The geology of the area is sometimes found to be more difficult and highly disturbed compared to what was envisaged thus enforcing changes in the plan or at time withdrawal of the project because of inadequacy of the projected technology in the changed geological scenario. Wherever possible corrective measures were taken on the basis of earlier experience and improvements have been brought in planning and implementation. With a view to streamlining the procedures and to remove the deficiency in formulation, implementation and monitoring of projects, the Ministry of Coal had circulated guidelines to all the coal companies in September, 91 in regard to improvement in the present practices of exploration, planning, appraisal implementation and monitoring of all coal projects. This was done after realising the fact that deficiencies in the

present system of project formulation need to be removed and this has also been highlighted in the instructions. Out of these 47 projects, no expenditure was incurred on 20 projects. On 16 projects, the total expenditure was Rs. 6.93 crores as on 31.3.1993. On the remaining 11 projects the total expenditure incurred was Rs. 45.06 crores (ranging from Rs. 1 crore to Rs 12.63 crores)."

3.9 Out of the 13 projects abandoned/withdrawn due to problem of land acquisition, 4 projects were underground (total expenditure incurred Rs. 0.52 crore) and 9 projects were opencast (total expenditure incurred Rs. 22.07 crores). While in case of underground projects, the expenditure incurred was on exploratory work for development, in case of opencast mines the bulk of expenditure was on equipment which have been physically shifted/transferred to other projects where these have been gainfully utilised.

CIL stated in this context that 43 out of the 47 projects were in the nature of schemes with rated capacity of 0.1 to 0.3 MTY. The balance 4 were also of 0.5 to 0.7 MTY. There was nil expenditure on 25 projects. The expenditure on 7 other opencast projects was by way of purchase of HEMM which was gainfully utilised by diversion of equipment to other projects.

3.10 A total of 274 project reports were prepared by CMPDIL since 1988-89 upto 1992-93 and the No. of sanctioned Project Reports (costing Rs. 2 crores and above) was 162 and the sanctioned capacity was 112.49 M.T./Year.

Asked about the success rate of the Project Reports formulated by CMPDIL, CIL stated in a written reply:

"Production from the 162 projects with sanctioned capacity of 112.49 M.T./Year have gradually been building up. The success rate of the projects can only be ascertained after completion of the construction of the projects as per project reports formulated by CMPDIL. Most of the projects were still under construction stage. However, during 1992-93 actual production from these projects was 37.33 M.T. against the schedule of 52.11 M.T. and thus achievement during the year was 72%.

C. Impact of Project delay

3.11 An analysis of information furnished in the Ministry's Annual Report (1992-93) regarding 58 ongoing projects costing Rs. 20 crores and above as on 31.12.92 revealed that there were time overruns from 1 to 12 years in respect of 27 projects and cost escalation ranging from 6% to 240% in respect of 20 projects. In absolute terms the cost escalation ranged from Rs. 1.36 crores to Rs. 456.94 crores in respect of these projects. Enquired whether the impact of time overrun and cost escalation of projects on the growth of coal industry was ever studied and to what

extent they have resulted in slow growth rate during the 7th Plan, CIL stated in a written reply as under:

“The impact of time and cost overrun has been studied on a regular basis and timely corrective actions are initiated to avoid adverse impact on coal productions and the overall growth of the industry. These projects under consideration produced 6.20 mt. in the terminal year of 7th Plan against the scheduled target of 17.65 mt. The investment in these projects were suitably controlled. The actual investment was, therefore, at a much lower level than the project report provision. The actual growth rate in terms of coal production during the 7th Plan was about 6% against the planned growth of 7%.”

To a query why CIL could not take timely corrective measures to avoid huge time and cost overrun in respect of these projects. CIL replied as given below:

“CIL has monitoring cells at the project level, company level and CIL level staffed with requisite nos. of senior executives of different disciplines to initiate continuous corrective actions for activities likely to cause delay of projects. In case where delay took place for reasons beyond control of the management, the efforts by CIL to arrest the slippage did not bear much fruit. The reasons of slippage of the following major projects will clearly state that the delay in most cases took place because of exceptional reasons beyond control of CIL.

Name of Projects	Reasons of slippage
1. Sonapur Bazari OC, ECL	Land & resettlement.
2. Jhanjra UG, ECL	Forest land and non-supply of spares of LW machines by erstwhile USSR.
3. Khadia OC, NCL	Acquisition of forest land in UP, MP and equipment supply from erstwhile USSR.
4. Pootkee Balliari UG, BCCL	Very adverse geo-mining condition due to faults, dykes, fires & un-systematic past working.
5. Bhalgora UG, BCCL	Very slow progress by Cemindia, the contractor for sinking new shafts.
6. Tandsi UG, WCL	Very adverse geo-mining conditions.

3.12 Details regarding certain new projects costing over Rs. 100 crores which suffered huge shortfalls in production during 1992-93 are given in the statement shown in the succeeding page:—

New projects which suffered huge shortfall in production during 1992-93

Company	Project	Grade of coal	Sanctioned cost	Cum. Expended.	Capacity (MTY)	Actual production	Date of completion	
			(Rs. in Crs)	92-93 (Rs. in Crs)		92-93	Sch.	Actual
Opencast								
ECL	1. Rajmahal Expn.	F	967	807	10.50	3.88	3/95	
	2. Sonepur Bazari	B	193	122	3.00	0.38	3/91	
BCCL	Block II	W IV	174	154	2.50	0.66	3/93	3/93
NCL	1. Khadia	E	589	432	4.00	0.70	3/94	
	2. Amlohri	E	527	423	4.00	3.46	3/93	3/93
	3. Nigahi	D,E	462	340	4.20	2.20	11/94	
	4. Jayant	D,F	375	335	10.00	7.85	3/89	3/90
	5. Kakri	E	138	121	2.50	2.08	3/91	3/93
Underground								
ECL	1. Kottadih (OC+UG)	C,B	268	150	2.48	0.28	3/98	
	2. Jganjra	C	185	222	3.50	0.69	3/94	
	3. Satgram	B	148	75	1.20	0.07	3/95	
	4. Bakulia	D	105		30.96	0.00	3/2000	
BCCL	1. Moonihih	SII to WII	132	184	1.50	0.68	3/85	3/89
	2. Pootkee Baltiari	SII to WIV	200	142	3.00	0.28	3/94	

3.13 It may be observed from the details given in the statement that in Rajmahal expansion with an investment of over Rs. 807 crores the production during 1992-93 was just 3.88 MT as against the capacity of 10 M.T. Similarly in Sonepur Bazari which has been invested with nearly Rs. 121 crores, the production during 1992-93 was as little as 0.38 M.T. against the capacity of 3 M.T. The position in regard to production in other projects cited in the statement is also the same. So far as underground projects are concerned, the situation was worse.

3.14. "Enquired about the low capacity utilisation at Dankuni Low Temperature Carbonisation Plant, CIL informed the Committee in a written reply, "As per initial projections the demand of Greater Calcutta Gas Supply Corporation (GCGSC) for the year 1993-94 is 13 ml. by ft. per day. The revised forecast of GCGSC for 93-94 is 3 ml. cft. per day. The present consumption against above projection/forecast is only 1.5 ml. cft. per day. Due to these reasons the capacity utilisation of DCC Plant is only 25%."

D. Modernisation of Coal Washeries

3.15 There are 19 operating coking coal washeries: OIL:15 TISCO: 2 and SAIL: 2 with an operating capacity of 32.19 Million Tonnes per year. The clean coal production by these washeries during 1992-93 was only 12.16 million tonnes.

3.16 Pointing out that the total operating capacity of coal washeries is

32.19 MT, the Committee enquired the reasons for shortage of coking coal for steel plants and other consumers. CIL stated in reply as under:

“There are 15 coal washeries under CIL with operable capacity 25.30 MT/yr. During 1992-93, the Washery capacity could be utilised to the extent of 17.1 MT producing 9.27 MT of washed coking coal. In 1993-94, 18.51 MT of raw coal is proposed to be washed to yield 9.72 MT of washed coal. The overall 73.2% respectively. The improvement in capacity utilisation during this year will be about 5.7%. With various modifications in the washeries in hand and improvement in supply of raw coal, the capacity utilisation will reach normal level of 80—85%.

There are constraints in production of raw washery grade coking coal in Jharia, East Bokaro & PENCH-KANHAN Coalfields because of exhaustion of easily minerable coal reserves, looking up of coal reserves under township, rivers and railways lines and occurrence of fires/spontaneous heatings. Thus, the availability of washery feed coal has decreased. Additionally, the quality of raw coal has gone down because of mechanisation, opencast mining and working of comparatively inferior lower coal seams. This has caused imbalancing in the sink/reject circuit of most of the old washeries resulting in lower capacity utilisation of the washeries (such washeries are under advantage stage of modification). The lower capacity utilisation of the washeries is also due to other operating problems in the washeries such as shortage of power and good quality magnetite etc. This has caused lower washed coal availability.”

3.17 Asked about the steps taken for making the growing requirement of coking coal for steel industry. CIL furnished the following information:—

(i) A Technical Group was constituted by the Department of Coal under the Chairmanship of Dr. V.A. Altekar, to prepare a crash programme and suggest steps to be taken to ensure supply of washed coal of $17 \pm 0.5\%$ ash to steel plants. The Technical Group submitted its report to the Govt. in October, 1986 suggesting various measures, both short term and long term to be implemented in the existing washing washeries of ECCL and CCL.

Altekar Committee recommendations broadly included installation of deshaling plants, finer crushing of coal and addition of fine coal beneficiation section in the existing washeries. Short term measures have already been completed and long term measures are in advance stage of implementation and expected to be completed in phases by July '96. After completion of these modification schemes, the performance of the washeries will improve in terms of quality and quantity of washed coal resulting in reduction of import of coal.

(ii) An Export Committee to review the requirement and availability of metallurgical coal for steel plants was constituted by Chairman,

CIL in July 1989 with Shri KSR Chari, former Secretary (Coal) as Chairman and members from SAIL, CFRI and CIL. The Committee submitted its report in Oct. 90. The broad recommendations of this Committee included expeditious completion of the modification schemes in the existing washeries as per Altekar Committee recommendations, utilisation of Low Volatile Medium coking coal for metallurgical purpose, (which was not acceptable by steel plants so far), better recovery of the coal with low ash and increased use of Assam coal. The various recommendations of this Committee are being implemented by CIL. The outcome of these efforts will be visible in the near future.

3.18 Arising out of the recommendations of the Expert Committee headed by Dr. V.A. Altekar which had submitted its report in 1986, the work of modernisation of 10 existing coking coal washeries (6 in Bharat Coking Coal Ltd. and 4 in Central Coalfields Ltd.) was taken up. The implementation of short-term measures have been completed in all the washeries. The implementation of short-term as well as long-term measures have been completed in two washeries, namely, Moondih Washery of Bharat Coking Coal Ltd. and Swang Washery of Central Coalfields Ltd. In the remaining washeries, the implementation of long-term measures is in progress.

Asked about the reasons for delay in implementation of these measures, CIL indicated the following:

- (i) Delay in finalisation of appropriate technology, selection of equipment and agencies,
- (ii) Shortage of required funds in the initial period,
- (iii) Delay in finalisation of tenders due to wide variation in different quotations and delay in submission of desired information by the tenders,
- (iv) In few cases delay on the part of the contractor due to various constraints at their end,
- (v) Modernisation of Patherdih Washery held up due to disturbance in ex. USSR countries.

3.19 According to the Ministry of Coal, Dr. V.A. Altekar Committee's recommendations were accepted for implementation in the year 1987. A detail action plan was drawn for different activities to be completed at different times extending to December, 1990.

3.20 The Scheme/sub-schemes forming various components of recommendations of Technical Committee (Altekar Committee) are approved & implemented at subsidiary Company level. As such the progress of implementation of these schemes is being reviewed by the Board of Directors of Subsidiaries i.e. BCCL & CCL.

3.21 According to the Ministry the last review of the implementation of

the 'Altekar Committee' recommendations was undertaken by the Ministry in December, 1990. Coal companies were directed to complete all activities by March, 1995 after making necessary arrangements for funds.

The requirements of coking coal by Steel Industry during the 8th and 9th plan periods is stated to be as under:

				(in million tonnes)
1994-95	1995-96	1996-97	2001-02	
19.81	21.22	21.39	22.79	

The requirement of coking coal is projected to go up by about 31% in 1996-97 and 39% in 2001-02 over that of the actual consumption of 1992-93.

Coking coal dispatches to SAIL during the last four years were as follows:

1989-90	—	8.68 MT
1990-91	—	8.57 MT
1991-92	—	9.11 MT
1992-93	—	9.63 MT

3.22 Govt. have amended the Coal Mines Nationalisation Act which enables participation of private sector in construction of coal washeries. The Ministry of Coal stated in this connection as under:

"Setting up of washeries by private entrepreneurs on the basis of own/build/operate' is being encouraged. CIL could ensure availability of raw coal, land and water. Clean coal and other products produced in such washeries would then be handed over to CIL. This is likely to induce outside investment in the coal sector which will have the effect of reducing the strain on the resource position of the nationalised coal industry."

E. Modernisation of Rescue Services

3.23 In underground coal mining, very process of mining creates conditions which are conducive to self oxidation of coal. This self oxidation, in certain situations, may result in heating and in turn to fire. The occurrences of fires, therefore, cannot be totally ruled out in coal mining operations, but can certainly be minimised and controlled.

Fires in mine premises can be divided into different classes. There are fires at the pithead that affect the safety of the men in the pithy by reason of the fumes sucked into the downcast shaft or by interruption of the normal up-and-down traffic. In underground there are fires that develop in inaccessible places from spontaneous combustion of coal debris and others that are started in the mine working usually by some failure to plant. The danger to life contact with the fire itself is small. The poisonous products of combustion are the real hazard because, invariably, the air passing

ugh a fire zone is made fatally toxic long before it is so depleted oxygen by the fire that it is irrespirable.

3.24 Table below gives major accidents (involving 4 or more fatalities) due to explosion or outbreak of fire for the period being 1952 till 1993. This 40 years period is divided in two equal parts i.e. 1952 to 1972 and 1973 to 1993.

No. of Fatalities.	1952—1972 (Pre-Nationalisation period)	1973—1993
	514	127

3.25 During the period 1973—1993, i.e. in twenty years of Nationalisation, the total number of fatalities are less than 25% compared to the twenty year period prior to nationalisation.

At the time of nationalisation of coking coal mines in 1971, there were 70 active fires in 42 collieries of Jharia coalfield, covering an area of 17.32 Sq. Kms. It has been estimated that about 1864 million tonnes of coal reserves are blocked and about 37 million tonnes of coal might have been damaged due to these fires. Efforts made so far dealing with these fires could only prevent the spreading of fires barring a few exceptions but complete extinction of fire in most of the cases was not possible. Only 5 fires have been completely extinguished so far. According to Ministry of Coal, thus it has become necessary to seek assistance from the foreign countries where suitable technologies available for complete extinction of Jharia fires so that the extraction of coal in and around the fire affected area could be possible.

3.26 Total amount sanctioned for the schemes for dealing with Jharia Coalfield fires is Rs. 114.57 crores out of which a sum of about Rs. 73 crores has already been spent in fire fighting measures which include the cost of dealing with not only extinguished/controlled fires but also measures taken to avert the spread of fires which are already on. In view of seriousness of the problem of fires in Jharia Coalfield and the difficulties coming in the way of extinguishing these fires with the available methods/technologies. Government have been exploring the possibility of financial as well as technical assistance from various multilateral and bilateral agencies to deal with the problems of fire in Jharia Coalfield. The World Bank (International Development Association) has provided a credit amount equivalent to Special Drawing Right 8.6 million (U.S.\$ 12.00 million) under the Jharia Mine Fire Control Technical Assistance Project which aims at a detailed diagnostic study for dealing with Jharia Coalfield fires.

3.27 "Several areas in Raniganj Coalfields and Chirmiri Coal belts are stated to be getting ravaged by underground fires mostly

originated by subsidence. The quantity of coal reserves blocked and the extent of coal damaged have not been estimated so far.”

3.28 One of the principal objects of nationalisation of coal mines has been scientific mining with safety of the miners. The record of safety is reflected in the following table:

	CIL			SCCL		
	1973	1992	1993	1973	1992	1993*
(a) Rate of fatalities per million tonnes of output.	2.05	0.69	0.57	N.A.	1.28	1.26
(b) Rate of serious injuries per million tonnes of output	17.30	2.20	1.98	N.A.	12.95	10.97

*Figures of 1993 are provisional.

3.29 Referring to the fatal accident of Mahabir Colliery of ECL on 13.11.89, the Committee enquired as to what action has been taken against the officers found guilty by the Court of Enquiry. The Ministry in their reply stated as follows:

“The Court of Enquiry was of the opinion that the fatal accident was due to culpable negligence on the part of S/Shri Mohd. Kalim, Agent-cum-Manager, P.L. Banerjee, Safety Officer and N. K. Dutta, Assistant Manager.

Shri P.L. Banerjee, Safety Officer of Mahabir Colliery was shifted to a new incline being developed at Amrasota before the findings of the Court of Enquiry were known. He has been transferred to No. 3 Pit Kunustoria Colliery to work as Assistant Manager.

Director General of Mines Safety has launched prosecution against these officers in the Court of SDJM Asansol. Management is, therefore, unable to take any further action against these officers as the matter is sub-judice.”

3.30 One of the decisions taken by the Standing Committee on Safety in coal mines under the chairmanship of Minister-in-charge of coal at the meeting held on 6.7.93 is that a Safety Officer found guilty or against whom an enquiry into a mine accident is pending should be avoided for posting to higher responsibilities. It is, however, observed from the above information furnished by the Ministry that one Safety Officer who was found guilty of culpable negligence which resulted in the fatal accident in Mahabir Colliery has been transferred to another colliery as Assistant Manager.

3.31 A fire broke out in the underground working of New Kenda Colliery of ECL (Raniganj Coalfield) on 25.1.94. About 500 workers were reportedly working in the mine at that time, out of whom 445 miners came out safely and the remaining 55 miners who were trapped inside were dead. The exact cause of the accident is yet to be ascertained. The Ministry of Labour, Govt. of India, has constituted a Court of Enquiry to go into the causes and circumstances leading to the accident. However, in the Coal Mines Regulations 1957, the actions to be taken to prevent any occurrence of fire underground have been laid down and it is required to be followed by every Mine Management. CIL has issued instruction that these provisions be strictly complied with. Special Safety Audit of each underground mines has also been started by teams constituted for this purpose in every company. Necessary precautions will be taken on the basis of the recommendations of the Audit Teams.

3.32 Asked whether CIL is satisfied with the present level of safety measures adopted by coal mines, CIL stated that comparison with the available statistics of other countries reveals that the fatality rate in India per million man shift which was at 0.24 in 1991 or per thousand persons employed in the mine compares favourably with the advanced countries like Germany and USA where it was 0.30 and 0.35 during this period.

CIL further stated in this connection as under:

"No doubt, every effort should be made to achieve zero accident potential. We must compliment our work force for achieving the production targets with a comparable safety record of advanced countries with the infrastructure available to them which can in no way be compared with these advanced countries of the world."

CIL also stated that ECL and BCCL which have more than 50% of total manpower in CIL and produce only 24% of the production account for maximum number of accidents which raises the issue of rationalisation of work force and impact of over-staffing in the pits.

3.33 CIL stated in a note that it took over, in 1985, the rescue Stations in different coalfields from erstwhile Central Coal Mines Rescue Station Committee. Subsequent to take over, CIL constituted an Expert Committee (N.R. Mitra Committee) to suggest comprehensive plan for modernisation of Rescue Services of CIL. Government of India, in 1988, constituted a Committee (V.S. Dubey Committee) for suggesting broad types of major rescue apparatus and equipment to be procedure for meeting the requirement of coal industry. Based on the recommendations of these Committees detailed plan for expansion and modernisation of Rescue Services within CIL were drawn up for implementation. Modernisation Plan in short, constituted of:

- (a) Construction of 4 new Rescue Stations (RS) (Ramgarh, CCL, Nagpur, WCL, Manindragarh, SECL and Brajrajnagar, MCL),

18. Rescue Rooms with refresher training facilities (RRRT) and a Rescue Room (RR) and modification of 2 existing Rescue Stations.

- (b) Equipping these Rescue Stations with modern equipment and Accessories.
- (c) Upgradation of training facilities by providing modern training galleries suitable for imparting comprehensive training relating to specific problem faced by rescue teams during actual rescue/recovery work.
- (d) Manning of Rescue Services.

3.34 Progress of Modernisation of Rescue Services in CIL

- (i) 4 New Rescue Stations (RS), 11 Rescue Rooms with refresher training facilities have been established and made operational.
- (ii) Old Rescue Station at Dhansar has been modified as per modernisation plan.
- (iii) Modern training galleries have been provided at all newly constructed Rescue Stations and RRRT and also at modified RS at Dhansar.
- (iv) 510 nos. modern type of Self-Contained Breathing Apparatus and accessories like pump testers have been procured and distributed to different Rescue Stations/RRRTs.
- (v) 51 nos. modern type of reviving apparatus have been procured for Rescue Station.
- (vi) Personal paging system for permanent Brigade Members have been introduced at Nagpur RS.
- (vii) All the Brigade Members of Rescue Station and field volunteers have been already trained in the use of Chemical Oxygen type Self-Rescue. 500 nos. of SGSR have been provided to Rescue Stations and U/G mines of different subsidiary Companies.
- (viii) The staffing pattern and ultimate requirement of post of executives for manning rescue services have been approved by CIL Board and circulated to companies for implementation.

Introduction of Large dia Boring machines for emergency rescue operations is a new concept in Indian Coal Mines. CMPDIL is in the process of procuring these machines from abroad.

F. Resources for Modernisation

3.35 The total plan outlay for VIII Five Year Plan approved by Govt. for Coal India is Rs. 8520 crores. The break-up of this amount is as follows:

	Rs. Crores
(a) On-going projects	5316.20
(b) New Projects	321.80
(c) Outlay in existing Mines (Replacement etc.)	1524.27
(d) Outlay on non-mining projects/units (Washeries, Exploration and infrastructure etc.)	1247.73
(e) CMPDIL, Dankuni Coal Complex and CIL Ltd.	111.00
Total	8521.00

Sources of financing this amount have been identified as under:

	Rs. Crores
(a) From internal	4476
(b) Realisation of old sales dues from SEBs	547
(c) Bonds	2000
(d) Supplier's Credit through Foreign Collaboration	342
(e) Budgetary support including foreign Aid/Loan to be received through Govt.	1155
Total	8520

3.36 Asked about resource mobilisation for the 8th plan, the Chairman, CIL stated during evidence:

"obviously this kind of plan size of over Rs. 8000 crores has to be funded through different steps, a mix of various sources. For example, we are posting some projects for the World Bank funding. I hope, we will continue to make profit in the second year continuously. From Exim bank also, we have asked for more funds. Under bilateral efforts, agreement we are negotiating with Canada. The Chinese have shown interest of late and they are coming for some investment.

Then, we have the suppliers who have said that they are able to procure loans at a very nominal interest rate from their banks abroad and fund sale of their machines. They say, "We can wait for the payment till the machine is proved good." Another possibility is joint venture with companies from Australia and U.K. who are showing interest. Then, we have private investors in coal washeries. We have

received responses from 42 parties for a system called built-operate and transfer or build-own-operate and trade.”

Enquired whether and shortfall in mobilisation of resources is expected, the witness said:

“Since there will be difficulty in selling the bond, a gap of Rs. 2000 crores may be there.”

3.37 Total outstanding coal sale dues of CIL as on 31.12.93 was Rs. 3628 crores. Outstanding dues against Power Sector was Rs. 2940 crores. Outstanding dues against other departments are as follows:

Departments	(Rs. crores)
1. Railways	64
2. Steel	416
3. Other Govt. Deptts.	114
4. Others	94
	688

3.38 The main reason behind increasing trend of outstanding dues has been the due to Power Sector which holds 81% of the total dues as on 31st Dec. 93.

Enquired about the steps taken by CIL to recover these dues, CIL stated in a note as under:

“Cash and carry system for supply of coal to Power Sector with exception of BTPS, DVC, West Bengal Power Units and NTC was introduced with effect from Oct., 1991. Initially this measure proved quite effective but gradually, the cash and carry system ceased to be effective and outstanding dues started mounting up once again due to reason beyond CIL’s control. This dues from power sectors increased to Rs. 2400 crores in 1992-93 with further increase to Rs. 2940 crores as on 31.12.93.”

CIL, further elaborated on the steps taken to recover old dues from power sector as follows:

“Earlier when coal sales dues with power sector increased to a peak of Rs. 1963 crores as on 31st May, 1990, Govt. of India had to intervene and it was decided to help CIL to realise the undisputed dues receivable from SEBs as on 31st May, 1990 by recovery through Central Plan Fund Assistance to respective States. This recovery was

made by four annual equal instalments, last being recovered in the financial year 1993-94. While this intervention helped to recover the old undisputed dues as on 31st May, 1993, current dues for coal supplies continued to accumulate in respect of power utilities. All efforts and interaction at company level and CIL level and MOC level for recovery of outstanding dues could not yield desired results nor CIL could suspend supplies to the major defaulting consumers in the power sector for the greater interest of the nation for uninterrupted generation of power.

In order to obviate further increase in disputed outstandings on account of quality and weighing, a decision was taken by the then Minister of Energy on 22.12.86 for sampling and analysis at the loading point. Further in a meeting of concerned Secys. to the Govt of India taken by MOS (Coal) on 17.12.91, it was decided that sampling would be done at the loading end only and Coal Controller's Organisation would organise sampling at the loading end. This decision is yet to be adhered to by the most of the power houses who have been continuing with the unilateral sampling at destination end resulting in accumulation of disputed dues. Coal India being exposed to serious financing crunch with the withdrawal of budgetary support, has proposed liquidation of reconciled undisputed dues as on 30.9.93 for recovery through Central Plan Fund Assistance as was done by Govt. of India earlier."

3.39 The investment (Equity plus outstanding loan, overdue interest and principal amount) by the Government in CIL and its subsidiaries as at the end of the year 1992-93 was Rs. 11,378 crores. This amount includes budgetary support of Rs. 10,486 crores given to the Coal companies till 31.3.1993. The accumulated loss of CIL and its Subsidiaries at the end of the year 1992-93 was Rs. 2094.

3.40 The paid up Capital, net Profit and percentage of net profit to paid up capital of CIL during the last three years were as follows:

	Paid up Capital as at end of the year	Net profit before Tax	% of net profit to paid up capital
	Rs. in crore	Rs. in crore	
1990-91		(-) 253.17	—
1991-92	6000.76	167.07	2.78%
1992-93	6097.85	291.27	4.78%

The break-up of profit earned by CIL during 1992-93 is given below:

Operating Profit	(Rs. in crores)		
	O.C. Operation	U.G. Operation	
(i) On coal production	1385.87	(-) 929.06	456.81
(ii) On other operations, washeries, Hard coke, Soft coke, LTC plant Dankuni, etc.			(-) 104.17
			Financial Adjustments (-) 61.37
			Net Profit 291.27

It may be observed from above that CIL is making profit only from O.C. operation and is incurring heavy losses in U.G. operations, washeries, etc.

3.41 The pit-head price of coal is fixed by Central Government under the Colliery Control Order, 1945. The prices are fixed on the basis of detailed study made by the Bureau of Industrial Costs and Prices (BICP). Since December, 1991, Government has decided to allow annual updation of coal prices to compensate increase in prices of inputs on the basis of escalation formula prescribed by BICP. The prices of coal of Coal India Ltd. as well as Singareni Collieries Company Limited were last revised with effect from 18.6.1993. The revised average price of coal is Rs. 381 per tonne for CIL and Rs. 452 per tonne for SCCL.

3.42 Asked about the break up of profit attributable to increase in price of coal and improvement in efficiency, CIL stated in written reply as follows:

“CIL has earned profit of Rs. 167.07 crores in 1991-92 and Rs. 291.27 crores in 1992-93 due to efficiency as well as price revision. The contribution of efficiency can be assessed by comparing the actual cost of production during the year with the normative cost updated to middle of the year by BICP formula. In other words efficiency has resulted in containing the actual cost of production during 1991-92 and Sept. 1992 respectively. The difference between normative and actual cost multiplied by the net saleable coal production during the year is a measure of contribution of efficiency to profit, the balance being attributable to price revision.

On the above basis, contribution from efficiency leading to containing cost within the normative cost updated on BICP formula works out to Rs. 120 crores for 1991-92 and Rs. 248 crores for 1992-93.”

Explaining the basis for fixation of coal prices presently CIL stated:

"In 1985-86 the Govt. commissioned BICP to have an indepth study of the cost of production and related issues of Coal Industry. After a detailed study the BICP brought out its report recommending a base price linked to normative efficiency and normative cost and also suggested an escalation formula for updating the price from the base price. BICP has again been commissioned by the Govt. for another indepth study on Coal Industry and presently BICP is in the process of carrying out this study."

According to Ministry of Coal, huge accumulated loss mainly arising from delay and inadequacy of coal price in the past is posing problem for CIL's raising resources.

3.43 Enquired whether any proposal for decontrol of coal prices and distribution is under consideration of the Govt., the Ministry of Coal stated in a reply as under:

"BICP, who have take up a study of the coal industry, in their interim recommendations have recommended decontrol of prices of coking coal and some grades of non-coking coal. This recommendation of BICP is under consideration of Govt."

When pointed out that there is disproportionately high capital investment having regard to project requirements, CIL stated in a written reply as under:

"The project reports are formulated with due care and examined scrutinised at various levels of Subsidiary companies, CIL Board, Inter-Ministerial Group, Public Investment Board etc. and approved only after various aspects of investment and costs are checked and found in order. The investment and related production programme also under go scrutiny at various levels upto Planning Commission at the time of formulation of Annual Plan every year when project-wise production and investment plans are firmed up for a particular year. As such the question of disproportionate investment is not correct. However, there were a few instances in the past when coal projects were sanctioned in the larger interest of the nation even though they were not economically viable as coal is the primary source of energy in the country."

IV. GROWTH OF PRODUCTION AND PRODUCTIVITY

A. Growth rate of production

The projected annual growth rate of production in respect at CIL during the 8th plan is only 5.75% as against the average annual growth rate of 6.42% during the 7th plan. The All India growth rate of production is also expected to increase only at 6.08% during the 8th plan as against the actual rate of 6.38% during the 7th Plan. Asked for the reasons for sharp decline in the anticipated growth rate during the Eighth Plan, CIL stated as under:

“The future growth of coal industry is essentially contingent upon the projected demand of the various consuming sectors. The growth plan envisaged by the Planning Commission for the coal industry during the VIII Plan was based on the estimated requirement of coal by different consuming sectors during the terminal year (1996-97) of VIII Plan.”

All India coal production has grown from 75.6 M.T. in 1971-72 to 238.11 M.T. in 1992-93 and to 246.04 M.T. (actual) in 1993-94.

4.2 When enquired in this connection, whether any plan has been drawn by the Ministry to promote coal utilisation in view of acute shortage of other forms of energy like power and petroleum, the Ministry of Coal stated in a written reply as follows:

“Some tentative projections for coal and lignite have been indicated by Planning Commission which are given as under:

1996-97	331.00 mt (Target)
1999-2000	348-385 mt (Projected)
2009-10	545-658 mt (Projected)

Ministry of Coal shall be drawing the future plans in accordance to the needs indicated by the Planning Commission for the coal sector.”

4.3 The annual coal production targets are decided by the Ministry of Coal based on the demand of various coal users in consultation with Planning Commission. The following table gives the projected demand, existing production capacity, production targets and actual production during 1991-92 and 1992-93:

Particulars	1991-92				1992-93			
	CIL	SCCL	Other	Total	CIL	SCCL	Other	Total
Projected Demand	201.20	—	—	245.00*	217.82	—	—	258.10*
Production Capacity	223.69	22.96	4.50	251.15	227.98	23.95	4.80	256.73

1	2	3	4	5	6	7	8	9
Production Target	203.00	20.50	4.50	228.00	210.00	23.40	4.80	238.20
Actual Production	204.14	20.58	4.56	229.28	211.19	22.51	4.53	238.23
**Actual Off-take	198.40	20.59	4.57	223.56	208.00	22.29	4.48	234.77

* Excluding washery middlings.

** Excluding washery middlings & imports.

It may be observed from the above table that the overall off-take of coal fell short of the projected demand by 21 M.T. in 1991-92 and by 23 M.T. in 1992-93.

4.4 An analysis of information given in the Annual Report of the Ministry relating to pit-head stocks of coal shows a rising trend. The closing stock (All India) which stood at 3.377 M.T. in 1961-62, increased to 9.55 M.T. in 1970-71, and to 18.28 M.T. in 1981-82 and further to 42.56 M.T. in 1990-91. The closing stock has reached a level of 51.30 M.T. at the end of March 1993.

4.5 Regarding the production target of 1992-93 and the level of closing stocks, CIL stated in a written reply as under:

"The production targets for 1992-93 was fixed in the Annual Action Plan 1992-93 for CIL after discussion in the Annual Plan 1992-93 with Ministry of Coal and Planning Commission. The exercise for fixing the targets considered the system capacity of CIL, likely demand of coal by the consuming sector and the need to optimise the investment in view of scarce available resources. It may be worth mentioning that even with the target of 210 mt. during 1992-93 for CIL and with actual production being 211.22 mt the closing stock of coal in CIL increased from 47.25 mt during 1991-92 to 50.29 mt during 1992-93. It may be appreciated that such increase in the level of stock has its adverse impact on the economics of CIL apart from other problems like higher propensity to coal fire and deterioration in coal quality leading to increase in non-saleable coal stock and resultant loss."

The above analysis underlines the need for re-orienting the production planning. The focus has to shift from target oriented production to need based coal production providing right type of coal. This also emphasises a shift from OC mining to UG mining which is a major source for high quality coal.

4.6 It is observed from the Performance Budget of the Ministry (1994-95) that there was considerable shortfall in achieving the targets of production by ECL and BCCL, during 1992-93, against the target of 26.50 mt, the actual production by ECL was 24.05 mt. Similarly as against the assessed production of 28.10 mt. by BCCL in 1993-94, the production

was 28.30 mt. Asked about the reason for the poor production performance by ECL and BCCL, Chairman, CIL stated as follows:—

“In the eastern regions, mainly in Bengal and Bihar, where the three companies are located, we have suffered very badly for power supply. All the projects of modernisation which you undertake in these two states—mainly three companies— have had a setback at one time or the other. Even today, we do not have sufficient power and private companies have been requested to instal power station.”

B. Mix of opencast-underground Mining

4.7 Percentage of coal production prior to nationalisation from UG mines was 74% of the total compared to 26% of the OC mines. During 92-93, 73% production is from OC mines and 27% from UG mines. The total underground production from CIL has more or less remained at the same level as increased contribution from underground projects was more or less offset by drop in production from depleted taken over mines.

4.8 OC production has gone up from 17.00 mt in 1971 (All India) to 154.16 mt alone in CIL during 92-93. The UG production has remained more or less same. This is due to low cost of production of coal in OCPs, low gestation period of opening mines and larger output with use of bigger capacity HEMM equipments. In the post nationalisation era major stand of increased production came from new outlying coalfields viz. Singrauli, Korba, North Karanpura, Ib-Valley, Talcher etc. to meet the demand of power stations located near about those coalfields. These new coalfields are having thick coal seams at shallow depth which is more amenable for opencast production from the point of view of economy and conservation. Coal produced from OCPs are mainly of lower grades suitable for power generation. Rapid increase in demand of coal by power sector has necessitated increase in production of these coals from OCP having low gestation period.

4.9 Production from UG and OC mines during the year 1971 and during the last three years as under:

	U/G	O/C (in Million tonnes)	TOTAL
All India			
1971	58.6	17.00	75.6
Coal India			
1990-91	56.10	133.58	189.68
1991-92	56.63	147.53	204.16
1992-93	57.02	154.16	211.22

4.10 It may be observed from above that the UG production in 1971 was 58.6 MT (All India) which stands almost at the same level even after two decades. Asked for the reasons from static UG production in the past. CIL attributed to the following:

- (i) A large number of taken-over underground mines were very old. Many of these mines had extended beyond optimal dimension. As a result production from such mines declined gradually over the years.
- (ii) Due to exhaustion of coal reserves and because of closure due to uneconomic operation, there has been loss in production from such underground taken-over mines to the extent of about 20 million tonnes during the last two decades.
- (iii) Many of the shallow underground mines were converted to opencast for improved coal recovery.
- (iv) Chronic power shortage in the eastern region affected the underground coal production of ECL and BCCL which contribute a major share of underground production in CIL. Such power shortage has also affected implementation of underground projects in these regions.
- (v) A large number of old mines were integrated in the re-organisation projects for achieving higher production with improved technology. However, presence of multi-section development in thick seams, old water-logged workings, fire presence of built-up area with large scale habitation etc. are some of the factors which slowed down implementation of these re-organisation projects.

Where there has been steady decline in production from the old taken-over underground mines, increased contribution from the underground projects could not match with this declining trend. As a result, there has been overall decline in the underground production. However, the declining trend could be reversed since 1991.

When the Committee pointed out that there appear to be no development even with huge investments in underground mining, CIL stated as under:

"The statement that there is no development in underground mining is not correct. An underground mine can only maintain its production on development done. It is an understood feature of an underground mine as distinct from a factory, that constant feeding of Capital is necessary even to maintain production as operating area is moving further and further away or going deeper down thereby necessitating extra cost on haulage, pumping, ventilation etc. It may also be noted that presently about 50% of underground production comes from development only. Unless there was

development of underground mines/projects it would not have been possible to keep the level of underground production at the present level as there was steady drop in production from the existing taken-over mines due to exhausting of reserves/closure”.

4.11 So far, 69 new/re-organisation of UG mines (including 2 mines with part OC operations) and 62 OC mines have reportedly been sanctioned by the Govt. since nationalisation upto 31st March, 1994 in CIL.

To a query whether deterioration in quality of coal is attributable to large scale OC mining, CIL stated as under:

“Post-nationalisation period witnessed a sudden rise in the demand of power grade quality non-coking coal from the power sector which had adopted the boilers to accept such quality of coal. A large number of OC mines, therefore, had to be planned and implemented. The underground mining which dominated the scene during pre-nationalisation era could not have matched such growing need of power sector, the demand of which in the country has increased from a level of 16.43 million tonnes (21.2% of total consumption of 77.34 mts) during 1973-74 to 147.00 Mt. (60% of total offtake of 241.70 Mt.) during 1992-93.

In the post-nationalisation period, mining activity was concentrated mostly in new coalfields e.g. Singrauli (NEC), Korba (SECL), North Karanpura (ECL), Rajmahal (ECL), Ib Vally (MCL), Talcher (MCL) etc. to meet the demand of power stations which are located in and around such coalfields. These coalfields mostly possess inferior grade coal in thick seams at shallow depth. In such situation opencast mining is more appropriate from the point of view of economy and conservation. Moreover, quick growth in coal production to meet fast increase in coal demand of power sector also necessitated more concentration on opencast mining.”

Regarding extractable coal by OC/UG Mining, the Ministry stated as follows:

“As per an exercise carried out by CMPDIL out of total geological reserves of 193 billion tonnes about 30838 mt. are in the proved category. Out of this proved reserves about 44% (13626 mt.) are extractable by opencast mining and 56% (17212 mt.) are extractable by underground mining.”

4.12 Enquired about the level and cost of underground coal production in China and Australia, the Ministry stated as follows:

“China is producing about 1100 mt. of coal over 95% of which comes from underground mines. However, cost data of Chinese mines is not available. In case of Australia, not only its overall production is less than that of India, share of underground and

opencast that of India, share of underground and opencast production is also not much different than that of India. However, underground mining is totally mechanised in Australia. While the cost figures are not available, the current FOB coal prices for non-coking coal from Australia are in the range of US \$ 24-36 (Approx. Rs. 744-1116) and may be used as an indicator of likely cost of production."

4.13 The broad estimate of the share of opencast and underground mining in some of the major coal mines producing countries in the world is indicated in the table below:

Country	% of opencast production	% of underground production
(i) China	5	95
(ii) U.S.A.	50	50
(iii) CIS	45	55
(iv) Poland	—	100
(v) Australia	70	30
(vi) Germany	—	100
(vii) S. Africa	35	65
(viii) U.K.	10	90

The underground production of coal by CIL which was 59.13 mt. in 1980-81 slowly come down to 57.06 mt. in 1992-93.

C. Equipment Utilisation

4.14 The details of major equipment presently on the rolls of Coal India Limited are given below:

OC Equipment		Underground Equipment	
Dragline	37	PSLW	14
Shovel	854	Road Header	54
Dumper	4088	SDL	495
Dozer	1033	LHD	44
Drill	745		
	6757		607

4.15 At current prices replacement cost of these equipments is estimated at Rs. 9000 crores. Practically all equipments purchased and used in the industry are of indigenous origin and are primarily supplied by major manufacturers like HEC, Jessop, MAMC, BEML etc. Besides, important private sector companies in India also supply equipment of various types

like drills, cables, etc. However, Coal India Ltd. has been obliged to import few equipments from abroad either because of the geo-technological compulsions or because of the conditionalities in the bilateral 'technical' and credit agreements concluded with different foreign organisations/countrys. Under these agreements, Longwall sets have been imported from U.K. and France, Shovels, Drills and Dumpers have been imported from Russia and some equipments have also been imported from other countries like Poland, Germany etc. Coal India has a Plan of Action for indigenisation of such equipments which are presently being imported or in respect of imported equipment in use. This also includes designation of imported spares and critical items.

(A) Opencast Mining Equipment

4.16 Utilisation of equipments are compared against the norm developed by CMPDI. The utilisation percentage of various types of equipments in 1992-93 against the CMPDI. Norms are indicated in table below:

	Norms in % utilisation	% achievement of norms
Dragline	73	92
Shovel	58	63
Dumper	50	51
Dozer	45	56
Drill	40	60

4.17 Asked about the reasons for utilisation being below the norms and to what extent these were beyond the control of CIL Management, CIL indicated in a written reply, the following:

- (i) "The quality of indigenous equipment manufactured by various manufacturers like BEML, HEC, HM etc. have come down drastically which results frequent breakdown of the equipments during operation.
- (ii) Life of various assys/sub-assys have come down-requiring frequent replacement of those assys-example low life in engine, undercarriage, differentials etc.
- (iii) High cost of repairing/change of assys/sub-assys resulting inadequacy of budget provision.
- (iv) Delay in getting matching spares both indigenous and imported.
- (v) Restrictions in blasting due to presence of areas.
- (vi) Difficult operational practices over developed seams.
- (iv) Non-availability of skilled manpower.
- (viii) Power shortage, specially in the eastern region.

(ix) Law & Order problems specially in the eastern region.

4.18 According to Ministry of Coal, since last two years Coal India has consciously tried to reduce the purchases of new equipment and to concentrate on not only higher utilisation of existing equipment but also on expeditious rehabilitation of equipment on rolls, but not in use. During 1992-93, as per this programme, CIL rehabilitated 42 Shovels, 404 dumpers, 97 Dozers, 36 Drills, 70 Loaders and other equipment (total 649). During 1993-94, the programme is to rehabilitate 47 Shovels, 419 Dumpers, 101 Dozers, 59 Drills, 73 Loaders and other equipment (total 699).

4.19 Enquired about the reasons for a large number of equipment gone out of operation, CIL informed in a written reply,

"The reliability of HEMM manufactured indigenously have not reached upto expectation level. In large variety of equipment the quality standard is still below expected level. Frequent breakdowns of such equipment and non availability of matching parts in time to rehabilitate/repair of such machinery in time is the major reason for equipment going out of Commission."

4.20 CIL further stated that the opencast mining had expanded rapidly since nationalisation and the technical backing support including training need could not be matched with the growth of production.

(B) Underground Mining Equipment

4.21 Powered Support Longwall Technology (PSLW) has proved highly productive in coal producing countries. However, the performance of PSLW faces have not been upto the expectations in India.

4.22 It was observed from the information by the Ministry that out of 15 longwall faces established by CIL during the period 1978 to 1992 with a capacity of 9 Mt. at a cost of over Rs. 197 crores, one set has been surveyed off and two more sets have out-lived their useful life. There are only 12 sets available for operation.

4.23 Actual production from PSLW faces in 1990-91, 1991-92 and 1992-93 are given below:

(In Me. Tes.)

	1990-91		1991-92		1992-93	
	Target	Actual	Target	Actual	Target	Actual
Nos.	2.69	1.98	1.99	1.93	1.65	1.47
Nos. of faces operated		9		8		6
% Achievement facewise		74		97		89

4.24 Regarding availability of PSLW for operation, CIL stated as under:

“The very nature of longwall mining equipment and operations require that whole compliment of equipment has to undergo major overhaul after certain period. On an average 3 sets are always under major overhaul and repairs leaving effectively only 9 sets. Further, some of these sets have been badly crippled due to following:

— two sets procured from erstwhile USSR due to disruption in supply of spares and after sales services (efforts have been made to get necessary spares directly from suppliers and also to develop indigenous source of supply).

— One set badly damaged due to unprecedented face collapse now necessitating major investment for rehabilitation.

Therefore, there are not more than 6 sets under operation at any one time.”

4.25 Referring to the information regarding utilisation of Longwall faces the Committee enquired whether the CIL considers it as a satisfactory performance. The Chairman CIL, stated during evidence in reply:

“Even 20 years after nationalisation, so far we have not been able to satisfactorily employ this technology in coal industry for various reasons. We have adopted this both in Raniganj and in Jharia. Now, thousands of millions of tonnes of coal is standing still on pillars. First they get fire and then it is full of water and then, we have all the other risks. Therefore, total mechanisation scheme of underground mining in India is challenging task. I would say that we have been trying to bring it from other countries because here, the roof conditions fail us. China and Russia have very strong roof structure and they have also agreed to give turnkey guarantees. In the conditions in which we are placed today, we have not been able to try and succeed though we have seen that our engineers and technicians are second to none in the world.”

4.26 Regarding the reasons for poor performance of technology, the Ministry of Coal stated in the note as under:—

- (i) Within a very short span of time, a number of longwall faces, mainly from U.K. sources, were procured and installed in absorbing any new technology, there is a learning period and there is need for development of proper work culture. In this particular case, apparently the time span was too short.
- (ii) At the particular point of time, the norm of exploration was suited to existing method of mining. Available exploration data was not adequate to identify intrusions existing in the coal seams, small faultfolds and such other geological disturbances which had adverse effect in working of longwall equipment.

- (iii) To meet the quick growth in production, available resources were mainly diverted to opencast operations rather than on underground operations as this was expected to yield the results in short gestation period.
- (iv) To obtain effective utilization of the longwall equipment, timely supply of spares is a necessity. Due to import restriction, GDTD clearance, foreign exchange release etc., there was delay in importing the spares from other countries. This has caused time and cost over-run.
- (v) There was a stress on indigenisation, but, there was lot of delay in developing the sources capable of supplying the required spares. This has also affected the operation of the longwall equipment.
- (vi) The indigenisation was assigned mainly to the public sector undertakings like JESSOPS and MAMC. They had their own difficulties in meeting the requirement of the coal industry.
- (vii) In 70's and 80's there was acute power problem particularly in BCCL and ECL, where these longwall equipment were mainly deployed. This has affected the operation of these equipment very badly giving rise to inadequate performance at the initial stage of operation of different sets affecting in the development of confidence building.
- (viii) As the existing manpower was having no or very little experience in mechanisation, the longwall operation was affected adversely giving rise to unsatisfactory performance.

4.27 As regards steps taken to improve the performance of longwall technology, the Ministry stated as follows:—

- (a) More detailed exploration and study are being done finalising the site and type of equipment.
- (b) The nature of the strata and the coal seam is being examined in more detail.
- (c) Higher capacity equipment is now selected to suit the Indian conditions.
- (d) Stress has been given on the development of spares indigenously and also for timely procurement of imported spares.
- (e) Special training institute have been established for imparting training in longwall.
- (f) Task force has been formed for interacting with the indigenous manufacturers for development of the equipment as well as the spares.

4.28 Enquired about the execution of performance guarantees by equipment suppliers in respect of PSLW projects, CIL stated as under:—

“For equipment procured before 1985 (7 nos.), no performance guarantee clause was incorporated in the supply Orders.

For Moonidih (KOPEX, Poland) and Churcha (UK), CIL has not released the Performance Bank Guarantees due to failure of the equipment to perform.

KOPEX, Poland has been requested to perform the guarantee test as per contractual provision at the earliest.

For Churcha equipment, ODA (*UK) have agreed in principle for renovation of the equipment at their cost for its redeployment in Jhanjra mine. Further detailing of the mode renovation is expected to be finalised.”

4.29 The Capacity utilisation achieved during the last 3 years in respect of SDL and IHD was as given below:—

Year	Prod. (Mt)	Productivity achieved per/machine/day on roll
1990-91	10.903	71.36
1991-92	9.243	69.86
1992-93	6.848	72.17

Asked about the reasons for low capacity utilisation; CIL stated that capacity utilisation for SDLs & IHDs varies depending on seam thickness, gradient and other geomining conditions.

D. Closure of uneconomic mines

4.30 The number of mines closed since nationaliation is 89. Most of the mines are closed/work temporarily suspended due to either exhaustion of coal reserves in the working seam, exhaustion of quarriable reserves nonviability uneconomic condition, difficult geo-mining condition or due to flooding or fire from the adjoining mine. Some mines were amalgamated/reorganised into bigger mines and few were closed due to unsafe conditions.

4.31 Enquired about the actual left over reserves in the closed mines, the Ministry stated:

“Generally speaking there are no mineable reserves in closed mines. Information about actual left over reserves in these mines is not available with coal companies.”

To a query whether the surface lands of closed mines have been returned to the respective state Govts., the Ministry stated.

“As per available information, no such lands acquired under the Coal Bearing Areas (A&C) Act, and the Land Acquisition Act have so far been returned to the respective State Governments, since the Acts do not provide specially for denotification of land acquired for coal mining purposes. The question of providing for denotification of acquired land which are no longer required for coal mining purposes is being examined by Government. It may, however, be stated that lands acquired for opencast mining are proposed for allocation for compensatory afforestation, after mining activities are completed and excavated lands are suitably refilled by overburden removed earlier in the mining process.”

4.32 The Committee desired to know whether illegal mining is undertaken from abandoned pits, inclines, etc. if so, the extent of illegal mining and the steps taken to deal with this problem. The Ministry of Coal stated in reply that control of illegal mining of coal in Eastern region (States of West Bengal and Bihar) has been receiving attention of coal companies and Central Govt. for some time. The sites for illegal mining generally cover Damodar river bed exposures, outcrops and abandoned/closed opencast and underground mines. Illegal mining by its nature being a stealthy operation its quantification is not feasible.

4.33 The Ministry of Coal stated that the following strategies have been adopted to deal with illegal mining:

- (a) For command areas of ECL/BCCL/CCL (within their leasehold areas)
 - (i) Amalgamation/Reorganisation of existing units, thereby annexing such locations of illegal mining into the working mines for ease of operation, concentration of production, better supervision and control and planned exploitation of reserves.
 - (ii) Flooding of the abandoned workings.
 - (iii) Sealing off/bull-dozing of mine entries and exposed coal.
 - (iv) Providing effective fencing.
 - (v) Dumping of overburden over exposed coal.
 - (vi) More vigilance, alertness and increased frequency of raids by CISF, etc.,
 - (vii) Lodging of FIRs under section 30 of Coal Mines (Nationalisation) Amendment Act and section 21 of the MMRD Act rather than section 379, 411 of IPC and section 7 of EC Act.
 - (viii) Approach Govt. for suitable modifications of Labour regulations

to enable using hired HEMM where reserves and locations do not justify deployment of departmental resources.

(ix) Establishment of special task force at Area level for implementation of the above noted measures.

(x) Surrender of mining lease to State Govt. in case of peripheral areas.

(b) Peripheral patches not in the leasehold areas of CCL/BCCL/ECL.

(i) Working these mines by CIL where techno economic viability permits it.

(ii) Leasing the mines to State Govt. Corporations.

(iii) Identification of blocks for coal mining for captive consumption.

4.34 According to Ministry of Coal at present CIL is required to continue operations in large number of uneconomic mines. A detailed analysis of such mines has revealed that a good number cannot improve in their operation performance. Substantial overall economy can be achieved if operation in such mines are phased out over the next 2/3 years.

4.35 The Ministry has stated that financial performance of 18 mines in ECL, BCCL and CCL cannot be improved substantially due to adverse geominig conditions and exhaustion of reserves. These mines reportedly contribute to about 1.50 million tonnes. The manpower strength is about 15,000 and they have accounted for a loss of about Rs. 89 crores in 1991-92.

4.36 Asked about the plan for phasing out uneconomic mines where potential for improvement does not exist, CIL infromed in written reply as under:

“CIL has been tackling this issue since last several years. During the past, operation in 44 mines have been closed. While a majority of the mines can be reorganised to make them either profitable or to reduce their losses substantially, it is found that the financial performance of 18 mines in ECL, BCCL and CCL can not be improved substantially due to adverse geominig conditions and exhaustion of reserves.

These mines are proposed to be closed in a phased manner over a period of 4 to 5 years. Some of the existing entires of these mines will still be used for pumping and ventilation etc. There may be a technical necessity for utilising these entries to optimise the operations of neighbouring adjoining mines. The cost of such operations will be charged to these mines. Hence a portion of the manpower will be retained in these mines. Some of the workmen would be redeployed and utilised in other mines. The rent of the workers would avail of the Voluntary Retirement Scheme.”

E. Labour Productivity

4.37 The following Table shows the productivity or output per manshift of CIL and SCCL in 1981-82 and during each of the last 4 years:

(in tonnes)

Year	Underground		Opencast		Overall	
	CIL	SCCL	CIL	SCCL	CIL	SCCL
1981-82	0.55	0.85	1.90	3.43	0.77	0.92
1990-91	0.53	0.65	3.31	4.74	1.30	0.96
1991-92	0.53	0.67	3.70	4.48	1.40	0.98
1992-93	0.55	0.70	3.80	4.46	1.46	1.04
*1993-94	0.53	0.69	3.64	4.09	1.39	0.98

* Provisional for April-December.

4.38 It may be seen from the above that productivity in underground mines has been more or less static in CIL during the last 13 years. It is observed from the subsidiary-wise information given in the Ministry's Annual Report that the output per manshift in underground mines ranged between 0.40 and 0.48 tonnes, in ECL, BCCL, CCL and NEC while it was between 0.63 and 0.82 in the case of WCL, SECL and MCL during 1992-93. It can be observed from above table that the productivity of CIL is lower than that of SCCL both for opencast and underground mines. Enquired about the reasons for the productivity of CIL being lower than that of SCCL CIL stated in a note that SCCL is comparatively having new mines and having public sector culture.

4.39 The following table shows the output per manshifts of CIL and SCCL in comparison with Australia and United States during 1990-91:—

Tonnes/manshift

	CIL	SSCL	Australia	United States
Underground	0.54	0.65	14.9	19.3
Opencast	3.34	4.76	30.6	47.7

4.40 Enquired about the reasons for productivity level in our country being far below that of Australia and United States, CIL stated in a note that the productivity of Indian mines are not comparable with that of developed countries owing to the following reasons:

- (i) Like to like comparison is not possible as in those countries many of the activities like maintenance of equipment, security, welfare, civic facilities including medical township services, education, canteen etc. are not covered under mine operations.
- (ii) Higher provision of statutory manpower in India.

- (iii) Work culture and physical capabilities are different in those countries.
- (iv) OBR in mechanised opencast mine is done contractually in many of those countries.
- (v) High level of modern infrastructural facilities as available in those countries require marginal manpower at mines.

4.41 Asked about the steps taken to raise the productivity level in our country to that of Australia and United States, CIL stated that it is not cost effective to go for such high level of mechanisation which would cause further loss; and it will not be technically possible because of geomining conditions and that it is impossible to reduce manpower.

4.42 The total manpower CIL and its subsidiaries as on 31.12.1993 stood at 6,58,424 and of SCCL at 1,15,269 as on 1.12.93. According to CIL in ECL, BCCL and CCL there is substantial number of under-utilised/unutilised workmen. ECL and BCCL have an aggregate accumulated operating loss of around Rs. 5,100 crore. For the year 1991-92 the aggregate operating loss of these two subsidiaries is stated to be around Rs. 700 crores. With mechanisation of coal loading to augment loading capacity to meet the requirements of the Railways and also mechanisation of opencast working on economic considerations, a substantial number of workforce has reportedly been rendered surplus.

4.43 Enquired about the extent of surplus staff in CIL as whole; CIL stated in a written reply that 1048 manpower was identified as under-utilised on 1.4.1993 in its subsidiary companies. Besides these 43896 female employees have become surplus to the requirement or under-utilised due to mechanisation of manually operated OCPs, mechanisation of coal loading restrictions imposed by mining legislation on their deployment in the night hours from 10.00 P.M. to 6.00 A.M. and in below ground. It is further stated that there are some difficulties in redeployment due to resistance by local unemployment youth, trade union, politicians and only 5 workers were deployed during 1992-93 and during 1993-94 only 89 (till Nov., 1993.)

4.44 Asked whether the question of surplus labour in the Coal Industry was ever examined by the Ministry and whether any directions were given to CIL, the Ministry stated in a written reply as under:

“CIL and its subsidiary companies have a system of preparation of annual manpower budget for all establishments right from the collieries/projects to Areas and Company Headquarters. The system facilitates designation-wise, category-wise and skill-wise enumeration of manpower and its proper deployment according to the requirements of different units/establishments. Ministry of Coal monitors the follow-up based on manpower budgeting including redeployment of the surplus workers. Efforts are made to re-deploy the surplus manpower both horizontally and vertically from, surplus

areas to deficit areas on a continuing basis after imparting specified training/retraining in identified skills, where necessary. According to the information furnished by CIL number of identified surplus manpower in CIL as on 1.4.93 was 10848, as against 17222 on 1.4.92 and 14920 on 1.11.92. It will be seen that the efforts to re-deploy the surplus manpower have been effectively reducing the extent of surplus manpower in the various coal companies. The situation can thus be stated to be under control and issue of directions to CIL in this regard will be considered when it becomes necessary”.

4.45 Coal India had formulated a Voluntary Retirement Scheme for its employees. The total number of employees retired under this scheme from 1988-89 to 1992-93 is as under:

Year	No. of workers retired
1988-89	1182
1989-90	1661
1990-91	900
1991-92	1587
1992-93	6232

4.46 ECL/BCCL have been experiencing difficulty in allowing employees to retire voluntarily under the scheme on account of paucity of funds. Department of Economic Affairs have been requested to make Rs. 120 crore available for this purpose from the National Renewal Fund.

F. Quality of Coal and Import

4.47 According to Ministry of Coal by its inherent nature Indian coal is comparatively inferior in quality. The increase in production from 79 MT in 1972-73 to 211 MT in 1992-93 by CIL was mainly from lower grades of coal as available in recently developed new coalfields.

Enquired whether any plan has been drawn to improve the quality of coal, the Ministry stated in a written reply:

“Basic quality can be improved by beneficiation of coal. For this purpose 5 non-coking coal washeries are being set up. More washeries are required for additional washing capacity. Private sector investment in setting up of washeries has been invited. CIL has received 42 applications for prequalification. These are under examination. Consumers will also have to come forward for setting up of washeries through their own investment or by bringing in private sector.”

To a suggestion regarding devising quality assurance system of the coal despatches from collieries, CIL stated as follows:

“Yes, We agree. CIL has already evolved a system of quality assurance of the coal despatches from the collieries and provided

vast infrastructure at colliery, Area level, Company level and Apex level at CIL.”

The Ministry, however stated in this connection as under:—

“Ministry is of the opinion that quality of coal despatches must conform to the declared grade. Quality assurance can be best achieved by proper supervision of loading operations. This should be done both by supplier as well as consumer preferably jointly. There should be a directly negotiated coal supply agreement specifying quality, quantity, timeliness of supply as well as price related parameters. Such an agreement should be legally binding on both supplier as well as purchaser. We have been making efforts in persuading power houses and other major consumers to enter into such agreements. NTPC has already signed such agreement with CIL. One private company has also nearly finalised draft coal supply agreement with CIL. For dealing with disputes arising from quality of supplies, Coal Controller is the statutory authority to whom coal consumers can approach for redressal of quality complaints.”

4.48 "The production of non-coking coal alongwith useful heat value during the last three years was stated to be as shown below:

(Fig. in Million Tonnes)

Non-Coking Grade	U.H.V. in K. Cal/Kg.	Non-Coking Coal								
		1990-91			1991-92			1992-93		
		CIL	SCCL	Production	CIL	SCCL	Production	CIL	SCCL	Production
A	Exceeding	3.70	—	—	4.30	—	—	4.51	—	—
B	From	20.67	—	—	21.63	—	—	22.39	—	—
C		39.92	2.265	3.784	43.94	3.784	4.804	43.66	4.804	4.804
D		17.76	5.511	5.136	19.09	5.136	4.634	19.72	4.634	4.634
E		28.86	5.970	7.495	25.06	7.495	8.208	27.04	8.208	8.208
F		38.79	3.963	4.168	44.77	4.168	4.863	49.22	4.863	4.863
Non-Graded (Assam Coal etc.)		2.70	—	—	4.22	—	—	3.81	—	—
Total Non-Coking		148.40	17.709	20.583	163.01	20.583	22.509	170.35	22.509	22.509

4.49 It is a known fact that volume of coal requirement is determined by the useful Heat Value in K. Cal/Kg. The higher UHV the lesser the volume of coal requirement and vice-versa. In spite of the fact that UHV is the determinant of coal requirement, this is apparently not taken into account or shown explicitly along with production targets. Any evaluation of coal production should not only be related to volume of production but also UHV."

4.50 The power sector is so far the largest consumer of coal. There have been complaints regarding supply of over size coal, presence of extraneous materials and high ash content in the coal supplied to power stations. Asked what percentage of coal supplied to power sector is beneficiated and the measures taken by the Ministry to enable supply of beneficiated coal to the power sector, the Ministry of Coal stated in a written reply as follows:

"Presently beneficiated non-coking coal is not being supplied to power stations, except about 2.5 mt. of middlings, produced from existing coking coal washeries, are being despatched to power houses. On the basis of an exercise carried out in 1988 (Ronghe Committee) it was decided that all coals that are to be delivered to the new power utilities located over 1,000 km from the coalfields should be beneficiated to reduce the ash content to around 34%. In line with this decision, five non-coking coal washeries with a total raw coal capacity of about 24 mt. are under different stages of implementation."

4.51 Asked what percentage of coal despatched is being subjected to sampling by the field staff; CIL stated in a written reply:

"At present 83% of our total coal despatch to various consumers is subjected to joint sampling arrangements with them. This includes major consumers in the core sector like Power, Cement, Steel, Loco, Fertiliser, Export etc. which in our view is adequate."

4.52 Enquired about the steps taken to improve the coal quality, the Ministry of Coal has stated in a note as follows:

"Ministry of Coal have decided that all despatches to the core sectors viz, power, steel, cement and fertiliser etc. will be sampled by independent teams under the Coal Controller. In order to ensure that all rakes are sampled/analysed, the Coal Controller has submitted a scheme for augmenting/strengthening the present set up which is not adequate enough to provide 100% sampling coverage. It is proposed to hire the services of reputed/recognised test houses/laboratories for the purpose. At the same time steps are also being taken to procure equipment, tools and tackles to mechanise the sample collection process which is totally manual at present."

4.53 Taking note of the fact that certain quantity of coking coal was sent to power stations, the Committee enquired the reasons therefore and also

wanted to know why such coals which are not suitable for use in the steel plants could not be used for manufacturing soft coke or kept reserved for producing hard coke with vigorous R&D. In reply, CIL stated as under :

- (a) All the coals which are categorised as coking coal are not necessarily suitable for use in the steel plants because of high Ash, low V.M. and low coking properties. Only such coking coals are sent to power houses which are not considered suitable by the steel plants for their own use.
- (b) Power stations use only Slack coal from which Soft coke making is not possible.
- (c) Manufacturing of Soft Coke is a losing proposition. Even with lower production 0.47 MT during 92-93 the approximate loss is Rs. 21 crores. Moreover, due to stringent environment laws, soft coking with present system is discouraged.
- (d) Laboratory scale testing for low volatile medium coking (LVMC) coal from V/VI/VII seams of Jharia coalfield for hard coke making carried out by the CFRI have shown some good prospect of cleaning these coal for the use in Steel industry. Investigation in this regard is continuing.

4.54 Regarding quality of coal for power plants, CIL stated as under:

“The major share of the non-coking coal reserves in India is a inferior quality. Hence, it will not be prudent to use better quality coals for power generation. Power plants can be designed to use even lower quality of coal without any appreciable decrease in efficiency. The efficiency of Thermal power stations can be increased/maintained by beneficiating inferior grade coal to obtain a consistent quality of beneficiated coal.”

4.55 According to the Ministry of Power, the Coal Industry is unable to meet the demand of power stations both quantity and quality wise. In 1992-93 against the projected demand of 153 mt., the Ministry of Coal agreed for 150 mt. The coal actually despatched was 149.25 mt. and that actually received was 142.62 mt. For the year 1993-94 against the projected demand of 167 mt. the Ministry has agreed to supply 160 mt. only. So far as the adequacy of quality of coal is concerned, the Ministry of Power has stated that the requirement of coal for the thermal power stations is mostly of D, E and F grade (UHV 2400 kcal/kg.). There were 85896 complaints from 24 power stations in regard to supply of lower grade of coal/supply of higher size/extraneous material with coal by the coal sector in 1992-93.

4.56 In this connection, CIL has stated that the coal demand of the Power Sector is discussed in great detail at various meetings held at the Planning Commission, Ministry of Coal and Ministry of Power when the representatives of Deptt. of Power, CEA and Railways were present.

4.57 Based on the various discussions the ultimate requirement of coal

for Thermal Sector as accepted were 131, 137, 150 and 160 mt. respectively for the years 90-91, 91-92, 92-93 and 93-94. The statement below would indicate the demand vis-a-vis supply position during these years separately for CIL and SCCL.

4.58 *Coal Supply to Thermal Stations (in M.T.)*

Year	DEMAND			SUPPLY			CL. Stock At Power Stations
	CIL	SCCL	Total	CIL	SCCL	Total	
90-91	113.00	18.00	131.00	106.97	12.38	119.35	2.8
91-92	123.00	14.00	147.00	121.43	14.07	135.50	4.2
92-93	134.00	16.00	150.00	132.29	15.76	148.05	6.3
93-94	130.00	15.45	145.45	131.50	16.47	147.97	7.2

(AP—FEB)

4.59 About the short receipt of coal by Power Houses, CIL has stated that against 118.44 million tonnes of total coal despatches by CIL and SCCL during April—Dec., 1993, the actual receipt by CEA during the period is 114.92 million tonnes. The shortfall of 3.51 million tonne amount to 3% of the total despatches.

4.60 About 85896 complaints in terms of rail wagons received in 1992-93 from Power Stations regarding oversize and extraneous materials, CIL has stated that even if considering it to be true, which is not possible, the total quantity of oversize supply so computed would be around 2.01 mt. or 1.3% of the total coal supply to Power Sectors. As per understanding between the Power Sector and CIL, oversized coal was to be restricted within 5% of the quantity supplied. The complaint mentioned by CEA is substantially below the tolerance accepted. It is well known that even with the best crushing systems, one cannot ensure 100% efficiency in crushing.

Import of Coal

4.61 As per present import and export policy, coal can be freely imported without any permission/Licence. The quantum of import of coking coal by Steel Plants in India for the last five years is stated to be as under:—

Year	Qty. (MT)
1988-89	4.49
1989-90	4.66
1990-91	5.72
1991-92	6.08
1992-93	6.33

4.62 The import of coking coal during 1993-94 upto January, 1994 was stated to be 5.97 MT at a value of over Rs. 1190 crores.

4.63 Enquired whether import of coal indicates the inability of the indigenous coal industry to supply the requisite quality and quantity of coal at competitive price, CIL stated in a note as under:

“Indian coals have high ash-over 35%. All the power stations designed in the last 15 years are based on high ash coals. In spite of this, certain power stations have recently preferred to import low ash coal for their consumption. These power stations such as TNEB have been performing well by using Indian coal which is reflected by their Plant Load Factor and the oil consumption. PLF at TNEB has shown steady increase while specific oil consumption has shown decreased. CIL has examined the Techno-economics of import of coal by the power plants and found that the average price per million K. calorie of Indian coal is cheaper than the imported coal. CIL and Railways have always been well in a position to maintain high stocks of coal with these major consumers and therefore the import of non-coking coal does not indicate inability of indigenous coal industry to supply coal at the requisite quantity, quality and competitive prices.”

4.64 The Ministry of Coal, however stated in this connection as under:—

“Customers are more concerned with their landed energy cost of at their plant. Since imported coals have lower ash content their landed cost in energy terms may work out to be lower for some power stations near the ports”.

4.65 As regards coking coal CIL has stated that the demand of washed coking coal for the integrated Steel Plants in recent years in far outstripping its indigenous availability, both in terms of quantity and quality Gradual deterioration of quality of raw coal feed to the washeries, some of which were installed 20 to 26 years back, designed for better quality of feed and delinking of some of the sources of raw coking coal during 1984-85 due to their low volatile content and delay in the implementation of the recommendations of Altaker Committee could be some of the reasons that have resulted in reduced availability of coking coal. Asked about the planning of CIL to meet the growing requirement of metallurgical coal, the Ministry informed the Committee as under:—

“Ministry of Coal had constituted a Technical Group in November, 1992 to study all the related aspects of production and washing of coking coal and to submit an Action Plan for reducing dependence on coking coal imports. As recommended by the Technical Group, CIL is planning to take the following steps for meeting requirement of metallurgical sector both in terms of quantity as well as quality.

(i) Early completion of on-going modernisation works in the existing washeries so as to supply the required quality of coal to steel plants.

(ii) Early completion of Kedla washery CCL and Madhuband

washery, BCCL which are under construction and taking up of new washeries as envisaged at Parej and Tapin in CCL and Tikak in Assam area.

(iii) Washing and use of Low Volatile Medium Coking (LVMC) coal production of which is quite large and which is not going to washery at present.

The group has projected that with the implementation of its recommendations the import of coking coal by the steel plants will gradually reduce to about 2.0 million tones by the year 2001-02 from a present level of about 6.50 million tonnes”.

4.66 The Budget for the year 1994-95 reduced the import duty on coal from 85% to 35%. Asked about the CIL's strategy to meet this situation, CIL stated as follows:

“It is imperative that CIL should also be allowed more free hand in the areas of pricing, distribution and marketing strategies for efficient operation within this competitive environment. The system of Cash and Carry has been introduced with SEBs/PCs to improve the liquidity of CIL. The implementation of scheme could not be as desired by CIL, as it did not have the option to regulate the supplies of defaulting SEBs/PCs. The mandate to regulate supplies to the consumers who does not make payment should be available with CIL for effective functioning in competitive open market situation”.

G. Efficiency Improvement Plan

4.67 Coal India Ltd. (CIL) has planned to enforce with renewed vigour, measures for cost reduction and operation efficiency improvement already taken up and implement a further package of measures. The efficiency in production is also important keeping in view the production target of 270 million tonnes for CIL projected by the terminal year of the 8th Plan (1996-97). Mainly, CIL, is aiming at augmenting capacity utilisation in the mines and controlling expenditure.

4.68 With a view to improving operational efficiency and financial viability for achieving self reliance. Coal Indian Ltd. have formulated a plan of action. The plan *inter-alia* includes schemes for improvement of production and productivity of identified under-ground mines, improving operational efficiency and production in opencast projects, increasing production of coking coal, coal quality improvement and rationalisation of human resource etc. The plan aims at achieving following additional production through various efficiency measures:—

	Production (m.t.)		
	Schemes	Existing	Projected
1. Improvement in production and productivity of UG Mines	33	3.57	14.17
2. Increasing efficiency in existing OC mines	10	9.51	41.40
3. Increasing production of Coking coal in 6 schemes/mines and non-coking coal in four schemes/mines			
4. Coal quality improvement including CHP/CPP	4	0.00	6.64

4.69 The total estimated investment required for implementing the Plan is stated to be Rs. 4641 crores CIL has reportedly approached the World Bank for financial support for implementing the scheme. The amount likely to be eligible for World Bank financing Rs. 2528 crore approx.

V. RESEARCH & DEVELOPMENT TOWARDS MODERNISATION AND GROWTH

The need and importance of R&D activities for modernisation and growth of coal industry was reportedly realised immediately after nationalisation of coal industry leading to formulation of a long term science & technology plan, constitution of a scientific advisory committee in Department of Coal and identification of CMPDIL as nodal Agency for coordination of R&D activities in coal and lignite sectors and setting aside a separate budet for R&D activities.

5.2 The methodology for selecting and implementing R&D projects in the coal sector was revised at the end of VI plan period and certain institutional Improvements were effected. A high level committee namely standing scientific Research Committee (SSRC) was set up in Department of Coal with Secretary (Coal) as chairman and members as Chairman, CIL, CMD, CMPDIL, CMD, SCCL, CMD, NLC; representatives from CSIR educational institutions and concerned Govt. Deptt. to plan, programme, budget and oversee the implementation and seek application of research findings. The SSRC in turn is assisted by four technical sub-committees each dealing with one of the major fields of coal mining and/or allied activities.

5.3 CMPDIL acts as Nodal Agency for co-ordination of research activities in coal sector, which involves, identification of thrust areas of research activities, identification of agencies who can take up the research work in the identified area, inviting research proposals to fulfill the identified objectives, processing the proposal for Govt. approval, monitoring the progress of implementation of the projects, preparation of budget estimates disbursements of fund and above all seek application of research findings.

5.4 The fund disbursement since beginning of coal S&T programme has been as follows:

V Plan	—	Rs. 327.17 lakhs
VI Plan	—	Rs. 563.51 lakhs
VII Plan	—	Rs. 3150.20 lakhs
90-91	—	Rs. 462.84 lakhs
91-92	—	Rs. 388.46 lakhs
92-93	—	Rs. 370.53 lakhs
Total Till		
March, 1993	—	Rs. 5262.71 lakhs

5.5 CIL stated that a constraint of fund is being felt during last two years affecting the progress of on-going projects.

5.6 The approved outlay for 8th Plan for R&D is Rs. 87 crores. However, the total budget allocation for the first three years of the Plan period is only Rs. 18.54 crores i.e. only about 20 per cent of the total plan outlay during 8th Plan. Asked about the contribution of R&D towards modernisation and growth of coal industry, CIL stated in a note:

“The Impact of R&D activity has been specifically felt in the areas of geo-physical exploration, hydrogeology, method of mining, Blasting, Strata Control and Roof Supports, Mine Subsidence, Design of Coal Pillars and Barriers, Mine Ventilation, Methane Drainage, Mine Fires, Stabilisation of unapproachable workings, beneficiation of non-coking coal, Fine coal beneficiation, Domestic Fuel to name a few.”

5.7 To a quarry whether CIL is satisfied with the R&D achievement so for CIL stated in written reply that it was not fully satisfied. To give further thrust to R&D activities CIL has suggested provision of separate budget for in-home R&D activities to be funded out of R&D fund. CIL has also pleaded that to cut down on time, it is necessary to free procurement under R&D from normal Govt. purchase procedure.

5.8 It has been stated by CIL that to co-ordinate and give filling to R&D activities, a full fledged Directorate of R&D has reportedly been established in CMPDIL headed by a Director.

In addition, it is proposed to setup a R&D Division in each coal Company headed by a fairly senior executive and supported by executives of different disciplines to ensure implementation of identified R&D programmes.

5.9 To give the research activities required mandate, to seek cooperation and involvement of coal producing companies and to ensure participation of educational and research institutions, constitution of a Research and Development Board is stated to be on the anvil. The Board will be chaired by Chairman CIL with members as Director (T), CIL, CMDs of coal companies including CMPDIL, selected HODs of CIL (HQ) and representatives of educational and research organisations. Director (R&D), CMPDIL shall act as member secretary.

5.10 It has been stated that during the last 15 years of the planned R&D programme, about 134 projects have been completed by various agencies, some with limited success and a few even with negative findings or failure but quite a large number of these have brought out significant results for the benefit of the industries. CIL however, pointed out that the overall impact of R&D programme on modernisation & growth is not too significant. Some of the more important reasons for the same are stated to be as follows:—

“The total annual budget of coal R&D is only few crores of rupees spread over large number of projects. The thrust and financial outlay

on coal R&D programme is, therefore, very thinly spread in number of areas and this scenario is inherently incapable of making any spectacular impact on coal industry.

The limited fund provision under coal S&T programme is sufficient only for carrying out laboratory/pilot plant investigations or at best scientific investigations in already on-going mining practices. With this limited resources, it was not possible to experiment many more new methods of mining and undertake development of need based equipment”.

5.11 Regarding steps required to be taken CIL indicated the following:

- (i) “The total annual outlay on R&D activities under S&T funds has to be stepped up. Though Coal India & its subsidiaries also carry out R&D related to mining methods but that being directly related to commercial operations in not recorded separately. In this R&D with direct commercial bearing higher risk R&D ventures are not taken up. There is a need to provide S&T funds for development of mining methods with equipment so that more risky R&D ventures particularly for methods of new technology, equipment development etc. are undertaken.
- (ii) Another major shortcoming of the coal sector has been the absence of inhouse R&D setup. This has resulted in farming out research programmes to outside agencies. Since these agencies have their own programmes and priorities; the research sponsored by coal sector did not get required attention. Some of the inhouse project taken up by coal companies did not fare very well due to absence of separate and assigned manpower for the purpose.
- (iii) To facilitate undertaking major R&D programme, it is necessary to extend fund provisions under S&T programme, it is also necessary that this S&T programme should cover experimental/R&D mines/districts/pilot mines, mining methods, equipment development, coal beneficiation etc.

VI. MISCELLANEOUS MATTERS

A Environmental Management

Coal project have no locational options, As such, the development of mines has to be taken up wherever deposits are found. It is a known fact that coal mining does result degradation of land and causes air and water pollution.

6.2 The pollution control measures undertaken by the Coal Industry are stated to be as follows:

- (i) Pollution control measures in coal mines form and integral part of the Environmental Management Plans (EMPs) which are prepared for individual coal projects.
- (ii) Coal India accorded high priority to deal with mined land reclamation. This includes upgrading environmental capability, formulation of reclamation projects, biological reclamation of mined land, greening of OB dump, etc.
- (iii) Massive tree plantation programmes has been implemented in the past few years as well as have been envisaged for coming years in association with State Forest Departments, Forest Research Institute and other expert agencies.

6.3 Steps have also reportedly been taken for abatement of air, water and noise pollution and air pollution due to soft coke making. An Institute of Environment and occupation health is being set up. CMPDIL has also established Remote sensing cell to co-ordinate and execute remote sensing activities of Coal Industry viz. mine fire delineation, exploration, mine planning, environmental management planning, land use plan, ecological changes in the coalfield etc.

6.4 Taking note of the fact that coal produces adverse environmental impact at all stages of fuel cycle from extraction to its end use, the Committee desired to know the steps taken to find cleaner method of production and newer methods for efficient and cleaner utilisation of coal. The Ministry of Coal in reply stated as under:

“The Ministry of Coal is aware and is seriously concerned about the adverse environmental impact of coal fuel cycle from its extraction to its end use. Detailed environmental management plans are being drawn up to regulate adverse environmental impact of air, water and noise pollution, land degradation etc. of existing mines. EMPs are being drawn up for all new projects taking into account future adverse environmental impacts of coal mining. These EMPs are being

scrutinised and cleared by an Expert Committee of the Ministry of Environment and Forests. Keeping the environmental impact of coal utilisation in mind, Ministry of Coal have agreed to make efforts to beneficiate all coal produced."

6.5 According to CIL, the Coal Industry is facing problems with regard to identification of land for compensation and reforestation which is required for diversion of forest land for the project. Enquired about the steps taken in this regard, Secretary, Ministry of Coal stated as under:

"We are in touch with the State Government and point out where there is a little pendency and all that. We have established a cell and the coal companies pay for that. Whenever any problem regarding forest land is not solved, our officers chase it up. Unless the State Government gives clearance on the forest land, we cannot do anything. We tell them to have a committee of officers of the State Govt. as well as of the company and we will also send our representatives."

6.6 There is a need for development of efficient coal technologies which are environmentally benign. Suitable R&D strategy should be evolved to develop technologies such as coal gasification, pressurised fluidised bed combustion, integrated gasification combined cycle (IGCC) etc. which would result in efficient and cleaner utilisation of coal.

6.7 "Rehabilitation of land oustees is governed primarily by the guidelines issued by Ministry of coal vide No. 49019/4/86/-CP/LSW dated 19.10.90, the salient features of which are as follows:

- (i) To the extent new employment opportunities get created in the project in unskilled and semi-skilled categories, these shall be reserved entirely for the land oustee families.
- (ii) Suitable vocational training facilities would be provided to the land losers to upgrade their skills for employment in other categories of jobs in the project, on a preferential basis.
- (iii) Alternative house sites with suitable infrastructure will be provided to all evicted families. Each evicted family would be paid a shifting allowance of upto Rs. 2000/- and a lump-sum grant of Rs. 5000/- towards housing.
- (iv) Cash compensation for the land to be acquired will be deposited with the district administration in advance so that there is no delay in payment of compensation to the land owning displaced families.

- (v) Families which are not beneficiaries of employment for one of their members, would be paid Subsistence allowance for 20 years at the following rates:
- (a) To families losing lands upto one acre At the rate of Rs. 300/- per month plus an ex-gratia amount of Rs. 100/- per month per family.
- (b) Families losing above one acre Rs. 300/- per month per acre subject to a maximum of Rs. 1000/- per month plus Rs. 100/- per month per family."

B. Marketing and Distribution

6.8 At present nearly 75% of coal is consumed by four major consuming sectors, namely power houses, steel plants, cement plants and Railways. Another 18% is consumed by organised industrial sector with units numbering over 20,000. The balance 7% is consumed by a large number of consumers like brick kilns, domestic users and others. The allocation/distribution of coal is governed by the provisions of Colliery Control Order. However, coal sold under 'Liberalised Sales Scheme' has been exempted from the purview of this order

6.9 Coal Consumers have been divided under two separate categories:

- (i) Core Sector consumers, and
- (ii) Non-Core Sector consumers: Consumers falling under the sectors Power, Steel, Loco, Cement, Fertilizer and Defence are treated as Core Sector and all other categories are treated as Non-Core Sector.

6.10 The Coal requirement for major sectors like Steel, Power, Cement, Railways and major industries are assessed and sponsored by various agencies like Coal Controller, Standing Linkage Committee for Power and Cement, Railways and DGTD respectively. These consumers account for almost 85% of coal in the country. The non-core sector consumer having requirement of more than 5000 tes. per month (who are to be linked to CIL) are issued linkage by Ministry of Coal. Other consumers under the same category, whose requirement is below 5000 tes. per month are issued linkage for supply of coal by Marketing Divn. of CIL. Linkage is issued from CIL indicating the source from where coal is to be supplied, size and grade of coal and the mode of transport. In addition, 'LSS' (Liberalised Sales Scheme) is in vogue wherein coal from certain identified mines having large stocks are made available to consumers/traders without insisting on any sponsorship, linkage and any other restrictions.

6.11 The Ministry of Coal stated in a note that the present system of coal marketing/distribution by CIL is considered cumbersome and that it is

proposed to streamline it and make it transparent and consumer friendly. An exercise to computerise it has already been taken up.

6.12 Asked in what respect the system is cumbersome, CIL stated in a written reply that it is cumbersome due to following reasons:

- (i) Colliery Control Order;
- (ii) Essential Commodities Act;
- (iii) Railway Preferential Traffic Schedule;
- (iv) State Sponsorship; and
- (v) Linkage Short Term/Long Term.

6.13 The following table shows sectorwise demand of coal within the country (including exports) and its satisfaction during 1990-91, 1991-92 and 1992-93:

	(1990-91)		(1991-92)		(1992-93) (Prov.) 1996-97		(Figs. in Mt.)
	Demand	Actual Satisfac. %	Demand	Actual Satisfac. %	Demand	Actual Satisfac. %	
Steel	32.40	30.05*	33.70	31.33*	35.10	32.13*	44.00
Power	128.00 (3.00)	116.72 (2.07)	142.00 (3.00)	134.71 (2.40)	147.10 (2.90)	146.77 (2.47)	185.30 (4.70)
Railways	5.80	5.17	4.70	4.46	4.00	2.22	3.00
Cement	11.50	9.74	13.10	9.97	14.10	10.73	17.50
Fertilizer	4.60	3.90	4.00	4.31	4.00	4.53	4.00
Soft Coke	3.10	1.27	2.50	0.97	4.40	0.63	4.00
Export	0.30	0.09	1.00	0.12	0.50	0.09	1.00
BRK/Others	40.10 (1.30)	39.12	40.00 (2.00)	39.61	45.00 (2.40)	39.31	48.20 (2.30)
Coll. Consu.	4.00	4.01	4.00	4.11	3.90	3.99	4.00
Total	229.80 (4.30)	210.07 (2.07)	245.00 (5.00)	229.64 (2.40)	258.10 (5.30)	241.40 (2.47)	311.00 (7.00)

*including imported coal.

6.14 From the above it is observed that the demand satisfaction for power sector is satisfactory and a steady growth has been maintained in the recent years. The fertilizer sector is also getting its coal allocation in increasing percentage in fulfillment of demand.

6.15 Asked about the reasons why the demand satisfaction for Steel, Cement, Soft coking and Export showing a decreasing trend, the Ministry stated in a written reply as under:

"The demand satisfaction for Steel Sector is 90-94% from indigenous sources during the last 3 years. It could have been higher still upto 96% but for persisting power availability problem in the eastern region which affected the performance of BCCL & CCL collieries/washeries. About cement; the demand satisfaction has been coming down during the last three years. The actual demand has been falling far short of projected demand. In fact, cement production by major cement plants has increased by one lakh tonnes only during 1992-93 over 1991-92. This is also reflected by the fact that only about 85% of the linkage by rail was programmed by the cement plant. The demand satisfaction for soft coke is going down year to year due to the fact that the Soft Coke production is known to cause air pollution in the coalfield belts and severe restriction have been imposed by the State Government. The fulfillment of export demand against the target was 30% during 1990-91 and 50% during 1991-92. Efforts are being made by CIL to explore markets in neighbouring countries and secure more export orders".

C. Impact of liberalisation measures

6.16 Under the Coal Mines (Nationalisation) Act, 1973 Coal Mining operations can be carried on only by Government Companies and Companies engaged in the production of Iron and Steel. This act was amended in 1993, to enable companies engaged in power generation, washing of Coal obtained from amine and such other and use as may be notified by Government from time to time also to carry on Coal mining. Requests on these lines are now being received in the Ministry of Coal, where a screening committee has been set up for speedy identification & allocation of blocks which can be possibly developed by the power generating/iron and steel companies.

6.17 In addition to private sector participation in coal mining and washing of coal, Govt. have also effected liberalisation of imports of coal and introduced annual updation of prices. These policy changes in the country resulting in a more competitive and liberal economic environment has posed a new challenge to the coal industry. The growth of competition from the private sector and from imported coal supplies, and the gradual reduction of governmental financial support to the coal companies, have provided a stimulus for further improving performance and profitability.

6.18 Asked about the, strategy evolved by CIL to meet the emerging competitive situation in view of the above liberalisation measures, CIL stated the steps taken in this regard as follows:—

- (i) The proposal for decontrol of prices is under consideration of the Govt. This shall enable CIL to price its products according to what market can bear in a competitive product market environment.
- (ii) The proposal on decontrol of distribution is also under consideration of the Govt. which enable CIL with marketing option for competing in open market situation.
- (iii) The system of Cash and Carry has been introduced with SEBs/PCs to improve the the liquidity of CIL.
- (iv) For full satisfaction of consumers about quality of coal supply the system of joint sampling at loading point by the independent third agency, namely Coal Controller Organisation has been introduced.
- (v) Apart from this CIL has undertaken a programme of installation of Feeder Breakers, Coal Handling Plants and weighbridges so that consumer gets the coal of specific size, quantity and quality.

6.19 Enquired whether the liberalisation measures would accelerate the modernisation and growth of Coal Industry, CIL stated that with private sector participation it may be possible to ensure growth of the Coal Industry as a whole.

In this context the Ministry stated as under:—

“The liberalisation measures as a part of major policy changes are expected to accelerate modernisation and growth of the coal Industry. At the present stage it is not feasible to predict the extent of future impact of the liberalisation measures indicated in the major policy changes.”

D. Organisational Structure

6.20 Ministry of Coal has been entrusted with the over all responsibility for determining the policies and strategies in respect of exploration, development of coal and lignite reserves, sanctioning of important projects, and to decide all policy related issues in respect of the coal industry. It discharges these functions through Coal India Limited and its eight subsidiary companies viz. Bharat Coking Coal Limited, Central Coalfields Limited, Central Mine Planning and Design Institute Limited, Eastern Coalfields Limited, Western Coal-fields Limited. The Ministry also acts in close association with Singareni Collieries Company Limited, a joint sector undertaking of the Govt. of India and the Govt. of Andhra Pradesh.

6.21 CIL is primarily responsible for establishing corporate objectives

and strategies for their achievement for finalisation of targets, monitoring of performance and laying down broad guidelines in important policy matters.

6.22 Asked about the respective role of CIL and its subsidiaries in regard to modernisation and growth of coal industry, Coal India Limited stated in a written reply as under:

CIL and its subsidiaries consider modernisation and growth as twin objectives. The role of the Holding Company (CIL) and subsidiary to achieve these objectives are broadly as below:

Assessments of demand in collaboration with Ministry of Coal Planning Commission, Railways and Consuming Sectors and also assessment of production potential with subsidiaries for fixing of targets to match demand and identification of new mines;

Exploration strategy;

Corporate Planning;

Selection and approval/sanction of projects/investment proposals;

Centralised management of long-term fund requirement including resource raising operations from internal as well as external sources;

Identification of different technology need, selection of donor countries/agencies and arranging bilateral tie-up;

Monitoring of projects;

Procurement of high-value equipment, imported items and important inputs.

6.23 Role of Subsidiaries

Implementation of the policies;

All operational matters relating to execution of projects, including projects taken up for modernisation.

Further CMPDIL, the Planning Subsidiary, is engaged principally in providing the planning support to all Subsidiary Companies of CIL. It undertakes mining exploration, planning and designing of coal projects, beneficiation projects, coal utilisation projects, environmental management plans and assist in the transfer of foreign technology for assimilation in Indian mines. It also acts as a nodal agency for research and development work in different fields related to coal production, utilisation, beneficiation environment etc."

6.24 Asked about the Ministry's views in regard to the organisational structure of CIL which is the main constituent of the coal industry and its impact on the growth of the coal industry; the Ministry stated in a note as under:

"The organisational structure of Coal India Limited, the main

constituent of the Coal Industry is adequate for achieving the purpose of modernisation and growth of Coal Industry.”

6.25 Keeping in view the need to improve the production and productivity of the organisation (CIL) the Committee enquired whether any exercise had been undertaken to review the ‘holding company’ system of CIL with reference to the multidivisional system of giant companies like BHEL, SAIL, etc the Ministry stated as follows:

“The present organisational structure of CIL has emerged after a number of studies and reviews. The physical and the financial performance of coal India Ltd. was studied by an Expert Committee (Fazal Committee) of Planning Commission in 1980 which recommended that CIL as a Holding company should be wound up and subsidiaries to operate independently. This recommendation was not accepted by the Govt. Organisational structure of PSUs with a view to impart greater autonomy and responsibility was studied by an Expert Committee (Arjun Sengupta Committee) of Ministry of Finance in 1984 and recommended the Holding company to stay as it provided the reasonable framework for organisational structure of Public Enterprises. The role and responsibilities of CIL and its subsidiaries was studied by ASCI, Hyderabad in 1986 which recommended abolition CIL as a Holding company. In 1988 Committee of Secretaries considered a proposal of Deptt. of Coal on the subject of institutional arrangements for the coal sector and opined that it would not be appropriate to abolish CIL keeping the future objective and needs of the coal sector in view.”

The Ministry further stated in this connection:

“The Ministry is still of the view that the existing system of the holding company and subsidiaries is the most suitable organisation structure for development of country’s coal reserves including coal production, accountability, cost control and labour management, etc.”

PART B

RECOMMENDATIONS AND CONCLUSIONS OF THE COMMITTEE

Review of Coal Mining activities

1. Achieving growth in coal production was the primary objective of nationalised coal sector. In view of the production trends over the years, the Committee find that the growth has been steeply lopsided with incremental production coming only from opencast mines. The ratio between opencast (OC) and underground (UG) coal production at present is totally unbalanced. Modernisation and productivity in UG mines is at very low level. The Committee observe that the recent policy changes resulting in a competitive and liberal economic environment have posed a new challenge to the public sector coal industry. All these developments call for a thorough review of the whole gamut of public sector coal mining activities against global perspective and performance to identify the areas of weakness and to take appropriate remedial measures.

Modernisation of exploration techniques

2. Nearly two-third of the total coal reserves constituting 197 billion tonnes are under 'Indicated/inferred category' awaiting detailed exploration. Considering the enormity of the task ahead, the steep decline in the overall drilling productivity and the detailed exploration undertaken by various agencies during the last five years is a matter of serious concern. While the drilling productivity has declined from 201 metres to 168 metres per-drill-per-month during the period 1988-92, the detailed exploration work undertaken has gone down from 3.90 lakh metres in 1988-89 to 2.51 lakh metres in 1992-93. The Committee trust that Govt. would soon take steps to induce the industry to modernise its exploration techniques and equipments to improve productivity on the lines of large coal producing countries. The Committee have been informed that Coal India Ltd. (CIL) is planning to involve foreign/private companies in exploration work. The Committee are of the opinion that instead of involving foreign companies in exploring the mines, CIL, itself should take up the exploration work. For better efficiency, CIL may import technology, if required. The Committee are also of the opinion that for exploration work, the services of Geological Survey of India under the Ministry of Mines should also be utilised and the Geological Survey of India should be strengthened for exploration purpose.

Modernisation of underground mines

3. Mechanisation in underground mines is admittedly still a longway to catch up with the global level. CIL produces only 34% of its UG production through mechanisation as against almost 100% in the case of Australia, Germany and U.K. Regrettably, longwall technology introduced with imported equipment has not met with much success as brought out in one of the following paragraphs. Mechanisation of Board and Pillar working has, however, been successful. The Committee urge that an action plan should be drawn up to achieve desired level of UG modernisation with edquipment and technology found successful and economically viable.

Development of technology

4. The percentage of reserves extractable by underground method is stated to be only 50% and in case of very thick seams recovery is stated to be as low as 25-30%. With the result, out of 68,047 MT of proved reserves only 30,838 MT are stated to be extractable. Such low percentage of extraction in the age of scientific advancement is disappointing. It should have been possible to develop appropriate technology for raising the percentage of recovery. The Committee would like to be apprised of the efforts initiated in this direction.

The Committee recommend that a plan for modernisation of those projects which are incurring losses should be drawn up expeditiously and the Committee be informed of the action taken.

Separate funds for Modernisation

5. The Committee are surprised to learn that no separate provision of funds is made for modernisation programme. According to CIL, modernisation is built into the various aspects of the project including in the choice of technology, equipment, training, etc. and it is difficult to segregate the financial component of modernisation from the total project cost. While this is understandable in the case of new projects, the Committee feel that in so far the existing projects are concerned, it should be possible to identify the modernisation requirements and funds required therefor. At present there are 32 large opencast projects and 23 underground projects which require significant modernisation. The Committee desire that a plan for modernisation of these projects should be drawn up expeditiously and sufficient funds provided for separately which would enable an assessment of progress achieved in modernisation.

Implementation of Projects

6-Projects implementation is an area which leaves much to be desired. The Committee are distressed to observe that only 15 projects have so far been completed. Out of 44 underground modernisation projects taken up at a cost of over Rs. 444 crores by CIL during the 7th Five Year Plan, 12 projects are stated to be still under implementation and 4 others got inordinately delayed due to land aquisition problems. What causes grave

concern is that as many as 13 modernisation projects could not be fully implemented due to adverse geominig conditions. The same reason has been attributed to abandonment of quite a large number of projects as discussed in the succeeding paragraph. The Ministry's claim that geominig conditions encountered in these mines could not have been predicted at the time of planning is at best an excuse for totally unsatisfactory project planning. Geological prospecting in these mines had admittedly been carried out on traditional methods. The Committee feel that there is an urgent need to adopt sophisticated exploration techniques to minimise the chances of error in forecasting the geominig conditions which will considerably improve project reliability.

Uneconomic Projects

7. The Committee are shocked to note that 47 projects, out of 168 projects sanctioned during the 7th Five Year Plan were abandoned by CIL after incurring an expenditure of Rs. 52 crores including Rs. 22 crores on equipment. Strangely, uneconomic projects had been selected with the presumption that average viability of the industry would take care of the losses through cross subsidisation. CIL's plea that uneconomic projects had to be dropped in the changed economic scenario only shows that adhocism ruled the project planning with its inevitable impact on the project implementation. The Committee expect that atleast in future the CIL will be prudent and will function on commercial principles. Further, the Committee desire that to prevent recurrence of such failures, the authorities concerned with project planning should be made accountable.

The Committee also recommend that the Comptroller & Auditor General should examine the expenditure of Rs. 52 crores, including Rs. 22 crores spent on equipments and the status of equipments so purchased.

Impact of project Delay

8. It is axioamatic that delay implementation of projects retards growth rate of production. The actual growth rate of coal production during the 7th plan was only 6% as against the target of 7%. An analysis of 58 on-going projects each costing Rs. 20 crores and above revealed that there were time over run ranging from 1 to 12 years in respect of 27 projects and cost escalation ranging between Rs. 1.36 crores and Rs. 457 crores in respect of 20 projects. The Committee recommend that in order to improve the present practices of exploration, planning appraisal, implementation and monitoring of all coal projects, the guidelines issued by the Ministry of Coal in Sept, 1991 should be strictly adhered to and it should be ensured that projects are completed on schedule and without cost escalation.

Constitution of "Land Bank"

9. The implementation of projects suffered due to problems of land acquisition and non-availability of forest land. The Committee suggest in this connection that concerned states should be persuaded to constitute "Land Bank" to simplify the process of compensatory afforestation.

Dismal production performance

10. The Committee are distressed to find that the production performance of some of the completed projects are dismal. For instance in Rajmahal expansion with an investment of over Rs. 807 crores, the production during 1992-93 was just 3.88 MT as against its capacity of 10M.T. The position in respect of Sonepur Bazari and some other projects was no better. The position was even worse in regard to some of the new underground mines. The capacity utilisation of Danbuni Coal Complex is also very poor. The Committee recommend that the reasons for this unsatisfactory performance should be reviewed thoroughly and appropriate remedial measures taken at the earliest to ensure optimum production.

Modernisation of Coal Washeries

11. The Committee note that the delay in modernisation of Coking Coal washeries recommended by Altekar Committee far back in 1986, is partly responsible for low utilisation of washeries and consequent shortage of Coking Coal necessitating imports. Some of the reasons advanced for the delay such as delay in finalisation of technology, delay in tender finalisation and delay on the part of contractor are obviously within the control of the management and could have been avoided with advance planning and timely corrective measures. The modernisation work is now expected to be completed by March 1995. The Committee recommend that a task force should be formed to complete the modernisation of washeries in the light of the Altekar Committee Report and modernisation of washeries should be completed by 1995.

Fire in Jharia Coalfields

12. The Committee are concerned to note that with the available methods Technologies, it has not been possible to extinguish the fires in Jharia Coalfields. At the time of nationalisation in 1971, there were 70 active fires in 42 collieries of Jharia Coalfield covering an area of 17.32 sq. kms. It has been estimated that about 1864 million tonnes of coal reserves are blocked and about 37 million tonnes of coal damaged due to these fires. With the efforts made so far only five fires have so far been extinguished. It has been stated that suitable technologies are available in advanced countries to deal with the kind of fire in Jharia. The Committee hope that expeditious steps will be taken to get foreign assistance to deal with this problem and the Committee be informed of the outcome. Efforts should also be made to control fires originated by subsidence due to unscientific mining in Raniganj and Chirmiri Coalfields.

Modernisation of Rescue Operation

13. One of the principal objects of nationalisation of coal mines has been scientific mining with safety of the miners. The information furnished to the Committee regarding the overall rate of fatalities per-million-tonnes of output in CIL shows a significant decline from 2.05 in 1973 to 0.57 in 1993 (provisional) and the fatality rates compares favourably with advanced countries like Germany and USA. The Committee feel that the overall fatality rate alone does not bring out the complete picture regarding safety. A more meaningful comparison would be to consider the fatality rate over the years in UG mines which are more hazardous and prone to accidents as compared to OC mines. The Committee would await this information. The Committee note in this connection that implementation of a plan for expansion and modernisation of rescue services within CIL has been in progress. The Committee hope that implementation of the plan will be completed on schedule and large dia Boring machines for emergency rescue operations introduced early.

Review of Safety Measures

14. The Shocking accident at New Kenda Colliery on 25th January, 1994 which left 55 miners dead underlines the need for greater attention to the safety aspects of coal mines. A Court of Enquiry has been ordered to look into the causes of the accident. The Committee will await its finding. It is needless to emphasise that safety measures should receive the highest consideration particularly where these concern the human lives. The Committee therefore, recommend that the Govt. should have a fresh look at the safety measures presently followed in coal mines and if any gaps are revealed should take immediate corrective measures in order to minimise if not totally eliminate, such tragedies in future.

15. While dealing with the safety aspect, it came to the notice of the Committee that three officers were found guilty of Culpable negligence by a Court of Enquiry which enquired into the fatal accident of Mahabir Colliery in November, 1989. Whereas Directorate General of Mines Safety has launched prosecution against these officers in the court, the management has not only allowed them to continue in service but has in one case even promoted the officer to a higher grade. The management has not thought it fit to initiate departmental action against those found guilty by a court of enquiry. The Committee fail to understand the reasons for this inaction on the part of the management.

Resource Mobilisation

16. One of the major constraints in implementing modernisation projects and achieving desirable growth is non-availability of sufficient funds. With the outstanding dues on the rise and budgetary support on the decline, the shortfall in resources according to the Chairman, CIL is expected to be to the tune of about Rs.2,000 crores during the 8th Five Year Plan. The

outstanding dues of CIL as on 31.12.93 stood at a whopping Rs. 3628 crores mainly from State Electricity Boards which held 81% of the CIL's total dues. To clear these dues, Central appropriation of State plan assistance has been proposed. The Committee feel that such a step would adversely affect the economic activity of the States concerned. The Committee would instead

recommend that to protect the interests of the producer as well as the consumer a mechanism should be evolved which should sort out the problems such as settlement of dues, disputes, mode of payments etc.

Decontrol of Prices

17. Another problem in raising resources according to the Ministry of Coal is posed by inadequacy of coal prices and consequent losses accumulated by CIL to the tune of Rs. 2094 crores as at the end of March 1993. The performance of CIL which for long had been in the red has picked up only in the last two years recording a modest profit. The question of decontrol of prices of coking coal and some grades of non-coking coal is stated to be under the consideration of Govt. The Committee trust that the Govt. will take an early decision on this question taking into account the imperative need to generate internal resources for investment in future projects.

Reorientation of production planning

18. While coal production has grown phenomenally from 75.6 MT in 1971 to 245 MT in 1993-94, what causes concern is that it has been accompanied by rising pithead stocks which have gone up rapidly over the years with adverse impact on the economics of the industry and with attendant problems like higher propensity to coal fire and deterioration in coal quality. The Committee note that achievement of production growth has been realised mainly from inferior grades of coal as available from opencast mines. Improper planning and non-availability of right type of coal have caused, on the one hand accumulation of stocks to an alarming level of 51.30 MT at the end of march 1993 and on the other has necessitated import of Coking Coal to the tune of 6.38 MT in 1992-93. There is, therefore, an imperative need for reorienting the production planning. The focus has to change from target-oriented production to needbased production providing right type of coal. This would also entail a shift from OC mining to UG mining, the latter being the major supply source of high quality coal. The Committee would also like to emphasise that any evaluation of coal production should be related not only to its volume but also to its useful heat value which is the determinant of actual coal requirement.

Mix of O.C.—U.G. Mining

14. Judicious planning of coal production demands a proper balancing between OC and UG coals, keeping in view the ration between available UG and OC reserves. The Committee have been informed that out of the proved coal reserves of 30.84 billion tonnes about 56% are extractable by UG mining and only 44% by OC mining. Viewing from this background the increase in the share of OC mining from 26% to 73% during the last 2 decades with corresponding decline in the share of UG mining is obviously lopsided. Unless this trend is reversed soon, the country will be confronted with an acute shortage of coal for want of shallower reserves. The Committee in this connection find that major coal producing countries like China, Poland, Germany and U.K. are producing more than 90% of their production from UG mining. Taking note of this and keeping longterm perspective in view, the Committee urge that the production programme of OC and UG coal should be rescheduled to reach an optimum-mix in the successive five year plans.

Action plan to accelerate underground production

20. The Committee observe that the underground production and productivity of CIL have more or less remained static at the level of 57 M.T. and 2.55 tonnes of output permanshift (OMS) respectively during the last two decades. The OC production has, however, risen from 17 M.T. in 1971 (All India to 154 M.T. (CIL) in 1992-93 and the productivity from 1.90 tonnes to 3.64 tonnes of OMS. The Committee desire that an action plan for accelerating UG production and productivity should be drawn up early and specific time targets established for implementation.

Underutilisation of equipment

21. Equipment underutilisation is another area of serious concern. While norms of utilisation themselves appear to be unreasonably low, what dismays the Committee is that the actual utilisation by CIL fell much short of even these norms during 1992-93. The utilisation of dumper, dozer, drill and shovel was just in the range of 51% to 63% of the norms. Considering the replacement cost of these equipments which is estimated at Rs. 9,000 crores such huge underutilisation causes grave concern. Various reasons have been advanced for this unsatisfactory performance, some of which are within the control of the management. The Committee feel that with advance planning and on-course corrective measures, it could have been possible to achieve high level of utilisation and production. The Committee hope that at least now measures will be taken to remove the shortcoming and achieve optimum level of equipment utilisation.

Quality of equipments

22. One of the main reasons advanced for frequent unforeseen breakdowns of major equipments and consequent poor fleet availability is stated to be the inability of the indigenous manufactures of HEMM to

meet the desired quality standards and ruggedness. The Committee stress that quality of indigenous equipment after sales & service etc. should be improved to the level of international standards and modern devices like electronic sensors, early warning systems to warn against premature failures, more sensitive thyristor control etc. should be introduced.

Performance of longwall faces

23. The Committee observe that even 15 years after introduction, CIL has not been able to satisfactorily employ longwall technology which has proved productive in other coals producing countries. During 1992-93 only 6 out of 15 longwall faces established at a cost of over Rs. 197 crores were operated and just 1.47 M.T. of production realised as against the capacity of 9 M.T. The Committee have been informed that 3 sets have outlived their life. Whatever be the reasons for such poor performance the least the Committee expect from the management is to rectify the identified deficiencies and optimise the production from the longwall faces at the earliest.

Revamping Uneconomic Mines

24. At present CIL is required to continue operations in a large number of uneconomic mines. It has been stated that operation performance of 18 mines cannot be improved and that substantial overall economy can be achieved if operation in such mines are phased out. The Committee suggest that attempts should be made to revamp the uneconomic mines and in case this is not feasible, expeditious steps should be taken to close down these mines in a phased manner. The Committee also desire that an early decision should be taken regarding the question of denotification of acquired lands which are no longer required for coal mining purposes after proper reclamation and stabilisation.

Rationalisation of workforce

25. The number of identified surplus manpower in CIL as on 1.4.93 was 10,848 as against 17,222 in the preceding year. 6232 workers have reportedly retired during 1992-93 under a Voluntary Retirement Scheme. Some of the subsidiaries of CIL have, however, been experiencing difficulty in allowing employees to retire voluntarily due to paucity of funds. Considering the number of surplus labour in CIL, the pace of retirement under the scheme needs acceleration. The Committee therefore recommend that the Govt. should provide requisite fund to CIL from the National Renewable Fund for rationalising the work force through Voluntary Retirement Scheme.

Coal Marketing and Distribution

26. At present 83% of CIL's total coal despatch to various consumers is subjected to joint sampling arrangements. The Committee regret to learn that the sampel collection process is totally manual at present. The Committee hardly need to emphasise that it is essential to mechanise this

process for successful implementation of quality assurance system introduced by CIL. The present system of coal marketing and distribution is admittedly cumbersome. CIL has pleaded for a free hand in the area of distribution and marketing strategies. The Committee agree with this plea and recommend that Govt. should take suitable measures in this regard at the earliest to ensure CIL's efficient operation within the competitive environment.

Thrust on R&D activities

27. The Committee are distressed that Research and Development which is vital for modernisation and growth of coal industry has been a neglected area. Although a Standing Scientific Research Committee headed by the Coal Secretary is in existence, the contribution of R&D towards modernisation and growth of coal industry is admittedly not significant. The Committee are dismayed to learn that the total expenditure incurred on S&T programme during the last 18 years was just Rs. 52.6 crores which by any yardstick was vastly insufficient to under take any major R&D programme. There is no in-house R&D set up in coal sector. It is only now constitution of a Research & Development Board headed by Chairman, CIL has been contemplated. The Committee expect that this Board should be set up soon with sufficient funds and necessary thrust for R&D activity given to achieve desired results. The Committee also recommend that the Standing Scientific Research Committee in the Ministry of Coal should monitor the progress in solving the specific problems relating to mining technology, safety and coal utilisation, improvement in coal quality and environmental protection, etc.

There are several committees/organisation which are engaged at present in the R&D work relating to Coal. The Committee desire that efforts of these organisations should be effectively coordinated and target should be fixed to achieve results in a specified time in the areas such as higher percentage of recovery, public safety, low cost of production and meeting the requirements of coal consumers.

Environmental management plan

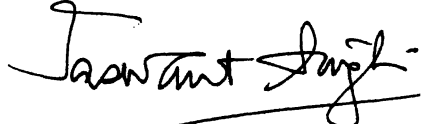
28. Coal produces adverse environmental impact at all the stages of fuel cycle right from extraction to its use. Detailed environmental management plans are reportedly being drawn up to regulate adverse environmental impact of air, water and noise pollution, land degradation, etc. of existing mines. The Committee would like to be informed of the details and programme of implementation of these plans and the progress made in implementing the guidelines issued by Govt. on 19.10.90 regarding rehabilitation of land outstees. The Committee recommend that in order to ensure effective implementation of the EMPs, a statutory authority with clearly defined objectives should be set up.

Coal Utilisation Techniques

24. There is an imperative need for development of coal utilisation technologies which are environmentally benign. However, this has not received the attention it deserves. The Committee, therefore, emphasise that suitable R&D strategy should be evolved to develop technologies like coal gasification, integrated gasification combined cycle, etc. for commercial application to ensure efficient and cleaner utilisation of coal.

NEW DELHI,
July 21, 1994

Asadha 30, 1916 (Saka)



JASWANT SINGH,
Chairman,

Standing Committee on Energy.