

CHAPTER-IX

COAL CONSERVATION, UTILISATION AND RESEARCH & DEVELOPMENT

COAL CONSERVATION

9.1 Conservation of coal enjoins maximum recovery of in-situ reserves of coal. Coal deposits in India occur mostly in thick seams and at shallow depths. These aspects are taken into account during mine planning and operation in ensuring maximum recovery.

9.2 Mechanized opencast mining in India is one of the very important technology of coal production of thick seam from shallow depth. The percentage recovery by this method is up to 80% to 90% of the in-situ coal reserves. The coal production from opencast method in Indian mining is more than 80% of total production. This trend is likely to continue in near future. The thick seam deposits, earlier developed in Bord and Pillar method or other methods of underground mining, which had been standing on pillars for long in absence of a suitable technology of extraction have now in many cases become extractable by opencast mining with HEMM equipment of suitable type. This method has been tried with success in some of the mines like WCL, BCCL, CCL and ECL where underground mining was carried out in the past under the relatively shallow cover .

9.3 In case of SCCL the scope for planning for opencast mines is limited; longwall methods are being applied in the case of underground mines to achieve higher underground production with higher percentage of recovery. The longwall method of mining is also being implemented in SECL, ECL and BCCL in Coal India. The overall recovery in longwall technology is comparatively more than the recovery in B&P mining.

9.4 Mines having difficult geo-mining conditions like steep and irregular coal seam deposits, special underground mining methods such as, Shield method, Flexible roofing method, Bhaska method, Chamber method, Tipong method, Scraper-assisted-chamber method, etc., have been tried, out of which some methods have been successfully adopted.

9.5 In underground mining of thick seams where earlier the extraction percentage was very low, new methods of mining with relatively higher recovery such as blasting gallery, and cable bolting have been successfully adopted.

SAND STOWING

9.6 Sand stowing in underground mines is yet another effective means of coal conservation, which is widely in use for extraction of coal pillars from underground coal seams and coal seams lying underneath built-up areas, such as important surface structures, railway lines, roads, rivers, nallahs, Jores, etc. which otherwise would have resulted in locking of coal in pillars. However, the economic viability of underground mining with sand stowing is getting bleak with increasing cost of stowing.

Many fire control schemes particularly in Jharia coalfields are being implemented primarily with a view to coal conservation.

All these efforts are directed for higher recovery and show the grave concern of the industry for conservation.

RESEARCH & DEVELOPMENT

9.7 Under Research & Development activities for increased extraction of coal, the following projects have been taken up:-

- (i) Optimal extraction of coal in locked up pillars underneath aquifers and fragile ecology - CMRI/SECL
- (ii) Development of an efficient method of extraction of developed pillars for seam thickness up to 3.5m - SECL
- (iii) Optimal extraction of coal locked in pillars of multiple and thick seams -NIRM/SCCL
- (iv) Optimization of pillar parameters for development and final extraction of highly inclined seams at SCCL mines - SCCL/ NIRM.
- (v) Depillaring with cable bolting using LHD at Madhusudanpur Colliery - ECL

CONTROL OF MINE FIRES AND SUBSIDENCE

Jharia Coalfield

9.8 In the Jharia coalfield at the time of nationalization of coking coal mines in 1972, there were reportedly, 70 active mine fires in about 17 Sq.kms. 22 Fire Projects were taken up from 1975 to 1988 for control of these fires at an estimated outlay of Rs.114.57 crores. 10 fires were extinguished and the remaining fires were by and large kept under control.

8 Schemes for fire and subsidence control were sanctioned in 1997-98 under EMSC/SSRC Schemes of Ministry of Coal. 4 of these schemes have been completed, 2 are nearing completion and 2 are scheduled to be completed in March, 2004. The capital outlay for these 8 schemes was Rs.16.18 crores. Further 4 new RCFS Schemes were sanctioned by Ministry of Coal for protection of railway lines and Chatkari zone.

9.9 Under IDA credit to the Govt. of India, BCCL received a loan of US \$ 12.00 million for developing a long-term plan for carrying out investigation and preparation of recommendation of measures for extinguishing/controlling fires and preparation of Environmental Management Plan (EMP) for Jharia Coalfield. M/s GAI-METCHEM, a joint venture of USA/ Canada was appointed for preparing the 'FIRE FIGHTING PROGRAMME' and M/S NORWEST MINE SERVICES of Canada for preparation of the EMP. The major observations/ findings are given below.

9.10 FIRE FIGHTING PROGRAMME

1. Overall fires have reduced in area from about 17 sq.km. (1986) to 9.0 sq.km.(1996).
2. Dhanbad-Patherdih Railway Line (28 km) is endangered by fires and requires grouting stabilization relocation preferred.

Implementation status: One EMSC scheme at Lodna is under implementation, which involves stabilization of railway lines and control of fire. Sand flushing, blanketing, nitrogen injection etc. is in progress. Further 2 schemes under RCFS have been sanctioned by Ministry of Coal at North Lodna and Bararee for protection of railway line at Lodna and Bararee Colliery. The passenger traffic on the railway line between Dhanbad to Patherdih has been stopped by the railway authorities from 4th July, 2002, keeping in view the danger of fire and subsidence to the railway tracks specially near Lodna, Bagdigi and Bararee Collieries. This was as per the directive of committee constituted by Eastern Railway comprising of members from Eastern Railway, Ministry of Coal, BCCL, S.E. Railway, ECL, State Govt., CIL and CMRI.

3. Adra-Gomoh Railway Line requires protection by isolation trench and water curtain.

Implementation status: One RCFS scheme has been sanctioned in August 2001 for protection of Adra-Gomoh railway line at Block-II OCP and Phularitand Colliery at an estimated cost of Rs 5.78 crores. Work for fire control in Block-II OCP site of Adra-Gomoh railway line has been started under the RCFS Scheme.

4. Ekra Kari and Chatkari Jores are endangered by fires and requires immediate grouting stabilization.

Implementation status: Two EMSC Schemes, one at Industry Colliery at Kari Jore and one at Joyrampur Colliery for Chatkari Jore has already been completed which involves stabilization of Jore bed by sand flushing and cement grouting. Further one RCFS scheme has been sanctioned in August 2001 for diversion of Chatkari Jore at Jeenagora-Bararee Colliery which is now under implementation.

5. Jharia and Kirkend towns and other built up areas are endangered due to fires and require immediate isolation from fires. Shifting of townships have been recommended as better option.

Implementation status: Shifting of most critical houses from the areas affected due to fire and subsidence under a demonstration scheme "Shifting of people from most endangered areas of BCCL" at an estimated cost of Rs.33.88 crores is under implementation. The scheme has now been revised to Rs. 61.09 crores, which has been approved by Departmental EFC. 344 BCCL houses are under construction, out of which 284 houses have been completed. Development work is to be done. Out of this, 32 families have already shifted to newly constructed houses. The State Govt. is to take action for shifting of non-BCCL persons. The site for shifting of non-Bharat Coking Coal Limited houses has been finalized for Belgoria mauza.

6. Some fires may be excavated as part of profitable opencast mining projects such as Block-III, Kusunda, Block-IV and Tisra.

No progress due to land acquisition problems associated with financial constraints.

9.11 PREPARATION OF ENVIRONMENTAL MANAGEMENT PLAN (EMP) FOR JHARIA COALFIELD

1. 22,300 families are required to be shifted.

Implementation status: Shifting of BCCL employees from the areas affected due to fire and subsidence under a demonstration scheme "Shifting of people from most endangered areas of BCCL" at an estimated cost of Rs.33.88 crores is under implementation. The scheme has now been revised to Rs 61.09 crores, which has now been approved by Departmental EFC. 344 BCCL houses are under construction, out of which 284 houses have been completed. Development work is to be done. 32 families have shifted to newly constructed houses. The State Govt. is to take action for shifting of non-BCCL persons. The site for shifting of non-Bharat Coking Coal limited houses has been finalized for Belgoria mauza.

2. Predominant air pollution is from road generated dust and vehicle exhaust.
3. Contribution of dust by traffic is about 37% of total pollution load in Jharia Coalfields.
4. The coalfield contributes about 15% of the total pollution load in the Damodar River.

Implementation status: Recirculation arrangement has been adopted in all washeries of BCCL and no effluent is going into the Damodar River from BCCL's Washeries.

5. Construction of small reservoirs to the North of the coalfields across the streams is recommended.
6. Continue the existing plantation programme and encourage social forestry.

Implementation status: Plantation work in 278 hectare of degraded land has been done at Lodna, Bhowrah, Sijua, Govindpur and Barora areas.(approx 6.95 lakhs saplings have been planted). The maintenance and protection work is in progress.

Subsidence Problem in Raniganj Coalfield

9.12 In Raniganj Coalfields, good quality non-coking coal occurring in thick seams at shallow depth was mined indiscriminately with very small size pillars. In old days, when the surface was not densely populated, the operators had extracted as much coal as possible. With the growing industrial importance of Asansol, various townships have come up during the last century and further growth is going on, even though, some of the areas fall among those declared unsafe by DGMS.

9.13 Various Committees were formed on subsidence to identify unstable area and to suggest remedial measures. Apex Monitoring Committee with Sri H.B.Ghosh, Ex.DGMS

and retired CMD, CMPDIL, as Chairman and representatives of Govt. of West Bengal, DGMS, CMPDIL, ECL, CMRI with local representatives etc., was constituted to go into the problem of subsidence of Raniganj coalfields. In June, 1992, it identified 49 unstable locations and again in September, 1995, 21 more locations were declared unsafe.

More recently, DGMS have indicated 171 unstable locations.

9.14 A High Level Committee with Secretary(Coal) as Chairman and representatives of Central and State Govts., DGMS, Planning Commission, ECL, BCCL & CMPDIL members was constituted on 19.12.96 to look into the problem of subsidence and fire in Raniganj & Jharia coalfields. The Committee suggested that Master Plan be prepared to tackle the problem of subsidence and fire.

9.15 On suggestion of High Level Committee, CMPDIL was entrusted with the job to prepare a Master Plan for Raniganj Coalfields. In its report submitted in February, 99, CMPDIL had identified 146 locations as unstable and one of these location has been considered as controllable. 145 uncontrollable locations need stabilization resettlement / rehabilitation or diversion. Locations having low depth working, small pillar size, fire, illegal mining, less population, recent history of subsidence etc. have been considered for rehabilitation and other locations for stabilization. In its report, CMPDIL, identified:-

- 1) 59 locations for stabilization.
- 2) 80 locations for rehabilitation have been further categorized as priority 1 and priority 2.
- 3) 7 Location consisting of Railway line and road have been considered for diversion; and
- 4) 7 fire areas have been considered for bio-reclamation.

HIGH LEVEL COMMITTEE

9.16 A High Level Committee was constituted with Secretary(Coal) as Chairman to go into the problem of subsidence and fire in Raniganj and Jharia Coalfields to suggest mitigative measures. The Committee submitted its report in January, 1998. The recommendations of the Committee were accepted by the Govt. of India and the implementation status of the recommendations is given below:-

Recommendations of High Level Committee

Recommendation No. I

Wherever possible settlements of all unstable areas should be shifted to non-coal bearing zones. For this purpose, satellite townships are the best long term solution against subsidence hazards in the coalfields.

Implementation Status

That BCCL is constructing new colonies on non-coal bearing land and process of shifting its employees is going on. The number of houses in townships over non-coal bearing areas, where employees are being shifted are around 14442.

In ECL a Scheme was prepared by CMPDIL for rehabilitation of four unstable locations at Samdih, Bangalpara (Refugee basti), Kenda and Harishpur village. The Scheme

has been approved by Govt., of India under EMSC Scheme of Ministry of Coal in May, 1997 with a capital of Rs.32.52 crores. An amount of Rupees one crore has already been released under this scheme.

The following steps have been taken for implementation of the Scheme.

- i) Constitution of Core Committee consisting of CMD, ECL, District Magistrate, Bardhaman and Director, Commerce & Industries Department, Govt. of West Bengal.
- ii) Constitution of Core Group consisting of representative of ECL/CMPDIL, Asansol and local administration (ADM, Asansol, BDOs, Sabhadipatis, Gram Panchayat & others) for finalizing the various issues like selection of sites, carrying out socio-economic surveys and finalization of compensation packages and construction of houses for the affected persons. This group consisted of following:
 1. Addl.District Magistrate, Asansol,
 2. Regional Director, CMPDIL, RI-I,Asansol,
 3. Chief General Manager (Finance),ECL,Sanctoria,
 4. General Manager (Surface Construction), ECL, Sanctoria,
 5. General Manager, JK Ropeways,ECL.

The Core Group prepared the Action programme for implementation of the scheme and finalized it after discussion and approval of the Core Committee.

As per the finalized schedule of activities, Core Group held a series of meetings involving BDO, Sabhadhipatis and Gram Panchayet Pradhans in order to form the representative village committees for each location to negotiate. There have been numerous difficulties due to various reasons to sort out this problem. Such Committees could ultimately be constituted only at three locations, namely, Refugee Basti (Bangalpara), Samdih (Phase-I Muchipara) and Kenda village. Such a committee has not been constituted for Harishpur village even till December, 2002.

Rehabilitation of these four locations is considered to be a stepping stone before a mass rehabilitation is contemplated which will require satellite town ships.

Recommendation No. II

There should be total ban on any new construction over declared unsafe areas in the coalfields. Government of Bihar should also enact suitable legislation inline with the one already existing in West Bengal preventing construction over unsafe areas.

Implementation status

BCCL has put a total ban of construction of any new houses/Colony/quarter over unsafe areas. Mining Area Development Authority(MADA) constituted by Govt. of Bihar issued notification dated 30.6.97 banning any new construction over critically endangered areas in BCCL. BCCL has written letters to Bihar/ Jharkhand Govts. to take necessary steps for the enactment of a suitable legislation banning new construction over declared unsafe areas in the coalfield. It is learnt that the enactment of the legislation is in process.

In ECL the suitable legislation as contemplated by the High Level Committee is already existing in the State of West Bengal under the West Bengal Restriction on Construction in Unsafe Areas Act, 1979.

Recommendation No. III

For tackling the problems of fire and subsidence both in JCF and RCF, the participation and assistance from State Government and local administration is essential. Any enforcing agency entrusted with the responsibility of carrying out mitigating measures against fire and subsidence in RCF and JCF should be adequately represented by the above authorities.

Implementation status

A High Level Committee has been constituted by the State of Jharkhand vide notification dated 2.8.2001 which is chaired by Minister of Mines and Geology, Govt. of Jharkhand and includes representatives from other State Govt. Officials and also from DGMS, BCCL & CMPDIL. The said committee has been constituted to look into the problems of rehabilitation of people affected by fire and subsidence in Jharia Coalfields.

Since then, a series of meetings have been held with the Committee to sort out the different problems related to shifting of people from the affected areas. A fresh survey of the affected areas was done in November-December, 2001 for identification of exact number of persons living in the affected areas as per the list of the locations in the demonstration scheme. The number of non-BCCL houses have increased to 5237 from 3100 in the identified localities.

In ECL a Core Committee has been constituted consisting of CMD, ECL, District Magistrate, Burdwan and Director, Commerce Industries Department, Govt. of West Bengal. In addition to the said committee, a core group has also been constituted consisting of representatives of ECL, CMPDIL, Regional Institute, Asansol and local administration. The said agencies are assisting ECL to effectively implement various rehabilitation schemes as approved by Central Government.

Recommendation No. IV

The mitigation measures against subsidence and fire hazards are very costly options and fruitful implementation of these measures can only be possible through separate executing agency with separate funding. Formation and representatives of such agencies responsible for formulating schemes, their implementation and management of funds should be finalized at the earliest. A broad outline of executing agencies has been evolved in consultation with the concerned State Governments and the Govt. Companies.

Implementation status

BCCL has constituted one Executing Committee in June, 1998 for rehabilitation of its employees with members from Director General Mines Safety, CMPDIL and Central Mining Research Institute for formulation and implementation of schemes for mitigation measures against fire and subsidence. However, member from the State Government is yet to be nominated. As per the demonstration scheme BCCL has taken up construction of 344 houses

out of which 284 houses have been completed and 32 families have already been shifted. The construction of houses is under different stages of construction. These houses are for BCCL employees. For non-BCCL people several meetings were held with the State Govt. for implementation of construction of houses for non-BCCL people and the shifting of the persons thereof. The proposed site for shifting of non-BCCL people has been finalized by the State Govt. at Belgoria mouza where BCCL has offered its land for rehabilitation as a one time social gesture.

ECL has constituted a Core Committee and a Core Group for implementation of a rehabilitation scheme. Formulation of schemes and their regular monitoring for mitigation against subsidence and fire by sand filling and afforestation in the fire area is being done by CMPDIL for which sufficient funds have been allocated.

Recommendation No. V

The innovation hydro-pneumatic stowing technology currently being used at some locations in RCF has been found to be very slow process. High pressure slurry pumping technology for underground void filling should be tried at some locations in BCCL for stabilizing inaccessible unstable underground workings.

Implementation status

A R&D scheme for High Capacity Sand Flushing at Madhuband Colliery in BCCL has been sanctioned by Coal India Limited to establish the technology of high pressure sand stowing at Madhuband Colliery which has been established. Further trials are being conducted for research in the other parameters of high capacity sand flushing.

Besides this, another scheme for High Concentration Fly Ash Slurry Stowing has been sanctioned by CIL for undertaking research for establishing this new technology of high concentration fly ash stowing in the mines of BCCL. This scheme has been taken up and is now under tendering process.

In ECL, after the laboratory trials at IIT, Kharagpur, CMPDIL has prepared a trial report on stabilization of old abandoned underground voids by slurry pumping technology. This report is under examination at ECL, Headquarters.

Recommendation No. VI

Intensive stabilization work of unstable areas under locations, like Raniganj town from where population cannot be shifted, should be carried out and persons affected in the high risk but low-density areas may be relocated in a phased manner.

Implementation status

Stabilization work at the following sites of ECL has been completed.

1. Borachak (EMSC-02)
2. Fatepur Phase(II) (EMSC-01)
3. Haripur Phase-I (EMSC-26)
4. Arun Talkies (under CCDAC assistance)
5. Kumar Bazar

Stabilisation work at following sites of ECL are in progress.

- 1) Fatepur – Phase-III (EMSC-01)
- 2) Hariipur - Phase-II(EMSC-02) - Unspent money of Phase-I will be utilized for additional quantity of sand filling.
- 3) Palasban - EMSC(15)
- 4) Gowalabasti - (EMSC-16)
- 5) Porarbandh - EMSC(17)
- 6) Pottary area - EMSC(18)
- 7) Bhutdoba - EMSC(19)
- 8) Sanctoria - EMSC(29)

Schemes are being implemented as per the priorities fixed in the Master Plan for Raniganj Coalfields.

Not applicable to BCCL

Recommendation No. VII

The mitigation measures against subsidence and fire hazards are very costly options arranging fund for the purpose of stabilization of the subsidence prone areas and resettlement of affected people, the money could be made available either through planned expenditure may be approved by Planning Commission or unplanned expenditure from Coal Conservation and Development Act Fund after making suitable enhancement.

Implementation status

The Central Government has already sanctioned Rs.33.88 crores (now under revision to Rs.61.09 crores) for a "Demonstration Scheme" for rehabilitation of 4600 houses out of which 1500 are to be occupied by BCCL employees and 3100 are to be occupied by non BCCL persons/encroachers which are situated in most endangered area. The scheme has now been revised to Rs. 61.09 crores which has been approved by Departmental EFC

For 8 schemes for fire and subsidence control, an amount of Rs.16.18 crores has been sanctioned by Central Government out of which 4 schemes have been completed in June, 1999, Nov, 1999, Dec, 2000 and July, 2001 where-under an expenditure of Rs 1.70 crores has already been incurred in the completed four schemes. The total progressive expenditure incurred on the 8 schemes is Rs 10.26 crores.

Another scheme, for stabilization of the seam below an area of Jharia town, commonly called "Bata More" has been completed on turn key basis at an expenditure of Rs 26.52 lakhs in December, 1999 by Central Mining Research Institute under CSIR. Further, 4

new schemes for protection of railway lines and stabilization of Chatkari Jore have been sanctioned under RCFS scheme at an estimated outlay of Rs.25.60 Crores which is under implementation.

In ECL, funds for Arun Talkies and Kumar Bazar were provided from CCDAC funds. For other sites, funds are provided by Ministry of Coal under EMSC Schemes. Budget head has been created by the Planning Commission for the purpose.

Recommendation No. VIII

Considering the urgency one scheme each by ECL and BCCL for shifting of the population from the unsafe areas may be taken up without waiting for the positioning of the institutional arrangement from planned funds available with the Ministry of Coal.

Implementation status

One demonstration scheme for BCCL has been approved by the Govt. at an estimated cost of Rs.33.88 crores. Central Govt. had earlier released Rs.1.00 crore to BCCL against this approved scheme. Further funds of Rs.6.30 crores had been released in the month of May, 2001. The scheme has now been revised to Rs. 61.09 crores which has been approved by EFC.

One such scheme for ECL was prepared by CMPDIL for rehabilitation of four unstable villages, namely, Samdih, Refugee Basti, Kenda and Harishpur village. This scheme was approved by Govt. of India, Ministry of Coal, at a total cost of Rs.32.52 crores in May, 1998. Due to indifferent attitude of the villagers and lack of initiative on the part of State Govt., no material progress could be achieved till date.

Recommendation No. IX

The Interim Report submitted by BCCL and ECL jointly with State authorities on the fire and subsidence prone areas indicating likely affected population and financial implications should be kept in view while drawing up priority wise schemes for immediate and effective way to deal with the problems.

Implementation status

In BCCL and ECL, the new schemes / projects which are being sanctioned are prepared keeping in view the Interim Report and the Master Plan prepared by CMPDIL which is also based on the High Level Committee report.

9.17 Schemes under the head "Environmental Measures and Subsidence Control"

8 schemes for fire and subsidence control with a capital outlay of Rs.16.18 crores has been sanctioned by Ministry of Coal. Out of these 8 schemes, 4 schemes for stabilization have been completed in June 1999, Nov 1999, Dec 2000 and July 2001, the other 4 schemes are under implementation.

The details of the schemes are as follows:-

				(Rs. lakh)
(a)				
Sl. No.	Name of Scheme	Sanction cost.	Cumm. Expn. Upto 31/10	Status
A.	Stabilization Schemes			
1.	Stabilization below Jharia Water Board Tank at East Bhagatdih Colliery	88.695	81.696	Completed
2.	Stabilization below Chatkari Jore at Joyrampur Colliery	47.460	31.150 (Prov.)	Completed
3.	Stabilization of Kari Jore at Kusunda/Industry Boundary	5.430	4.427	Completed
4.	Stabilization below Kusunda Yard at Khas Kusund	49.630	52.950	Completed
B	Fire Control Schemes			
5.	Dealing with fire at Alkusa Colliery	368.390	246.441	Under implementation
6.	Dealing with fire at Rajapur Colliery	471.870	268.980	Under implementation
7.	Dealing with fire at S.Lodna Colliery	333.720	256.260	Under implementation
8.	Dealing with fire at Industry Colliery	253.300	86.685 (Prov.)	Under implementation
	Total	1618.000	1028.589	

Further, 4 new schemes for Protection of Railway lines and diversion of Chatkari Jore have been sanctioned under RCFS Schemes through Ministry of Coal at an estimated outlay of Rs.25.60 crores. These schemes are under implementation. The details of the schemes are as follows:-

S.N.	Project	Approv Date	Sanc.cost (Rs.Lakh)	Status
1	Scheme for dealing with fire for protection of Dhanbad-Patherdih Rly Line at Bararee Colliery	Aug. 01	577.00	Under implementation
2	Scheme for dealing with fire for protection of Dhanbad-Patherdih Rly. Line at Lodna-Bagdigi Collieries	Aug. 01	635.00	-do-
3	Scheme for dealing with fire for protection of Adra-Gomoh Rly. Line at block-II-Phularitand Collieries	Aug. 01	635.00	-do-
4	Scheme for dealing with fire for protection of Chatkari Jore at Jeenagora-Bararee Collieries	Aug. 01	770.00	-do-
	Total		2560.00	

(b) Subsidence Control

The details of the completed schemes are given below:-

S1. No	EMSC No	Name of the Scheme	Approved Cost (Rs. in Crores)	Remarks
1	5	Generation of data and identification of subsidence prone area in ECL	0.26	These schemes have been completed in 98-99
2	6	Technological measures for control of Subsidence where feasible in the leasehold of ECL	0.47	Completed
3	7	Generation of data and identification of subsidence prone areas in BCCL	0.26	Completed.
4	8	Technological measures for Control of Subsidence where feasible in the leasehold of BCCL	0.48	Completed
5	10	Stabilization below Kusunda Yard at Khas Kusunda	0.50	This scheme has been Completed in Oct, 2001
6	11	Stabilization of Kari Jore at Kusunda/ Industry Boundary	0.05	This scheme has been completed in June, 1999
7	12	Stabilization below Chatkari Jore at Joyrampur	0.47	This scheme has been completed in July,2001
8	14	Stabilization below Jharia Water Board Tank at East Bhagatdih Colliery	0.89	This scheme has been completed in Dec,99
9	02	Stabilization of inaccessible waterlogged voids beneath Borachak Village.	4.69	Scheme completed in Nov,2001 with total expenditure of Rs.2.58 Crores.
10	26	Stabilization below Haripur Village Phase -1	1.88	Phase-I Completed in Feb, 2001 with total expenditure of Rs. 1.20 Crs. Part of the village, not covered in Phase-I, is yet to be stabilized. Stabilization of this part will be taken up with the unspent money of Rs.0.68 Crores.

Ongoing schemes

- i) For reclamation of abandoned coal mines in ECL, 854.27 Ha. degraded area of OB dumps, open cast voids and fire areas have been completed by 31.12.02 by Social Forestry Division of Govt. of West Bengal and Jharkhand out of targeted area of 891 hectare.

- ii) Two schemes namely " Scheme for reclamation of degraded land in BCCL" for the year 2000 (78 ha.) and " Scheme for reclamation of degraded land in BCCL (200 hectare) are under implementation in BCCL.

Collieries	EMSC Code	Sand stowing in cu.m.as per scheme	Sand stowing done in cu.m. till 30.11.02
Lodna	EMSC -20	49500	41789
Rajapur	EMSC -21	77000	22873
Alkusa	EMSC -22	50000	7615
Industry	EMSC -23	35000	48581

- iii) P&M required for hydro-pneumatic stowing at all the approved sites is available. Stowing is continuing at Gowala Basti, Pottary, Porarbandh, Bhutdoba and Sanctoria sites.

Due to the problems of 6 m thick bed of running sand in between the strata, stowing at Palasban could not start in a systematic manner. 154 cum of sand was stowed through the partially collapsed bore holes with water brought in tanker. Drilling of bore hole is being tried again with special casing method etc. Minimum depth of working below the village is 41m. Only that part of village, which falls within 45m. depth of working is to be stowed.

P&M of Bhutdoba site, which was diverted to Sanctoria village was brought back and stowing started in February, 2002.

Due to underground workings being on fire, hydro-pneumatic stowing at Sanctoria village has been replaced with hydraulic stowing only and sand filling is in progress.

- iv) Hydro-pneumatic stowing at Borachak has been completed.

Haripur (Phase-I) scheme has also been completed. There is still a part of Haripur village on unstable ground, which was not covered for stabilization under Phase-I scheme. Phase I scheme has been completed with Rs 1.20 crores expenditure and there is still Rs.0.68 crores unspent money. Additional 15,000 Cu.m of sand will be stowed with this 0.68 crores of unspent money.

Fatepur stabilization scheme was approved for 90,000 cum of sand filling. The work was taken up in Phase-I and Phase-II for 20,000 Cu.m of sand stowing in each phase. Phase II was completed in March, 02 and total sand stowing under Phase I & Phase II is 40,876 Cu.m After the completion of Phase II, CMPDI, RI-1 was requested to assess the further requirement of sand to be filled to complete the stabilization of Fatepur village. As per the present assessment of CMPDI, total quantity of sand to be filled for stabilization of Fatepur village is 60,000 cum. Necessary steps are being taken for further sand filling of 20,000 Cu.m below Fatepur under Phase III.

Localities	EMSC	Sand Stowing in Cu.m as per scheme	Sand Stowing done in Cu.m as per scheme till 31.12.2002
Fatehpur	EMSC -01	60000 (Revised)	40876
Barachak	EMSC -02	45000(Revised)	43408
Haripur (Ph-1)	EMSC -26	20000	21553

(C) Social Mitigation Projects

One Social Mitigation Project in BCCL has been sanctioned for rehabilitating the people living in the endangered areas. The details of the scheme is as follows

Sl. No.	Name of the Scheme	Sanctioned capital (Rs.crores)
1.	Shifting of people from most endangered areas of BCCL	33.88 (The scheme has now been revised for Rs. 61.09 crores)

Progress in BCCL

Scheme for shifting of people from most endangered areas of Bharat Coking Coal limited (EMSC-24)

- (i) This scheme envisages 4600 houses (1500 for BCCL employees and 3100 for non BCCL). Work order for construction of 344 houses for BCCL employees were placed by BCCL in 1999. Out of 344 houses being constructed, 284 houses have been completed. 32 families have shifted. Balance 264 houses are at different stages of construction.
- (ii) As per the recommendation of the High Level Committee a demonstration scheme was approved by Govt. of India for shifting of 4600 (3100 non-BCCL unauthorized and 1500 BCCL) houses from most endangered areas (out of total 22101 critical houses studied by CMRI and additional 12079 houses notified by DGMS) due to fire and subsidence in May 1998 for an amount of Rs 33.88 crore (under revision to Rs.61.09 crore).
 - The 3100 non-BCCL unauthorized houses identified in the most endangered areas are situated in 32 *sites in 9 Areas of BCCL* out of 151 sites.
 - BCCL started implementation of this demonstration scheme taking up construction of 344 houses out of 1500 houses for its own employees. 32 families already shifted to new houses.
 - For the implementation of the non-BCCL part of the scheme, State Govt. was to constitute a Sub-Authority and to enact a suitable legislation banning new construction over unsafe coal bearing areas. But both have not been done as yet.
 - However, a Committee has been constituted by State Govt., in August, 2001 to look into the problems of rehabilitation of endangered non-BCCL people. Site for rehabilitation of non-BCCL people has been finalized at Belgoria mouza on non-coal bearing area. (about 116 acre).
 - A fresh survey of most endangered areas has been done in January, 2002. The number of unauthorised houses situated over endangered areas has increased to 5237.
- (iii) The scheme has now been revised for Rs. 61.09 crores, which has been approved by Departmental EFC.

Progress in ECL

- i) The summarized present status of implementation as on 31.12.02 of the approved scheme for rehabilitation of four identified unstable locations is as follows:

ii) Action taken for implementation of scheme, details is as follows:

SL.No	Name of Unstable Locality	Constitution of Village committee(V.C)	Completion of Socio-economy survey	Identification of land for rehabilitation	Agreement with V. C. on proposed compensation package	V.C agreed regarding identified land
1	Samdih	Yes	Yes	No	No	No
2	Refugee Basti (Bangal Para)	Yes	Yes	Yes	No	No
3	Kenda Village	Yes	Yes	No	No	No
4	Harispur village	No	No	No	No	No

A Core group under the leadership of ADM, Asansol with CMPDIL and representative of ECL held several meetings with the village committee members.

PRESENT STATUS OF REHABILITATION IS AS FOLLOWS:

Samdih Village: Core Group meeting was held on 4.6.02 in the office of GM, Salanpur Area, which was chaired by ADM, Asansol. The meeting was attended by D(T)OP, ECL also besides people's representatives of the village committee and others. D(T)OP explained that ECL Management has offered a number of sites for rehabilitation for Samdih village which are not acceptable to the villagers. Villagers expressed that they are interested for cash compensation instead of rehabilitation at any site. ADM, Asansol, explained that there is no provision for cash compensation in the approved scheme. If no solution could be found out, then the villagers with the local panchayat may take resolution to the effect and forward the same. Villagers requested for fresh survey of houses and home stead land. A Committee consisting of the representative of Salanpur Area, Panchayat member, BDO and village committee members was constituted for fresh survey. The committee assessed the valuation and submitted its report to ECL. After scrutiny at ECL, HQ, the proposal will be put up through Core Group for competent approval.

Kenda Village: Core group meeting was held on 29.7.02 by ADM, Asansol at Jamuria Block office. To understand the present scenario, it was decided to convene a meeting with Sabhapati, Panchayat Samiti, Pradhan, Gram Panchayat representative of Kenda village, CMPDIL, BDO & BLRO, Jamuria on 02/08/02. Next meeting was convened by ADM, Asansol on 12.8.02 at Jamuria Block office. Possibility of resettlement at Mongalpur area is remote. It is extremely necessary to identify the alternate sites. Villagers suggested some sites at South Kenda, Pure Kenda and along Raniganj-Suri road. ECL & BLRO were requested to identify suitable land. It was also decided that verification of home stead land to be done at Kenda Panchayat office by the representative of Kenda Area and BLRO Office. In the subsequent meeting held on 16.8.02 and 19.8.02 at BDO Office, no concrete solution could come out. Kenda Gram Panchayat is yet to prepare the details of home stead land and alternate sites are yet to be finalized.

Refugee Basti: Core group meeting was held by ADM, Asansol on 27.7.02 at Pandaveswar Block Office which was attended by D(T)OP besides others. During the meeting, it was decided that a few possible sites may be identified by the committee comprising Pandaveswar Area representatives, BDO, Pandaveswar, BLRO, Village committee, Panchayat members and representative of CMPDIL. In the meeting held on 22.8.02, which was attended by the representatives of Pandaveswar Area, CMPDIL & others, a place was identified at

Baidyanathpur-Gobindpur abandoned sites for rehabilitation of this village. The villagers were requested to visit the proposed site and after the site visit, the villagers agreed to settle at this site. It was also decided that a fresh house hold survey would be conducted to ascertain the number of villagers to be resettled. It was also decided that detailed study of the proposed site should be conducted by CMPDIL to ascertain the stability of the site. It was further decided that after the house hold survey, the villagers should submit individual consent in writing for resettlement at the proposed site.

After proper survey, plan showing the proposed rehabilitation site has been submitted to RD, RI-1, CMPDIL for further necessary action.

Harishpur Village: A meeting was held on 27.7.02 at the Andal Block office which was chaired by ADM, Asansol and attended by D(T)OP besides others. It was revealed that unless total compensation package is confirmed, the villagers are not willing to participate in the meeting. It was also pointed out that total capital involvement could not be arrived at unless house hold survey is conducted. Decision regarding agricultural land adjacent to the village could only be taken after the house hold survey is completed. Earlier, there was willingness to resettle at Mongalpur, but during the site visit, it was understood that the villages are reluctant to go to Mongalpur because of continuing environmental pollution. Sabhapati and Panchayat members were requested to convince the villagers to form the village committee and co-operate in conducting the house hold survey. A Committee was constituted with the representative from Kajora Area, BDO Andal, BLRO Andal, Madanpur Panchayat Pradhan to conduct the household survey from 10.8.02. It was informed to complete the survey by 21.8.02. This committee was also entrusted with the task of identifying a few sites other than Mongalpur. As on date, land assessment job is not yet completed.

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