

CHAPTER

12



CONSERVATION AND DEVELOPMENT OF TRANSPORT INFRASTRUCTURE

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1. Coal Conservation-

Conservation of coal is an important area, particularly when our Coal reserves are finite. The aspect of conservation of coal is taken into account right from the planning stage and maximum recovery is ensured during the implementation stage. Mines are designed to work the coal seams either through opencast or through underground methods depending on the technical feasibility and economic viability.

Mechanised opencast (OC) mining is presently the commonly adopted technology for extraction of thick seams at shallow depth. This is also important from the conservation point of view since the percentage recovery by this technology is around 80% to 90%. Presently, this technology dominates the coal industry contributing over 94% of country's coal production. Further, whenever it is feasible, the developed pillars of underground mines are also being extracted through opencast operations.

Introduction of new technologies like longwall method, shortwall method, highwall mining and Continuous Miner technology have resulted in increased percentage of extraction in underground mining (UG).

With the improvement in roof support technology with mechanized bolting and resin capsules, it has been possible to maintain wider gallery span and extract seams under bad roof conditions more efficiently resulting in improved conservation of Coal.

2. Sand Stowing

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 lying below built-up areas, such as important surface structures, railway lines, rivers, nallahs, etc. which otherwise would have resulted in locking of coal in pillars. Stowing also helps in the extraction of thick seams in several lifts increasing the percentage of extraction. Due to scarcity of sand, various experimental

trials are being conducted to use other materials like fly ash, boiler ash, crushed overburden material, etc. for stowing in underground mines as a substitute for sand. Currently, crushed overburden material is being used commercially for stowing purposes in underground coal mines where sand is not available in the near vicinity of the mine or it is costlier to transport sand from distant river sources.

3. Conservation and Development of Transport Infrastructure

Conservation and Development of Transport Infrastructure

The Coal Controller acts as the Member Secretary for the Coal Conservation & Development Advisory Committee (CCDAC), constituted under the Coal Mines (Conservation & Development) Act, 1974. The office of the Coal Controller receives process and scrutinizes applications/claims from Coal Companies regarding Protective work, Scientific Development Works, road and railways infrastructure projects in the coalfields areas to release of funds through CCDAC.

Ministry of Coal vide its Office Memorandum No. 20011/10/2019-IFD dated 13.01.2020 has communicated the Budget for two Plan Schemes as-

- Conservation & Safety in Coal Mines - Rs. 10.00 Cr.
- Development of Transport Infrastructure in Coalfields – Rs. 84.48 Cr.

There was a spillover amount of Rs. 3.49 Cr. in Conservation and Safety Head and Rs. 146.89 Cr. in Development of Transport Infrastructure Head from 2019-20.

MoC has released an amount of Rs. 4.068 Cr. in Conservation and Safety Head and Rs. 11.47 Cr. in Development of Transport Infrastructure Head.

4. CIL: Railway Infrastructures Projects

In order to achieve the planned growth in production and evacuation in future, CIL has undertaken the construction of major railway infrastructure projects. These railway infra projects are being implemented by either Indian Railways (on deposit basis) or through JV companies with IRCON representing Railways, Subsidiary Company (representing CIL) and concerned State Government.

There are three (03) major rail infrastructure projects being implemented on deposit basis and four rail infra projects being implemented by JV companies.

Deposit basis:

East Central Railway, Patna is executing the Tori-Shivpur new BG line with a length of about 44.37 KM for North Karanpura Area of CCL, in Jharkhand with a project cost of Rs. 2399 Crores. The doubling of the entire line has been completed and OHE, Signalling and Communication have been almost completed. Presently coal is being dispatched through this new BG line. The third line is also planned at an estimated capital of Rs 894 Cr, which shall enhance evacuation capacity upto 100 Mty.

South Eastern Railways, Kolkata has executed the Jharsuguda- Barpali- Sardega railway infrastructure project with a length of about 52.41 KM for IbValley Coalfields of MCL situated in Sundargarh district of Odisha at a cost of Rs. 1123.90 Crores and the line has been commissioned in April-2018. The doubling of this rail route with seven loading bulbs at Barpali and re-modelling of Jharsuguda yard including a rail flyover complex has been approved and under execution at an estimated capital of Rs 2900 Cr.

Joint Venture basis:

Execution of Shivpur- Kathotia section with a length of 49.085 KM is being undertaken by a JV company named Jharkhand Central Railway Limited (JCRL) with CCL, IRCON and State Government of Jharkhand as its partner at an estimated cost of Rs.1799.64 Crores.

Chhattisgarh East Rail Limited (CERL), a JV company formed by SECL, IRCON and the State Government of Chhattisgarh, is executing the construction of East Rail

Corridor, in two phases:

Phase-I: Kharsia- Dharamjaigarh with spur to Gare-Palma and three feeder lines of about 132 Km. at an estimated cost of Rs. 3055 Crores. Kharsia- Korichapar (0-45 Km) section; commissioned on: 12.10.2019. Engine rolling in the Korichapar- Dharamjaigarh (45-74 Km) section is expected by 31st December'2020. Civil tenders for construction of Feeder lines have been awarded.

Phase-II: Dharamjaigarh – Korba with a length of about 62.5 Km at an estimated cost of Rs. 1686.22 Cr. Land acquisition is under progress.

Chhattisgarh East West Rail Limited (CEWRL), a JV company formed by SECL, IRCON and the State Government of Chhattisgarh, is executing the construction of East-West Rail Corridor (Gevra Road to Pendra) via Dipka, Katghora, Sindurgarh and Pasan with a length of about 135 KM and Feeder lines of about 35 Km at an estimated project cost of Rs. 4970.11 Crores. Two high value civil tenders for construction of rail lines are under finalisation.

Mahanadi Coal Railway Limited (MCRL), a JV company formed by MCL, IRCON and the State Government of Odisha is executing the construction of railway infrastructure projects in the Talcher coalfield of MCL, to cater to the evacuation of coal, in two phases:

Inner Corridor: Angul- Balram- Jharpada-Tentuloi link at Talcher Coalfield of MCL with a length of 69.10 KM (which consists of the Jharpada- Kalinga- Angul link of 14.22 KM length) with an estimated cost of Rs. 1700 Cr (excluding the cost of land).

In the first phase, the Angul- Balram (0-13 Km) section is being constructed at a capital cost of Rs 145 Cr. Construction activities have started in (0-6 Km) section. Transfer of MCL land (6-13 Km) to ECo Railway is under process.

Land acquisition in the balance portion (13-69.1 Km) is under progress.

Outer Corridor: Tentuloi- Budhapunk of approximately 136 KM length, shall be taken up after completion of the inner corridor.

First Mile Connectivity Projects

CIL has identified 35 First Mile Connectivity (FMC) Projects in mines having capacity 4 Mty and above. Out of 35 Projects having 404.5 Mty, 2 Projects having capacity of 26 Mty have been commissioned, 8 projects are under different stages of construction, LOA/WO have been issued for 7 new projects and the rest 18 are under different stages of Tender evaluation. This capacity addition is over the already existing FMC capacity of 151 Mty. All these 35 FMC projects are anticipated to be completed by 2023-24.

5. SCCL

Sand Stowing:

To protect important surface features like Public Buildings, Colonies, Rail lines, Public roads etc., underground Voids /goaf (after coal extraction) are filled up (stowed) with River sand. Due to the acute scarcity of sand, various experimental trials are being conducted to use other materials like Bottom Ash, Boiler Ash and crushed OverBurden material etc. for stowing in underground mines as a substitute for Sand in SCCL Mines.

Stowing in the 14 underground mines of SCCL is being done by river sand, Bottom Ash and Processed OverBurden.

Out of 13.11 LCuM stowing material used in underground mines during April to Dec, 2020, 25.5% Processed overburden, 42% Bottom ash and 32.5% of River sand is being used.

Highwall mining is in operation in a mine of SCCL to extract the coal left in the final high wall of deep opencast mine.

Rail and Infrastructure Project for Coal Evacuation:

SCCL produced 32.66 MT coal during 2020-21 (up to December, 2020) and dispatched 31.79 MT. Keeping in view of the planned enhancement of coal production and dispatch up to 80 MT by 2024, following steps regarding coal evacuation and infrastructure are being taken by SCCL—

1. Two Railway project i.e. Goleti Railway Siding and Railway line to Singareni Thermal Power Plant of SCCL are totally completed. Road transport of 5 million tonnes of coal is eliminated and transporting 100 percent of it by rail.
2. The railway line from Bhadrachalam to Sattupalli is a project of Rs. 927.94 crores (revised cost) with SCCL share of 618.55 crores. It is a deposit work taken up by railways. This is a 54.1 KM railway line and it is expected to be completed by June 2021. Project is likely to be completed by June 2021.
3. On-going Railway siding works :
 - i. Sathupalli Railway siding (about 10.17 Km length @140.0 Crores).
 - ii. Goleti Railway siding (about 1.00 Km @ Rs 10.00 Crores).
 - Coal Handling Plant (CHP) : There are 9 nos. CHP of 50 MT capacity through which dispatches are by Rail / MGR systems. Remaining coal is being transported by road.
 - 3 Nos. New CHPs also being monitored under 1st Mile connectivity -
 - SRP CHP (3.5 MTPA) : commissioned on 13.01.2020.
 - JVR OC CHP (Capacity 10 MTPA) : Around 55 % of the works are completed and it is scheduled to be completed on 30.04.2021.
 - Naini CHP (10 MTPA) : is expected to be completed 2023-24. Approval of DPR of CHP can be done only by firming up the Railway siding by MCRL.

In addition to the construction of the Railway line, railway siding and Coal Handling Plant following arrangements are also being done -

- Pre-Weigh Wagon Loading systems: There are 10 nos. Pre-Weigh Wagon Loading systems and 15 nos. Truck Loading systems in SCCL, installed & working at various Mines & Coal Handling Plants.

- Crushers : In addition to the permanent crushers in the opencast mines, 6 Mobile crusher is installed in SCCL and 6 more (Dept-5 & Hiring-1) are under various stages of commissioning.
- Approach Road / BT Road/ Asphalt road: Roads for coal transportation are being constructed and maintained as per requirement.

6. Efforts made by NLCIL:

First Mile Connectivity (FMC) of Coal Mines

Talabira ii-iii OCP (20 MTPA):

1. FMC Milestone:

	Name of the project	Timeline for commissioning
(i)	Commencement of mining operations	2019-20
(ii)	CHP, Silo based dispatch and Mechanized Conveyor system (MDO Scope)	April 2022
(iii)	Railway Siding	April 2022

2. Commencement of mining operations F.Y.2020-21 (0.937 MTPA):

Coal production in Talabira II & III OCP commenced from 26.04.2020. Cumulative Coal production till 31.12.2020 is 4.38LT.

3. CHP, Mechanised Conveyor System and Rapid Loading Silo:

Construction of CHP, Mechanised Conveyor System and Rapid Loading Silo are under the scope of MDO. DPR completed, approval for finalization is under progress. Selection of vendor is in finalization stage. Site preparation is in progress.

4. Railway Siding (Talabira-II&III OCP):

Talabira-II&III OCP of 20 MTPA is being developed by NLCIL. Mining operation has commenced from 11.12.2019. The Coal production commenced from 26.04.2020.

Initially, coal will be transported by road to nearby railway siding for further transportation to Paradip port for onward despatch to NTPL, Tuticorin. Action has been initiated for constructing a Private Railway siding at Talabira-II&III OCP. The coal will be transported from pit head coal stockyard to railway siding through Mechanised Conveyor System. Coal will be loaded in to railway wagons through computerised Rapid Loading System (Silo). After commissioning of Railway siding,

coal will be transported from pit head coal stockyard to NTPL, Tuticorin, TN, through various modes like Mechanised Conveyor system, Rail and Sea, completely avoiding road transportation. Construction of Rapid loading silo system is under the scope of MDO.

LoA for conducting feasibility study, preliminary engineering and preparation of DPR for construction of rail infrastructure for coal evacuation was issued on 22.10.2016. Feasibility Study Report was submitted by M/s RITES in March, 2017. DPR submitted by M/s RITES on 27.08.2018. In-principle approval of DPR was accorded by SECR, Bilaspur, on 21.05.2019.

5. Salient features of Railway siding:

- Serving station for NLCIL's siding: IB station at a distance of 8 km (approx.).
- 6 rakes per day from 2021-22 will be dispatched towards Paradip and Ghatampur.
- The entire siding will be electrified.
- One number in-Motion Weigh Bridge is proposed in Coal Loading yard.
- One number computerised Rapid loading system (Silo) is planned in Coal Loading yard for loading coal.
- Coal loading Silo will be planned to load full rake in 1.5 hrs.

Name of the project	Capital Cost (Rs. Cr)	Timeline for commissioning
(CHP), Silo based dispatch and Mechanized Conveyor system	MDO scope 369.65 (Approx.)	April 2022
Railway Siding	294.87	April 2022

Current status of Railway siding:

- LOA for Package – I issued to M/s TriveniEngiconsPvt.Ltd. on 13.03.2020.
- LOA for Package-II has been issued to M/s SMS Ltd. on 05.06.2020.
- Mobilization advance of Rs.18 Cr. was paid on 09.06.2020 in the Escrow account with M/s RITES.
- Railway siding (Package –II): Survey work commenced from 17.06.2020.

- Work front of 1.77 km of Govt. land and Forest land handed to M/s SMS Ltd.on 10.08.2020.
- Issue of LOA for 3rd Package for supply rails to M/s. SAIL on 31.03.2020.
- Issue of LOA for remaining 2 packages targeted by Jan 2021
- Schedule date of completion: April 2022

6. Land Acquisition:

- Land requirement for railway siding is given below:

Description	Tenancy land (Ac)	Govt. land (Ac)		Total (Ac)
		Jalbandhar	Others	
Land Outside Mine Lease Boundary	23.47	30.39	8.97	62.83
Land Inside Mine Lease Boundary	54.22	8.02	0.00	62.24
Total	77.69	38.41	08.97	125.07

a. Land outside ML boundary:

- Jalbandhar land:Final approval/ permission is awaited from Special Secretary, GoO.
- Other Govt. land:Application submitted to DC, Jharsuguda for transfer of Govt. land to NLCIL.
- Tenancy land:DCAC meeting held on 28.08.2020 for acquisition of Tenancy land at Jharsuguda District and 10 no. khata rout of 47 no. khata registration completed.

b. Land within ML boundary:

- Jalbandhar land:Final approval/ permission is awaited from Special Secretary, GoO.
- Tenancy land:Disbursement of land compensation under progress.

Pachwara South OCP (9 MTPA):

- Neyveli Uttar Pradesh Power Limited (NUPPL) a JV of M/s NLC India Limited and M/s Uttar Pradesh Rajya Vidyuth Utpadan Nigam Limited (UPRVUNL) is developing Pachwara South Coal Block of 9 MTPA, in Dumka district, Jharkhand.
- Coal production from Pachwara South OCP is expected to commence from the year 2023-24.
- In Pachwara coal field, there are three coal blocks namely Pachwara North, Central and South.
- West Bengal Power Development Corporation Limited (WBPDC) and Punjab State Power Corporation Limited (PSPCL) have been

- allotted the adjoining Pachwara North and Pachwara Central coal blocks respectively.
- v. At present, there is no rail connectivity with the Pachwara coal field.
 - vi. It is proposed to connect the coal blocks with Nagarnabi station at a distance of about 50km (south of Pakur) on Pakur-Howrah line of ER for evacuation of coal to eliminate First mile road connectivity.
 - vii. For Evacuation of coal, it is proposed to form a SPV on participative model between M/s NUPPL and other coal block allottees (M/s WBPDCCL &M/s PSPCL) and M/s Rail Vikas Nigam Limited (RVNL) for development of rail infrastructure in association with Jharkhand Govt.
 - viii. M/s RITES has been engaged for the preparation of the project Feasibility Report.
 - ix. Approx 1.8 KM of proposed alignment is passing through the UrmaPaharitola coal block, which was allocated to M/s Aurobindo RealityPvt. Ltd. for commercial mining.
 - x. Survey for shifting of railway siding from coal bearing area to non-coal bearing area is in process.
