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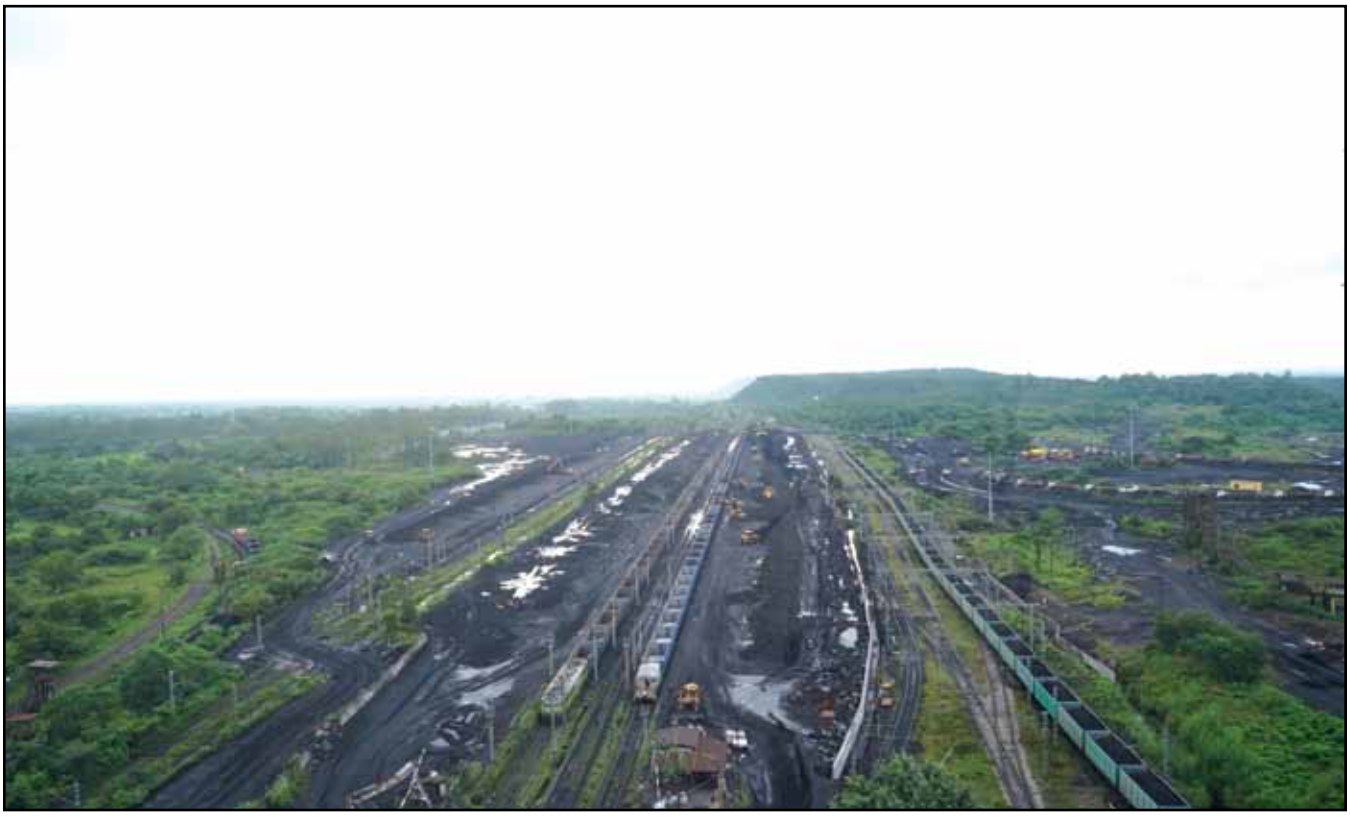
Chapter



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

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 and also under Rule 12C of the Colliery Control (Amendment) Rules, 2021. The office of the Coal Controller receives proposals 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.

Budget for two Plan Schemes for the year 2021-22

- **Conservation & Safety in Coal Mines - ₹6.00 Cr.**
- **Development of Transport Infrastructure in Coalfields – ₹65.48 Cr.**

There was spillover amount of **₹3.227 Cr.** in Conservation and Safety Head and **₹96.31 Cr.** in Development of Transport Infrastructure Head from 2020-21.

85th CCDA Committee has approved amount ₹8.05 Cr. in Conservation and Safety Head and **₹0.405 Cr.** in Development of Transport Infrastructure Head.

Ministry of Coal has released an amount of **₹1.01 Cr.** in Conservation and Safety Head and **₹11.06 Cr.** in Development of Transport Infrastructure Head.

No. CCDAC Meetings conducted:

Sub – Committee: (22.03.2021)

Main Committee: 1 (on 16.09.2021)

Status up to December, 2021 (as per approval of 85th CCDA Committee and fund released by Ministry of Coal):-

No. of Protective work taken up: 5 no.

No. of Scientific development work taken up: 4 nos.

Length of Road Projects partially funded: nil

Length of Rail Projects partially funded: 1.60 Km.

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 (04) rail infrastructure projects being implemented by JV companies.

4.1 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 ₹3587.37 Crores. The doubling of the entire line was commissioned in Dec'19. Presently coal is being despatched through this new BG line. Tripling of this rail line to enhance its capacity from ~ 32 MTPA to ~ 100 MTPA is under progress.

South Eastern Railways, Kolkata has executed the Jharsuguda- Barpali- Sardega rail infrastructure project with a length of about 52.41 KM for IB Valley Coalfields of MCL situated in Sundargarh district of Odisha at a cost of ₹1123.90 Crores and the line has been commissioned in April-2018. The doubling of this rail route with loading bulb at Barpali and remodelling of Jharsuguda yard including rail flyover complex has been approved and under execution at an estimated capital of ₹3200 Cr. This shall enhance coal evacuation capacity of the railway line from ~ 34 MTPA to ~ 65 MTPA

4.2 Joint Venture basis

Execution of Shivpur-Kathautia 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 ₹1799.64 Crores. Process of land acquisition and Financial Closure of the project is under process.

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 ₹3055 Crores. The main rail corridor from Kharsia to Dharamjaigarh, 74 Km has been commissioned on 26th Jul'21. Presently coal evacuation through this new BG Railway line is being done. Construction of the three Feeder lines and first Block Section of the Gare- Pelma-Gharghoda Spur are underway and are anticipated to be commissioned by Mar'22.

Phase- II: Dharamjaigarh- Korba with a length of about 62.5 Km at an estimated cost of ₹1686.22 Cr. Financial closure is under process and Land acquisition is under progress.

Chhattisgarh East West Rail Limited (CERWL), 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 ₹4970.11 Crores. Civil tenders for construction of rail lines have been awarded and construction is underway.

Mahanadi 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 coalfields of MCL, to cater to the evacuation of coal.

Angul-Balaram- Jharpada- Tentuloi link at Talcher Coalfields of MCL with a length of 69.10 KM (which consists of the Jharpada- Kalinga- Angullimk of 14.22 KM length) with an estimated cost of ₹1700 Cr (excluding the cost of land).

In the first phase, the Angul- Balram section, 14.22 Km is being constructed at a capital cost of ₹145 Cr. and anticipated to be commissioned by Jun'22. Financial closure is at an advanced stage and anticipated to be completed by Feb'22. Land acquisition for the second phase is in progress.

4.3 First Mile Connectivity Projects

CIL has taken steps to upgrade the mechanized coal transportation and loading system under 'First Mile Connectivity' projects. In the first phase, CIL has identified 35 First Mile Connectivity (FMC) Projects in mines having capacity 4 Mty and above, of 414.5 MTPA capacity. These Projects shall help increase mechanized evacuation from 150 MTPA currently to 565 MTPA by 2023-24. These infrastructure Projects shall help in improving coal quality, savings in under-loading charges and a positive impact on the environment.

Out of these 35 FMC Projects, 5 Projects of 70 MTPA capacity has been commissioned, 1 Project of 12 MTPA capacity is under PG Test run and 26 Projects of 295.5 MTPA capacity are under various stages of construction and are on schedule. Out of the 3 remaining FMC projects, 1 Project of 5 MTPA has been re-tendered while construction sites of 2 FMC Projects of 32 MTPA could not be handed over to the executing agencies due to lack of Forestry Clearances.

CIL sponsored a Study for examination of Benefits of Mechanized Conveyor Belt and Silo Loading System in Coal Loading & Transport Activities covering the issues of Environmental, Social and Potential Economic benefit to be implemented under 'First Mile Connectivity' Project to CSIR-National Environmental Engineering Research Institute (CSIR-NEERI). The conclusion of the study is as follows:-

Commissioning of FMC-related infrastructure and activities have led to environmental benefits in terms of reduction in air pollution, reduction in CO2-Carbon footprint and reduction in ambient sound levels (day or night-time annual average level) at some select receptor points. Reduction in diesel consumption was substantial due to lower tipper

mileage and pay loader operation. Cost saving towards diesel amounts to Rs.10.24 – 50.19 crores in Lingaraj and 23.08 crores in Gevra. FMC has also ensured economic benefits to firms / agencies / organizations that have given and continued to give material, financial and services support to the commissioning and functioning of FMC.

5. Efforts made by SCCL

5.1 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.

5.2 SCCL Rail and Infrastructure Project for Coal Evacuation

Keeping in view of the planned enchantment of coal production and dispatch up to 80 MT by 2024 and 100MT by 2029-30, SCCL is taking following measures steps regarding coal evacuation and infrastructure are being taken by SCCL –

- 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.
- SRP OC CHP with 3.50 MTPA become operational from 13.01.2020. ₹227.60 crs expenditure incurred upto Nov 2021.
- JVR OC CHP with 10 MTPA capacity, 80% works completed and expected to be started by Jan 2021. Connected to this CHP, BDCR to Sattupalli railway line is expected to be completed by Feb 2022. Around 75% works completed. 30% works of the railway siding is also completed. Actual expenditure upto Nov 2021 is ₹1021.82 crs out of ₹1301.73 planned.
- Naini CHP with 10 MTPA is expected to be completed in 2023-24. It is in the initial stage of planning.
- VK OC CHP with 10 MTPA and CAPEX of ₹620 crs is expected to be completed in 2024-25.

In addition to the construction of the Railawy line, railway siding and Coal Handling Plant arrangements are being done for installation of Pre-Weigh Wagon Loading systems, crushers, and approach Road / BT Road/ Asphalt road: Roads for coal transportation is being constructed and maintained as per requirement.

6. Efforts made by NLCIL-

6.1 Talabira II & III OCP (20 MTPA)

a. FMC Milestone:

Sl. No	Name of the project	Anticipated Timeline for commissioning
(i)	Commencement of mining operations	2019-20
(ii)	CHP, Silo based dis-patch and Mechanized Conveyor system (MDO Scope)	Aug-2023
(iii)	Railway Siding	Oct 2023

b. Commencement of mining operations:

Coal production in Talabira II & III OCP commenced from 26.04.2020. Cumulative Coal production since inception till 30.11.2021 is 43.96 LT.

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

Construction of CHP, Mechanised Conveyor System and Rapid Loading Silo are under the scope of MDO. Conditional Approval accorded by competent authority for the modified DPR submitted by MDO. LoA has been issued by MDO on 29.10.2021. The timeline for completion of work is 22 months from date of issue of LoA.

d. 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.

Project Mangement Consultancy (PMC) for construction of Railway Corridor was awarded to M/s RITES. The timeline for operalization of Railway Siding is 18 months from date of handing over of site. (i.e., 70% of total land required for Railway Siding).

The anticipated completion date of Railway Siding projects is October 2023 (subject to handing over of the site by April-2022).

Name of the project	Capital Cost (₹Cr)	Anticipated Timeline for commissioning
(CHP), Silo based dispatch and Mechanized Conveyor system	MDO scope 369.65 (Approx.)	August 2023
Railway Siding	294.87	October 2023

6.2 Land Acquisition

➢ Land requirement for railway siding is given below:

Description	Tenancy land (Ac)	Govt. land (Ac)			Total (Ac)
		Jalbhandar	Non-Forest	Forest	
Land Outside Mine Lease Boundary	23.76	30.39	8.97	--	63.12
Land Inside Mine Lease Boundary	54.22	8.02	4.05	5.93	72.22
Total	**77.98**	**38.41**	**13.02**	**5.93**	**135.34**

6.3 Land outside ML boundary

i. **Jalbandhar land:** NLCIL was advised to cross over Jalbhandar land through bridges/culverts in place of soil embankment. Conditional permission for use of Jalbhandar land for Railway Corridor is awaited from Prinicipal Secretary, DoWR, Govt. of Odisha.

ii. **Other Govt. land:**2.1 Acre of Govt. Non-Forest land has been approved by Board of Revenue, Odisha. Application submitted to DC, Jharsuguda for transfer of Govt. land to NLCIL.

iii. **Tenancy land:** Tenants were not agreeing with the rate awarded by DCAC on 28.08.2020. The issue was resolved during the meeting held by District Administration on 28.09.2021 by way of enhanced land rates. Registration for 1.9 acres of tenancy land has been completed so far.

6.4 Land within ML boundary

i. **Jalbandhar land:** NLCIL was advised to cross over Jalbhandar land through bridges/culverts in place of soil embankment. Conditional permission for use of Jalbhandar land for Railway Corridor is awaited from Prinicipal Secretary, DoWR, Govt. of Odisha.

ii. **Tenancy land:** Disbursement of land compensation under progress.

6.5 Pachwara South OCP (9 MTPA):

i. 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.

ii. Coal production from Pachwara South OCP is expected to commence from the year 2023-24.

iii. In Pachwara coal field, there are three coal blocks namely Pachwara North, Central and South.

iv. West Bengal Power Development Corporation Limited (WBPDCL) 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 WBPDCL & 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.