



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.

Mechanized 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 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 - ₹ 6.00Cr.**
- **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 CCDAC 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 CCDAC 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. Coal India Limited (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 railways 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 ~ 65 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. Financial Closure achieved in May'22. Tender has been finalised by M/s IRCON and work has been started.

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: KKharsia- 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 Jul'21. Presently coal evacuation through this new BG Railway line is being done. The first block section of Gare Pelma Ghargoda Spur and feeder line of Chhal has been commissioned. The Baroud feeder lines is anticipated to be commissioned by Mar'23.

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 (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 ₹ 4970.11 Crores. Civil tenders for construction of rail lines have been awarded and construction is underway. This shall enable an evacuation of about 65 MTPA of coal from Korbacoalfields.

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- Angul link 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 has been commissioned at a capital cost of ₹ 145 Cr. This has enabled an evacuation capacity of about 15 MTPA from Talcher coalfield. Financial closure is at an advanced stage and anticipated to

be completed by Mar'23. 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, 6 Projects of 82 MTPA capacity has been commissioned and 3 Projects of 30 MTPA are anticipated to be commissioned by Mar'23. Projects of 300 MTPA capacity are under various stages of construction and are on schedule. The LOA/Work Order of 2 FMC projects of 32 MTPA has been terminated since site for construction for these projects could not be handed over due to pending forestry clearances. All the FMC Projects of Ph-I are anticipated to be completed by FY 23-24.

FMC Phase- II: In FMC Ph - II 9 FMC Projects of 57 MTPA has been planned, out of which 3 FMC Projects totaling to 14 MTPA are under construction. The remaining 6 Projects are under different stages of formulation and tendering. All the FMC Projects in II nd Phase are anticipated to be commissioned by FY 24-25. After implementation of FMC Ph- I and FMC Ph-II, Coal India Limited will increase the mechanized evacuation to 623 MTPA by FY 2024-25.

Efforts made by 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 Over Burden material etc. for stowing in underground mines as a substitute for Sand in SCCL Mines.

So far, 40.39 L. Cu. M. processed Overburden has been used for stowing in SCCL mines. Stowing in the 12 underground mines of SCCL is being done by River Sand, Bottom Ash and Processed Over Burden. Presently, 33% PoB, 58 % Bottom Ash and about 9 % sand is being used for stowing in underground mines.

Rail and Infrastructure Project for Coal Evacuation:

Keeping in view of the planned enhancement of coal production and dispatch up to 80 MT by 2024-25, SCCL is taking following measures steps regarding coal evacuation and infrastructure are being taken by SCCL -

- Coal Handling Plants (CHPs) : There are 10 nos. CHP and one Warf loading system with a cumulative capacity of 70.5 MT which dispatches by Rail / MGR systems. There are 10 nos. Pre-Weigh Wagon Loading systems

and 19 nos. Pre-Weigh Truck Loading systems are installed & working at various Mines & Coal Handling Plants.

- For Naini Coal block allotted to SCCL in Odisha, Phase- II of MCRL railway line of 68 KM is to be completed. Till completion of the MCRL railway line, SCCL is planning the various options by the Road/Rail mode on temporary basis.
- In addition to the construction of the Railway 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.

First Mile Connectivity (FMC) Projects of SCCL:

To achieve the targeted dispatches through rail by reducing road transport of coal, it is proposed to construct three new CHPs (Phase-I) under First Mile Connectivity. SRP OC CHP & JVR OC CHP Completed. Naini CHP works are included in MDO scope.

Under Phase-II FMC projects, VK OC CHP (10MTPA) and under Phase-III. RG OC3 CHP are planned.



JVR OC CHP and railway line- Development of Infrastructure for Coal evacuation:

1. **SRP OC CHP:** (Capacity: 3.50 MTPA) - Works completed on 05.11.2019 & Rail link became operational from 13.01.2020.
 2. **JVR CHP:** (Capacity : 10.00 MTPA) - CHP and 54 KM BDCR to Sattupalli railway line commissioned on 28.05.2022.
 3. **Naini CHP:** (Capacity: 10.00 MTPA) - MCRL is constructing a 68 Km common railway corridor for coal evacuation from the coal blocks in Chendipada area in Talcher coal fields. (Phase I of 14 kms & Phase II of 54 kms). Phase-I completed and phase-II (54km) will be completed by March 2026 as per MCRL. Completion of inner corridor of 68 kms is critical for completion of Naini CHP. In the absence of Railway siding, SCCL is contemplating utilization of HANDAPA siding, which is 52 kms away from the project.
 4. **VK CHP:** (Capacity: 10.00 MTPA) - It is relay of existing RCHP of 8 MTPA. Existing RCHP will be in operation till completion of VK7 CHP. It is expected to be completed by April, 2025.
 5. **RG OC III CHP:** (Capacity: 5.00 MTPA) (modernization and capacity addition of the existing CHP). Firm completed the Soil investigation & Topographical survey at site. It is expected to be completed by October, 2024.
2. **Commencement of mining operations:** Coal production in Talabira II & III OCP commenced from 26.04.2020. Cumulative Coal production since inception till 31.12.22 is 75.52 LT.
 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. Approval of DPR has been accorded by NLCIL on 07.10.2020. 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.
 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 is 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 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.

Efforts made by NLCIL-

TALABIRA II & III OCP (20 MTPA):

1. FMC Milestone:

Name of the project	Anticipated Timeline for commissioning
Commencement of mining operations	2019-20
CHP, Silo based dispatch and Mechanized Conveyor system (MDO Scope)	Aug-2023
Railway Siding	July 2024

1. **Land Acquisition:**
 - Land requirement for railway siding is given below:

Description	Tenancy land (Ac)	Govt. land (Ac)			Total (Ac)
		Jalbandhar	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

a. Land outside ML boundary:

i. Jalbandhar land: NLCIL was advised to cross over Jalbandhar land through bridges/culverts in place of soil embankment. Conditional permission for use of Jalbandhar land for Railway Corridor is awaited from Principal 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.

b. Land within ML boundary:

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

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

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 (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 WBPDC & 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.