F. No. CPAM-55020/10/2020-CPIAM-Part(2) (v)
Government of India
Ministry of Coal
(CPIAM Section)
***

Shastri Bhawan, New Delhi
Dated 29th June 2021

OFFICE MEMORANDUM

Subject: Seeking comments on Draft Note on Mineral Highways submitted by SBICaps/Primus Partners -reg.

The undersigned is directed to enclose herewith the Draft Note on Mineral Highways submitted by SBICaps/ Primus Partners.

2. All stakeholders are requested to provide their comments on the above draft report to this Ministry within 30 days from the date ofplacing on the website of this Ministry at e-mail id: hitlar.singh85@nic.in. Comments received thereafter shall not be considered.

Encl.: As above.

(Hitlar Singh)
Under secretary to the Government of India
Email: hitlar.singh85@nic.in

To,

1. NIC - for placing on website of MoC for stakeholder consultation
2. All Stakeholders (CIL and its subsidiaries/SCCL/NLCIL/Captive block allocatees)

Mineral Highways

Background:

Railway as well as other mode of transportation like port as well as waterways cannot reach every nook or corner for connectivity and hence, the road infrastructure needs to be synchronized with the railway/port/waterway's infrastructure. In some cases when end use plants are within vicinity of mine, coal is transported either through road or conveyor belt only. Wherever other modes are not economical and road movement can't be avoided and plays a critical role for evacuation of coal.

Road can mainly be categories into five main categories

1. National Highway (N.H)
2. State Highways (S.H)
3. Major District Roads (M.D.R)
4. Other District Roads (O.D.R)
5. Village Roads (VR)

Both ODRs and VRs are combined is called as Rural Roads (RR). These roads provide connectivity to villages and habitations and access to economic and social infrastructure services. Respective State Governments (PWDs and RWDs) are responsible for construction and maintenance of them. The Public Works Departments of states also are mandated to look after State Highways. Whereas National Highway irrespective of whether passaging through a city or not, it is responsibility of central government's to take care of, and manage it, unless it has specifically declared through a gazette notification for a particular stretch the management has been handed over to another body.

Requirement of Mineral Highway:

Most of the roads connecting the coalfields are Rural Roads. Some of the coalfields are even connected through roads which are developed under Pradhan Mantri Gram Sadak Yojana (PMGSY). The PMGSY is a nationwide plan in India to provide good all-weather road connectivity to unconnected villages. The width of these road varies from 10-12 ft which is not sufficient for movement of coal trucks.

The mixed traffic of the local public with cycle, motorcycle, four wheeler, etc with coal loaded trucks and multi axle heavy vehicles regularly causes fatal traffic accident on these roads. In order to avoid such situation dedicated road projects need to be taken up by stakeholders. Also to load one rake of coal (capacity of about 4,000 tonne), it requires around 250-300 round trips of coal tippers assuming capacity range of tippers from 15 metric tonne to 18 metric tonne.

Special designing of road having sufficient width , higher Truck axle load bearing capacity and special plan for regular maintenance of these roads need to be constructed.

Concept of Mineral Highways

Mineral highways need to be specific roads connecting mineral bearing areas (Coalfields) with the nearest National or state highways. Since these roads are more prone to damage due to heavy moving vehicles, A well-defined periodical maintenance Scheduling need to be part of its construction plan itself.

The minimum mineral traffic expected on the road will help in categorising any road as mineral highway. The speed limit and load capacity of the vehicle plying on this road to be defined considering the safety of locals. The District Mineral Foundations (DMF) or cess on fuel or truck tariff similar to Australia need to be considered for these roads development and maintenance Committee having representation of CIL and other mine owners, state representative need to be formulated for regular monitoring the same.

Proposed Specifications

Taking into consideration the mineral highways are meant for bulk transportation of minerals by heavy vehicle movement. The broad proposed specification of the Mineral highways is as described below:

1. **Axle Load maximum safe axle weight of each axle type in relation to the transport vehicles :** more than 25 tonnes
2. **Recommended roadway width (m):** 10:12
3. **Width of Pavement or Carriageway (m)**
    a. Single lane = 3.75 m
    b. double lane = 7 to 7.5m
4. **Characteristics of Concrete**
    a) Modulus of Elasticity
        i. Experimentally determined value
        ii. 3.0 x 105 kg/cm2 for M40 Concrete
    b) Poisson's ratio μ = 0.15
    c) Flexural strength of Cement Concrete fcr = 45 kg/cm^2 for M40 Concrete
    d) Coefficient of thermal expansion α = 10 x 10-6 per °C

Success Story

On similar lines MCL have envisaged to provide unhindered and dedicated evacuation of coal using trucks. MCL management planned for construction of a Dedicated Coal Corridor road through the de-coaled areas of different mines ,away from populated areas with all-weather concrete pavement road which helps in efficient coal evacuation.

Previously the evacuation route of the trucks was passing through the busy and densely populated area of Talcher and IB Valley coal fields causing environmental problems to the local population. There are many folds benefits of the Coal Corridor projects such as

- The dense coal traffic was diverted through the mining areas such saving the local public from environment hazards.

- The constructed coal Corridor has provision of concrete pavement which provides superior ride quality thereby leading to enhancement to coal dispatch.
- The roads constructed under this project are all weather roads and require very less maintenance.
- The alignments of these road projects are so designed so as to provide arterial road connecting all the mines of the coal field which helps in inter mine road communication.
- The road project helps in better road sale coal evacuation.

Coalfield-wise Infrastructure Details

Railways

Below is list of coalfield-wise existing railway links

State	Coalfield	Railway Lines
Odisha	Mand Raigarh, IB Valley	Kharsia - Jharsuguda Rd Jn.
	IB Valley	Jharsuguda Rd Jn. - Sambalpur Jn.
	Talcher	Sambalpur Jn. – Kerejanga
	Talcher	Kerejanga – Budhapank
	Talcher	Budhapank - Talcher-Sunakhani
	Talcher	Angul- Talcher
	Talcher	Sunakhani – Bimlapur
	Talcher	Budhapank - Nergundi Jn.
	Talcher	Budhapank - Sukinda Road
	IB Valley	Sambalpur Jn. - Bargarh Rd.
	IB Valley	Kharsia - Jharsuguda Rd Jn.
	IB Valley	Jharsuguda Rd Jn. - Sambalpur Jn.
	IB Valley	Bargarh Rd. - Barpali
	IB Valley	Barpali - Titlagarh Jn.
Chhattisgarh	Mand Raigarh, Korba and IB Valley	Jharsuguda Rd Jn-Champa Jn.
	Mand Raigarh, Korba and IB Valley	Champa Jn.-Kharsia
	Mand Raigarh, Korba and IB Valley	Kharsia-Raigarh
	CIC	Barwadih Jn.-Ambikapur
	Hasdeo Arand	Surajpur Road-Darritola
	Hasdeo Arand	Darritola.-Boridand Jn.
	Hasdeo Arand	Boridand Jn-Anuppur Jn.
	Hasdeo Arand	Surajpur Road - Ambikapur
Maharashtra	Wardha Valley	Pimpalkuti-Majri Jn.
	Wardha Valley	Majri Jn.-Chandrapur
	Wardha Valley	Majri Jn.-Wardha Jn
	Wardha Valley	Wardha Jn.-Nagpur Jn.
West Bengal	Raniganj	Asansol Jn. – Andal Jn.
	Raniganj	Andal Jn. – Sainthia Jn.
	Raniganj	Andal Jn- Khana Jn.
Madhya Pradesh	Singrauli	Singrauli – New Katni Jn.
	Pench Kanhan	Jabalpur - Narsinghpur
	Pench Kanhan	Narsinghpur - Pipariya
	Pench Kanhan	Pipariya – Itarsi Jn.
	Pench Kanhan	Itarsi Jn. - Bhopal
	Mohpani	Jabalpur - Narsinghpur
	Mohpani	Narsinghpur - Pipariya
	Mohpani	Pipariya – Itarsi Jn.
	Mohpani	Itarsi Jn. - Bhopal
	Sohagpur	Shahdol – Annupur Jn.
	Sohagpur	Annupur Jn. – Pendra Road
West Bengal	Raniganj	Andal-Pandbeswar
	Raniganj	Pandbeswar- Sainthia

	Raniganj	Khana Jn-Andal
	Raniganj	Andal- Asansol
	Raniganj	Barddhman-Khana Jn
	Rajmahal	New Farakka – Malda Town
	Rajmahal	Nalhati Jn. - Azimganj Jn Cabin
Jharkhand	Rajmahal	New Farakka - Baharwa Jn.
	Rajmahal	Bhagalpur Jn - Sahibganj
	Rajmahal	Sahibganj - Baharwa Jn.
	Rajmahal	Baharwa Jn. - New Farakka
	Rajmahal	Dumka - Rampurhat
	Rajmahal	Bhagalpur Jn - Dumka
	North Karanpura	Biratoli – Shivpur
	North Karanpura	Tori – Barkakana Jn
	North Karanpura	Hazaribagh – Barkakana Jn
	North Karanpura	Koderma-Kathautia - Hazaribagh
	Auranga	Tori - Latehar
	Auranga	Latehar - Barwadih
	Auranga	Tori – Barkakana Jn.
	Daltonganj	Garhwa Road Jn - Daltonganj
	Daltonganj	Daltonganj - Barwadih
	Ramgarh	Barkakana Jn - Chainpur
	Ramgarh	Chainpur – Chandrapur Jn.
	Ramgarh	Barkakana Jn - Hendegir
	Ramgarh	Hazaribagh – Ranchi Rd
	South Karanpura	Tori – Barkakana Jn
	South Karanpura	Hazaribagh – Ranchi Rd
	South Karanpura	Biratoli - Shivpur
	South Karanpura	Kathautia - Hazaribagh
	South Karanpura	Barkakana Jn - Jogeshwar Bihar
	Giridih	Koderma - New Giridih
	Giridih	Koderma – NSCB Gomoh Jn.
Telangana	Godavari Valley	Manchiryal - Bellampalli
	Godavari Valley	Pedapalli - Manchiryal
	Godavari Valley	Bellampalli - Tandur
	Godavari Valley	Ramagundam - Peddapalli
	Godavari Valley	Karepalli - Kothagudem
	Godavari Valley	Kothagudem - Manuguru

Details of ongoing railway projects which are critical from coal evacuation

State	Coalfield EPC Agency	Railway	Project Name	Type	Project Cost (INR Crore)	Length in Km	Source of funding	Target Date of Commissioning	Capacity MTPA
Telangana	Godavari Collieries SER	South Central Railway	Bhadrachalam – Sattupalli NL	Ongoing	928	56	Pink Book Page 7.2.2 item 13	Feb 2022 Forest clearance and LA are critical issues	5
		South Central Railway	Balharshah Belampalli 3rd line	Ongoing	2065	201	Pink Book Page 7.2.4 item 36 It was sanctioned in 2015-16	March 2024	17
		South Central Railway	Belampalli Kazipeth 3rd line	Ongoing				March 2024	17
Odisha	Talcher ECoR	East Coast Railway	Jarapada Budhapank 3rd &4th Line With a flyover at Talcher	Ongoing	810	101	Pink Book Page 11.2.3 item 24	March 2024, Forest clearance and LA are critical issues	130
	ECoR	East Coast Railway	Budhapank Rajatgarh Salegaon 3rd & 4th Line	Ongoing	1172	86	Pink Book Page 11.2.3 item 25	-Do-	130
	ECoR	East Coast Railway	Sambalpur-Jarapada doubling incl Talcher Angul A super Critical project	Ongoing	1539	174	Pink Book Page 11.2.2 Item 18 NRP	March 2022	65
	JV	Inner Corridor	Angul Balram Line	Ongoing	145	13	SPV	December 21.	25

State	Coalfield EPC Agency	Railway	Project Name	Type	Project Cost (INR Crore)	Length in Km	Source of funding	Target Date of Commissioning	Capacity MTPA
	SECR [Korba,Mand Raigarh, Ib Valley]	South East Central Railway	3rd and 4th line between Jharsuguda Bilaspur	Ongoing	Put correct figure.	206	Railway funded project	Dec 2023	130
	Deposit/SE Railway[Ib valley]	South Eastern Railway	Jharsuguda-Barpali-Sardega Rail Link	Ongoing	3770	50.3	Deposit basis	Doubling of Rail Line - December 2022, Connectivity for Bulb - March 2026, Double line Fly-over - December 2024	Presently 25 and will be extended to 65 FY26
Jharkhand	North Karanpura ECR	East Central Railway	Koderma Tilliya NL	Ongoing	300	65	Pink Book Page 10.2.2 Item 12	30 km complete March 2022	23
	ECR	East Central Railway	Gaya Kiul Doubling	Ongoing	1200	124	Pink Book Page 10.2.5 Item 53	20 km complete March 2023	
	ECR	East Central Railway	Kiul Tal Rajendrapul additional bridge and doubling	Ongoing	893	14	Pink Book Page 10.2.4 item 48		
	IRCON	East Central Railway	Barkakana Muri Double Line	Ongoing	870	58			43

State	Coalfield EPC Agency	Railway	Project Name	Type	Project Cost (INR Crore)	Length in Km	Source of funding	Target Date of Commissioning	Capacity MTPA
		East Central Railway	Tori Shivpuri Railway Line 3rd Line/Doubling commissioned	Ongoing	895	44.37	Deposit Basis	Nov-22	25(Long route)
		East Central Railway	Shivpur Kathautia Line	Ongoing	1799.64	49.09	SPV	The project will be commissioned in 3 years after FC	25*
	North Karanpura ECR RVNL	DFCCIL	DFC- Dadri to Sonenagar & extension upto Koderma	Ongoing	30358	1318	Railway funded project	2023	120
		East Central Railway	Third line between Barkakhana-Garwaha Road-Sonenagar	Ongoing	3406	291	Railway funded project	Mar-24	25*
	Rajmahal Coalfield	Eastern Railway	Rampur Hat Nalhati (Muraroi) 3rd line	Ongoing	210	14	Indian Railways		25*
	Auranga	East Central Railway	Barkakana-Sonenagar 3rd line	Ongoing	4525	291	Pink Book Page 10.2.5 Item 50	March 2024	25*
Maharashtra	Wardha Valley	Central Railway		Ongoing	640	234	Pink Book Page 1.2.	March 2024	25*

State	Coalfield EPC Agency	Railway	Project Name	Type	Project Cost (INR Crore)	Length in Km	Source of funding	Target Date of Commissioning	Capacity MTPA
	CR		Wardha Ballarshah 3rd line				Item 23		
Chhattisgarh	Mand Raigarh SECR	South East Central Railway	Raigarh-Champa 4th Line	Ongoing	2070	206	Pink Book Page 14.2.2	3rd line complete 4th line March 2024	43*
		South East Central Railway	Champa-Naila 4th Line	Ongoing			Item 19		43*
	JV	South East Central Rail Corridor	Kharsia-Korichapar-Dharamjaigarh	Ongoing		132	SPV	Kharsia Gharghoda Dharamjaigarh commissioned. Ghargoda- Gare Palma spur and 3 feeder routes will be commissioned by September 21.	65
	Korba, Gevra Coalfield	Chhattisgarh East Railway Ltd.	East-West corridor rail corridor -Gevra Road-Pendra Road Line	Ongoing	4970.11	135	SPV	Mar-23	65

State	Coalfield EPC Agency	Railway	Project Name	Type	Project Cost (INR Crore)	Length in Km	Source of funding	Target Date of Commissioning	Capacity MTPA
Madhya Pradesh	Singrauli Coalfield	East Central Railway	Doubling from Singrauli to Shaktinagar via Karaila Road	Ongoing	Rs 529	45	Railway funded project	Mar-23	43*
	IRCON	West Central Railway	Doubling Singrauli Madhaiya- Katni	Ongoing	1758	260	Railway funded project	March 2023	43*

Mainline Railway Projects important for coal evacuation which are Sanctioned but yet to be executed

Railway line Section	Length	Configuration	Capacity WMB		Total Train	% Utilisation WMB	% Utilisation WOMB	Ongoing work	Pink Book	NRP 26	NRP 31
Sini-Rajkharswan	15.3	DL	138	115	92.3	66.88	80	TL	3rd Line with Normal Signalling	3rd Line with ABS+TCAS+CTC Signalling	3rd Line with ABS+TCAS+CTC Signalling
Rajkharswan-Chakradharpur	20.3	DL	75	62	59.4	79.20	95	TL	3rd Line with Normal Signalling	3rd Line with ABS+TCAS+CTC Signalling	3rd Line with ABS+TCAS+CTC Signalling

Railway line Section	Length	Configuration	Capacity WMB		Total Train	% Utilisation WMB	% Utilisation WOMB	Ongoing work	Pink Book	NRP 26	NRP 31
Chakradharpur-Bondmunda	92.9	DL	67	56	51.1	76.27	91.6	Tripling	3rd Line with Normal Signalling	3rd Line with ABS+TCAS+CTC Signalling	3rd Line with ABS+TCAS+CTC Signalling
Bondamunda-Rourkela	8.5	TL	67	56	68.7	102.5	123.1	4th_Line	4th Line with Normal Signalling	4th Line with ABS+TCAS+CTC Signalling	4th Line with ABS+TCAS+CTC Signalling
Rourkela-Jharsuguda	101	DL	70	58	72.4	103.43	124.2	Tripling	4th Line with Normal Signalling	4th Line with ABS+TCAS+CTC Signalling	4th Line with ABS+TCAS+CTC Signalling
Jharsuguda Road-Sambalpur	47	DL	51	48	52.15	102.3	108.6	DL_EL	2nd Line with Normal Signalling	2nd Line with Normal Signalling	2nd Line with Normal Signalling
Kiul-Rampur Dumra	22	DL	54	46	77	142.6	167.8	DL_EL	2nd Line with Normal Signalling	2nd Line with TCAS Signalling	2nd Line with TCAS Signalling
Rampur Dumra-Tall	7	DL	48	41	53	110.4	129.9	DL_EL	2nd Line with Normal Signalling	2nd Line with Normal Signalling	2nd Line with Normal Signalling

Railway line Section	Length	Configuration	Capacity WMB		Total Train	% Utilisation WMB	% Utilisation WOMB	Ongoing work	Pink Book	NRP 26	NRP 31
Tall-Mokama	5	DL	54	46	65	120.37	141.6	DL_EL	2nd Line with Normal Signalling	2nd Line with Normal Signalling	2nd Line with Normal Signalling
Champa - Gevra Road	47	DL	50	45	54.9	109.8	122	DL_EL	2nd Line with Normal Signalling	2nd Line with Normal Signalling	2nd Line with Normal Signalling
Balharshah-Bellampalli	108	DL	63	55	63	111	114.3	Tripling	3rd Line with Normal Signalling	3rd Line with ABS+TC AS+CTC Signalling	3rd Line with ABS+TCA S+CTC Signalling
Anuppur – Kotma	31.6	DL	65	58	33.2	51.08	57.24	DL_EL	2nd Line with Normal Signalling	2nd Line with Normal Signalling	2nd Line with Normal Signalling
Kotma – Boridand	25.4	DL	65	58	31.9	49.08	55	DL_EL	2nd Line with Normal Signalling	2nd Line with Normal Signalling	2nd Line with Normal Signalling
Boridand - Ambikapur	118.8	SL	25	22	20.2	80.8	91.8	SL_EL	2nd Line with Normal Signalling	2nd Line with Normal Signalling	2nd Line with Normal Signalling
Khana-Andal	66.53	QL	123	131	133.5	108.5	101.9	ML	4th Line with Normal Signalling	4th Line with ABS+TC	4th Line with ABS+TCA

Railway line Section	Length	Configuration	Capacity WMB		Total Train	% Utilisation WMB	% Utilisation WOMB	Ongoing work	Pink Book	NRP 26	NRP 31
										AS+CTC Signalling	S+CTC Signalling
Andal-Asansol	25.71	QL	117	123	138.5	118.4	112.6	ML	4th Line with Normal Signalling	4th Line with ABS+TC AS+CTC Signalling	4th Line with ABS+TCA S+CTC Signalling
Sini-Kandra	12.9	DL	91	76	32.5	35.71	42.9	DL_EL	2nd Line with Normal Signalling	2nd Line with Normal Signalling	2nd Line with Normal Signalling
Kandra-Chandil	15.6	DL	84	70	64.3	76.55	91.9	DL_EL	2nd Line with Normal Signalling	2nd Line with Normal Signalling	2nd Line with Normal Signalling

New projects which are required for efficient evacuation of coal

State	Coalfield	Railway	Project Name	Type	Project Cost (INR Crore)	Length in Km	Source of funding	Capacity MTPA
Telangana	Godavari Collieries	South Central Railway	Karepalli-Bhadrachalam Road Doubling	New Work	600	39	Deposit Work	40*

Jharkhand	North Karanpura	East Central Railway	Muri Chandil Double Line	New Work	1005	67	IR	43*
	Raniganj/Rajmahal	Eastern Railway	Khana Sainthia 3rd line	New Work	1065	71	IR	25*
		East Railway	Nalhati Gumani3rd line	New Work	870	58	IR	25*
Chhattisgarh	Korba/Mand Raigarh	South Eastern Central Railway	Bilaspur Raipur 4th Line/ DFC	New Work	1237	82.5	IR	43*
Odisha	Talcher Coalfield	East Cost Railway	Outer Coal Corridor	New Work	To be estimated	60 approx.	SPV/IR	50*

***Only additional capacity**

Port

Existing dedicated coal berths at Major Ports

Sr. No.	Existing Dedicated Coal Berths at Major Ports		Number of dedicated coal berths (as of 31.03.2020)
	Port	Existing Berth	
1	**Deen Dayal Port**	-	0
2	**Mumbai Port**	-	0
3	**JNPT**	-	0
4	**Mormugao Port**	Coal Berth - 6 for Coal and Coke	2
		Coal Berth - 7 for Coal and Coke	
5	**New Mangalore Port**	Berth No. 8 - Coal / Bulk cargo	2
		Berth No. 14 - Coal (UPCL)	
6	**V.O. C Port Trust**	Coal Jetty No. 1 - Thermal Coal	4
		Coal Jetty No. 2 - Thermal Coal	
		General Cargo Jetty	
		Zone - B Jetty	
7	**Kamarajar Port**	Coal Berth - 1	3
		Coal Berth - 2	
		Common User Coal Terminal	
8	**Vizag Port**	OB 1 - Iron Ore / Coking Coal / Steam Coal	2
		OB 2 - Iron Ore / Coking Coal / Steam Coal	
9	**Paradip Port Trust**	Coal Berth - 1	2
		Coal Berth - 2	
10	**Kolkata Port**	-	0
11	**Haldia Dock Complex**	Berth No. 4 - Thermal Coal (Mechanised)	2
		Berth No. 5 - Coking Coal & FRM (Dry) (Mechanised)	
12	**Cochin Port**	-	0
13	**Chennai Port**	-	0

Source: Basic Port Statistics of India 2019-20 (Ministry of Ports, Shipping & Waterways)

On-going and Planned infrastructure capacity enhancement at Major Ports

Sr. No.	On-going & Planned projects		Status
1	**Kamarajar Port**	Modification of Iron ore terminal to 12 MTPA coal terminal (SIOTL) at Kamarajar port	On-going
		11 MTPA coal handling capacity addition through Multi-cargo and Bulk terminal at Kamarajar port	On-going
		Development of Coal Berths - 3 & 4 (TNEB)	On-going
2	**Paradip Port**	New 10 MTPA bulk berth development for coking coal imports at Paradip port	Planned
		Mechanization of 5 berths (EQ-1, EQ-2, EQ-3, CQ-1, and CQ-2) for 23 MTPA coal capacity addition at Paradip port	On-going
		Development of new Coal Berth to handling additional import coking coal cargo	Planned
		Mahanadi Riverine Port (Phase-I)	Planned

Source: Maritime India Vision 2030 (Ministry of Ports, Shipping & Waterways)

1. **Potential for coastal shipping of coal and priority projects:**

The coal traffic moving via the coastal route is handled primarily at Paradip Port as the main load port. This coal movement is destined for Krishnapatnam Port, Kamarajar Port and V.O. Chidambaranar Port Trust in southern India for further transportation to thermal power stations located in the hinterland or along the coast.

Such thermal power stations located in the states of Andhra Pradesh and Tamil Nadu have coal linkages with MCL mines that are situated in close proximity to Paradip port, thus providing opportunities for this coastal movement. In addition to this movement, there is significant potential for additional coastal movement of coal to plants based in the western states of Gujarat, Maharashtra, Goa, and Karnataka. These power plants in Maharashtra and Gujarat primarily have coal linkages from SECL and WCL mines in order to optimize the rail based transportation from mines to these plants.

The Ministry of Coal has targeted 1.3 Bn tonnes per annum by 2030, primarily led by around 1 Bn tonne per annum coal output from Coal India Limited (CIL). At the same time, the Government of India is looking to ramp-up commercial

block mining to reduce further dependence on imports. As per the Maritime India Vision 2030 of the Ministry of Ports, Shipping and Waterways there exists a potential of around 110 – 130 MMTPA coal coastal movement (loading & unloading) by 2030 to Gujarat, Maharashtra, Karnataka, Goa, Tamil Nadu, Kerala, and Andhra Pradesh. The following figure provides details of the existing and projected coal traffic at the key port-clusters along India's coastline.

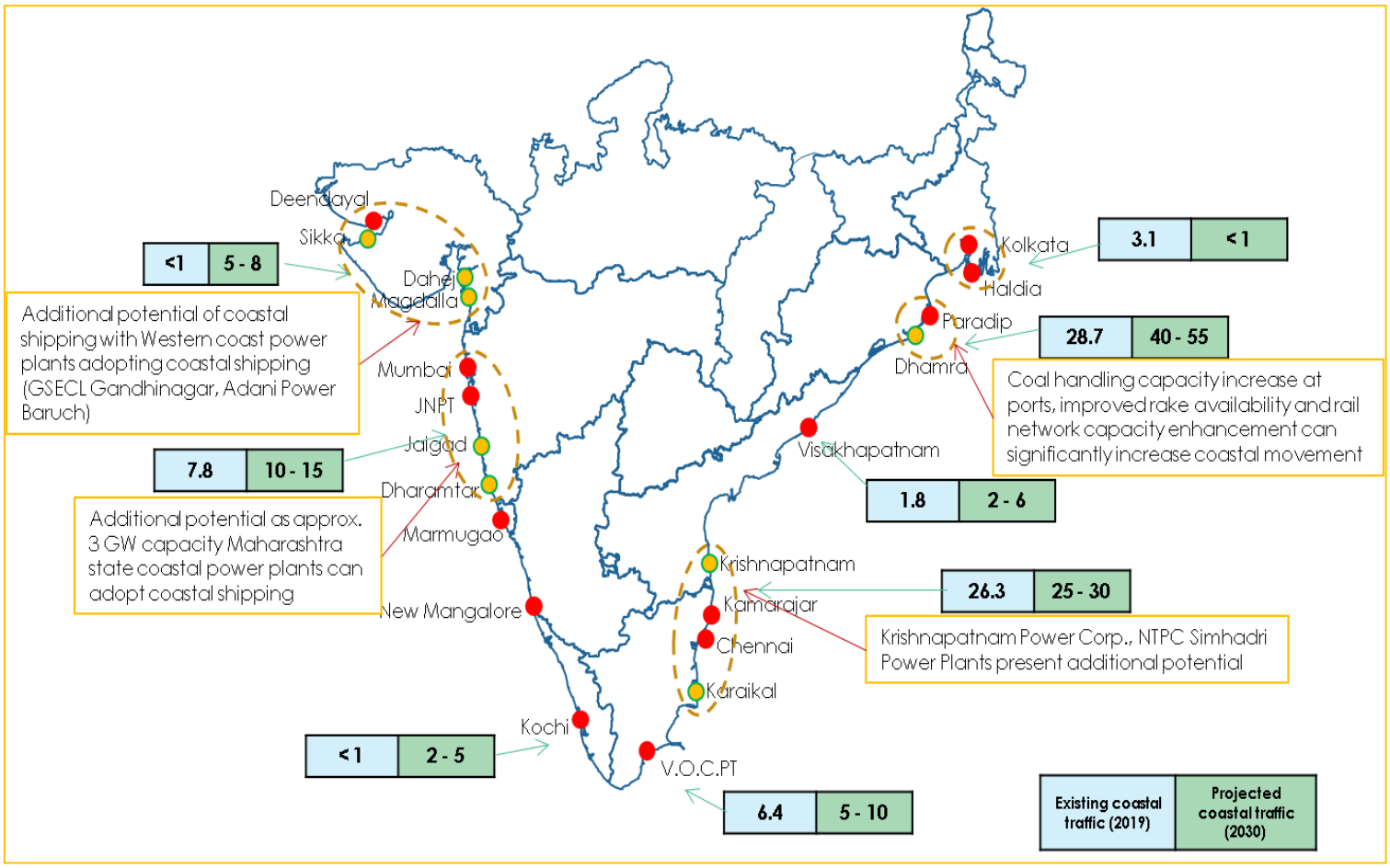

Figure 1: : Potential for coastal shipping for coal (2030)

Source: Maritime India Vision 2030

Coal handling capacity augmentation at ports – Priority projects:

The projected increase (of around 50-60 MMTPA) in coal coastal movement over the next decade shall require– (a) development of additional coal handling capacities at major and non-major ports in India and (b) efficiency enhancement of existing capacities at ports. The Sagarmala Programme and the Maritime India Vision 2030 of the Ministry of Shipping have detailed the future development plans and capacity additions at the major and non-major ports. A significant number of projects are at

various stages of planning / implementation and can create additional capacity of around 40-50 MMTPA over the next few years.

Specifically, at Paradip Port, the key load port for coal coastal movement, the project for mechanization for 3 berths—EQ1, EQ2 and EQ3—is already under implementation and shall add an additional 30 MMTPA of coal handling capacity at the port. An additional 25 MMTPA capacity is planned for addition (across various cargo categories) through implementation of efficiency enhancement measures at the port. Paradip Port, at present, has coal handling capacity of 21 MMTPA. Similar capacity additions are planned at other ports along India's coastline – Kamarajar Port, Vizag Port, JSW Ports, Krishnapatnam Port, Dhamra Port etc. The following table provides an overview of the various projects at major and non-major ports for coal handling capacity enhancement that can be treated as priority projects for fast-tracking coastal movement of coal:

Port capacity enhancement projects for dry bulk / coal handling

SR. NO.	PROJECT	TARGET	PORT
1.	Mechanization of EQ-1, 2, 3 Berths on BOT basis (30 MMTPA)	2022	Paradip Port
2.	Deepening and optimization of PPT Inner Harbour facilities including construction of Western Dock Captive berths to handle Cape size vessels. (25 MMTPA)	2025 - 27	Paradip Port
3.	Development of CB-3 and berths for coal capacity addition (18 MMTPA)	2022	Kamarajar Port
4.	New coal bulk berth development for handling imported coal (10 MMTPA)	2022	Paradip Port
5.	Modification of existing iron ore terminal (12 MMTPA) to coal handling terminal	2022	Kamarajar Port
6.	Mechanization of Berth No. 3 (3.5 MMTPA bulk handling capacity)on DBFOT basis at Haldia Dock	2022	Haldia Dock Complex
7.	Development of Mahanadi Riverine Port (Phase – 1) (21 MMTPA)	2027	Paradip Port
8.	NCB III berth mechanization for bulk capacity under PPP mode	2025	V.O. Chidambaranar Port
9.	Mechanized Bulk Terminal at Tuna Tekra	2026	Deendayal – Tuna Teka Port
10.	Coal Berths – 3 & 4 (TNEB)	2024	Kamarajar Port
11.	Increasing cargo handling capacity from 25 MMTPA to 100 MMTPA	2025	Dhamra Port

12.	JSW Jaigad & JSW Dharamtar port capacity expansion (combined more than 100 MMTPA	2025-30	JSW Ports
13.	Phase III capacity addition of 154 MMTPA dry and liquid cargo handling capacity	2025	Krishnapatnam Port

Source: Maritime India Vision 2030 – Ministry of Ports, Shipping and Waterways

In addition to the above-mentioned projects, additional projects can be evaluated for creating large-scale coastal coal handling capacities along India's western coast.

Road

Coalfield-wise details of road connectivity

Odisha	Talcher	National Highway 53	Connects Surat, Gujarat to Sambalpur then to Paradip port in Odisha
		National Highway 55	Highway which connects Angul district to Cuttack
		National Highway 149	Passes through Talcher to Connecting Pallahara and Nuahata near Angul
		State Highway 63	It starts near Budhapal and passed through Chhendipara, Kosala and terminates near Angul
		State Highway 24	SH 24 starts near Reamal and passes through Paikmal, Rendakhol and terminates near Baudhgarh on NH 57
		State Highway 10	It starts near Rourkela and passes through Sundargarh, Jharsuguda and terminates at Sambalpur
		Angul- Talcher Road	Connects Angul to Talcher
		Angul-Rengali Metalled Road	Connects Angul to Rengali
		Kanihla-Angul Road	Connects Angul to Kanihla
		Chendipada-Jarapada Road	Connects Chendipada to Jarapada
		Kosala-Brahmanbil Road	Connects Kosala to Brahmanbil
		Kosala Road	Connects Kosala to Kumunda

	IB Valley	National Highway 49	Highway which connects Bilaspur,CH to Kharagpur,WB. It passes through Jharsuguda.
		National Highway 53	Connects Surat, Gujarat to Sambalpur then to Paradip port in Odisha
		State Highway 10	It starts near Budhapal and passed through Chhendipara, Kosala and terminates near Angul
		Dubuka Bypass	Local Road
		Hemgir Road	Connects Hemgir to Kanika
		Muda Bandh Road	Local Road
		Sundergarh Garjanbahal-Hemgir Road	Connects Sundargarh to Hemgir
Jharkhand	North Karanpura	National Highway 20	This highway begins in Bihar and ends in Odisha near Satabhaya.
		National Highway 22	This highway connects Bihar's Sonbarsa to Jharkhand's Chandwa.
		State Highway 7	Connects Hazaribagh to Bijupada
		State Highway 2	Connects Ramgarh Cantonment to Ranchi
	Auranga	National Highway 39	This highway runs across Madhya Pradesh, Uttar Pradesh, and Jharkhand.
		National Highway 22	This highway connects Bihar's Sonbarsa to Jharkhand's Chandwa.
		State Highway 10	Connects Medininagar to Balumath
	Rajmahal	National Highway 33	It connects Arwal with Farakka. It is a vital highway that connects Bihar and West Bengal.
		National Highway 114A	It is spur road from National Highway 14. NH-114A runs through West Bengal and Jharkhand.
		State Highway 17	Bhagalpur- Hansdiha - Dumka - Rampurhat
		State Highway 18	Connects Dumka to Sahebganj
		State Highway 19 (Bihar)	Connects Bhagalpur to Gajar
	Ramgarh	National Highway 20	This highway begins in Bihar and ends in Odisha near Satabhaya.

		State Highway 2	Connects Ramgarh Cantonment to Ranchi
		Ramgarh-Petabar	Rural Road
	South Karanpura	National Highway 20	Highway originates from Bakhtiyarpur in Bihar and terminates at Satabhaya in Odisha
		State Highway 2	Connects Ramgarh Cantt. to Barkakana to Ranchi
	Giridih	National Highway 114A	It is spur road from National Highway 14. NH-114A runs through West Bengal and Jharkhand.
Chhattisgarh	Mand Raigarh	National Highway 49	Highway which connects Bilaspur,CH to Kharagpur,WB. It passes through Jharsuguda.
		National Highway 149B	Connects Champa to Katghora
		National Highway 43	Connects Gulganj (MP) to-Chaibasa (Jharkhand)
		National Highway 130	Ambikapur-Bilaspur-Raipur
		State Highway 4	Connects Tapkara to Urga near Korba and passes through Dharamjaigarh
		State Highway 1	Connects Dharamjaigarh to Raigarh
		Kharsia Road	Connects Jogada tto Kharsia and Dabhara further south
		Raigarh-Sundargarh Road	Connects Raigarh to Sundargarh in Odisha
		Milupara-Raigarh Road	Connects Raigarh to Milupara
		Lailunga - Tamnar PWD road	Rural Roads
		Orissa Road	Rural Roads
	Hasdeo Arand	National Highway 130	Ambikapur-Bilaspur-Raipur
		National Highway 149B	Connects Champa to Katghora
		State Highway 4	Connects Tapkara to Urga near Korba and passes through Dharamjaigarh
Madhya Pradesh	Singrauli	National Highway 39	It connects NH 44 near Jhansi, Chhatarpur, Khajuraho, Panna, Satna, Rewa, Sidhi, Singrauli, Dudhinagar, Garhwa, Daltenganj, Latehar, Chandwa

			and terminates at NH 20 near Ranchi
		State Highway 55	It starts near Beohari at SH 9 and terminates near Sidhi at NH 39.
		State Highway 9	It starts from Dabhaura and passes through Rewa, Govindgarh, Sariya, Beohari, Jaisinghnagar, Shahdol, Gadasarai and terminates at Chanda
		Sidhi Renukut Road	Rural Roads
		Parsauna Road	Rural Roads
	Pench Kanhan	National Highway 547	It connects NH47 near Savner, Chindwara and terminates at NH44 near Narsinghpur
		National Highway 46	It connects Gwalior, Shivpuri, Guna, Biaora, Bhopal, Obedullaganj, Hoshangabad and terminates at Betul in the state of Madhya Pradesh
		State Highway 19	It starts from Mehgaon on NH719 and passes through Mau, Datia, Dinara, Picchore, Chanderi, Mungaoli, Mehluwa, Vidisha, Raisen, Semari Kalan and terminates near Khamriya Nimawar on NH 45
		State Highway 19 A	State Highway 19 runs in Tirupur District of Tamil Nadu, India. It connects Avinashi(Coimbatore) with Kochi Road. It will provide an additional connectivity with the Eastern suburban places of Coimbatore like Avinashi, Palladam, Tirupur with Kochi.
		State Highway 19 B	It starts from Betul Bazar on NH 47 and passes through Betul, Sobhapur, Biramdoh and terminates at Parasia on SH 19
		State Highway 47	It connects Sarna to Chhindwara
		Parasia Road	Rural Roads
		Guraiya Road	Rural Roads
		Nagpur Road	Rural Roads
		Chhindwara Road	Rural Roads
		Khirsadoh	Rural Roads
	Sohagpur	State Highway 9	It starts from Dabhaura and passes through Rewa, Govindgarh, Sariya, Beohari,

			Jaisinghnagar, Shahdol, Gadasarai and terminates at Chanda
		State Highway 8	It originates from Santaldih and passes through Cheliyama, Raghunathpur, Santuri, Saltora, Chhatna, Bankura, Beliatore, Sonamukhi, Patrasayer, Khandaghosh, Mirzapur, Kurmun, Kusumgram, Nadanghat, Krishnanagar and Krishnaganj before terminating at Majhdia, a village with a railway station on the Gede branch line, near India-Bangladesh border.
		State Highway 9A	Shahdol–Amarkantak
		National Highway 43	It connects NH30 near Katni in Madhya Pradesh, Umaria, Shahdol, Ambikapur in Chhattisgarh, Pathalgaon, Jashpurnagar, Gumla in Jharkhand, Ranchi and terminates at NH18 near Chandil in Jharkhand
		State Highway 10	It connects NH30 near Katni in Madhya Pradesh, Umaria, Shahdol, Ambikapur in Chhattisgarh, Pathalgaon, Jashpurnagar, Gumla in Jharkhand, Ranchi and terminates at NH18 near Chandil in Jharkhand
		Jaysingnagar Bharatpur Road	Rural Roads
		Shahadol Jaysingnagar Road	Rural Roads
		Anupur Shahpur Road	Rural Roads
		Shahdol Umaria Road	Rural Roads
		Amarkantak Road	Rural Roads
		Shahpur Road	Rural Roads
Maharashtra	Wardha Valley	National Highway 44	NH 44 is a major north–south National Highway in India, the longest in the country. Runs from J&K to Tamil Nadu.
		National Highway 930	It is a spur road of National Highway 30. NH-930 traverses

			the states of Chhattisgarh and Maharashtra in India.
		National Highway 353E	It traverses the state of Maharashtra in India via Umred, Bhisi, Chimur, Anandwan, Warora
		State Highway 236	SH 236 starts near Sangvi on SH 212 and passes through Ner, Kalamb, Ralegaon, Wadki, Wani, Korpana, Chandur, and terminates near Rajura(SH 264)
		State Highway 264	From Nagpur via NH 44 - Jamb - Warora - Chandrapur - Rajura - Maharashtra - Telangana border.
		State Highway 234	SH 234 starts from Bori at NH 44 and passes through Purad and terminates near Gopalpur on SH 236.
		MSH 6	It starts near Dhami and passes through Paratwada, Amravati, Nandgaon Khandeshwar, Ner, Yavatmal, Wani, and terminates near Chandrapur on NH 930.
		Tadoba Road	Local Road
West Bengal	Raniganj	National Highway 19	It connects Delhi, Mathura in Uttar Pradesh, Agra, Kanpur, Allahabad, Varanasi, Mohania in Bihar, Aurangabad, Dobhi, Barhi in Jharkhand, Bagadar, Gobindpur, Asansol in West Bengal, Palsit and terminates at Kolkata in West Bengal
		National Highway 14	It connects Morgram, Rampur Hat, Siuri, Raniganj, Bankura, Garhbeta, Salbani and terminates at Nh 16 near Kharagpur in West Bengal
		State Highway 5	It originates from Rupnarayanpur and passes through Salanpur, Neamatpur, Dishergarh, Par Beliya, Raghunathpur, Bongabari, Purulia, Kenda, Manbazar, Bandwan, Jhilimili, Belpahari, Silda, Binpur, Dahijuri, Jhargram, Lodhasuli, Kharagpur, Salua, Keshiary, Belda, Dhaneswarpur, Egra, Contai and terminates at Junput
		State Highway 8	It starts from Majhdia and passes through Krishnanagar,

			Nadanghat, Kusumgram, Machhakhara, Khandadosh, Beliatore, Bankura and terminates at Dumdumi.
		State Highway 9	It starts near Durgapur on NH 19 and passes thorough Barjora, Beliatore, Bankura, Simlapal, Jhargram and terminates at Kharikamathani
		State Highway 14	It starts from Debagram on NH 12 and passes through Katwa, Guskhara and terminates at Budbud on NH 19
		G.T. Road	Rural Roads
		C.R. Road	Rural Roads
		Purulia Barkar Road	Rural Roads
		Saltore Madhukunda Road	Rural Roads
		Thana Road	Rural Roads
		Bankura Road	Rural Roads
		Asansol - Runakuraghat Road	Rural Roads
		Asansol-Bankura Road	Rural Roads
		Panagarh Bypass	Rural Roads
		Ajoy Road	Rural Roads
		Akandara Road	Rural Roads
		Hahremann Sarani	Rural Roads
		Ajay Ghat Road	Rural Roads
		Suri Road	Rural Roads
		Bakreswar Dubrajpur Road	Rural Roads
		Asansola-Goragdih Road	Rural Roads
		Mejia Road	Rural Roads
		Bypass Road	Rural Roads
		Adra Road	Rural Roads
		Suri Road	Rural Roads
Telangana	Godavari	National Highway 363	It connects NH 63 near Mancherial, Ramagundam, Peddapalli, Karimnagar, Huzurabad, Warangal, Mated and terminates at NH 365A near Khammam

		National Highway 365B	It connects NH 65/NH 365 near Suryapet, Jangaon Siddipet and terminates near Siricilla
		National Highway 63	It connects NH 548C near Barshi, Yedshi, Dhoki, Murud, Latur, Renapur, Nalegaon, Dighoi, Udgir, Deglur, Adampur, Khatgoan, Sagroli, Bodhan, Nizamabad, Metpalli, Jagtial, Mancherial, Chennur, Sironcha, Bijapur, Jagdalpur, Kotapad and terminates at NH 26 near Boriguma
		State Highway 1	It starts near Indaram on NH 63 and passes through Gollapalli, Bommakal, Karimnagar, Alugunur, Ponnal, Duddeda, Ramachandrapur, Pragnapur, Shamirpet, Secunderabad and terminates near Jeera on NH 44
		State Highway 42	It starts at border of Telangana at Aswaraopeta and passes through Jangareddygudem, Koyyalagudem, Tadepalligudem, Pippara and ends at Palakollu