EXECUTIVE SUMMARY

Category – 3(a)

EXPANSION OF EXISTING IMPLEMENTED PROJECT [1 X 225 M^3 MBF (1,88,000 TPA), 1 X 40 M^2 SINTER PLANT (4,60,000 TPA), 8 X 100 TPD DRI PLANT (2,40,000 TPA), 2 X 30 T I.F. SMS (1,07,700 TPA), 1 X 0.7 MTPA COAL WASHERY, 2 X 0.12 MTPA NON-RECOVERY TYPE COKE OVEN PLANT, 1 X 0.6 MILLION TPA PELLET PLANT, 2 X 4,000 NM^3/HR PRODUCER GAS PLANT, 16 MW AFBC, 8 X 1.0 MW (8.0 MW) WHRB BASED CPP FROM EXISTING DRI PLANT] TO INTEGRATED STEEL PLANT OF CAPACITY 1.7 MILLION TPA (FINISHED STEEL) WITH 275 MW CAPTIVE POWER PLANT AND 1.25 MILLION TPA CEMENT GRINDING UNIT BY ADDITION OF SOME FACILITIES AND BY REVAMPING, AUGMENTATION, UP GRADATION/MODIFICATION OF EXISTING TECHNOLOGIES & FACILITIES AND INCREASING ANNUAL WORKING DAYS TO 330 DAYS

At

Village – Marakuta & Budhipadar, P.O. -Marakuta,
Dist. - Jharsuguda, Odisha

FOR

M/s Orissa Metaliks Private Limited
(Formerly MSP Metallics Limited)

1, Garstin Place, Orbit House, 3rd Floor, Room No. -3B,
Kolkata – 700 001, West Bengal

OCTOBER 2023

TOR Granted vide F. No. IA-J-11011/494/2007-IA-II(I) dated 28thSeptember, 2022, 29.08.2023 & 02.11.2023.

Baseline Data Period: ***March 2022 to May 2022 - 03 Months,***

Centre for Envotech and Management Consultancy Pvt. Ltd.
AN ISO: 9001: 2015, OSHAS 18001:2007 & ISO 14001:2015 certified company,
Empanelled with OCCL, Govt. of Odisha, OSPCB as Category "A" Consultant Organization,
Accredited by NABET, Quality Council of India for EIA studies
As Category "A" Consultant Organization
Regd. Off: Plot No. 522/3458, Pahal, Bhubaneswar-752101, Odisha
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EXECUTIVE SUMMARY

ES1 INTRODUCTION

ES1-1 General Background

M/s MSP Metallics Limited received an Environmental Clearance for Integrated Steel Plant- DRI Kiln (4 X 100 TPD + 4 X 175 TPD + 4 X 550 TPD)- 10,50,000 TPA; Mini Blast Furnace (1 X 215 m^3 + 1 X 300 m^3 + 2 X 380 m^3) 10,60,000 TPA, Pellet Plant (1 X 6,00,000 TPA); Steel Melting Shop (I.F.-1 X 15 T + 3 X 18 T+ 1 X 20T + 2 X 60 T)-10,50,000 TPA; Sinter plant (1 x 40 Sq.m)-4,60,000 TPA; Captive Power Plant (WHRB-60 MW+ CFBC-25 MW)- 85 MW, Coal Washery (7,00,000 TPA + 8,00,000 TPA)- 15,00,000 TPA and Coke oven Battery (5 modules X 0.12 MTPA)-6,00,000 TPA at Village Marakuta, Dist. Jharsuguda, Orissa" vide EC no. J-11011/494/2007-IA.II (I) dated 13.07.2009.

For change in configuration of plant an application was submitted to MOEFCC, New Delhi vide letter no. 21.09.2009 & in 4th Reconstituted Expert Appraisal Committee (Industry-1) MoEFCC, New Delhi meeting held on 26th & 27th October 2009 the project was considered on 27th October 2009 and after detail deliberation the project was recommended for change in plant configuration and capacity of plant. Under clause 8 (iv) of EIA Notification, 2006 final recommendation of EAC shall be public documents. Also the EC amendment configuration is mentioned in ministry (MoEFCC, New Delhi) record (File no. J-11011/331/2012-IA.II (I) dated 08.05.2013-Expansion TOR).

Revised plant capacity and configuration post EC amendment is:- Sponge Iron (8 X 100 TPD + 1 x 300 TPD+ 4 X 550 TPD)- 9,94,000 TPA; Blast Furnace Pig Iron (1 X 225 m^3 + 1 X 300 m^3 + 2 X 380 m^3)- 10,60,000 TPA, Pellet Plant (1 X 6,00,000 TPA)- 6,00,000 TPA; Steel Melting Shop (I.F.-1 X 15 T + 3 X 18 T+ 1 X 20 T + 4 X 30 T) - 10,50,000 TPA; Sinter plant (1 x 40 Sq.m) - 4,60,000 TPA; Captive Power Plant (WHRB-60 MW + CFBC-25 MW)- 85 MW, Coal Washery (1 X 0.7 MTPA + 1 X 0.8 MTPA)-15,00,000 TPA and Coke oven Battery (5 X 0.12 MTPA)-6,00,000 TPA.

M/s MSP Metallics Ltd. ("MSPML" or the "Company") was incorporated on 29th November, 1996 in the name of 'Adhunik Industries Pvt. Ltd.' with the object of carrying on the business of Integrated Steel Plant with Captive Power Plant at Jharsuguda, Orissa. Subsequently, the name of the company has been changed to MSP Metallics Pvt. Ltd on 28th December, 2001. The company changed its name to MSP Metallics Limited on 21st June, 2004.

M/s MSP Metallics Limited has gone in 'Liquidation' & M/s Orissa Metaliks Private Limited (OMPL) has purchased/acquired the assets of MSP Metallics Limited on "assets sale basis" under liquidation under the order (I.A No. 616/KB/2022, dated 11.07.2022) connected with CP (IB) No. 580/KB/2020 of the National Company Law Tribunal (NCLT) Kolkata bench, Kolkata after being a 'Successful Bidder' on relation to E-Auction held on 06.05.2022.

Now, M/s Orissa Metallics Private Limited (OMPL) is operating the plant. An additional land of 4.12 Hectares (10.17 Acres) in the contiguous area of the plant boundary is available and management proposes expansion of existing implemented project [1 x 225 m^3 MBF (1,88,000 TPA), 1 x 40 m^2 Sinter Plant (4,60,000 TPA), 8 x 100 TPD DRI Plant (2,40,000 TPA), 2 x 30 T I.F. SMS (1,07,700 TPA), 1 x 0.7 MTPA Coal washery, 2 x 0.12 MTPA Non-recovery type Coke Oven Plant, 1 x 0.6 million TPA Pellet plant, 2 x 4,000 Nm^3/hr Producer Gas Plant, 16 MW AFBC, 8 x 1.0 MW (8.0 MW) WHRB Based CPP from existing DRI Plant] to Integrated Steel Plant of capacity 1.7 Million TPA (Finished Steel) with 275 MW Captive Power Plant and 1.25 million TPA Cement Grinding Unit by addition of some facilities and by revamping, augmentation, up gradation/modification of existing technologies & facilities and increasing annual working days to 330 days with an additional investment of ₹ 1,500/- Crores (Rupees One thousand five hundred Crores Only).

This Environmental Impact Assessment report has been prepared for the expansion of existing implemented project [1 x 225 m^3 MBF (1,88,000 TPA), 1 x 40 m^2 Sinter Plant (4,60,000 TPA), 8 x 100 TPD DRI Plant (2,40,000 TPA), 2 x 30 T I.F. SMS (1,07,700 TPA), 1 x 0.7 MTPA Coal washery, 2 x 0.12 MTPA Non-recovery type Coke Oven Plant, 1 x 0.6 million TPA Pellet plant, 2 x 4,000 Nm^3/hr Producer Gas Plant, 16 MW AFBC, 8 x 1.0 MW (8.0 MW) WHRB Based CPP from existing DRI Plant] to Integrated Steel Plant of capacity 1.7 Million TPA (Finished Steel) with 275 MW Captive Power Plant and 1.25 million TPA Cement Grinding Unit by addition of some facilities and by revamping, augmentation, up gradation/modification of existing technologies & facilities and increasing annual working days to 330 days with an additional investment of ₹ 1,500/- Crores (Rupees One thousand five hundred Crores Only). As per procedure laid down in the EIA Notification dated 14th September 2006 and its amendments, Form-I, proposed terms of reference (TOR) for the EIA along with the pre-feasibility report was submitted to Ministry of Environment, Forest & Climate Change (MoEFCC) for expansion of Steel Plant 1.05 million TPA With CPP To Integrated Steel Plant 1.7 million TPA Finished Steel With 275 MW Captive Power Plant vide online application no. IA/OR/IND/291725/2022 dated 24.09.2022. MOEFCC granted

Standard TOR vide letter No. IA-J-11011/494/2007-IA-II(I) dated 28.09.2022.

The expansion proposal was submitted considering expansion from EC accorded facilities but only few facilities i.e. "1 x 225 m^3 MBF (1,88,000 TPA), 1 x 40 m^2 Sinter Plant (4,60,000 TPA), 8 x 100 TPD DRI Plant (2,40,000 TPA), 2 x 30 T I.F. SMS (1,07,700 TPA), 1 x 0.7 MTPA Coal washery, 2 x 0.12 MTPA Non-recovery type Coke Oven Plant, 1 x 0.6 million Pellet plant capacity TPA, 16 MW AFBC, 8 x 1.0 MW (8.0 MW) WHRB Based CPP from DRI Plant from EC accorded configuration have been implemented and rest of the facilities are yet to be implemented and the environmental clearance validity accorded to M/s MSP Metallics Limited have been expired.

Looking after the facts of implementation of the project and to have more clarity w.r.t. project implementation and proposed expansion, company had decided to apply for amendment in TOR already accorded by ministry. Accordingly, the subject and content of the PFR has been revised keeping the ultimate production capacity as per previous accorded valid TOR and made an application for amendment in Standard Terms of Reference (TOR) as "Expansion of existing "1 x 225 m^3 MBF (1,88,000 TPA), 1 x 40 m^2 Sinter Plant (4,60,000 TPA), 8 x 100 TPD DRI Plant (2,40,000 TPA), 2 x 30 T I.F. SMS (1,07,700 TPA), 1 x 0.7 MTPA Coal washery, 2 x 0.12 MTPA Non-recovery type Coke Oven Plant, 1 x 0.6 million Pellet plant capacity TPA, 2 x 4,000 Nm^3/hr Producer Gas Plant, 16 MW AFBC, 8 x 1.0 MW (8.0 MW) WHRB based CPP from existing DRI Plant to Integrated Steel Plant of capacity 1.7 Million TPA (Finished Steel) with 275 MW Captive Power Plant and 1.25 million TPA Cement Grinding Unit by addition of some facilities and by revamping, augmentation, up gradation/modification of existing technologies & facilities and increasing annual working days to 330 days" at Village – Marakuta & Budhipadar, P.O. - Marakuta, Dist. - Jharsuguda, Odisha by M/s MSP Metallics Limited vide Proposal No. IA/OR/IND/291725/2022, dated: 26th June 2023 & 14th July 2023. Ministry vide F. No. IA-J-11011/494/2007-IA-II(I) dated 29th August, 2023 issued an amendment in subject and implementation status of existing project recorded in the Standard ToR dated 28.09.2022.

In the meantime, a Scheme of amalgamation of M/s MSP Metallics Limited (CIN: U27109WB1996PLC082138), a company incorporated under the Companies Act, 1956, and having its registered office at 1, Garstin Place, Orbit House 3rd Floor, Room No. 3B, Kolkata -700001, West Bengal (Transferor Company) and M/s Orissa Metaliks Private Limited (CIN: U27109WB2006PTC111146) a company incorporated under the Companies Act, 1956, and having its registered office at 1, Garstin Place, Orbit House 3rd Floor, Room No-3B, Kolkata -700001, West

Bengal (Transferee Company) sanctioned by the National Company Law Tribunal Division Bench, Court No. II, Kolkata vide order dated 18th August, 2023.

The change in the name of the Company (Amalgamation between the Transferor Company and the Transferee Company) from M/s MSP Metallics Limited to M/S Orissa Metaliks Private Limited was undertaken to promote ease of business, simplification of group structure by eliminating multiple Companies in similar business which would also result in centralized management and overnight, integrated business approach, overall optimisation of operational and administration costs and supporting the group's competitive growth. This will also enhance company's business.

An online application was made in form-7 on parivesh portal to MoEF&CC for transfer of Environmental Clearance from M/s MSP Metallics Limited to M/s Orissa Metaliks Private Limited vide Proposal No. IA/OR/IND1/442388/2023 dated 30.08.2023. Ministry vide F. No. IA-J-11011/494/2007-IA-II(I) dated 23.10.2023 issued transfer of Environmental Clearance from M/s MSP Metallics Limited to M/s Orissa Metaliks Private Limited.

Further, an online application was submitted to MoEF&CC in form-8 on parivesh portal for transfer of TOR from M/s MSP Metallics Limited to M/s Orissa Metaliks Private Limited vide proposal no. IA/OR/IND1/445038/2023 dated 20.09.2023. Ministry vide F. No. IA-J-11011/494/2007-IA-II(I) dated 02.11.2023 issued transfer of TOR from M/s MSP Metallics Limited to M/s Orissa Metaliks Private Limited.

S. No.	Plant Equipment/ Facility	Existing facilities as per EC dated 13.07.2009 & 27.10.2009								Expansion proposal considering 330 annual working days		Final (Existing + Proposed)		Remarks
		Total (A+B)		Implemented (A)		Unimplemented (B)		As per last (21/04/2011, 31.03.2015)/valid CTO (22.03.2023 & 13.06.2023)						
		Config.	Capacity	Config.	Capacity	Config.	Capacity	Config.	Capacity	Configuration	Capacity	Configuration	Capacity	
1.	Mini Blast Furnace with PCM	1 x 225 m^3 + 1 x 300 m^3 + 2 x 380 m^3	10,60,000 TPA	1 x 225 m^3	1,88,000 TPA	1 x 300 m^3 + 2 x 380 m^3	8,72,000 TPA	1 x 225 m^3	1,88,000 TPA	**Expansion of existing MBF** 1 x 225 m^3 by process optimization and raw material mix and changing core size to 450 m^3.	5,30,000 TPA	2 x 450 m^3	1.06 million TPA	Hot Liquid Metal/Pig Iron/ High Quality Liquid steel
										Addition of 1 x 450 m^3 MBF	5,30,000 TPA			
	Matching New PCM, & LD	**	**	**	**	**	**	**	**	**New PCM-** 2 x 1400 TPD	2800 TPD	2 x 1400TPD		
										LD/BOF- 2 x 45 T	90 T	2 x 45 T		
2.	Sinter Plant	1 x 40 m^2	4,60,000 TPA	1 x 40 m^2	4,60,000 TPA	**	**	1 x 40 m^2	4,60,000 TPA	Expansion by process optimization and raw material mix	69,000 TPA	1 x 40 m^2 + 1 x 75 m^2	1.52 million TPA	Sinter
										Addition of new module of Sinter plant of 1 x 75 m^2	(+) 9,91,000 TPA			
3.	DRI plant	8 x 100 TPD + 1 x 300 TPD + 4 x 550 TPD	9,94,000 TPA	8 x 100 TPD	2,40,000 TPA	1 x 300 TPD + 4 x 550 TPD	7,54,000 TPA	8 x 100 TPD	2,40,000 TPA	**Expansion** of existing 8 x 100 TPD kiln by process optimization and raw material mix	1,40,000 TPA	8 x 145 TPD + 4 x 1000 TPD	1.70 million TPA	Sponge Iron
	Matching Preheater with DRI kiln & Coal Dryer (Stand by)	**	**	**	**	**	**	**	**	**Addition of new 4 x 1,000 TPD** DRI	13,20,000 TPA			
4.	Steel Melting Shop	1 X 15 T + 3 X 18 T+ 1 X 20 T + 4 X 30 T	10,50,000 TPA	2 X 30 T	1,07,700 TPA	1 X 15 T + 3 X 18 T+ 1 X 20 T + 2 X 30 T	9,42,300 TPA	2 X 30 T	1,07,700 TPA	**Expansion of existing SMS** (I.F.) by process optimization	(+) 50,300 TPA	(15 x 25 T + 6 x 30 T) I.F.	1.50 million TPA	Billets & Slab
	Matching LRF/AOD, CCM and oxygen optimized furnace	**	**	**	**	**	**	**	**	**Addition of** 15 x 25 T I.F. + 4 x 30 T I.F. **with matching LRF/AOD, CCM and oxygen optimized furnace**	13,42,000 TPA			

S. No.	Plant Equipment/ Facility	Existing facilities as per EC dated 13.07.2009 & 27.10.2009								Expansion proposal considering 330 annual working days		Final (Existing + Proposed)		Remarks
		Total (A+B)		Implemented (A)		Unimplemented (B)		As per last (21/04/2011, 31.03.2015)/valid CTO (22.03.2023 & 13.06.2023)						
		Config.	Capacity	Config.	Capacity	Config.	Capacity	Config.	Capacity	Configuration	Capacity	Configuration	Capacity	
5.	SMS Slag Crusher	**	**	**	**	**	**	**	**	**New 3 x 20 TPH**	60 TPH	3 x 20 TPH	60 TPH	Metal Recovery
6.	Oxygen Plant	**	**	**	**	**	**	**	**	**New 2 x 200 TPD**	400 TPD	2 x 200 TPD	400 TPD	Oxygen
7.	Lime Dolomite Plant	**	**	**	**	**	**	**	**	**New 1 x 300 TPD**	300 TPD	1 x 300 TPD	300 TPD	Calcined Lime & Dolomite
8.	Ferro Alloy Plant	**	**	**	**	**	**	**	**	**New 6 x 9 MVA**	0.12 million TPA	6 x 9 MVA	0.12 million TPA	Ferro Alloys (FeMn, FeSi, SiMn & FeCr)
9.	Jigging Plant	**	**	**	**	**	**	**	**	**New 4 x 11 TPH**	44 TPH	4 x 11 TPH	44 TPH	Metal Recovery
10.	Chrome Briquette plant	**	**	**	**	**	**	**	**	**New 2 x 40 TPH**	80 TPH	2 x 40 TPH	80 TPH	Chrome Briquette
11.	Coal Washery	1 x 0.7 + 1 x 0.8 MTPA	15,00,000 TPA	1 x 0.7 MTPA	7,00,000 TPA	1 x 0.8 MTPA	8,00,000 TPA	1 x 0.7 MTPA	7,00,000 TPA	**Change in technology & expansion of existing coal washery 1 x 0.7 MTPA to 1 x 0.8 MTPA by process optimization and addition of new 1 x 0.8 MTPA**	(+) 0.9 million TPA	2 x 0.8 MTPA	1.60 million TPA	Washed Coal
12.	Non-recovery type Coke Oven Plant	5 x 0.12 MTPA	6,00,000 TPA	2 x 0.12 MTPA	2,40,000 TPA	3 x 0.12 MTPA	3,60,000 TPA	2 x 0.12 MTPA	2,40,000 TPA	**Expansion of existing 2 x 0.12 MTPA to 2 x 0.13 by process optimization and addition of 3 x 0.13 MTPA**	(+) 0.41 million TPA	5 x 0.13 MTPA	0.65 million TPA	Metallurgical Coke
13.	Rolling Mill with Pickling Line & Continuous Galvanizing/ Galvalume, CCL Line	**	**	**	**	**	**	**	**	**New 0.70 million TPA**		0.70 million TPA		HR Product (Flat, Coil); Seamless Pipes Galvanized/ Galvalume / Colour Coated Product
14.	Bar, Wire Rod Mill and Wire Drawing	**	**	**	**	**	**	**	**	**New 0.50 million TPA**		0.50 million TPA		TMT Bar, Wire & Wire Rod
15.	Ductile Iron Plant	**	**	**	**	**	**	**	**	**New 0.50 million TPA**		0.50 million TPA		DI Pipes, Fitting & Accessories
16.	Pellet plant	1 x 0.6 million TPA	6,00,000 TPA	1 x 0.6 million TPA	6,00,000 TPA	**	**	1 x 0.6 million TPA	6,00,000 TPA	**Enhancement** of existing pellet plant capacity by process optimization. **Addition of new module** (2 x 1.25 million TPA)	(+) 4,00,000 TPA 2.5 million TPA	1 x 1.0 million TPA + 2 x 1.25 million TPA	3.5 million TPA	Iron Ore Pellet
17.	I/O Beneficiation	**	**	**	**	**	**	**	**	1 x 1.5 + 1 x 3.0 million TPA	4.5 million TPA	1.5 million TPA + 1 x	4.5 million	Concentrated Iron Ore

S. No.	Plant Equipment/ Facility	Existing facilities as per EC dated 13.07.2009 & 27.10.2009								Expansion proposal considering 330 annual working days		Final (Existing + Proposed)		Remarks
		Total (A+B)		Implemented (A)		Unimplemented (B)		As per last (21/04/2011, 31.03.2015)/valid CTO (22.03.2023 & 13.06.2023)						
		Config.	Capacity	Config.	Capacity	Config.	Capacity	Config.	Capacity	Configuration	Capacity	Configuration	Capacity	
												3.0 million TPA	TPA	
18.	Producer Gas Plant	**	**	**	**	**	**	2 x 4,000 Nm^3/hr	8,000 Nm^3/hr	Enhancement of gas generation existing PGP 2 x 4,000 Nm^3/hr to 2 x 6,000 Nm^3/hr and addition of 18 x 6,000 Nm^3/hr	(+) 1,12,000 Nm^3/hr	20 x 6,000 Nm^3/hr	1,20,000 Nm^3/hr	Producer Gas
19.	Cement Grinding unit	**	**	**	**	**	**	**	**	3 x 600 TPD (Ball Mill) + 1 x 2000 TPD (VRM)	1.25 million TPA	3 x 600 TPD (Ball Mill) + 1 x 2000 TPD (VRM)	1.25 million TPA	OPC, PPC, PSC & Composite
20.	Captive Power Plant	1 x 25 MW- **F.B.C**	25 MW	1 x 16 MW- A.F.B.C	16 MW	**	**	1 x 16 MW- A.F.B.C	16 MW	**Expansion in** existing AFBC by improvement in heat efficiency of boiler	(+) 4 MW	**110 MW FBC (Coal & Dolochar Mix) Based**- 1 x 20 MW A.F.B.C + 2 x 45 MW C.F.B.C **165 MW WHRB** Based (120 MW from DRI Plant + 45 MW Coke oven)	275 MW	Power
										Addition of new CFBC (Coal Dolochar mix based) 2 x 45 MW	90 MW			
		8 x 2.5 MW + 4 x 10 MW- **WHRB**	60 MW	8 x 1.0 MW	8 MW	8 x 1.5 MW + 4 x 10 MW- **WHRB**	52 MW	8 x 1.0 MW	8 MW	**Expansion in WHRB Based CPP from** existing DRI Plant by improvement in heat efficiency of boiler	(+) 8 MW			
										Additional WHRB Based CPP from 4 x 1000 TPD DRI	104 MW			
										WHRB Based CPP from Coke Oven plant	45 MW			
21.	Railway Siding	**	**	**	**	**	**	**	**	New	01 No.	01 No.		Material Handling

ES1-2 Location and communication

The proposed plant, after expansion will fall at Village – Marakuta & Budhipadar, P.O. - Marakuta, Dist. - Jharsuguda, Odisha. The location of plant is given in Fig. No. C11-1. The outermost co-ordinates of various parts of the proposed plant, based on Google earth, are:

Site	Latitude	Longitude
Point A	21˚51’00.81”N	83˚57’34.07”E
Point B	21˚51’16.42”N	83˚57’41.92”E
Point C	21˚51’41.92”N	83˚57’57.83”E
Point D	21˚51’39.78”N	83˚58’16.06”E
Point E	21˚51’20.81”N	83˚58’10.25”E
Point F	21˚51’05.07”N	83˚58’06.61”E
Point G	21˚50’54.76”N	83˚58’04.15”E
Point H	21˚50’52.97”N	83˚57’52.43”E
Point I	21°50'53.46"N	83°57'44.82"E
Point J	21°50'54.99"N	83°57'40.75"E
Point K	21°50'58.66"N	83°57'42.50"E
Point L	21°50'58.56"N	83°57'48.51"E
Point M	21°51'1.53"N	83°57'48.74"E
Point N	21°51'2.12"N	83°57'40.54"E
Point O	21°50'53.35"N	83°57'38.11"E
Point P	21°50'51.75"N	83°57'31.13"E

M/s Orissa Metaliks Private Limited (Formerly MSP Metallic Limited) is located at Village – Marakuta & Budhipadar, P.O. – Marakuta, District - Jharsuguda, in the state of Odisha. NH-49 (Previously NH-200) runs in North East direction at an aerial distance of about 0.7 km and state highway SH-10 runs in eastern direction at an aerial distance of about 2.7 km. The nearest city is Jharsuguda at a distance of 4.7 km in SES direction. Jharsuguda railway station, on broad gauge line of South Eastern Railway, connecting Howrah. Malidih Railway station (1.6 km NE) on broad gauge line (Jharsuguda- Sardega) of South Eastern Railway. The nearest domestic airport is Veer Surendar Sai Domestic Airport, Jharsuguda, about 10.2 km from the plant site in NE direction. Biju Patanaik International Airport, Bhubaneswar is at distance of about 268.0 KM from the proposed location. Dhamra Port and Paradeep Port are about 334 km and 332 km respectively by road from the plant site.

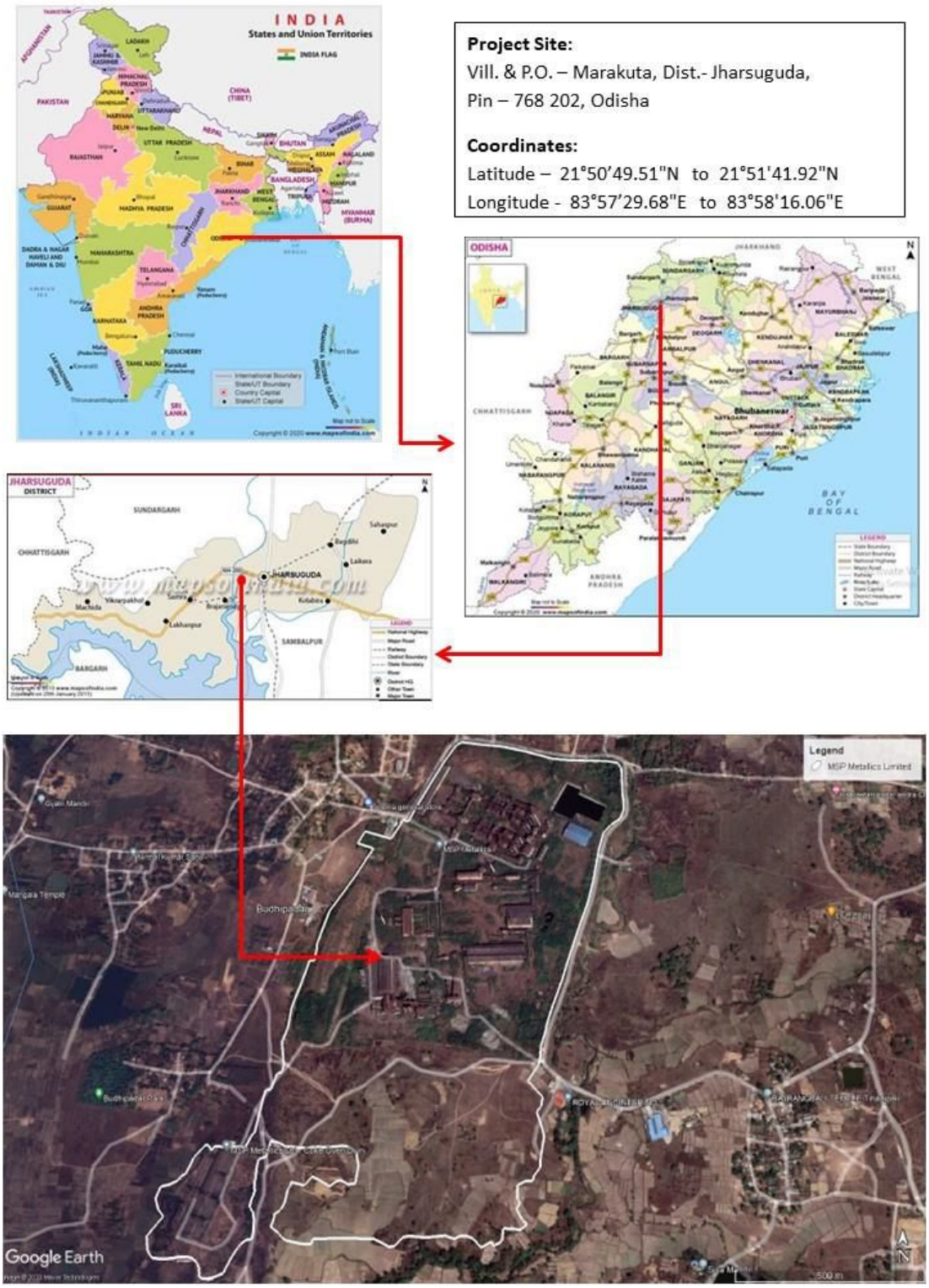

Fig. No. C11-1: Location Map

ES2 PROJECT DESCRIPTION

ES2-1 Plant layout

The land use of the core area will be changed during the construction and the operation phases. Land use of the entire project area will be changed

from waste & barren and low-yield agricultural land to industrial use. The total land requirement for the existing & proposed plant is 107.93 Hectares (266.7 Acres). During construction phase, parts of the project area will be converted into internal roads, water reservoir, buildings, colony, green belt and plantation, etc.

ES2-2 Process Description

a) Mini blast furnace (0.188 to 1.06 million TPA): The purpose of a blast furnace is to chemically reduce and physically convert iron oxides into liquid iron called "hot metal". Iron ore, Sinter, Pellet, coke and limestone are fed into the top of the blast furnace. Preheated air is blown into the bottom. The raw materials descend to the bottom of the furnace where they become liquid iron (final product) and liquid slag (waste). These are drained from the furnace at regular intervals. The blast furnace flue gas will be as fuel in Pellet Plant, Rolling Mill, Briquette Plant & Lime-dolo plant.

b) DRI Plant with matching preheater (0.24 to 1.70 million TPA): Main raw materials - iron ore/Pellet, coal and dolomite are fed to the ground hoppers with the help of pay loaders and tippers. They are carried away by belt conveyors to the crusher house and thereafter fed to kiln. Iron ore is reduced by heating with coal in the rotary kiln at a temperature of about 1000 °C. After reduction, products are cooled in a drum type rotary cooler. Product is then separated into D.R.I. or sponge iron and char by magnetic separation. In rotary cooler, product is cooled by indirect water spray.

c) Sinter Plant (0.46 to 1.52 million TPA): Sintering is an agglomeration process of iron ore fines/ blue dust, coke breeze and fluxes. The iron ore dusts collected from other units and pollution control equipments will also be utilised as raw material for sinter. Thus, utilising maximum solid waste from within the plant. The sinter generated will be 100% utilised in mini blast furnace.

d) Coke oven plant (0.24 to 0.65 million TPA): Raw coal will be crushed in a crusher into powdered form and charged in the oven for carbonisation. The volatile matter in raw coal gets released in the form of gas and gets burnt in the oven as well as in the flues. After the completion of the carbonization process, raw coal gets converted to coke within 64 hours. The coke is then pushed out from the oven and quenched by water. Coke will be utilised in mini blast furnace and sinter plant. Balance leftover shall be sold in the market.

e) Coal Washery (0.70 to 1.60 Million TPA): A coal washery of 1.60 million TPA throughput capacity be installed to meet consumption of washed coal in DR plant and middlings in CPP. The cleaning of coal is mainly based on separation of the impurities by physicochemical methods based on the differences in the specific gravity of coal constituents and on the differences in surface properties of the coal and its mineral matter required. The cleaning process that will be followed will be the wet process, where water is the main medium for washing and jigging.

f) Ferro Alloy Plant (0.12 MTPA): Ferro manganese, Silico Mangnese, Ferro Chrome or ferrosilicon is used to make various grades of stainless steel. The process comprises continuous smelting of manganese/ Chromium ore, coke and coal and quartz in smelting electric furnace (Submerged Arc Furnace - SAF) 1,20,000 TPA ferroalloys will be produced from the 6 x 9 MVA furnaces. During smelting operations, solid charge like ore, coal and quartz will be transformed into liquid form as metal and slag. Chrome briquetting plant of capacity 2 x 40 TPH and Jigging plant of capacity 4 x 11 TPH is envisaged.

g) Steel melting shop (0.1077 to 1.50 million TPA): Steel melting shop will have (15 x 25 T + 6 x 30 T) I.F. with matching LRF/AOD, CCM and oxygen optimized furnace and 2 x 45 tonne (LD/ BOF). Induction furnace works on the principle of induction melting of scrap/ sponge iron with the help of electric power. In the electric arc furnace, electric arc is generated between electrodes, which heat the metallic charge. In both furnaces, the melted contents separate into liquid metal and slag. The slag is removed and considered as waste. The liquid metal is sent to the continuous casting machine (C.C.M.) where semi-finished product is made.

h) Rolling mill (1.2 MTPA): Semi-finished product from the continuous casting machine of induction furnace and electric arc furnace as well as from outside purchase will be reheated and converted into finished products such as TMT, Flat, Round, Wire Rod, Structural (0.50 million TPA) and Rolling Mill with Pickling Line & Continuous Galvanizing/ Galvalume, CCL Line and others products (0.70 million TPA).

i) Ductile Pipes, Fitting & Accessories (0.5 million TPA): DI pipe, fitting & accessories of capacity 0.50 million ton per annum is proposed to be installed. Ductile pipe plant will receive hot metal directly from the MBF and manufacture finished product comprising of ductile pipes and fittings. After receiving hot metal, it is heated in holding furnace. Magnesium addition is done in magnesium

converter. Once this process is completed, melted metal is fed and spun in the mould. With the rotation of mould body, centrifugal force distributes the liquid metal uniformly and pipe wall is formed. Ductile iron pipe is heat treated in an annealing furnace to give ductility. Annealed pipes will be passed through zinc coating machine for zinc coating at outer surface to provide protection from corrosion. This will be achieved by using a zinc spraying machine. Zinc shall be heated to a molten state and sprayed by spray on the outer surface of the pipes. Cement lining will be provided inside the ductile pipes and pipes will be rolled with slow speed and cement mortar will be sprayed. Then the pipes will be rolled high speed to remove the excess water and deposited cement. After cement lining, the pipes pass through a curing chamber. After curing, pipes will be taken to bitumen coating line and are ready for dispatch after stenciling and marking.

j) Lime Dolomite Plant (300 TPD): 1 x 300 TPD Lime Dolomite plant as mentioned in the existing EC will be used as flux in SMS, Sinter & CPP.

k) Pellet Plant (3.5 MTPA) with 4.5 million TPA I/O beneficiation Plant: The pellet plant will produce oxide pellets suitable for use in D.R.I. and blast furnace. Pellets are heat hardened balls produced from concentrates and natural iron ores of different mineralogical and chemical composition. The pellets have improved properties for iron making. Pelletization process involves feed preparation, green ball formation, pellet induration and product dispatch.

l) Producer Gas Plant with DRI Coal Dryer, Rolling Mill reheating furnace & pellet plant (8,000 Nm^3/Hr to 1,20,000 Nm^3/Hr): Producer Gas Plant (PGP) using coal gas technology will be used as fuel in the pellet plant, fuel in the Rolling Mill reheating furnace and DRI - Coal Dryer. This is a clean fuel.

m) Oxygen Plant (400 TPD): An Air separation unit (commonly called oxygen plant) of 2 x 200 TPD capacities will be installed in the proposed expansion to meet the requirement of oxygen, nitrogen and argon for the steel plant. ASU will have facilities for generation of oxygen, nitrogen and argon at the required pressures and produced by air separation process based on low-pressure cryogenic cycle and double column rectification.

n) Captive Power Plant (CPP): (1) Waste Heat Recovery Boiler: 165 MW waste heat recovery boilers based power plant is proposed to utilize the heat from gases DRI kilns & Coke oven. (2) AFBC/CFBC:

110 MW (1 x 20 MW AFBC + 2 x 45 MW CFBC) power plant based on coal, middling from coal washery & Dolochar from DRI kilns has been proposed. The power generated from the CPP will meet the requirement of the steel plant.

o) Cement Grinding plant (1.25 million TPA): The proposal is for setting up an ultra-modern state of the art cement plant to produce OPC, PPC, PSC & Composite cement of production capacity 1.25 million ton per for utilization of slag and fly ash generated in proposed integrated steel plant.

For material handling within plant premises a coal handling system, ash handling system, roads etc. shall be provided. Water requirement in various locations within the plant will be supplied through a circulating water system with a cooling tower, make up water system and blow down system.

p) Railway Siding: Management has proposed 02 nos. railway siding, one near Malidih Railway station (1.6 km NE) on broad gauge line (Jharsuguda- Sardega) in the name of M/s MSP Metallics Limited and another taking off from bi-directional 3rd line in mid section between IB-JSG station in the name of associate company M/s Orissa Alloy Steel Private Limited for material transport (raw material & finished product). For effective use of railway siding mechanized loading/unloading will be done. Loading will be done by pay loader and unloading by clamshell.

ES2-3 Raw material, power and water

Major raw material and fuel requirement for project will be various grades of iron ore (private mines), non-coking coal (domestic/Import) and coking coal (imported). Other raw material required is Manganese / Chromium Ore, limestone, dolomite, bentonite, quartz, silica, pig iron and semi-finished products. Fuels required in various units will be coking and non-coking coal, coke breeze & fines, low sulphur heavy stock diesel oil/furnace oil.

Raw Material Requirement, Source & mode of Transportation

S. No.	Name of the Raw Materials	Existing as per CTO application (TPA)	Proposed additional (TPA)	Ultimate Quantity (TPA)	Source	Distance of source from	Mode of Transportation
1	Iron Ore Fines & Lump	1326300	52,23,906	65,50,206	Purchased from Barbil-Joda, Orissa	250-300	Rail /Road
2	Non-coking coal	845785	28,31,443	36,77,228	CCL, MCL & Imported	300-500	Rail /Road

					Coal.		
3	Coking Coal	141240	7,29,760	8,71,000	E-Auction, Purchased from BCCL, Dhanbad or Imported	300-500	Rail /Road
4	Coke	0	1,86,870	1,86,870	E-Auction, Purchased from West Bengal or Imported	300-500	Rail /Road
5	Dolomite	66800	1,85,680	2,52,480	From Birmitrapur, Orissa / Bilaspur, CG	150-200	Rail /Road
6	Limestone	49100	4,90,200	5,39,300	From Birmitrapur, Orissa / Bilaspur, Raipur CG / Katni MP	150-600	Rail /Road
7	Calcined Lime	18400	-18,400	0	-	-	-
8	Manganese Ore	0	3,00,000	3,00,000	From Balaghat, MP & Orissa	500-600	Rail /Road
9	Chrome Ore	0	2,79,000	2,79,000	From Balaghat, MP & Orissa	500-600	Rail /Road
10	Quartzite	47000	6,49,600	6,96,600	From Belpahar Orissa/ Bilaspur, Raipur CG	25-500	Rail /Road
11	Pyroxenite	5640	26,160	31,800	Fromm Jharkhand, Orissa	250-300	Rail /Road
12	Bentonite	12000	58,000	70,000	From Kutch, Gujrat	2000-2500	Road
13	Ferro Alloy	2080	-2,080	0	-	-	-
14	Clinker	0	11,87,500	11,87,500	From Rajasthan, Chhattisgarh & Madhya Pradesh	500-2500	Rail /Road
15	Gypsum	0	62,500	62,500	From Rajasthan, Odisha & West Bengal	500-2500	Rail /Road
16	Mould powder	0	13,028	13,028	Local Market	---	Road

17	Refractory	0	3,980	3,980	Local Market	---	Road
18	Inoculant	0	450	450	Local Market	---	Road
19	Slag Coagulant	0	725	725	Local Market	---	Road
20	Runner Coat	0	2,475	2,475	Local Market	---	Road
21	Magnesium	0	833	833	Local Market	---	Road
22	Bituminous / Epoxy Solution	0	2,912	2,912	WRAS* Approved vendor	---	Road
23	Zinc	0	22,063	22,063	Local Market	---	Road
24	Sand	0	24,150	24,150	Local Market	<150	Road
25	Binder & Resin, Hot Metal Glue	0	1,250	1250	Local Market	---	Road
26	Latex Emulsion	0	100	100	Local Market	---	Road
27	Paint/ Thinner	0	7,500	7500	Local Market	---	Road
Total (TPA)		**25,14,345**	**1,19,08,603**	**1,44,22,948**			

Power requirement for the existing operational project is 45.56 MW. Additional power requirement for the proposed expansion would be 349.40 MW. Since, power requirement for existing facilities is 45.56 MW, hence the total power requirement of the project after expansion would be 395 MW which will be sourced from 275 MW Captive Power Plant and balance 120 MW from WESCO.

The total estimated raw water requirement for the project after expansion is around 444 m^3/hr (10,656 KLD) which includes 41.88 m^3/hr (1,005 KLD) for existing facilities. Water requirement will be fulfilled by river IB to meet industrial makeup water demand and ground water to meet domestic water demand. The water requirement for the proposed project (including existing) is estimated as 10,656 m^3/day, out of which 9,984 m^3/day of fresh water requirement will be obtained from the Surface water (IB River) and the remaining requirement of 672 m^3/day will be met from the Ground Water & Harvested rain water.

ES2-4 Manpower

The manpower requirement for existing operational plant is 1,100 direct (200 Regular + 900 Contractual). It is anticipated that the expansion project will create an additional direct employment of 1,000 peoples (200 Regular + 800 Contractual) during operation & construction phase. Skilled and unskilled people will be employed. M/s Orissa Metaliks Private Limited (Formerly M/s MSP Metallics Limited) will give preference to the local peoples during construction and operation phase of the project depending upon the skill, job requirement and capability. Several others

around 1,500 indirect employment opportunities will be created in the surrounding areas by transport, business, truck drivers and attendants, workshops, grocery and retails, medical, etc. Three shifts working for 330 days are planned.

ES2-5 Site services

Infrastructure facilities such as administrative office, rest rooms, canteen, first aid centre, etc. will be provided to employees.

ES3 PRESENT ENVIRONMENTAL SCENARIO

The project area has been referred to as the "core zone" while the area up to 10 km radius of the project has been referred to as the "buffer zone".

ES3-1 Topography and drainage

Topography: It is situated at Village – Marakuta & Budhipadar, P.O. – Marakuta, P.S. - Jharsuguda, Dist. - Jharsuguda, Orissa. The study area is mainly drained by the river IB along with its tributaries (Bhedan River). There are no streams or river passing through and no visible drainage course spread in the existing plant premises and the additional contiguous land taken for expansion. 5.0 km is the shortest distance from the periphery of the plant boundary to periphery of the Reserve Forest in South direction. The project site is generally flat and non-irrigated land. The elevation of the existing as well as proposed site varies from 207 m to 225 m AMSL. The average elevation is 215 m AMSL.

Drainage: Existing as well as proposed site is situated at Village – Marakuta & Budhipadar, P.O. – Marakuta, P.S. - Jharsuguda, Dist. - Jharsuguda, Orissa. The study area is mainly drained by the river IB along with its tributaries (Bhedan River). There are no streams or river passing through and no visible drainage course spread in the existing plant premises and the additional contiguous land taken for expansion. A seasonal nala passes around 0.03 -0.05 km east & south of plant site. The drainage in the study area is of radial to dendritic. Impact on the drainage in the buffer zone is not anticipated as no construction will be taking place outside plant boundary.

ES3-2 Climate and micro-meteorology

The climate of the region is generally hot and humid, being characterized by hot and dry summer, cold winter and erratic rainfall in monsoon. The winter season extends from December to February which is followed by summer season from March to the middle of June and monsoon season

from middle of June to beginning of September. Post-monsoon experienced from September to November.

1. **Temperature:** The daily mean minimum temperature ranges from 12.3 °C in January to 27.2 °C in May, while daily mean maximum temperature ranges from 28.0 °C in December & January to 41.3 °C in May.

2. **Relative Humidity:** The relative humidity is higher in the morning hours averaging 86% compared to night hours which is averaging 24%. During July to October, it is on higher side compared to other months.

3. **Rainfall:** It can be seen that, June to September are the months of heavy rainfall, while in rest of months it is low. The rainfall varies from the lowest value of 6.3 mm in December to 421.4 mm in July. The annual average rainfall is 1475.6 mm.

The micro meteorological data of the core zone has been recorded using an automatic weather station from Mar 2023 to May 2023. The temperature ranged between 12.6°C to 41.0°C and relative humidity ranged between 23.0 % to 86.0 % during the monitoring period.

The wind speed varied between calm to 6.5 km/hr and the predominant wind direction was observed from South East, South.

ES3-3 Ambient air quality

Ambient air quality study was monitored at 10 locations including one location in the core zone. Nine locations in the buffer zone are near village Near Budhipadar village, Marakuta village, Hansamurakatapali Village, Sarasmal Village, Brundamai Village, Singabaga Village, Biju Nagar, Jharsuguda, Brajrajnagar Village, Katapalli Village, Bhoimunda Village. Twenty four hour average PM_{10} level was found to range from 50.2-73.7 µg/m^3, $PM_{2.5}$ was found to vary from 24.12-38.33 µg/m^3, NO_X from 10.18-25.44 µg/m^3 and SO_2 from 4.14-20.03 µg/m^3. The concentration of carbon monoxide, nickel, arsenic, lead, B(a)P and benzene were also measured

ES3-4 Water resource and quality

Ground Water Quality study was monitored at 08 locations including one location in the core zone (Village Marakuta). Seven locations in the buffer zone are near village Near Kukurjangha Village, Badmal Village, Sarasmal Village, Near Jharsuguda, Katapalli Village, Hansamurakatapali Village, Brajrajnagar Village. It is observed that the physico-chemical parameters present in ground water are within the permissible limits specified by IS: 10500:2012 for drinking purposes in absence of alternate source.

Water samples were collected from 08 surface water sources. These are (1) IB River (Near Budhipadar), (2) IB River (Near Brajrajnagar), (3) Bhedan River (Near Kherual), (4) Bhedan River (Near Khait), (5) Near Saletikira Village (Pond), (6) Near Malda Village (Pond), (7) Basundhara River (Near Rajpur), (8) Near Marakuta village (Pond). The analysis of surface water sample shows that all the parameters are within the permissible limits as per IS 10500:2012.

ES3-5 Land use pattern and soil quality

Total land required for the expansion project is 107.93 Hectares (266.7 Acres) of land. Out of 107.93 Hectares (266.7 Acres) of land, 103.82 Hectares (256.54 Acres) of industrial land is in possession of MSP Metallic Ltd. and for rest of the land 4.12 Hectares (10.17 Acres); negotiation going on with private rayats.

Top soil samples were collected and analysed from 5 locations in and around plant premises. All the soil samples collected were varying in colour (brown & reddish brown) and the texture was sandy loam, which is acceptable to agriculture. The pH ranged from 6.88 to 8.05 which is slightly alkaline to acidic for agricultural soils.

ES3-6 Noise and traffic volume survey

Noise levels at eight stations (1 within the core area and seven within buffer area) within the 10.0 km radius area from the plant site were observed. Leq values observed during day time varied from 46.2 to 62.1 dB(A) during day time and 36.4 to 56.2 dB(A) during night time.

A traffic volume survey was conducted at National Highway-49 (originate from Budhipatar area and connect to Patrapali via Talpatia), which is around 0.7 Km NW (shortest aerial distance from proposed site) w.r.t. the project site and State Highway-10 (connects to Sambalpur), which is around 2.7 km E from project site. Volume in PCU/hr of National Highway-49 is 899.54 and of State Highway-10 is 711.0.

ES3-7 Ecology

Ecology is the degree of variation of life forms within a given ecosystem, biome, or an entire planet. Biodiversity is a measure of the health of ecosystems. Greater biodiversity implies greater health. Biodiversity is in part a function of climate. In terrestrial habitats, tropical regions are typically rich whereas Polar Regions support fewer species. The Biological environment is intended to cover the prevalence of all living forms (plants and animals) in the study area and the impact of them if any, due to operation of the proposed expansion Project. Such impacts could be changed in terms of strain in all the living forms, invisible damage or

diseases, changes in occurrence/prevalence and in the ultimate extinction of certain species. In this study on enumeration of plant species with their dominance of the section of the study area along with available aquatic terrestrial fauna are recorded in this chapter. Listing of all living forms are included with all living forms are included with all living species starting from micro organism, plant, animal and human being in addition to domestic and wild animal seen in the study area by the field team and as informed by the local people have also been recorded.

In dry deciduous forests, important species found are Terminalia tomentosa (Asan), Anogeissus latifolia(Dhaura), Adina cordifolia (Kurum) Lannea grandis (Mai), Pterocarpus marsupium (Piasal) Diospyrus melanoxylon (kendu) Emblica officinalis (Anla), Holarrhina antidysentrica is the most common herb in the forests. In riverain forests, common species found are Anogeissus acuminata (Fassi) Pongamia pinmnata (Karanja), Terminalia arjuna (Arjun), Trewua nudiflora (Pani Gambhari), Streblus asper (Sahada) etc.

Since there is no eco-sensitive zone like National Park, Wildlife Sanctuary etc. in the study area, wild animals in the study area are rare. Only a few wild animals like Fox, Common Langur, and Porcupine etc. could be observed in the study area occasionally. Survey of terrestrial fauna reveals that in general there has been no impact of pollution on fauna.

ES3-8 Socio-economic conditions

There is no habitation within the core zone of project area. The total population within the study area is 3,16,134 as per census data 2011.

Total SC population of the area is 56974 (22.42%) with 28766 male and 28208 female. Total ST Population of the area is 67546 (35.99%) with 33865 male and 33681 female. Out of the total population within the study area, 226562 persons are literate which contribute about 66.39% of total population within the buffer zone. Out of the total literate, male literacy is contributed by 127344 and female literacy is contributed by 99218 and 89572 (33.61%) of the total population of the project villages are illiterates.

ES3-9 Places of archaeological/historical/tourist/religious importance

There is no important archaeological (ASI)/historical place or other place of tourist or religious importance within the study area except village temples and mosques.

ES4 ENVIRONMENTAL IMPACT ASSESSMENT AND MITIGATION

ES4-1 Topography and drainage

Impact: Change in topography will occur in core zone (existing & expansion) due to digging and filling, construction of the plant buildings, walls, stock yards, etc. and excavation for raw water reservoir and rain water harvesting ponds. The ground will be levelled, where required. There will be a permanent change in the topography due to construction activities. The construction once achieved will not be reversed. There will be no impact on topography of the buffer zone.

Land requirement for existing project is 103.82 Hectares (256.54 Acres) and additional 4.12 Hectares (10.17 Acres) land required for expansion project so total land requirement is 107.93 Hectares (266.7 Acres), the topography will change permanently due to leveling and establishment of additional buildings. The construction once achieved will not be reversed. There will be no impact on topography of the buffer zone since no construction is proposed except widening and strengthening.

Impact on the drainage in the buffer zone is not anticipated as no construction will be taking place outside plant boundary. However, the volume of water from the plant area going outside the plant will reduce during rainfall as the rainwater will be stored in raw water reservoir/rain water harvesting ponds.

Mitigation: The change in topography in the core zone will be permanent and irreversible. Excavated soil will be used in leveling, filling and landscaping to minimise the impact of change in topography. Changes in the sheet flow pattern of rain water will be managed through storm water drains. The impact of the new construction will, therefore, be managed through mitigation measures.

ES4-2 Air quality

Impact: During construction phase, sources of air pollution will be due to vehicle exhausts, excavation work, construction material handling (cement, sand and gravel), vehicle movement on unpaved roads and exhaust from non-mobile construction equipment like compressors. Primary impact will be high dust generation resulting into increased suspended particulate matter levels in the surrounding areas. The secondary impacts of air emissions, dust as well as other emission may affect the health of the labour force working in close vicinity and nearby villagers. During operation phase the air quality impact will be due to emissions from the stacks attached to various units, from stock yards

and from transportation. Each of these has been evaluated for potential impact using mathematical models.

Mitigation: During construction, dust is anticipated due to levelling, construction and transportation activities. It will be controlled by sprinkling of water and using covers & wind breaks. Construction equipment and transport vehicle will be maintained periodically as per manufacturers norms. All trucks that will be used for transportation of construction material, raw material and finished product will be covered with tarpaulin, kept maintained, be optimally loaded, be spill proof and have Pollution-Under-Check (PUC) certificates. Various pollution control equipment like electrostatic precipitators (E.S.P.), bag filters, dust extraction systems, dry fog systems, gas cleaning plant, scrubber and sprinklers shall be installed as per the requirement of every unit. The air quality prediction exercise was carried out for stack emissions and from vehicular movement. The cumulative incremental ground level concentrations with control measures has been calculated as 11.80 $\mu g/m^3$ for PM_{10}, 5.36 $\mu g/m^3$ for SO_2 and 5.00 $\mu g/m^3$ for NO_2. The impact of the plant will remain within permissible limits.

The results of the cumulative impact on air from the model indicate that the predicted baseline concentration after implementation of the entire project with respect to the PM_{10}, SO_2, NO_X and CO are 63.73-75.73 $\mu g/m^3$, 10.68-20.50 $\mu g/m^3$, 20.74-25.77 $\mu g/m^3$ and 0.38-1.24 mg/m^3 respectively. The GLC predicted at all receptor locations are well within the PM_{10}, SO_2, NOx & CO limit prescribed in NAAQS. (Standards for PM_{10} is 100 $\mu g/m^3$, SO_2 is 80 $\mu g/m^3$, NO_2 is 80 $\mu g/m^3$ and CO is 2.0 mg/m^3 as per CPCB).

ES4-3 Noise and traffic density

Impact: The noise level during construction will be due to construction machinery. It will be temporary and reversible in nature. The noise level at sources like plant machinery are anticipated to go as high as 90 dB(A). During operation, noise will be generated due to operation of various equipment, machinery, pumps, turbo generators, etc.

Mitigation: The equipment shall be provided with acoustic shields or enclosures to limit the sound level within the plant boundary. Vibration dampers shall be used during erection of machinery. Maintenance of machinery and vehicles will be done regularly. The proposed green belt will also help to prevent noise generated within the plant from spreading beyond the plant boundary. Ear muffs or plugs will be provided to the workers in close vicinity of noise source.

ES4-4 Water environment

Impact: During construction phase, water will be required for concrete mixing, curing, cooling water for various machineries, sprinkling for dust suppression, irrigation for green belt and lawns. Sewage will be generated from site office and labour camp.

During operation phase, the total estimated raw water requirement for the project after expansion is around 444 m^3/hr (10,656 KLD) which includes 41.88 m^3/hr (1,005 KLD) for existing facilities. Water requirement will be fulfilled by river IB to meet industrial makeup water demand and ground water to meet domestic water demand. The water requirement for the proposed project (including existing) is estimated as 10,656 m^3/day, out of which 9,984 m^3/day of fresh water requirement will be obtained from the Surface water (IB River) and the remaining requirement of 672 m^3/day will be met from the Ground Water & Harvested rain water. 1,312 KLD (1,258 KLD-Industrial + 54 KLD domestic) waste water will be generated after expansion from DM unit regeneration; water pre-treatment; discharges from various units like CPP, kilns, furnaces, washery etc.; plant washings; leakages and sewage from buildings. During monsoon there will be run off from stock yard, solid waste storage area, roads, open areas and roof tops.

Mitigation: During construction phase, the sewage from site office and labour camps will be treated in septic tank-soak pit system. During operation, waste water streams from various units, processes and services of the plant will be collected in neutralisation tank (if needed) and common monitoring basin. From common monitoring basin, it will be utilized for dust suppression, sprinkling, ash quenching and green belt watering. The sewage from toilets, washrooms and canteen of plant and colony sewage shall be treated in de-centralised septic tanks and sewage treatment plant.

The rainwater falling within the entire project area will be routed to the raw water reservoir and/or intermediate rainwater harvesting ponds through storm water drains. This will reduce water demand from the IB River. Rooftop rainwater will be recharged to the ground. The run off from stock yards and solid waste storage areas will be guided to settling chambers prior to discharge into rainwater harvesting ponds or raw water reservoir.

ES4-5 Land use

Impact: The total plant area of proposed Integrated Steel Plant of capacity 1.7 million TPA (Finished Steel) with 275 MW Captive Power Plant and 1.25 million TPA Cement Grinding Unit will be spread over

107.93 Hectares (266.7 Acres). Existing project is operational and the construction & development will take place for expansion project. It comprises of internal roads, water reservoir, buildings, green belt and plantation, etc. During expansion, additional buildings and sheds of the new units will come up along with facilities. The temporary storage of solid wastes like char, ESP & bag filter dusts, sludges, FES dust, various slags from various sub-units, fly ash and other solid wastes on land would also impact the land.

Mitigation: The topsoil generated during construction will be preserved and shall be spread over the area where plantation is proposed. Plantation will be carried out at earliest to minimise soil erosion. To prevent contamination of water and soil, the finished product stock yards will be covered. Raw material stock yard and solid waste storage areas will have impervious flooring to prevent seepage of leaching due to rains. Runoff will be collected in a garland drain around the stock yard & solid waste storage areas, settled in settling pond and directed to rain water harvesting ponds or raw water reservoir.

ES4-6 Solid waste

Impact: During construction phase, due to work force deployed for construction, there will be development of temporary establishment of residential and commercial nature. These will generate garbage. In the proposed plant operation dust collected from dust collectors, empty barrels (metal and plastic), bags, fly ash, bed ash, dust from air pollution control equipment, dolochar, LD/BOF & I.F. slag, mill scale, scrap, rejected billets, coal fines & rejects, Iron ore fines, effluent treatment sludges, Ferro slag, middling from coal washery and other biodegradable wastes from the canteen are the solid wastes generated.

Mitigation: Sponge iron kilns dolochar & middling from coal washery will be used as fuel in power plant. The LD/BOF and I.F. slag will be given for metal recovery, converted into aggregates and used for road making. Mill scales, iron ore fines and various E.S.P. & bag filter dusts will be used for sinter making. Steel scraps and rejects will be recycled by melting. Fly and bottom ash from proposed power plant, ESP dust shall be used for brick making and cement manufacturing, brick plants, road projects & other users. All stock piles will be laid on top of a stable liner to avoid leaching of materials to ground water.

ES4-7 Ecology

Impact: During construction and operation phase, negligible impact is anticipated on the flora in the plant area. There is no forest land in the proposed additional land area of 4.12 Hectares (10.17 Acres). Negligible

adverse impact of proposed project is anticipated on the fauna as the density is low in the area immediately surrounding the proposed project. The air quality modelling shows that negligible impact will be caused on the surrounding forests

Mitigation: Under the proposed green belt and plantation programme, existing Greenbelt/plantation will be strengthened and to minimize the impact on human and sensitive manmade structure tree density of the existing greenbelt will be increased to at least 2500 trees per hectare as per CPCB guideline will be developed during the proposed expansion. Also, Greenbelt will be increased from 34.26 Hectares (84.66 Acres) to 36.07 Hectares (89.07 Acres) for the proposed expansion inside the plant i.e. 33.4% of total plant area 107.93 Hectares (266.70 Acres).

Also, in compliance with mechanism evolved by MOEFCC for environmental management of critically and severely polluted areas, an area of 7.102 Hectares (17.52 Acres) adjoining surrounding area shall be developed as greenbelt to meet 40% greenbelt cover.

The greenbelt will act as a micro-habitat for small sized mammals and birds. Company proposes extensive plantation outside plant boundary also. The expenditure for plantation shall be met through the fund earmarked under EMP for Social & Infrastructure Development.

ES4-8 Socio-economics

Impact: Most of the work force required for construction and operation of the proposed expansion project will be drawn from the surrounding areas. Once the plant will commence operation, amenities like education, school, health, medical, entertainment, canteen, etc. will get developed in and around the plant. These facilities will inevitably be available to local people also in addition to those directly associated with the plant. During operation phase, 2,100 people will be employed at full capacity of 1.7 million TPA (Finished Steel) with 275 MW Captive Power Plant and 1.25 million TPA Cement Grinding Unit.

Mitigation: It is proposed to hire the manpower locally in the proposed plant, to the extent possible in order to have a positive socio-economic impact. For the purpose, training for capacity building shall be undertaken by the company. Land owners from whom land has been bought, will be given preference in employment. Other than direct and indirect employment leading to economic growth, the major benefit to the community will be through the fund earmarked under EMP for Social & Infrastructure Development to be carried by company.

ES5 ANALYSIS OF ALTERNATIVES

M/s Orissa Metaliks Private Limited (M/s MSP Metallics Limited) received an Environmental Clearance for Integrated Steel Plant- DRI Kiln (4 X 100 TPD + 4 X 175 TPD + 4 X 550 TPD)- 10,50,000 TPA; Mini Blast Furnace (1 X 215 m^3 + 1 X 300 m^3 + 2 X 380 m^3) 10,60,000 TPA, Pellet Plant (1 X 6,00,000 TPA); Steel Melting Shop (I.F.-1 X 15 T + 3 X 18 T+ 1 X 20T + 2 X 60 T)-10,50,000 TPA; Sinter plant (1 x 40 Sq.m)-4,60,000 TPA; Captive Power Plant (WHRB-60 MW+ CFBC-25 MW)- 85 MW, Coal Washery (7,00,000 TPA + 8,00,000 TPA)- 15,00,000 TPA and Coke oven Battery (5 modules X 0.12 MTPA)-6,00,000 TPA at Village Marakuta, Dist. Jharsuguda, Orissa" vide EC no. J-11011/494/2007-IA.II (I) dated 13.07.2009.

For change in configuration of plant an application was submitted to MOEFCC, New Delhi vide letter no. 21.09.2009 & in 4th Reconstituted Expert Appraisal Committee (Industry-1) MoEFCC, New Delhi meeting held on 26th & 27th October 2009 the project was considered on 27th October 2009 and after detail deliberation the project was recommended for change in plant configuration and capacity of plant. Under clause 8 (iv) of EIA Notification, 2006 final recommendation of EAC shall be public documents. Also the EC amendment configuration is mentioned in ministry (MoEFCC, New Delhi) record (File no. J-11011/331/2012-IA.II (I) dated 08.05.2013-Expansion TOR).

Only few facilities i.e. "1 x 225 m^3 MBF (1,88,000 TPA), 1 x 40 m^2 Sinter Plant (4,60,000 TPA), 8 x 100 TPD DRI Plant (2,40,000 TPA), 2 x 30 T I.F. SMS (1,07,700 TPA), 1 x 0.7 MTPA Coal washery, 2 x 0.12 MTPA Non-recovery type Coke Oven Plant, 1 x 0.6 million Pellet plant capacity TPA, 16 MW AFBC, 8 x 1.0 MW (8.0 MW) WHRB Based CPP from DRI Plant from EC accorded configuration have been implemented.

Therefore, no alternative site has been selected as it is an expansion project. It is intended to expand the plant into adjoining or nearby areas by acquiring additional land of 4.12 Hectares (10.17 Acres) in the contiguous area of the above mentioned plant boundary and share the resources and facilities of the sanctioned plant.

Now the company has proposed the expansion of existing implemented project [1 x 225 m^3 MBF (1,88,000 TPA), 1 x 40 m^2 Sinter Plant (4,60,000 TPA), 8 x 100 TPD DRI Plant (2,40,000 TPA), 2 x 30 T I.F. SMS (1,07,700 TPA), 1 x 0.7 MTPA Coal washery, 2 x 0.12 MTPA Non-recovery type Coke Oven Plant, 1 x 0.6 million TPA Pellet plant, 2 x 4,000 Nm^3/hr Producer Gas Plant, 16 MW AFBC, 8 x 1.0 MW (8.0 MW) WHRB Based CPP from existing DRI Plant] to Integrated Steel Plant of capacity 1.7 Million TPA (Finished Steel) with 275 MW Captive Power

Plant and 1.25 million TPA Cement Grinding Unit by addition of some facilities and by revamping, augmentation, up gradation/modification of existing technologies & facilities and increasing annual working days to 330 days with an additional investment of ₹ 1,500/- Crores (Rupees One thousand five hundred Crores Only).

ES6 ENVIRONMENTAL CONTROL AND MONITORING ORGANISATION

M/s Orissa Metaliks Private Limited (Formerly MSP Metallic Limited) already has an Environment Management Department at the headquarter as well as plant site. It will also be responsible for ensuring the environmental monitoring of the proposed plant. Monitoring of stack emissions, ambient air quality, water quality, water levels, noise levels, soil quality, tree count, etc. shall be carried out periodically at plant level. An environment officer has already been appointed the plant. He will be responsible for the aforementioned plant level monitoring, developing greenbelt, ensuring good housekeeping, ensuring statutory compliances as well as imparting environmental training to work force. The total capital investment on environmental protection work is envisaged as ₹ 349.28 Crores and recurring expenditure during operation will be ₹ 34.93 Crores.

ES7 DISASTER MANAGEMENT PLAN

All types of industries face certain types of hazards which can disrupt normal activities abruptly. They can lead to disasters like fires, inundation, failure of machinery, explosion, oil spillage, acid spillage, electrocution and hazardous waste spillage/exposure, etc. Disaster management plan is formulated with an aim of taking precautions to control hazard propagation and avert disaster. It also instructs to take action after the disaster to limit the damage to minimum. To tackle the situation, a disaster control room will be established having links with all control rooms of the plant. An up-to-date communication facility will be provided to control rooms. The disaster control room shall be headed by emergency leader called Site Main Controller, who will be the plant manager.

ES8 PROJECT BENEFIT

During operation phase, around 2,100 persons will be under direct employment of the company at full capacity. Many more persons will be indirectly engaged (1,500) either on contract basis or in transportation of materials or in provision of different services associated with the project. As majority of unskilled and semi-skilled persons will be from the surrounding villages, social & infrastructural benefits will extend to the local population. Improvement is expected in education facilities, health

care services, road infrastructure and drinking water facilities through proposed EMP for Social & Infrastructure Development.

ES9 DISCLOSURE OF CONSULTANTS

The consultants engaged for the preparation of the EIA/EMP of the project are Centre for Envotech and Management Consultancy Pvt. Ltd. (CEMC), Bhubaneshwar, Odisha. CEMC is one of the leading Environmental and Forest consultancy organisations in the state of Odisha. CEMC was established during 2005 and registered under Companies Act 1956 and is NABET, QCI accredited consultant.