

**Annexure-1.1 TERMS OF REFERENCE (ToR)**

**F. No. J-11011/99/2007- 1A-II(I)**  
**Government of India**  
Ministry of Environment, Forest and Climate Change  
(Impact Assessment Division)

Indira Paryavaran Bhawan  
Jor Bagh Road, Aliganj,  
New Delhi - 110003  
E-mail: sharath.kr@gov.in  
Tel: 011-24695319

Dated: 10<sup>th</sup> April, 2018

To

M/s Steel Authority of India Ltd  
Bokaro Steel Plant, Ispat Bhawan,  
Bokaro Steel City, District Bokaro  
Jharkhand-827001.

**Subject:** Modernization-cum-expansion of Bokaro Steel plant by up-gradation of existing SMS-I(1.306 MTPA), debottlenecking of SMS-II (3.35 MTPA) & existing CRM complex (1.66 MTPA), installation of new kiln of 450 TPD in Lime plant, a new Sinter Plant(3.7MTPA) and Oxygen plant (1250 TPD on BOO basis) without increasing the overall production capacity of 5.77 MTPA hot metal by **M/s SAIL Ltd. - Prescribing Terms of Reference regarding.**

Sir,

The proponent has made online application vide proposal no. IA/JH/IND/73158/2018 dated 22<sup>nd</sup> February 2018 along with the (Form-I, copy of pre-feasibility report and proposed ToRs for undertaking detailed EIA study as per the EIA Notification, 2006 for the project mentioned above. The proposed project activity is listed at Sl. No. 3(a) Metallurgical industries (ferrous & non-ferrous) and the proposal is appraised at Central level.

**Detail submitted by the project proponent**

2.0 M/s. SAIL-Bokaro proposes modernization-cum-expansion of existing Iron & Steel plant of 5.77 MTPA hot metal production capacity. It is proposed to up-grade existing SMS-I(1.306 MTPA), carry out debottlenecking activities for SMS-II (3.35 MTPA) & existing CRM complex (1.66 MTPA), install a new kiln of 450 TPD in Lime plant, a new Sinter Plant(3.7MTPA) and an Oxygen plant (1250 TPD on BOO basis) without increasing the overall production capacity of 5.77 MTPA hot metal of existing Bokaro Steel Plant.

3.0 The existing project was accorded environmental clearance vide Ir.no. J-11011/99/2007-1A.II(I) dated 16.10.2008, which was subsequently granted extension of validity till 15.10.2018. The same had also been granted amendment in EC vide MoEFCC's lrs. no. J-11011/99/2007-1A.II(I) dated 28.11.2014 and 13.12.2017. Consent to Operate was accorded by Jharkhand State Pollution Control Board vide Ir. no. JSPCB/HO/RNC/CTO-63953/2016/98 dated 17.06.2016 and the validity of CTO is up to 31.12.2019.

4.0 The proposed modernization-cum-expansion programme will be carried out within the existing Bokaro Steel plant which is located at Bokaro Steel City, Tehsil: Chas, District: Bokaro, State: Jharkhand.

5.0 The land area under possession of SAIL-Bokaro for the existing Bokaro Steel Plant within which the proposed modernization-cum-expansion programme is envisaged is 6973.68 Ha (all under BSL's possession) out of which 5413.5 Ha is under industrial use (plant area), 1199.99 Ha is under water bodies (the existing cooling pond which works as reservoir for facilitating central recirculation system and cooling of hot process water), 1782.35 Ha is under greenbelt plantation and 360.17 Ha is others. No forestland is involved. The entire land is already in possession of SAIL-Bokaro and no additional land acquisition is required for the proposed modernization-cum-expansion project. Of the total plant area, 1782.35 Ha (33%) land is under use for green belt development.

6.0 No National Park/Wildlife Sanctuary/Biosphere Reserve/Tiger Reserve/Elephant Reserve etc. are reported to be located in the core and buffer zone of the project. The area also does not report to form corridor for Schedule-I fauna.

7.0 Total project cost is approx. 2276.01 Crore rupees. No direct employment generation from proposed modernization-cum-expansion project is envisaged as existing manpower from different units will be trained and re-deployed for the modernized as well as new units. However, some contractual workers will be engaged during construction and expansion plan who will be sourced from locals.

8.0 The targeted production capacity of the existing Bokaro Steel plant is 5.77 MTPA of hot metal (EC already accorded by MoEFCC). The iron ore for the plant would be sourced from SAIL Captive mines. The ore transportation will be done through Rail and in-plant logistics will be via Conveyors. The modifications, up-gradations and capacity enhancements of various units envisaged in the proposed modernization-cum-expansion program of BSL is mentioned below:

Sl. No.	Name of units/products	Capacity of units(as per existing EC & all amendments thereof)	Changes proposed in modernization-cum-expansion programme	Total capacity after proposed modernization-cum-expansion
1.	Hot Metal	5.77 MTPA	<i>No change</i>	<i>5.77 MTPA</i>
2.	Crude Steel	4.606 MTPA	<i>4.656 MTPA with some proposed debottlenecking projects.</i>	<i>4.656 MTPA</i>
3.	Coke Oven Complex	3.442 MTPA coke	<i>No change</i>	<i>3.442 MTPA</i>
4.	Blast Furnace Complex	5.77 MTPA Hot metal	<i>No change</i>	<i>5.77 MTPA</i>
5.	Sinter Plant Complex	8.7 MTPA (5 MTPA + 3.7 MTPA)	- 1 new sinter plant of 360 m <sup>2</sup> grate area of 3.7 MTPA (included in new proposal due to delay in installation activities) <i>No change in overall sinter production (8.7 MTPA) as per earlier EC amendment granted.</i>	8.7 MTPA (5 MTPA + 3.7 MTPA)
6.	SMS Complex	SMS-I [upgraded from 1.5 MTPA to Stage-1: 1.306 MTPA]	- SMS-I up-gradation to 1.306 MTPA included in new proposal due to delay in installation activities.	4.656 MTPA (1.306 MTPA + 3.35 MTPA)

Sl. No.	Name of units/products	Capacity of units(as per existing EC & all amendments thereof)	Changes proposed in modernization-cum-expansion programme	Total capacity after proposed modernization-cum-expansion
			<i>No change in capacity of 1,306 MTPA as per earlier EC amendment granted.</i>	
		SMS-II (with capacity augmentation to 3.30 MTPA)	<i>- Execution of some debottlenecking facilities of SMS-II will augment the capacity to 3.35 MTPA.</i>	
		Tot. Capacity: 4,606 MTPA (1,306 MTPA + 3.30 MTPA)		
7.	Slabbing Mill	- Universal Slabbing Mill with 7 no. soaking pit batteries	<i>No change</i>	-
8.	Hot Strip Mill	4.5 MTPA	<i>No change</i>	4.5 MTPA
9.	CRM complex	<ul style="list-style-type: none"> <li>• Existing CRM Complex: 1.2 MTPA</li> <li>• New CRM Complex: 1.2 MTPA</li> </ul> Tot. Capacity: 2.4 MTPA (1.2 MTPA + 1.2 MTPA)	<i>- Execution of some debottlenecking facilities at existing CRM complex will augment the capacity to 1.66 MTPA.</i>	2.86 MTPA (1.66 MTPA + 1.2 MTPA)
10.	Lime-Dolo Kiln (Existing Rotary Kiln for SMS-II)	- 6 x 270 TPD (4 kiln in operation: 3 for lime + 1 for dolomite)	- New kiln of 450 TPD will be added	6 x 270 TPD (existing) + 1 x 450 TPD (new)
11.	Oxygen Plant	Tot. Capacity: 3950 TPD (1450 TPD captive plant + 2x1250 TPD BOO plant)	<i>No change.</i> Installation of earlier envisaged of 1250 TPD Oxygen plant (BOO)	3950 TPD [1450 TPD (existing plant) + 1250 TPD (existing BOO Plant) + 1250 TPD (new)]
12.	Water supply system	Tenu Canal along with alternate water pipeline system	<i>No change.</i> Alternate water pipeline system included due to delay in project execution activities.	Tenu Canal along with alternate water pipeline system

9.0 The major additional electricity load of 79 MVA will be procured from existing power network of Bokaro Steel Plant.

10.0 The additional raw material and fuel requirement for proposed modernization-cum-expansion project of BSL are described in the following tables. The fuel requirement would be fulfilled by existing gas network. Fuel consumption will be mainly Coke Oven gas and Mixed gas (mix of Blast furnace and Coke Oven gas).

ADDITIONAL RAW MATERIAL REQUIREMENT (Sinter Plant-II)		
Sn.	Raw material	Quantity (Tons/yr)
1.	Iron ore fines	30,40,290
2.	Limestone	1,93,140
3.	Dolomite	3,16,350
4.	Coke Breeze	2,33,100
5.	Calcined lime	66,600
ADDITIONAL FUEL REQUIREMENT		
Sn.	Fuel	Quantity
Modernized SMS-1		
1.	Coke Oven gas	8000 Nm <sup>3</sup> /hr
2.	Propane gas	100 Nm <sup>3</sup> /hr
Sinter Plant-II		
3.	Mixed Gas (BF+CO gas)	3503.8 Nm <sup>3</sup> /hr

11.0 Additional make-up water requirement for the proposed modernization-cum-expansion project of BSL will be 1684 m<sup>3</sup>/hr which will be sourced from existing water supply system as well as by treatment & recycling of waste water from OF-1B & 2A. No waste water will be discharged from the proposed units and all process wastewater will be treated and recirculated within the units.

12.0 The proponent has mentioned that there is no court case or violation under EIA Notification to the project or related activity.

13.0 The proposal was considered in the 29<sup>th</sup> meeting of Expert Appraisal Committee (Industry-I) held during 12<sup>th</sup> to 14<sup>th</sup> March, 2018.

14.0 During the deliberations, the committee noted that M/s **Steel Authority India Limited** has made online application **IA/JH/IND/25333/2014** dated 18<sup>th</sup> October, 2016 for modernisation of existing Bokaro Steel Plant by addition of 2.0 MTPA Pellet Plant and 0.768 MTPA Coke Oven Battery. It was also noted that the PP will take up the proposal of 2.0 MTPA Pellet Plant and 0.768 MTPA Coke Oven Battery after the expansion of the Hot Metal from 4.0 MTPA to 5.77 MTPA for which ToR sought in the instant proposal.

15.0 During the deliberations, the PP requested the committee that another proposal under agenda item 29.32 for Environmental Clearance for modernisation of existing steel plant by addition of 2.0 MTPA pellet plant and 0.768 MTPA cokeoven battery may be merged with this proposal with the consolidated configuration as given below vide letter dated 14.03.2018.

Sl	Units/ Products	Capacity of units at 4.5 MTPA hot metal stage	Capacity of units after expansion from 4.5 to 5.77 MTPA hot metal (as per existing EC for, valid upto 14.10.2018 & ALL AMENDMENTS THEREOF)	Status of existing facilities (at 5.77 hot metal stage)	Changes proposed as per revised configuration	Final configuration after acceptance of proposal
1.	Coke Oven Complex	3.442 MTPA	3.442 MTPA	Completed.	Addition of 1.0 MTPA Coke oven battery*	4.442 MTPA

2.	Blast Furnace Complex	4.5 MTPA	5.77 MTPA	Completed.	NO CHANGE	5.77 MTPA
3.	SMS Complex	SMS-1: 1.5 MTPA SMS-2: 2.7 MTPA <u>Total: 4.2 MTPA</u>	SMS-1: 1.306 MTPA SMS-2: 3.3 MTPA <u>Total: 4.606 MTPA</u>	SMS-1 up-gradation delayed.  SMS-2 expansion completed.	SMS-1 up-gradation included.  SMS-2 proposed to be upgraded to 3.35 MTPA	4.656 MTPA
4.	Slabbing Mill	- Universal Slabbing Mill with 7 no. soaking pit batteries	- Universal Slabbing Mill with 7 no. soaking pit batteries to be phased out after SMS-1 upgradation	Universal Slabbing Mill with 7 no. soaking pit batteries retained	NO CHANGE	Universal Slabbing Mill with 7 no. soaking pit batteries
5.	Sinter Plant Complex	6.9 MTPA	Existing plant: 5.0 MTPA New Sinter plant: 3.7 MTPA Total: 8.7 MTPA	New sinter plant of 3.7 MTPA delayed.	New Sinter Plant of 3.7 MTPA	8.7 MTPA
	Pellet Plant <sup>a</sup>	-	-	-	Addition of 2.0 MTPA Pellet plant	2.0 MTPA
6.	Lime-Dolo Kiln	0.2449 MTPA	0.5358 MTPA	Expansion deferred.	New Kiln of 0.1642 MTPA	0.4091 MTPA
7.	Hot Strip Mill	3.2 MTPA	4.5 MTPA	Completed	NO CHANGE	4.5 MTPA
8.	CRM complex	1.2 MTPA	2.4 MTPA	Completed	Increase by 0.46 MTPA	2.86 MTPA
9.	Oxygen Plant	-	Tot. Capacity: 3950 TPD (1450 TPD captive plant + 2x1250 TPD BOO plant)	Installation of 1x1250 TPD BOO based Oxygen plant delayed.	Installation of 1250 TPD Oxygen Plant on BOO Basis	3950 TPD
10.	Water supply system	-	Tenu Canal and alternate water pipeline system	Project delayed	Project Included	Tenu Canal and alternate water pipeline system

16.0 After detailed deliberations, the Committee agreed to their request for changing the title of the consolidated proposal as 'Expansion –cum-modernisation of Bokaro steel plant from 4.5 MTPA hot metal to 5.77 MTPA hotmetal at Bokaro Steel city, Jharkhand.'


17.0 The Committee recommend for issue of the ToRs for aforementioned consolidated proposal.

18.0 The undersigned is directed to inform that the Ministry of Environment, Forest and Climate Change (MoEF&CC) after accepting the recommendation of the EAC (Industry-I), hereby decided to accord ToRs with the standard ToR, for undertaking detailed EIA-EMP study in addition to the generic ToR enclosed at Annexure I read with additional ToRs at Annexure-2, for the proposed Modernization-cum-expansion of Bokaro Steel plant by up-gradation of existing SMS-I(1.306 MTPA), debottlenecking of SMS-II (3.35 MTPA) & existing CRM complex (1.66 MTPA), installation of new kiln of 450 TPD in Lime plant, a new Sinter Plant(3.7MTPA) and Oxygen plant (1250 TPD on BOO basis),

Pellet plant, alternate water supply system (Comprehensive proposal as give at para 15 above)for overall production capacity of 5.77 MTPA hot metal by M/s SAIL Ltd.

19.0 It is requested that the draft EIA Report may be prepared in accordance with the above mentioned specific ToRs and enclosed generic ToRs and additional ToRs and thereafter further necessary action including conduct of public consultation may be taken for obtaining Environment Clearance in accordance with the procedure prescribed under the EIA Notification, 2006 as amended.

20.0 The ToRs are valid for a period of three years from today i.e. 10.04.2018 and will expire on 09.04.2021. However, this period could be further extended by a maximum period of one year provided an application is made by the project proponent at least three months before the expiry of the validity period, together with updated Form-I, based on proper justification.

  
(Sharath Kumar Pallerla)  
Scientist 'F'/Director

Copy to:-

1. **The Secretary**, Department of Environment, Government of Jharkhand Secretariat Ranchi.
2. **The Chairman**, Central Pollution Control Board, Parivesh Bhawan, CBD-cum office complex, East Arjun Nagar, Delhi-110032.
3. **The Chairman**, Jharkhand State Pollution Control Board, CTI Colony, Sector 4, Birsa Nagar, Ranchi, Jharkhand 834004
4. **The Additional Principal Chief Conservator of Forests(C)**, Ministry of Environment and Forest, Regional Office (ECZ), Bungalow No. A-2, Shyamali Colony, Ranchi-834002.
5. **The District Collector**, Bokaro District, Government of Jharkhand.
6. **Guard File/Record File/Monitoring File.**
7. **MoEF&CC website.**

  
(Sharath Kumar Pallerla)  
Scientist 'F'/Director