EXECUTIVE SUMMARY

EIA/EMP Report

for

Revised Configuration of Modernization-Cum-Expansion (3.5 MTPA to 2.7 MTPA Gross Hot Metal) of M/s Durgapur Steel Plant (DSP), Steel Authority of India Limited (SAIL)

at

Durgapur , Faridpur-Durgapur Block, Durgapur Sub-division , Paschim Bardhaman District, West Bengal

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Project Proponent

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EXECUTIVE SUMMARY

1.0 INTRODUCTION

Durgapur Steel Plant (DSP) at Durgapur, West Bengal is one of the integrated steel plants of Steel Authority of India Limited (SAIL). DSP produces liquid steel through conventional BF-BOF route, which is cast into billets, blooms & rounds in its Billet caster, Bloom caster and Bloom cum Round caster. The finishing mills comprise of Merchant Mill to produces special quality EQR TMT bars and new state of the art Medium Structural Mill (MSM) to produce next generation beams, channels and angles. The unique feature of this plant is its Wheel & Axle Plant for making forged wheels and axles catering to Indian Railways. Recently DSP has developed LHB wheels in-house and has received trial orders from Indian Railways.

In pursuance of Environmental (Protection) Act, 1986 and EIA Notification, 2006 and amendments, new or expansion projects necessitate statutory prior environmental clearance by conducting an Environmental Impact Assessment (EIA) study. The project falls under section no. 3 (a) Metallurgical Industries (ferrous & non- ferrous) under Category-A of the schedule of the EIA Notification, dated 14th September, 2006 and amendments thereafter.

Durgapur Steel Plant is producing iron and steel based on BF-BOF route. DSP obtained Environmental Clearance (EC) in 2007 for 3.5 Million Tonnes Per Annum (MTPA) of Gross Hot Metal (GHM). However, due to recession in global market, only part of the expansion-cum-modernization plan of DSP, could be executed and at present the plant is operating much below the approved capacity of 3.5 MTPA.

In the present proposal, DSP has planned to achieve the production capacity of 2.7 MTPA Gross Hot Metal, by modernizing and improving the existing facilities. DSP has envisaged for the up-gradation of existing units, executing debottlenecking activities as well as addition and replacement of some new facilities in the proposed revised configuration of its modernization-cum-expansion programme. The proposed project will be implemented within the existing premises of DSP.

2.0 PROJECT DESCRIPTION

2.01 Location

Durgapur Steel plant is located at Block Faridpur, District Paschim Bardhaman, West Bengal, between 23°31'38" N to 23°33'45" N (Lat.) and 87°14'22" E to 87°16'19" E (Long.) over an area of 600 ha. The site is approximately 170 km away (by road) in the NW direction from Kolkata, the state capital of West Bengal.

The nearest main Railway station is Durgapur Railway Station which is approximately 12 km away by road (aerial distance about 7 km) in the SE direction from the Plant. The nearest airport is Kazi Nazrul Islam Airport, Andal, which is about 9 km away by road (aerial distance about 6 km) in the N direction from the Plant.

2.02 Existing and Proposed Capacity

The summary of existing and proposed capacity along-with capacity accorded as per Environmental clearance is shown in **Table 1** below.

Table 1.1: Summary of EC capacity, existing and proposed capacity of DSP

Production capacity	Capacity of Plant			Remarks
	As per EC, 2007 and its amendments	Status as of now (31.03.2021)	Proposed Proposal	
Gross Hot Metal (GHM) (in MTPA)	3.5	2.555	2.70	Reduction in capacity from accorded EC
Crude Steel Production (in MTPA)	3.0	2.20	2.5	
Finished / Saleable Steel (in MTPA)	2.8325	2.29	2.4104	
Cold Pigs Production (in TPA)	214000	214000	214000	No change

The envisaged schemes under the present proposal are as follows:

1. Installation of new 0.76 MTPA stamp charge Coke Oven Battery (COB) along-with 120 TPH (10MW) Coke Dry Cooling Plant (CDCP) in place of existing COB#1.
2. Installation of new Bar Mill of 1.0 MTPA capacity in place of Wire Rod Mill (0.5 MTPA) and Bar & Merchant Mill (0.8 MTPA) as envisaged in EC 2007.
3. Installation of new Coke Oven Gas Holder of enhanced capacity (70,000 m3) in place of existing coke oven gas holder (56,000 m3).
4. Installation of new 100 TPH Boiler of in Old Power Plant (OPP) for replacement of existing 7th Boiler of 68 TPH.
5. Installation of new Online Heat Treatment Facility at Wheel and Axle Plant.
6. Changes in Blast Furnace Complex:
   a. Dropping out the reconstruction of BF#1 (0.945 MTPA).
   b. Increase in Gross Hot Metal (GHM) production from BF # 2 and BF # 3 from 1.61 MTPA to 1.755 MTPA by operational optimisation.
   c. No change in BF # 4 GHM (0.945 MTPA).
   d. Proposed total GHM production from BF Complex as 2.7 MTPA GHM.
   e. Overall concomitant decrease in EC 2007 envisaged crude steel production from 3.0 to 2.5 MTPA and finished / saleable steel production from 2.8325 to 2.4104 MTPA.
7. Changes in Sinter Plant Complex:
   a. Increase in gross sinter production of SP # I from 1.299 to 1.5 MTPA by operational optimisation.
   b. Increase in gross sinter production from SP#II from 1.71 to 1.9 MTPA by operational optimisation.
   c. Dropping out the earlier proposed new SP#III capacity 3.029 MTPA (as per EC 2007).
   d. Overall reduction in total gross sinter production from 4.739 MTPA to 3.4 MTPA.

8. Bringing back of Section Mill (0.207 MTPA) in operation to produce section mills products (beam, channel, angle etc.), till stabilization of proposed Medium Structural Mill (1.0 MTPA).
9. Increase in production capacity of Merchant Mill from 0.33 MTPA to 0.4 MTPA.
10. Installation of new 1x1250 TPD Oxygen Plant on BOO basis in place of existing oxygen plants 1x350 TPD (Captive) and 1x700 TPD (BOO basis).

The proposal also informs dropping out earlier proposed Skelp Mill, earlier proposed Hot Metal De-sulphurisation Plant and earlier proposed RH De-gassing Units, New Bottom pouring Ingot Casting (2.5% of total Liquid Steel) and continuation of existing Dual Fired (Coal & Gas) Boilers 1, 2, 5 & 6 (68 TPH) instead of proposed replacement of Dual Fired (Coal & Gas) boiler along with continuation of existing four Steam driven Turbo Alternators 4x5 MW instead of proposed replacement with 3x20 MW (2W+1S) Turbo-Alternator.

2.03 Resource Requirements

The proposed proposal will be carried out entirely within the existing DSP plant boundary. The DSP project area is about 600 ha (1482.63 acres) in which the project units and associated facilities are situated. The proposed project shall not involve any land acquisition hence no Resettlement & Rehabilitation of land outsees and also does not involve any diversion of Forest Land.

Raw materials like Iron Ore Lump and Fines, Lime Stone / Dolomite, etc. required will be catered from the existing tie-ups / agreement with the suppliers and will be met from the existing sources and will be transported through rail as per the existing practice.

The total water requirement for modernisation-cum-expansion project (GHM 3.5 MTPA) was **5792m^3/hr**, the drawl permission for which is accorded from DVC. The water requirements at 2.7 MTPA GHM stage is estimated to be 5575 m^3/hr Of this, 4141 m^3/hr. of water will be used by DSP for steel production and 1434 m^3/hr will be used by Drinking Water Treatment Plant No. 1 & 2. Water requirement will be met from the existing sources under the existing permission / agreement from DVC.

The total power demand of the 3.5 MTPA DSP project is about 286 MVA. The total power requirement after the proposed project will be about 245.5 MVA, which is well below the power purchase / supply agreement with NSPCL (NTPC-SAIL Power Company Limited, a joint venture of NTPC Limited and SAIL) / Damodar Valley Corporation (DVC). Therefore, no additional power requirement for the proposed project.

Liquid effluent generated additionally from proposed Bar and Rod Mill will be treated in the treatment facilities provided with the mill and recycled in to cooling water circuit.

Industrial solid waste generation will be managed as per the present practice, where in more than 90% of solid waste is being re-utilised in the plant / sold to downstream industries. DSP has proposed action plan for 100% utilization of solid waste generation.

2.04 Project Cost and manpower requirement

The estimated total cost for the proposed project is about **Rs. 3,324 Crores.**

The proposed project envisages an additional employment of about **667 people** on regular basis and during construction about **1350 people** on temporary basis (during the construction period).

3.0 DESCRIPTION OF THE ENVIRORNMENT

Study area has been taken as 10 km radius around the project boundary. The baseline data generation was started on 01st March, 2020 to cover the Summer season (March'20-April'20-May'20). However, nation-wide lockdown was imposed by Govt. of India from 24th March, 2020 onwards due to COVID-19 pandemic. Therefore, baseline data generation at site (particularly for micro-meteorology and Ambient Air Quality monitoring) got suspended and could not cover full summer season 2020. The same was informed to EAC (Industry-I), MoEFCC. Subsequent to that MoEFCC has permitted the project proponent vide ToR letter no. J-11011/492/2007-IA-II(I) dated 23rd September, 2020 for collecting additional one month monitoring data starting from 15th September, 2020 to 15th October, 2020 to complete the baseline monitoring which got suspended for lockdown throughout the country due to the COVID-19 pandemic.

Meteorology

A micro-meteorological station was set up at Ispat Bhawan, the administration building of project site of the DSP plant (Latitude 23°33'39.9"N, Longitude 87°15'3.9"E). The micro-meteorological data was generated hourly during the monitoring period.

Air Environment

The ambient air quality was evaluated from the samples collected twice a week for twelve weeks during parts of March, May and June 2020 (Summer season) and additional one month monitoring from 15 September to 15 October 2020. Twenty four hourly samples were collected for PM_{10}, $PM_{2.5}$, SO_2, NO_2, Pb, Ni, As and B(a)P; hourly samples were taken for CO, NH_3 and O_3; four-hourly samples were collected for Benzene (C_6H_6). Lead (Pb), Nickel (Ni) and Arsenic (As) and Benzo(a)Pyrene (BaP) were determined from PM_{10} in selected samples. Similarly Benzene in ambient air were analysed in selected samples at all locations. Chemical characterization of PM_{10} was also carried out for Cd, Cu, Ni, Pb, As, Cr, Zn, Fe & Mn concentrations.

Among all the 12 parameters monitored, values of PM_{10} and $PM_{2.5}$ concentrations were marginally higher than the NAAQS 2009 norms at few locations in study area. PM concentration exceeded the respective norms at A4 (Netaji colony) & A5 (City Center) that might be attributed to presence of other industries, high vehicular movement as these areas consisting of national highway, commercial centres.

Ambient Noise Environment

Ambient Noise monitoring was conducted at 8 locations. Additionally, ambient noise levels at 7 locations were also measured near Plant boundary. Noise levels at all locations were found to be within the relevant norms for industrial, residential as well as commercial areas and silence zone.

Water Environment

A total of eighteen (18) water-sampling locations were selected for the study comprising of ten (10) surface water and eight (08) ground water sampling locations. Locations of surface water available in the study area were selected in and around the project site from Damodar River, Singaran Nala and Tamla Nala considering up-stream and down-stream of project site. The ground water sampling locations were selected considering up-gradient and down-gradient of the project site.

Surface water samples were analysed for different parameters as required by CPCB's Water Quality Criteria for Surface Water and also with different parameters as per IS: 10500 (2012) and amendment No. 1, 2015. In absence of any specific norms for Ground Water Quality, the results have been compared with drinking water quality standards specified in IS: 10500 (2012) and amendment No. 1, 2015.

Soil

Sampling locations were selected to assess the existing soil conditions in and around the project area representing various land use conditions from six (06) locations for Physico-chemical analysis. Overall the soil in the area is capable to support plant growth.

Ecological Features

The project site is the existing steel plant site, which basically comprises of the existing industrial set up and the green belt being developed within the project area. The vegetation of the core zone (Steel plant area) comprises of grasses and green belt developed. DSP is continuously in the process of developing green belt and plantations within and outside the plant premises.

Within the study area, there is one Protected Forest (P.F.), Ukhra P.F. which is located about 9 km NNE of DSP.

No Biosphere Reserve/ Ramsar Site/ Wildlife Sanctuary/ National Park/ Tiger Reserve/ Elephant Reserve/ Elephant Corridor is present within study area. No notified ecologically sensitive area present within study area.

Site-specific Wildlife conservation plan for the Schedule-I fauna present in the study area has been prepared and submitted to competent authority for approval.

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

In the present proposal, DSP has envisaged for the up-gradation of existing units by rebuilding, executing debottlenecking activities as well as addition of some new facilities in the proposed revised configuration of the modernization-cum-expansion programme.

4.01 Impact During Construction

The proposed project will not acquire any new land and all of the construction activity will be limited within the existing DSP premises and in the already built up area, having all infrastructural facilities. The impact on Air environment due to the construction activity involved is predicted and in-line to that mitigation measures has been proposed. Further, the impact of such activities will be temporary and will be restricted to the construction phase only.

4.02 Impact During Operation

Impact on Air Environment

Air quality impact prediction modelling has been carried out for the proposed project. It is observed that even after implementation of proposed proposal for achieving 2.7 MTPA GHM, the resultant AAQ levels will be within the prescribed limits of NAAQS at all locations. Raw material will be transportation 100% of by railway by which it is anticipated for further positive impact on AAQ.

Impact on Water Environment

No abstraction of groundwater is envisaged for the proposed activities. Thus, no negative impact on existing water regime is anticipated. Estimated total makeup water requirement will be drawn from Damodar River.

DSP has already installed STP, ETP, BOD plants and drinking water treatment plant. The requirement for the proposed proposal will be catered by the same. The treated water recovered from is been reused as make up water replacement.

Various water treatment and conservation measures like Dry BF gas cleaning, Rain water harvesting, etc. have been implemented by DSP in the existing plant. The same shall also be extended for the upcoming facilities.
Additionally, it is proposed that no waste water shall be discharged outside the plant. ZLD schemes are also under implementation by DSP.

Impact on Noise Levels

The noise level due to the existing project at the plant boundary is within the norms. The estimated resultant noise levels during operation phase of the plant after proposed proposal shows that the increase in noise levels due to operation of the proposed units will be negligible.

Impact on Traffic Density

There will be a positive impact on Traffic volume because in the present proposal it is envisaged for 100% transportation of raw material by rail in future.

Impact on Ecological Features

The present proposal is mainly replacement of the existing units or expansion of existing units by operational optimization. Therefore, the present proposal will lead to no loss of

vegetation as the project area lies within the existing steel plant premises of DSP and requires only a small proportion of the area, therefore the impacts of the loss of vegetation on the ecology of the study area is not envisaged.

Occupational Safety & Health Plan

DSP has a full-fledged Occupational Health Services Center with round the clock doctor facility. Medical checkups are carried out for all the workers at regular intervals. Facilities for carrying out lung function test, sputum test, X-ray etc., are available. First aid boxes are provided at strategic locations at shop floor.

5.0 ANALYSIS OF ALTERNATIVES

The proposed project is for achieving the 2.7 MTPA GHM capacity of DSP by modernization of the existing plant of DSP. No additional land is required for the proposed project.

6.0 ENVIRONMENTAL MONITORING PROGRAMME

The present project proposal is for seeking Environmental Clearance for 2.7 MTPA GHM of DSP through modernisation. At DSP elaborate monitoring arrangement is already in place to monitor the effectiveness of pollution control equipments and meeting the statutory reporting requirements. The same monitoring arrangement will be strengthen to cater to the additional monitoring requirements.

7.0 ADDITIONAL STUDIES

7.01 Risk Assessment and Disaster Management Plan

Risk Assessment for hazardous gases already been handled as well as stored by DSP has been carried. Hazard assessment is carried out for identifying the most likely hazards which can have significant impact on workplace safety in an industry. The maximum hazard extend due to thermal effects was estimated and it was found that probability of an offsite emergency is negligible. DSP is having a well-documented Onsite Emergency Plan. The same will be followed for the proposed project.

7.02 Socio Economic Impact Assessment

Socio-economic survey was carried out covering the villages / towns of the study area to record awareness, opinion, apprehensions, quality of life and expectations of the local people about the proposed project. The opinion of local people about the project was obtained through socio-economy survey of the villages in the study area. The study included assessment of needs of the public where need for improvement in health infrastructure & drinking water facilities in the area are observed. CSR Budget for the FY 2021-22 is Rs. 555 lakhs.

8.0 PROJECT BENEFITS

The proposed project has mainly following benefits:

- Improvements in Physical Infrastructure
- Employment Potential: direct and in-direct
- Improvements in Social Infrastructure

- Environmental Benefits: More modern / technologically better pollution control systems.

9.0 ENVIRONMENTAL MANAGEMENT PLAN

The proposed project is the modernization by re-building/addition of new units and associated facilities in the existing plant. The organizational and reporting arrangements are already in place for existing DSP plant. DSP has given maximum importance for adopting latest state-of-the-art technologies for keeping the pollution to minimum levels. An Environment Control Department (ECD) already exists with dedicated team of engineers/chemists. The capital and recurring cost of Environmental Management Plan are proposed to be Rs. 433.51 Crores and Rs. 0.79 Crores, respectively.

10.0 CONCLUSION

Environmental Impact Assessment (EIA) was done to assess the possible impacts of the proposed modernization of DSP. In the design phase of the units under the 2.7 MTPA GHM project, latest state-of-the- art technology had been envisaged to achieve the desired air emissions and noise levels from plant operations. The effluents generated from the units are being recycled and reused. Further, maximum re-use and re-utilization of generated solid waste is being practiced. Overall, DSP has taken up maximum measures to expand its industrial operations with minimum effect on the environment.