

Proposed Terms of Reference for EIA studies

M/s Shyam Metalics & Energy Ltd steel project is located at Pandoloi, in Sambalpur district of Odisha. The project site is at latitude 21⁰ 40' 50.43" N and longitude 84⁰ 02' 30.63" E, MSL 208m.

The project is located on state Highway joining Sambalpur-Rourkela, NH-6 and 42 exist at a distance of about 25km from the site. SH-10 is passing by the side of the project. The project is by the side of Railway line of Sambalpur-Jharsuguda section. The nearest railway station Rengali is 8 km away from project site.

A draft Terms of Reference (TOR) is enclosed.

The proposed TOR will include the process description of each unit with respect to capacity, production facilities, product mix, and other technological aspects etc. details of the Raw materials and fuel inventory their characterization and their sourcing will be discussed. Utility requirement that includes water, fuel, electricity etc. will be discussed.

The proposed TOR will also include the information regarding the manpower requirement, project cost and cost towards EMP.

Baseline Data Collection:

- For Impact Prediction and Assessment, the details of most of the baseline data shall be collected during the study period of non-monsoon 03 months.
- There will be elaborate data collection with respect to geology, geomorphology, hydrogeology, drainage pattern; land use pattern etc. and the subsequent satellite maps are to be prepared with a 5 km radius buffer zone.
- Details of the micro-meteorological data will be collected with respect to hourly wind speed & wind direction, humidity, temperature, cloud cover, rainfall data etc. The corresponding frequency distribution of wind behavior with wind rose diagram will be prepared. This will form the meteorological data input to Air Quality Prediction Model.
- Meteorological data will be collected from nearby meteorological station for comparison and in case of controversy this secondary data will be accepted.
- Surface water sampling as per protocol will be done from six different locations in core zone and buffer zone including project upstream and downstream of river mahanadi and analysis will be done as per the parameters in IS 10500.
- Similarly the ground water sampling and analysis will be done at six different locations in the core zone and buffer zone.
- The average noise quality both in day and night will be monitored in six different sampling locations in core zone and buffer zone.
- The soil testing at six different locations of core zone and buffer zone will be carried out.
- All the procedure of collection of sample, frequency of collection, analysis procedure etc shall be done as per CPCB norms.
- The existing ground level concentration of suspended particulate Matter PM₁₀, Respiratory Particulate Matter PM_{2.5}, Sulfur Dioxide (SO₂), Nitrogen Oxide (NOx) and

Carbon Monoxide (CO) will be analyzed during the study period at eight different locations in the core zone and buffer zone including at least one in the down wind direction. The air sampling location and others will be chosen studying the wind rose and using standard procedures.

- Details of ecological survey shall be taken up with respect to flora and fauna including avifauna and aquatic fauna with an emphasis on endangered species in the core zone as well as in the buffer zone.
- Socio-economic and infrastructure data of the region will be collected with respect to literacy, economic status, occupation, living standard, health, and infrastructure facilities like transportation, communication, education, health etc. respectively.
- Detailed survey of the 10 Km region around the project will be conducted to find out any location of sensitive areas like wild life sanctuaries, historical & archeological sites, defense installation etc.

Environmental Impact Identification, Prediction and Assessment

- Different environmental impact areas will be identified and expressed in matrix form.
- Qualitative prediction of impact will be done with respect to land use, ecology, and noise and socioeconomic.
- Details of water and wastewater inventory will be prepared to find out their impact on the environment.
- Inventorization of solid wastes both hazardous and non-hazardous in nature will be done to predict and assess their impact on environment.
- Detailed information about stacks with respect to height, diameter, flue gas, temperature, velocity and flow and their inter stack distances will be provided.
- Emission inventory with respect to PM, SO₂, NO_x will be calculated.
- Micro -Meteorological data along with stack and emission inventory data will be input to the air quality prediction modeling software.
- Quantitative prediction of air pollutants in the form of incremental ground level concentration (GLC) will be done by Air Quality Prediction Modeling Software (AERMOD-ISCST3) developed by USEPA.
- Maximum resultant GLC will be calculated at locations taking into consideration of background GLC and predominant wind direction.
- Subjective impact assessment using matrix method will be carried out to calculate the total impact score without mitigation measures.

Environmental Management Plan

- Taking note of impacts on environment due to project a comprehensive EMP will be prepared in detail.
- Company will take all measures to procure the latest plant machineries well equipped with pollution control measures. Details of all the pollution equipments with their working efficiency will be discussed.
- EMP at constructional phase will be discussed.

- The comprehensive EMP will analyze all the possibilities of the optimum use of resources in the form of raw material, water, fuel and energy, process optimization for more production and less waste generation, preventive maintenance to minimize leakage & spillage and above all the waste utilization plan. The EMP at operational stage will cover all the details in the fields of air, water, solid waste, noise, ecology and the socio-economic aspects.
- With respect to air quality management, details of the air pollution control measures at different points will be discussed.
- Details with regards to design aspects, collection efficiency and emission norms from the attached stacks of Air Pollution Equipments (APC) will be analyzed.
- Disposal management of the solid waste and effluents generated from these APC equipments will be discussed.
- Fugitive dust emissions from the different storage & transfer points and the haul road emissions and their detailed control aspects will be covered.
- Considering water as an important and valuable utility, company will formulate a water management plan for minimum use of the fresh water.
- Waste water management dealing with treatment methodologies and recycling/reuse of treated waste water will be analyzed.
- Company's plan for storage of storm water in the monsoon in water harvesting ponds and the use of the same water in lean season will be discussed.
- Company's intention to achieve zero discharge norms with a comprehensive water and waste water management plan will be evaluated.
- Details of the solid waste inventorisation, their characterization and their usage potentiality will be discussed.
- Company's plan for recycling solid waste in plant process and reuse of the solid waste for different purposes will be examined. Company will not generate any process hazardous waste. If at all hazardous waste is generated then its TCLP test will be done and accordingly treatment/safe land fill plan will be implemented.
- Noise control devices with different equipments at design stage, protective measures at work zone sites and supply of protective gears to affected personnel will be thoroughly discussed.
- Realizing the need for the greenbelt cover as a very good sink for pollutants and the aesthetical aspects the company will go for a comprehensive plantation program as per MoEF Norms.
- Company's detailed plan for green belt development with respect to allocation of area, fund allocation, selection of the species and maintenance plan will be adequately covered.
- Company's peripheral development plan that includes development in infrastructure, health, education and socio-cultural aspects will be emphasized.
- Details of the Environmental Management Cell with respect to monitoring laboratory, technical man power and fund allocation will be discussed.
- Details of the monitoring program with respect to pollutant parameters. Monitoring schedule and reporting as per statutory requirement will be covered.

- Safety and disaster management plan with onsite emergency plan to deal with the unforeseen accidents will be covered.
- Beneficial aspects of project with respect to direct and indirect employment, business opportunities and peripheral development will be discussed.
- Trickle-down effect of all the project benefits to affected local population will be analyzed.
- Taking into consideration of the environmental deteriorations due to the project implementation and the consequent environmental management plan followed by the post-project benefits, the subjective assessment with a Total Impact Score (TIS) will be analyzed to draw a summary conclusion.