

(IV) Proposed Terms of Reference for EIA Studies

Project	Proposed 600 (4x150) MW Coal Washery Reject based Thermal Power Project
Category	A [1(d) Thermal Power Plant \geq 500 MW]
Project Proponent	Surguja Power Private Limited
Location	Village Parsa & Kete, Tehsil- Udaypur, District- Surguja, State- Chhattisgarh

INTRODUCTION

600 (4x150) MW Surguja Thermal Power Project in Surguja district of Chhattisgarh is proposed to be set up by Surguja Power Private Limited a fully owned subsidiary of Adani Enterprises Limited. The project is being taken up to meet power requirements of Chhattisgarh.

The station would require about 4.5 MMTPA (PLF @ 75%) of Domestic Thermal Coal and Coal Washery Reject considering the installed capacity as 600 MW. The coal from the washery will be transported through conveyor system.

The water requirement of proposed station will be to the tune of **13.14 MCM** per year (approx.). Water is proposed to be drawn from the Atem / Rehar River.

The power generated from the project shall be shared between Chhattisgarh and nearby Grid. The provisions for Power evacuation as considered presently shall be reviewed based on the finalized Associated Transmission System (ATS) of the project.

Surguja Power Private Limited (SPPL) has been formed as an SPV to implement and operate the FBC based Thermal Power Plant, As per condition of Environment clearance for mining project, issued by MoEF, Govt. of India, FBC based TPP shall be established within Mining Lease area.

Surguja Power Pvt. Ltd. (SPPL) had proposed 4x135/150 MW Washery Rejects based Surguja Thermal Power Project at Village Parsa, Tehsil Udaypur in District Surguja in Chhattisgarh. The Terms of Reference (TOR) for EIA Study was issued by Ministry of Environment & Forest (MoEF) vide letter no. J-13012/111/2011- IA.II (T), dated 01/04/2013.

SPPL has been pursuing the project and completed the following studies for the compliance of the ToR and future reference for the proposed project.

1. Socio-Economic Study, Need based Assessment & CSR Report.
2. Hydro-geological Study Report.
3. Detailed Geological Study Report for back filling mine void.
4. Ecological Study and Wildlife Conservation Plan.
5. Report from Department of Atomic Energy.
6. Land Use Land Cover Study Report for Proposed Project.
7. Study Report on Impact of Thermal Power Plant all over the world on Surrounding Terrestrial and Aquatic Ecosystem.

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SPPL submitted the Draft EIA Report on **17/10/2014** along with all studies report and Executive Summary in English, Hindi and soft copy in CD for conducting the Public Hearing to Chhattisgarh Environment Conservation Board (CECB), Raipur, Chhattisgarh.

The board initially did not take decision for public hearing due to the uncertainty of Coal block allocation, due to the judgement by Hon'ble Supreme Court on 26.09.2014.

After re-allocation of coal block to RRVUNL, the Chhattisgarh Environment Conservation Board (CECB) had taken decision to conduct the public hearing. Public hearing was scheduled on 30.12.2015' subsequently the Collector, Surguja had postponed the Public hearing vide order dated 23/12/2015.

SPPL would like to submit that following studies completed in compliance with the ToR dated 01/04/2013, may be accepted:

1. Socio-Economic Study, Need based Assessment & CSR Report.
2. Hydro-geological Study Report.
3. Detailed Geological Study Report for back filling mine void.
4. Ecological Study and Wildlife Conservation Plan.
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SPPL proposed to collect one season data afresh and update the EIA/EMP Report based on the data collected and submit for Public hearing (PH).

EIA METHODOLOGY

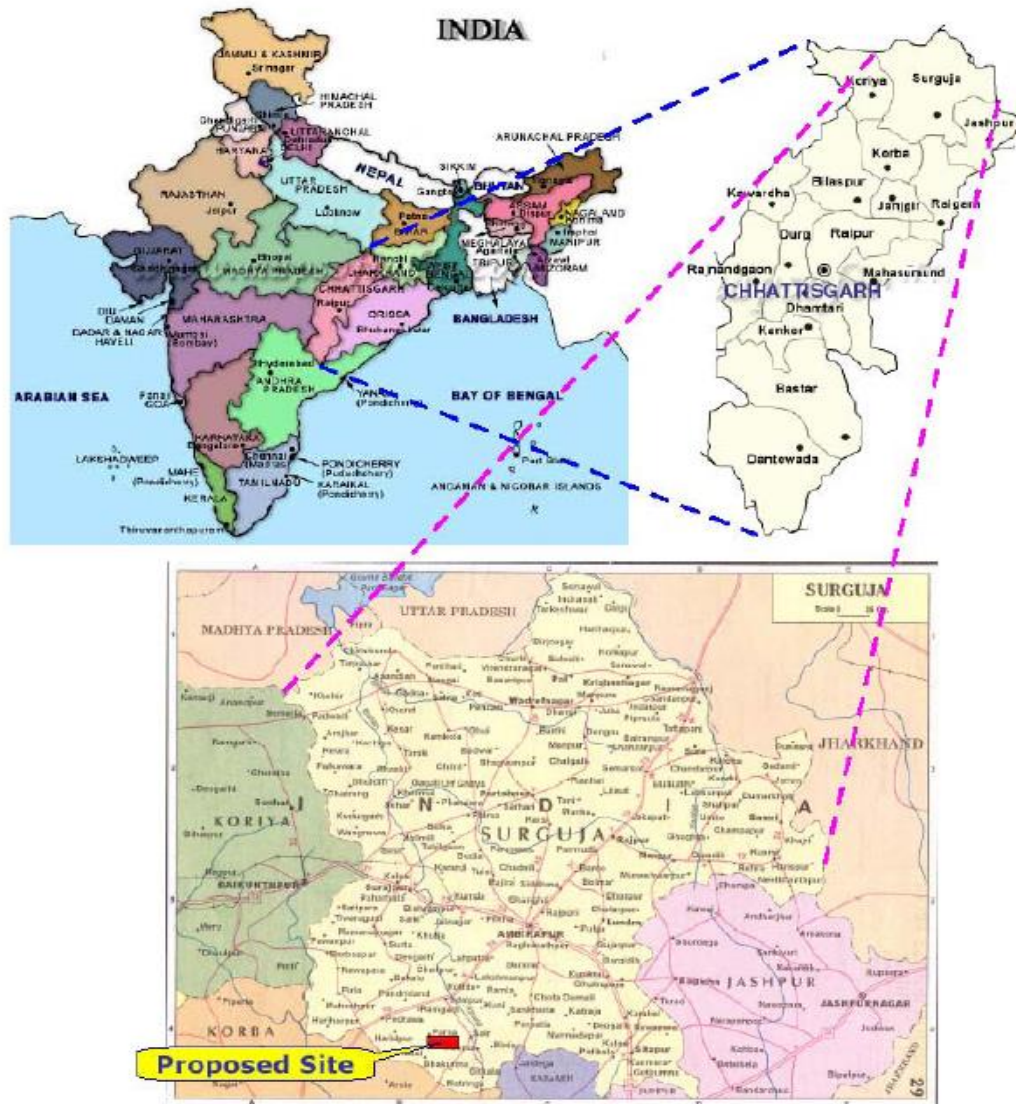
The EIA Report will address all the terms of reference and will be prepared in accordance to the Environment Protection Act 1986 and EIA Notification published by Ministry of Environment and Forests, Govt. of India on 14th September 2006. It will form part of the application to the Statutory Authority. The scope of the EIA Report for the proposed Power Plant includes identifying relevant environmental concerns and focus on potential impacts that may have changed due to the setting up of the plant. The report will also provide an Environment Management Plan and Disaster Management Plan.

The Summer Season, 2017-18 baseline monitoring is being carried out as per the requirement of MoEF.

SITE & STUDY AREA

The proposed 600 (4x150) MW Power Project will be within the Parsa East & Kente Basan Coal Mining Project. Nearest Water source is river Atem / Rehar, which is about 4 / 26 Km from the proposed site. The nearest Railway station is Ambikapur which is approx 60 Km from site.

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PROJECT DESCRIPTION

Project Rationale

This section will highlight the goals and objectives of the proposed project. It will also include discussion on the significance of the project in terms of the need for the project in the local as well as the national level, it will also highlight the proposed project in line with existing development plans of the State and Central government and in accordance with the existing or envisioned land use plans.

Project Location

This section will discuss the geographic location of the project. The location of the project will clearly define geographical features (e.g. watersheds, national parks / protected areas, military reservations, etc.) and the general access to the project site (e.g. presence of existing road networks, feeder roads, etc.).

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Project Information / Process Information

This portion will include the following

- Statement of the Official name of the project and name/s of proponents (including address, telephone nos., etc.) responsible / liable;
- Vicinity Plan, Processes involved, Site layout, water balance diagram
- Project cost and area
- Resource / Manpower requirements
- Time frame for project implementation

Process Description

The technology to be used for the project and the process components of the project focusing on the materials input and output from the process components including products, fuels, feedstock and utility requirements (gas, electricity, steam and cooling water will be provided. Material balances (also energy balance); flow diagrams and descriptions of the process to be used will also be provided. The process emissions including air, liquid, and associated wastes, and associated pollution abatement equipment will be discussed.

Pre-Construction

This section shall discuss / describe the various components of the projects. This section shall also discuss the major activities to be undertaken during the construction phase, which shall include but not be limited to:

- Site mobilization
- Road construction / improvement
- Camp construction
- Site clearing
- Construction of the major facilities / project components
- Construction of support services e.g. Water & Power supply & Telecommunications, etc.

Operation

This section shall discuss the activities to be undertaken during the operation, which shall include but not limited to:

- Major maintenance activities
- Manpower requirements
- Fuel Requirement
- Energy requirements

BASELINE ENVIRONMENTAL SCENARIO

Description of the existing environment, assessment of historical trends of environmental data specific to the proposed site and description of the socio-economic setting in the area will provide an overall picture of the proposed site before any development activities are undertaken. Thus, equipped with the knowledge of the existing environment and aware of the specifications of the proposed project as described in the preceding sections will be identified and areas of critical importance and impacts of the project can be reliably predicted.

Finally, methodologies used in the data collection (primary data) shall be briefly discussed with the corresponding interpretation of the data obtained. Likewise, all sources of information (secondary data) shall be identified and appropriately acknowledged.

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STUDY MODULES	SCOPE AND COVERAGE	METHODOLOGY (TYPE AND SOURCE)	MAPS/TABLES/ FIGURES REQUIRED
A. PHYSICAL ENVIRONMENT			
Inland Topography	<ul style="list-style-type: none"> Landform Pattern 	<ul style="list-style-type: none"> Slope and elevation 	<ul style="list-style-type: none"> Topographic map
Soils	<ul style="list-style-type: none"> Soil physical and chemical characteristics / analysis 	<ul style="list-style-type: none"> Soil survey 	<ul style="list-style-type: none"> Soil Sampling Locations Will be monitored on 8 location including site and ash pond area
Hydrology	<ul style="list-style-type: none"> Surface water characteristics, river systems Groundwater characteristics Drainage systems 	<ul style="list-style-type: none"> Groundwater analysis Characterization of inland surface water 	<ul style="list-style-type: none"> Water supply and demand projections
Meteorology/ climatology	<ul style="list-style-type: none"> Rainfall pattern Frequency distribution of wind direction Temperature Associated atmospheric pressure 	<ul style="list-style-type: none"> Secondary data from IMD Primary data collection 	<ul style="list-style-type: none"> Wind rose diagrams
Air Quality	<ul style="list-style-type: none"> Ambient air quality PM₁₀, PM_{2.5}, NO_x, SO_x, Mercury and Oxone 	<ul style="list-style-type: none"> Air quality measurements Identification of air pollution sources 	<ul style="list-style-type: none"> Sampling station map Result of air quality measurements Ambient Air Quality will be monitored on 10 location including site.
Water Quality	<ul style="list-style-type: none"> Physico-chemical characteristics of surface waters and ground water (pH, TSS, DO, BOD, temperature, nitrates, phosphates, and metallic components etc.) Bacteriological characteristics (total coliform) 	<ul style="list-style-type: none"> Sampling and analysis 	<ul style="list-style-type: none"> Sampling station map Results of laboratory analysis. 5 surface and 5 ground water samples will be collected to assess the water quality of the region.
Noise Level	<ul style="list-style-type: none"> Ambient noise levels at the project sites and nearby community 	<ul style="list-style-type: none"> Noise quality measurements 	<ul style="list-style-type: none"> Results of noise level measurements Sampling stations map Will be monitored on 10 location including site and nearby highways.
B. BIOLOGICAL ENVIRONMENT			
Flora	<ul style="list-style-type: none"> Summary of vegetative cover 	<ul style="list-style-type: none"> Secondary data from region forest office 	<ul style="list-style-type: none"> Flora species inventory
Fauna	<ul style="list-style-type: none"> Terrestrial fauna including endangered 	<ul style="list-style-type: none"> Secondary data from 	<ul style="list-style-type: none"> Fauna species inventory

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	and threatened fauna species • Fauna species inventory survey	region forest office	
C. SOCIO-ECONOMIC CULTURAL ENVIRONMENT			
Demography	<ul style="list-style-type: none"> • Population size • Population density, household size • Population by gender • Literacy rate • Occupation and employment status 	<ul style="list-style-type: none"> • Principal data from Census 	<ul style="list-style-type: none"> • Primary Census Abstract
Other Social Services	<ul style="list-style-type: none"> • School facilities • Telecommunications, water and power facilities 	<ul style="list-style-type: none"> • Principal data from Census 	<ul style="list-style-type: none"> • Village Infrastructure directory
Transportation	<ul style="list-style-type: none"> • Network and mode of transportation 	<ul style="list-style-type: none"> • Identification of main and access roads, mode of transportation 	<ul style="list-style-type: none"> • Road access map

ASSESSMENT OF ENVIRONMENTAL IMPACTS

There shall be an assessment on feasibility and cost-effective measures to prevent or reduce significant negative environmental impacts identified, to an acceptable level. In this section, the following aspects will be assessed:

- The project component and development activities that result in discharges to the environment and the effect of these on the environment
- Existing conditions in the site area, including existing land-use, resources and other activities, which in combination with the project activity have potential to affect the environment.
- Anticipated environmental effects

This chapter will include appropriate tables and figures to illustrate and summarize the key Information that is relevant in understanding the environmental and socio-economic environment. The environmental and socio-economic impact of the proposed project having regard for regional and cumulative effects will be presented. Wherever possible, the impacts will be quantified. This section will also include measures to address emergency response requirements for accidental events and also estimate costs of those measures and of the institutional training requirements to implement them.

The existing air quality of the region and the impact of the proposed project on regional air quality will be discussed. The component of the project, which will affect **air quality**, will be identified. All emissions as a result of the proposed projects and their effects on the environment will be discussed. Also the ways and means of reducing the air emissions impact will be discussed.

The project activities that will affect **surface water and ground water** will be identified. In this section, the water intake requirements during construction, operation and emergency situations will be estimated and the sources will be identified also. Any water minimization considerations will be included. The method of plant cooling and the design parameters and criteria for any incremental water management and storage

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facilities will be provided. The quantity and source of wastewater will be presented including a summary of water quality effects and possibility of recycling.

Project activities during construction and operation phases that will affect **noise levels** and the potential for increased noise resulting from this project will be presented. The effect on noise levels during the construction and operation phase will be ascertained.

Future **waste management** projections, storage and disposal plans and locations will be discussed. The quantity and composition of any waste including solid and hazardous wastes produced will be estimated and classified.

Land-use and Socio-economic information will also be provided. The impact on the resources and the present population will be highlighted. This will include the effects on employment, livelihood, economy and infrastructure.

RESOURCE/ ENVIRONMENT	CONSTRUCTION PHASE	OPERATION / MAINTENANCE PHASE
	IMPACT	IMPACT
Land	<ul style="list-style-type: none">• Modification of land forms	<ul style="list-style-type: none">• Change in present form
Water	<ul style="list-style-type: none">• Change in quality of surface and groundwater	<ul style="list-style-type: none">• Change in quality of water bodies due to discharge of effluent
Air Quality	<ul style="list-style-type: none">• Dust generation• Change in concentration of pollutant gases	<ul style="list-style-type: none">• Change in level of gaseous pollutants i.e. TSP, SO₂ and NO_x
Noise	<ul style="list-style-type: none">• Change in noise level	<ul style="list-style-type: none">• Change in noise level from various sources
Wastewater / Solid waste management	<ul style="list-style-type: none">• Wastewater / Solid waste management	<ul style="list-style-type: none">• Solid waste management• Wastewater management
Socio-economic	<ul style="list-style-type: none">• Change in employment pattern• Change in Infrastructure facilities	<ul style="list-style-type: none">• Change in economy of the region• Employment benefits

ENVIRONMENTAL MANAGEMENT PLAN

Monitoring Program

The EIA shall contain an extensive monitoring program for parameters included in the baseline studies. An Environmental Monitoring Plan containing the following information would serve as a guide in the monitoring activities.

- Frequency of sampling and sampling points
- Sampling parameters: groundwater quality, water quality of the surrounding bodies of water (e.g. BOD TSS, oil and grease, etc.).
- Sampling should be done at the same locations as in the baseline data survey and at effluent release points to check whether permissible requirements are met.
- Work and financial plan for the current year

Information, Education and Communication (IEC) Plan

Plans for Informing, educating and communicating with the State Government and the community regarding the project and its implementation of the EMP should be presented.

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Contingency / Emergency Response Plan

Procedures on how to cope with emergencies / accidents shall be outlined in a comprehensive contingency / emergency response plan. The institutional responsibilities will be made clear and the flow of communication in cases of emergencies will be included.