

Executive Summary
of
Environment Management Plan

For

Proposed TRN Thermal
Power Plant
(600 MW)

of

TRN Energy Pvt. Ltd.

Vill - Bhengari
District – Raigarh

State – Chhattisgarh

Executive Summary Of EIA/EMP for Proposed TRN TPP (600 MW) Of TRN ENERGY PVT. LTD.

1.0 INTRODUCTION

1.1 Purpose of Report

M/s. TRN Energy Pvt. Ltd. proposes to set-up a 600MW, (2 x 300 MW) Coal based Thermal Power Plant in the District of Raigarh Chhattisgarh. As per EIA notification S.O. 1533 dt. 14.09.2006, this project falls in category A project requiring Prior Environmental clearance from Ministry of Environment & Forest. Accordingly, the Project Proponent submitted Form - I and pre-feasibility report to MOEF for approval of site and obtaining Terms of Reference (TOR) for Environmental studies. Ministry of Env. & Forest, Govt. of India approved the site in the district of Raigarh, Chhattisgarh and determined the TOR & forwarded it vide its letter No. J-13012/44/2009-IA-II (T) dt 31.08.2009 This EIA/EMP has been prepared in compliance to the prescribed TOR & the Report is in compliance to Generic Structure prescribed in **App III** of EIA notification 06. This EIA/EMP has been prepared to obtain Environmental Clearance for the proposed Project. The EIA/EMP has been prepared incorporating following :

- Baseline Environment Data Generation.
- Environmental Impact Assessment
- Mitigation Measures
- Environment Management plan & Environment Monitoring programme to assess the Environmental performance of the Project.

Fly ash handling and its Management Plan

Risk Assessment and Disaster Management Plan

Project Benefit Analysis.

1.2. IDENTIFICATION OF PROJECT & PROJECT PROPONENT

A. Project

The proposed TRN Thermal Power Plant (T.T.P.P.) project is 600 MW Coal based Thermal Power Plant. This is an Independent Power Project (IPP). The project is to be located in the district of Raigarh, Chhatisgarh.

2.0. BASELINE ENVIRONMENTAL DATA GENERATION :

As per prescribed Terms of Reference, Baseline Environment Data were generated for one full pre-monsoon (15th March to 14th June 09) season for 12 continuous weeks. The baseline environment Data generation programme covered following attributes.

(A) Micro-meteorological Attributes

- Wind Speed & Direction
- Temperature
- Humidity
- Rainfall
- Cloud cover

Based on wind speed and direction, data collected on hourly basis, seasonal wind rose diagram has been developed.

(B) Ambient Air quality Data

B.1. Parameters covered :- Following parameters were covered under this programme :

- Suspended particulate Matters (**SPM**)
- Respirable Particulate Matters (**RPM**)
- Oxides of Nitrogen (**NO_x**)
- Sulphur Di-oxide (**SO₂**)
- Carbon Monoxide (**CO**)

- Ozone (O₃)
- Mercury (Hg)

B.2. Frequency – The ambient air quality sampling was done during 15th March to 14th June 09 for 12 continuous weeks. Every week two 24 hr. samples were collected using respirable dust sampler (RDS). Samples were tested for parameters given at para **B.1** above.

B.3. No. of Stations – Seven stations were selected for air quality monitoring, two stations were selected on upwind direction, two stations were selected on prevailing downwind direction, one station was fixed in Core Zone and two station was fixed on cross wind direction.

Stations were fixed at Bhengari, Danganinara, Nawapara, Katangdi, Suhal, Pakhadoraha, Panikhet.

B.4. Air Quality Status

While SPM in study area has been found to vary from 75 to 103 Micro Gram/m³, level of RPM has been found to be 34 to 51 Micro Gram/m³. These values are much below the level prescribed by MOEF. Similarly level of NO_x & SO₂ are well within the prescribed level.

(C) Surface water quality : -

C.1. No. of Monitoring Stations : - For monitoring surface water quality, following stations were selected : -

Kurket – river – 2 stations

One on upstream side & the other on downstream side of project.

C.2. Parameters – Water Samples collected from surface water source were tested for parameters as per BIS 2296.

C.3 Frequency – One sample from each station was collected in one season.

- C.4 Quality States** – The result of analysis have been compared with quality standards given in BIS 2296. Present quality of surface water has been found to be well within the prescribed level.
- D. Ground water Quality** – In order to assess the quality of ground water, it has been sampled and tested as per details given below.
- D.1 No. of Sampling stations** – Ground water samples were collected from two location one is NW and other in SE. Direction of project site.
- D.2 Parameters** – The ground water samples were analyzed for parameters given in BIS 10500.
- D.3 Frequency** – sampling was done once a season.
- D.4 Quality Status** – The results obtained from quality analysis of ground water samples were compared with standards given in BIS 10500. The quality of ground water conforms to the standard.
- E. Soil Quality** – For assessing the quality of top soil in study area, two samples were collected & tested at two locations.

3.0 ENVIRONMENTAL IMPACT ASSESSMENT :

The likely impact of the project activities associated with the project operation on following environment attributes have been carried out: -

- Air Environment
- Water Environment
- Land Environment
- Bio- Environment
- Socio- Economic Environment

3.A ASSESSMENT OF IMPACT ON AIR QUALITY :

Impact of project related activities on ambient air quality has been assessed separately for :

- Construction Phase
- Operational Phase

For assessment of impact on air quality ISCT-III Computer Software has been used.

Input to software (i) wind speed and direction obtained from monitored data. (ii) emission of pollutants – calculated based on hourly coal consumption and prescribed by MOEF standards.

Incremental contribution of project activities in respect of SPM, RPM, NO_x, & SO₂ have been assessed, found to be below the prescribed level.

3.B IMPACT ON SURFACE WATER QUALITY

Project envisages to provide ETP and STP for treatment of industrial effluent and municipal effluent & also provide a system for recycling the treated effluent for various uses. This system of treatment and recycling will ensure that there will be no discharge of effluent from plant premises. In addition, it is envisaged that surface run-off from plant area will be intercepted. Water will be diverted to a sedimentation pond for recharge of ground water.

It may be seen from above that there is no possibility of pollution of surface water.

3.C IMPACT ON GROUND WATER QUALITY

There is possibility of impact on ground water quality only when there exists a source of polluted water percolating into ground water.

There exists a storage of hazardous material & there is possibility of leachates percolating to ground water.

3.D IMPACT ON WATER USE :

Total water demand for the project has been estimated as 2000 m³/day.

This includes water demand for industrial use as 1900 m³ / Day & Potable use as 100 m³ / day.

This water will be drawn from Kurket River.

The State Govt. has allotted water after considering the availability of land water in Kurket river and existing water demand. Hence drawl of this water will not affect other users.

3.E LAND ENVIRONEMNT :

The Plant site will require 500 Acres of land – which includes 150 acres for fly ash Dyke, & 170 acres for green belt.

It also requires 48 acres of land outside plant area which includes 30 acres for township 15 acres for railway siding.

4.0 ENVIRONMENT POLLUTION MITIGATION MEASURES

For mitigation of identified environmental impact on various attributes, appropriate pollution mitigation measures have been recommended. These mitigation measures cover following.

- Air pollution control measures
- Water Pollution control measures
- Green belt development

Details are given in the report

4.A AIR POLLUTION CONTROL MEASURES :

Following air pollution control measures are recommended.

- i. E.S.P. to be installed to control emission of SPM & RPM.
- ii. **In coal handling yard.**
 - Dust suppression by water sprinkling on Ground storage.
 - Handling of coal by covered conveyor.
 - Water jet on transfer points.
- iii. **Fly Ash Dyke :**
 - The Fly ash dump to be covered with thin sheet of water.
 - Fly ash transport by pipe.
 - Loading in trucks by covered silo.

iv. Green Belt :

- Green Belt around periphery of the plant.
- Green Belt around coal & handling yard.
- Green Belt around fly ash dyke.

4.B WATER POLLUTION CONTROL & CONSERVATION

i. Effluent Treatment Plant : - To treat the industrial effluents.

Treated effluent to be recycled for industrial use.

ii. Sewage Treatment Plant :

A Sewage treatment plant will be provided to treat sewage generated in township. Treated water will be used for greenbelt maintenance.

iii. Surface Run- off from Plant :

It will be collected through open catch drain. Collected water to be diverted to sedimentation Pond. Overflow pond to be used for ground water recharge.

4.C WATER CONSERVATION : -

i. Rain water harvesting -

Rain water harvesting structure to be installed in plant.

ii. Ground water recharge –

Ground water will be recharged using rainwater, surface run-off & surplus treated water.

5.0 ENVIRONMENTAL MONITORING PROGRAMME

It is necessary to monitor the environmental attributes during the operational stage of the mine to check the environmental performance of the project & to ensure that pollution levels are within the prescribed level. For this an environmental monitoring programme has been developed. This is also to comply to statutory compliance.

6.0 ENVIRONMENT MANAGEMENT PLAN

There is a need to have an organization for implementation of the recommended mitigation measures and also environmental monitoring

of the project during operational stage. For this purpose, the report has suggested an appropriate organization for environmental management of the project.

7.0 FLY ASH MANAGEMENT

At the operational stage of Power plant, ash will be generated. As per the regulations, power plants are permitted to store the fly ash in a well designed dyke for first 10yrs. The base of the dyke will be lined with HDPE so that there is no percolation of leachates that may affect quality. A plot of land measuring 150 Acre has been earmarked for locating ash dyke. This will have capacity to store fly ash for first 10 yrs. In course of this period, arrangements would be made to supply fly ash to various users.

7.0 RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

Being a thermal Power Plant, Hazardous substance are being handled. There is always risk of leakage of gases, chemicals etc. A proper disaster management plan has been prepared and given in the EIA report.

8.0 SOCIO – ECONOMIC MEASURES :

A. R & R Package : - All the project affected families i.e. those families that lose their land, families that are to be displaced or lose their livelihood would be rehabilitated as per R & R policy approved by Chhattisgarh Govt.

B. Corporate social responsibility for socio-economic upliftment of families living around the project area within the study area.

Schemes will be taken up under company's corporate social responsibility programme. Such schemes would cover.

- Skill development
- Income Generation Schemes
- Education
- Health Care
- Drinking water facility

- Infrastructure
- Woman Empowerment

Separate budget has been provided for CSR activities.

Annexure - V