

## EXECUTIVE SUMMARY

### 1.0 INTRODUCTION

M/s Hema Sri Agro Projects Limited proposes to install a Bio mass based power plant of 20.0 MW capacity at Magrora Village, Dabra Tahsil, Gwalior district in Madhya Pradesh.

### 1.1 PROJECT COST

The proposed 20.0 MW Biomass based power plant will be installed at a project cost of Rs.82.0 Crores of which Rs.8.0 Crores will be incurred towards implementation of Environmental Management Plan.

### 1.2 LOCATION

The proposed power plant will be located at Magrora Village, Dabra Tahsil, Gwalior district in Madhya Pradesh.

### 1.3 SALIENT FEATURES OF THE PROPOSED POWER PROJECT

The power plant is designed to operate with 85 % Biomass & 15% Coal as fuel as per MNRES guidelines.

#### 1.3.1 LAND

The power plant will be located in an area of 8.009 Hectares, out of which 2.64 Hectares is allocated for greenbelt development.

#### 1.3.2 WATER

The water requirement of proposed power plant will be about 125.50 m<sup>3</sup>/hr. HSAPPL has applied to State Ground Water Department to draw ground water and they have already got permission from Irrigation department to draw water from Sind River and know River.

#### 1.3.3 FUEL

To meet the steam requirement of the proposed 20.0 MW power plant, HSAPPL proposes to install Grate fired boiler where the following raw materials will be used.

#### FUEL CONSUMPTION

POWER PLANT OPERATION MODE	QUANTITY T/DAY
85% Biomass & 15% Coal - Cotton Stalks, - Mustered Stalks - Wood & Husk - Sugar Trash	528 TPD

## **Transportation of Fuel**

HSAPPL proposes to collect locally available Biomass through tractors and Trucks.

### **1.4 BASE LINE ENVIRONMENT**

HSAPPL has conducted Environmental Impact Assessment Study (EIA) in an area of 10 km radius around the plant site.

#### **1.4.1 BASE LINE STATUS**

As part of Environmental Impact Assessment Study, baseline environmental monitoring was carried out covering the months of February 2008 to April 2008.

#### **1.4.2 METEOROLOGY**

The predominant wind directions were from N to W with a speed of 1 to 7 kmph. Winds less than 1.0 kmph were treated as calm winds and recorded about 21.66%. Predominant wind speed was in the range 1-7 kmph.

#### **1.4.3 AIR ENVIRONMENT**

Eight ambient air-monitoring stations were selected within the 10 km radius of the study area, representing the down wind, cross wind and upwind impact scenario of the project site.

The Ambient Air Quality monitored in the study area was found to be well within the limits of NAAQ standards prescribed for Residential, Rural & Other Areas

#### **AIR QUALITY IN THE STUDY AREA**

<b>S.NO</b>	<b>POLLUTANT</b>	<b>RANGE OF VALUES</b>	<b>NAAQS STANDARD FOR RESIDENTIAL AREAS</b>
1	SPM	99.6 to 134.2	200
2	RSPM	22.8 – 34.5	100
3	SO <sub>2</sub>	6.9 – 12.2	80
4	NO <sub>x</sub>	7.9 – 14.0	80

(All the values are in  $\mu\text{g}/\text{m}^3$ )

#### **1.4.5 NOISE ENVIRONMENT**

Eight monitoring locations were selected to assess the noise levels in the study area. The day time noise levels are in the range of 44.9 – 63.3 dB (A) and night time noise levels are in the range of 40.0 – 57.4 dB (A).

#### **1.4.6 WATER ENVIRONMENT**

Four ground water and four surface water samples were collected from in and around the plant site with in 10 km radius. The parameters thus analyzed were compared with IS-10500. The water quality was found to be well within the drinking water standards.

#### **1.4.7 SOIL ENVIRONMENT:**

Eight soil samples were collected to assess the soil quality in the 10 km study area of plant site and it revealed soil of medium fertile quality.

#### 1.4.8 BIOLOGICAL ENVIRONMENT:

A study was undertaken to list out flora & fauna in the study area. From the study it was observed that there are no endangered, endemic or threatened species in the study area.

#### 1.5 ENVIRONMENTAL IMPACTS & MANAGEMENT PLAN:

##### 1.5.1 AIR ENVIRONMENT:

The proposed power plant will result in emission of particulate matter, Sulphur dioxide and oxides of Nitrogen due to burning biomass in boiler.

##### 1.5.2 AIR POLLUTION CONTROL MANAGEMENT:

The power plant will be designed to operate with 85% Biomass & 15% Coal as per MNRES guidelines.

Steam generating units of 90 TPH are the major source of pollution in the proposed power plant.

The overall scenario with predicted concentrations over the maximum baseline concentrations is shown below.

#### OVERALL SCENARIO WITHIN STUDY AREA

24 Hourly Concentrations	Suspended Particulate Matter (SPM)	Sulphur Dioxide (SO <sub>2</sub> )	Oxides of Nitrogen (NO <sub>x</sub> )
Baseline Scenario	136.4	13.1	14.6
Predicted Ground level Concentrations	0.98	2.6	0.9
Overall Scenario (worst case)	137.38	15.7	15.5

Note: The value in parentheses is the CPCB limit for rural and residential areas (indicate CPCB values)

HSAPPL will provide one ESP connected to the boiler for control of particulate emissions. ESP will be designed for an outlet concentration of less than 100 mg/Nm<sup>3</sup>.

The Biomass envisaged to be fired in the GFBC boiler has an average of 0.08 to 0.10% sulphur content.

HSAPPL will provide a stack of 50 mtrs so as to achieve buoyancy and dispersion. The stack height has been designed based on CPCB norms.

Fugitive dust is generated during raw material handling (unloading, conveying, transporting, stacking etc.), vehicular movement, bagging and packing. Asphaltting or concreting of the work area of the plant would be done to control the fugitive dust emissions. Unloading of trucks with material is carried out with great care by

avoiding dropping of material from height, wetting the material by sprinkling water while unloading.

For control of fugitive dust, water spray arrangement is provided to spray water all round the stock piles and other raw material areas to suppress the dust. Adequate ventilation and dust suppression systems are implemented in the conveyor system.

In addition to the above control measures, following steps are also contemplated to prevent air pollution due to air borne dust:

- Dense greenbelt will be developed around the dust generation points.
- Trees will be planted on both sides of the roads used for transportation in order to arrest dust.
- Afforestation around the industry to act as barrier.
- All the roads will be paved.
- Proper maintenance of air pollution control equipment.
- Regular maintenance of vehicles and machinery will be carried out with utmost care.
- Good house keeping and proper maintenance will be practiced in the plant which will help in controlling fugitive dust.

#### **1.5.3 WATER ENVIRONMENT:**

Wastewater will be generated from DM plant, cooling tower blow down and boiler blow down. The major source of wastewater from the power plant is cooling water blow down.

The quantity of waste water will be 17.75 m<sup>3</sup>/hr. The wastewater will be treated in effluent treatment plant and the treated water will be used for dust suppression and greenbelt development. The domestic wastewater generated will be treated in septic tank followed by soak pit.

#### **1.5.4 WATER QUALITY MANAGEMENT:**

The Effluent Treatment Plant is proposed to treat all liquid effluents generated from various areas of the power plant, so as to meet the standards. The treated water will be utilized for greenbelt development, dust suppression.

#### **1.5.5 NOISE CONTROL MEASURES:**

All equipment in the power plant will be designed for noise levels not exceeding 90 dB (A). Proper encasement of noise generating sources will be done to control the noise levels. The proposed greenbelt development will further reduce the noise levels. All operations and maintenance personnel working near noise prone areas would be provided with ear muffs & ear plugs.

HSAPPL is planning to develop greenbelt with proper density in an area of 2.64 Hectares, to improve aesthetics, control dust and noise pollution.

#### **1.5.6 ASH HANDLING MANAGEMENT:**

The fly ash from economizers, air pre-heaters will be collected in dry form by means of pneumatic conveying system. The quantity of fly ash will be 29.5 TPD. Fly ash will be stored in the dry ash silos within the power plant premises and transported to bricks manufacturing unit.

Bottom ash will be disposed for road construction and filling low lying areas.

#### **1.6 BUDGET FOR IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT PLAN:**

HSAPPL will incur an amount of Rs.8.0 Crores for implementing the Environmental Management Plan.

<b>S.No</b>	<b>Component</b>	<b>Amount in Rs.Lakhs</b>
1	Dust Suppression	20.00
2	ESP	320.00
3	Chimney	200.00
4	Greenbelt Development	50.00
5	ETP/STP	130.00
6	Laboratory	30.00
	Total	800.00

#### **1.7 POST PROJECT MONITORING PLAN:**

HSAPPL will establish a full fledged laboratory equipped with pollution monitoring equipment for monitoring all the environmental parameters as per MPPCB/CPCB guidelines.