Executive Summary

RAPID ENVIRONMENTAL IMPACT ASSESSMENT FOR PROPOSAL OF COAL WASHERY PLANT AT JHABER, TAHSIL DIPKA, KORBA (CG)

1.0 Introduction

M/s Bhatia International Ltd. Propose to setup a 5.00 MTPA Coal Washery Plant (HMS Technology) in two phases (First Phase of 2.0 MTPA and 3.0 MTPA second phase) on about 6.0705 Ha. of land at village Jhaber, Tehsil Dipka, District Korba (C.G.)

In order to assess the potential environmental impacts arising due to proposed activities M/s Bhatia International Ltd. retained Pollution & Ecology Control Services Nagpur, to undertake Environmental Impact Assessment study for proposed plant incorporating baseline data on various components air, noise, water, land and socio-economic to prepare Environmental Management Plan.

2.0 Baseline Environmental Status and Identification of Impacts

2.1 Air Environment

The prime objectives of Ambient Air Quality (AAQ) monitoring within 10 Km. radial distance of Bhatia International Ltd. was to establish existing regional background levels and baseline Air Pollution status.

Ambient Air quality Monitoring was carried out at 4 locations within the radial distance of 10 km. The locations have been identified keeping in view predominant wind direction prevailing during study period, sensitive area, and human settlement. The Status of ambient air quality within the study area monitored for Oct. 2007, Nov. 2007 and December 2007. The concentration of SPM, RPM, SO2 and NOX monitored during these three months were found to be less than NAAQS prescribed for rural & industrial area. (CPCB Std: SPM
industrial area 500µg/m³, rural 200µg/m³; SO₂ industrial area 120 µg/m³, rural 80µg/m³; NOx industrial 120µg/m³, rural 80µg/m³).

2.2 Noise Environment

Noise levels were monitored using sound level meter (Lutron SL – 4001) for the study area. It was observed that noise levels of study area vary in the range 40–51dB (A) in the day time and 30–43 dB (A) in the night time for residential area and 52–72dB (A) in the day time and 44–68 dB (A) in the night time for Plant area. These observations indicate that the ambient noise levels are within the impact zone comply with prescribed standards. (CPCB Std. Industrial area: Day – 75, Night – 70; Commercial area: Day – 65, Night – 55; Residential area: Day – 55, Night – 45; Silence area: Day – 50, Night – 40).

2.3 Water Environment

The water quality in the impact zone was assessed through physico-chemical analysis of ground water samples collected during October 2007. The existing status of ground water and surface water quality was assessed by identifying 6 ground water (Bore wells) samples in different villages and surface water sample.

It was observed that all the physico chemical parameters and heavy metals from surface and ground water samples are below stipulated drinking water standards. The data indicate low mineral content in terms of chloride and sulphate. Bacteriological examination of surface water indicates the presence of Total Coliform, which may be due to human activities observed during the study period.

Water will be drawn from bore wells within the plant to meet the requirement which includes water spraying on conveyor transfer point, dust control measures and domestic use. The total water requirement for proposed production will be 267 m³/day. Domestics waste is generated which will be disposed through soak pit.
2.4 Land Environment

The proposed plant will be set up in an area of 15.0 acres, which is adequate for the proposed project. Soil samples were collected from 2 locations within 10 km radius of the proposed plant. Physical characteristics of soil were characterized through specific parameters viz. particle size distribution, bulk density, porosity, water holding capacity and texture.

The soils with low bulk density have favorable physical condition whereas those with high bulk density exhibit poor physical conditions for agriculture crops. The bulk density of the soil in the study area ranged between 1.42 to 1.48 g/cm³ which indicates favorable physical condition for plant growth. The porosity and water holding capacity of the soils are in the range of 32% to 36% and 42% to 48% respectively. The soil in the impact zone has silty clay structure with moderate water holding capacity.

pH is an important parameter indicative of alkaline or acidic nature of soil. It greatly affects the microbial population as well as solubility of metal ions and regulates nutrient availability. The pH of the soil was found to be neutral (7.2 to 7.5), thus conducive for growth of plant.

Organic matter present in soil influences its physical and chemical properties of soil and is responsible for stability of soil aggregates. Organic matter of soil is found in the range 0.610% to 0.840% showed high fertility of the soil, which may be attributed to application of organic manure. The presence of organic matter enhances the metabolic activities of soil affecting the nitrogen and potash content of soil. The fertility status in respect of Nitrogen, P₂O₅ & K₂O shows high fertility.
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**Solid Waste**

Solid waste in the form of coal fine will be stocked along with coal and will be recycled as fuel in Power plant/Cement industries.

**Biological Environment**

Terrestrial flora of the studied area has been distributed with number of herbs, shrubs and trees as well as grass lands. The study area has sparse vegetation, which includes fruit, ornamental trees, shrubs and grasses.

No national park or sanctuary exist in the study area, Wildlife is not found in the study area. Common mammals, birds and reptiles are found in study area.

**2.5 Social Economic Environment**

Study area encompasses villages, under Jhabar block of Dipka tehsil in Korba district. Demographic data such as number of households, population, community structure, literacy and employment status of the villages were surveyed. The significant features are as follows:

- The total population of Jhaber & Dipka area is 1,845 & 20,150 respectively.
- The ratio of female/male is 890/1000 for the study area as compared to national average of 929/1000.
- The percentage of Schedule Castes (SC) and Schedule Tribes (ST) population in the rural area is 9.9% and 40.9 % and 9.9 % 13.0% respectively.
- The literacy rate in the study area is 68.8% and 87.6% respectively.
- The employment rate is 35.7 & 27.3% respectively.

The significant observations on basic amenities are as follows:

Educational facilities are available in the form of primary/secondary schools. For higher education & colleges the students have to go to the Dipka

- Medical facilities are available only in few villages. Dipka has well maintained primary health centers catering services to twenty two
nearby villages. Allopathic & Ayurvedic practitioners are also helping the people in getting medical aid during emergency.

- Wells, tanks and tube wells are the main sources of drinking water in the region.
- Pucca road, post office and power supply facilities are available in the villages.
- Telecommunication facilities are available in few villages.
- State transport and private auto are the main transportation means.
- Electricity is available for both domestic as well as for agriculture.

The morbidity status in the study area was collected from Primary Health Center of Jhaber village. Medical officer PHC Dipka is of opinion that the unsatisfactory sanitary conditions are the major causes behind diarrhea and fever.

3.0 PREDICTION OF IMPACT

3.1 Air Environment

The impacts on air quality from coal Washery plant depend on various factors viz. transportation of coal from mines, coal handling equipment, equipment envisaged in plant operation & maintenance.

- The stacks are not required in coal Washery process hence impacts due to conventional air pollutants SO$_2$ and NO$_X$ are not envisaged.
- In coal Washery process if the proper sprinkling of water is not done on road inside the plant which may results in deposition of dust on leaves of vegetation thus affect the photosynthetic activities of the plants. The impact due to these conditions will not occur if the proper schedules of sprinkling of water are maintained.

3.2 Water Environment

- The data collected from the dug wells in the study area reveal that depths of well water varies 12 to 30 feet during monsoon, while it is 50 to 140 feet during premonsoon season. The wastewater generated
from the domestic use is treated in soak pit, hence no adverse impact water bodies.

3.3 Land Environment

- The dust generated during loading and unloading operations, vehicular movement constitute heavy particles that will settle down on a very small area within the premises. No significant impact is seen on the plantation within the premises due to spraying of water at regular interval.

3.4 Socio-economic Environment

- There will not be rehabilitation due to proposed activity as no habited village land is being procured.
- Due to increase in activities at enhanced production, it may create temporary employment, thus there will be positive impact.
- There will be positive impact on literacy which is due to increase in technical and non technical persons.
- There will be positive impact on economic aspects due to employment of persons of different skill and trades.

4.0 ENVIRONMENTAL MANAGEMENT PLAN

4.1 Air Environment

- An independent water spraying system will be established for coal handling and crushing facilities by BHATIA INTERNATIONAL LTD. Water spraying system involves surface water tanks and network of spray water pipeline and headers.
- The spray water pump will be electrically coupled with truck dump hopper feeder in such a way that stoppage of pump automatically trips the feeder and thus stops raw coal feed to the circuit, which helps in arresting the dust particles.
- The coal received at plant from mines should have sufficient surface moisture thus prevent the dust to become air born.
• Vehicle movement in the plant area will be regulated effectively to avoid traffic congestion and workers will be prevented from dust exposer.
• Emissions from the heavy duty vehicles operating in plant shall confirm the standard under Motor Vehicles Rules 1989.

4.2 Noise Environment
• Noise attenuation measures will be taken up by providing green belt around periphery of plant.
• Medical practitioner will be appointed to check the health of the worker on regular basis for noise inducing hearing loss.
• Ear plug will be provided to all workers working close to noise generating units.
• To avoid noise, lubrication of pump will be done regularly.
• Noise proof cabins will be provided to operators.

4.3 Water Environment
• BHATIA INTERNATIONAL LTD. shall adopt rainwater harvesting scheme to recharge ground water.

4.4 Land Environment
• Roads in and around plant shall be pucca (asphalted)
• Green belt plan shall be further strengthen along the road side, coal handling plants, residential complex office building and all around the boundary wall of plant.
• Temporarily stocking of coal fines in earmarked area shall be provided with pucca road, construction of garland drain around the stockyard to prevent run off water during rainy season.

Green Belt Development

The prime considerations for recommending greenbelt plantation scheme are:

a. Nature of Pollutants
b. Emission levels
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c. Maximum impacted zone

For making selection of plant species for greenbelt, the following criteria shall be followed:

i. Fast growing
ii. Thick canopy cover
iii. Perennial and evergreen
iv. Large leaf area index
v. Preferably indigenous
vi. Resistant to specific air pollutants
vii. Should maintain regional ecological balance as well as soil and hydrological conditions of the region.

Greenbelt Development for Mitigation of Noise

Industrialization results in increase in transport activities due to movements of tankers, trucks and other vehicles. This would result in increase of noise levels in the region. Plantation along the roadsides in two staggering rows will help in reducing the noise levels. Within the plant itself, trees and shrubs should be planted wherever vacant land is available, for reducing noise levels due to in plant operations. If trees and shrubs are planted in maximum density, a 30 m wide strip can bring reduce the noise levels by about 6-8 d (BA). Plant species suitable for noise reduction are listed below
Plant Species for Noise Prone Areas

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Biological Name</th>
<th>General Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><em>Terminalia Aarjuna</em></td>
<td>Arjuna</td>
</tr>
<tr>
<td>2.</td>
<td><em>Saraca Indica</em></td>
<td>Ashoka</td>
</tr>
<tr>
<td>3.</td>
<td><em>Polyathiaa Longifolia</em></td>
<td>Ashoka</td>
</tr>
<tr>
<td>4.</td>
<td><em>Ficus Benghalensis</em></td>
<td>Banyan</td>
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<tr>
<td>5.</td>
<td><em>Aegle Marmelos</em></td>
<td>Bel</td>
</tr>
<tr>
<td>6.</td>
<td><em>Syzygium Cimunil</em></td>
<td>Jamun</td>
</tr>
<tr>
<td>7.</td>
<td><em>Lagerstromia flosregeinal</em></td>
<td>Jarul</td>
</tr>
<tr>
<td>8.</td>
<td><em>Bauhinia Purpuria</em></td>
<td>Kachnar</td>
</tr>
<tr>
<td>9.</td>
<td><em>A. Excelsa</em></td>
<td>Maharukh</td>
</tr>
<tr>
<td>10.</td>
<td><em>Manifera Indica</em></td>
<td>Mango</td>
</tr>
<tr>
<td>11.</td>
<td><em>Azadriarchta Indica</em></td>
<td>Neem</td>
</tr>
<tr>
<td>12.</td>
<td><em>Ficus religiosa</em></td>
<td>Peepal</td>
</tr>
<tr>
<td>13.</td>
<td><em>Dal Bengia Sissoo</em></td>
<td>Shisham</td>
</tr>
<tr>
<td>14.</td>
<td><em>Albizia Lebbeck</em></td>
<td>Siris</td>
</tr>
<tr>
<td>15.</td>
<td><em>Saraca Indica</em></td>
<td>Sita Ashoka</td>
</tr>
<tr>
<td>16.</td>
<td><em>Tectone Grendis</em></td>
<td>Teak</td>
</tr>
<tr>
<td>17.</td>
<td><em>Thespesia Populnea</em></td>
<td>Tulip</td>
</tr>
<tr>
<td>18.</td>
<td><em>A. Procera</em></td>
<td>White Siris</td>
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<tr>
<td>19.</td>
<td><em>C.Tora</em></td>
<td>Wild Sena</td>
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</tbody>
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