

**SUMMARY ON  
ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

**OF**

**KPR FERTILIZERS LTD.**

**Expansion project**

Halvarthi Village,  
Koppal Taluka,  
Koppal District,  
Karnataka.

**SUBMITTED TO**

**KARNATAKA STATE POLLUTION CONTROL BOARD**

**"Parisara Bhavan", #49,4th & 5th Floor,  
Church Street, Bangalore-560001**

## 1.0 INTRODUCTION

**M/s KPR Fertilizers Limited** has proposed to enhance the capacity of Single Super Phosphate, NPK Mixtures, Di-calcium phosphate and install Di-methyl Sulphate, Linear Alkyl Benzene Sulphonic Acid, Sulphuric acid unit with 1 MW Co-gen Power plant at Halvarthi Village, Koppal Taluka, Koppal District, Karnataka. The proposed expansion will be taken up in the existing plant premises and in the additional land acquired. Total land in possession of the management is 35.925 Acres.

Surveys Nos. of site are 108, 109 & 110. The cost of proposed expansion project will be Rs. 40.9 Crores.

Pioneer Enviro Laboratories & Consultants Private Limited, Hyderabad, which is accredited by NABET, Quality Council of India for conducting EIA studies, have prepared Draft Environmental Impact Assessment (DEIA) report for the proposed project by incorporating the Terms Of Reference issued by MOEF.

- a. Detailed characterization of status of environment in the area of 10 km. radius from the proposed site for major environmental components including air, water, noise, soil, flora, fauna and socio-economic environment.
- b. Assessment of air emissions, liquid waste and solid waste from the proposed expansion project along with the noise level assessment.
- c. Environmental Management Plan (EMP) consisting of Air emission management, waste water management, Noise level management, solid waste management, etc.
- d. Post project monitoring plan

## 1.1 SITE DETAILS

Elevation of the site	:	524 m above MSL
Nearest habitation	:	Kinikeri Tanda – 0.3 Kms Halavarthy Village – 1.1 Kms
Nearest railway station	:	Koppal – 8.5 Kms.
Nearest surface water bodies	:	Tungabhadra Reservoir (4.8 Kms)
Nearest Reserve Forest	:	Nil within 10 Km radius
National Parks/ Sanctuaries	:	Nil within 10 Km radius
Places of Tourist / Historical importance	:	Nil within 10 Km radius
List of industries	:	M/s. Saravana Alloys Steels Pvt. Ltd. M/s. Hare Krishna Metalics Pvt. Ltd. M/s. Hospet Steels Ltd. M/s.Vaniya Steels Pvt. Ltd.

		M/s. Hospet Ispat Pvt. Ltd. M/s.KMMI Pvt. Ltd. M/s.HRG Steels Pvt. Ltd. M/s.Xindia Pvt. Ltd. M/s.Kirloskar Ferro Industries Ltd. M/s. Druvadesh Mettalics Pvt. Ltd. M/s MSPL Pvt. Ltd. (Baldota Group) M/s. Baba Akila Sai Pvt. Ltd. M/s. Trivista Steel & Power Pvt. Ltd. M/s Bhadrashri Steels & Power Pvt. Ltd.
Defence Installations	:	Nil
Airports / Airstrips	:	Koppal Air strip – 5.5 Kms
Industrial areas / clusters, which are listed in MoEF office memorandum, dated 13th January 2010.	:	The proposed project area does not fall under the industrial areas / clusters, which are listed in MoEF office memorandum, dated 13th January 2010

## 1.2 RAW MATERIALS

The following will be the raw materials and their requirement for proposed expansion

Name of the Raw material	Requirement TPD	Source	Transportation
<b>Single Super Phosphate (Powdered /Granulated)</b>			
Rock phosphate	90	Jordan, Egypt, Israel	Ships & Lorries
H <sub>2</sub> SO <sub>4</sub>	52.5	Own generation	Pipe Line from H <sub>2</sub> SO <sub>4</sub> plant
<b>Di-calcium Phosphate</b>			
Rock phosphate	72	Jordan, Egypt, Israel	Ships & Lorries
H <sub>2</sub> SO <sub>4</sub>	40	Own generation	Pipe Line from existing H <sub>2</sub> SO <sub>4</sub> plant
Lime	10	Rajasthan, Himachal Pradesh	Lorries
<b>NPK mixtures</b>			
Urea	25.2	China, Iran	Ships & Lorries
DAP	41.3	China, Jordan, Egypt	Ships & Lorries
Potash	31.6	Canada, Russia	Ships & Lorries
Dolomite	1.9	Kurnool, Ongole	Lorries
<b>Sulphuric acid</b>			
Sulphur	40	Singapore	Ships & Lorries
<b>Di Methyl Sulphate (DMS)</b>			
Methanol	30	Deepak Fertilizers Ltd. Mumbai, GSFC, Gujarat	Tankers

Liquid SO <sub>3</sub>	38	Internal generation	Pipe Line from H <sub>2</sub> SO <sub>4</sub> plant
<b>Linear Alkyl Benzene Sulphonic Acid (LABSA)</b>			
SO <sub>3</sub> / Sulphuric Acid	12	Internal Generation	Pipe line from H <sub>2</sub> SO <sub>4</sub> plant
LAB	30	MRPL, Karnataka Tirumalai Chemicals, Chennai	Tankers
<b>6 TPH Boiler</b>			
Coal (Imported / Indigenous)	24	Andhra pradesh, Indonesia	Covered trucks
Biomass	38	Karnataka	Covered trucks
<b>Coal gasifier</b>			
Coal	20	Andhra pradesh	Covered trucks

### 1.3 MANUFACTURING PROCESS

#### A) Single Super Phosphate (Powdered / Granulated)

Single Super Phosphate will be manufactured by mixing Sulphuric acid and Rock phosphate.

#### B) Di-calcium Phosphate

Di-calcium Phosphate will be manufactured by mixing Rock Phosphate, Sulphuric acid and Lime.

#### C) NPK Mixtures

NPK mixtures will be manufactured by mixing Urea, DAP, Potash and Dolomite.

#### D) Sulphuric acid

Sulphur will be burnt to produce Sulphur dioxide and then oxidized to Sulphur trioxide in presence of Vanadium Oxide catalyst. The sulfur trioxide is absorbed into 97–98% H<sub>2</sub>SO<sub>4</sub> to form oleum (H<sub>2</sub>S<sub>2</sub>O<sub>7</sub>), also known as fuming sulfuric acid. The oleum is then diluted with water to form concentrated sulfuric acid.

#### E) Dimethyl sulphate

Methanol and Liquid SO<sub>3</sub> are the raw materials for the manufacture of DMS. Methanol will be vaporized and converted into Dimethyl ether (DME). This DME is stripped off to get pure DME for its further reaction with Liquid SO<sub>3</sub> to form crude DMS. This crude DMS will be further distilled to get pure DMS as saleable product.

## F) Linear Alkyl Benzene Sulphonic Acid

Liquid SO<sub>3</sub> from Sulphuric acid plant will be cooled and passed through mist eliminator and oleum separators and made to react with Linear Alkyl benzene to form Linear Alkyl Benzene Sulphonic acid

### 1.4 WATER ENVIRONMENT

#### Water Requirement

Water requirement for the proposed expansion project will be 610 KLD and water requirement for existing project is 50 KLD. Total water requirement for existing and expansion project will be 660 KLD. Water required for existing and expansion project will be met from Ground water resources.

#### WATER CONSUMPTION

SECTION	WATER REQUIREMENT ( KLD)		
	Existing	Expansion	Total
Process	38	128	166
Boiler make up	--	55	55
Cooling tower make up	--	230	230
Coal gasifier	--	70	70
DM plant & Softener regeneration	--	100	100
Greenbelt development	4	20	24
Domestic	8	7	15
<b>Total</b>	<b>50</b>	<b>610</b>	<b>660</b>

### 1.5 WASTE WATER GENERATION AND CHARACTERISTICS

Waste water generation from the expansion project will be 192.6 KLD and existing plant will be 6.4 KLD. Total waste water generation from existing and expansion project will be 199 KLD and the following is the break-up of it.

#### WASTE WATER GENERATION

SECTION	WASTE WATER GENERATION (KLD)		
	Existing	Expansion	Total
Process	--	37	37
Boiler blow down	--	20	20
Cooling tower blow down	--	30	30
DM plant & Softener regeneration	--	100	100
Domestic	6.4	5.6	12
<b>Total</b>	<b>6.4</b>	<b>192.6</b>	<b>199</b>

## **EFFLUENT CHARACTERISTICS**

The characteristics of process waste water, DM plant & softener regeneration water, cooling tower blow down, boiler blow down and sanitary waste water are shown below.

### **CHARACTERISTICS OF PROCESS WASTE WATER**

S. NO.	PARAMETER	UNIT	CONCENTRATION
1.	pH		3.5 – 5.5
2.	Total Dissolved Solids	mg/l	1200-1500
3.	COD	mg/l	40 - 50
4.	Chlorides	mg/l	600 - 800

### **CHARACTERISTICS OF SANITARY WASTE, COOLING TOWER BLOWDOWN, BOILER BLOWDOWN, DM PLANT & SOFTNER REGENERATION WATER**

S.NO.	CHARACTERISTICS	SANITARY WASTE WATER	COOLING TOWER BLOW DOWN	BOILER BLOW DOWN	DM PLANT & SOFTNER REGENERATION WATER
1.	pH	7.0 – 8.5	7.0 – 8.0	9.5 – 10.5	4.0-10.0
2.	T.D.S. (mg/l)	800 – 900	800 -1 000	1000	8000-15000
3.	B.O.D. (mg/l)	200 – 250	-----	-----	-----
4.	C.O.D. (mg/l)	300 – 400	-----	-----	-----

## **1.6 EFFLUENT TREATMENT PROCESS**

Waste water from different sections of the plant will be collected through an exclusive epoxy lined drainage system into the equalization tanks at Effluent Treatment Plant. The waste water will be further treated in neutralization tanks and subjected to aeration. The treated waste water will be utilized for Process, Coal gasifier, Greenbelt development, dust suppression and ash conditioning in the plant premises after ensuring quality of treated waste water with the standards laid down by KSPCB / MoEF.

## **1.7 AIR EMISSIONS**

The emissions of concern from the proposed expansion and existing project will be particulate matter, SO<sub>2</sub>, NO<sub>x</sub>, CH<sub>3</sub>OH, Fluorine and Acid mist.

Dust emissions from grinding section of Single super phosphate unit, NPK mixing and Granulation plant will be treated in Cyclone separators and 6 TPH Boiler in Bag filters. Dust emissions from Coal gas / Furnace Oil fired Hot air Generator will be treated in Cyclone separators. The outlet dust emission from all the units will be below 50 mg/Nm<sup>3</sup>.

Methanol emissions from Dimethyl sulphate unit will be treated in packed scrubber and SO<sub>2</sub> emissions from Linear Alkyl benzene sulphonic acid and sulphuric acid plant will be treated in Alkali scrubbing system.

Fluorine emissions from the Single super phosphate unit will be treated in four stage PP / FRP scrubber.

## 2.0 DESCRIPTION OF ENVIRONMENT

Baseline data has been collected on ambient air quality, water quality, noise levels, flora & fauna and socio-economic details of the people within 10 km. radius of the Plant site.

### 2.1 AMBIENT AIR QUALITY

Ambient air quality was monitored for PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, NH<sub>3</sub>, Total Fluoride, Benzene and VOC's at 6 stations for one season as per MOEF guidelines. The following are the concentrations of various parameters at all the monitoring stations.

Particulate matter (PM <sub>2.5</sub> )	:	11.8 to 25.2	µg/m <sup>3</sup>
Particulate matter (PM <sub>10</sub> )	:	18.8 to 42	µg/m <sup>3</sup>
Sulphur Dioxide (SO <sub>2</sub> )	:	8.3 to 13.4	µg/m <sup>3</sup>
Nitrogen Oxide (NO <sub>x</sub> )	:	9.3 to 15.8	µg/m <sup>3</sup>
Carbon monoxide	:	312 to 487	µg/m <sup>3</sup>
Ammonia (NH <sub>3</sub> )	:	15 to 35	µg/m <sup>3</sup>
Fluoride	:	0.08 to 0.2	µg/m <sup>3</sup>
Benzene	:	BDL	
Volatile Organic compounds (VOC)	:	BDL	

### 2.2 WATER QUALITY

Ground water samples were collected at 6 locations and analyzed for various physico – chemical & Bacteriological parameters.

### 2.3 NOISE LEVELS

Noise levels were measured at 6 stations during day time & night time. The noise levels at the monitoring stations are ranging from 45.6 dBA to 55.4 dBA.

## 3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

### 3.1 PREDICTION OF IMPACTS ON AIR QUALITY

The emissions of concern from the proposed expansion and existing project will be PM<sub>10</sub>, SO<sub>2</sub>, F, CH<sub>3</sub>OH, NO<sub>x</sub> & Acid mist.

For the purpose of prediction of Ground Level Concentrations the emissions from existing, expansion and other units is also considered. Industrial Source Complex (ISC-3) software is applied

for prediction of GLCs. Predicted incremental rise in concentration of PM<sub>10</sub>, SO<sub>2</sub>, F, CH<sub>3</sub>OH, NO<sub>x</sub> and Acid mist during operation of expansion project will be as follows

Parameter	Incremental rise (µg/m <sup>3</sup> )
PM <sub>10</sub>	3.1
SO <sub>2</sub>	18.5
NO <sub>x</sub>	9.4
F	0.8
CH <sub>3</sub> OH	0.2
Acid mist	0.3

The predicted results show that the incremental rise over the existing baseline status of ambient air quality will be within the revised National Ambient Air Quality Standards for residential areas even after commissioning of the expansion project.

### **3.2 PREDICTION OF IMPACTS ON NOISE QUALITY**

The major noise generating sources will be Turbo generator, Boiler, Compressors & DG set. The Ambient Noise levels will not exceed the standards prescribed by MOE&F, GOI vide Notification under the Noise pollution (regulation & control) Rules, less than 75 dBA during day time and less than 70 dBA during night time. Extensive greenbelt proposed to be developed will further mitigate the noise levels.

### **3.3 PREDICTION IMPACTS ON WATER QUALITY**

The waste water generation from the existing and proposed expansion project will be treated in Effluent Treatment Plant and will be utilized for Process, coal gasifier, Greenbelt development, Dust suppression and Ash conditioning after ensuring quality of treated waste water with the standards laid down by KSPCB / MoEF.

### **3.4 PREDICTION OF IMPACTS ON BIOLOGICAL ENVIRONMENT**

There are no rare & endangered species in the area. All the required pollution control systems will be installed and operated to comply with the norms. Once all the norms are complied with, then there will not be any adverse impact on flora, fauna due to the proposed expansion project.

### **4.0. ENVIRONMENTAL MONITORING PROGRAMME**

Ambient Air Quality, Stack monitoring & effluent analysis will be carried out regularly as per CPCB norms and the analysis reports will be submitted to Ministry of Environment & Forest, Bengaluru & Karnataka State Pollution Control Board regularly.



## **5.0. ADDITIONAL STUDIES**

No Rehabilitation and Resettlement is involved in the proposed expansion project. Hence no R & R study has been carried out.

## **6.0. PROJECT BENEFITS**

With the establishment of the proposed expansion project employment potential will increase. Land prices in the area will increase. The economic status of the people in the area will improve due to the proposed expansion project. Periodic medical checkups will be carried out. Top priority will be given to locals in employment.

## **7.0 ENVIRONMENTAL MANAGEMENT PLAN**

### **7.1 AIR ENVIRONMENT**

The emissions of concern from the proposed expansion and existing project will be particulate matter, SO<sub>2</sub>, NO<sub>x</sub>, Fluorine, CH<sub>3</sub>OH & Acid mist.

Cyclone separators will be provided to grinding section of Single super phosphate unit, NPK mixing and Granulation plant and Bagfilters to 6 TPH Boiler to bring down the dust emissions to less than 50 mg/Nm<sup>3</sup>. Cyclone separators will be provided to Coal gas / Furnace Oil fired Hot air Generator to bring down the dust emissions to less than 50 mg/Nm<sup>3</sup>.

Methanol emissions from Dimethyl sulphate unit will be treated in packed scrubber and SO<sub>2</sub> emissions from Linear Alkyl benzene sulphonic acid and sulphuric acid plant will be treated in Alkali scrubbing system.

Four stage PP / FRP scrubber will be provided to Single super phosphate unit to bring down the Fluorine emissions to less than 15 mg/Nm<sup>3</sup> and total fluoride emissions to less than 25 mg/Nm<sup>3</sup>

### **7.2 WATER ENVIRONMENT**

Waste water from different sections of the plant will be collected through an exclusive epoxy lined drainage system into the equalization tanks at Effluent Treatment Plant. The waste water will be further treated in neutralization tanks and subjected to aeration. The treated waste water will be utilized for process, coal gasifier, Greenbelt development, dust suppression and ash conditioning in the plant premises after ensuring quality of treated waste water with the standards laid down by KSPCB / MoEF.

### 7.3 SOLID WASTE GENERATION & DISPOSAL

The following table shows the generation & disposal of Solid Waste.

S.No	Solid waste	Total Quantity (TPD)			Disposal
		Existing	Expansion	Total	
1.	Silica precipitate	0.2	0.15	0.35	Used as filler material in NPK mixtures unit after sun drying
2.	Gypsum sludge	6.8	27	33.8	utilized as filler material in NPK plant / sold outside to user agencies
3.	Boiler Ash				
	(with 100% biomass)	--	7.2	7.2	Ash generated will be given to brick manufacturers.
	(when 100% coal is used as fuel )	--	10.8	10.8	Ash generated will be given to brick manufacturers / cement plants when coal will be used as fuel.
4.	Sludge from ETP	--	5	5	Will be sent to TSDF
5.	Sulphur Sludge	--	60 kg/day	60 kg/day	Raw Material for SSP
6.	Spent Catalyst	--	60 kg/Year	60 kg / Year	Will be sent to TSDF
7.	Coal tar	--	0.8	0.8	Will be mixed with Furnace oil to use as fuel or used in road laying

### 7.4 NOISE ENVIRONMENT

The major noise source in the proposed plant will be Turbo Generator, Boiler, Compressors & DG set. The employees working near the noise generating sources will be provided with earplugs. The extensive greenbelt proposed to be developed around the plant will also help in attenuating the noise levels further. Noise barriers in the form of trees will be grown around the administrative block, ETP and other utility buildings.

### 7.5 LAND ENVIRONMENT

The effluent generated from the proposed project will be treated to comply with the Karnataka State Pollution Control Board's standards. All the solid waste will be disposed as per norms. Hence there will not be any adverse impact on land environment due to the proposed project.

## **7.6 GREENBELT DEVELOPMENT**

Green belt development will further enhance the environment quality through limitation of air emissions, attenuation of noise levels, balancing Eco environment, prevention of soil erosion and creation of aesthetic environment. 12.35 acres of greenbelt will be developed in the plant premises as per CPCB norms.