PRE-FEASIBILITYREPORT

Expansion project for manufacturing of Chlorinated Paraffin plasticizers

and Hydrochloric Acid

At

Dandila Khurd, Rehla, Bishrampur, Distt. Palamau (Jharkhand)

APPLICANT

M/s Manav Chemicals

Near ABCIL, Rehla, Palamau (Jharkhand)

Environment Consultant

Vardan Environet

(QCI and NABET/EIA/1316/IA001)

D-142, Sushant Lok-III, Sector 57

Gurgaon (Haryana)

PRE-FEASIBILITY REPORT

1.0 INTRODUCTION

Earlier, the assessment of the projects was done on Technical feasibility reports and Cost-Benefit-Ratio which mainly considered financial & technical resources. But no consideration was given to the environment protection in this evaluation and these flaws became apparent with continuous deterioration of environment. Thus in order to have more realistic evaluation, and keeping in view the deteriorating conditions, another dimension was added which is now called as "Environmental Impact Assessment" (E.I.A.). This forms an integral part of the project and is taken into account while appraising the project at different stages. Thus in the new comprehensive approach all considerations like, Technical, Financial & Environmental are given due weightage.

M/s Manav Chemicals is proposing Expansion project for manufacturing of Chlorinated paraffin plasticizers and Hydrochloric Acid at Garhwa Road, P.O. Rehla, Distt. Palamau (Jharkhand).

As per EIA Notification dated 14th Sept., 2006 and amended from time to time, the proposed project falls under Category "A", Project or Activity 5(f). They have to submit Form-I along with Pre-Feasibility Report and other relevant documents for getting Environmental Clearance. This pre-feasibility report has, therefore, been prepared by the consultant to assess the likely impact of the proposed on various factors which may be affected with the implementation of the programme and to suggest remedial/precautionary measures, if any.

2.0 Profile of the Company & Promotors

1	Owner Name	Sunil Kumar (Proprietor)
2	Factory Name	Manav Chemicals
3	Address	Near ABCIL Rehla ,Garhwa Road PO.Rehla Distt- Palamu-822124

2.1 Need for installation of project

- **Product and its uses** : Chlorinated paraffin plasticizer is item no.241 of LIST OF ITEMS RESERVED FOR SMALL SCALE SECTORE. Chlorinated paraffin plasticizer is secondary plasticizer used in P.V.C formulation. It is also used in manufacture of P.V.C resin, Synthetic rubber and P.V.C tubing.
- **Market Potential**: The use of secondary plasticizer is linked with growth of P.V.C. It is estimated that from present use of 600-700 gm per capita of P.V.C consumption, use of P.V.C is likely to grow ten times. Hence use of Chlorinated paraffin plasticizer is bound to grow.
- **Production Targets:** Manav Chemicals started its operation from year 2005 with 4x6 MT reactors and 1st Expansion made during the financial year 2008-09 than it has 6x6 M.T. Reactors, which run for 20-22 hrs./days and is operating at 75% capacity. At this capacity approximately 10950 TPA of Chlorinated paraffin plasticizer is being produced. We are planning to propose (6x8 MT Reactors) for 2nd Expansion, after expansion total capacity as under:

Table 1: List of products

Products	Existing (Capacity)	Proposed to Expansion (Capacity)	After Expansion (Capacity)
Chlorinated paraffin plasticizer I&II	10950 TPA	14600 TPA	25550TPA
Hydrochloric Acid (By	21900TPA	29200 TPA	51100TPA

Products)			

Basic and presumption: Capacity of plant is based on 75 % utilization and it is presumed that any of raw material will be used either of H.N.P or N.P. or L.N.P LP-K, LPL or AH-D or KL-8or AHC, waksol (Liquid Paraffin) react with chlorine depending upon demand of plasticizer for fresh P.V.C or processing of P.V.C for production of Chlorinated Paraffin Plasticizer (main product) and Hydrochloric Acid will be by products, which is formed by HCl fumes absorbing in water during the pollution controls. The process is completed in a batch type:

3.0 BASELINE ENVIRONMENTAL SETTING

3.1 The State

Jharkhand is a state in eastern India. It was carved out of the southern part of Bihar on 15th November 2000. Jharkhand shares its border with the states of Bihar to the north, Uttar Pradesh and Chhattisgarh to the west, Orissa to the south, and West Bengal to the east. It has an area of 79,710 km^2 (30,778 sq mi). The industrial city, Ranchi, is its capital and Dumka is sub capital, Jamshedpur is the largest and the biggest industrial city of the state, while Dhanbad and Bokaro Steel City is the second & fourth most populous city. Jharkhand accounts for 40% of the mineral resources of India.

During the Mughal period, the Jharkhand area was known as Kukara. In the year 1765, it came under the control of the British Empire and became formally known under its present title, "Jharkhand" - the Land of "Jungles" (forests) and "Jharis" (bushes). Jharkhand, except Lohardaga and Khunti, share a border with a neighboring state.

Jharkhand's gross state domestic product for 2011 is estimated at $21.7 billion at current prices. Since it is rich in minerals, the state per capita income is likely to increase in the coming years. Industralised cities like Jamshedpur, Bokaro and Dhanbad have very high per capita income. Jharkhand has a concentration of some of thecountry'shighlyindustrialisedcitiessuchas Jamshedpur, Dhanbad, Ranchi and Bokar o Steel City. It also has several firsts in India, including:

- Largest open cast mines in Dhanbad and Godda districts in the entire continent of Asia
- Largest fertiliser factory of its time in India (since shut down) at Sindri, Dhanbad
- First Iron & steel factory at Jamshedpur
- Largest Steel plant in Asia, Bokaro steel plant, Bokaro.
- Biggest explosives factory at Gomia, Bokaro.
- Tata Steel has established country's first coal washery at Ghato, Ramgarh district in the year 1951.
- First methane gas well at Parbatpur, Bokaro.

3.2 District Palamau

Palamu is one of the twenty-four districts of Jharkhand state, India. It was formed in 1928. The district lies between 23°50′ and 24°8′ north latitude and between 83°55′ and 84°30′ east longitude. It is bordered on the north by Sone River, Bihar and on the east by the Chatra and Hazaribagh districts, on the south by Latehar District and on the west by Garhwa District. The district covers an area of 5043.8 km^2 and has a population of 1,533,176. Daltonganj, situated on the North Koel river is the district headquarters. According to the 2011 census Palamu district has a population of 1,936,319. Roughly equal to the nation of Lesotho or the US state of West Virginia. This gives it a ranking of 243rd in India (out of a total of 640).The district has a population density of 381 inhabitants per square kilometer (990/ m2). Its population growth rate over the decade 2001-2011 was 25.94%. Palamu has a sex ratio of 929 females for every 1000 males and a literacy rate of 65.5%.

World's first tiger-census was done in the Palamu forests in the year 1932. Counting was based on pugmarks. There were around 44 tigers when the last census was done. There are several other wildlife found in the sanctuary- chital, chinkara, common langur, dhole (wild dogs), elephants, gaur, hares, Indian porcupine, nilgai, monkey, mouse deer, leopard, pangolin, panther, sambar (deer), sloth bear, wild boar and wolves. Peafowl, red junglefowl and partridges are the common birds found here.

3.3 Project Site

The Plant site is located at Garhwa Road, P.O. Rehla, Distt. Palamau (Jharkhand). It lies near Long: 83°53'01.18" East and Lat: 24°13'29.64" North and is at an Altitude of about 654 m above mean sea level. It is about 2 Km away from Rehla . The nearest railway station is Garhwa Road Railway Station which is at a distance of about 5 km from the project site. It is about 3.5 km from NH-75.

Figure 1 : Google Image

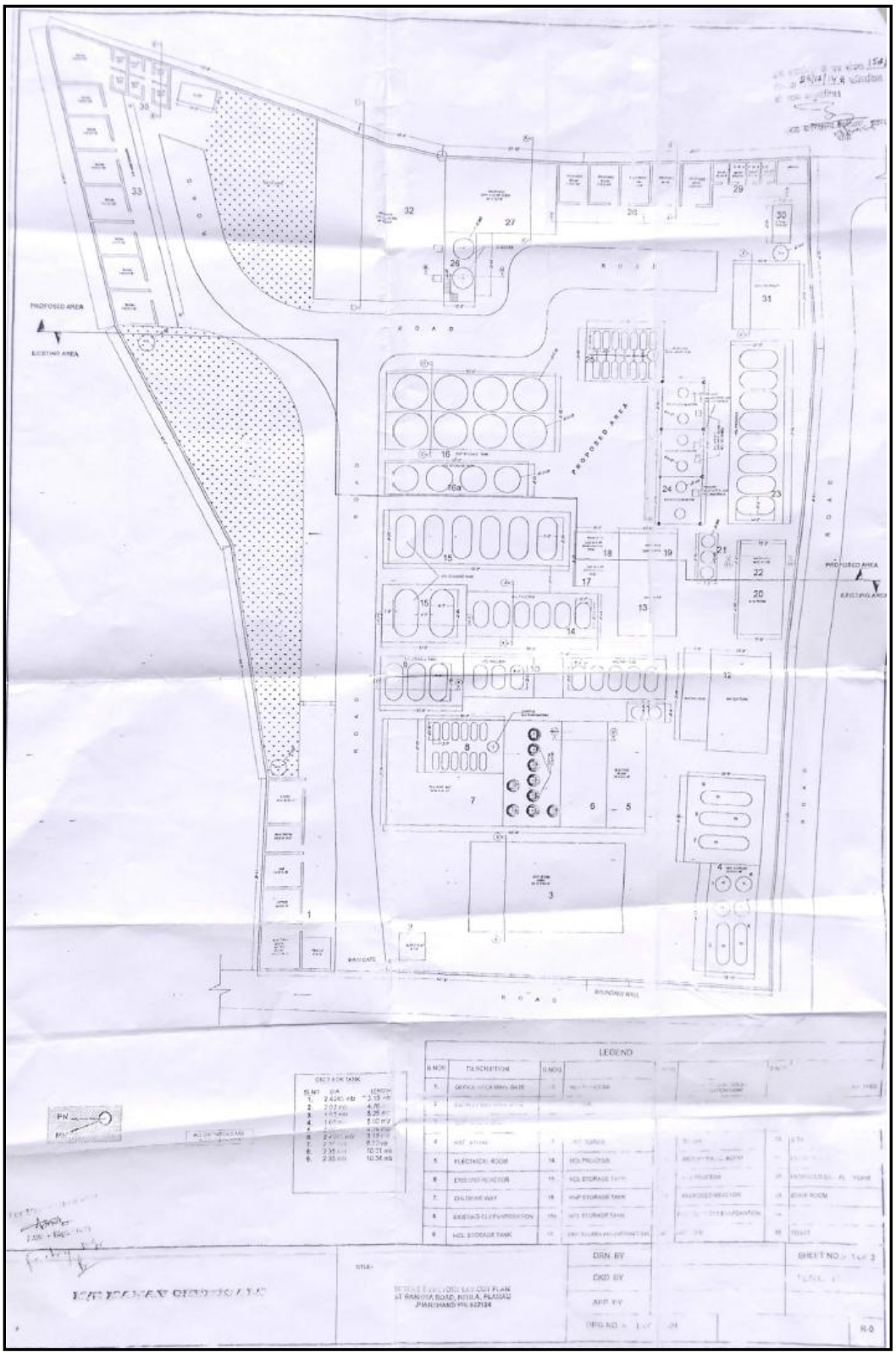


Figure –2 Layout Plan

4.0 PROJECT DESCRIPTIONS

4.1 General

The Plant site is located at Garhwa Road, P.O. Rehla, Distt. Palamau (Jharkhand). It lies near Long: 83°53'01.18" East and Lat: 24°13'29.64" North and is at an Altitude of about 654 m above mean sea level. It is about 2 Km away from Rahela. The nearest railway station is Garhwa Road Railway Station which is at a distance of about 5 km from the project site. It is about 3.5 km from NH-75.

M/s Manav Chemicals has 9500 m^2 of land available and the total land required is 2177 m^2, balance land is being used for green belt development and environmental protection measures etc. as well as for loading and unloading of goods. The total cost of the project is 146.67 Lakhs.

Table 2 : Land Requirment

Particulars	**Existing area (m^2)**	**Proposed area (m^2)**
Land for office, lab & Store	105.00	Nill
Land for H.N.P Storage	200.00	134.50
Land for compressor shed and Electric-room, storage etc.	105.00	96.00
Storage of Drums etc.	225.00	Nill
Acid Storage	240.00	Nill
Cylinder, Cooling tower and water system	275.00	115.00
Meltor , Furnance etc.	75.00	12.00
Area for neutralizing system	66.00	36.00
Absorber,	290.00	203.00

reactor etc.		
Total	**1581.00**	**596.50**
	2177 m²	

4.2 Raw Materials Requirement

Table 3 : Raw material requirement

Sr. No.	Name	Existing	Proposed	Sources
1.	HNP/LNP/NP or Waxsol @8000 P MT	365.00	851.67	• M/s Reliance Industries Ltd. • Imported • K.L.J Resources Ltd. • Panoli Intermediate Ltd. • Kutch Chemical Industries • Aditya Birla Chemicals (India) Ltd., Gujarat
2.	Liquid Chloride	1186.25	2767.92	• Aditya Birla Chemicals (India) Ltd., Rehla, Palamau,Jharkhand • Aditya Birla Chemicals (India) Ltd., Renukoot U.P. • M/s Grasim Industries ltd., M.P.
3.	Epoxy Plasticizer	0.75	1.75	• Delhi Market • Indore
4.	Lime & Coal	7.00	16.00	• Local market (Garhwal)

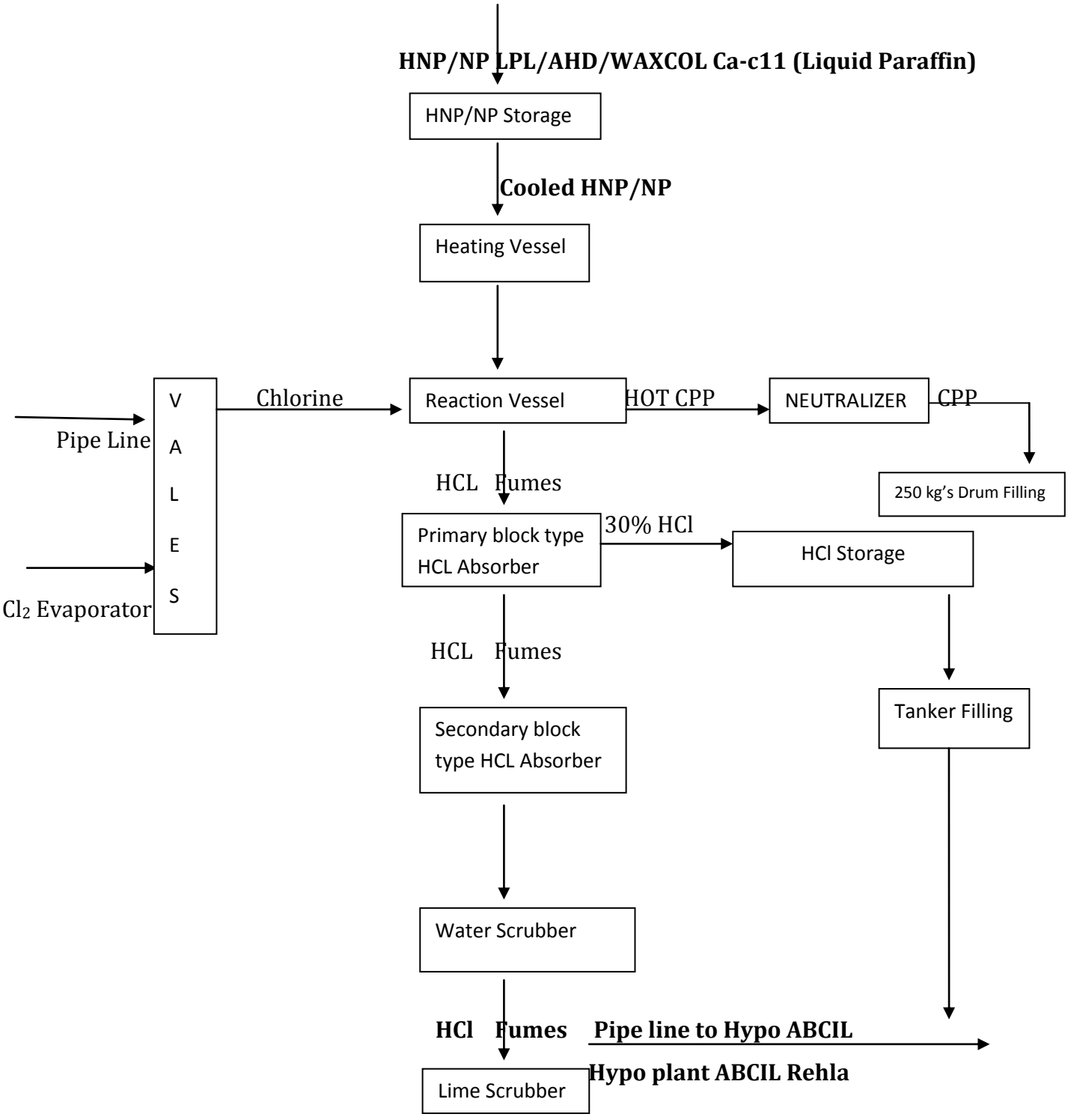
Table 4 Plant Site and Location

S.No	Particulars	Details
1	**Location**	
a	Village/ Town/Plot No.	Plot No. 336-338, 340,357 Khata no. 85,70,7,57
b	Tehsil	Rehla
c	District	Palamau
d	State	Jharkhand
e	Latitude	24°13'31.15"
d	Longitude	83°53'12.47"
2	**Elevation**	654 m

3	**Land use at the project site**	Industrial
4	**Climatic Conditions**	
	Temperature Rainfall Relative Humidity, % Wind speed, Kms/hour	Min: 5^{o}C, Max:37 ^{o}C 1149.3 mm (average) Min: 23%, Max:80% 10 Km (approx.)
5	**Nearest highway**	NH-75, 3.5 km
6	**Nearest railhead**	Garhwa Road Railway station –5 km
7	**Nearest airport**	Gaya Airport-120 km
8	**Nearest major city**	Rehala- 2 km
9	**Nearest major settlement**	Rehala- 2 km
10	**Features with 10 km :**	
i)	**Defence installations**	Nil
ii)	**Archaeological important places**	Nil
iii)	**Wild life sanctuaries**	Nil
Iv)	**Reserved/Protected forest**	Nil
v)	**Industries**	Nil
vi)	**Rivers**	Nil
vii)	**Hill ranges**	Nil
viii)	**State Boundary**	Nil

4.3 MANUFACTURING PROCESS DESCRIPTION :

Figure 4: Manufacturing process flow chart/Diagram



4.4 Production details and Process of Management

L.N.P/H.N.P./N.P/Waxsol are saturated Hydrocarbon which are received from any of the following sources:

- M/s Reliance Industries Ltd.
- Imported
- KLJ resource Limited
- Panoli Intermediate (Kandla) & II raw materials liquid/packed Chlorine From M/s Aditya Birla Chemicals (India) Ltd., Rahela, Garhwa Road, Palamau, Jharkhand

Process:

Heated L.N.P/H.N.P./N.P. and Waxcos (c9-c11) is taken as lead lined reactor and chlorine is injected. Substitution reaction of saturated hydrocarbon with chlorine is carried out resulting the product known as Chlorinated Paraffin Plasticizer and HCl fumes. The Hydrochloric Acid (liq.) is recovered by passing HCl fumes in water in four stages. Un reacted gases (negligible) are neutralized in lime slurry and calcium hypo chlorite of zero commercial value is obtained. Any further unreacted gases is neutralized by M/s Aditya Birla Chemicals (India) Ltd. In their calcium hypo plant, who is provided us pipe line for snuff gases through pipeline.

The calcium hypo chlorite is sun- dried in a pond and stored in prescribed lagoon.

Thus we don't require any storage of liquid chlorine due to M/s Aditya Birla Chemicals (India) Ltd. Supplied chlorine through pipe line.

Facilities at the Plant

Total project area is 2177m^2. It provides adequate space for the following areas of working:-

1. Storage for raw material and finished goods.
2. Plant and Machinery
3. Storage

4. Offices
5. Toilets
6. Water storage tanks

Open space will be landscaped and trees will be planted in due course of time.

4.5 Power Requirement

Total power requirement for the proposed expansion project is 144 HP.

4.6 Water Supply

The total raw water requirement for proposed unit will be 96.05 m^3/Day.

Source: - Aditya Birla Chemical India Ltd., Rehla

5.0 SITE ANALYSIS

(i) Connectivity

The project unit is located at Dandila Khurd which is about 34 kms. away from Palamau District. The nearest railway station is Renukut Railway Station at a distance of 85 km from the project site.

- **Rainfall and Temperature:**

The minimum temperature in operational area comes down to 5.0^{0}C during winter in January and it increases upto 37.0^{0}C in the month of June. However, it has been informed that the rainfall in operational area is good.

- **Irrigation**

Irrigation is a critical input in agriculture. The need for increased food-grain production in the district relates to development of water resources and its management. Ground water resources are more sustainable even under period of moisture stress and, therefore, greater emphasis is being laid on the optimum development and efficient management of these resources on scientific lines. Most importantly, irrigation acts as a buffer under drought conditions, whereby the protective irrigation can prevent crop loss.

- **Topography**

The topography of the area is flat.

- **Social Infrastructure available**

There are no primary schools, dispensaries, small hospitals, places of worship in nearby area of the project site.

(vi) Proposed infrastructure

(a) Industrial Area (processing area)

It is an industrial land

(b) Residential Area (Non processing area)

Residential colony is not proposed for proposed project. The local labor will be preferred to provide employment opportunities.

(c) Green Belt

Greenbelt will be developed in 33% of the total area of the proposed project.

(d) Social Infrastructure

Proposed project will result in growth of the surrounding areas by increased direct and indirect employment opportunities in the region including ancillary development and supporting infrastructure.

(e) Connectivity

The project is well connected with Rail and Road.

(f) Industrial Waste management

The proposed plant would be based on **"ZERO EFFLUENT DISCHARGE".**

6.0 REHABILITATION AND RESETTLEMENT (R & R) PLAN

No Rehabilitation and Resettlement plan is applicable because there are no Rehabilitation & Resettlement of the people.

7.0 Project Schedule and Cost Estimates

The project will start only after obtaining Environmental Clearance and all other required clearance and will complete after two years of commencement.

The Capital Cost of the project is Rs 146.67 lakhs.

8.0 WASTE MANAGEMENT

8.1 Liquid Effluent:

We have already constructed water pit in which all discharge and stream water collected and it is reused and recycled in our system on regular practice.

8.2 Air Pollution:

We are processing all our operation in closed circuit, hence there is not any fugitive emission form the project and whole system is connected with ABCIL hypo plant.

8.3 Solid Waste:

Un-reacted HCL fumes used for manufacturing HCl fumes absorber system because negalable quantity of un-reacted gases produced during the process and neutralized by Bihar Caustic and chemicals Ltd. In their calcium hypo plant. Any further un-reacted gases neutralized in Lime tower and Calcium Hypochlorite is obtained. The calcium hypochlorite is sun dried in a pond and stored in prescribed lagoon. The solid waste (Calcium hypochlorite) comes out at the rate of 0.02MT/Day. Then after the calcium hypochlorite is sold in zero commercial value. This system of lime tower is standby in three stages. Any further HCl fumes or snuff gases are absorbed in water spray scrubber.

8.4 Noise Pollution Control:

There is no danger of noise pollution from plant. The green belt will (plantation of dense trees across the boundary) help in reducing noise levels in proposed plant as a result of attenuation of noise generated due to plant operations, and transportation.

- Earmuffs would be used while running the equipments of the plant.

- D.G sets are provided with acoustic to control the noise level within the prescribed limit.
- A high standard of maintenance will be practiced for plant machinery and equipments, which helps to avert potential noise problems.

9.0 GREEN BELT DEVELOPMENT/ PLANTATION

Green belt development in and around the project site helps in to attenuate the pollution level. About 33% land area of project will be developed as green belt and it will be maintained in future also. Green belt will be developed as per Central Pollution Control Board (CPCB) Norms. The Avenue plantation will give priority to native species, and the periphery will be devoted to generation of green belt area.

10.0 CSR Activities

Proposed project will result in growth of the surrounding areas by increased direct and indirect employment opportunities in the region including ancillary development and supporting infrastructure. Special emphasis on Financial and Social benefits will be given to the local people including tribal population, if any, in the area. Development of social amenities will be in the form of medical facilities, education to underprivileged and creation of self help groups.

No adverse effect on environment is envisaged as proper mitigation measures will be taken up for the same.

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