Executive Summary of Draft Environment Impact Assessment

Expansion of Chemical Processing Unit of HPL Additives Ltd.,
Village: Bhagwanpur, Tehsil: Derabassi, Dist.: SAS Nagar, Punjab

Prepared by **SBA ENVIRO SYSTEMS PRIVATE LIMITED**
#201, DDA LOCAL SHOPPING CENTRE, E – BLOCK, VIKASPURI
NEW DELHI 110 0018

Executive Summary

INTRODUCTION

HPL Additives Limited (formerly known a High Polymer Labs Limited) is an ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 accredited organisation. It is one of the country's pioneers in manufacturing of Polymer Additives. The company has planned of expansion of its existing chemical processing unit at Bhagwanpur, Derabassi, Punjab plant. The plant is well connected with Derabassi-Barwala road and has close connection with Chandigarh airport with a distance around 20km.

The existing unit of HPL Additives Limited at Bhagwanpur has only one product, i.e. Hydrazine with a capacity 110 MT per month. Expansion of the plant is planned mainly to increase its manufacturing strength with some additional products in relation to external market demand as well as internal demand. The proposed additional products are as K-10, K-30, K-135L, K-57L, K-18L, K-28, K-DA; HC-301, Hydrazo-dicarbonamide (HDC), Azo-dicarbonamide (ADC) and other intermediate and by-products. Thus, the project attracts EIA requirement for the expansion and requires Environment Clearance prior to the project under activity 5(f) – "Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)". Additionally, the proposed project location is situated very close to the inter-state boundary of Punjab & Haryana, thus, the project comes within the 'A' category.

The plant is adjacent to Derabassi-Barwala road, which connects NH-152 (Ambala Chandigarh Expressway). The nearest Airport is Chandigarh, which is connected with the plant via NH-152 and Derabassi-Barwala road. Nearest railway station is Ghaggar, connected with Derabassi-Barwala road with the distance of 8 km. The plant is also well connected with nearest cities like Ambala, Panchkula etc.

The Identified land for expansion is owned by HPL Additives Ltd. The area is coming under 'Free Enterprise Zone' as per Notification no.: 3/4/87-3IB1/311 dated 09.01.90 by Govt. Of Punjab, Dept. of Industries. So, there is no chance of productive soil loss, due to the area within the Industrial land use. The proposed site is coming within the topographic sheet no. H43K14 published by Geological Survey of India (with a scale of 1:50,000). The nearest water bodies are Tangri River on the Eastern side of the plant and Ghaggar River on the western

side of the proposed unit, but well outside the notified industrial zone and the unit is situated 8 km from the Ghaggar River. There isn't any National park within the Punjab state, also the state doesn't have any 'Coastal Regulation Zone', the nearest Wildlife Sanctuary is **Sukhna Wildlife Sanctuary**, having around 30 km distance from project location. Chandigarh was declared an 'Air Pollution Control Area' under the Air (Prevention & Control of Pollution) Act, 1981 on 1st February, 1988 by the Ministry of Environment & Forests, which has distance of around 20km from project site. The state border of Punjab and Haryana has close proximity to the proposed unit with a distance of less than 1 km.

Table 1: Co-ordinates of the periphery of the proposed unit

Location mark	Latitude	Longitude	Elevation (AMSL)
Point 1	$30^0$34'39.75" N	$76^0$53'43.69" E	311 m
Point 2	$30^0$34'43.45" N	$76^0$53'35.19" E	311 m
Point 3	$30^0$34'54.36" N	$76^0$53'35.54" E	308 m
Point 4	$30^0$34'54.27" N	$76^0$53'40.65" E	308 m
Point 5	$30^0$34'46.77" N	$76^0$53'40.58" E	311 m
Point 6	$30^0$34'46.61" N	$76^0$53'43.95" E	311 m

In order to identify the environmental impacts due to construction and operation of proposed expansion of Chemical processing unit, and its associated facilities and in order to draw a suitable environmental management plan to mitigate impacts, an Environmental Impact Assessment Study has been undertaken. The Terms of Reference (TOR) for EIA Study was accorded by the EAC, MOEFCC. The compliance of the conditions stipulated in TOR accorded by EAC, MOEFCC vide letter dated 26.10.2017 is presented in previous part of the report.

HPL Additives Limited has appointed M/s SBA Enviro Systems Pvt. Ltd., New Delhi to carry out the Environmental Impact Study and to prepare the Environmental Impact Assessment (EIA) report, and present it to the EAC, MOEFCC to get clearance from the Ministry for the proposed expansion of chemical processing unit at their Bhagwanpur, Derabassi unit in Punjab.

The baseline environmental data generation commenced on 1st November 2017 and completed by 28th February 2018. The EIA Study covers baseline data generation, predictions and evaluation of impact on various environmental components, preparation of EIA Report, formulation of Environmental Management Plan and Disaster Management Plan.

ANALYSIS OF ALTERNATIVES

HPL Additives Limited has 4 production unit in India, one is in Bhagwanpur, Derabassi (proposed expansion unit), one in Dudhola, Haryana and other 2 in Ballabhgarh, Haryana. The proposed project requires 15,725 sq. meter area for infrastructure, 10,000 sq. meter area for road and paved structure. The 3 units of HPL Additives Ltd. other than Bhagwanpur unit don't have that much of open space to install the same planned facility, whereas, the Bhagwanpur unit has only 5,391.25 sq. meters of build-up area out of 67,414.57 sq. meters of owned land. Thus, in respect of land availability the Bhagwanpur, Derabassi unit is ideal to materialized the plan.

On the other hand, the other units have less roadways connectivity than the Bhagwanpur unit. The proposed unit has very good roadways connectivity with local market as well as market from raw materials would be brought. As, the area available in proposed unit is owned by the proponent and the use of the land is industrial type, thus in case of expansion within the existing premises might not requires any additional alternative land identification.

In addition, after planned expansion of proposed chemical processing unit, there will have 16,000 sq. meters of Green belt area with around 50% of non-build-up open area with the existing premises. The existing unit already have all the required infrastructure facilities and resources. As the proponent will run the project with environmental friendly manner during construction and operation phase, thus, the proposed unit would be the best alternative site for planned expansion project.

PROJECT DESCRIPTION

There will 12 new product and 1 previous product, i.e. Hydrazine Hydrate with expanded capacity be produce after proposed expansion.

Table 2: Products after expansion with capacity

Sl. No.	Product	CAS No.	Existing Capacity/ Month	Proposed capacity/ Month
1.	1,3,5-Trimethyl-2,4,6-tris (3,5-di-tert-butyl-4-hydroxybenzyl) benzene [Kinox-30]	1709-70-2		170MT
2.	Pentaerythrityl tetrakis [3-(3,5-di-tert. butyl-4-hydroxyphenyl) propionate] [Kinox-10)	6683-19-8	--	220 MT
3.	1,3:2,4 Bis (3,4-dimethylbenzylidene) sorbitol [HC-301]	135861-56-2	--	80 MT
4.	3,4 Dimethyl Benzaldehyde [3,4 DMB]	5973-71-7		90 MT
5.	**Lube Antioxidants**			
5.1.	Benzene propanoic acid, 3,5-bis (1,1-dimethyl-ethyl)-4-hydroxy-C7-C9 branched alkyl esters [Kinox-135L]	125643-61-0		15 MT
5.2	Butylated/ octylated diphenylamine [Kinox-57L]	68411-46-1		50 MT
5.3	Acetic acid, [[[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl] methyl] thio]-C_{10-14} isoalkyl ester [Kinox-18L]	118832-72-7		10 MT
5.4	Bis (2,4-dicumylphenyl) pentaerythritol diphosphite [Kinox-28]	154862-43-8		25 MT
5.5	3-Salicyloylamino-1,2-4-triazole [Kinox-DA]	36411-52-6		5 MT
6.	Hydrazine	7803-57-8	110 MT	295MT
7.	Hydrazodicarbonamide [HDC]	110-21-4		645MT

8.	Azodicarbonamide[ADC]	123-77-3		600MT
9.	Adipic dihydrazide [ADH]	1071-93-8		48MT

Layout

As per the layout plan, 13,525.00 sq. meter area required for build-up area, almost 10,000.00 sq. meter area will be constructed as paved structure. Additionally, almost 16,000.00 sq. meters of area has been allotted for green belt. After expansion process, there will be requirement of 33% green belt out of total area occupied, thus, unit will initiate regular plantation plan to convert almost 22,000.00 sq. meters of land into green cover in contrast of 16,000.00 sq. meter area identified for green cover in proposed layout plan, as the unit also would have 15,000.00 sq. meters of open or free spaces within the premises to fulfil the sustainable goal. Additionally, the unit will also be fortunate to take part in social forest plantation under the Corporate Environmental Responsibility Plan. The proposed expansion project would not require any additional land acquisition.

Fuel Requirement

The proposed project will require 900 litres of HSD hourly for DG sets, which will have 2-3 hours of running time daily. The proposed 30 TPH boiler and Thermic fluid heater will utilize pet coke/ LDO as fuel. Approximately 1000 MT per month fuel would require for the same facility operation.

Water Requirement

The unit will require 1290 cubic meters of water after proposed expansion. Out of which 450 KL of water shall be used from recycled water of effluent treatment facility. The balance 840 KL of water shall be extracted from Ground water resource, as it is the only source of water in the area. The company has sought for the same extraction capacity consent from CGWB, which is under process.

Waste Generation

The unit will generate approximately 450 cubic meters of waste water after proposed expansion of chemical processing unit, out of which 310 KL of waste water shall be generated from Production area, 130 KL from Other Utility and 10 KL from Domestic Process. The entire waste shall be treated and reused within the unit premises.

The estimated sludge generation from Effluent Treatment shall be 10 metric tonnes/ month. Drums and bags will also be generated after using raw materials within the process. The generation of Paper waste shall be 150 kg per month. Domestic Solid waste shall be reused as manure.

After proposed expansion of chemical processing unit, the generation of hazardous waste would comprise of multiple types, viz. Spent oil, oil residue, ash, process sludge, ETP sludge, Discarded chemicals from QC etc.

DESCRIPTION OF ENVIRONMENT

The environmental parameters as per TOR issued by the EAC, MOEFCC dated 26th October, 2017 was collected and analysed as a part of environmental impact assessment report. The extent of study was 10 Km with circular impact area in respect to proposed project in centre locus. The Baseline environmental monitoring data of the proposed project has been carried out for 1 season, i.e. during Winter season/ Post-monsoon, from November 2017 to January 2018. The Climate station had been installed at proposed project premises to find out post monsoon climatological data for carrying out detailed study of impact at proposed impact area.

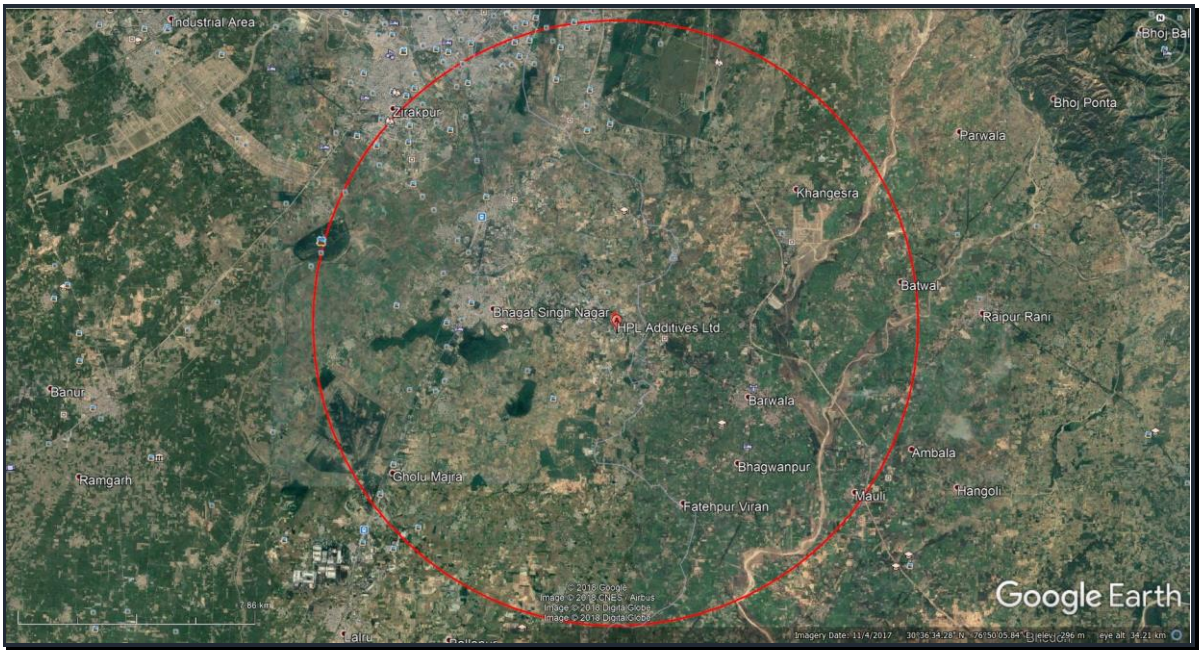

Fig. 1: Impact area map of the proposed project (Scale: 1:35000)

Climate

Derabassi has humid subtropical climate (Köppen: Cwa) characterised by a seasonal rhythm: very hot summers, mild winters, unreliable rainfall and great variation in temperature (−1 °C to 46 °C OR 30.2 °F to 114 °F). The average annual rainfall is 1110.7 mm. The city also receives occasional winter rains from the Western Disturbance originating over the Mediterranean Sea. During climatological monitoring, the monitoring station only experiences a single rainfall day on 11th of December, 2017 with only 5.7 mm of precipitation.

The area experience moderate wind velocity. The average wind speed varies between 5-12 km/h.

Air Environment

8 sensitive locations were selected within the 10 km impact area of the proposed project as per the granted TOR terms to assess the air quality of the impact area. Interestingly, the sampling stations near Derabassi-Barwala road and near the Derabassi town showing high concentration of Particulate matter in the air, thus, it can be concluded that, due to heavy vehicle movement and high population inference also contributed on the concentration of Particulate matter. The project site sampling station also showing the high concentration of dust particle, but below the prescribed limit. The other gaseous pollutant's concentration was well below the prescribed limit at all sampling station.

Noise Environment

Ambient noise quality at the project impact area has been assessed by undertaking noise level monitoring at 8 sampling station comprising at the proposed premises as well as at different sensitive zone like industrial zone, commercial zone, silence zone etc.

The result shows in the ambient noise quality monitoring during November, 2017 to January, 2018, some of the results crosses the prescribed limit of the specified zone. But, none of the result at within the proposed unit premises and near the proposed project premises above the prescribed limit. That means, it could be say that areas having high noise level might be affected by temporary or time-specific secondary noise issues, like heavy rush and population influx or movement of vehicles near the silence zone receptor. Thus, it could be concluded that the proposed project would not interfere massively to the near habitation and location by high noise generation.

Topography

The Topography of the area is even. The proposed area of the expansion project has plain terrain with an elevation range from 311 meter to 308 meters.

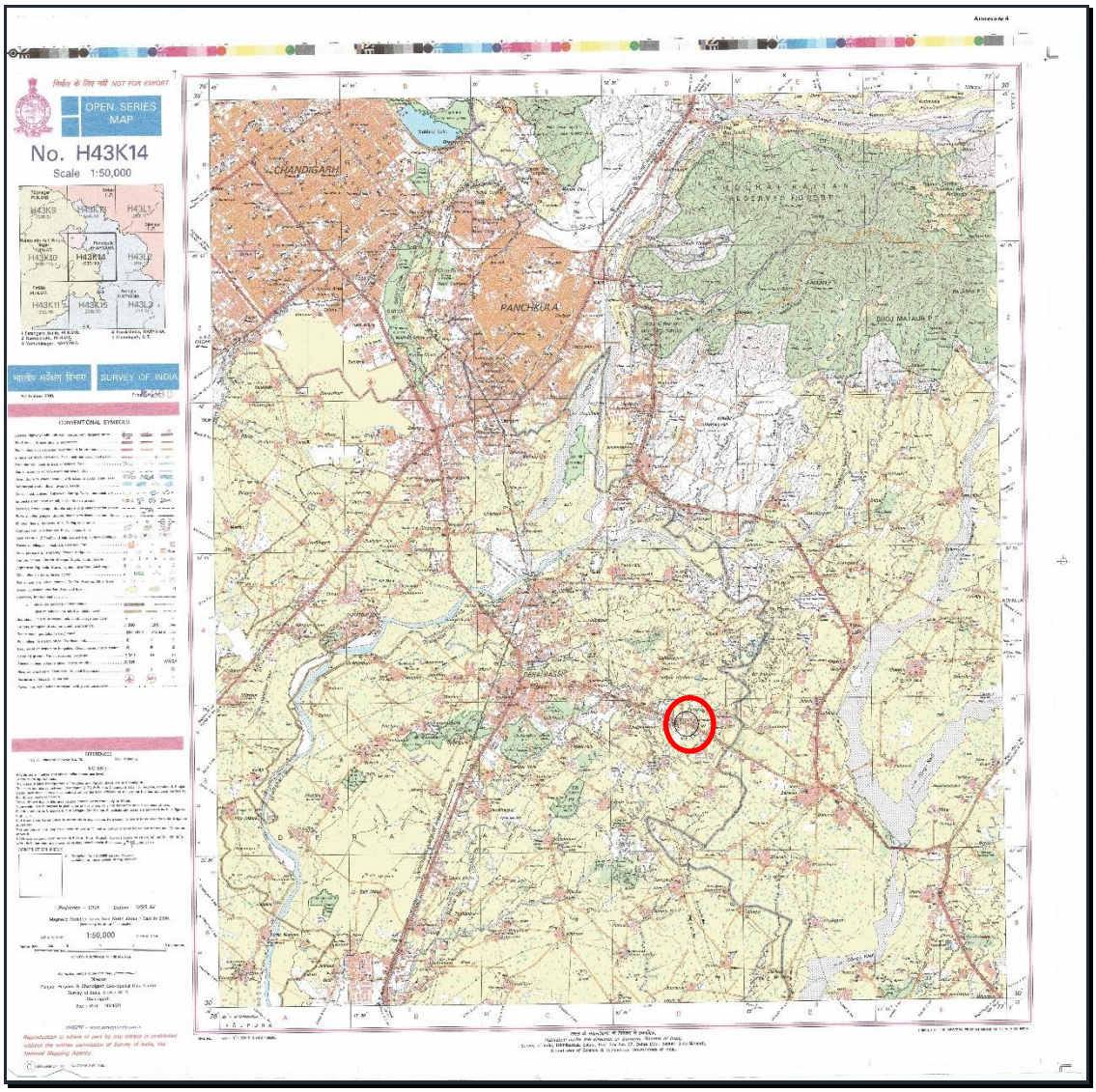

Fig. 2: Topography map of the proposed project

Soil Environment

Soil quality has been tested by identifying 8 locations within the proposed project impact zone. The soil monitoring of the sampling locations shows that the soil of the area has moderate water holding capacity with very less contains of soil moisture. There are no trace elements are found in analysis report which indicates any soil pollution due the existing project.

Water Environment

Surface water quality had been assessed by selecting 8 sampling stations in impact zone, 2 samples out of which were river water stream of Ghaggar at upstream and downstream. All the water analysis reports showing that the samples are considerably well below to the prescribed limit in respect to biological constituents and metallic constituents, but sample of

Mauli village showing high salinity with Total Dissolved Solid concentration of 3740 ppm. All the samples except the Mauli village one are hard in nature.

Ground water quality had been assessed by selecting 8 sampling stations in impact zone. The ground water test report shows that the borewell within the proposed unit premises has affected by Turbidity, the Total hardness, Total Dissolved Solids, Alkalinity in the water sample exceeded the desirable limit of drinking water. The groundwater test report of the sampling location – Derabassi reveals that the ground water of the area is slightly alkaline and not good for drinking use.

Biological Environment

The proposed unit has almost 1800 large trees having different age with almost 55,000.00 square meters of open and green field area. On the other hand, there are no bird corridor within the impact area, no other endangered fauna's breeding centre also located within the impact area. The impact area only crossing the very little part of the Chhatbir Zoological park, but the distance the location is almost 9.8 km from the proposed project site.

Social Environment

In 2011, the district had population of 994,628 of which male and female were 529,253 and 465,375 respectively. The density of the state increased to 909 persons per square kilometres from 629 persons in 2001, thus, the area experiences huge population growth due to massive development from agricultural dominance to industrial growth. The district has sex ratio of 879 with literacy rate of 83.80 percent. The unit will require almost 330 nos. of human resource after expansion, thus, it will be beneficial to area's demographic and social growth.

Hazard Profile

The proposed project would have risk of moderate earth quake and industrial accident, but unit is managed by BS OHSAS 18001:2008 and all the building shall be constructed according to the approved building plan.

ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

Environmental impact identification & Mitigation measures is based on the type, scale and location of proposed project activity. Environmental components that may be affected negatively and positively due to proposed activity are identified.

Table 3: Anticipated Impacts & Mitigation Measures

Phase	Environmental Aspect	Anticipated Impact	Mitigation Measures
Construction Phase	On Air Environment	Dust will be generated during construction phase. Gaseous Pollutant shall be generated from Vehicle and machinery operation	Water Sprinkling System for dust suppression. Monitoring and maintenance of Machinery and vehicles to minimise the gaseous emission.
	Noise Environment	Noise generation from heavy machinery, DG set, Vehicle movement	Maintenance of equipment and distribution and monitoring for use of PPE. Plantation to create sound barrier.
	Water Environment	The chances of water pollution are less, as the unit does not have any surface water access	Waste material shall be stored at designated area only to minimise the chance of GW contamination. Storm water run-off drain should be isolated from any other drain line.
	Soil Environment	Contamination of soil by waste	Waste shall be stored at paved area only; chemical & oil waste shall be stored within Haz. Waste storage room.
	Biological Environment	Plant and trees shall be cut down during clearance process	Complimentary plantation shall be adopted.
	Social Environment	Job Creation, Disease occurrence	The activity shall generate huge job potential for unskilled labours, contractors shall hire the workforce from locality only. Unit will closely monitor the health & hygiene of project activity.
Operational Phase	On Air Environment	Pollution from the Stack Emission, Fugitive Emission	All the exhaust system of fugitive area, DG sets shall be installed with APCM. Stack of Boiler shall be installed with ESP, Scrubber & FGD to minimise the pollution within the limit.
	Noise Environment	Noise from DG sets and Other Equipment	All the equipment shall be installed with acoustic cover, workers will be provided by PPEs. Plantation shall be made to create sound barrier.
	Water Environment	Resource Optimisation and GW contamination	Unit will treat and recycle the entire quantity of generated waste water and all the waste storage area and ETP shall be constructed well away from the bore well.
	Soil Environment	Soil contamination	All the waste shall be stored within the designated storage and shall be transferred to TSDF facility in regular interval.
	Biological Environment	O_2-CO_2 balance	Proper plantation shall be adopted.

	Social Environment	Job Creation, Disease occurrence	After expansion, there will be requirement of 329 nos. human resource. The unit shall be operated with Environment, Health & Safety management system

ENVIRONMENTAL MONITORING PROGRAMME

For tracking of the effectiveness of mitigation measures & EMP at specific interval, regular monitoring of the necessary environmental parameters is required.

- ✓ Regular monitoring through MoEFCC recognized laboratory for compliance with conditions of EC, Consent to operate and provisions under Factory Act & Environmental Protection Act.
- ✓ Monitoring of environmental samples shall be done as per the methods/guidelines provided by MoEFCC/ CPCB and /or relevant Indian Standards or methods as specified by Standard Methods.
- ✓ Assessment of the changes in environmental conditions, if any, during the project operation/activities.
- ✓ Identification of any significant adverse transformation in environmental condition to plan additional mitigation measures; if & as required.

ADDITIONAL STUDIES

The Hazard & Risk assessment studies has been taken place to identify the potential hazard. The detail study was carried out for all the chemicals shall be used after the expansion project. The emergency response plan has been prepared as according the risk assessment study output. The detailed risk assessment is provided in chapter 7 of draft EIA report.

PROJECT BENEFITS

- ✓ The unit will generate huge job potential due to the proposed expansion project.
- ✓ The expanded production will minimise the demand-production gap and achieve the great & healthy market condition of the products in India as well as outside the India.
- ✓ Project will result in benefit to the country in form of foreign exchange revenues, duties etc.
- ✓ Enhanced production will also result in increased taxes to State Exchequer. Which will improve the potential of locality growth.
- ✓ The organisation will adopt Corporate Social Responsibility and Corporate Environmental Responsibility, which will improve the social structure of the locality.

ENVIRONMENTAL MANAGEMENT PLAN

The environmental management plan has been described in chapter 8, as the unit will install the Air, water, Noise monitoring devices to minimise the pollution within the permissible limit. Additionally, the unit will monitor the same. The estimated cost for EMP is 1033 lakhs for initial investment and 216 lakhs for recurring investment.

Table 4: Cost for Environmental Management Plan

Sl. No.	Env. Controlling Measure	Capital Investment (in Lakh)	Recurring Cost/ year (in Lakh)
1	Air Pollution Control	410	35
2	Water Pollution Control	392	72
3	Env. Monitoring		60
4	Occupational Health & Safety		35
5	Plantation	25	5
6	Hazardous Waste Management	102	5
7	Rain water Harvesting within the unit	58	2
8	Solar Thermal Power	46	2
	Total	1033	216

Table 5: Cost for Corporate Environmental Responsibility

Sl. No.	Responsibility & Plan	Budget (in Lakh)
1	Social Forestry & Afforestation	102
2	Rural Sanitation	65
3	Artificial Recharge and Pond Adoption	105
	Total	**272**

CONCLUSION

The study for the proposed project of HPL Additives Limited at Bhagwanpur has revealed that the upcoming expansion of production activities of synthetic organic chemicals will have some minimal impacts during operation phase as well as construction phase. All the impacts of the project will remain below acceptable limits after necessary mitigation as described & suggested in EIA report. The major impacts will also be brought under acceptable limits by implementing the required hazard prevention & control measures as suggested in the report. Thus, it has been concluded that there would not be any major impacts on environment due to the proposed project. Additionally, the proposed project will generate huge job potential to the locality and will improve the revenue structure by attracting more foreign currency by exporting the products.