

Executive Summary

Of

M/s CANPEX LIFE SCIENCE LLP

Survey No.165/ A/1, Ambhora Village, Tal.- Ashti, Dist. Beed
Maharashtra

For

Public Hearing

Of

**New Project for
Manufacturing of API & API intermediates**

Consultant



Goldfinch Engineering Systems Private Limited

NABET Accredited EIA Consultant

Thane, Maharashtra

May-2019

Executive Summary

CANPEX LIFE SCIENCE LLP., (Hereafter being referred as Canpex for brevity in this text) proposes new project for manufacturing of products in category of API & API intermediates at Survey No.165/A/1, Ambhora Village, Tal.- Ashti, Dist. Beed, Maharashtra. Manufacturing capacity will be 2394 TPA. The land is ad measuring 16,388 Sq. meters.

The proposal by Canpex falls under activity 5(f) of schedule of EIA notification 2006 and needs prior environmental clearance for establishment. As the proposed project is located in outside the MIDC area is classified under category A and would be appraised by Expert Appraisal Committee, MoEFCC Delhi. Public hearing is required as per the EIA notification 14th September, 2006.

The proposal by Canpex envisages measures to prevent/reduce accidents and proper management to control environmental impacts. Hence it may be concluded on a positive note that this project will be beneficial to all and also to the country

1.0 Project Description

Canpex has proposes a new project for manufacturing of API & API Intermediate. Therapeutic use of products is mainly as, antiviral, Antidepressant, Antidiabetic, Anti-inflammatory, Antihypertensive, , Vitamins, Antifungal, Antimalarial, etc. The production of finished products will be 2394 TPA.

1.1 Location of the Project

The proposed unit is located at the Survey No.165/A/1, Ambhora Village, Tal.- Ashti, Dist. Beed, Maharashtra. Site specific details are as below:

| | |
|-------------------------|--|
| Geographical location | Latitude : 18°59'37.13"N Longitude: 74°57'49.14"E Elevation: 2380 ft (724.5 m) above Mean sea level (MSL). |
| Nearest Village | Ambhora (1.5 km) |
| Nearest railway station | Ahemdnagar (27 km) |
| Nearest air port | Aurangabad (110 km) |
| Nearest Highway | SH 142 connecting Ahemdnagar to Jamkhed |

1.2 Size or Magnitude of Operation

List of proposed products are given below:

Table [1.1]: List of Proposed Products

| Sr. No. | Product | CAS Number | Quantity (TPA) |
|----------------|--|-------------------|-----------------------|
| 1 | Anastrozole | 120511-73-1 | 6 |
| 2 | Aripiprazole | 129722-12-9 | 72 |
| 3 | Benfotiamine | 22457-89-2 | 360 |
| 4 | Bisacodyl | 603-50-9 | 180 |
| 5 | Bupropion Hydrochloride | 31677-93-7 | 60 |
| 6 | Capecitabine | 154361-50-9 | 36 |
| 7 | Clomifene Citrate | 50-41-9 | 120 |
| 8 | Dimethyl fumarate | 624-49-7 | 60 |
| 9 | Fluconazole | 86386-73-4 | 36 |
| 10 | Gemcitabine hydrochloride | 95058-81-4 | 18 |
| 11 | Imatinib Mesylat | 220127-57-1 | 180 |
| 12 | Letrozole | 112809-51-5 | 36 |
| 13 | Pioglitazone Hydrochloride | 112529-15-4 | 72 |
| 14 | Sildenafil Citrate | 171599-83-0 | 72 |
| 15 | Sodium picosulfate | 10040-45-6 | 72 |
| 16 | Tamoxifen Citrate | 54965-24-1 | 120 |
| 17 | Tranexamic acid | 1197-18-8 | 72 |
| 18 | Valsartan | 137862-53-4 | 120 |
| 19 | Zoledronic acid | 118072-93-8 | 18 |
| 20 | Tramadol HCL | 22204-88-2 | 84 |
| 21 | 4-(Aminomethyl) benzoic acid | 56-91-7 | 84 |
| 22 | Thiamine monophosphate | 532-40-1 | 120 |
| 23 | 1-[4-(2-(Dimethylamino)ethoxy)phenyl]-1,2-diphenylbutan-1-ol | 748-97-0 | 24 |
| 24 | 4-Hydroxybenzophenone | 1137-42-4 | 60 |
| 25 | 7-Hydroxy-3,4-dihydro-2(1H)-quinolinone | 22246-18-0 | 24 |
| 26 | 1-[4-(2-(diethylamino)ethoxy)phenyl]-1,2-diphenylethanol | 73404-00-9 | 24 |
| 27 | 4-[(4-Methylpiperazin-1-yl)methyl]benzoic acid dihydrochloride | 106261-49-8 | 60 |

| Sr. No. | Product | CAS Number | Quantity (TPA) |
|----------------|--|-------------------|-----------------------|
| 28 | 1-(2,3-dichlorophenyl) piperazine hydrochloride | 119532-26-2 | 24 |
| 29 | N-(5-Amino-2-methylphenyl)-4-(3-pyridyl)-2-pyrimidineamine | 152460-10-1 | 60 |
| 30 | 5-Fluorocytosine | 2022-85-7 | 36 |
| 31 | Imidazole-1-acetic acid | 22884-10-2 | 24 |
| 32 | Imatinib Base | 152459-95-5 | 60 |
| TOTAL | | | 2394 |

1.3 Power Requirement

For the Proposed project electricity requirement will be as below:

Installed load: 2000 KVA

Operating load: 1200 KVA

MSEDCL will supply required power for the project.

For emergency or power failure DG set of capacity 500 KVA X 1 no. will be installed and HSD will be used as fuel and its requirement for the same will be 108 lit/hr

1.4 Utility Requirement

| Sr. No | Equipment | capacity | Fuel | Fuel quantity for full Load Operation | Duty | Air Pollution Control Equipment |
|---------------|------------------|-----------------|-------------|--|-------------|--|
| 1 | Boiler | 3 TPH X 2Nos. | Coal | 14.4 TPD | Continuous | Multi cyclone followed by bag filter (30 m. combined stack for both boilers) |
| 2 | Thermopac | 2 Lac Kcal/hr | LDO | 0.57 TPD | Continuous | 30 m. stack |

1.5 Water Requirement

Total fresh water requirement for the proposed project will be 363 CMD. After recycling it will get reduced to 148 CMD. Generation of effluent form proposed activity will be 191 CMD. The unit will be run as Zero Liquid Discharge (ZLD).

Table [1.2]: Water Balance

| Particulars | Consumption (CMD) | Loss (-)/Gain (+) (CMD) | Effluent (CMD) |
|--|--------------------------|--------------------------------|-----------------------|
| Domestic | 7 | (-)1 | 6 |
| Industrial Process | 37 | (+)13 | 50 |
| vessel wash | 7 | 0.8 | 6.2 |
| Contaminated Drum Cleaning | 1 | 0 | 1 |
| Floor Washing | 2 | (-)0.2 | 1.8 |
| Cooling tower | 229 | (-) 152 | 77 |
| Boiler | 53 | (-) 4 | 49 |
| Gardening | 27 | (-) 27 | 00 |
| Total | 363 | 172 | 191 |
| Additional live Steam Condensate from MEE | -- | -- | 24 |
| Recycle from RO | 215 | -- | -- |
| Net Water requirement after Recycle | 148 | -- | -- |

2.0 Description of the Environment

Baseline environment incorporates the description of the various existing environmental settings within the area encompassed by a circle of 10 km radius around the proposed project site. Standard TOR for the project was issued by EAC, Delhi on 14th December 2018. However as per the as per OM dated 29th August 2017 baseline data were collected during January, February & March 2018 to establish baseline conditions for the EIA studies.

2.1 Base line Study

The study area is defined considering an aerial distance of 10 km from the project site. The factory area is considered core area for estimation. The remaining area from boundary of the factory to 10 km is considered as the buffer zone.

Table [1.3] illustrate Air, Water, Soil and Noise monitoring locations and specific parameters of significance. The samples were collected from various locations around the periphery of the plant. The sampling details have mentioned in the below table.

Table [1.3]: Sampling Locations

| Sr. No. | Name of Place | Air | Water | | Soil |
|---------|---------------------|-----|---------|--------|------|
| | | | Surface | Ground | |
| 1. | Project site | √ | | √ | √ |
| 2. | Bhatodi Pargaon | √ | | | |
| 3. | Dhanora | √ | | | |
| 4. | Ambewadi | √ | | √ | |
| 5. | Chincodi patil | √ | | √ | √ |
| 6. | Pimperkhed | √ | | | √ |
| 7. | Athwad | √ | | √ | √ |
| 8. | Ambhora | √ | | √ | |
| 9. | Dhanora Lake | | √ | | |
| 10. | Bhatodi lake | | √ | | |
| 11. | Jam lake | | √ | | |
| 12. | Underkhel lake | | √ | | |
| 13. | Salevadgaon lake | | √ | | |
| 14. | Athwad lake | | √ | | |
| 15. | Wagluj Village | | | √ | |
| 16. | Daulawadgaon | | | √ | |
| 17. | Salevadgaon Village | | | √ | √ |
| 18. | Nandur | | | √ | |

2.1.1 Ambient Air Quality

Ambient air was samples was collected from eight locations. The sampling was carried out at selected locations as per the CPCB guidelines.

Particulate Matter

From the study it was observed that, the PM₁₀ and PM_{2.5} concentrations in the study region is varied in the range of 20.1 – 58.6 µg/m³ and 10.5 – 38.6 µg/m³ respectively. The PM₁₀ and PM_{2.5} concentrations for all locations are well within the stipulated standards prescribed by National Ambient Air Quality Standards (NAAQS) (**24 hourly PM₁₀ = 100 µg/m³, 24 hourly PM_{2.5} = 60 µg/m³**).

Gaseous Pollutants

The concentration of SO₂ and NO_x ranges between 16.4 – 28.6 µg/m³ and NO_x – 14.8-18.8 µg/m³ respectively. Highest concentration of SO₂ & NO_x was found at Chinchodi Patil village among all the locations. The levels of the gaseous pollutants are below stipulated standards prescribed by NAAQS (**24- hourly is SO₂ & NO_x is 80 µg/m³**).

2.1.2 Noise

Noise monitoring results was found between 44.0-52.7 dB during day time and 34.5-53.4 dB during night time. It was found that the noise levels are well under the prescribed limits. The prescribed limit during day time is 75 dB and during night time it is 70 dB.

2.1.3 Water

Surface water samples were collected from 6 locations and ground water samples were collected from 9 locations.

Surface Water

From the study it is seen that the water quality of Jam lake & Athwad lake was found to be good quality. It can be said that the surface water can be classified into E category as per the Inland Surface water standards (IS2296-1982). It should be noted that the values for parameters under the E category was not observed to be exceeding. Therefore the water from the river is fit for designated use.

However it was observed that water from all other locations is contaminated with coliforms except Jam lake & E-coli except Jam lake and Athwad lake. If water is intended to use for drinking purpose primary treatment followed by disinfection is required to be done.

Ground Water

From the analysis it is found that the quality of ground water is good and can be considered fit for domestic purposes. In case the water is intended to be used for drinking purposes a basic primary treatment is advised prior to its use. The water sample after treatment is suggested to be tested and compared with the IS standards so as to ensure the quality.

2.1.4 Soil

Soil quality of proposed site of Canpex is slightly alkaline and is not suitable for germination and crop cultivation. Study shows that land cover in study area is of moderate quality.

As the land selected for location/site of chemical manufacturing unit of Canpex is located in non-MIDC area and not a prime agricultural land, quality of soil interpreted only to explore existing base line status of soil of the selected study area. Care has been taken by proponent that due to operation of the project soil quality of the study area will not get adversely affected.

2.2 Geography

The proposed site lies in the Mehekri River basin. The general topography of the area is gradually undulating to flat. It is sloping towards south. The average elevation of land surface is 700 m above the MSL. The area shows very poor vegetation and represents almost a scrubland. It is represented by some reserved forest patches.

Classification of Soil

In the district, rocky and thin layered soils are observed in major part of the district except on the banks of Godavari and Sindphana Rivers, where dark brown to black and clayey loamy to loamy soils are observed. The nutrient levels in almost all the soils are low.

2.3 Climate

The climate of Beed district is generally hot and dry, and the area receives scant rainfall. Lakes like Dhanora, Bhatodi, Jam, Underkhel, Salevadgaon & Athwad fall in the study area.

Climate classification: Project site features a semiarid climate.

Temperature: Annual maximum and minimum temperatures ranges from max. 7.6°C & min. 41.7°C with the most comfortable time to visit in the winter October to February.

Rainfall: Most of the rainfall occurs in the monsoon season from June to September. Average annual rainfall is 690 mm.

2.4 Biological Environment

In view of the need for conservation of environmental quality and biodiversity, study of biological environment is one of the most important components for environmental impact assessment.

Flora & Fauna

The plant life in an area seems to be fairly disturbed and do not show any integrity. The major conclusions are as follows.

- According to revised forest types (Champion and Seth, 1968) the study area has been classified as Southern Tropical Thorn and Scrub Forests (Group 6 subgroup 6A/C₁/DS₁). These areas are characterized by, very sparse dry thorn vegetation and scrublands.
- The conserved areas are not present within the range of the site and there were no National Park, Wildlife Sanctuary/Reserve within the 10 km radius.
- There was predominance of herbs (137; 39%) followed by trees (82; 23%), shrubs (72; 21%), grasses (30; 9%), climbers (24; 7%), and Palms (04; 1%).
- The survey also illustrates that there are no rare or threatened plant species on the proposed site. The vegetation is significantly disturbed.
- Major factors responsible for disturbance are anthropogenic activities.
- Among trees *Acacia sp*, *Balanites aegyptiaca*, *Azadirachta indica*, *Capparis decidua*, and *Albizia procera* are the common. The *Cassia auriculata*, *Calotropis procera* and *Lantana camara* are most common among the shrubs.
- Total numbers of plant species recorded are 349.
- Birds represent dominant group among the faunal composition.
- Out of 13 species of mammals, Blackbuck and Chinkara fall in schedule-I and Indian fox in Schedule-II of Wildlife Protection Act 1972; however, the occurrence of these species was very occasional.

2.5 Socio-Economic

Demographic Distribution

The company is located in Ashti Block of Beed district. However Ambhora being the last village in Ashti Block; there is high influence of adjoining Ahmednagar block and District on the surrounding villages. Ahmednagar is more accessible than Beed for the villagers of Ambhora. Thus it would be worthwhile to study the profile of both Beed and Ahmednagar districts.

The significant statistics mentioned in the census data about Beed district and the changes over the last decade are presented here in brief-

Vital Statistics of Beed District

| Vital Statistics | 2011 | 2001 |
|-------------------|-------------|-------------|
| Population | 25.85 Lakhs | 21.61 Lakhs |
| Actual Population | 2,585,049 | 2,161,250 |

| | | |
|---------------------------|-----------|-----------|
| Male | 1,349,106 | 1,116,356 |
| Female | 1,235,943 | 1,044,894 |
| Population Growth | 19.61% | 18.61% |
| Sex Ratio (Per 1000) | 916 | 936 |
| Child Sex Ratio (0-6 Age) | 807 | 894 |
| Average Literacy | 76.99 | 67.99 |
| Male Literacy | 85.55 | 80.70 |
| Female Literacy | 67.82 | 54.52 |

Source: Census 2011

Over the last decade there is 19% increase in the population compared to 2001 statistics. However, the reducing sex ratio and child sex ratio is a cause of concern. The literacy rate has considerably increased in both males and females in the district.

Corporate Social Responsibility

As per Corporate Environment Responsibility (CER) Office Memorandum (F.No. 22-65/2017-IA.III) dated 1st May 2018, the company has earmarked INR ~ 0.4852 Crore. (2 % of total project cost 24.18 Crore) for undertaking the CER activities. CER activities shall be done in surrounding villages.

CER Activity

| Sr. No. | Description | Year | Budget in Rs. |
|----------------|---|-------------|----------------------|
| | Environment | | |
| 1. | Awareness creation for rainwater harvesting in nearby villages | 20-21 | 5 lakhs |
| 2 | Technical and financial assistance for building small check dams on streams/rivers, deepening of wells, cleaning of ponds in nearby villages | 21-22 | 15 lakhs |
| | Health | | |
| 3. | Provision of ambulance with basic medical facilities wherever required in the village, provision of mobile dispensary and free medicines in nearby villages | 22-23 | 18 lakhs |
| | Employability | | |
| 4. | Educational Sponsorship of 12 th grade passed students for various vocational courses | 24-25 | 10 lakhs |
| 5. | Reporting and Documentation | | 0.52 lakhs |
| | Total | | 48,52,000 |

3.0 Anticipated Environmental Impacts and Mitigation Measures

3.1 Ambient Air

3.1.1 Particulate Matter

Dust will lead to an increase in the background Suspended Particulate Matter (SPM) concentration of the area during construction, if proper control measures are not adopted. However, this will be temporary and reversible in nature and restricted to small area and for short duration. Proper upkeep and maintenance of vehicles, sprinkling of water on roads are some of the measures that would greatly reduce the impacts during the operation phase during transportation of raw and finished products.

3.1.2 Gaseous Emission

The impacts on air environment due to emission of gaseous from stacks depend on the type of fuel used and may extend to far distances depending on meteorological conditions. Emissions from the proposed unit along with anticipated amount of discharge are shown in Table 1.4.

Table [1.4]: Details of Air Pollutants

| Sr. No. | Pollutant | Source of Emission | Proposed Limit |
|----------------|------------------|--------------------------------------|-------------------------|
| 1. | SPM | Process /Boiler/ D.G. Set/ Thermopac | <150 mg/nm ³ |
| 2. | SO ₂ | Boiler/ D.G. Set/ Thermopac | <17 kg/ day |

Gaseous Emissions from Stack

Gaseous emissions are mainly from burning of LDO which is used as fuel for Thermopac of capacity 2 lac kcal/hr and burning of coal which is fuel for boiler of capacity 3 TPH X 2 nos. Consumption of fuel for Thermopac (LDO) will be 24 kg/hr. whereas for boiler (Coal) combined requirement will be 600 kg/hr. Stack height for Thermopac will be 30 m. & for both the boilers combined stack of will be 30 m each will be provided. 108 Lit/hr. Of HSD will be used to run one unit DG set of capacity 500 KVA for backup power supply during failure of power supply from MSEDCL. Stack height for DG will be 4.5 M. Process vents will be connected to scrubber.

Canpex will install a comprehensive control system consisting of control equipment's as is warranted with reference to generation of emission and operate and maintain the same continuously so as to achieve the level of pollutants to the prescribed standards.

3.2 Water Resources

The proposed project expected to consume 363 CMD of fresh water for first day after recycle it will be 148 CMD. The fresh water requirement for the said project will be accomplish by extracting ground water from Ambhora & Athwad village with permission from CGWB.

Effluents generating from industrial activity will be segregated in two streams High TDS & Low TDS. High TDS stream 50CMD (from process) will be treated in MEE along with RO reject. Condensate form MEE will be mix with the Low TDS (blow downs from cooling tower & boiler and effluent from washing activity), these combined effluent will be treated in conventional ETP consisting of Primary, Secondary (along with domestic stream), Tertiary Treatment. Tertiary treated will be passed through Reverse Osmosis (RO). RO permeate will be recycle and RO reject will be fed to Multiple Effect Evaporator (MEE) to achieve ZLD.

3.3 Noise Levels

- The noise levels will be below MPCB prescribed limits. All operating personnel are well acquainted with their respective operations and personnel protection equipment's will be provided to the operators in utility area.
- In house monitoring will be done regularly inside and outside the factory. The noise levels will always be within Maharashtra Pollution Control Board limits for industrial activity and Canpex will ensure 100% compliance record.
- Proper noise barriers, acoustic enclosures will be provided on noise generating equipment's like D G sets to minimize noise.

3.4 Soil/Land Quality

The project proponents will take all the precautions to make its solid waste areas impervious to water and leach-ate migration. This will avoid soil contamination. It follows that soil quality will not be adversely impacted by proposed production activity.

Hazardous Waste

Hazardous waste will be due to proposed manufacturing activity viz. distillation residue will be 1025 TPA, process Waste will be 385 TPA, Spent carbon from process will be 15 TPA, Spent carbon from ETP will be 150 TPA, ETP Sludge will be 795 TPA and Inorganic Salts MEE will be 4921 TPA.

As per the HW rule (M&H and Trans boundary movement) 2016, all the hazardous waste will be send to CHWTSDF for its disposal. The hazardous waste container will be labeled and record book will maintain as a safety measure and to control any leakage to soil and water. The impact on soil quality will be NIL due to disposal of hazardous waste, as they are not dumped straight into the land.

3.5 Green Belt Development

The area of green belt development within the factory premises is approximately 5429 sq. m i.e. 33.12% of the total plot area. Total 800 trees will be planted on periphery of the plot with width of minimum 12m.

4.0 Environmental Monitoring Program (EMP)

EMP is planed such that the mitigation measures should be put in place to reduce the adverse impacts likely to result from the implementation of the project. Apart from the regular monitoring, Post – Project Monitoring Plan (PPMP) is proposed to monitor the ambient environmental quality after the commissioning of the project. The frequency of monitoring of various parameters will be increased as per the requirement after the project goes on schedule.

Following program schedule has been suggested for effective monitoring of the environmental parameters:

Table [1.5]: Suggested Monitoring Program

| Sr. No. | Environmental Components | Monitoring Points/ Location | Frequency |
|----------------|---|--|------------------------------|
| 1. | Ambient Air quality | At one location within the plant premises, 3 outside the plant area at an angle 120°each, covering upwind & downwind directions. | Once in every Quarter months |
| 2. | Water (Ground Water and Surface Water) | One sample each (If available) | Once in three months |
| 3. | Waste water from all sources. | Wastewater at different stages of Effluent treatment Process, input and output effluent. | Monthly |
| 4. | Emission from stacks | At source of emission (stack from sampling port or DG set) | Quarterly |
| 5. | Noise | At compressor house, pump house and outside the Plant boundary. | Quarterly |
| 6. | Greenbelt/Vegetation | Status of Green belt development, plant growth | Monthly |
| 7. | Solid Waste | Disposal to CHWTSDF or authorized dealer/recycler with minimum period of site storage | Biweekly |
| 8. | Soil | At least two locations from area near Solid/ hazardous waste storage/ Dumping Area and one at lower contour location | Before and after monsoon |
| 9. | CO ₂ Monitoring | At one location within the plant premises | Once in every Quarter months |

5.0 Additional Studies

Risk Assessment and Disaster Management Plan

Rapid development has posed wide-ranging hazards threatening safety and health of people. Accidents may adversely affect the environment and the people living in the vicinity. These accidents can be minimized to a great extent by proper procedures, handling and training. The proposed project of Canpex is also complying statutory requirements under section 7A & B and chapter IV A of Factories Act, 1987 and manufacture, storage and import of Hazardous Chemicals Rules Under Environment (Protection) Act, 1986. Hence, the present EIA report also covered following studies. EIA report also concluded following studies.

| | |
|--|-------------------|
| Hazard Identification | Risk Assessment |
| Risk Analysis & Emergency Plan Insurance Planning | Risk Management & |
| Disaster Management Plan | Onsite Emergency |

Plan The key Focus Areas include:

- Public Concern
- Commitment & Accountability, Performance measurement
- Hazard Assessment, Engineering Practices
- Training
- Emergency preparedness & Mock-drills
- Industrial Hygiene and Occupational Health
- Reduction, evaluation, implementation & monitoring of waste and its inventory.
- Supporting others
- Ground water protection and monitoring
- Carrier safety
- Risk assessment, reduction and management
- Guidance across supply and distribution chain
- Performance appraisal of vendors & contractors
- Emphasis on safer and greener technology
- Go beyond legal compliance

The HAZOP Study carried out under batch wise modes following NODES

Table [1.6]: Hazop Study

| | |
|--------|---|
| Node 1 | Tank farm |
| Node 2 | Halogenation |
| Node 3 | Reduction |
| Node 4 | Condensation |
| Node 5 | Hydrolysis |
| Node 6 | Alkylation |
| Node 7 | ETP |
| Node 8 | Scrubber |
| Node 9 | All other unit processes and operations |

Risk mitigation measures

1. Reduction by iron acid to eliminate storage of highly flammable hydrogen used in hydrogenation process.
2. Total replacement of solvent Chloroform by solvent Ethylene di chloride.
3. By product Methyl chloride highly flammable gas generation eliminated by rectifying it to recover methanol.
4. Leak detectors and Scrubbers for Hydrogen chloride, Hydrogen Bromide, Sulfur di oxide and Ammonia
5. Dyke for accidental spill containment for above ground storage tanks
6. Containment for contaminated water generated during firefighting operations for subsequent testing and safe disposal.
7. Fire hydrant system.
8. Provide flame proof electrical in flammable solvent /gases handling area, and arrangement to avoid accumulation of static charge to dangerous level.
9. Provide Personnel Protective Equipment (PPE) especially SCBA (Self Contained Breathing Apparatus). Sets and training and Safety Shower & Eye Wash Fountains, Wind direction socks visible from all locations at site and Medical Oxygen cylinder at first aid room.
10. Storage of chemicals considering compatibility and reactivity hazards
11. Smoke detector at warehouse.
12. Chlorine storage Installation
 - a) Provide Cylinder loading/ unloading arrangement to avoid mechanical abuse of cylinders at chlorine shed.
 - b) Provide Chlorine neutralization Scrubber system. Provide Leak detector at storage, plant as well as the vent of the scrubber with signal/ Alarm at control room and Emergency Control Centre.

- c) Provide Chlorine leak control kit.
13. Provide process interlocks/ shutdown systems for reactors for critical parameters like pressure and temperature.
14. Monitor concentration of air born chemicals within the prescribed limits.
15. Provide Spark arrestor to vehicle exhaust in flammable solvent handling area, Display of class labels , Valid registration to carry the hazardous materials, PPE, First aid box, tool box, safety equipment's, antidotes as may be necessary to contain an accident , TREM card , MSDS , Training to drivers and Specify predetermined routes.
16. A practical working document DMP for site as per the format specified under "The MSIHC Rules, 1989" is prepared. Emergency organization, roles and responsibilities are detailed in the plan.

6.0 Project Benefits

Both tangible and non-tangible benefits will result from this activity. Canpex will commitment for customer satisfaction by delivering quality products and services. The site location in Beed district Maharashtra is the main benefit derived from the project. Beed district is declared as an industrially backward district of category 'B' under sub-section (5) of section 80-IB of the Income-tax rules, 1962. Hence, industrialization has its positive impact on development of backward areas through generation of employment in the company as well as opportunities for entrepreneurship and employment in ancillary industries which can be helpful for economic & social growth of that area.

7.0 Environmental Management Plan

Environmental Management Plan (EMP) includes the protection, mitigation and environmental enhancement, measures to be implemented to nullify the adverse impact on the environment.

Table [1.7]: Environment Management Plan

| Sr. No. | Particulars | Proposed Equipment , Method |
|---------|---------------------------------------|--|
| 1. | Air Pollution Control | The source of emission i.e. Flue Gas Emission is industrial Boiler, Thermopac & Process. The Fuel gas emission is released through Multi cyclone separator followed by bag filter and dispersed to atmosphere through stack having adequate stack height. Emissions from Process will be controlled by scrubbers. |
| 2. | Water Pollution Control | <ul style="list-style-type: none"> •The trade as well as domestic waste water will be treated in combined Effluent Treatment Plant. |
| 3. | Noise Pollution Control | <ul style="list-style-type: none"> • No Demolition involved. Construction for short duration and Fabrication part is more. • Acoustic enclosures to D G set as per manufacturers design. |
| 4. | Environment Monitoring and Management | <p>For the effective implementation of the EMP, an Environmental Management System (EMS) will be established at the proposed project. The EMS will include-</p> <ul style="list-style-type: none"> • An Environmental Management cell • Environmental Monitoring Program • Personnel Training • Regular Environmental Audits and Corrective Action • Documentation – Standard operating procedures • Environmental Management Plans and other records |
| 5. | Occupational Health | <p>Cleanliness of all workplaces will be emphasized upon. Sufficient and suitable lighting arrangements will be provided in all working areas.</p> <p>Effective provisions of drinking water at convenient places will be made for the work force.</p> <p>Apart from the above provisions, the health of all personnel will be consistently monitored for occupational diseases through medical checkups at regular intervals carried out by a registered medical practitioner.</p> <p>Regular Work Place monitoring will continue to take care of work environment in turn safety of persons working in it.</p> |
| 6 | Green Belt | <p>Green belt area : 5429 sq.m</p> <p>Green belt development will be done along the periphery of the plot with minimum width of 12 m</p> |
| 7 | Hazardous Waste Management | <ul style="list-style-type: none"> •Segregation category wise and disposed to CHWTSDF. •Disposal of Haz. Waste: Shall be send to CHWTSDF, •Disposal of non-hazardous Solid Waste: shall be sale to Authorized Party. |

Project Cost and Expenditure for Environmental Activities

Environmental Cost benefit Analysis produces more efficient decision by increasing monetary values of the life, health and natural resources. In order to assess the pros and cons of any particular regulatory standard for proposed activity, cost- benefit analysis seeks to translate all relevant considerations into monetary terms.

The anticipated details of capital expenditure and extrapolated values of recurring expenditure are indicated below

Table [1.7]: EMP Cost

| Sr. No. | Particulars | Capital cost (In lacs) | Recurring cost (lacs/A) |
|----------------|---|-------------------------------|--------------------------------|
| 1 | Air pollution control | | |
| | Multi cyclone Dust Collector followed by bag filter, Stack/chimneys | 40 | 1.5 |
| | Scrubbers | 10 | 0.5 |
| 2 | Water Pollution control | | |
| | ETP, MEE & RO | 760 | 1838 |
| | RWH | 10 | 0.1 |
| 3 | Noise pollution control | | |
| | Acoustic encl./ Anti vibration pads | 5.00 | 0.2 |
| 4 | Env. Monitoring and management | -- | 122 |
| 5 | Occupational health | | |
| | Medical checkup | 16 | 4.6 |
| | Health insurance policy | | |
| | Medical staff charges | | |
| | First aid facilities consumables | | |
| | In-house first aid room | | |
| | Other infrastructure and Equipment | | |
| 6 | Green belt | 2.0 | 1.0 |
| 7 | Hazardous waste storage & disposal | 10.00 | 586 |
| | Total | 853 | 2554 |

Total Cost of the project is 24.18 Cr. Out of which company has earmarked 853 lacs as capital cost & 2554 lac/Annum will be recurring cost for environment management cost.

8.0 Conclusion

The industry will manufacture API & API Intermediates Chemicals, which is in good demand for pharmaceutical industries. The rising demand for API & API Intermediates will also help to check the competition from foreign players. The finished goods will be sold in domestic market and will be exported to the Regulated International Market as per demand.

Project activity will not disturb the environmental setting because Canpex have proposed all preventive and mitigation measures required for pollution prevention. Trees will be planted and not cut down. No Rehabilitation issue is involved. There will not be problematic waste materials as all will be safely disposed.

- The proposed project will meet the growing demand of API & API intermediates.
- It will help to cut the supply of imports from foreign countries thus saving currency and at the same time will earn valuable foreign currency by export of products at lower cost to the users.
- Socio-economic benefits due to creation of direct/indirect employment. Moreover due to project other direct and indirect business will be benefited.
- No air pollution, the Flue gas emission from boiler will be left out through adequate Air Pollution Control equipment's followed by stack. The stack with adequate height as per CPCB norms will be provided.
- Industrial wastewater will be treated in ETP of sufficient capacity within the premises. The domestic wastewater generated will be treated combine in ETP.
- The noise generation will be reduced due to the measure provided in Environmental Management plan.
- The risk associated is identified by conducting risk assessment, HAZOP and recommendations of the same will be implemented. Moreover on site emergency plan will be prepared to tackle the emergency when it arises.

Canpex believes in "**Sustainable Development**" and take care that no pollutants should release in the environment from manufacturing process.