

Pre-feasibility Report of the Proposed Product Mix Change Program

Proposed New Additional Products:
DL-Lysine Acetyl Salicylate, 7-Methyl Xanthine and Bentonite

at

V.B. Medicare Pvt. Limited

Plot No. 59, 61, 62, 63, 66A and 67

SIPCOT Industrial Area, Phase II

Krishnagiri District, Hosur – 635109



Conducted by



NABET Accredited EIA Consultant Organization

Cholamandalam MS Risk Services Limited

Parry House, 4th Floor,

No:2, N.S.C Bose Road, Chennai - 600 001

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Executive summary


M/s V.B Medicare (VBM) is a formulation and food ingredient manufacturing unit setup in Phase 2, SIPCOT Industrial Area, near Hosur town in Krishnagiri district, Tamil Nadu. It mainly manufactures bulk ingredient for the nutraceutical and food market. The unit was acquired from M/s Bio-plus Life Sciences (P) Limited by VBM in year 2006. The existing facility is spread over the area of 6 Ha (60000 sq. m) comprising of plant facility of built up area 10876 m².

The existing facility is consented to produce Glucosamine Hydrochloride of 240 TPA & Trichloro Galacto Pyranosyl Fructos furanoside (TGPF) of 72 TPA with reference to vide letter F.No. J-11011/65/2013-IAII(I) dated 16th May,2015.

The unit has proposed to reduce the quantity of existing products i.e., Trichloro Galacto Pyranosyl Fructo Furanoside (TGPF) from 72 TPA to 61 TPA and Tocopheryl Polyethylene Glycol Succinate (TPGS) quantity from 72 TPA & 60 TPA. Further unit has proposed to add three products i.e DL-Lysine acetyl salicylate (6 TPA), 7-Methyl Xanthine (5 TPA) and Bentonite (12 TPA) by maintaining the same production capacity of 564 TPA which was consented as per earlier EC vide letter no. J-11011/65/2013, dated 16th May 2015. However, the water requirement, wastewater generation and Hazardous waste generation will not be increased from the earlier EC dated 2015. The same is presented in the table below table:

Summary of the Proposed Product Mix Change and Reduced Production Capacity

Product Name	EC 2008 Scenario Production (MTPA)	EC 2015 Scenario Production (MTPA)	Present proposal 2016 Scenario Capacity (MTPA)	Total Production After Implementation of proposed product mix change (MTPA)
Trichloro Galacto Pyranosyl Fructo Furanoside (TGPF)	72	72	---	61
Glucosamine Hydrochloride (GHC)	240	240	---	240
Docosahexaenoic acid (DHA)	---	180	---	180
Tocopheryl (polyethylene glycol Succinate)(TPGS)	---	72	---	60
DL-Lysine acetyl salicylate	---	---	6	6
7-methyl Xanthine	---	---	5	5
Bentonite	---	---	12	12
Total	312	564	23	564

 The Column depicts there is no change in production quantity

Details of Utilities Required for Expansion Program

Land Requirement

The Proposed facilities will be developed within the existing project site. Hence no additional land will be procured for the proposed expansion activity.

Water Requirement

It has been estimated that no **additional water would be required for producing additional three products**. At present the existing facility is consented to draw 443 m³/day of water from SIPCOT authorities and there will not be any change after the proposed product mix change program. The same consent letter issued by SIPCOT is attached as **Annexure-VI**.

Power Requirement

The total electrical demand in the existing facility is about 1000 KVA and the same is sourced from Tamilnadu State Electrical Grid. The allocated contract demand for the existing facility is 1900 KVA. Two DG sets of capacity 500KVA and 750KVA are installed at the project site. Due to power shedding in the region, about 500KVA of the power is being sourced from the captive diesel generator sets.

Cost of the Project & Schedule

The proposed three products will be manufactured within the existing facility and within the existing reactors. Since, there will be no additional reactors/ equipments will be installed there is no CAPEX involved for the proposed product mix change program.

The expansion and product mix change operations project will be completed within 2 months from the date of receipt of environmental clearance and other requisite permits.

1. Introduction

M/s V B Medicare Private Limited is operating its food ingredients manufacturing unit in Phase 2, SIPCOT Industrial Area, near Hosur town in Krishnagiri district, Tamil Nadu. The existing facility is developed in an area of 14.82 Acres (6 Hectares). Location of the existing facility in the State of Tamilnadu is shown in **Figure 1** and vicinity of the industrial area showing the location of the facility is shown in **Figure 2**. The existing facility was accorded environmental clearance by Ministry of Environment and Forests (MoEF), vide letter no. J-11011/65/2013, dated 16th May 2015 for manufacturing 72 MTPA of Trichloro Galacto Pyranosyl Fructo Furanoside (TGPF) and 240 MTPA of Glucosamine Hydrochloride (GHC) (**Annexure-VII**).

The existing facility is consented to produce Glucosamine Hydrochloride of 240 TPA & Trichloro Galacto Pyranosyl Fructos furanoside (TGPF) of 72 TPA with reference to vide letter F.No. J-11011/65/2013-IAII (I) dated 16th May,2015.

The unit has proposed to reduce the production quantity of Trichloro Galacto Pyranosyl Fructo Furanoside (TGPF) from 72 TPA to 61 TPA and Tocopheryl Polyethylene Glycol Succinate (TPGS) quantity from 72 TPA & 60 TPA. Further unit has proposed to add three products i.e DL-Lysine acetyl salicylate (6 TPA), 7-Methyl Xanthine (5 TPA) and Bentonite (12 TPA) by maintaining the same production capacity of 564 TPA which was consented as per earlier 2015 EC. However, the water, waste water, steam consumption and Hazardous waste will not be increased from the earlier EC dated 2015. The same is presented in the table below:

Table 1-1: Summary of the Proposed Product Mix Change and Reduced Production Capacity

Product Name	EC 2008 Scenario Production (MTPA)	EC 2015 Scenario Production (MTPA)	Present proposal 2016 Scenario Capacity (MTPA)	Total Production After Implementation of proposed product mix change (MTPA)
Trichloro Galacto Pyranosyl Fructo Furanoside (TGPF)	72	72	---	61
Glucosamine Hydrochloride (GHC)	240	240	---	240
Docosahexaenoic acid (DHA)	---	180	---	180
Tocopheryl Polyethylene Glycol Succinate(TPGS)	---	72	---	60
DL-Lysine acetyl salicylate	---	---	6	6
7-methyl Xanthine	---	---	5	5
Bentonite	---	---	12	12
Total	312	564	23	564

 The Column depicts there is no change in production quantity

Details of the proponents and board members of the M/s V B Medicare Private Limited are presented in the following **Table 1.2**.

Pre-feasibility Report of the Proposed Product Mix Change Program,

V.B. Medicare Pvt. Limited
 Plot No. 59, 61, 62, 63, 66A and 67
 SIPCOT Industrial Area, Phase II
 Krishnagiri District, Hosur – 635109

Table 1-2: Details of the Project Proponents

Name	Role/designation in the Company
Mr. Vasanth Kumar	Director
Mr. A.V.S. Ganesan	Director

Figure 1: Location of the V.B Medicare Private Limited Facility in the SIPCOT Industrial Area

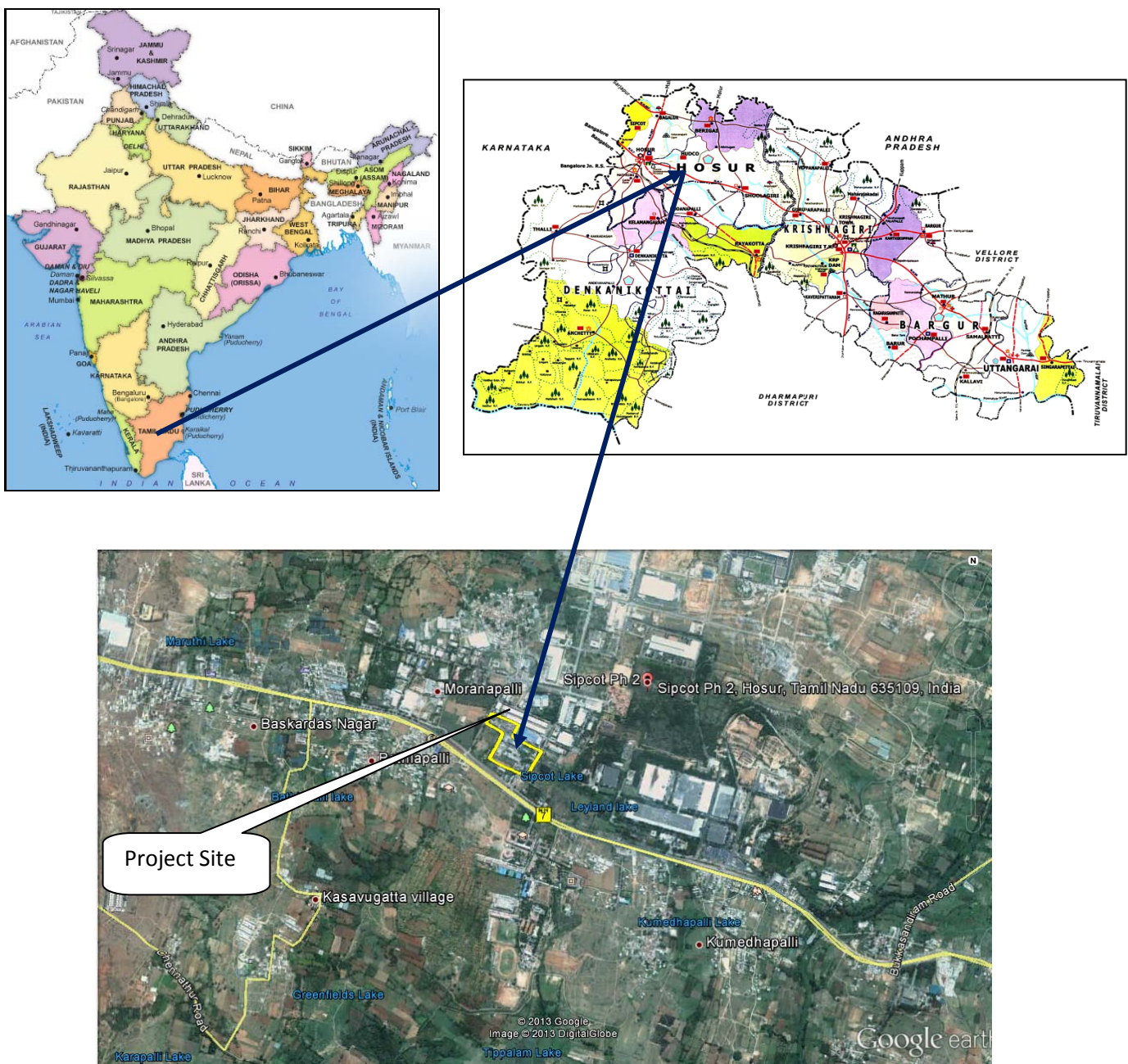


Figure 2: Vicinity Map of the Existing Facility



Project site coordinates are as follows:

A	12°43'29.3" N 77°52'5.62" E
B	12°43'26.82" N 77°52'11.18" E
C	12°43'24.71" N 77°52'10.1" E
D	12°43'22.04" N 77°52'15.35" E
E	12°43'16.69" N 77°52'12.72" E
F	12°43'20.42" N 77°52'5.19" E
G	12°43'25.05" N 77°52'7.78" E
H	12°43'27.08" N 77°52'4.38" E

M/s V B Medicare Private Limited has implemented all the required environmental and safety management programs as per the applicable standards and regulations in the existing facility. The existing facility is certified for ISO 9001:2008 quality management standards. A brief overview of the details of the existing environmental management plans implemented in the facility is presented in section 2 of this report.

2. Details of the Existing Facilities

The existing facility consists of production blocks and other supporting facilities to cater to the production needs of the plant. All the production blocks have been designed as per the applicable building codes and regulations. Typical photographs of the existing facility are shown in **Figure 3**.

3.

Total plant area	: 6 Hectares (60000 Sq.m)
[a] Built up area	: 10876 sq.m
[b] Solid waste Storage/Disposal area	: 126 sq. m
[c] Green Belt / Irrigation area	: 31000 sq.m (52% of total area)
[d] Vacant area	: 18000 sq. m

Figure 3: View of Existing Facilities of V.B Medicare Private Limited



View of the Main Entrance of the Facility



View of the Main Production Block

Typical layout of the facility is presented in **Figure 4**. The main plant facilities are supported by the following supporting and essential facilities:

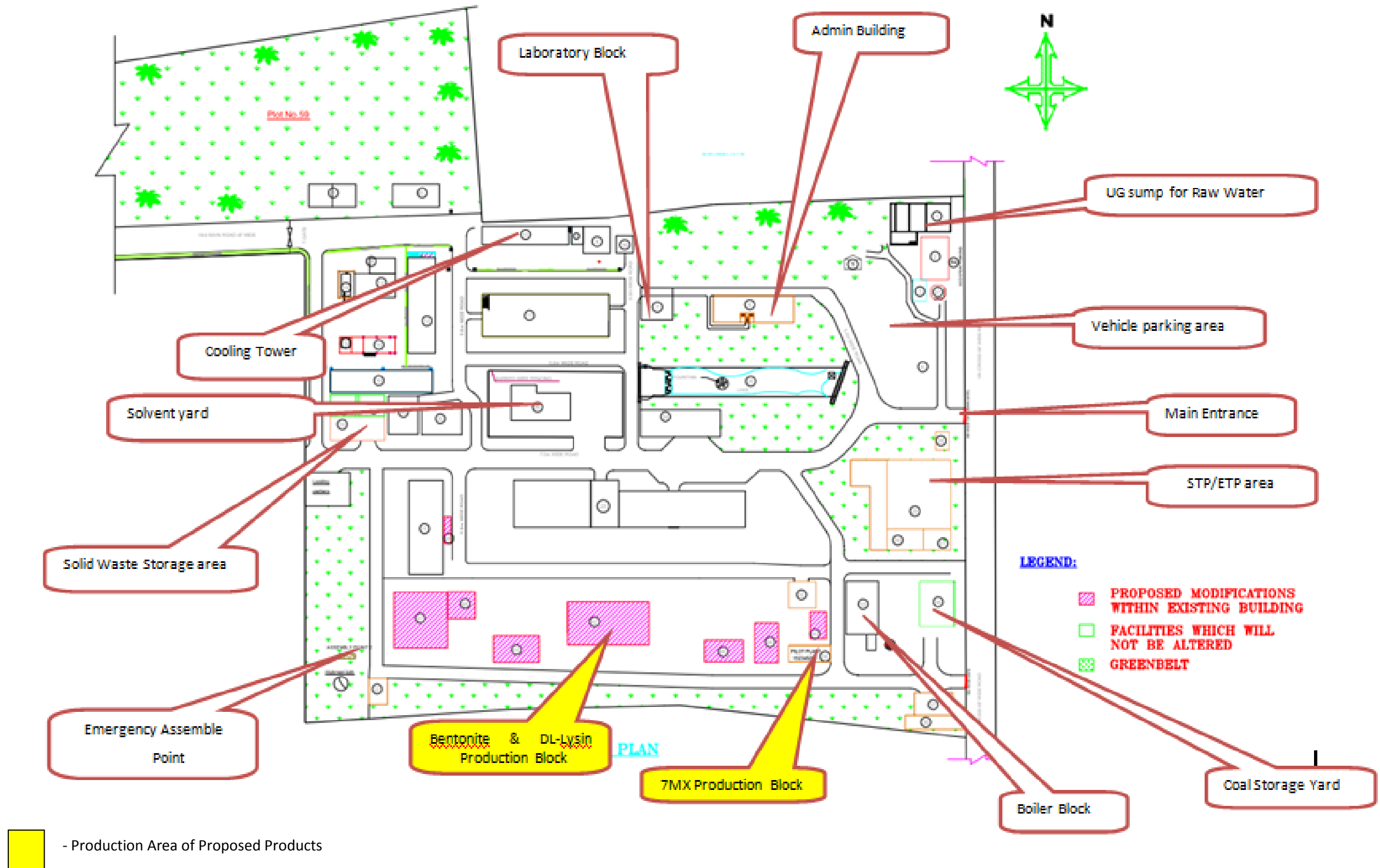
2.1 Coal Fired Boiler

- Steam generating unit (Boiler) with an installed capacity of 10 T/hr and an operating throughout of 2 T/hr is in operation. Boiler operating conditions are as follows: steam temperature - 150°C, steam pressure - 7 kg/cm² and operating steam - 3.5 to 4 kg/cm².
- Indonesian coal is being procured from the local suppliers and is used as a primary fuel in the boiler. Briquettes are also used as supplementary fuel in the boiler.
- RO water is being fed to the boiler with TDS around 60 to 80 mg/l and hardness around 0 to 5 mg/l.
- Cyclone and bag filter are installed to control the particulate matter emissions from the boiler.
- Coal is stored in covered shed in the existing facility and a dedicated coal crusher with bag filter system in operation to cater to the coal requirement of the boiler
- Water sprinkling systems are provided near the coal handling areas including transfer points.
- **There will not be any change / installation of new boiler in the facility. The existing boiler is adequate for the proposed product mix change program**

2.2 Air Compressors

Two number of 100 CFM capacity (each) reciprocating compressors are catering to the compressed air requirements in the existing plant. Compressors are placed in a closed room to ensure that the noise levels are maintained below the acceptable levels outside the compressor room.

Figure 4: Layout of the Existing Facility with Proposed Product Mix Change



2.3 Electrical Energy Demand and Captive Power Generation

The total electrical demand in the existing facility is about 1000 KVA and the same is sourced from Tamilnadu State Electrical Grid. The allocated contract demand for the existing facility is 1900 KVA. Two DG sets of capacity 500 KVA and 750 KVA are installed at the project site. Due to power shedding in the region, about 500 KVA of the power is being sourced from the captive diesel generator sets. DG set are generally operated for about 10 to 15 hours per day depending on the availability of grid power supply. DG set enclosures are designed as per the CPCB guidelines and the noise levels outside the DG set room were maintained below 70 dBA.

2.4 Solvent Storage Area

Dedicated and isolated solvent storage area is located in the existing facility. Necessary permits from Petroleum and Explosives Safety Organization (PESO) has been obtained for storage of solvents at the site with vide letter no. P/HQ/TN/15/4502(P139267), DATED 4th March 2010. Details of the storage tanks are presented in **Table 2.1**. All solvent storage tanks are above ground and horizontal type tanks with adequately designed dyke sizes. Fire hydrant lines and foam systems are made available at all the four corners of the storage area. Water sprinklers are installed as per the good engineering practices for all the storage tanks.

Table 2-1: Details of Solvent Storage Facility

Solvent/Fuel	Onsite Storage Capacity (KL)
Methanol main tank	18
Methanol day tank	18
Cyclohexane	18
Ethyl Acetate	18
Toluene	18
IsoPropyl Alcohol (IPA)	18
Diesel	18

2.5 Fire Hydrant and Fire Water Pump System

Adequately designed fire water pumps and fire hydrant systems are designed and installed as per the National Building Codes. An underground fire water tank of capacity 300m³ is located near the fire water pump room. 171m³/hr capacity electrical fire water pump, 171m³/hr capacity diesel operated pump and 10.8m³/hr capacity jockey pump are installed at the site. A central fire hydrant system is in place in the existing facility.

2.6 Water Demand in the Existing Facility

The required water for the existing facility is supplied by the SIPCOT authorities. The water required for the production of three new products will be met through SIPCOT Water supply, the facility is consented to draw 443 m³/day of water as per the SIPCOT Water Authority letter No.16606 dated 10.03.08. A reverse osmosis plant has been installed to produce good quality water for the process requirements. No additional water required for the proposed three new products. The water consumption is about 300 m³/day approximately.

2.7. Wastewater Generation, Reuse and Recycling in the Existing Facility

The existing facility is consented to generate and treat 30 m³/day of sewage, 169 m³/day of industrial wastewater. About 20m³/day of industrial wastewater generated from the existing facility and the same is treated in a dedicated three stage treatment process. ETP consists of collection tank, Clariflocculator, extended aeration biological treatment plant with secondary clarifier and dedicated reverse osmosis plant. About 12 m³/day of permeate is recovered from the plant and reused for utilities and garnering application. R.O rejects to the tune of 8 m³/day is treated in a three stage multiple effect evaporator with a dryer.

After expansion the waste water generation will not be increased and remain 125m³/day and there will be no increase after the proposed product mix change program. So, the existing ETP is adequate to treat the wastewater after proposed product mix change, further the treated wastewater will be complied with the prescribed CPCB standards.

A dedicated sewage treatment plant is in operation and the treated sewage is reused for gardening application. By implementing the above scheme, the existing facility is able to achieve zero liquid discharge operations.

2.8 Hazardous Waste Storage and Disposal

The facility is consented to dispose about 42 T/year of chemical sludge from Waste water treatment and 884 T/year of mechanical evaporator Residue as per the TNPCB vide Authorization No. 3212. After the proposed product mix change program the facility is going to generate 704 TPA of which is lesser than the consented value. Necessary membership in the Tamilnadu Waste Management Limited has been obtained. No additional waste generation due to addition of three new products.


3. Details of the Proposed Product Mix Change Program

3.1 Products Proposed to be Manufactured

No additional land or infrastructure will be required to produce additional product and all the new process equipments will be installed within the existing factory premises. The Chronology of proposed product mix operations at the existing facility along with proposed product are as follows:

Table 3-1: Summary of the Proposed Product Mix Change and Reduced Production Capacity

Product Name	EC 2008 Scenario Production (MTPA)	EC 2015 Scenario Production (MTPA)	Present proposal 2016 Scenario Capacity (MTPA)	Total Production After Implementation of proposed product mix change (MTPA)
Trichloro Galacto Pyranosyl Fructo Furanoside (TGPF)	72	72	---	61
Glucosamine Hydrochloride (GHC)	240	240	---	240
Docosahexaenoic acid (DHA)	---	180	---	180
Tocopheryl (polyethylene glycol Succinate)(TPGS)	---	72	---	60
DL-Lysine acetyl salicylate	---	---	6	6
7-methyl Xanthine	---	---	5	5
Bentonite	---	---	12	12
Total	312	564	23	564

 The Column depicts there is no change in production quantity

3.2 Need for Project

V.B. Medicare has seen the opportunity in the food ingredients segment of the industry and hence has proposed to manufacture for the said products. Omega-3 functional food market is about US \$100 million in 2002 and US \$2 billion in 2006 and by 2011 has reached about US \$7 billion. Polyunsaturated fatty acids (DHA) is used as a functional food ingredient in various food products such as Beverages, Chocolates, Cereals, Ice creams, Bakery products, yogurt and infant nutrition. Vitamin E Derivatives (TPGS etc) are used as functional food ingredients and also as emulsifiers in beverages and as a natural antioxidant.

V.B. Medicare has been looking for new projects / products for the growth of the company as it is imperative to include new products which have good potential in the market. Hence to grow as a company and also to exist in the market with relevant products in the area of Active Ingredients, following products have been proposed to be manufactured and sold by V.B. Medicare.

A) 7-Methyl Xanthine

This product is a metabolite of Caffeine which is present in Coffee and Tea leaves. The class of products is Methyl Xanthines. The applications of 7 Methyl Xanthine is as follows

- Increases energy levels & strength
- Increases mental activity and more concentration by muscle stimulation.
- Increases metabolic rate – Weight loss.

VB Medicare will actively promote 7 MX for treatment of myopia Eye treatment and Sports Nutrition.

B) DL – Lysine Acetylsalicylate

DL-Lysine Acetylsalicylate is a part of the non-steroidal anti-inflammatory drugs (NSAIDs) group. It is water soluble and, the compound is also an analgesic, antipyretic and anti-inflammatory. The main applications of DL-Lysine Acetyl Salicylate are

- Water soluble, injectable aspirin derivative for inhibiting cancer
- Analgesic; antipyretic; anti-inflammatory.
- Antirheumatic for treating arthritis, neuralgia and myalgia

C) Bentonite

Bentonite is a natural silicate of aluminium and magnesium. Originate from the meteoric or hydrothermal degradation of feldspars, or other minerals. They are mostly found in massive rocky masses. Due to their properties, they exhibit high chemical inertness, high adsorption capacity, high internal surface area and high cations exchange capacity. Its applications is mainly in the area of gastrointestinal diseases. Some of the applications are

- Skin ailments
- Pharmaceutic aid
- Antacid
- Astringent agent
- Antidiarrheal agent: Intestinal adsorbent
- Protectant of gastrointestinal mucosa

3.3 Production Units

As discussed in the previous sections, no additional infrastructure would be required for the manufacture of the proposed products. The following existing facilities will be used for the manufacture of the proposed products:

- SS Reactors ranging from 500 L – 9.0 KL
- Glass Lined Reactors ranging from 1.0 KL to 8.0 KL

- Continuous Distillation Set up to handle up to 2 KL / hr feed rate
- Filtration systems such as Nutsch Filter, Agitated Nutsch Filter, Leaf Filter, Sparkler filter, Centrifuges & Bag Filters
- Milling equipments such as Air Jet Mill and Multi mills
- Drying equipments such as Tray Driers, Fluidized Bed Drier

3.4 Process Description

An overview of the manufacturing process and typical material balance diagrams are presented hereunder.

3.4.1 DL-Lysine Acetyl Salicylate- Process Description

The manufacture of DL-Lysine Acetyl Salicylate involves the following 4 stages.

STAGE-I (Dissolution)

Water is first charged into reactor. Then Glycine is charged. Stirred to dissolve. Then DL-Lysine will be added and stirred. Heat to 40°C and maintain for one hour to dissolve DL-Lysine. Further on dissolution activated charcoal is added and temperature is maintained for 1.5 hr

STAGE-II (Charcolization)

Further on dissolution activated charcoal of 7.2 Kg is added and temperature is maintained for 1.5 hr. Filtered through hyflo bed followed by 1 micron filter, then water wash is given. Filtered through hyflo bed followed by 1 micron filter, then water wash is given. pH of 5-6 is maintained for solid disposal.

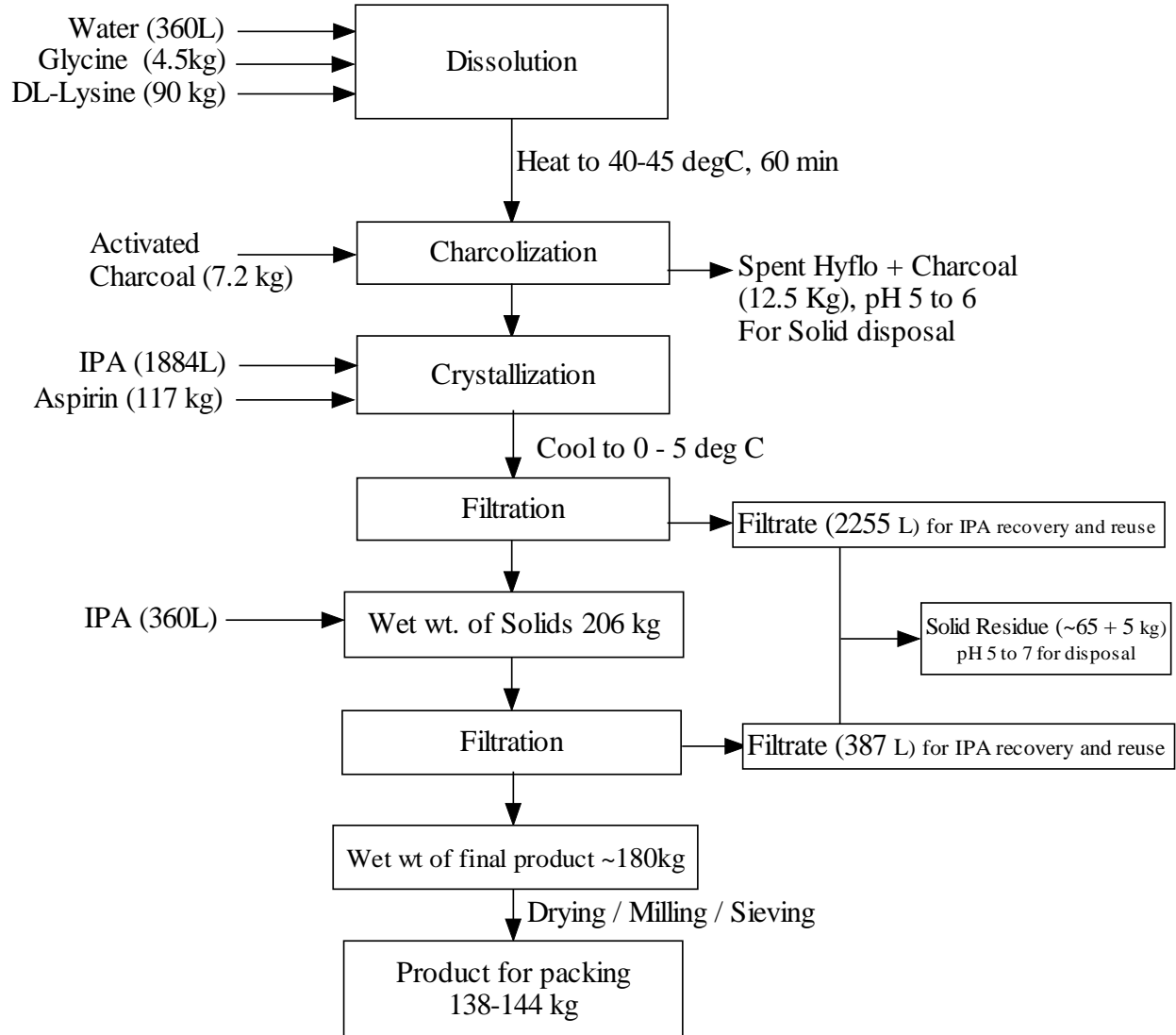
STAGE-III (Crystallization)

In this stage 234 L of Isopropyl alcohol (IPA) is charged followed by 117.0 Kg of Aspirin. Mass is stirred to form a suspension. The above prepared DL-Lysine solution is added slowly. The reaction mass is stirred at room temperature. Then 1650 L of isopropyl alcohol is added and then the crystallization starts.

STAGE-IV (Filtration)

The reaction mass is stirred and external cooling is given to attain 0-5°C. The reaction mass temperature is maintained for temperature of 0-5°C overnight. The separate solid is taken back into the reactor; to this 360 L of pre-chilled (0-5°C) isopropyl alcohol is added and stirred. Then filtered, and dried at 30-35 °C under vacuum. The solids, final product is unloaded, sieved and packed. Then the sample is submitted for complete analysis.

Figure 5: DL-Lysine acetyl salicylate- Typical Material Balance



3.4.2 Bentonite – Process Description

The manufacture of Bentonite involves the 4 stages. The following process description is given

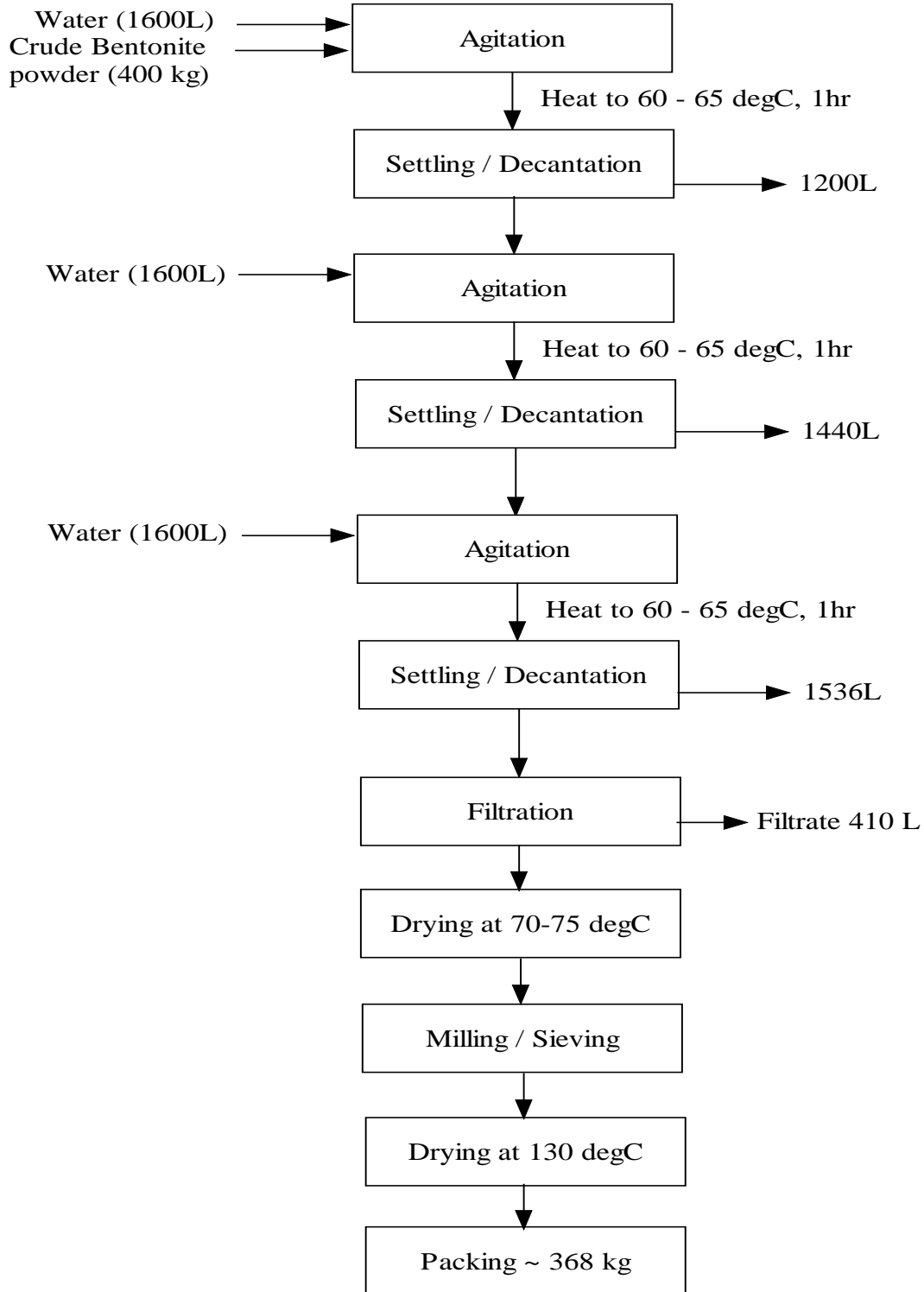
Crude Bentonite powder of 400 Kg is taken in 1600L of water. Mass is heated to 60-65°C, and is stirred continuously.

In the second stage, to the settled solids, 1600 L of water is added and heated to 60-65°C, and similar to the first stage it is stirred continuously.

In the third stage again 1600 L of water is added and heated to 60-65°C, and similar to the second stage and it is stirred continuously.

The temperature is maintained for 2 hr and it is allowed to attain room temperature and kept for settling overnight. The supernatant is decanted and the solids (slurry) are filtered. The solid is crushed and milled. After crushing and milling the sample is given for analysis and product is packed.

Figure 6: Bentonite- Typical Material Balance



3.4.3 7-Methyl Xanthine – Process Description

The manufacture of 7-Methyl Xanthine involves the following 4 stages.

STAGE-I (Partial Demethylation)

Charge POCl_3 and the bromine into the reactor. The speed of the stirrer was adjusted to 38-45 RPM. The temperature was raised to 103-110°C and maintained for 24 hrs. After completion of 24 hrs, heating was stopped and the reaction mass was allowed to cool room temperature 25-30°C.

STAGE-II (Chlorination to get 2,6- Dichloro 7- Methyl Xanthine)

To the above reaction mass add PCl_5 and again heated to 104-110°C for 48 hr. Further POCl_3 distillation (70-75% POCl_3 distilled of initial volume). Filtered the mass and wash with cyclohexane. The solid residue was washed with water and filtered. Weigh the solid wet quantity.

STAGE-III (Hydrolysis of 2, 6-dichloro 7-Methyl Xanthine)

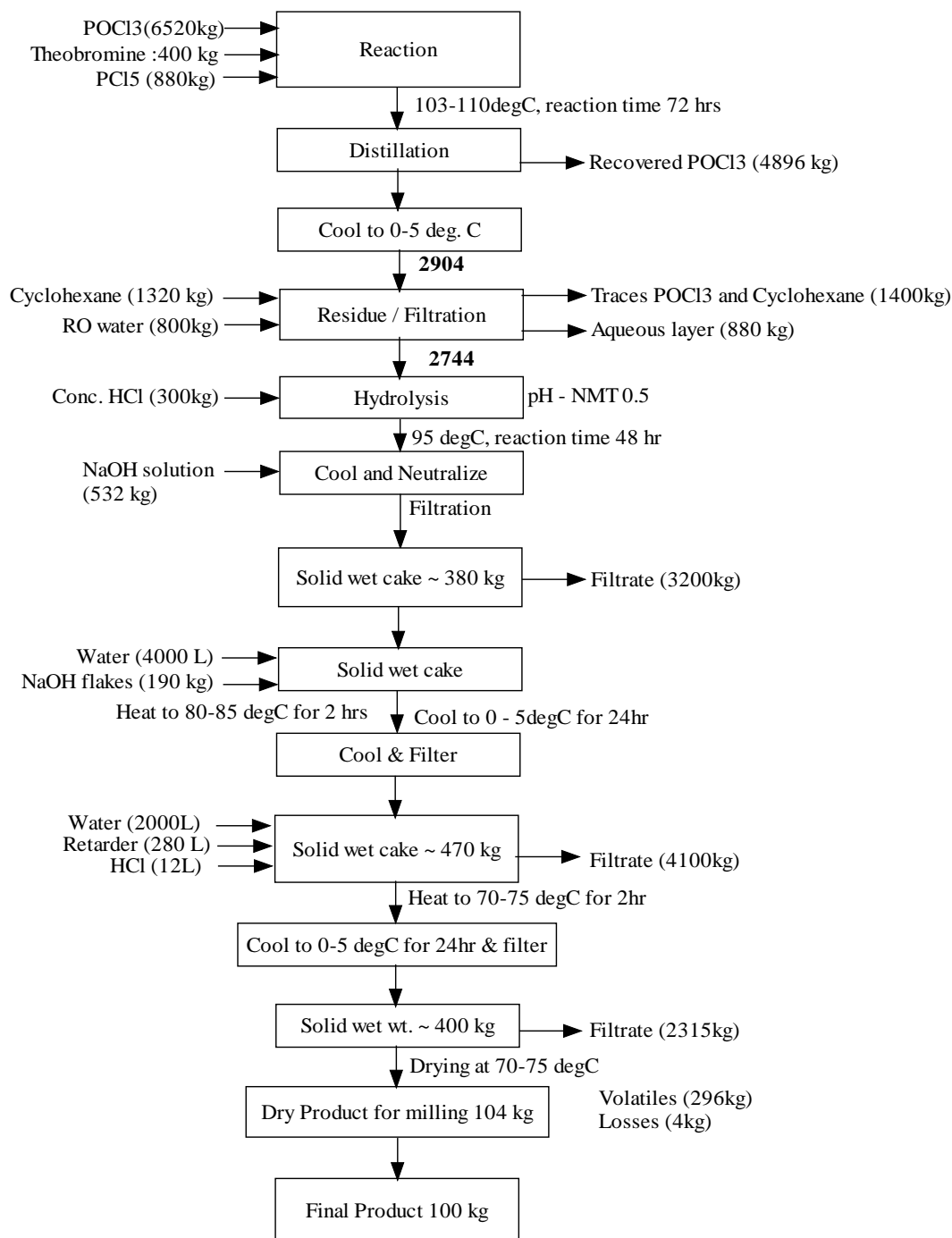
The solid was transfer to glass line reactor and water is charged. Later hydrochloric acid was added. Mass temperature raised to 70-75°C. After Complete dissolution of solid, pH of the reaction mixture was adjusted to 0.3 to 0.4 and heating continued upto 95°C and maintained at the same temperature for 48 hrs. The reaction mass cooled to room temperature and it is neutralized with 30% aqueous NaOH solution to pH 7-7.5. The residue was washed with 10-20°C, chilled water. Weigh the crude product.

STAGE-IV (Purification of 7-Methyl Xanthine)

Take crude 7-Methyl Xanthine and add required water and caustic solution and heat the reaction mass to 80°C for 2 hr. Mass should be clear solution. If not, continue heating for another 1 hr. Cool the reaction mass to 0-5°C for 72 hr and filter the mass. Wash cake with chilled water. Take again the crude in reactor. Charge water and ethanol with respect to crude. The reaction mass is heated to 70°C for two hrs. Cool the reaction mass to 0-5°C

for 24 hrs. Filter the mass, wash twice with chilled water and dry the product. The product is sent for weighing the for packing.

Figure 7: 7-Methyl Xanthine – Typical Material Balance



The brief description of the details consented for the the year 2008, 2015 & proposed 2016 scenario is described in **Table 3.2** below.

The unit has proposed to reduce the production quantity of Trichloro Galacto Pyranosyl Fructo Furanoside (TGPF) from 72 TPA to 61 TPA and Tocopheryl Polyethylene Glycol Succinate (TPGS) quantity from 72 TPA & 60 TPA. Further unit has proposed to add three products i.e DL-Lysine acetyl salicylate (6 TPA), 7-Methyl Xanthine (5 TPA) and Bentonite (12 TPA) by maintaining the same production capacity of 564 TPA which was consented as per earlier EC vide letter no. J-11011/65/2013, dated 16th May 2015. However, the water, wastewater, steam consumption and Hazardous waste will not be increased from the earlier EC dated 2015. The same is presented in the table below:

Table 3-2: Features Showing the EC 2008 Scenario

Product	Annual Production capacity – TPA	Rated monthly production capacity –Tons	Steam requirement –	Coal consumption for boiler	Water consumption	Wastewater generation	Total solvent consumption on Lts/day	Hazardous waste generation Kg/day
			T/day	T/day	m ³ /day	m ³ /day		
EC 2008 scenario								
GHC	240	20	12	2	36	20	25.6	116
TGPF	72	6	30	5	372	149	950	2100
MEE	-	-	40	7	-	-	-	-
Total	312	26	82	14	408	169	975.6	2216

Features Showing the EC 2015 Scenario

Product	Annual Production capacity – TPA	Rated monthly production capacity –Tons	Steam requirement –	Coal consumption for boiler	Water consumption	Wastewater generation	Total solvent consumption on Lts/day	Hazardous waste generation Kg/day
			T/day	T/day	m ³ /day	m ³ /day		
EC 2015 scenario								
GHC	240	20	12	2	36	20	25.6	116
TGPF	72	6	Not required	Not required	0.2	0.06	Not required	6
DHA	180	15	34.4	6	259	101	1668	1745
TPGS	72	6	6	1	4	4	200	62
MEE	-	-	20	3.5	-	-	-	-
Total	564	47	72.4	12.5	299.2	125.06	1893.6	1929

Pre-feasibility Report of the Proposed Product Mix Change Program, (Proposed Additional new products: DL-Lysine acetyl salicylate, 7-methyl Xanthine and Bentonite)

V.B. Medicare Pvt. Limited
Plot No. 59, 61, 62, 63, 66A and 67
SIPCOT Industrial Area, Phase II
Krishnagiri District, Hosur – 635109

Features Showing Current proposal (2016 TOR Application)

Product	Annual Production capacity – TPA	Rated monthly production capacity –Tons	Steam requirement –	Coal consumption for boiler	Water consumption	Wastewater generation	Total solvent consumption on Lts/day	Hazardous waste generation Kg/day
			T/day	T/day	m ³ /day	m ³ /day		
Current proposal (2016 TOR Application)								
GHC	240	20	12	2	36	20	25.6	116
DHA	180	15	34.4	6	259	101	1668	1745
TGPF	61	5	Not required	Not required	0.2	0.04	Nil	5
TPGS	60	5	4.5	0.72	3	3	166	50
DL-Lysine acetyl salicylate	6	0.5	0.2	0.04	0.043	0.012	13	9.13
7-methyl Xanthine	5	0.41	0.9	0.17	0.91	1.40	12	3.73
Bentonite	12	1	0.4	0.07	0.45	0.056	Not required	Nil
MEE	-	-	20	3.5	-	-	-	-
Total	564	46.91	72.4	12.5	299.55	125.51	1884.6	1928.87

3.5 Water Requirement for Proposed Product Mix Change

Water required for the proposed product mix change operations will be sourced from the existing water allocation from the SIPCOT authorities. Total water demand after product mix change will be in the order of 300 m³/day, which is well below the consented water consumption level of 443 m³/day. Therefore the existing water collection and pre-treatment facilities are adequate to meet the future demands. No additional manpower would be required for the proposed operations and hence the water demand for domestic and sanitation activities will remain well within the current consumption level of 25 to 30 m³/day.

3.6 Wastewater Generation from the Proposed Product Mix Facility

The facility is already implementing the ZLD in the existing facility. ETP-1 treats the low TDS effluent and ETP-2 treats the high TDS effluent. At present the waste water generation is to the tune of 125m³/day and there will be no increase after the proposed product mix change program. **The waste generation will not be increased due to proposed product mix change program.** So, the existing ETP is adequate to treat the wastewater after proposed product mix change, further the treated wastewater will be complied with the prescribed CPCB standards.

3.7 Electrical Energy Demand for the Proposed Product Mix Change Operations

No additional Power required for manufacturing of additional the three new products. It is to be noted that the unit has not initiated the production of two products which was permitted as per earlier Environmental Clearance obtained.

3.8 Project Cost and Project Schedules

The proposed three products will be manufactured within the existing facility and within the existing reactors. Since, there will be no additional reactors/ equipments will be installed there is no CAPEX involved for the proposed product mix change program.

The expansion and product mix change operations project will be completed within 2 months from the date of receipt of environmental clearance and other requisite permits.

4. Conclusions

1. The unit has proposed to reduce the quantity of existing products i.e., Trichloro Galacto Pyranosyl Fructo Furanoside (TGPF) from 72 TPA to 61 TPA and Tocopheryl Polyethylene Glycol Succinate (TPGS) quantity from 72 TPA & 60 TPA.
2. The unit has proposed to add three new products i.e DL-Lysine acetyl salicylate (6 TPA), 7-Methyl Xanthine (5 TPA) and Bentonite (12 TPA) by maintaining the same production capacity of 564 TPA which was consented as per earlier EC vide letter no. J-11011/65/2013, dated 16th May 2015.
3. This project will have beneficial effects in terms of growth and development of the regional economy.
4. Air Emission control measures like Wet scrubber, Bag filter are provided in stacks to minimise the environmental impact.
5. No additional land, building or infrastructures including reactors, equipments will be required for the proposed Product mix program.

**Environmental Management Plan
VB Medicare, Hosur, Tamil Nadu**

Environmental Management Plan Report for the Proposed Product Mix Change Program

Proposed Additional New Products

DL-Lysine Acetyl Salicylate, 7-Methyl Xanthine and Bentonite

At



VB MEDICARE

V.B. Medicare Pvt. Limited

Plot No. 59, 61, 62, 63, 66A and 67

SIPCOT Industrial Area, Phase II

Krishnagiri District, Hosur, Tamil Nadu – 635109

EIA Consultant



NABET Accredited EIA Consultant Organization

Cholamandalam MS Risk Services Limited

Parry House, 4th Floor,

No:2, N.S.C Bose Road, Chennai - 600 001

June, 2016

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1. Executive summary

M/s V.B Medicare is an existing unit carrying out formulation and food ingredient manufacturing unit setup in Phase 2, SIPCOT Industrial Area, near Hosur town in Krishnagiri district, Tamil Nadu. It mainly manufactures bulk ingredient for the nutraceutical's and food market. The unit was acquired from M/s Bio-plus Life Sciences (P) Limited by VBM in year 2006. The existing facility is spread over the area of 6 Ha (60000 sq. m) comprising of plant facility of built up area 10876m².

The existing facility is permitted to produce Glucosamine Hydrochloride of 240 TPA & Trichloro Galacto Pyranosyl Fructo furanoside (TGPF) of 72 TPA vide Environmental Clearance letter No. J-11011/65/2013-IAII(I) dated 16th May 2015, MoEF.

Despite EC obtained for production of Docosahexaenoic Acid (DHA) & Tocopheryl polyethylene glycol Succinate (TPGS), the unit has not initiated any activity for manufacturing these products due to market condition.

The unit has proposed to reduce the production quantity of Trichloro Galacto Pyranosyl Fructo Furanoside (TGPF) from 72 TPA to 61 TPA and Tocopheryl Polyethylene Glycol Succinate (TPGS) quantity from 72 TPA & 60 TPA. Further unit has proposed to add three new products i.e DL-Lysine acetyl salicylate (6 TPA), 7-Methyl Xanthine (5 TPA) and Bentonite (12 TPA) by maintaining the same production capacity of 564 TPA which was consented as per earlier EC vide letter no. J-11011/65/2013, dated 16th May 2015. However, the water consumption, wastewater generation, and Hazardous waste generation will not be increased from the earlier EC dated 2015. The proposed product activity is presented in **Table 1**.



Table 1: Product Mix Change Program Production Activity

Product Name	EC 2008 Scenario Production (MTPA)	EC 2015 Scenario Production (MTPA)	Present proposal 2016 Scenario Capacity (MTPA)	Total Production After Implementation of proposed product mix change (MTPA)
Trichloro Galacto Pyranosyl Fructo Furanoside (TGPF)	72	72	---	61
Glucosamine Hydrochloride (GHC)	240	240	---	240
Docosahexaenoic acid (DHA)	---	180	---	180
Tocopheryl (polyethylene glycol Succinate)(TPGS)	---	72	---	60
DL-Lysine acetyl salicylate	---	---	6	6
7-methyl Xanthine	---	---	5	5
Bentonite	---	---	12	12
Total	312	564	23	564

 The Column presents the depicts there is no change in production

1.2 Details of Utilities Required for Proposed product mix change program

1.2.1 Land Requirement

The Proposed new products will be manufactured within the existing project site. Hence no additional land will be required.

1.2.2 Water Requirement

Water required for manufacturing of the three new products proposed, will be met from existing permitted quantity of 443m³/day as mentioned in the SIPCOT Vide Letter no. 16606 dated 10th March 2008. Hence no additional water required for the proposed products.

1.2.3 Power Requirement

V.B Medicare has power supply agreement with Tamil Nadu Generation and Distribution Corporation Ltd (TANGEDCO) to supply 1600 KVA. In order to meet power requirements due to grid supply shut down, one 500 KVA DG set and one 1500 KVA DG sets are in place at the existing facility. No additional Power required for manufacturing of the three new products. It is to be noted that the unit has not initiated the production of two products which was permitted as per earlier Environmental Clearance obtained.

1.2.4 Cost of the Project & Schedule

The proposed three products will be manufactured within the existing facility and existing reactors and there will be no new reactors/ heavy equipments will be installed. Hence there is no project cost (CAPEX) is envisaged/ involved. However there will be operational cost (OPEX) involved for raw materials and solvents.

2. Introduction

2.1. Overview

M/s. V B Medicare Private Limited (VBM) is operating its formulation unit and food ingredients manufacturing unit in Phase 2, SIPCOT Industrial Area, near Hosur town in Krishnagiri district, Tamil Nadu. It manufactures bulk ingredients for the nutraceutical and food markets. The unit was acquired from M/s. Bio-plus Life Sciences (P) Limited by VBM in year 2006.

The existing facility is developed in an area of 6 Hectares. Location of the existing facility in the State of Tamil Nadu is shown in **Figure 2.1** and vicinity of the industrial area showing the location of the facility is shown in **Figure 2.2**. The study area is covered in the Survey of India Top sheet No. 57 H/10 and 57 H/14. The map of Study area – covering 10 km from the project site is shown in **Figure 2.3**. The details of environmental setting of the site are given in **Table 2.2**. The photographs showing the existing plant are depicted in **Figure 2.4**.

Further the unit has proposed to reduce the production of Trichloro Galacto Pyranosyl Fructo Furanoside (TGPF) and Tocopheryl (polyethylene glycol Succinate (TPGS) and proposed to add three new products namely i.e DL-Lysine Acetyl Salicylate (6 TPA), 7-Methyl Xanthine (5 TPA) and Bentonite (12 TPA). However, there will be no change in the consumption of water, steam and other utilities. The wastewater and hazardous waste generation will not be increased and will be maintained as per the earlier 2015 EC scenario. The proposed product mix change activity is presented in **Table 2.1**.

Table 2-1: Product Mix Change Program Production Activity

Product Name	EC 2008 Scenario Production (MTPA)	EC 2015 Scenario Production (MTPA)	Present proposal 2016 Scenario Capacity (MTPA)	Total Production After Implementation of proposed product mix change (MTPA)
Trichloro Galacto Pyranosyl Fructo Furanoside (TGPF)	72	72	---	61
Glucosamine Hydrochloride (GHC)	240	240	---	240
Docosahexaenoic acid (DHA)	---	180	---	180
Tocopheryl (polyethylene glycol Succinate)(TPGS)	---	72	---	60
DL-Lysine acetyl salicylate	---	---	6	6
7-methyl Xanthine	---	---	5	5
Bentonite	---	---	12	12
Total	312	564	23	564

 The Column presents the depicts there is no change in production

Table 2-2: Environmental Setting of the Site

S. No.	Particulars	Details
1.	Project Location	Mornapalli village, Hosur Tehsil, Krishnagiri District, Tamil Nadu State
2.	Latitude/Longitude	From 12°43'29.3" N 77°52'5.62" E to 12°43'16.69" N 77°52'12.72" E
3.	Location covered in Toposheet	Toposheet No. 57 H/10 and 57 H/14
4.	Climatic Conditions	Based on IMD – Bangalore (A) (Annual): Mean Maximum Temperature : 29.4 °C Mean Minimum Temperature : 18.2 °C Maximum Relative Humidity : 82 % Minimum Relative Humidity : 53 % Mean Wind Speed : 9.2 km/hr Predominant wind Direction : E, NE, SE Rainfall : 880.9 mm/year
5.	Site elevation above mean sea level	846 m



S. No.	Particulars	Details																																				
6.	Land use at the proposed project site	Industrial use zone (As per Planning Authority)																																				
7.	Site topography	Plain																																				
8.	Nearest roadway	NH-7, 0.25 km, Southern side																																				
9.	Nearest Railway Station	Hosur R.S, 5.5 km, Western side																																				
10.	Nearest Airport	Bengaluru International Airport, 55 km, North Western side																																				
11.	Nearest village/major town	Nearest Village: Mornapalli, 0.5 km, North West direction Major Towns: Hosur, 4 km North West direction																																				
12.	Hills/valleys	None within 10 km radius																																				
13.	Ecologically sensitive zone	No national parks or wild life sanctuaries within the study area of 10 km.																																				
14.	Nearest Reserved/Protected forests	<ul style="list-style-type: none"> Sanamavu Reserved Forest – 2.75 km, SE Reserved Forest near Ramasandiram village – 5 km, NE Reserved Forest near Ungatti Village – 7.5 km, NE 																																				
15.	Historical/tourist places	None within 10 km radius of the project site.																																				
16.	Nearest Industries	<p>List Industries within 10 km Study area:</p> <table border="1"> <thead> <tr> <th>S.No.</th> <th>Name of Industry</th> <th>Direction</th> <th>Distance, km</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Ashok Leyland Phase II</td> <td>E</td> <td>0.7</td> </tr> <tr> <td>2.</td> <td>TVS Motor Company Ltd.</td> <td>W</td> <td>8.7</td> </tr> <tr> <td>3.</td> <td>Gabriel India</td> <td>N</td> <td>Adjacent</td> </tr> <tr> <td>4.</td> <td>South India Tiles Factory</td> <td>SW</td> <td>2.7</td> </tr> <tr> <td>5.</td> <td>India Pistons</td> <td>NW</td> <td>Adjacent</td> </tr> <tr> <td>6.</td> <td>PM Granites</td> <td>N</td> <td>0.7</td> </tr> <tr> <td>7.</td> <td>Maruthi Sundew</td> <td>NE</td> <td>3.3</td> </tr> <tr> <td>8.</td> <td>Bi metal Bearing</td> <td>SE</td> <td>2.3</td> </tr> </tbody> </table>	S.No.	Name of Industry	Direction	Distance, km	1.	Ashok Leyland Phase II	E	0.7	2.	TVS Motor Company Ltd.	W	8.7	3.	Gabriel India	N	Adjacent	4.	South India Tiles Factory	SW	2.7	5.	India Pistons	NW	Adjacent	6.	PM Granites	N	0.7	7.	Maruthi Sundew	NE	3.3	8.	Bi metal Bearing	SE	2.3
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7.	Maruthi Sundew	NE	3.3																																			
8.	Bi metal Bearing	SE	2.3																																			



S. No.	Particulars	Details			
			Company		
		9.	Venkraft Paper Mill	SE	6
		10.	Hostia Industrial Estate	S	6.5
		11.	Avtec	SW	9
		12.	Hosur IT Park SEZ	NW	3.9
		13.	Ashok Leyland Factory Phase I	NW	9.8
		14.	SIPCOT Phase I	NW	8.6
		15.	SIDCO Industrial Estate	NW	9.5
17.	Critically Polluted area as per MoEF notification	None within the study area of 10 km			
18.	Nearest water bodies/ Reservoirs	Ponnaiyar River, 3 km South East direction			
19.	Seismic zone	<i>Zone II as per IS1893 (Part1) : 2002</i>			

Figure 2-1: Location of Existing Facility

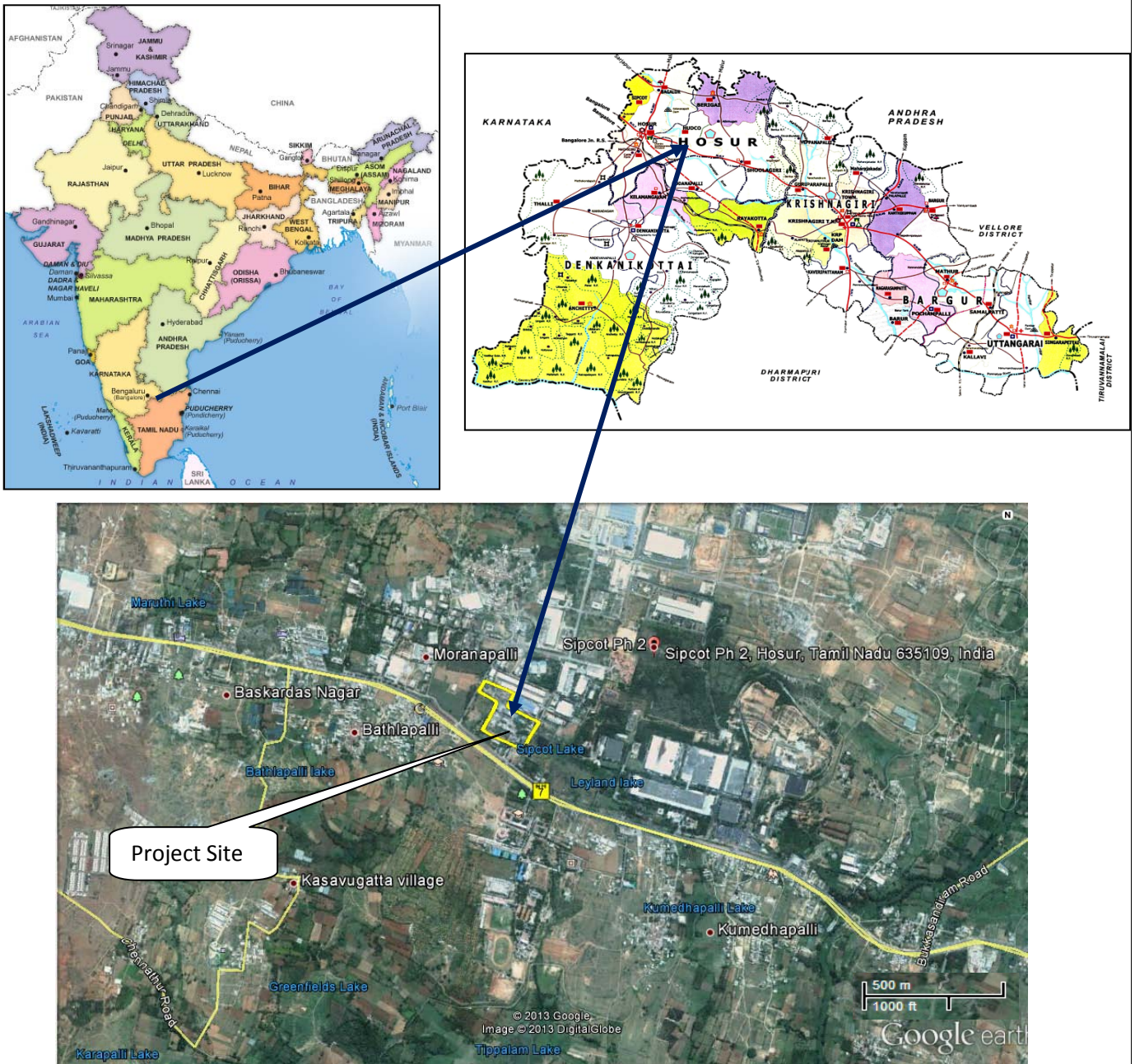


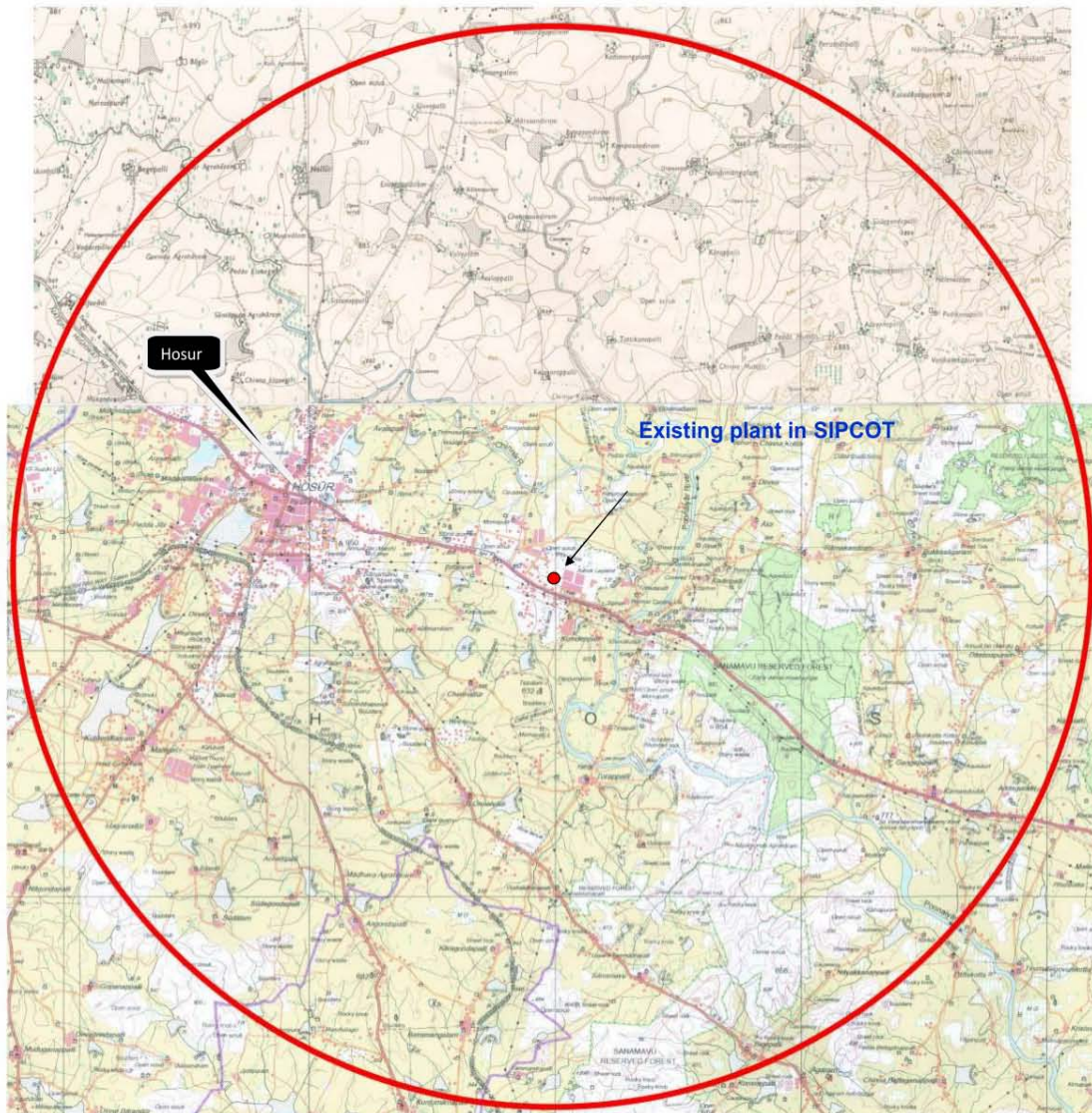
Figure 2-2: Vicinity Map of the Existing Facility



Project site coordinates are as follows:

A	12°43'29.3" N 77°52'5.62" E
B	12°43'26.82" N 77°52'11.18" E
C	12°43'24.71" N 77°52'10.1" E
D	12°43'22.04" N 77°52'15.35" E
E	12°43'16.69" N 77°52'12.72" E
F	12°43'20.42" N 77°52'5.19" E
G	12°43'25.05" N 77°52'7.78" E
H	12°43'27.08" N 77°52'4.38" E

Figure 2-3: Top sheet showing Study Area of 10 km from the Project Site



Legend

Roads, metalled: according to importance: distance stone	20	Towns or Villages: inhabited; deserted. Fort	20
.. unmetalled: do	do	bridge	20
Care-track. Pack-track and pass. Foot-path with bridge	do	Huts: permanent; temporary. Tower. Antiquities	do
Bridges: with piers: without. Causeway. Ford or Ferry	do	Temple. Chhatra. Church. Mosque. Idgah. Tomb. Graves	do
Streams: with track in bed. undefined. Canal	do	Lighthouse. Lightship. Buoys: lighted; unlighted. Anchorage	do
Dams: masonry or rock-filled: earthwork. Weir	do	Mine. Vine on trellis. Grass. Scrub	do
River banks: shelving: steep, 3 to 6 metres: over 6 metres	do	Palms: palmyra; other. Plantain. Conifer. Bamboo. Other trees	do
.. dry with water channel: with island & rocks. Tidal river	do	Boundary, international	do
Submerged rocks. Shoal. Swamp. Reeds	do	.. state: demarcated; undemarcated	do
Wells: lined; unlined. Tube-well. Spring. Tanks: perennial. dry	do	.. district: subdivision, tahsil or taluk; forest	do
Embankments: road or rail; tank. Broken ground	do	Boundary, village: Pillar: surveyed: unlocated	do
Railways, broad gauge: double; single with station: under constrn	do	Heights, triangulated: station; point; approximate	do
.. other gauges: do	do	Bench-mark: geodetic; tertiary; canal	do
Mineral line or tramway. Telegraph line. Cutting with tunnel	do	Post office. Telegraph office. Combined office. Police station	do
Contours with sub-features. Rocky slopes. Cliffs	do	Bungalows: d&K or travellers; inspection. Rest-house	do
Sand features: (1) bar, (2) sand-hills and dunes (surveilled), (3) shifting dunes	do	Circuit house. Camping ground. Forest: reserved; protected. CH	do
Spaced names: administrative; locality or tribal	do	.. KIKRI	do
.. NAGA	do	.. NAGA	do

1st Edition 1992

Figure 2-4: View of Existing Facilities of V.B Medicare Private Limited



Photograph showing main entrance facility



Photograph showing Main Production Block

2.2. Overview of the existing EC and Operations

The existing facility was accorded Environmental Clearance (F.No. J-11011/65/2013-IA II (I) Dated 16 May, 2015) for manufacturing 180MTPA of Docosahexaenoic Acid (DHA) and 72MTPA of Tocopheryl Polyethylene Glycol Succinate (TPGS). The copy of the Environmental Clearance is enclosed as **Annexure-I.**

3. DETAILS OF THE EXISTING FACILITY AND ENVIRONMENTAL COMPLIANCE

This section presents an overview of the existing facilities of V B Medicare Private Limited, Hosur its environmental compliance aspects and Environmental Management Program implemented in the existing facility. The existing plant is located in SIPCOT Phase II, Hosur. The plant is located at an aerial distance of 0.25 km from NH 7 which connects Bangalore and Krishnagiri. Its registered office is situated at Sathvahana Nagar, Kukatpally, Hyderabad – 500 072.

The plant has been consented to produce 240 MTPA Glucosamine Hydrochloride (GHC), 72 MTPA Trichloro Galacto Pyranosyl Furanoside (TGPF), 180MTPA of Docosahexaenoic Acid (DHA) and 72MTPA of Tocopheryl Polyethylene Glycol Succinate (TPGS) vide letter no. J-11011/65/2013-IA II(I), dated 16th May 2015 by MoEF. Air and water consents renewed valid upto 31.03.2017 by Tamil Nadu Pollution Control Board. Copy of compliance with EC and consent to operate are presented in **Annexure-II**.

3.1. Facility Layout and Land use Break-up

The existing VBM facility is spread over an area of 6 Ha (60000 sq. m) out of which 31,000 m² (52% of total land) of land was developed under plantation and green belt. The existing facility consists of three numbers of production blocks and other supporting facilities to cater to the production needs of the plant. The typical land use break-up of the existing plant is given in **Table 3.1**.

Table 3-1: Land use Pattern of the Existing Facility

S. No.	Particulars	Area (sq. m)
1	Built up area	10876
2	Solid waste storage/Disposal area	126
3	Green belt/ Irrigation area	31000
4	Vacant land	18000
Total		60000

3.2. Major Facilities Located

Details of existing supporting utilities are as follows:

- 1 x 500 KVA and 1 x 1500 KVA standby DG sets
- 10 T/hr Coal Fired Boiler
- Effluent Treatment Plant with tertiary treatment facility along with three stage Multi Effect Evaporator
- Sewage Treatment Plant
- 2 x 100 CFM reciprocating Compressors
- Covered hazardous waste storage area
- Solvent Storage Area
- Fire Hydrant Systems

3.2.1. Diesel Generator Sets

Two DG sets; 1 x 500 KVA and 1 x 1500 KVA are installed at the facility to meet the electrical energy requirements during power shut down from the grid supply. Hence, emissions from the DG set are not envisaged on a continuous basis. DG sets are operated for around 8 to 10 hours a day. The records indicate that around 2 to 2.5 units of electricity are generated per liter of diesel consumed. The DG sets are installed and operated as per CPCB guidelines. Adequately designed acoustic enclosures are placed for the DG set as per the CPCB guidelines. The stack height and the emissions are within

permissible limits as per TNPCB norms. The details of stack height and emissions are presented in **Table 3.2**. Details enclosed in **Annexure-III**.

Table 3-2: Stack Emissions of DG sets

Particulars	DG set Stack details
Stack Height	15 m
Stack Temperature	244 °C
Velocity	27.88 m/s
Discharge Rate	5567.13 Nm ³ /hr
SPM	48.53 mg/Nm ³
SO ₂	5.33 mg/Nm ³
NO _x	27.31 mg/Nm ³

Source: Test report from TNPCB, Report No.42/AAQS/SM/2012-13

3.2.2. Boiler

10 T/hr capacity coal fired boiler is available at the facility to meet the steam requirements. Steam requirement for the existing operations is 82 t/day and coal consumption is 12.5 t/day. As the facility is not producing Trichloro Galacto Pyranosyl Fructo Furanoside, hence, the steam consumption in the facility is reduced. Presently boiler is being operated at 2 t/hr at 150°C and 7 kg/cm² pressure. Purified water from Reverse Osmosis (RO) plant is being fed to the boiler with TDS around 60 to 80 mg/l and hardness around 0 to 5 mg/l. The stack of 30 m height is being attached to economizer, cyclone and bag filter before discharging into the atmosphere. The emission details are presented in **Table 3.3**.

Table 3-3: Stack Emissions of Boiler

Particulars	Boiler Stack
Stack Height	30 m
Stack Temperature	99 °C
Velocity	19.66 m/s
Discharge Rate	53911.89 Nm ³ /hr
SPM	70.47 mg/Nm ³
SO ₂	5.33 mg/Nm ³
NOx	27.31 mg/Nm ³

Source: Test report from TNPCB, Report No.42/AAQS/SM/2012-13

3.2.3. Process Emissions

The only point source emission in the existing facility is from GHC plant which releases HCl fumes. The HCl fumes are treated in wet scrubber before discharging to the atmosphere. Hence, the impact due to release of emissions is negligible.

3.2.4. Water Requirement and Wastewater Treatment

The required water for the existing facility is supplied by the SIPCOT authorities. The facility is consented to draw 443 m³/day of water as per the Environmental clearance issued by MoEF.

At present the water consumption in the existing facility is 299.2m³/day and after proposed product mix change program the water consumption will be to the tune of 299.5 approximately 300m³/day which is very marginal increase. Process effluent is treated in ETP and sewage generated from the plant is treated in Sewage Treatment Plant located within the main plant. By implementing the above scheme, the existing facility is able to achieve zero liquid discharge operations. The details of ETP and STP are described in subsequent sections.

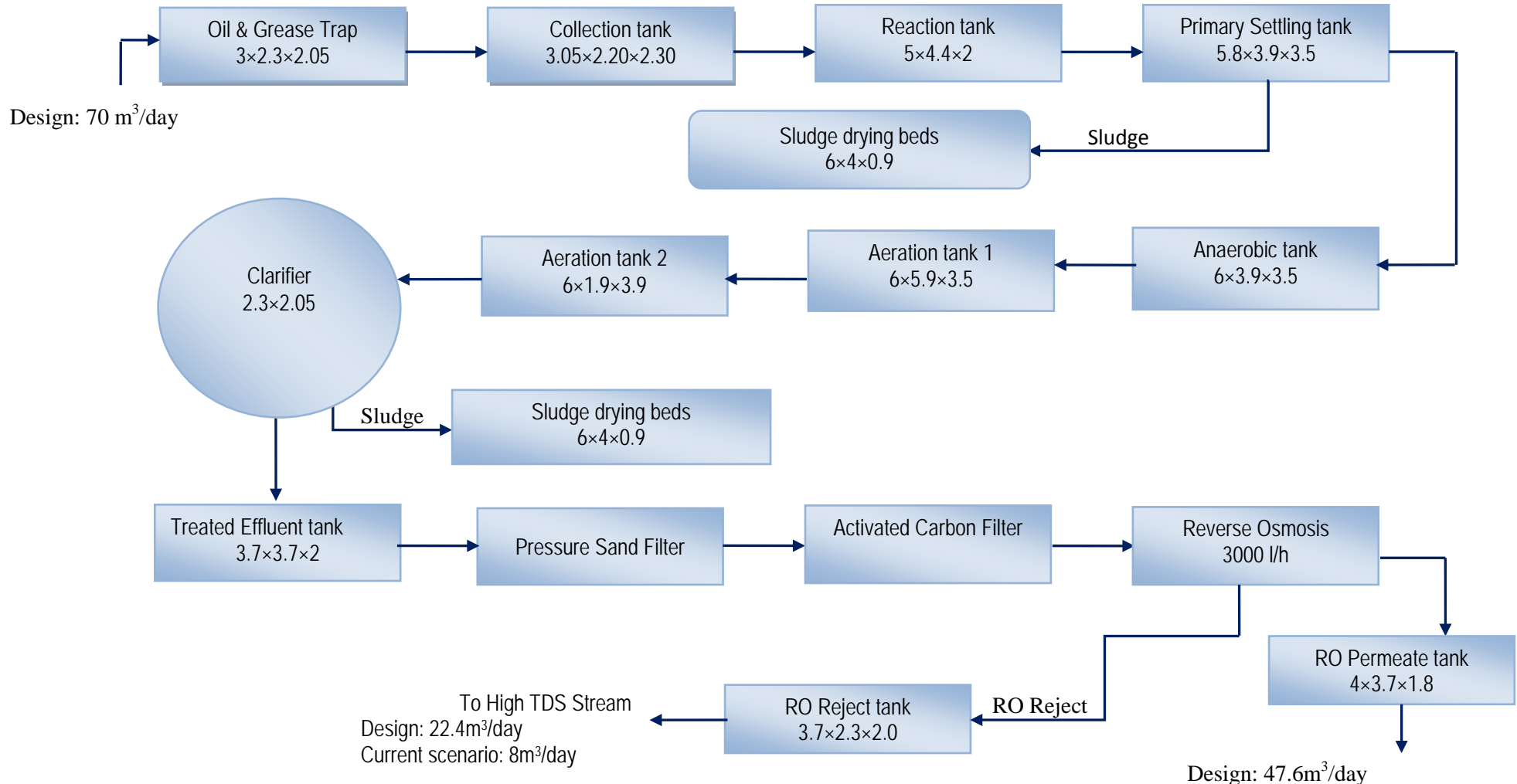
3.2.5. Effluent Treatment Plant

There are two ETP's at the existing facility. ETP-1 treats the low TDS effluent and ETP-2 treats the high TDS effluent. At present the waste water generation is to the tune of 125m³/day and there will be no increase after the proposed product mix change program. So, the existing ETP is adequate to treat the wastewater after proposed product mix change, further the treated wastewater will be complied with the prescribed CPCB standards.

3.2.5.1. Effluent Treatment Plant -1

70 m³/day capacity ETP is in operation at the existing facility. It is used for treatment of lean effluent (TDS<8000 mg/l) generated from the manufacturing process. Currently about 20 m³/day of effluent is being generated which is treated in the existing ETP having primary, secondary and tertiary treatment facilities. Primary sludge is dried in sludge drying bed and disposed to common hazardous waste treatment, storage and disposal (TSDF) facility. Treated effluent is used for toilet flushing and gardening. Rejects from reverse osmosis plant is treated in multi-effect evaporator. The flow diagram of existing ETP is presented in **Figure 3.1**.

Figure 3-1: Flow Diagram of ETP-1

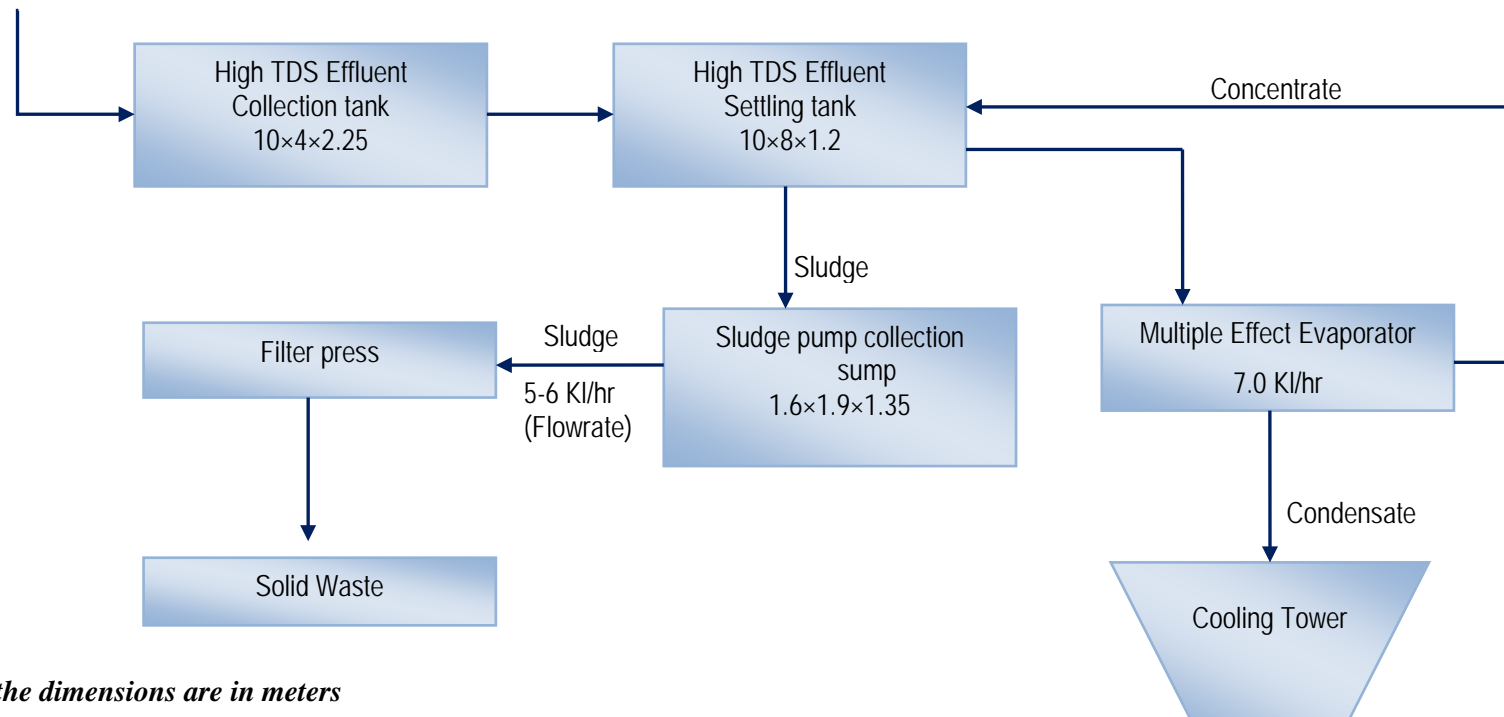


3.2.5.2. Effluent Treatment Plant-2

An ETP 2 is installed at the existing facility to treat effluents with high TDS (>8000 mg/l). A three stage Multi Effect Evaporator (MEE) is installed at the facility for treatment of RO rejects which is further dried in Agitated Thin Film Dryer (ATFD). The dried salts are stored at hazardous waste storage area and disposed to hazardous waste treatment facility. The flow sheet of ETP-2 is presented in **Figure 3.2**.

Design: 140 m³/day
Current scenario: 55 m³/day
After expansion:

Figure 3-2: Flow Diagram of ETP-2

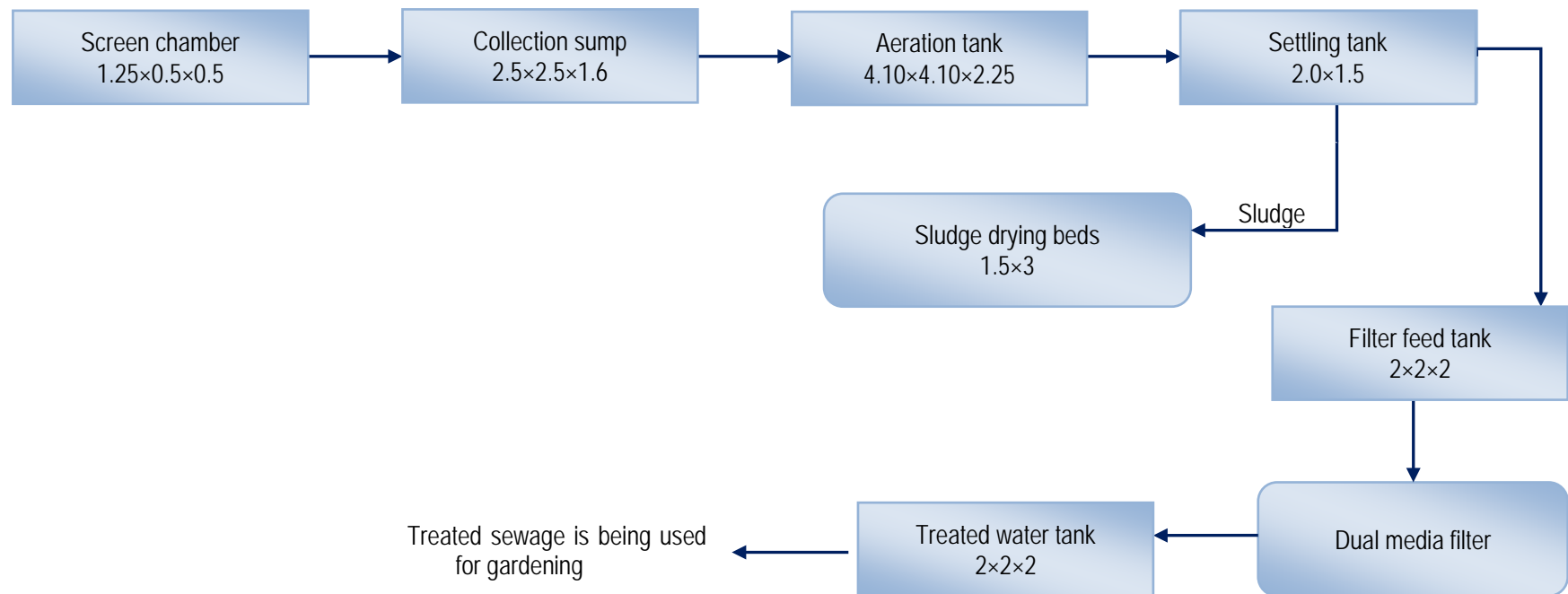


All the dimensions are in meters

3.2.6. Sewage Treatment Plant

Sewage generated from the existing facility is being treated in the existing Sewage Treatment Plant (STP) of 30 m³/day capacity. STP has secondary treatment facility. Treated sewage meets the general standards for discharge of environmental Pollutants on land for irrigation as per Schedule VI of The Environment (Protection) Rules, 1986. Treated sewage is being used for gardening purpose. The flow diagram of STP is presented in **Figure 3.3**.

Figure 3-3: Flow Diagram of STP



All the dimensions are in meters

Raw effluent and sewage characteristics are presented in **Table 3.4**.

Table 3-4: Raw Wastewater Quality in the Existing Facility

S.No.	Parameters	Raw waste water quality	Treated waste water quality	TNPCB Discharge Standard
1	pH, mg/l	2.31	7.1	6.5-
2	TDS, mg/l	3562	1020	<2100
3	COD, mg/l	202	156	<250
4	BOD, mg/l	26	14	<100

Note: Rejects from RO and high TDS effluent is sent to MEE

Treated effluent is reused for toilet flushing and gardening. Treated sewage is used for gardening applications (**Table 3.5**).

Table 3-5: Treated Sewage Characteristics

S.No.	Parameters	Test Result	Consented Levels
1	pH	8.03	<10
2	BOD (mg/l)	12	<100
3	TSS (mg/l)	20	<200

Source: Plant Records

3.2.7. Noise Levels in the Existing Facility

Noise levels were also monitored by TNPCB at the facility. The test results indicate that the noise levels were found to vary from 58.4 dB(A) to 63.3 dB(A). This indicates that the noise levels at the plant boundary were found to be below the stipulated noise level of 75 dB (A). The results of noise level monitoring within the facility is presented in **Table 3.6**.

Table 3-6: Noise Levels within the Existing Facility

S.No.	Location	Sound Level Leg dB(A)
1	Behind Waste Storage Shed	53.3
2	Near Water Sump	56.4
3	Near Main Gate	56.6
4	Near Gate No. 2	53.8
5	Near Fence	53.5
6	Near Old Admin Building	54.5

S.No.	Location	Sound Level Leg dB(A)
7	Behind Spent Acid Tank	53
8	Near Scrap Yard	54.1

Leg value is the average energy for the measured period, Source: TNPCB Test

Report dated on 11.01.16

3.2.8. Solid Waste and Hazardous Waste

The facility is consented to generate 42 TPA of chemical sludge and 884 TPA of Mechanical Evaporator residue located in the zero liquid discharge facility. At present the hazardous waste generated is 704.6 TPA which less than the consented quantity. As the production capacities will be reduced after proposed product mix change program the hazardous waste quantity generated per year will not get increased. The hazardous waste is being disposed with Tamil Nadu Waste Management Association (TWMA), Gummudipoondi, Tamil Nadu.

3.2.9. Compressors

2 x 100 CFM reciprocating compressors are installed at the existing facility. One compressor is used as standby. Since it is high noise generating equipment, persons working at the compressor unit are provided with ear muffs/ ear plugs.

3.2.10. Solvent Storage

Dedicated and isolated solvent storage area properly designed and is located in the existing facility. Necessary permits from Petroleum and Explosives Safety Organization (PESO) has been obtained for storage of solvents at the site with vide letter no. P/HQ/TN/15/4502(P13926), dated 4th March 2010. Details of the storage tanks are presented in **Table 3.7**. All solvent storage tanks are above ground and horizontal type tanks provided with adequately designed dyke sizes. Fire hydrant lines and foam systems are made available at all the four corners of the storage area. Water sprinklers are installed as

per the good engineering practices for all the storage tanks. Photograph of solvent storage area is presented in **Figure 3.4**.

Table 3-7: Details of Solvent Storage Facility

Solvent/Fuel	Nos	Onsite Storage Capacity (KL)
Methanol main tank	1	18
Methanol day tank	1	18
Cyclohexane	1	18
Ethyl Acetate	1	18
Toluene	1	18
IsoPropyl Alcohol (IPA)	1	18
Diesel	1	18

Figure 3-4: Solvent Storage Area



3.3. Electrical Power Consumption and Source

VBM has power supply agreement with Tamil Nadu Generation and Distribution Corporation Ltd (TANGEDCO) to supply 1600 KVA. In order to meet power requirements due to grid supply shut down, one 500 KVA DG set and one 750 KVA DG sets are in place at the existing facility. No additional

power required for the proposed product mix change program which was permitted by earlier Environmental Clearance obtained vide letter F.No. J-11011/65/2013-IAII(I) dated 16th May 2015, MoEF

3.4. Greenbelt and Plantation Area

Green belt in an area of 31000 m² which is around 53% of the total plot area is developed and maintained. Mainly native species are planted. Photographs of greenbelt are presented in **Figure 3.5**.

Figure 3-5: Photographs of Existing Greenbelt Area





3.5. Occupational Health

A functional occupational Health Center (OHC) is available at the facility comprising of a bed, stretcher, and wheel chair along with first aid kit. Around 30 trained first aid professionals are available. In case of any emergency, doctor from nearby industrial hospital and also private clinics will be made available.

3.6. Fire fighting Systems and Safety Measures Adopted

Adequately designed fire water pumps and fire hydrant systems are designed and installed as per the National Building Codes. An underground fire water tank of capacity 300m³ is located near the fire water pump room. 171m³/hr capacity electrical fire water pump, 171m³/hr capacity diesel operated pump and 10.8m³/hr capacity jockey pump are installed at the site. A central fire hydrant system is in place in the existing facility. Fire fighting system in the existing operation is given below in **Figure 3.6**

Figure 3-6: Fire Fighting System



Main Pump and Jockey Pump



Fire Fighting system near Solvent Storage Area

4. DETAILS OF THE PROPOSED PRODUCTS

It is proposed to manufacture three new additional products namely DL-Lysine Acetyl Salicylate, Bentonite and 7-Methyl Xanthine. The proposed product mix change program will take place in the existing premises/reactors and no additional land, water steam and power are required. Also, all existing infrastructure and utilities are adequate to meet the present proposal.

4.1 Process description of the Proposed Product

4.1.1. Manufacture of DL-Lysine Acetyl Salicylate- Process Description

The manufacture of DL-Lysine Acetyl Salicylate involves the following 4 stages.

STAGE-I (Dissolution)

Water is first charged into reactor. Then Glycine is charged. Stirred to dissolve. Then DL-Lysine will be added and stirred. Heat to 40°C and maintain for one hour to dissolve DL-Lysine. Further on dissolution activated charcoal is added and temperature is maintained for 1.5 hr

STAGE-II (Charcolization)

Further on dissolution activated charcoal of 7.2 Kg is added and temperature is maintained for 1.5 hr. Filtered through hyflo bed followed by 1 micron filter, then water wash is given. Filtered through hyflo bed followed by 1 micron filter, then water wash is given. pH of 5-6 is maintained for solid disposal.



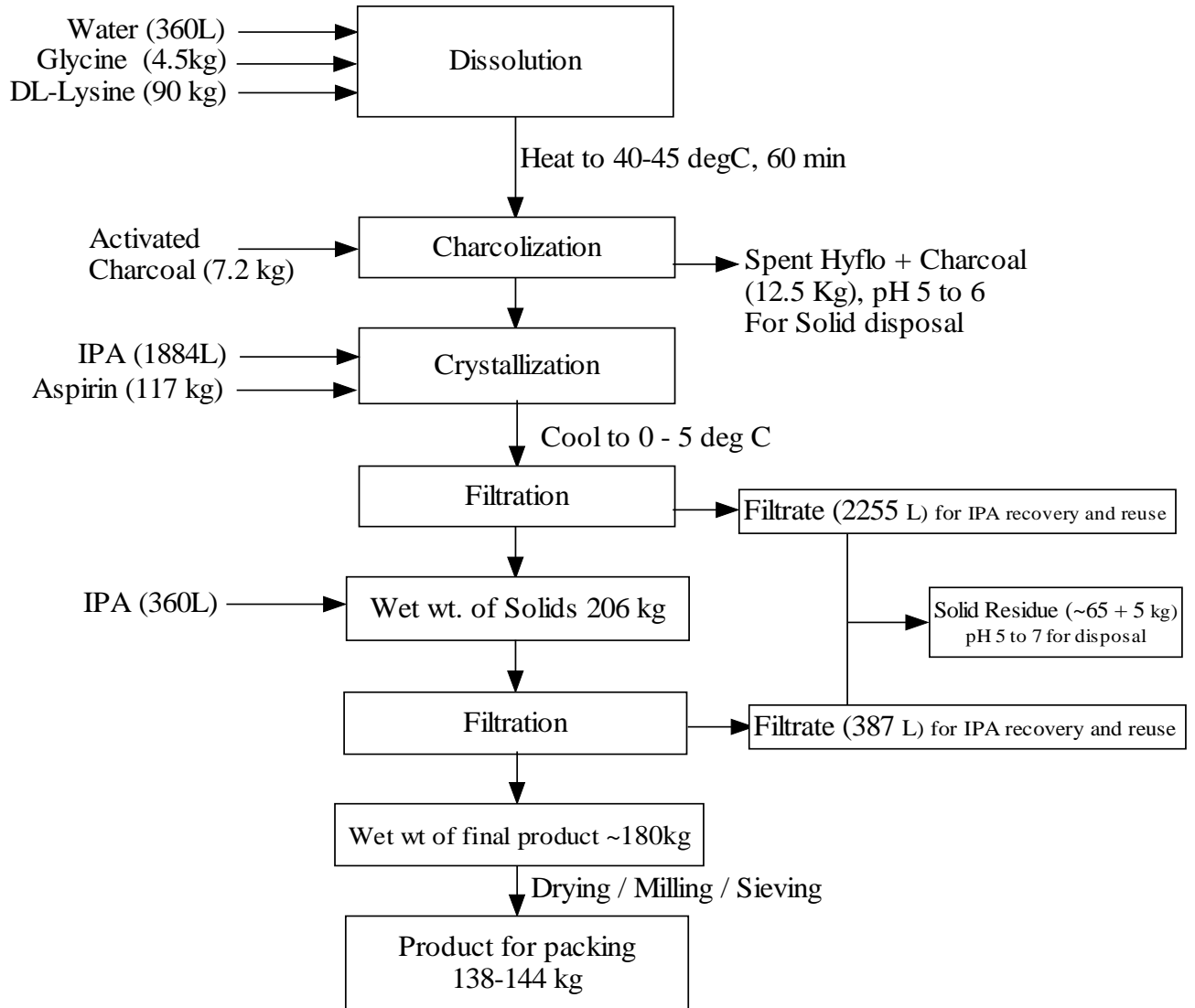
STAGE-III (Crystallization)

In this stage 234 L of Isopropyl alcohol (IPA) is charged followed by 117.0 Kg of Asprin. Mass is stirred to form a suspension. The above prepared DL-Lysine solution is added slowly. The reaction mass is stirred at room temperature. Then 1650 L of isopropyl alcohol is added and then the crystallization starts.

STAGE-IV (Filtration)

The reaction mass is stirred and external cooling is given to attain 0-5⁰C. The reaction mass temperature is maintained for temperature of 0-5⁰C overnight. The separate solid is taken back into the reactor; to this 360 L of pre-chilled (0-5⁰C) isopropyl alcohol is added and stirred. Then filtered, and dried at 30-35 ⁰C under vacuum. The solids, final product is unloaded, sieved and packed. Then the sample is submitted for complete analysis. The mass balance along with block diagram is presented in **Figure 4.1**

Figure 4-1: DL-Lysine Acetyl Salicylate- Typical Material Balance





4.1.2. Manufacturing Process of 7-methyl Xanthine

Stage I: Partial DeMethylation

Charge POCl_3 and Theobromine into the reactor. The speed of the stirrer was adjusted to 38-45 RPM. The temperature was raised to 103-110°C and maintained for 24 hrs. After completion of 24 hrs, heating was stopped and the reaction mass was allowed to cool to room temperature 25-30 °C .

Stage II: Chlorination to get 2,6 -Dichloro 7-Methyl Xanthine

To the above reaction mass add PCl_5 and again heated to 104-110°C for 48 hr. Further POCl_3 was distilled under atmospheric pressure. At the end of the POCl_3 distillation (70-75 % POCl_3 distilled of initial volume). Filter the mass and wash with cyclohexane. The solid residue was washed with water and filtered. Weigh the solid wet quantity.

Stage III: Hydrolysis of 2,6 -Dichloro 7-methyl xanthine

The solid was transfer to glass line reactor and water is charged. Later hydrochloric acid was added. Mass temperature raised to 70-75 °C. After complete dissolution of the solid, pH of the reaction mixture was adjusted to 0.3 to 0.4 and heating continued up to 95 °C and maintained at the same temperature for 48 hrs. The reaction mass was cooled to room temperature and it is neutralized with 30% aqueous NaOH solution to pH 7-7.5. The neutralized (semi solid) reaction mass obtained was cooled to 10-15 °C and filtered with filtered. The residue was washed with 10-20 °C, chilled water. Weigh the crude product.

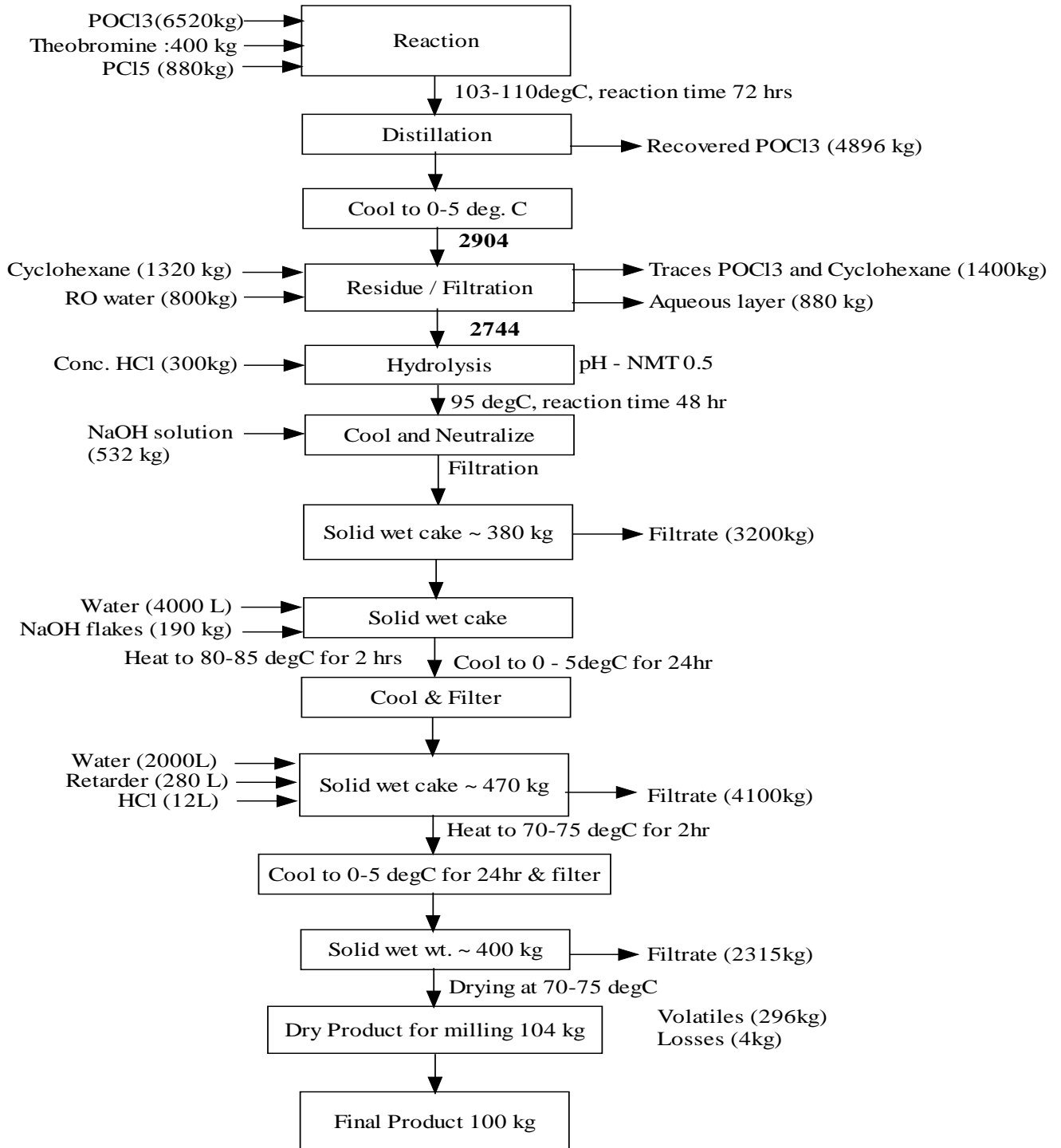


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Stage IV: Purification of 7-Methylxanthine

Take crude 7-Methyl Xanthine and add required water and caustic solution and heat the reaction mass to 80 °C for 2hr and check the dissolution. Mass should be clear solution. If not, continue heating for another 1 hr. Cool the reaction mass to 0-5 °C for 72 hr and filter the mass. Wash the cake with chilled water. Take again the crude in reactor. Charge water and ethanol with respect to crude. Heat the reaction mass to 70 deg C for two hrs. Cool the reaction mass to 0-5 deg C for 24 hrs. Filter the mass, wash twice with chilled water. dry the product. Weigh and record the weight.

Figure 4-2: 7-Methyl Xanthine- Typical Material Balance



4.1.3. Manufacturing Process of Bentonite

The manufacture of Bentonite involves the 4 stages. The following process description is given below

Stage I

Crude Bentonite powder of 400 Kg is taken in 1600L of water. Mass is heated to 60-65°C, and is stirred continuously.

Stage II

In the second stage, to the settled solids, 1600 L of water is added and heated to 60-65°C, and similar to the first stage it is stirred continuously.

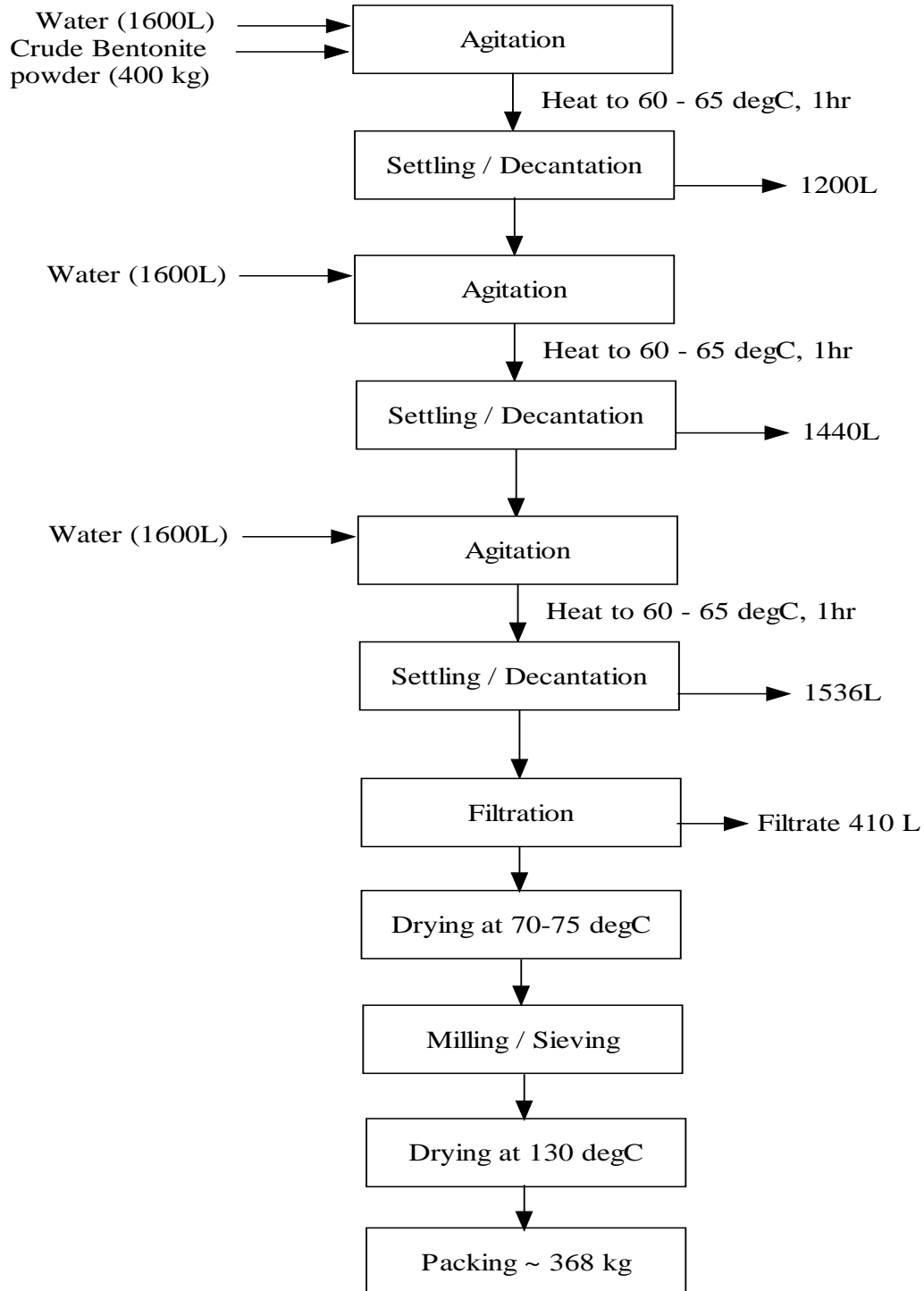
Stage III

In the third stage again 1600 L of water is added and heated to 60-65°C, and similar to the second stage and it is stirred continuously.

Stage IV

The temperature is maintained for 2 hr and it is allowed to attain room temperature and kept for settling overnight. The supernatant is decanted and the solids (slurry) are filtered. The solid is crushed and milled. After crushing and milling the sample is given for analysis and product is packed.

Figure 4-3: Bentonite Typical Material Balance





The unit has proposed to reduce the production quantity of Trichloro Galacto Pyranosyl Fructo Furanoside (TGPF) from 72 TPA to 61 TPA and Tocopheryl Polyethylene Glycol Succinate (TPGS) quantity from 72 TPA & 60 TPA. Further unit has proposed to add three products i.e DL-Lysine acetyl salicylate (6 TPA), 7-Methyl Xanthine (5 TPA) and Bentonite (12 TPA) by maintaining the same production capacity of 564 TPA which was consented as per earlier EC vide letter no. J-11011/65/2013, dated 16th May 2015. However, the water, wastewater, steam consumption and Hazardous waste will not be increased from the earlier EC dated 2015. The same is presented in the **Table 4.1**.



Table 4-1: Summary of the New & Existing product

Product	Annual Production capacity - (TPA)	Rated monthly production capacity (Tons)	Steam requirement	Coal consumption for boiler	Water consumption	Wastewater generation	Total solvent consumption (Lts/day)	Hazardous waste generation (Kg/day)
			T/day	T/day	m ³ /day	m ³ /day		
EC 2008 scenario								
GHC	240	20	12	2	36	20	25.6	116
TGPF	72	6	30	5	372	149	950	2100
MEE	-	-	40	7	-	-	-	-
Total	312	26	82	14	408	169	975.6	2216
EC 2015 Current scenario								
GHC	240	20	12	2	36	20	25.6	116
TGPF	72	6	Not required	Not required	0.2	0.06	Not required	6
DHA	180	15	34.4	6	259	101	1668	1745
TPGS	72	6	6	1	4	4	200	62
MEE	-	-	20	3.5	-	-	-	-
Total	564	47	72.4	12.5	299.2	125.06	1893.6	1929
Current proposal (2016 TOR Application)								
GHC	240	20	12	2	36	20	25.6	116
DHA	180	15	34.4	6	259	101	1668	1745
TGPF	61	5	Not required	Not required	0.2	0.04	Nil	5
TPGS	60	5	4.5	0.72	3	3	166	50
DL-Lysine acetyl salicylate	6	0.5	0.2	0.04	0.043	0.012	13	9.13
7-methyl Xanthine	5	0.41	0.9	0.17	0.91	1.40	12	3.73
Bentonite	12	1	0.4	0.07	0.45	0.056	Not required	Nil
MEE	-	-	20	3.5	-	-	-	-
Total	564	46.91	72.4	12.5	299.55	125.51	1884.6	1928.87

5. BASELINE ENVIRONMENTAL CONDITION

5.1 Location of the Facility and Overview of the Background Environmental Features

M/s. V B Medicare Private Limited (VBM) is located Phase 2, SIPCOT Industrial Area, near Hosur town in Krishnagiri district, Tamil Nadu. The project site coordinates are located at 12°43'19.20"N 77°52'9.49"E and can be identified as per Survey of India Toposheet No. 57 H/9 and 57 H/13. The study area of 10 km from proposed project site was defined for primary data collection as per ToR issued by MoEF and is in line with the EIA guidance manual for Synthetic Organic Chemicals Industry, August 2010.

The facility is located at about 5.5 km from Hosur city center. The plant is surrounded by FLEET Guard Industries Pvt. Ltd. on the Northern side, SIPCOT Lake on the Eastern side, Arnika Industries on the Southern side and empty plot on the Western side. The facility is easily approachable by NH-7 which connects Varanasi to Kanyakumari via Bangalore Electronics city. The project site is also well connected by railway (Hosur Railway Station at 5 km) and Bangalore International Airport at 55 km.

The baseline environmental setting of the study area, includes micrometeorology, land-use pattern, air quality, water resources and water quality, geological aspects and soil quality, flora and fauna and socio economic aspects in the study area.

5.2 Land Environment

5.2.1. Physiography of Hosur Taluk

The entire area is a vast stretch of rolling plain. In general, the altitude varies from more than 900 m in the South-West to less than 750 m on the East. This region consists of small hill ranges and ridges. There is no perennial

river in Hosur block except the river Chinnar and Dakshina pinakini which are non perennial rivers. It holds water only during the monsoon seasons. Tanks found in the study area not much used, due to water contaminated with domestic and industrial sewage.

5.2.2. Drainage Pattern of the District

Krishnagiri district forms parts of Cauvery and East Coast Minor Rivers basins. Cauvery River forms the southwestern boundary of the district. Dodda Halla is the most important tributary of Cauvery draining the rugged terrain in the northwestern part of the district. Ponnaiyar is the major river draining the district and is ephemeral in nature. It originates from Nandhi hills in Karnataka, enters Tamil Nadu west of Bagalur and flows almost in southeasterly direction till it reaches Manjamedu from where it flows along the district boundary before entering the district, again near Hanuman Tirtham. After flowing for a short distance in an easterly direction, it again follows the district boundary before entering the neighboring Dharmapuri district. Pambar and Burgur Aru are among the important tributaries of Ponnaiyar draining part of the district¹.

5.2.3. Land use/ Land Cover Study

Land use land cover study was conducted by remote sensing technique followed by ground truth verification. Remote sensing satellite imageries were collected and interpreted for the 10 km radius study area for analyzing the land use pattern of the study area. Based on the satellite data land use/ land cover maps have been prepared.

The present land use / land cover maps were prepared based on the classification system of national standards. For explanation of each of the land use category the details as given in **Table 5.1** were considered.

¹ District Ground water Brochure, Krishnagiri district, Tamil Nadu, Central Ground Water Board, South Eastern Coastal Region, March 2009

Table 5-1:Land Use/Land Cover Classification System

S. No.	Level-1	Level-2
1	Built-up Land	Town/cities
		Villages
		Institution/Industry/Godown etc
		Plotted Area/Layout
2	Agriculture Land	Crop Land
		Plantations
		Fallow
3	Forest	Evergreen/Semi evergreen
		Deciduous
		Forest Plantation
4	Wastelands	Rocky/Stony Waste
		Land with /without scrubs
		Saline/sandy & Marshy/swampy
5	Water Bodies	River/Stream
		Lake/Reservoir/Tanks
6	Others	Orchard/Other Plantation
		Shifting cultivation
		Salt Pans, Snow covered/Glacial
		Barren/Vacant Land

5.2.3.1 Data Requirements

IRS Resource Sat-2 on LISS3 with 5m resolution was acquired for 08 March 2012 (haze free and cloud free) and was used for the mapping and interpretation. Besides, other collateral data as available in the form of maps, charts, census records, other reports and especially topographical survey of India maps are used. In addition to this, ground truth survey was also conducted to verify and confirm the ground features.

5.2.3.2. Methodology

The methodology adopted for preparation of landuse/land cover thematic maps is as follows:

- Digital interpretation of IRS Resource Sat-2 satellite Digital Data using ERDAS software programme; and

•Field observations- The methodology adopted for preparation of land use/land cover thematic map is monoscopic visual interpretation of geocoded scenes of IRS Resource Sat-2 satellite and field observations are taken. The various steps involved in the study are preparatory field work, field survey and post field work.

5.2.3.3. Pre-field Interpretation of Satellite Data

The False Color Composite (FCC) of IRS Resource Sat-2 satellite has been used for pre-field interpretation work. Taking the help of topo-sheets, geology, geomorphology and by using the image elements the features are identified and delineated the boundaries roughly. Each feature is identified on image by their image elements like tone, texture, colour, shape, size, pattern and association. A tentative legend in terms of land cover and land use, physiography and erosion was formulated. The sample areas for field check are selected covering all the physiographic, land use/land cover feature cum image characteristics.

Ground Truth Collection- Both topo-sheets and imagery were taken for field verification and a transverse plan using existing road network was made to cover as many representative sample areas as possible to observe the broad land use features and to adjust the sample areas according to field conditions. Detailed field observations and investigations were carried out and noted the land use features on the imagery.

Post Field Work- The base maps of the study area was prepared, with the help of Survey of India Topo-sheets. Preliminary interpreted land use and the land cover features boundaries from IRS Resource Sat-2 False Color Composite were modified in light of field information and the final thematic details were transferred onto the base maps. The final interpreted and classified thematic map was cartographed. The cartographic map was colored with standard

colour coding and detailed description of feature with standard symbols. All the classes noted and marked by the standard legend on the map.

5.2.3.4. Final Output

The final output would be the land use/land cover map numerals were given different colour code for each category as shown in map. Area estimation of all features of land use/land cover categories was noted.

5.2.3.5. General Level I Land Use/Land Cover in Study Area

The following are the main interpreted land use/land cover classes of the study area and their respective areas are given in ha in **Table 5.2** for the year 2012. The thematic map and land use pattern within 10 km radius based on IRS Resource Sat-2 LISS3 with 5 m resolution for March 2012 are shown in **Figure 5.1 and Figure 5.2** respectively

Table 5-2: Level I Land Use/Land Cover Statistics of 10 km Radius of the Study Area

S. No.	Land Use	Area (Hectares)	Area (%)
1	Built-up Land	3676	11.70
2	Forest	1884	6.00
3	Agricultural land	18384	58.52
4	Waste Land	6100	19.42
5	Water Bodies	1372	4.37
Total		31416	100

* **Wastelands**

Wasteland includes land with and without shrubs. The wastelands are about 6100 ha, which is about 19.42% of the study area.

* **Forest Land**

Forest Land includes deciduous, degraded and forest blanks land with and without shrubs. The forest lands are about 1884 ha, which is about 6 % of the study area.

* ***Agricultural Land***

The total agricultural land covers plantation, other agricultural area and fallow land consisting of 18384 ha of total study area 58.52 % of 10 km radius.

* ***Water Bodies***

The total area of water bodies is about 1372 ha, which is about 4.37 % of the study area.

* ***Built-up Land***

The built-up land in the study area is about 3676 ha which about 11.70 % of the study area. It consists of settlements, industrial/institutional areas buildings.

Figure 5-1: Satellite Image of the Study Area

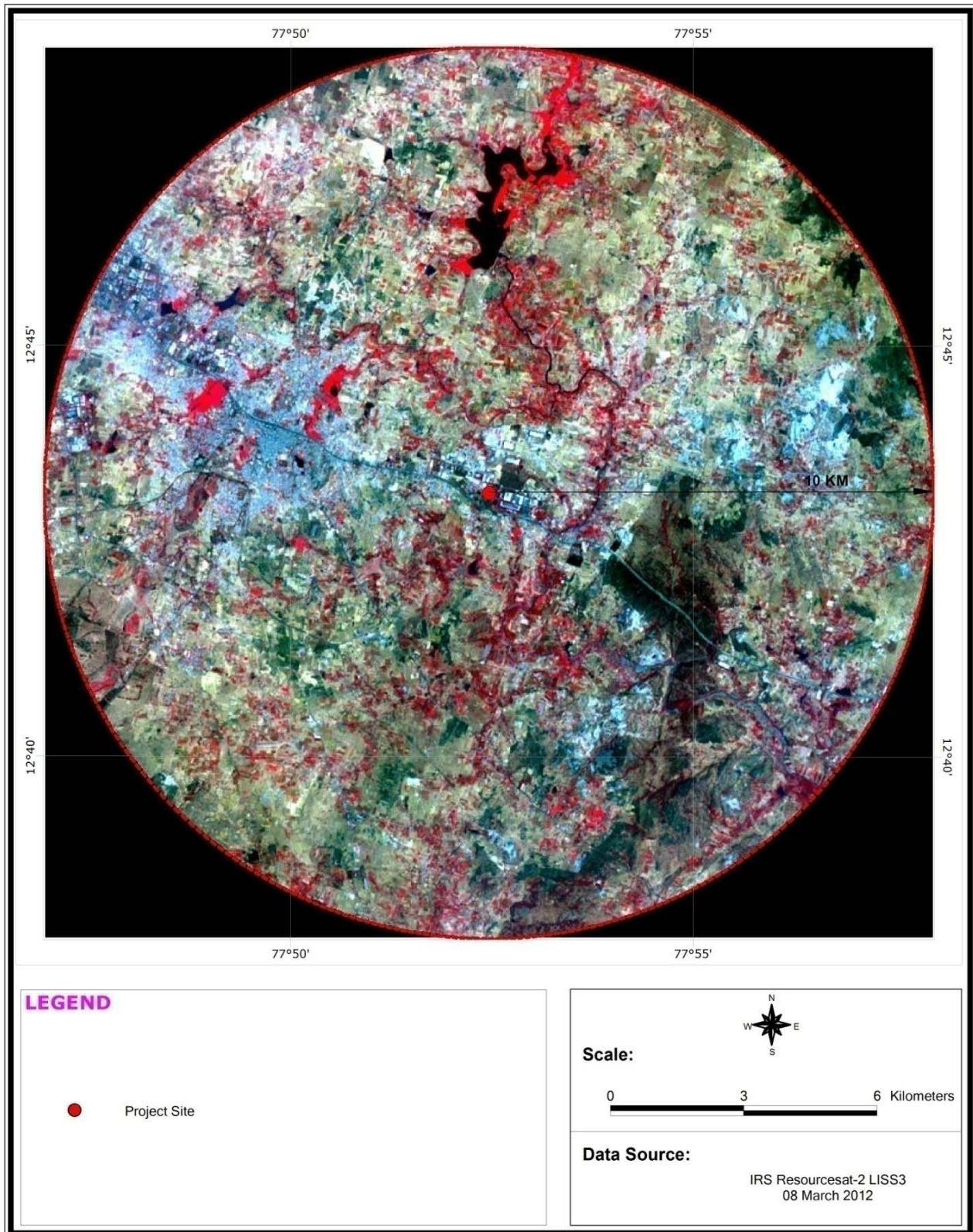
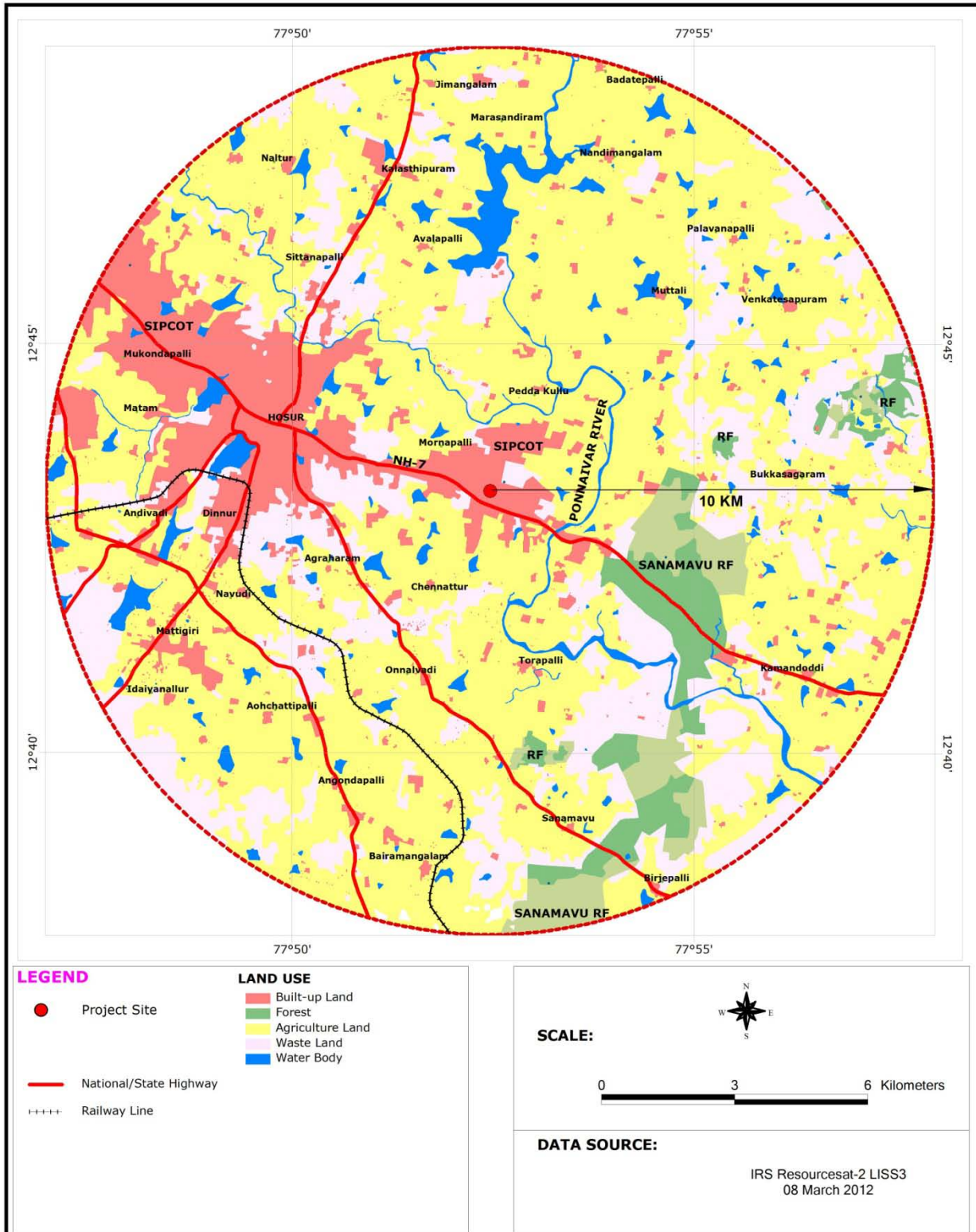


Figure 5-2: Land Use Classifications (Level I) of the Study Area



5.2.3.6. General Level II Land Use / Land Cover in Study Area

The level-II land use/land cover is further sub divided into meaningful sub-classes to highlight the dominant land use in the study area. The level-II land use/land cover statistics and features of the 10 km radius area from the proposed project site are presented in **Table 5.3** and **Figure 5.4** respectively.

Table 5-3: Level II Land Use/ Land Cover Statistics of 5 and 10 km Radius

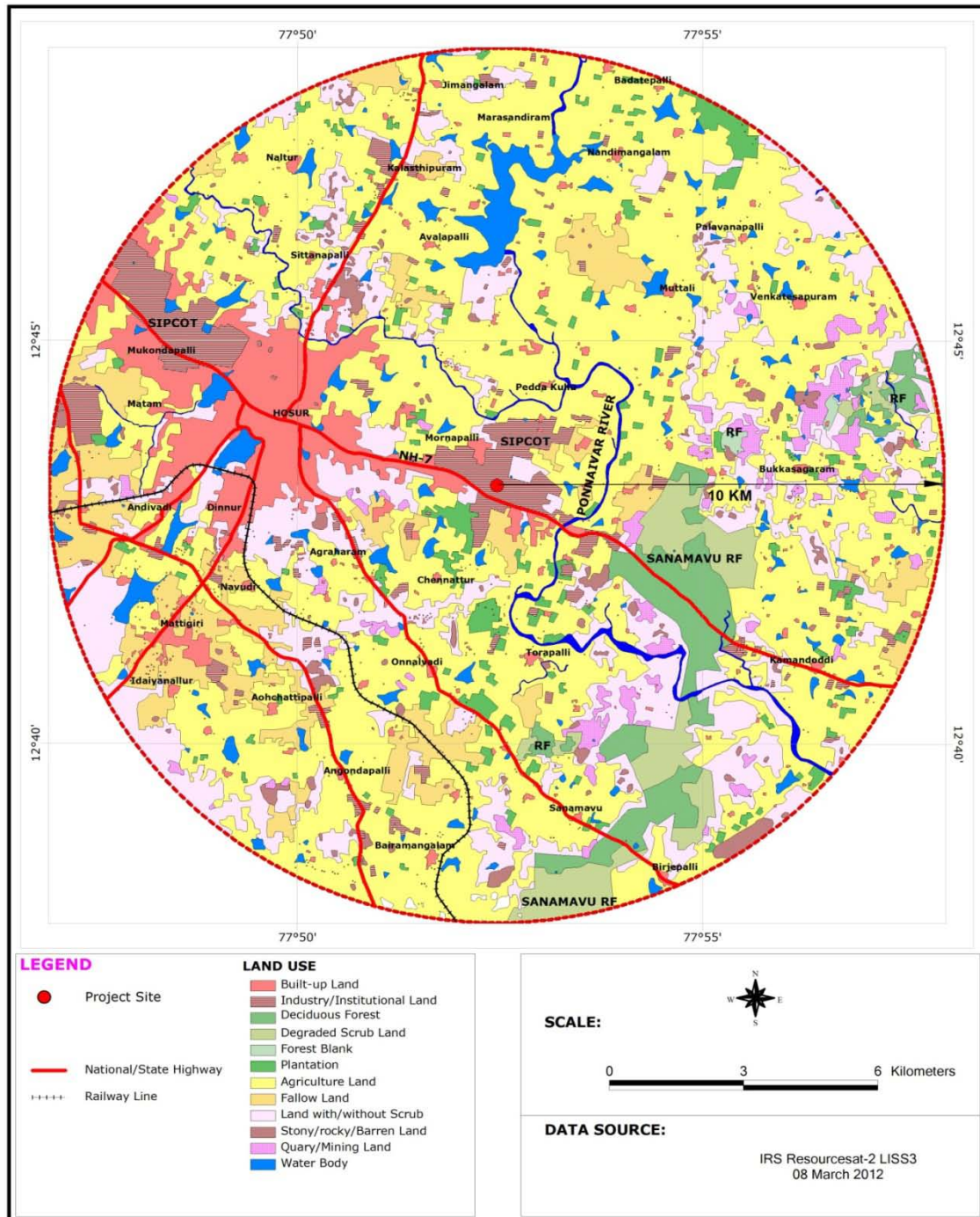
S.No.	Land Use	Area (Hectares)	Area (%)
Built-up Land			
1	Settlements	2357	7.50
2	Industry/Institutional Land	1319	4.20
Forest			
3	Dense/Open Forest	991	3.16
4	Degraded Scrub	855	2.72
5	Forest Blank	38	0.12
Agricultural land			
6	Plantation	847	2.69
7	Agriculture Land	15190	48.35
8	Fallow Land	2347	7.47
Waste Land			
9	Land with/without Scrub	5013	15.96
11	Rocky/Stony/Barren Land	478	1.52
12	Quarry/Mining Land	609	1.94
Water Body			
13	Stream/River/Tank/Reservoir	1372	4.37
Total		31416	100.00

Observations

The results indicate that the study area mainly comprises of Agricultural land and Waste land. The forest land is concentrated within 5 km from the project site and waste land is distributed uniformly across 10 km radius

The land use classification of the study area reveals that the percentage of Agricultural land is greater than the forest land. Hence, the impact on the Agricultural land will be higher than that compared to the forest land.

Figure 5-3: Land Use Classification (Level II) of the Study Area



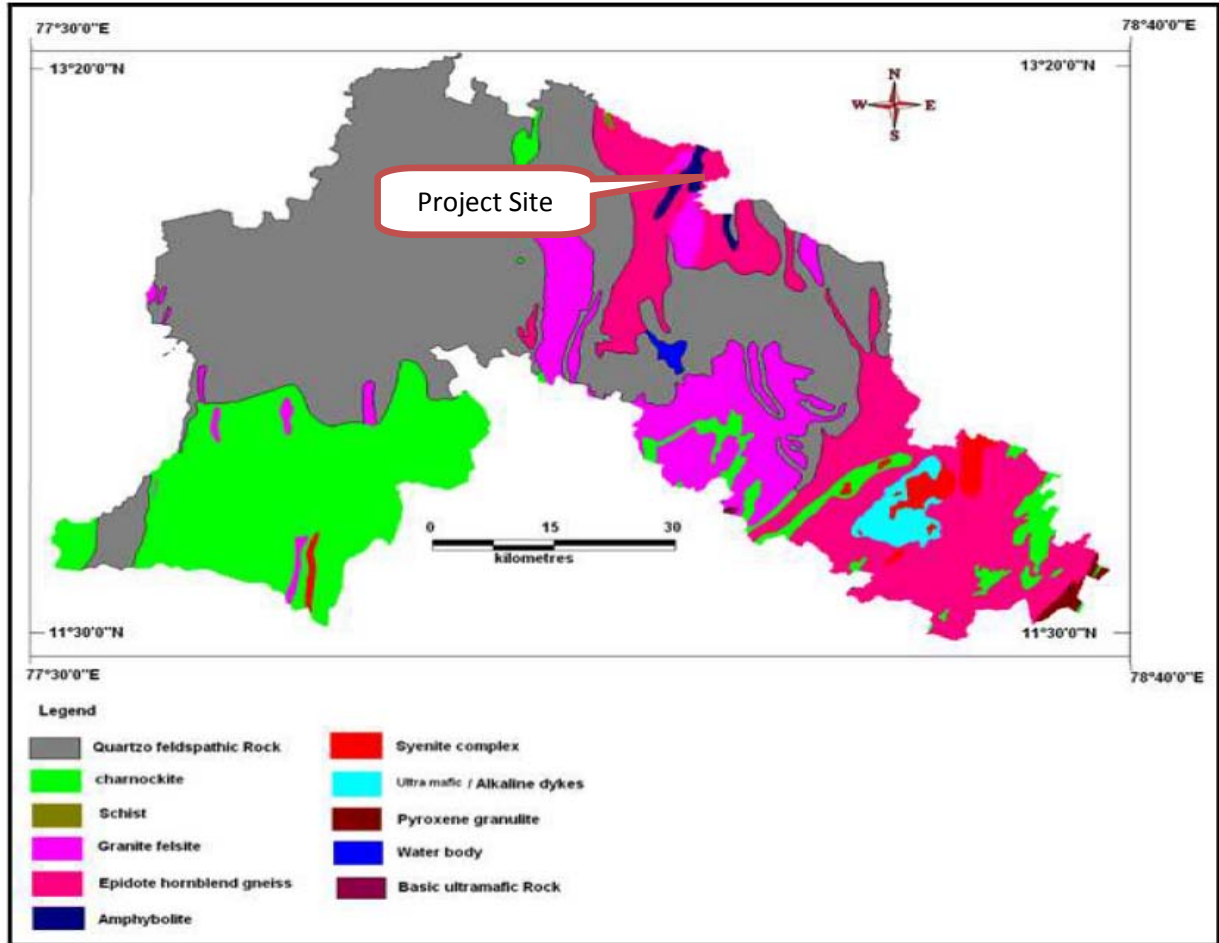
5.3. Geology and Soil Quality

5.3.1. Geology

The prominent geomorphic units identified in the district through interpretation of satellite imagery are structural hills in the southwestern part of the district, denudational land forms like buried pediments in the plains and inselbergs and plateaus represented by conical hills aligned with major lineaments.

Krishnagiri district forms part of the upland plateau region with many hill ranges and undulating plains. The western part of the district has hill ranges of Mysore plateau with a chain of undulating hills and deep valleys extending in NNE-SSW direction. The plains of the district have an average elevation of 488 m amsl. The plateau region along the western boundary and the northwestern part of the district has an average elevation of 914 m amsl. The Guthrayan Durg with an elevation of 1395 m amsl is the highest peak in the district. Geology map of the Krishnagiri district is given below in **Figure 5.4**.

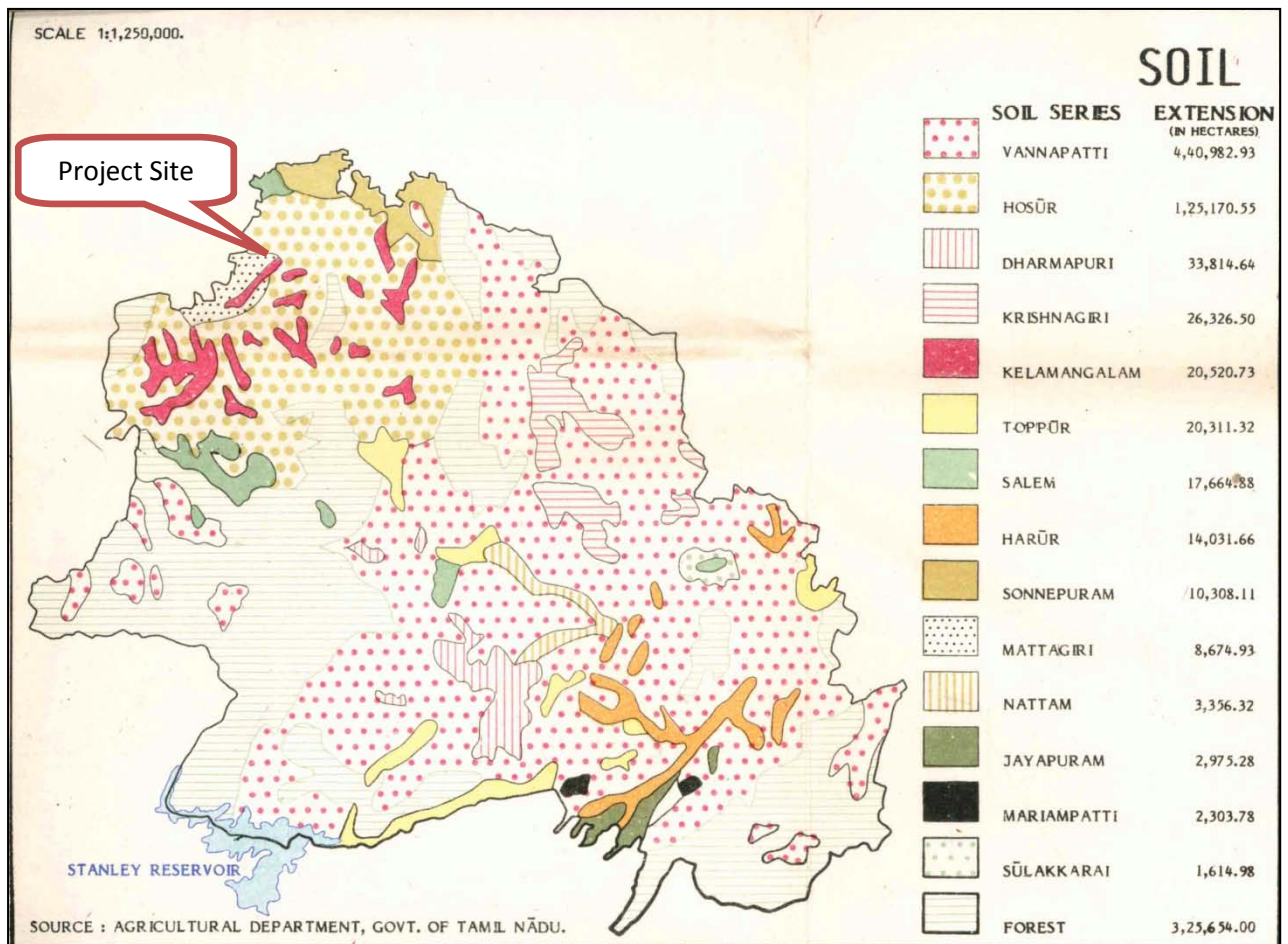
Figure 5-4:Geology Map of Krishnagiri District



5.4. Soil Environment

The Soil type ranges from fine loamy, loamy, clayey soils are seen in Hosur Taluk. Red loamy and sandy soils are predominant in Hosur Taluk. Generally the soil is low in Nitrogen and Phosphate content with no marked variation between Hosur Taluk. Vast stretches of loam soils and black soils occur in Krishnagiri district. The soil map of the district is given in **Figure 5.5**.

Figure 5-5: Soil Map of Krishnagiri District



Source: District Planning Map Series of Dharmapuri District. First Edition, 1988

5.4.1. Soil Quality in Study Area

Soil samples were collected from four locations within the study area and evaluated for its Physico-Chemical characteristics. The soil sample was collected from 2 feet deep with the help of stainless steel soil-sampling probe. Various physical and chemical parameters were analyzed as per Indian Standards.

The analysis shows that the soil in the study area is sandy loam. The bulk density varies from 1.25 g/cm³ to 1.36 g/cm³ which indicate that the soil is rich in minerals. Water holding capacity of soil ranges from 50% to 56% and permeability ranges from 2.2x10⁻⁴ cm/sec to 2.6x10⁻⁴ cm/sec indicating that the infiltration rates are moderate and hence, recharge of groundwater table during monsoon would be less and surface run-off would be high. pH ranges from 7.5 to 7.9 indicating the soil is ideal for plant growth.

Nutrients: Soil quality was tested for nutrients. Nitrogen values range from 10 mg/kg to 13 mg/kg; phosphorus range from 22 mg/kg to 26 mg/kg; potassium values range from 126 mg/kg to 148 mg/kg indicating that the soil had medium nutrients. Nutrients can be enriched by addition of fertilizers. Heavy metals were found to be below detectable limits. Organic carbon ranged from 0.21% to 0.32% which is very low to sustain vegetation.

5.5. Water Environment

5.5.1. Hydrogeology of Krishnagiri District

Krishnagiri district is underlain by Archaean crystalline formations with recent alluvial deposits of limited aerial extent and thickness along the courses of major rivers. The occurrence and movement of ground water are controlled by various factors such as physiography, climate, geology and structural features. Weathered and fractured crystalline rocks constitute the important aquifer systems in the district.

The main source of water in the study area is ground water and the water requirements of rural and urban areas in the district are met either through surface water sources or through various mini water supply schemes or integrated water supply schemes utilizing the available ground water resources. The status of urban and rural drinking water supply in Krishnagiri district is given in **Table 5.4** and the hydrogeology of the district is given in **Figure 5.6**.

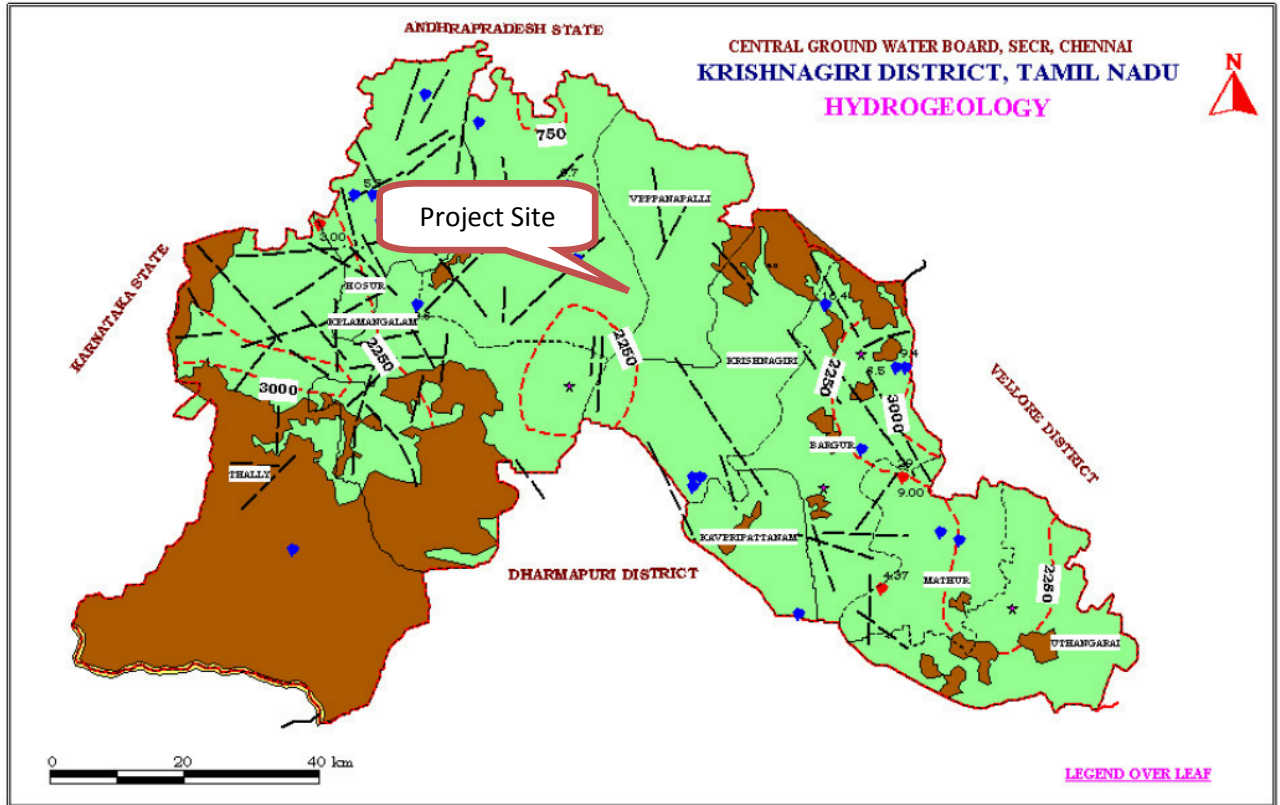
Table 5-4: Status of Urban and Rural Drinking Water Supply in Krishnagiri District²

S.No	Urban area	Beneficiaries	Service level
1	Krishnagiri	68215	50 to 90 lpcd
2	Hosur	47999	>90 lpcd


Source: District Ground water Brochure, Krishnagiri District, Tamil Nadu, CGWB, SECR, Chennai, 2008

² District Ground water Brochure, Krishnagiri district, Tamil Nadu, Central Ground Water Board, South Eastern Coastal Region, March 2009

Figure 5-6:Hydrogeology Map of Krishnagiri District



Legend

Aquifer	Age	Lithology	Ground water conditions	Yield Prospects (Cu.M/D)	Ground water development Strategies
Consolidated 	Archaran	Granites, Gneisses, Charnocike	Discontinuous, unconfined to semi confined aquifers, Restricted to weathered Residuum and fractures	< 50 near watershed divides and high grounds 50-200 near third order streams and low ground	Suitable for development through dug wells. Bore wells feasible in fracture zones, best locations being intersection of fractures

Source: Plate II of District Ground water Brochure, Krishnagiri District, Tamil Nadu, CGWB, SECR, Chennai, 2008

5.5.2. Groundwater Quality in Study Area

In order to establish the background groundwater quality of the study area, ground water samples from 6 locations were collected and analyzed. Water quality was analyzed for physico-chemical and biological parameters by a MoEF accredited laboratory.

The results indicate that pH ranges from 6.9 to 7.61 which confirm to desirable quality for drinking as per IS 10500:1992. Hardness ranges from 410 mg/l to 440 mg/l, total dissolved solids range from 670 mg/l to 756 mg/l, chlorides range from 266 mg/l to 284 mg/l which is above desirable level but within permissible level for drinking purpose as per IS 10500:1992. Other parameters were below the desirable quality for drinking as per IS 10500:1992. Hence, water shall be treated appropriately and used for drinking.

5.6. Air Environment

5.6.1. Meteorology

According to Koppen classification of climate pattern, the study area falls under the Tropical wet and dry climate. The year is divided into three seasons. Winter and summer are long and dry periods with extreme temperatures. Heat waves may be generated during summer months due to very high temperature. The region receives both South West and North East monsoon. Rainy season lasts from June to September.

Long term meteorological data from the “Climatological Normals” published by Indian Meteorological Department (IMD) was referred. The nearest IMD observatory for the project site is Bangalore Airport which is considered as representative observatory for meteorological conditions for the project site. The station is around aerial distance of 33.5 km in North West direction. The consolidated 30 years (1971-2000) Climatological data for Bangalore (A) observatory is presented in the **Table 5.5** and **Table 5.6**. The site specific data was collected from November 2013 to January 2014.

5.6.2. Regional Meteorology – IMD Data

Ambient Temperature: The period from February to May is marked by continuous increase in the ambient temperatures. April is the hottest month of the year with mean daily maximum and minimum temperatures of 34 °C and 20.8 °C respectively. The coolest month is December with mean daily maximum and minimum temperatures of 26.1 °C and 15.1 °C. Night temperatures in January are relatively lower than that of December. The study area has moderate climate with winter temperatures rarely drop below 12 °C and summer temperatures seldom exceed 36 °C. The summer heat is moderated by fairly frequent thunderstorms.

Rainfall: The study area receives rainfall from both southwest and northeast monsoons and the wettest month is September. The average annual rainfall in the study area was reported to be 880.9 mm over a period of 55.7 days. As per Climatological Tables, precipitation occurs during the months of May to October. The maximum number of rainy days was found to occur during September.

Relative Humidity: Relative humidity ranges from 68% to 87% during day time and it varies from 28% to 68% during night time.

Wind Speed: The average wind speed of the study area is found to be 9.2 kmph. The wind was to vary between 1-19 kmph for over 289 days and 20-61 kmph for over 55 days and rest of the days it remained calm in a year. Wind speed is high during June to September. Wind predominantly blows from East, North East and South West during non-monsoon season. During monsoon season, wind blows from West and South West direction.

Mixing Height: The Atlas of Mixing Heights published by IMD, New Delhi indicated that the peak mixing height of 1200 m would occur in the study

area during winter season. **Figure 5.7** represents the mixing height variation graph for winter season.

Figure 5-7: Mixing Height Variation Graph

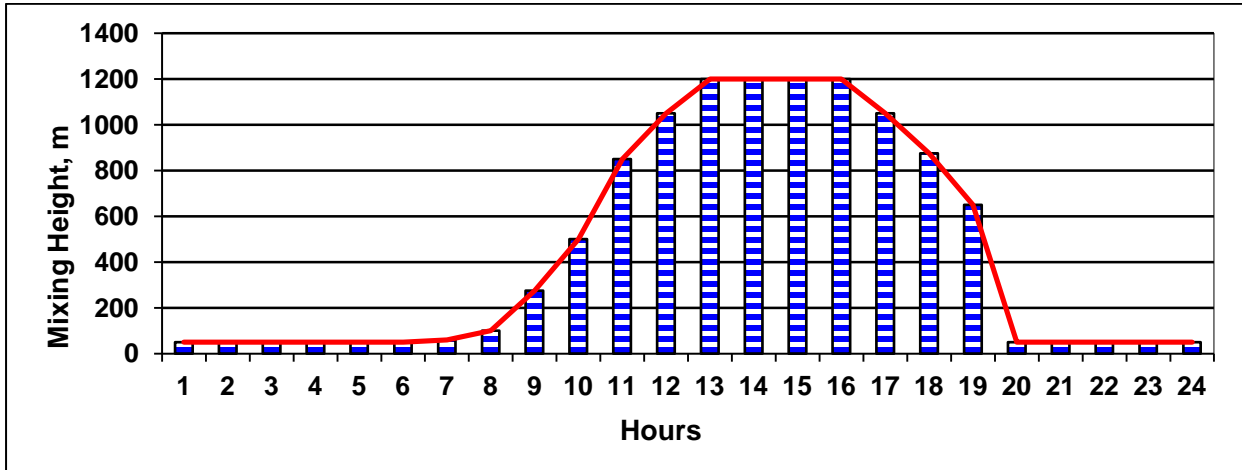


Table 5-5: Indian Meteorological Department – Climatological Tables 1

30 Years Data: 1971 to 2000 Station: Bangalore (A)

Month	Temperatures (°C)				Humidity (%)	Rainfall (mm)				Mean Wind Speed (kmph)
	Mean		Extremes			Monthly Total	No. of Rainy Days	Heaviest Rainfall in 24 hrs	Date and Year	
	Highest	Lowest	Highest	Lowest						
Jan	27.4	14.2	29.9	10.9	86 42	1.8	0.0	24.2	11, 1967	5.7
Feb	30.1	15.9	32.4	12.4	77 34	7.6	0.4	40.5	20, 1986	6.3
Mar	32.7	18.2	34.9	14.5	68 28	14.0	0.8	63.0	12, 1981	6.6
Apr	34.0	20.8	35.9	17.8	73 35	40.0	2.8	64.4	17, 1971	6.9
May	33.1	20.9	35.7	18.5	76 47	94.4	6.0	93.6	2, 1966	9.8
Jun	29.8	19.8	32.9	18.0	83 63	80.5	5.0	82.5	2, 1973	16.9
Jul	28.6	19.4	31.3	18.1	86 66	102.7	7.4	67.5	22, 1979	16.6
Aug	28.0	19.2	30.3	17.9	88 68	116.6	9.3	103.0	12, 1996	14.7
Sep	28.5	19.3	30.5	17.5	86 65	195.6	9.6	145.4	21, 1980	9.6
Oct	28.0	19.0	30.0	16.6	85 66	152.0	8.7	169.2	7, 1953	6.1
Nov	26.8	17.1	29.1	13.4	84 62	58.4	4.1	103.6	16, 1991	5.1
Dec	26.1	15.1	28.3	11.4	87 56	17.3	1.5	71.3	5, 1993	5.5
Annual Total / Mean	29.4	18.2	36.2	10.3	82 53	880.9	55.7	169.2	7, 1953	9.2

Source: Indian Meteorological Department, Pune

Table 5-6: Indian Meteorological Department – Climatological Tables 2

30 Years Data: 1971 to 2000 Station: Bangalore (A)

Month	No. of days with wind speed (kmph)				Percentage no. of days wind from								
	62 or more	20-61	1-19	0	N	NE	E	SE	S	SW	W	NW	CALM
Jan	0 0	0 1	27 29	4 1	0 1	15 19	58 60	10 14	3 1	1 1	1 0	0 1	12 3
Feb	0 0	0 2	24 25	4 1	1 2	8 13	35 52	20 20	8 3	8 3	4 1	1 1	15 5
Mar	0 0	0 3	27 27	4 1	1 3	2 15	19 52	17 18	13 2	20 3	11 2	2 2	15 3
Apr	0 0	1 2	27 26	2 2	1 6	2 11	4 38	11 20	14 5	33 4	24 4	5 6	6 6



EMP for the Proposed Product Mix Change Program
at VB Medicare Pvt. Ltd, Hosur, Tamil Nadu



May	0 0	5 4	25 25	1 2	2 10	1 7	1 11	2 8	4 6	19 13	55 24	13 16	3 5
Jun	0 0	14 15	16 14	0 1	1 2	0 0	0 1	0 1	0 1	25 26	65 57	8 10	1 2
Jul	0 0	14 15	17 16	0 0	0 2	0 0	0 1	0 0	0 1	25 23	69 63	6 9	0 1
Aug	0 0	11 11	19 19	1 1	1 3	0 1	0 0	0 0	0 0	16 18	70 61	11 15	2 2
Sep	0 0	4 3	24 25	2 2	3 6	2 4	3 4	2 4	1 2	12 20	57 36	15 18	5 6
Oct	0 0	1 1	26 27	4 3	3 11	10 17	20 22	7 7	2 2	10 10	29 12	7 9	12 10
Nov	0 0	1 1	26 27	3 2	5 11	33 28	33 37	7 8	1 1	4 2	4 2	2 4	11 7
Dec	0 0	0 1	29 29	2 1	3 3	34 25	48 58	6 8	0 1	1 1	1 0	1 1	6 3
Annual Total/ Mean	0 0	53 60	286 289	26 16	2 5	9 12	19 28	7 9	4 2	14 10	32 22	6 8	7 4

Source: Indian Meteorological Department, Pune

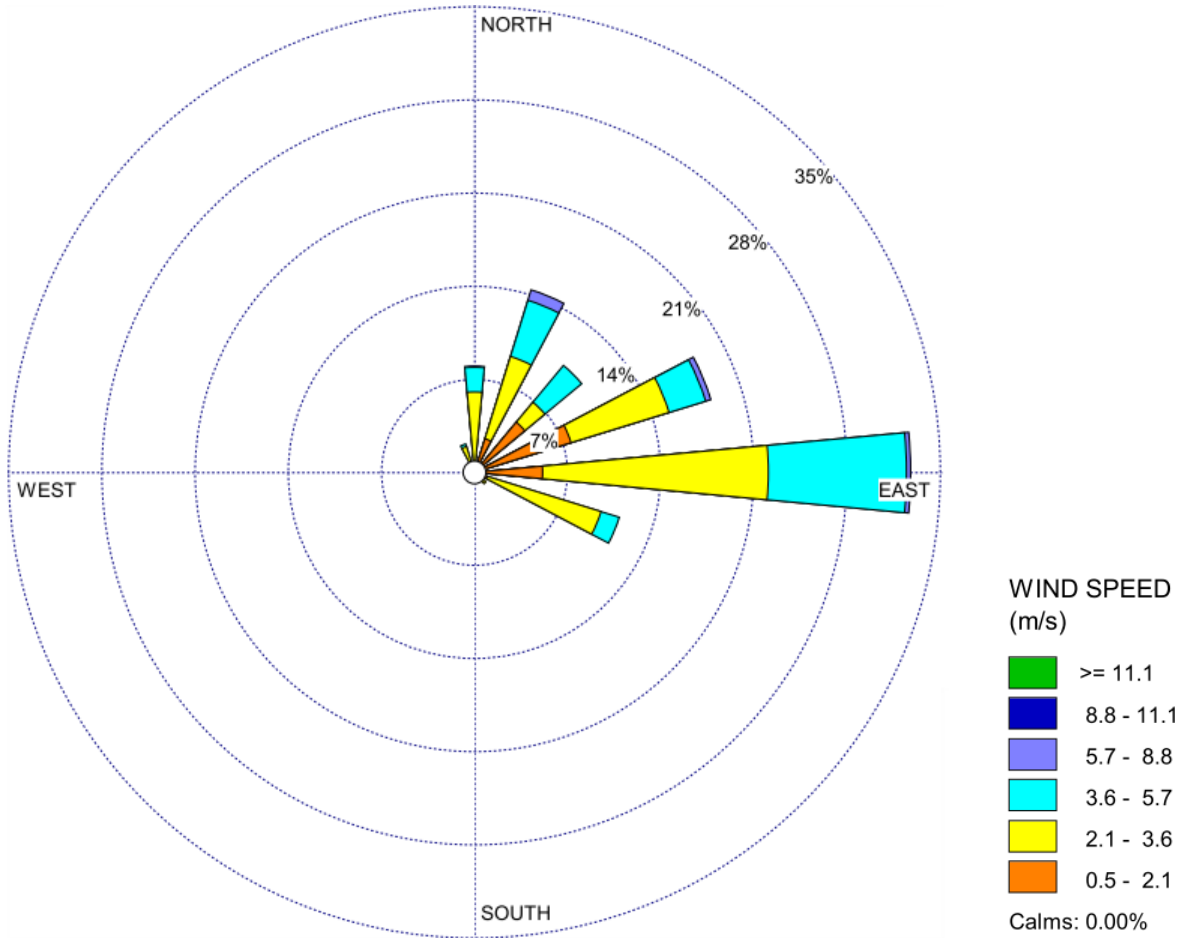
5.6.3. Site Specific Meteorological Data

Meteorological study becomes a crucial part of EIA study. To determine the prevailing micro-meteorological conditions during the study period, an automatic weather monitoring station was installed at VBM facility. Micro meteorological parameters like wind speed, wind direction, rainfall, air temperature and relative humidity were monitored for a period of 3 months from November 2013 to January 2013. The wind rose was plotted for data collected and is presented in **Figure 5.8**.

Observations:

1. Temperature during the study period was found to vary from 12 °C to 32 °C.
2. Relative humidity was found to vary from 18% to 99%.
3. Predominantly, winds were blow from East direction. The average wind speed is 2.89 m/s. The winds remained calm during 0 % of study period.

Figure 5-8: Wind Rose Diagram (Study Period: November 2013 to January 2014)



5.6.4. Air Quality of Study Area

Sources of Air Pollution

Following industrial activities are carried out within the study area and are the major sources of air pollution:

1. National Highway 7 at 0.25 km
2. National Highway 201 at 5.25 km
3. Industries operating in SIPCOT Phase I
4. Industries operating in SIPCOT Phase II
5. Industries operating in SIDCO Industrial Estate
6. Hosur IT Park and SEZ
7. Hostia Industrial Estate

8. Maruthi Sundew

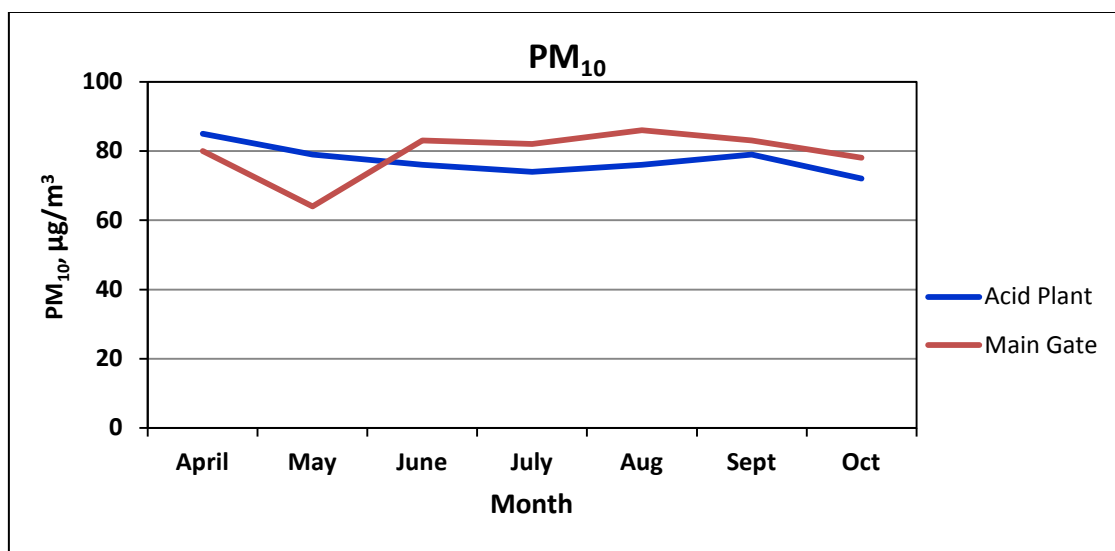
The study area mainly consists of large, medium and small scale industries located in SIPCOT Phase I & II, SIDCO Industrial Estate and scattered over private land too. Industries of various kinds such as automobile, chemical, iron and steel, electronic and electrical, general engineering are located within the study area.

Project Site Monitoring Observations

The existing facility has appointed a MoEF approved environmental monitoring agency for conducting ambient air quality monitoring once in a month at two locations within the plant, namely, Near Acid Plant and near Main Gate. Monitoring results were collected from April 2012 to October 2012. The trend in the ambient air quality at existing facility is being discussed below in Figures.

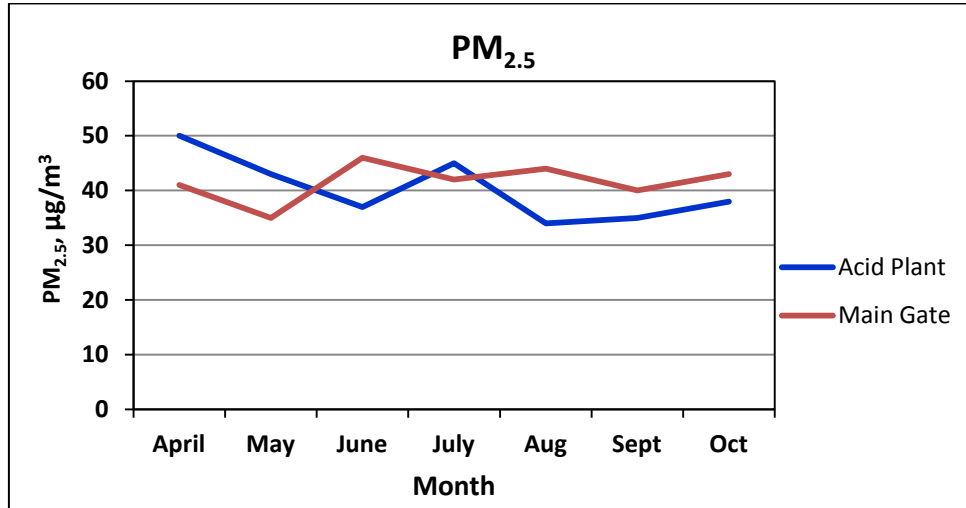
PM₁₀: PM₁₀ values were found to vary from 64 $\mu\text{g}/\text{m}^3$ to 86 $\mu\text{g}/\text{m}^3$, which is less than NAAQ standard of 100 $\mu\text{g}/\text{m}^3$ for 24 hours. PM₁₀ variation graph (**Figure 5.9**) indicates that the PM₁₀ values are found to decrease over a period of time.

Figure 5-9: PM₁₀ Trend Observed during April 2012 to October 2012



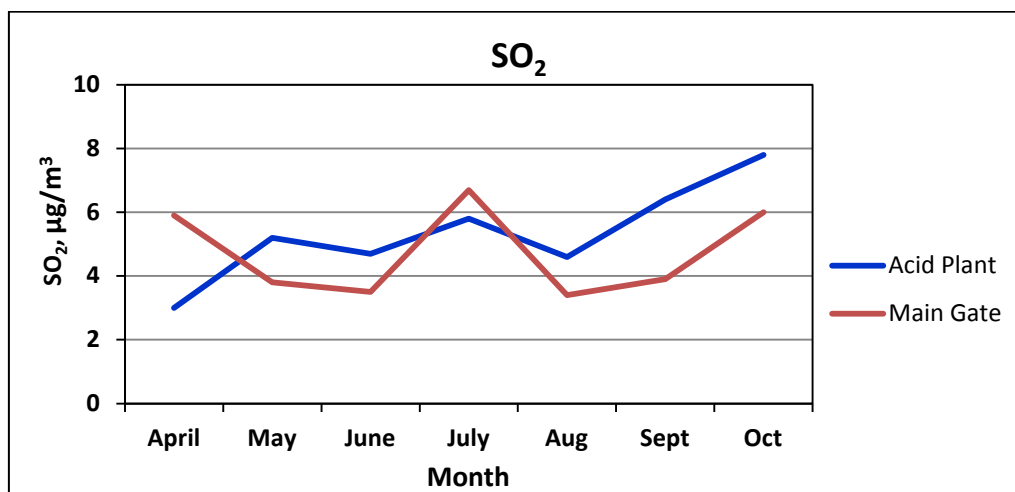
PM_{2.5}: PM_{2.5} values were found to vary from 34 µg/m³ to 50 µg/m³, which is less than NAAQ standard of 60 µg/m³ for 24 hours. PM_{2.5} variation graph (**Figure 5.10**) indicates that the variation in PM_{2.5} levels is very narrow.

Figure 5-10: PM_{2.5} Trend Observed during April 2012 to October 2012



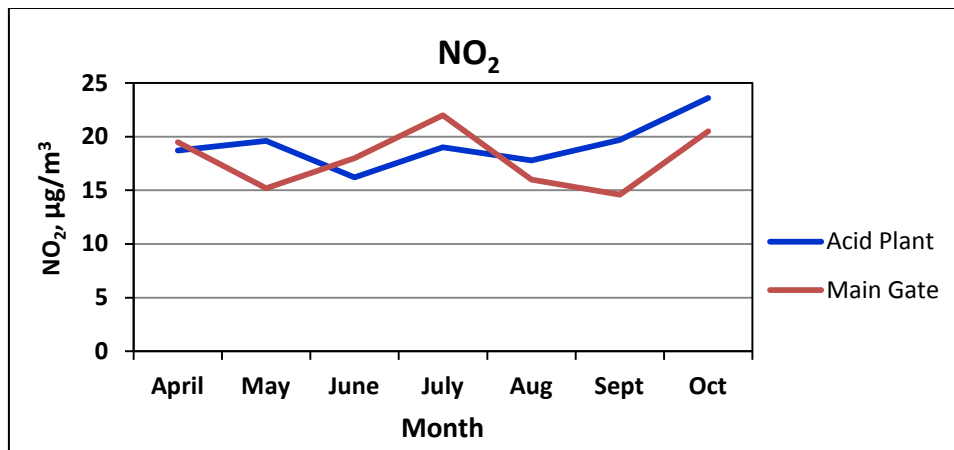
SO₂: SO₂ values were found to vary from 3 µg/m³ to 7.8 µg/m³, which is less than NAAQ standard of 80 µg/m³ for 24 hours. SO₂ variation graph (**Figure 5.11**) indicates that SO₂ levels increased from August to October.

Figure 5-11: SO₂ Trend Observed during April 2012 to October 2012



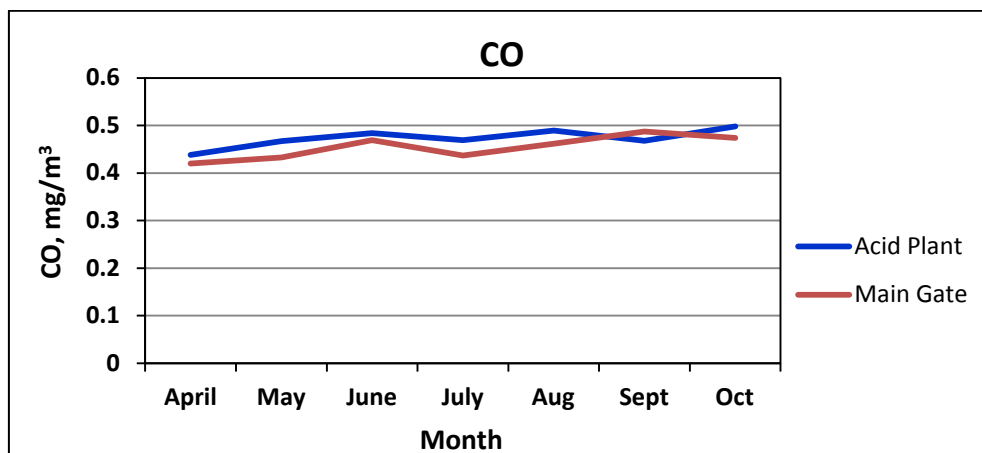
NO₂: NO₂ values were found to vary from 14.6 µg/m³ to 23.6 µg/m³, which is less than NAAQ standard of 80 µg/m³ for 24 hours. NO₂ variation graph (**Figure 5.12**) indicates that NO₂ levels decreased during monsoon period of August and September.

Figure 5-12: NO₂ Trend Observed during April 2012 to October 2012



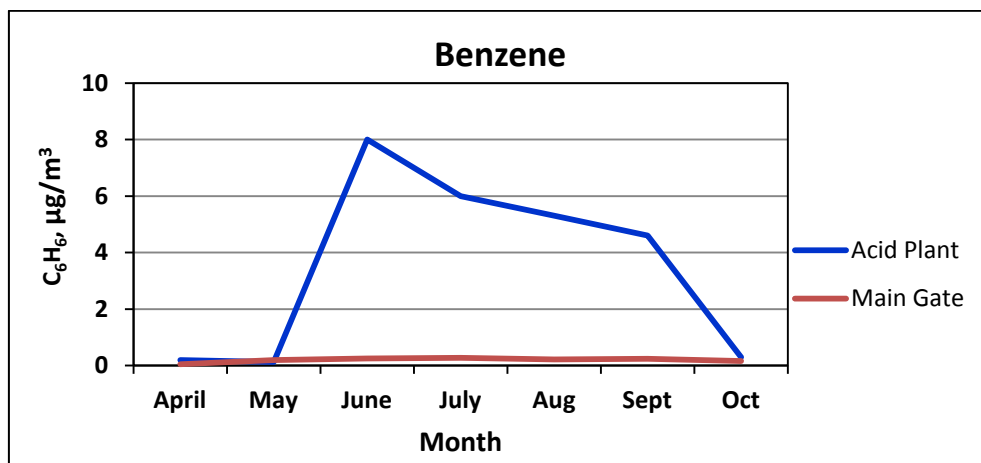
CO: CO values were found to vary from 0.42 mg/m³ to 0.49 mg/m³, which is less than NAAQ standard of 2 mg/m³ for 8 hours monitoring period. CO variation graph (**Figure 5.13**) indicates those CO levels increased from April to October and the variation also being negligible.

Figure 5-13: CO Trend Observed during April 2012 to October 2012



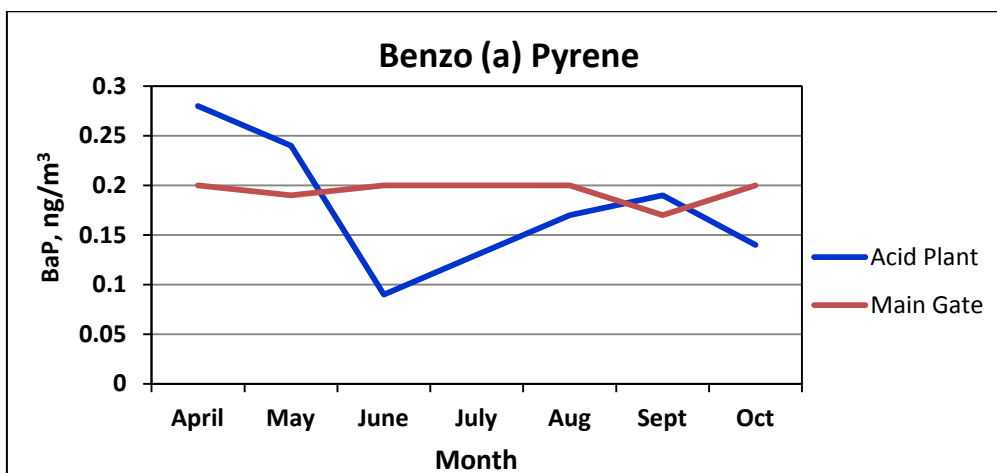
Benzene: Benzene values were found to vary from 0.05 $\mu\text{g}/\text{m}^3$ to 8 $\mu\text{g}/\text{m}^3$. Values of Benzene were found to exceed NAAQ standard of 6 $\mu\text{g}/\text{m}^3$ near Acid plant during June 2012 (**Figure 5.14**). This may be attributed to leakage of solvents from the tank farm.

Figure 5-14: Benzene Trend Observed during April 2012 to October 2012



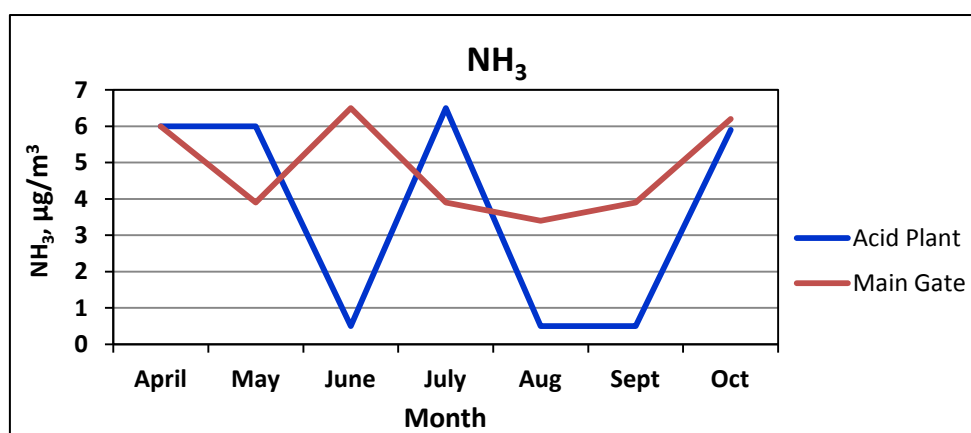
Benzo (a) pyrene: Values of Benzo (a) pyrene [BaP] were found to vary from 0.09 ng/m^3 to 0.28 ng/m^3 . Values of BaP were found to be well within NAAQ standard of 1 ng/m^3 .

Figure 5-15: Benzene (a) Pyrene Trend Observed during April 2012 to October 2012



Ammonia: Values of Ammonia were found to vary from 0.5 $\mu\text{g}/\text{m}^3$ to 6.5 $\mu\text{g}/\text{m}^3$. Values of Ammonia were found to be well below NAAQ standard of 400 $\mu\text{g}/\text{m}^3$.

Figure 5-16: Ammonia Trend Observed during April 2012 to October 2012



5.7. Noise Environment

The noise levels within the existing plant are being monitored by TNPCB once in a year at 8 locations. The report of the same is being reproduced in **Table 5.7**. The equivalent noise levels were found vary from 55.7 dB(A) near main gate to 63.3 dB(A) near the fence which is below Ambient Air Quality Standards for Noise for Industrial Area. Noise Report enclosed as **Annexure-IV**.

Table 5-7: Noise Levels within the Existing Facility

S.No.	Location	Sound Level Leq dB(A)
1	Behind Waste Storage Shed	58.4
2	Near Water Sump	60.0
3	Near Main Gate	55.7
4	Near Gate No. 2	56.4
5	Near Fence	63.3
6	Near Old Admin Building	61.4
7	Behind Spent Acid Tank	61.2
8	Near Scrap Yard	58.4

5.8. Socioeconomic Profile of the Study Area

5.8.1. Demography

The population in the study area is read using the 2011 census. The total households in the study area (identified fifty five villages and five urban agglomeration) are 91,080 with a total population of 3,71,441. The sex ratio in the study area was 939 females for 1000 Males. The children population was about 46,234 in which 23,619 were males and 22,615 were females. The children sex ratio was 958 which is higher than the rate of general population. The ratio of urban and rural population in the study area is 62:38 respectively. Socioeconomic status of the area depends on the vulnerable and weaker section of the society. Vulnerable population generally indicates the population of Scheduled Caste and Scheduled tribes. Largest Scheduled Castes found in the districts are Adi Dravida, Arunthathiyar and Kuravan and largest Scheduled Tribes are Malayali, Irular and Kurumans. The SC population in study area seems to be 13.06% to the total population. The ST population is very less when compared with SC population. The percentage of ST population is 0.35%.

Table 5-8: Population Distribution in the study area

No	Villages	HH	Pop	M	F_M	C<6	MC<6	FC<6	SC	ST
1	Achettipalli	697	3066	1562	1504	368	172	196	910	0
2	Dhasapalli	152	894	443	451	127	64	63	1	0
3	Alur	678	3018	1569	1449	338	170	168	178	5
4	Midithepalli	287	1287	667	620	164	96	68	278	31
5	Athimugam	937	4540	2339	2201	572	272	300	334	17
6	Attur	160	667	334	333	68	33	35	172	0
7	Badathepalli	150	735	373	362	78	41	37	114	0
8	Kanimangalam	107	463	232	231	54	24	30	117	0
9	Attur	77	354	187	167	42	22	20	226	0
10	Jeemangalam	266	1148	577	571	136	67	69	388	0
11	Bairamangalam	1207	4932	2569	2363	520	258	262	1213	11
12	Begepalli	963	3835	1969	1866	517	277	240	382	7
13	Govinda Agraharam	979	3875	2122	1753	474	244	230	664	3
14	Bukkasagaram	460	2126	1109	1017	259	128	131	319	0
15	Kembasandiram	184	891	450	441	117	55	62	331	0
16	Viswanathapuram	439	1818	943	875	238	126	112	346	0
17	Chennasandiram	90	365	190	175	30	16	14	132	0
18	Kalasthipuram	159	680	365	315	89	42	47	240	0
19	Chenathur	3458	15826	8925	6901	1938	999	939	1154	110
20	Doripalli	852	3681	1898	1783	398	216	182	596	0
21	Hosappuram	763	3561	1830	1731	392	211	181	773	0
22	Kamandoddi	1450	6524	3394	3130	797	415	382	878	130
23	Addakurukki	581	2504	1288	1216	366	191	175	425	8
24	Subbagiri	158	656	333	323	81	46	35	0	0
25	Eluvapalli	283	1323	688	635	159	85	74	446	0
26	Siddanapalli	153	682	347	335	90	54	36	133	0
27	Peddakullu	109	521	265	256	56	28	28	120	0
28	Karibasanapuram	1	4	2	2	0	0	0	0	0
29	Chinnakullu	71	331	165	166	38	20	18	69	0
30	Kelavarapalli	117	529	274	255	42	15	27	49	0
31	Punugandoddi	187	834	430	404	100	54	46	226	0
32	Koladasapuram	221	857	429	428	90	45	45	390	0
33	Halekotta	707	2990	1535	1455	301	148	153	209	83
34	Thiyarandurgam	919	4143	2136	2007	463	223	240	442	82
35	Nanjapuram	123	649	354	295	77	41	36	160	2
36	Kothagondapalli	1087	4706	2346	2360	552	277	275	1795	11
37	Kundumaranapalli	863	3867	1972	1895	436	199	237	1157	0
38	Thattiganapalli	277	1227	636	591	141	69	72	436	0



No	Villages	HH	Pop	M	F_M	C<6	MC<6	FC<6	SC	ST
39	Karupalli	73	332	181	151	27	19	8	41	0
40	Pathamuthali	205	967	499	468	101	51	50	392	0
41	Muthalli	108	444	223	221	46	23	23	130	0
42	Nagondapalli	674	2929	1513	1416	315	157	158	1096	0
43	Nallur	1319	5327	2739	2588	571	292	279	889	41
44	Nandimangalam	591	2602	1314	1288	261	138	123	713	0
45	Onalvadi	1607	6656	3411	3245	759	393	366	1360	0
46	Advanapalli	58	239	123	116	34	16	18	1	0
47	Alnatham	71	327	170	157	28	12	16	77	0
48	Sudugondapalli	87	447	229	218	50	30	20	95	0
49	Palavanapalli	258	1096	540	556	114	58	56	370	0
50	Moranapalli	2174	9160	4855	4305	1301	668	633	1503	13
51	Poonapalli	738	3061	1542	1519	319	170	149	544	9
52	Sanamavu	925	4248	2182	2066	513	270	243	659	183
53	Naligabetta Agraharam	281	1247	616	631	114	55	59	234	0
54	Thorapalli Agraharam	2177	9849	4669	5180	1328	694	634	1178	10
55	Venkatesapuram	650	2873	1484	1389	325	172	153	583	0
56	Zuzuvadi (CT)	8728	32474	17295	15179	4387	2145	2242	3289	156
57	Avalapalli (CT)	4478	17859	9135	8724	2276	1200	1076	1838	90
58	Mookondapalli (CT)	10624	39245	20488	18757	5450	2868	2582	3158	66
59	Hosur (M)	29255	116821	59351	57470	14307	7274	7033	9438	200
60	Mathigiri (TP)	5627	23129	11725	11404	2900	1471	1429	5128	33
Total		91080	371441	191531	179910	46234	23619	22615	48519	1301

Source: Census 2011. **HH**-Household, **POP**-Population, **M** -Male Population, **F_M** -Female Population, **C<6**-Children Population below 6 Years, **MC<6**- Male Children, **FC<6**-Female Children, **SC**-Scheduled Caste, **ST**- Scheduled Tribes, **M**-Municipality, **CT**- Census Town, **TP** – Town Panchayat.

5.8.2. Economic Indicators

5.8.2.1. Employment

The total working population in the study area is 1,49,599. The percentage of working population is about 40.27% as against the state's level of 45.58%. 74.63% of the working population is main workers and this shows the improved life style of the people as they are employed for more than 6 months in the year. In the study area only 24.71% of the total working population is engaged in agricultural activity. The agricultural workers group is sub-grouped into Cultivators and Agricultural Labors. In which 52% were cultivators and 48% were Agricultural Labors. Household Industry relates to production, processing, servicing, repairing or making and selling of goods. Other workers are all workers who have been engaged in some economic activity like employed in industries, fishing activity, wagers, construction workers, etc., but are not cultivators or agricultural laborers or Household Industry. The percentage of Household and Other workers group were 2.09% and 73.18% respectively.

Table 5-9: Workers Group Distribution in the Study Area

S.No	Villages	Working Population			Agricultural				Household		Other	
		Total	MAIN	MGN	MCL	MAL	MGC	MGA	MHH	MGH	MOT	MGO
1	Achettipalli	1429	1405	24	530	509	11	9	59	0	307	4
2	Addakurukki	1023	682	341	199	272	31	234	1	1	210	75
3	Advanapalli	68	48	20	37	1	2	17	0	0	10	1
4	Alnatham	91	69	22	62	0	0	15	0	0	7	7
5	Alur	1140	673	467	431	88	213	96	5	22	149	136
6	Athimugam	1936	1525	411	485	547	44	208	35	69	458	90
7	Attur	136	136	0	101	17	0	0	0	0	18	0
8	Attur-1	308	307	1	139	160	0	0	0	0	8	1
9	Avalapalli (CT)	6747	6346	401	377	298	37	63	147	34	5524	267
10	Badathepalli	302	285	17	106	100	2	2	4	0	75	13
11	Bairamangalam	2330	1723	607	725	282	98	406	26	2	690	101
12	Begepalli	1505	1364	141	130	73	6	7	10	4	1151	124
13	Bukkasagaram	364	278	86	104	53	18	25	22	0	99	43
14	Chenathur	5288	4714	574	310	166	91	34	75	32	4163	417
15	Chennasandiram	185	23	162	0	0	124	34	0	0	23	4
16	Chinnakullu	195	188	7	169	1	4	1	3	0	15	2
17	Dhasapalli	521	519	2	0	516	0	2	0	0	3	0
18	Doripalli	1140	1056	84	353	243	9	21	16	0	444	54
19	Eluvapalli	870	633	237	533	72	3	228	3	0	25	6
20	Govinda Agraharam	1742	1658	84	135	393	2	9	14	4	1116	69
21	Halekotta	1263	1098	165	493	397	50	46	16	17	192	52
22	Hosappuram	1822	1693	129	427	1118	2	40	29	1	119	86
23	Hosur (M)	43959	39730	4229	212	308	57	62	747	189	38463	3921
24	Jeemangalam	462	441	21	207	23	8	0	15	0	196	13
25	Kalasthipuram	42	36	6	1	6	3	1	2	0	27	2
26	Kamandoddi	3003	2221	782	863	403	209	212	49	20	906	341
27	Kanimangalam	335	156	179	123	23	12	135	5	14	5	18
28	Karibasanapuram	1	1	0	1	0	0	0	0	0	0	0
29	Karupalli	135	132	3	98	15	1	0	3	1	16	1
30	Kelavarapalli	334	329	5	296	7	2	0	5	0	21	3
31	Kembasandiram	257	249	8	202	24	3	3	0	0	23	2
32	Koladasapuram	431	401	30	79	161	5	9	3	0	158	16
33	Kothagondapalli	1977	1887	90	183	566	8	29	23	9	1115	44
34	Kundumaranapalli	1784	1562	222	513	454	10	155	35	9	560	48
35	Mathigiri (TP)	8510	8130	380	227	308	22	20	153	21	7442	317
36	Midithepalli	729	727	2	259	406	2	0	2	0	60	0
37	Mookondapalli (CT)	15857	15104	753	256	300	20	38	279	37	14269	658
38	Moranapalli	4081	3811	270	610	359	16	16	126	12	2716	226



S.No	Villages	Working Population			Agricultural				Household		Other	
		Total	MAIN	MGN	MCL	MAL	MGC	MGA	MHH	MGH	MOT	MGO
39	Muthalli	156	155	1	100	5	0	0	2	0	48	1
40	Nagondapalli	1310	928	382	203	104	73	141	46	10	575	158
41	Naligabetta Agraharam	711	699	12	294	245	4	4	6	0	154	4
42	Nallur	2140	1993	147	723	222	29	59	12	6	1036	53
43	Nandimangalam	1260	1134	126	497	475	14	58	47	5	115	49
44	Nanjapuram	420	407	13	219	45	3	1	15	0	128	9
45	Onalvadi	2861	2524	337	400	525	23	83	51	6	1548	225
46	Palavanapalli	480	478	2	220	239	1	1	0	0	19	0
47	Pathamuthali	369	366	3	221	85	2	0	7	0	53	1
48	Peddakullu	252	241	11	134	47	0	6	0	0	60	5
49	Poonapalli	1424	890	534	311	188	139	283	25	7	366	105
50	Punugandoddi	435	430	5	175	136	0	1	0	0	119	4
51	Sanamavu	1913	1661	252	924	266	15	106	17	1	454	130
52	Siddanapalli	401	392	9	83	207	0	1	41	2	61	6
53	Subbagiri	208	208	0	174	18	0	0	0	0	16	0
54	Sudugondapalli	329	211	118	202	3	12	96	3	1	3	9
55	Thattiganapalli	612	561	51	385	101	16	14	0	2	75	19
56	Thiyarandurgam	2137	1692	445	598	524	11	319	19	5	551	110
57	Thorapalli Agraharam	3855	3157	698	611	1086	29	330	48	38	1412	301
58	Venkatesapuram	1211	965	246	815	91	5	230	4	0	55	11
59	Viswanathapuram	763	598	165	300	58	4	53	5	1	235	107
60	Zuzuvadi (CT)	14050	12720	1330	197	307	14	92	204	81	12012	1143
	Total	149599	133750	5849	17762	13646	1519	4055	2464	663	99878	9612

Total- Total Working Population, **MAIN** – Main Workers, **MGN**- Marginal Workers, **MCL**- Main Cultivators, **MAL**-Main Agricultural Labors, **MGC**- Marginal Cultivators, **MGA**- Marginal Agricultural Labors, **MHH**- Main Household Industry, **MGH**- Marginal Household Industry, **MOT** – Main Other Industry, **MGO**- Marginal Other Industry.

Industries in the Study Area

The census data depicts that the main source of income is from other income sources only apart from agriculture and household industries. The below **Table 5.10** shows the list of major industrial players situated within the study area.

Table 5-10: Large Scale Industries in Krishnagiri District

S.No	Name Of The Large Scale Industry	Manufacturer	Location
1	Ashok Leyland Ltd.,	Motors	Hosur
2	TVS Motors Ltd	Motors	Hosur
3	TITAN Industries	Watches and Jewellery	Hosur
4	Sundaram Clayton	Two Wheeler Parts	Hosur
5	Taneja Aerospace and Aviation Ltd.,	Tools Mfg.	Hosur
6	AV Tech Ltd	Tools Mfg.	Hosur
7	Carborandum Universal Ltd.,	Tools Mfg.	Hosur
8	TTK Prestige Ltd.,	Cooker Mfg.	Hosur
9	India Pistons Ltd.,	Pistons	Hosur
10	Global Calcium Pvt., Ltd.,	Pharmaceutical	Hosur

Source: Brief Industrial Profile of Krishnagiri District- 2012-2013

Households Under Below Poverty Line

Below Poverty Line (BPL) is an economic benchmark of the particular area, the higher the rates of BPL family's lower the prosperity of the area. The present criteria are based on a Baseline survey conducted under the Nirmal Bharat Abhiyan (NBA), Ministry of Drinking water and Sanitation. According to "NBA", the percentage of BPL families in the study area ranges from 18.75% to 88.37%. The average rate(65.71%) of BPL households in 31 Panchayat villages are more than the state average of 17.1 % (NSSO Sample Survey 2009-10). The **Table 5.11** shows the percentage of BPL Households in the study area.

Table 5-11: Rural Households under Below Poverty Line

S.No	Panchayat Village	Households*	BPL HH	BPL %
1	A.Settipalli	721	551	76.42
2	Alur	764	579	75.79
3	Athimugam	1209	900	74.44
4	Badapalli	971	824	84.86
5	Bagaloor	1918	1397	72.84
6	Bairamangalam	947	284	29.99
7	Begapalli	1582	745	47.09
8	Bukkasagaram	586	463	79.01
9	Chennasandiram	995	839	84.32
10	Chennathur	1261	955	75.73
11	Doripalli	832	568	68.27
12	Hosapuram Settipalli	586	162	27.65
13	Kamandoddi	1321	960	72.67
14	Kanalatti	736	560	76.09
15	Kattunaikanadoddi	902	668	74.06
16	Kelavarapalli	664	519	78.16
17	Koladasapuram	272	51	18.75
18	Kommepalli	898	599	66.70
19	Kondaganapalli	512	196	38.28
20	Kondumaranapalli	850	575	67.65
21	Muthali	1045	767	73.40
22	Nagondapalli	430	380	88.37
23	Nallur	1052	771	73.29
24	Nandhimangalam	1024	863	84.28
25	Onnalvadi	1054	435	41.27
26	Palavanapalli	905	713	78.78
27	Perandapalli	1035	564	54.49
28	Poonapalli	658	246	37.39
29	Sanamavoo	978	718	73.42
30	Thorapalliagraharam	1610	1091	67.76
31	Vengatespuram	760	576	75.79

Source: Nirmal Bharat Abhiyan (NBA), Ministry of Drinking water and Sanitation

*As per baseline survey conducted under NBA. HH- Households, BPL- Below Poverty Line

Health Indicators

The District health indicators based on DLHS-3 are as follows. Institutional Birth Rate in the study area was about 86.9% with respect to state the rate

was 94%. The childhood immunization was to be only 89.7% which is more than that of state rate of 81.6%. The rate of Infant mortality rate in 2011-12 was about 18.9 per 1000 infants born which was more than the rate of state (25.5)³. Drinking water and Sanitation is the major concern in relating to public health. The percentage of people having access to safe drinking water facility (98.6%) is very good when compared to the state rate (94.7%). The Sanitation facility in the place seems to be very poor only about 27.7% of the population in the study area is having access to safe sanitation facilities.

Toilet Facility in study area

According to District Level Household Survey (DLHS-3), only 27.7% of district's population had access to toilet facilities. When the same is compared with rural facilities the rate was 16.2%. Based on the reports of Total Sanitation Campaign, the average rate of people availing safe sanitation in the study area was only 27.3%. Sanitation coverage for BPL (19.3%) families are worse when compared to APL families (48.8%). The below **Table 5.12** depicts the percentage of population availed safe sanitation facility in the study area.

Table 5-12: Percentage availed Safe Sanitation Facilities in the Study Area

S.No	Panchayat Name	Toilet Facilities (BPL)	Toilet Facilities (APL)	Toilet Facilities (APL+BPL)	School Toilet	Anganwadi Toilet	Sanitary Complex
1	A.Settipalli	11.4	80.0	27.6	12.5	25.0	-
2	Alur	11.9	80.0	28.4	6.7	42.9	-
3	Athimugam	14.8	92.9	34.7	14.3	33.3	-
4	Badapalli	6.67	27.9	9.9	15.4	100.0	-
5	Bagaloor	5.37	8.1	6.1	7.7	100.0	-
6	Bairamangalam	6.69	7.2	7.1	30.0	100.0	-
7	Begapalli	31.9	35.7	33.9	-	-	-
8	Bukkasagaram	9.94	79.7	24.6	12.5	-	-
9	Chennasandiram	6.32	39.7	11.6	8.3	100.0	-
10	Chennathur	3.66	8.2	4.8	25.0	100.0	-

³ http://www.krishnagiri.tn.nic.in/documents/stat/2011_2012/vitalstatistics.pdf



S.No	Panchayat Name	Toilet Facilities (BPL)	Toilet Facilities (APL)	Toilet Facilities (APL+BPL)	School Toilet	Anganwadi Toilet	Sanitary Complex
11	Doripalli	50.5	61.7	54.1	-	-	-
12	Hosapuram Settipalli	16.7	11.8	13.1	-	-	-
13	Kamandoddi	15.1	86.7	34.7	14.3	-	-
14	Kanalatti	11.6	80.1	28.0	14.3	50.0	-
15	Kattunaikanadoddi	13	79.9	30.4	0.0	-	-
16	Kelavarapalli	10.4	35.9	16.0	7.7	100.0	-
17	Koladasapuram	27.5	60.2	54.0	-	-	-
18	Kommepalli	65.3	63.5	64.7	-	-	-
19	Kondaganapalli	4.59	9.5	7.6	26.3	100.0	-
20	Kondumaranapalli	32	30.9	31.6	0.0	-	-
21	Muthali	10.8	34.2	17.0	18.2	100.0	-
22	Nagondapalli	46.6	42.0	46.0	-	-	-
23	Nallur	12.1	30.2	16.9	12.5	100.0	-
24	Nandhimangalam	4.98	31.7	9.2	16.7	100.0	-
25	Onnalvadi	39.1	61.4	52.2	-	-	-
26	Palavanapalli	-	45.3	9.6	10.0	100.0	-
27	Perandapalli	59	66.9	62.6	-	-	-
28	Poonapalli	45.5	43.2	44.1	-	-	-
29	Sanamavoo	13.5	80.0	31.2	25.0	100.0	-
30	Thorapalliagraharam	-	18.7	6.0	28.6	100.0	-
31	Vengatespuram	11.8	79.9	28.3	37.5	-	-

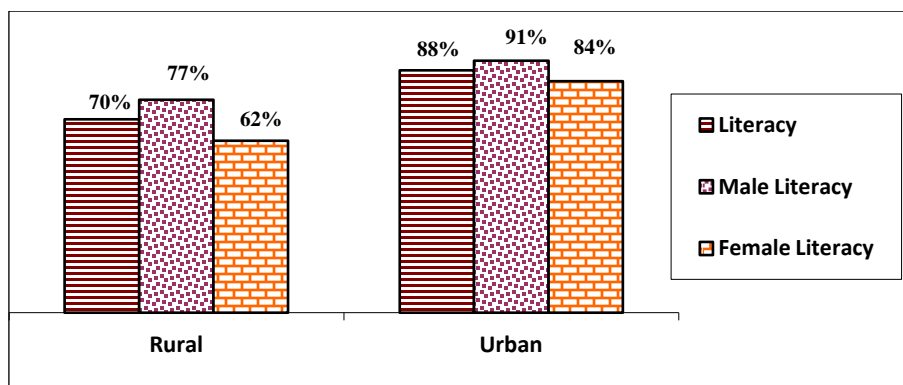
BPL- Population under Below Poverty Line, **APL** – Population Above Poverty Line,
Source: Nirmal Bharat Abhiyan, Ministry of Drinking Water and Sanitation-<http://tsc.gov.in>

Education Indicators

In the study area about 70.68% of the total populations are literates, which is more than the national literacy rate of 64.8% and state's literacy rate of 71.84%. In the district 70.3% of the children (aged 7plus) are literate and 99.3% of the girl children (aged 6 to 11) are going to school⁴. The literacy pattern of rural urban scenario is shown in the **Figure 5.17**.

⁴ District Level Household Survey (DLHS -3) 2007-08

Figure 5-17: Literacy Pattern in the study area



Source: Census 2011.

Table 5-13: Village-wise Literacy rate in the study Area

S.No	Villages	Population >6 Years	Literates	Literacy Rate	Male Literates	Male Literacy Rate	Female Literates	Female Literacy Rate
1	Achettipalli	2698	1861	69.0	1056	76.0	805	61.5
2	Addakurukki	2138	1298	60.7	758	69.1	540	51.9
3	Advanapalli	205	125	61.0	75	70.1	50	51.0
4	Alnatham	299	176	58.9	118	74.7	58	41.1
5	Alur	2680	1794	66.9	1058	75.6	736	57.5
6	Athimugam	3968	2297	57.9	1317	63.7	980	51.6
7	Attur	312	190	60.9	105	63.6	85	57.8
8	Attur-1	599	427	71.3	238	79.1	189	63.4
9	Avalapalli (CT)	15583	13760	88.3	7262	91.5	6498	85.0
10	Badathepalli	657	365	55.6	201	60.5	164	50.5
11	Bairamangalam	4412	3376	76.5	1940	83.9	1436	68.3
12	Begepalli	3318	2661	80.2	1459	86.2	1202	73.9
13	Bukkasagaram	1867	1213	65.0	742	75.6	471	53.2
14	Chenathur	13888	11190	80.6	6809	85.9	4381	73.5
15	Chennasandiram	335	207	61.8	122	70.1	85	52.8
16	Chinnakullu	293	207	70.6	109	75.2	98	66.2
17	Dhasapalli	767	363	47.3	202	53.3	161	41.5
18	Doripalli	3283	2013	61.3	1165	69.3	848	53.0
19	Eluvapalli	1164	743	63.8	434	72.0	309	55.1
20	Govinda Agrapharam	3401	2450	72.0	1491	79.4	959	63.0
21	Halekotta	2689	1831	68.1	1071	77.2	760	58.4
22	Hosappuram	3169	2048	64.6	1166	72.0	882	56.9
23	Hosur (M)	102514	89593	87.4	47353	90.9	42240	83.7



S.No	Villages	Population >6 Years	Literates	Literacy Rate	Male Literates	Male Literacy Rate	Female Literates	Female Literacy Rate
24	Jeemangalam	1012	746	73.7	408	80.0	338	67.3
25	Kalasthipuram	591	458	77.5	273	84.5	185	69.0
26	Kamandoddi	5727	3601	62.9	2093	70.3	1508	54.9
27	Kanimangalam	409	301	73.6	166	79.8	135	67.2
28	Karibasanapuram	4	3	75.0	1	50.0	2	100.0
29	Karupalli	305	181	59.3	113	69.8	68	47.6
30	Kelavarapalli	487	312	64.1	174	67.2	138	60.5
31	Kembasandiram	774	516	66.7	273	69.1	243	64.1
32	Koladasapuram	767	492	64.1	276	71.9	216	56.4
33	Kothagondapalli	4154	2953	71.1	1614	78.0	1339	64.2
34	Kundumaranapalli	3431	2243	65.4	1342	75.7	901	54.3
35	Mathigiri (TP)	20229	17357	85.8	9165	89.4	8192	82.1
36	Midithepalli	1123	630	56.1	369	64.6	261	47.3
37	Mookondapalli (CT)	33795	30143	89.2	16302	92.5	13841	85.6
38	Moranapalli	7859	5842	74.3	3403	81.3	2439	66.4
39	Muthalli	398	222	55.8	132	66.0	90	45.5
40	Nagondapalli	2614	1918	73.4	1110	81.9	808	64.2
41	Naligabetta Agraharam	1133	929	82.0	506	90.2	423	74.0
42	Nallur	4756	3453	72.6	1952	79.8	1501	65.0
43	Nandimangalam	2341	1406	60.1	797	67.8	609	52.3
44	Nanjapuram	572	360	62.9	221	70.6	139	53.7
45	Onalvadi	5897	4443	75.3	2475	82.0	1968	68.4
46	Palavanapalli	982	637	64.9	349	72.4	288	57.6
47	Pathamuthali	866	473	54.6	275	61.4	198	47.4
48	Peddakullu	465	264	56.8	141	59.5	123	53.9
49	Poonapalli	2742	2000	72.9	1111	81.0	889	64.9
50	Punugandoddi	734	482	65.7	267	71.0	215	60.1
51	Sanamavu	3735	2549	68.2	1487	77.8	1062	58.3
52	Siddanapalli	592	303	51.2	170	58.0	133	44.5
53	Subbagiri	575	360	62.6	194	67.6	166	57.6
54	Sudugondapalli	397	217	54.7	128	64.3	89	44.9
55	Thattiganapalli	1086	701	64.5	397	70.0	304	58.6
56	Thiyarandurgam	3680	2245	61.0	1337	69.9	908	51.4
57	Thorapalli Agraharam	8521	6149	72.2	3014	75.8	3135	69.0
58	Venkatesapuram	2548	1655	65.0	960	73.2	695	56.2
59	Viswanathapuram	1580	1387	87.8	741	90.7	646	84.7
60	Zuzuvadi (CT)	28087	24425	87.0	13852	91.4	10573	81.7



S.No	Villages	Population >6 Years	Literates	Literacy Rate	Male Literat es	Male Literac y Rate	Female Literate s	Female Literacy Rate
Total /Average		325207	262544	80.7	143839	85.7	118705	75.5

Source: Census 2011.

6. ENVIRONMENT IMPACT PREDICTION

6.1. Introduction

This section presents, the magnitude of environmental emissions and discharges and associated environmental impacts due to release of uncontrolled and controlled emissions and discharges from the proposed facility.

Industrial activities would cause certain degree of environmental impacts, if proper environmental management plan is not adopted at the design and operational phases of the project. The primary objectives of environmental management plan are: (i) to meet the emission and environmental discharge standards (ii) to minimize the residual un-acceptable environmental impacts, if any, even after meeting the environmental standards and (iii) to explore various alternative environmental risk mitigation plans (engineering and administrative controls).

As part of the Environmental Management Plan, VBM has already considered to install various pollution control systems to comply with environmental regulations and guidelines. However, an attempt was made to assess the residual environmental impacts associated with the controlled discharges of emissions and other wastes from the facility during construction and operational phase. Most likely possible increase in point source criteria pollutant emissions, wastewater and solid waste discharges and demand for natural resources such as water, fuel and electrical energy have been assessed under this EIA study.

This section describes the environmental impact by the proposed project. Impact assessment describes identification and appraisal of various impacts due to the proposed project. Generally, the Environmental Impacts can be categorized as either primary or secondary.

- Primary impacts are those, which are attributed directly by the project,

- Secondary impacts are those, which are indirectly induced and typically include the associated investment and changed patterns of social and economic activities by the proposed action.

6.2. Impact during Construction Phase

There impacts during the construction is almost nil as the proposed expansion will be taking place within the existing reactors no new reactors, heavy equipment will be installed.

Topography- The topography of the existing plant will not be altered as there will not be any change in layout as there are only minor modifications in the existing facility within the building. Thus the impact during the construction is reversible, for short terms and insignificant.

Air Environment- As most of the operations in this proposed product mix change program are reaction, dissolution and filtration operations there will be no point source emissions envisaged. The only point source emission in the existing facility is from GHC plant which releases HCl fumes. The HCl fumes are treated in wet scrubber before discharging to the atmosphere. Hence, the impact due to release of emissions is negligible.

Noise Environment- No excavation and foundation works are envisaged. Construction activity is limited to building only. Hence, no noise related impacts are envisaged.

Water Environment- The existing infrastructure is adequate and hence no discharge will be let outside the premises.

6.3. Operation Phase Air Quality Impacts

Under this environmental impact assessment study, both point source and fugitive emissions have been considered. Point source emissions include

emissions from stacks connected to process units and combustion installations. Fugitive emissions include vents from process units, storage tanks and other irregular sources. Project site specific design information has been adopted for estimating the point and fugitive emission strengths. Basic information on the pollution control systems and envisaged treated emission discharge quantities have been obtained from plant records.

6.3.1. Point Source Emissions

No additional sources of emission will arise since there is no proposal for new installation of air pollution emitting equipments. Contrarily, due to proposed product mix change program, the steam requirement is to be remain same at 72.4 t/day the coal consumption 12.5 t/day will not be increased.

6.3.2. Fugitive Emissions

There will be no major impact on the air environment as the proposed product mix change program involves dissolution, filtration, Crystallization and decantation. However the exiting emissions will not changed.

6.4. Water Demand and Wastewater Generation

As discussed in the previous sections of this report, the management of VBM has adopted zero liquid discharge schemes in the plant. The fresh water consumption is maintained 443m³/day. The facility is consented to draw 443 m³/day of water as per SIPCOT Vide Letter no. 16606 dated 10th March 2008. The adequacy of the existing STP to handle load after proposed product mix change program activities is presented in **Table 6.1**.

Table 6-1: Adequacy of STP

Sewage flow after proposed product mix change: 30 m³/day

S.No.	Unit	Dimensions	Existing Adequacy	Adequacy after Proposed product mix change program
1	Collection sump	2.5m x 2.5m x 1.6m	Retention time: 40 hrs Remarks: Over sized. Compartment shall be created such that the retention time is 8 hours	Retention Time: 8 hours Remarks: Adequate. Blowers of 0.5 KW shall be provided to avoid septic conditions
2	Aeration Tank	4.1m x 4.1m x 2.25m	Hydraulic retention time: 6.3 Days MLSS: 440 mg/l F/M ratio: 0.15 Sludge recycle ratio: complete recirculation Power required for aeration: 2 KW Power required for mixing: 6 KW Remarks: Oversized. Compartment shall be provided to reduce the volume. MLSS shall be increased for efficient operation of the unit. Blower capacity is not adequate for mixing as only 2.2 KW blower is provided.	Hydraulic Retention Time: 30 Hrs MLSS: 2300 mg/l F/M: 0.15 Sludge recycle ratio: 0.22 Power required for aeration: 10.5 KW Power required for mixing: 6 KW Remarks: Blower capacity is not adequate. 12 KW blower shall be installed in place of 2.2 KW blower.
3	Settling Tank	2m x 1.5m	Retention Time: 14 hours > 4.5 hours Hydraulic Loading Rate: 3.4	Retention Time: 2.5 hours Hydraulic Loading Rate: 17 m ³ /m ² /day



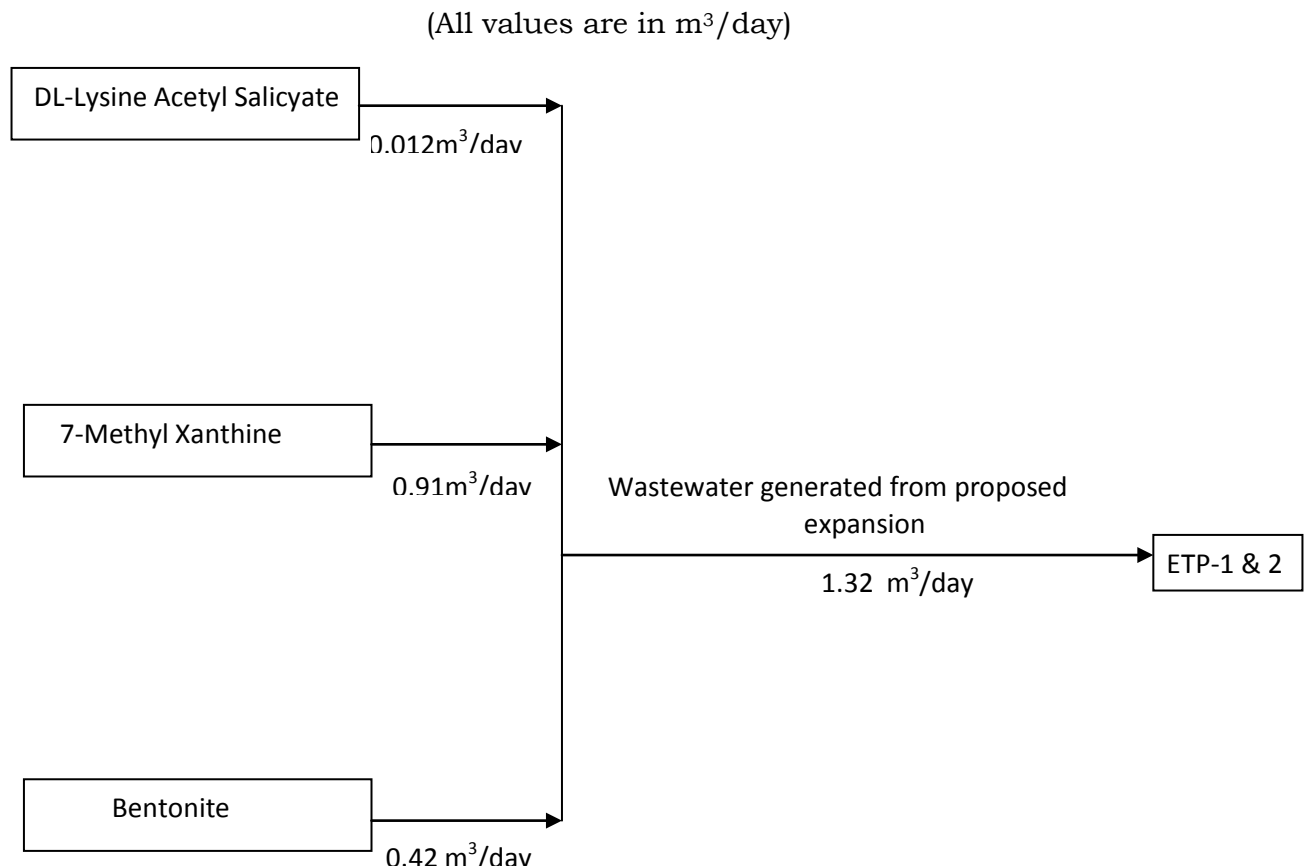
S.No.	Unit	Dimensions	Existing Adequacy	Adequacy after Proposed product mix change program
			$m^3/m^2/day < 17$ $m^3/m^2/day$ Remarks: Insufficient Solids Loading Rate: 3 kg/m ² /day < 25 kg/m ² /day Remarks: Oversized. Insufficient HLR and SLR.	Solids Loading Rate: 44 kg/m ² /day Remarks: Adequate
4	Filter Feed Tank	2m x 2m x 2m	Retention Time: 32 hrs Remarks: Over sized. Compartment shall be created such that the retention time is 8 hours	Retention Time: 6 hrs Remarks: adequate
5	Treated water collection tank	2m x 2m x 2m	Retention Time: 32 hrs Remarks: Over sized. Compartment shall be created such that the retention time is 8 hours	Retention Time: 6 hrs Remarks: adequate
6	Dual media filter	0.6m Φ x 2m	Feed pump capacity: 12 m ³ /day Filtration duration: 30 mins Remarks: Adequate	Feed pump capacity: 12 m ³ /day Filtration duration: 2 hrs 30 mins Remarks: Adequate

The STP adequacy indicates that it is oversized for the current flow, whereas it is adequate to treat additional sewage after proposed proposed product mix change program. Hence, no major modifications are required other than

installing 0.5 KW blower in collection tank and 12 KW blower in the aeration tank.

The details of various streams of effluent being generated from the manufacturing process and treated in two different ETP at the existing facility is depicted in **Figure 6.1**.

Figure 6-1: Layout Showing Effluent Generation and Treatment Scheme after the Proposed product Mix Change Program



There will be no increase in wastewater generated from the proposed product mix change program. So, the existing ETP is adequate for handling the loads. **Table 6.2** and **Table 6.3** present the adequacy of the ETP.



Table 6-2: Adequacy of ETP-1

S. No.	Unit	Dimensions	Existing Adequacy	Adequacy after Proposed product mix change program
1	Oil and Grease Trap	3m x 2.3m x 2.05m	Retention Time: 17 hrs	Retention Time: 5.2 hrs Unit is adequate
2	Collection Tank	3.05m x 2.2m x 2.3m	Retention Time: 18.5 hrs Unit is adequate	Retention Time: 5.6 hrs Unit is adequate.
3	Reaction Tank	5m x 4.4m x 2m	Retention Time: 53 hrs	Retention Time: 16 hrs
4	Primary Settling Tank	5.8m x 3.9 m x 3.5m	Retention Time: 95 hrs Surface Loading Rate: 0.88 m ³ /m ² /day	Retention Time: 29 hrs Surface Loading Rate: 3 m ³ /m ² /day Unit is adequate
5	Anaerobic Tank	6m x 3.9m x 3.5m	Retention Time: 98 hrs	Retention Time: 30 hrs Unit is adequate
6	Aeration Tank I	6m x 5.9m x 3.5m	Retention Time: 148 hrs	Retention Time: 45 hrs
7	Aeration Tank II	6m x 1.9m x 3.9m	Retention Time: 53 hrs	Retention Time: 16 hrs
8	Clarifier	2.3m x 2.05m	Retention Time: 10 hrs Surface Loading Rate: 5 m ³ /m ² /day	Retention Time: 3 hrs Surface Loading Rate: 15 m ³ /m ² /day Unit is adequate
9	Treated effluent tank	3.7m x 3.7m x 2m	Retention Time: 32 hrs	Retention Time: 10 hrs
10	RO Plant	3 m ³ /hr	Working Hours: 15 hours Unit is adequate	Working hours: 22 hours Unit is adequate
11	RO Reject Tank	3.7m x 2.3 m x 2 m	Retention time: 9 hrs Unit is adequate	Retention time: 6 hrs Unit is adequate
12	RO Permeate Tank	4 m x 3.7m x 1.8 m	Retention time: 14 hrs Unit is adequate	Retention time: 9 hrs Unit is adequate

Table 6-3: Adequacy of ETP-2

S.No.	Unit	Dimensions	Existing Adequacy	Adequacy after Proposed product mix change program
1	High TDS Effluent Collection Tank	10m x 4m x 2.25m	Retention Time: 17 hrs	Retention Time: 40 hrs Retention time is too long. The unit shall be partitioned to reduce the volume to 30 m ³ /hr to avoid settling of solids.
2	High TDS Effluent Settling Tank	10m x 8m x 1.2	Retention time: 18 hrs Unit is adequate	Retention time: 41 hrs Unit is adequate
3	MEE	7 m ³ /hr	Working Hours: 18 hours Unit is adequate	Working Hours: 8 hours Unit is adequate

6.4.1. Solid and Hazardous Waste Generation

The solid waste generated from the facility is packing waste and fly ash. Packing waste is being disposed to recyclers. Due to the operation of 10 T/hr coal fired boiler, 35 T/day of ash is be generated the same will be disposed to fly ash brick manufacturers. The quantity of the fly ash remains the same as the coal consumption will not be increased.

Hazardous waste such as chemical sludge and MEE residue is being generated from the existing facility and the same will be generated due to proposed product mix change program mix change program. All the hazardous waste generated will be collected in drums and stored in the existing hazardous waste storage shed. The hazardous waste storage shed has impervious floor with dykes and connected to ETP. The hazardous waste will be stored based on chemical compatibility chart and disposed to Tamil Nadu Waste Management Limited (TWML), Gummudipoondi, Chennai. The details of solid and hazardous waste generation are presented in **Table 6.4**.

6.4.2. Predicted Impacts on Ecology

Impacts on Flora

- Ecologically sensitive areas like reserve forests are located 5 to 10 km away from project site.
- No emissions other than boiler are predicted in the plant and no increase in overall emission is envisaged. Hence; no direct impacts on ecologically sensitive areas are envisaged.
- Treated wastewater will not be discharged in surface water bodies. The treated water will be reused for developing the greenbelt hence, no impacts on aquatic flora is envisaged.
- Greenbelt is already developed for 31000 m² (52% of total land). This has helped to enhance the diversity.

Impacts on Fauna

- The mammalian faunal density in this region is very low and no further impact is expected on fauna.
- No migratory bird routes are identified at SIPCOT.
- Schedule I species of avifauna were not observed around project site. Impacts due to noise generation and vehicular movement will be confined to project area and may not disturb fauna in reserve forest.

6.5. Summary of Impacts

The overall summary of the impacts is given below in **Table 6.4**. The table below indicates the reduction in steam requirement, coal consumption, water consumption, wastewater generation and hazardous waste generation in spite of increase in production capacity and addition of new products. Hence, no adverse impacts on the environment due to proposed product mix change program scheme are envisaged.

The unit has proposed to reduce the production quantity of Trichloro Galacto Pyranosyl Fructo Furanoside (TGPF) from 72 TPA to 61 TPA and Tocopheryl Polyethylene Glycol Succinate (TPGS) quantity from 72 TPA & 60 TPA. Further unit has proposed to add three products i.e DL-Lysine acetyl salicylate (6 TPA), 7-Methyl Xanthine (5 TPA) and Bentonite (12 TPA) by maintaining the same production capacity of 564 TPA which was consented as per earlier EC vide letter no. J-11011/65/2013, dated 16th May 2015. However, the water, wastewater, steam consumption and Hazardous waste will not be increased from the earlier EC dated 2015. The same is presented in the **Table 6.4**



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at VB Medicare Pvt. Ltd, Hosur, Tamil Nadu



Table: 6.4 Details of the Existing and Proposed Production, Water Consumption & Hazardous waste generation

Product	Annual Production capacity – (TPA)	Rated monthly production capacity (Tons)	Steam requirement	Coal consumption for boiler	Water consumption	Wastewater generation	Total solvent consumption (Lts/day)	Hazardous waste generation (Kg/day)
			T/day	T/day	m ³ /day	m ³ /day		
EC 2008 scenario								
GHC	240	20	12	2	36	20	25.6	116
TGPF	72	6	30	5	372	149	950	2100
MEE	-	-	40	7	-	-	-	-
Total	312	26	82	14	408	169	975.6	2216
EC 2015 Current scenario								
GHC	240	20	12	2	36	20	25.6	116
TGPF	72	6	Not required	Not required	0.2	0.06	Not required	6
DHA	180	15	34.4	6	259	101	1668	1745
TPGS	72	6	6	1	4	4	200	62
MEE	-	-	20	3.5	-	-	-	-
Total	564	47	72.4	12.5	299.2	125.06	1893.6	1929
Current proposal (2016 TOR Application)								
GHC	240	20	12	2	36	20	25.6	116
DHA	180	15	34.4	6	259	101	1668	1745
TGPF	61	5	Not required	Not required	0.2	0.04	Nil	5
TPGS	60	5	4.5	0.72	3	3	166	50
DL-Lysine acetyl salicylate	6	0.5	0.2	0.04	0.043	0.012	13	9.13
7-methyl Xanthine	5	0.41	0.9	0.17	0.91	1.40	12	3.73
Bentonite	12	1	0.4	0.07	0.45	0.056	Not required	Nil
MEE	-	-	20	3.5	-	-	-	-
Total	564	46.91	72.4	12.5	299.55	125.51	1884.6	1928.87

6. ENVIRONMENTAL MANAGEMENT PLAN

6.1. Preamble

The Environment Management Plan (EMP) is required to ensure sustainable development in the area of the project site. EMP is aimed at mitigating the possible adverse impact of a project and for ensuring to maintain the environmental quality. The EMP converses all aspects of planning, construction and operation of the project, which are relevant to environment. The main objective of the EMP is to identify the project specific activities that would have to be considered for investigation of the significant adverse impacts and the mitigation measures required. Hence, an all encompassing plan is envisaged.

Environment Management Plan during Construction Phase

- The proposed product mix change will take place at the existing facility and no additional land is required. Also, all existing infrastructure and utilities are adequate. No additional systems will be installed.
- There is no digging and excavation required for the proposed product mix change program.
- Most of the construction materials like soil, bricks, concrete will be reused in backfilling, road construction, sub-grade preparation etc. within the plant area
- Unusable construction waste, such as damaged pipes, from work and other construction material, must be disposed off to municipal landfill site.

6.2. Environment Management Plan during Operation Phase

During operation phase, the impacts on various environmental attributes should be mitigated using appropriate pollution control equipment. The Environment Management Plan prepared for the proposed product mix



change project aims at minimizing the pollution at source. Operational phase environmental management plan includes the following:

1. Land use
2. Air quality Management Plan,
3. Noise Management Plan,
4. Water and Wastewater Management,
5. Solid and Hazardous Waste Disposal Management,
6. Management of Storage and Handling of Materials
7. Development of green belt
8. Community Development Plan

6.2.1. Land Use

The proposed project is located within the well-demarcated industrial estate. The plant is proposed in an existing unit, hence proposed product mix change program project has no change of usage of the area and no such impact on land use is expected. About 31,000m² (52% of total land) of land was developed under plantation and green belt in the existing facilities. No change in greenbelt area is envisaged in the proposed product mix change program project.

6.2.2. Air Quality Management Plan

- No new fossil fuel emission sources are added for the proposed product mix program.
- Indonesian coal is being procured from the local suppliers and is used as a primary fuel in the boiler. Briquettes are also used as supplementary fuel in the boiler. Similar practices will be performed after proposed product mix change program.
- Since, no additional fuel will be fired, the stack height provided for existing boiler and DG set is adequate.



- Cyclone and bag filter are installed to control the particulate matter emissions from the boiler. Due to reduction in the consumption of coal after proposed product mix change program, no additional dust load on existing bag filters are envisaged.
- Coal is stored in covered shed in the existing facility and a dedicated coal crusher with bag filter system in operation to cater to the coal requirement of the boiler
- Water sprinkling systems are provided near the coal handling areas including transfer points
- Online VOC sensors are placed near solvent storage areas.
- The sprinkling of water will be done along the internal roads in the plant in order to control the dust arising due to the movement of vehicular traffic;

6.2.3. Noise Management Plan

- The existing DG sets are provided with acoustic enclosures and hence the noise levels is below 85dB (A)
- Compressors are located in closed room to avoid noise transmission to other production areas.
- No additional noise generating equipment will be installed under proposed product mix change program scheme.
- Ear plugs/muffs is being provided to workmen working near high noise generating sources in the existing plant and similar practices will be continued.

6.2.4. Water and Wastewater Management

The facility treats the effluents generated in dedicated ETP. The overall effluent load from the plant will remain within the design capacity and consent capacity. Hence, no additional ETP infrastructure will be required. A dedicated team is operating the ETP.



6.2.5. Storm water Management

It has been proposed to use the existing rainwater harvesting system to collect and recharge the groundwater. Based on the long-term monsoon data published by Indian Meteorological Department for the Bangalore region, it has been reported that the average annual precipitation occurs to be 880.9 mm out of which around 570 mm occurs during monsoon period (July to October). The rainfall data for Bangalore region is given in **Table 7.1**. Based on the assumption with a runoff coefficient of 0.65, it has been estimated that about 22200 m³ of rainwater runoff would be generated from the plant site and the corresponding average daily runoff during the rainy-days would be in the order of 635 m³/day.

Table 6-1: Rainfall Data for Bangalore Region

Month	mm/month	Rainy Days
Jan	1.8	0.0
Feb	7.6	0.4
Mar	14.0	0.8
Apr	40.0	2.8
May	94.4	6.0
Jun	80.5	5.0
Jul	102.7	7.4
Aug	116.6	9.3
Sep	195.6	9.6
Oct	152.0	8.7
Nov	58.4	4.1
Dec	17.3	1.5
Total	880.9	55.7

Source: Climatological Normals, 1971- 2000, India Meteorological Department

The storm water in the project area will be collected through existing storm water drains. It is ensured that the storm water will not be mixed with



process effluents as they have a separate closed conduit system. Rainwater harvesting system is also provided to recharge the ground water and the rain water is also collected through the restoration pond with the capacity of 30 m³. The excess storm water will be connected to the SIPCOT main storm water drain and finally confluence to a nearby lake.

6.2.6. Solid and Hazardous Waste Disposal Management

Spent charcoal and spent silica, generated from the filtration process of manufacturing stream is the major hazardous waste generated from the facility. All hazardous wastes are collected and disposed through authorized hazardous waste disposal facility. Biological sludge from ETP and STP will be used as manure for plantation. Fly ash from the boiler is sold to the local Brick Manufactures. Details of the solid and hazardous waste generation and disposal method are discussed in Section 5.

The facility is consented to dispose about 42 T/year of chemical sludge from Waste water treatment and 884 T/year of mechanical evaporator Residue as per the TNPCB vide Authorization No. 3212. About 704 TPA of hazardous waste will disposed to Tamil Nadu Waste Management Limited, located at SIPCOT, Gummudipoondi will be disposed after proposed product mix change program. Necessary membership in the Tamil Nadu Waste Management Limited has been obtained.

6.2.7. Management of Storage and Handling of Solvents

- Dedicated and isolated solvent storage area is located in the existing facility. Necessary permits from Petroleum and Explosives Safety Organization (PESO) has been obtained for storage of solvents. No additional solvent storage tanks will be installed.
- Fire hydrant lines and foam systems are made available at all the four corners of the storage area and then dykes are designed as per National Building Codes.

- Water sprinklers are installed as per the good engineering practices for all the solvent storage tanks.
- A dedicated fire water tank of capacity of 300m³ is located near the fire water pump room. A central fire hydrant system is in place in the existing facility.

6.2.8. Development of Green Belt

Over an area of 6 Ha (60000 sq. m), 31,000 m² (52% of total land) of land was already developed under plantation and green belt. Hence, further plantation area is not envisaged and measures shall be taken to sustain the greenbelt developed.

6.2.9. Socio Economic Aspects and CSR Plan

The project site is located within the SIPCOT area which is designated for the industries and there is no human settlement adjacent to the project site. The proposed project is within the existing plant premises and doesn't displace any human settlements. Due to the proposed product mix change program, there are no visible adverse impacts on socio-economy. In respect to the positive impacts the project will be providing direct and indirect employment for 50 people within the project during both construction and operation phase.

6.2.10. CSR Programs

The key CSR plan is discussed hereunder. These areas of development were arrived based on the existing socioeconomic status and key findings and feed backs from the primary survey. The CSR budget allotted for the proposed proposed product mix change program of the project is around Rs.10 lakhs/year. The same will be continued after proposed product mix change program.

Areas for Development

- Skill Development Programs
 - Providing Training programs relating to Industrial Jobs to the eligible candidates
- Health Programs
 - Awareness Programs on various diseases
 - Awareness on HIV/AIDs
- Conducting Health Camps

6.3. Environmental Monitoring Plan

To strictly adhere to the commitment made in the EIA report and also to comply with Tamil Nadu Pollution Control Board norms, the EHS manager will undertake regular monitoring of emissions, discharges and solid waste disposal during the operation phase. In addition, regular inspection and audit to be conducted as per the consent conditions mentioned in Consent to Operate (CTO) given by Tamil Nadu Pollution Control Board. Environmental monitoring program is presented in **Table 6.2**.

Table 6-2: Existing Environmental Monitoring Schedule during Operation Phase

S.No	Location	Monitoring Frequency	Duration of Sampling	Important Monitoring Parameters
1	Ambient Air Quality Monitoring			
a	Project site	Once in Six Months	24hr continuously except CO	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂ & CO
2	Stack Monitoring			
a	Boiler Stack	Online Monitoring connected to SPCB	Every 15 min data communication connected to SPCB.	SO ₂ , NO ₂ , PM, CO, CO ₂ , VOC, Temperature, Flow rate & Velocity of the gas
b	DG Set – Stack	Once in a Year	30 min	SO ₂ , NO ₂ , SPM, CO, CO ₂ , Temperature, Flow rate & Velocity of the gas
3	Ambient Noise Level			



S.No	Location	Monitoring Frequency	Duration of Sampling	Important Monitoring Parameters
a	Near DG set and noise generating equipments	Once in a 6 Months	8 hr continuous with 1 hr interval	Noise level in dB(A)
4	Ground/Drinking Water Quality Monitoring			
a	Ground Water – at project site	Once in a year	Grab Sampling	Parameters specified under IS:10500, 1993
5	Effluent & Sewage Quality Monitoring			
a	ETP & STP Inlet	Once in a Week	Grab Sampling	Physical, Chemical & Biological Parameters specified under IS:2490:1982
b	ETP & STP Outlet			
6	Soil Quality			
a	At the green belt area	Once in a year	Samples were collected from three different depths viz., 30cm, 60cm, and 100cm below the surface	Parameter for soil quality: pH, texture, electrical conductivity, organic matter, nitrogen, phosphate, sodium, calcium, potassium and Magnesium.

6.3.1. Data Analysis

The monitored data need to be analyzed and compared with the baseline levels as established in the EIA study and the regulatory standards specified by different government agencies. The standards against which the different environment components will be compared are as per **Table 6.3**.

Table 6-3: Standard for Environmental Monitoring Plan

S.No.	Component	Applicable Standards
1	Ambient air Quality	National Ambient Air Quality Standards, CPCB
2	Noise quality	Ambient Noise Standards, CPCB
3	Ground water quality	IS:10500 Standards, BIS
4	Soil Quality	-
5	Treated Effluent	IS 2490(1974) – Discharge into



		surface water, IS 3306(1974) – Discharge on land, IS 3307(1974)-Discharge for agricultural use
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6.4. Environmental Management Cell

The environmental management cell consists of a EHS manager. He reports directly to the Plant Director. The major duties and responsibilities of EHS manager is as follows:

- To implement the Environmental Management Plan.
- To ensure regular operation and maintenance of pollution control devices.
- To assure regulatory compliance with all relevant rules and regulations.
- To minimize environmental impacts of operations by strict adherence to the EMP.
- To initiate environmental monitoring as per approved schedule.
- Review and interpretation of monitored results and corrective measures in case monitored results are above the specified limit.
- Maintain documentation of good environmental practices and applicable environmental laws as ready reference.
- Maintain environmental related records.
- Coordination with regulatory agencies, external consultants and monitoring laboratories.
- Maintaining log of public complaints and the action taken.

6.5. Budgetary Cost Estimates for Environmental Management

At present towards the pollution control equipment, implementation of environmental pollution control measures and environmental management programs. Break-up of the budget for the proposed environmental management



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programs are presented in **Table 6.4**. The same will

Table 6-4: Budget for Environmental Management Plan

S.No.	Resources	Capital Cost (Rs. in Lakhs)	Recurring Cost (Rs. In Lakhs)
1	Air & Noise Pollution Control systems	15	3
2	Wastewater Treatment facilities	8	2
3	Process safety & Fire Safety protection systems	6	0.5
4	Environmental Monitoring and Management Programs	8	8
5	Road, Drainage & Rainwater harvesting	2	0.25
Total		39	13.75



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7. PROJECT BENEFITS

India ranks 3rd in terms of volume and 14th in terms of value among the drug manufacturing countries worldwide.

Indian companies have the distinction of developing cost-effective technologies for manufacturing bulk drugs and intermediates, conforming to global standards. It is anticipated that the proposed project will provide benefits during the operational stage.

The major benefit due to the proposed project will be in the sphere of generating temporary employment for substantial number of personnel. In addition to the direct employment, the project would generate additional employment to service organizations for material handling in the plant, etc.

Considering that most of the skilled personnel proposed to be employed for the proposed project would be from outside the study area and unskilled/semiskilled personnel shall be from within the study area, the proposed project would add to the population in the study area which results in better scope for indirect employment etc., in addition to the workforce the indirect employment also be generated for about 20 members or even more.



8. Conclusion

1. The unit has proposed to reduce the quantity of existing products i.e., Trichloro Galacto Pyranosyl Fructo Furanoside (TGPF) from 72 TPA to 61 TPA and Tocopheryl Polyethylene Glycol Succinate (TPGS) quantity from 72 TPA & 60 TPA.
2. The unit has proposed to add three new products i.e DL-Lysine acetyl salicylate (6 TPA), 7-Methyl Xanthine (5 TPA) and Bentonite (12 TPA) by maintaining the same production capacity of 564 TPA which was consented as per earlier EC vide letter no. J-11011/65/2013, dated 16th May 2015.
3. This project will have beneficial effects in terms of growth and development of the regional economy.
4. Air Emission control measures like Wet scrubber, Bag filter are provided in stacks to minimise the environmental impact.
5. No additional land, building or infrastructures including reactors, equipments will be required for the proposed Product mix program.



9. Disclosure of Consultant

9.1. Introduction

The Environment Management Plan (EMP) report has been prepared by carrying out various scientific studies in the year 2014. The studies have been carried out by **M/s Cholamandalam MS Risk Services Limited**, Chennai, India. The profiles of the Consultants are given below

9.2. Cholamandalam MS Risk Services Limited – EIA Consultant

M/s Cholamandalam MS Risk Services Ltd (CMSRSL) is a joint venture between the Murugappa group, India and Mitsui Sumitomo Insurance Group, Japan. CMSRSL is an ISO 9001:2008 certified company. CMSRSL offers safety and environmental consulting services across Indian, Middle East and East Asian countries. CMSRSL consists of six consulting domains such as environmental engineering and management, process safety, fire safety, electrical safety, construction safety and logistics risk assessment. CMSRSL is a NABET accredited EIA consulting organization for undertaking EIA studies in the following sectors: paper and pulp, thermal power plants, petroleum refineries, petrochemical complex, chemical fertilizers, synthetic organic chemical industries, ports and harbours and area development projects. CMSRSL has offered environmental and safety related consulting services for more than 5000 clients during last decade.

9.2.1. Details of Experts/Consultants Engaged for this EIA Study

Details of Experts/Consultants Engaged for this EIA/EMP Study is given below in **Table 9.1** and NABET certificate is given in **Figure 9.1**.



Table 9-1: Experts Involved

S. No.	Name	Role in the EIA Study
1	Mr V S Bhaskar	<p>EIA Coordinator – Pulp & paper industry and Thermal Power Plants.</p> <p>Functional Area Expert(FAE) - Meteorology, Air Quality Modelling and Prediction</p> <p>Functional Area Expert (FAE) - Water Pollution Prevention, Control & Prediction of Impacts</p> <p>Functional Area Expert (FAE) - Noise / Vibration</p> <p>Functional Area Expert (FAE) – Risk & Hazards Management</p>

Other Technical Team Members

S.No.	Name	Role in the EIA Study
1.	Mr. A.Ravi	Team Member-FAE/Associate EC
2.	Mr. Ganta Srikanth	Team Member-Functional Area Associate
3.	Ms Saumya Abraham	Team Member-Functional Area Associate

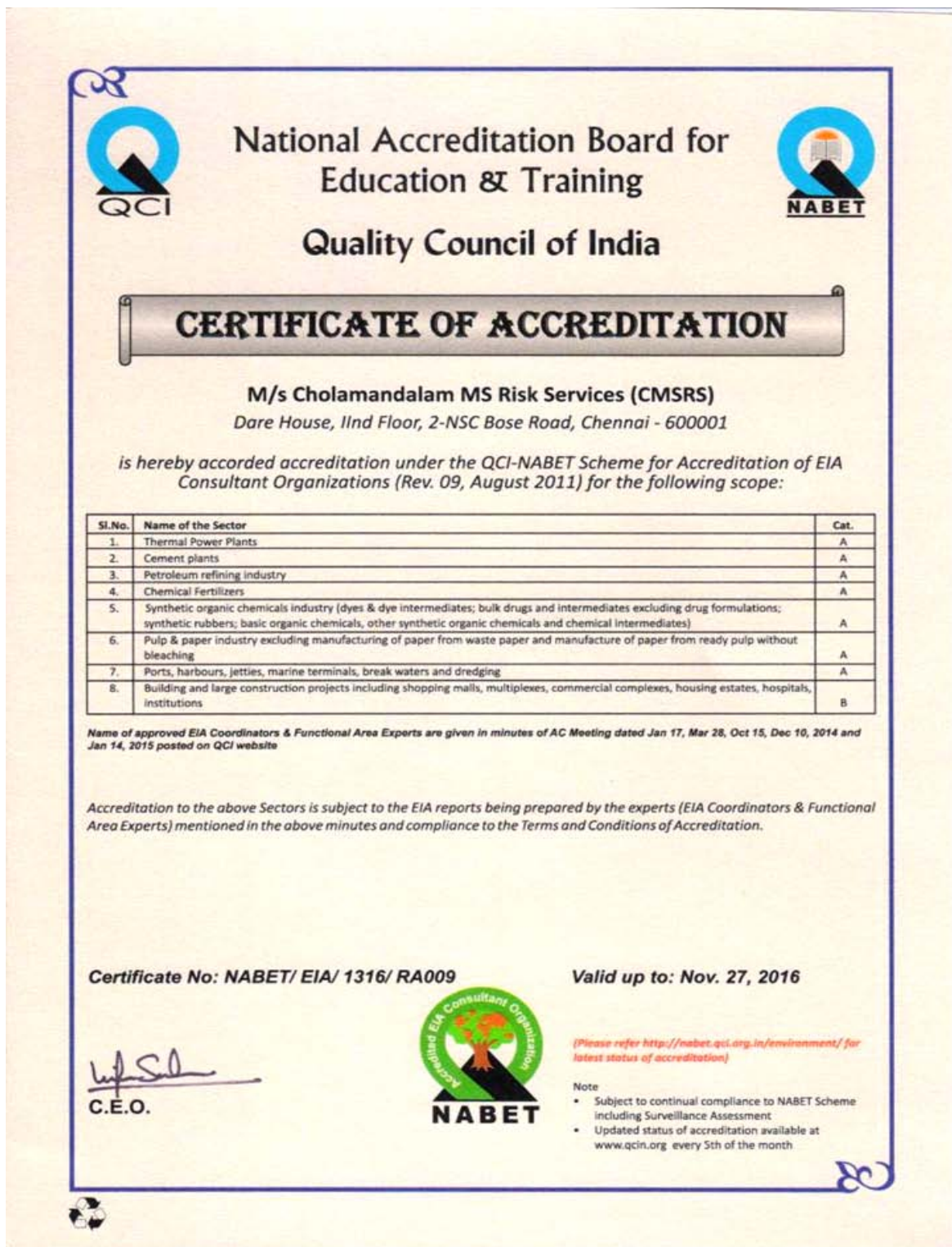


VB MEDICARE

EMP for the Proposed Product Mix Change Program
at VB Medicare Pvt. Ltd, Hosur, Tamil Nadu



Figure 9-1: NABET Certificate



Annexure-1

Environmental Clearance Copy

F. No. J-11011/65/2013- IA II (I)
Government of India
Ministry of Environment, Forests and Climate Change
(I.A. Division)

Indira Paryavaran Bhawan
Aliganj, Jorbagh Road,
New Delhi -110003

E-mail : lk.bokolia@nic.in
Telefax: 24695313
Date: 16th May, 2015

To,

Shri A.V.S Ganesan (Director)
M/s V. B. Medicare Pvt. Ltd.
59, 61,62,63,66A &67, Sipcot Industrial Area, Phase II,
Krishnagiri District, Hosur- 635 109

E-mail: info@vbmedicare.com ; Fax No. : 91-4344 260998

Subject: Expansion of Synthetic Organic Chemical Manufacturing Unit at Plot No. 59,61,62,63, 66A and 67, Sipcot Industrial Area, Phase II, Village Mornapalli, Tehsil Hosur, District Krishnagiri, Tamil Nadu by M/s V. B. Medicare Pvt. Ltd. – Environmental Clearance reg.

Ref. : Your letter no. nil date 4th August, 2014.

Sir,

This has reference to your letter dated 4th August, 2014 alongwith project documents including Form I, Terms of References, Pre-feasibility Report, EIA/EMP Report regarding above mentioned project.

2.0 The Ministry of Environment, Forests and Climate Change has examined the application. It is noted that the proposal is for expansion of Synthetic Organic Chemical Manufacturing Unit at Plot No. 59,61,62,63, 66A and 67, Sipcot Industrial Area, Phase II, Village Mornapalli, Tehsil Hosur, District Krishnagiri, Tamil Nadu by M/s V. B. Medicare Pvt. Ltd. Total plot area is 6 ha. Out of which, greenbelt will be developed in 3.1 ha. Total cost of the project is Rs. 1537.5 Lakhs. It is reported that no national parks or wildlife sanctuaries are located within 10 km distance. Ponnaiyar River is flowing at a distance of 1.5 km. Reserve forests viz Sanamavu RF, Ramasandiram RF and Ungatti are located within 10 km distance. Following products will be manufactured :

Product name	Existing/Proposed	Existing Capacity - MTPA	Proposed Capacity - MTPA	Total Capacity - MTPA
Trichloro Galacto Pyranosyl Fructo Furanoside (TGPF)	Consented product to be continued after process modification	72	-	72
Glucosamine Hydrochloride (GHC)	Consented product to be continued	240	-	240
Docosahexaenoic acid (DHA)	Proposed product	-	180	180
Tocopheryl polyethylene glycol Succinate (TPGS)	Proposed product	-	72	72

12

3.0 Multicyclone followed by bagfilter alongwith adequate stack height will be provided to imported coal fired boiler to control particulate emissions. Two stage water scrubber followed by alkali scrubber will be provided to process vent to control SO₂, HCl and HBr emissions. Fresh water requirement from SIPCOT water supply will be increased from 124 m³/day to 219 m³/day after expansion. Industrial effluent generation after expansion will be 91.2 m³/day after expansion. Effluent will be segregated into High TDS and High COD effluent streams. High COD effluent stream will be treated in anaerobic reactor followed by two stage extended aeration process, Ultra filtration and Reverse Osmosis plants. RO rejects and High TDS effluent stream will be treated in neutralization and evaporated in the Multiple Effect Evaporator (MEE). Sewage will be treated in the Sewage Treatment Plant (STP). No effluent will be discharged outside the plant premises and zero effluent discharge concept will be followed. ETP sludge, spent silica, MEE salts and spent fuller's earth will be sent to TSDF site. Spent HCl will be sold to the actual recyclers. By-product recovery DHA will be sold as animal feed. Waste oil and used batteries will be sold to authorized recyclers/re-processors.

4.0 Public hearing was exempted as per section 7 (i), (iii) Stage (3), Para (i)(b) of EIA Notification, 2006.

5.0 All Synthetic Organic Chemicals Industry located inside the notified industrial area/estate are listed at S.N. 5(f) under category 'B'. However, project site is located within 10 Km of interstate boundary and treated as category 'A' project due to applicability of general condition of the EIA notification, 2006 and appraised at Central level.

6.0 The proposal was considered by the Expert Appraisal Committee (Industry) in its 7th and 34th meetings held during 4th – 5th April, 2013 and 17th-19th February, 2015 respectively. Project Proponent and the EIA Consultant namely M/s Anand Consultants, have presented EIA / EMP report as per the TOR. EAC has found the EIA Study / EMP Report to be adequate and in full consonance with the presented TORs. The Committee recommended the proposal for environmental clearance.

7.0 Based on the information submitted by the project proponent, the Ministry of Environment, Forests and Climate Change hereby accords environmental clearance to above project under the provisions of EIA Notification dated 14th September 2006, subject to the compliance of the following Specific and General Conditions:

A. SPECIFIC CONDITIONS:

- i) National Emission Standards for Organic Chemicals Manufacturing Industry issued by the Ministry vide G.S.R. 608(E) dated 21st July, 2010 and amended time to time shall be followed by the unit.
- ii) Multicyclone followed by bagfilter alongwith adequate stack height shall be provided to imported coal fired boiler to control particulate emissions.
- iii) Two stage water scrubber followed by alkali scrubber shall be provided to process vent to control SO₂, HCl and HBr emissions. The scrubbed water should be sent to ETP for further treatment. Efficiency of scrubber shall be monitored regularly and maintained properly. Scrubbers vent shall be provided with on-line detection and alarm system to indicate higher than permissible value of controlled parameters. At no time, the emission levels shall go beyond the prescribed standards. The system should be interlocked with the pollution control equipments so that in case of any increase in pollutants beyond permissible limits, plant should be automatically stopped.



- iv) Ambient air quality data shall be collected as per NAAQS standards notified by the Ministry vide G.S.R. No. 826(E) dated 16th September, 2009. The levels of PM₁₀, PM_{2.5}, SO₂, NO_x, CO, HCl, HBr, VOC and HC (Methane and Non-methane) shall be monitored in the ambient air and emissions from the stacks and displayed at a convenient location near the main gate of the company and at important public places. The company shall upload the results of monitored data on its website and shall update the same periodically. It shall simultaneously be sent to the Regional office of MOEF, the respective Zonal office of CPCB and the Tamil Nadu Pollution Control Board (TNPCB).
- v) In plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Fugitive emissions shall be controlled by providing closed storage, closed handling & conveyance of chemicals/materials, multi cyclone separator and water sprinkling system. Dust suppression system including water sprinkling system shall be provided at loading and unloading areas to control dust emissions. Fugitive emissions in the work zone environment, product, raw materials storage area etc. shall be regularly monitored. All necessary steps should be taken for monitoring of Chlorine and HCl as well as VOCs in the proposed plant.
- vi) The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution.
- vii) Total water requirement from SIPCOT water supply should not exceed 219 m³/day and prior permission should be obtained from the Competent authority.
- viii) As proposed, effluent will be segregated into High TDS and Hfh COD effluent streams. High COD effluent stream will be treated in anaerobic reactor followed by two stage extended aeration process, Ultra filtration and Reverse Osmosis plants. RO rejects and High TDS effluent stream will be treated in neutralization and evaporated in MEE. Sewage will be treated in the Sewage Treatment Plant. Domestic sewage should be treated in STP.
- ix) 'Zero' effluent discharge shall be followed and no effluent shall be discharged outside the plant premises.
- x) Continuous/ online monitoring (24 x7) to be installed for flow and pollutants measurement within the treatment facility. Data to be uploaded on the Company's website and provided to respective Regional Office of MEF&CC and respective SPCB.
- xi) Solvent management shall be carried out as follows :
 - i. Reactor shall be connected to chilled brine condenser system
 - ii. Reactor and solvent handling pump shall have mechanical seals to prevent leakages.
 - iii. The condensers shall be provided with sufficient HTA and residence time so as to achieve more than 95% recovery.
 - iv. Solvents shall be stored in a separate space specified with all safety measures.
 - v. Proper earthing shall be provided in all the electrical equipment wherever solvent handling is done.
 - vi. Entire plant shall be flame proof. The solvent storage tanks shall be provided with breather valve to prevent losses.

- vii. All the solvent storage tanks shall be connected with vent condensers with chilled brine circulation.
- viii. Chilled brine circulation system should be provided to condensate solvent vapors and reduce solvent losses. It should be ensured that solvent recovery should not be less than 95%.
- xii) The company shall obtain Authorization for collection, storage and disposal of hazardous waste under the Hazardous Waste (Management, Handling and Trans-Boundary Movement) Rules, 2008 and amended as on date for management of Hazardous wastes and prior permission from TNPCB shall be obtained for disposal of solid / hazardous waste in the TSDF. Measures shall be taken for fire fighting facilities in case of emergency.
- xiii) The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 as amended time to time. All Transportation of Hazardous Chemicals shall be as *per* the Motor Vehicle Act (MVA), 1989.
- xiv) Fly ash shall be stored separately as per CPCB guidelines so that it shall not adversely affect the air quality, becoming air borne by wind or water regime during rainy season by flowing along with the storm water. Direct exposure of workers to fly ash & dust shall be avoided.
- xv) The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Fire fighting system shall be as per the norms. Fire hydrant system shall be provided alongwith fire monitor and flame detection system in the process as well as storage areas.
- xvi) All the recommendations made in the risk assessment report should be satisfactorily implemented.
- xvii) Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
- xviii) As proposed, greenbelt should be developed at least 3.1 ha area in and around the plant premises to mitigate the effects of fugitive emissions all around the plant as per the CPCB guidelines in consultation with DFO. Selection of plant species should be as per the CPCB guidelines.
- xix) Provision shall be made for the housing for the construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structure to be removed after the completion of the project. All the construction wastes shall be managed so that there is no impact on the surrounding environment.

B. GENERAL CONDITIONS:

- i. The project authorities shall strictly adhere to the stipulations made by the State Government and T.N. Pollution Control Board.
- ii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.

- iii. The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured that at least one station is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.
- iv. The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).
- v. The Company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.
- vi. Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.
- vii. Usage of Personnel Protection Equipments (PPEs) by all employees/ workers shall be ensured.
- viii. The company shall also comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, risk mitigation measures and public hearing relating to the project shall be implemented.
- ix. The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CSR activities shall be undertaken by involving local villages and administration.
- x. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
- xi. A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.
- xii. The company shall earmark sufficient funds toward capital cost and recurring cost/annum to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.
- xiii. A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, Urban local Body and the local NGO, if any, from who suggestions/ representations, if any, were received while processing the proposal.
- xiv. The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the T.N. Pollution Control Board. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.
- xv. The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.



- xvi. The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at <http://envfor.nic.in>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.
- xvii. The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.
- 8.0 The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- 9.0 The Ministry reserves the right to stipulate additional conditions, if found necessary. The company in a time bound manner will implement these conditions.
- 10.0 The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Water Pollution) Act, 1981, the Environment (Protection) Act, 1986 Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and the Public Liability Insurance Act, 1991 along with their amendments and rules.
- 11.0 Environment Clearance is issued to M/s V. B. Medicare Pvt. Ltd. for expansion of synthetic organic chemical manufacturing Unit at Plot No. 59,61,62,63, 66A and 67, Sipcot Industrial Area, Phase II, Village Mornapalli, Tehsil Hosur, District Krishnagiri, Tamil Nadu.



(Lalit Bokolia)
Additional Director

Copy to:-

1. The Principal Secretary, Department of Environment, Ground Floor, Panagal Buildings 1, Jeenis Road, Saidapet, Chennai - 600 015.
2. The Chief Conservator of Forests, Regional Office (Southern Zone, Bangalore) Kendriya Sadan, 4th Floor, E&F Wing, II Block Koramangala, Bangalore-560034.
3. The Chairman, Central Pollution Control Board Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
4. The Chairman, Tamil Nadu Pollution Control Board, Corporate Office, 76, Anna Salai, Guindy, Chennai - 600 032.
5. Monitoring Cell, Ministry of Environment, Forests and Climate Change, Indira Paryavaran Bhavan, Jorbag Road, New Delhi.
6. Guard File/Monitoring File/Notice Board.



(Lalit Bokolia)
Additional Director

Annexure-2

Consent to Operate Copy



TAMILNADU POLLUTION CONTROL BOARD



CONSENT ORDER NO. 16082159086 DATED: 25/02/2016.

PROCEEDINGS NO.T2/TNPCB/F.0021HSR/RL/HSR/A/2016 DATED: 25/02/2016

SUB: Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT -M/s. V.B.MEDICARE PRIVATE LIMITED , S.F.No. Plot No-59,61,62,63,66A and 67,, MORANAPALLI village, Hosur Taluk and Krishnagiri District - Renewal of Consent for the operation of the plant and discharge of emissions under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) -Issued- Reg.

REF: 1. Board Proceeding No.:T12/TNPCB/Misc/F-19482/HSR/RL/ W&A/ 2012 dt: 02.08.2012
2. Unit's application dated:10.6.2015
3. RIR.No : F.0021HSR/R/L/JCEE-M/HSR/2015 dated 10/06/2015

RENEWAL OF CONSENT is hereby granted under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) (hereinafter referred to as "The Act") and the rules and orders made there under to

The Director
M/s.V.B.MEDICARE PRIVATE LIMITED,
S.F.No. Plot No-59,61,62,63,66A and 67,,
MORANAPALLI village,
Hosur Taluk,
Krishnagiri District.

Authorizing the occupier to operate the industrial plant in the Air Pollution Control Area as notified by the Government and to make discharge of emission from the stacks/chimneys.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

This RENEWAL OF CONSENT is valid for the period ending March 31, 2017

For
26/2/2016
Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

POLLUTION PREVENTION PAYS

சுற்றுச்சூழல் பாதிப்பைத் தடுக்கவும், மாசுறுத்தல்களைக் குறைக்கவும் உதவுகிறது.



TAMILNADU POLLUTION CONTROL BOARD

SPECIAL CONDITIONS

1. This renewal of consent is valid for operating the facility for the manufacture of products (Col. 2) at the rate (Col. 3) mentioned below. Any change in the products and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
Product Details			
1.	Glucosamine Hydrochloride	20	Tons/Month
2.	Trichloro Galacto Pyranosyl Fructo furanoside	6	Tons/Month
By-Product Details			
1.	Spent Hydrochloric Acid	122.22	Tons/Month
2.	Sodium Sulphate	48.39	Tons/Month
3.	Ammonia solution (25%)	119.60	Tons/Month
4.	Calcium sulphate	16.85	Tons/Month
5.	Calcium Chloride	67.39	Mt/Month
6.	Calcium phosphite	16.85	Tons/Month
7.	Spent Hydrochloric Acid	54.0	Tons/Month

2. This renewal of consent is valid for operating the facility with the below mentioned emission/noise sources along with the control measures and/or stack. Any change in the emission source/control measures/change in stack height has to be brought to the notice of the Board and fresh consent/Amendment has to be obtained.

I Point source emission with stack :				
Stack No.	Point Emission Source	Air pollution Control measures	Stack height from Ground Level in m	Gaseous Discharge in Nm ³ /hr
1	Briquete Fired Boiler 800KG/Hr	Stack	10	
2	Reactor at Glucosamine plant	Two stage wet scrubber with stack	4	
3	Coal Fired Boiler 10T/Hr	Cyclone separator, Bag filter with stack	35	
4	Chlorination Reactor at Trial plant	Two stage wet scrubber with stack	3.6	
5	Chlorination Reactor at DCS Plant	3 stage wet scrubber with stack	12	
6	Reactor at Pilot plant	Two stage wet scrubber with stack	4	
7	DG Set 1500 KVA - 01 No	Stack	15	
8	Coal Crushing Unit	Bag Filters with stack	17	
9	R& D lab	Scrubber with stack	10	
10	DG Set 500 KVA - 01	Stack	7.5	
II Fugitive/Noise emission :				
Sl. No.	Fugitive or Noise Emission sources	Type of emission	Control measures	

POLLUTION PREVENTION PAYS

அகம் தூய்மை வாய்மைக்கு ! புறம் தூய்மை வாய்மைக்கு !



TAMILNADU POLLUTION CONTROL BOARD

Additional Conditions:

1. The unit shall operate the APC measures efficiently and continuously so as to satisfy Ambient Air Quality/emission standards prescribed by the Board.
2. The unit shall provide acoustic measures for the D.G sets.
3. The unit shall adhere to the Ambient Noise Level standards prescribed by the Board.
4. The unit shall explore the possibility of utilizing solar energy wherever possible.

For
26/2/2016
For Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai
26/2/16

To
The Director,
M/s.V.B.MEDICARE PRIVATE LIMITED,
Plot No-59,61,62,63,66A and 67, Sipcot Industrial Area, Phase-II, Krishnagiri Road, HOSUR.,
Pin: 635109

Copy to:

1. The Commissioner, SHOOLAGIRI-Panchayat Union, Hosur Taluk, Krishnagiri District .
 2. The District Environmental Engineer, Tamil Nadu Pollution Control Board, HOSUR.
 3. The JCEE-Monitoring, Tamil Nadu Pollution Control Board, Vellore.
 4. File
-

POLLUTION PREVENTION PAYS

சுற்றுச்சூழல் பாதுகாப்புக்கு மட்டும் கவனம் செலுத்தக்கூடாது



TAMILNADU POLLUTION CONTROL BOARD



CONSENT ORDER NO. 16081159086 DATED: 25/02/2016.

PROCEEDINGS NO.T2/TNPCB/F.0021HSR/RL/HSR/W/2016 DATED: 25/02/2016

SUB: Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT – M/s. V.B.MEDICARE PRIVATE LIMITED , S.F.No. Plot No-59,61,62,63,66A and 67,, MORANAPALLI village, Hosur Taluk and Krishnagiri District - Renewal of Consent for the operation of the plant and discharge of sewage and/or trade effluent under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act 6 of 1974) – Issued- Reg.

REF: 1. Board Proceeding No.:T12/TNPCB/Misc/F-19482/HSR/RL/ W&A/ 2012 dt: 02.08.2012
2. Unit's application dated:10.6.2015
3. RIR.No : F.0021HSR/RL/JCEE-M/HSR/2015 dated 10/06/2015

RENEWAL OF CONSENT is hereby granted under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act, 6 of 1974) (hereinafter referred to as "The Act") and the rules and orders made there under to

The Director
M/s.V.B.MEDICARE PRIVATE LIMITED,
S.F.No. Plot No-59,61,62,63,66A and 67,,
MORANAPALLI Village ,
Hosur Taluk ,
Krishnagiri District .

Authorising the occupier to make discharge of sewage and /or trade effluent.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

This RENEWAL OF CONSENT is valid for the period ending March 31, 2017

26/02/2016
26/2/16
For Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

POLLUTION PREVENTION PAYS

புற்று தடுப்பை கட்டவேண்டும்! துறைமுகத்தை கட்டவேண்டும்!



TAMILNADU POLLUTION CONTROL BOARD

SPECIAL CONDITIONS

1. This renewal of consent is valid for operating the facility for the manufacture of products/byproducts (Col. 2) at the rate (Col 3) mentioned below. Any change in the product/byproduct and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
Product Details			
1.	Glucosamine Hydrochloride	20	Tons/Month
2.	Trichloro Galacto Pyranosyl Fructo furanoside	6	Tons/Month
By-Product Details			
1.	Spent Hydrochloric Acid	122.22	Tons/Month
2.	Sodium Sulphate	48.39	Tons/Month
3.	Ammonia solution (25%)	119.60	Tons/Month
4.	Calcium sulphate	16.85	Tons/Month
5.	Calcium Chloride	67.39	Mt/Month
6.	Calcium phosphite	16.85	Tons/Month
7.	Spent Hydrochloric Acid	54.0	Tons/Month

2. This renewal of consent is valid for operating the facility with the below mentioned outlets for the discharge of sewage/trade effluent. Any change in the outlets and the quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Outlet No.	Description of Outlet	Maximum daily discharge in KLD	Point of disposal
Effluent Type : Sewage			
1.	Sewage	30.0	On Industrys own land
Effluent Type : Trade Effluent			
1.	Trade Effluent I	44.0	Recycling to process
2.	High TDS Effluent 2	125.0	Evaporator

POLLUTION PREVENTION PAYS

அகம் தூய்மை வாய்மைக்கு ! புறம் தூய்மை வாழ்வுக்கு !



TAMILNADU POLLUTION CONTROL BOARD

Additional Conditions:

1. The unit shall operate the Effluent Treatment Plant / STP / Evaporator efficiently and continuously so as to achieve zero discharge at all time.
2. The unit shall maintain the CCTV installed to monitor the ZLD system and ensure the connectivity of the same with CAC of TNPCB.
3. The unit shall calibrate the effluent monitoring analyser and provide quality data to CAC, Chennai.
4. The unit shall ensure that there shall not be any discharge of effluents on land from the unit under any circumstances.
5. The unit shall utilize the treated sewage on the land for irrigation purpose only after satisfying the standards prescribed by the Board and by adopting hydraulic loading rate of 35 KL/Hec./Day
6. The unit shall operate and maintain the EMFMs provided in the treatment plant properly
7. The unit shall provide EMFM to assess the daily quantity of fresh water make up consumed for the process operation, MEE condensate and MEE concentrate and shall connect the EMFM's Care Air Centre within 2 months time.
8. The unit shall ensure that the log books for actual flow, TDS, hours of operation etc. shall be maintained properly.
9. The unit shall ensure that dried hazardous solid waste shall be stored safely over impervious yard with roof-covered and it shall be sent to the TSDF
10. The unit shall explore the possibilities to provide piezo meters so as to collect ground water samples periodically to assess the quality of ground water.
11. The unit shall maintain the rain water harvesting facility properly.
12. The unit shall continue to develop green belt in the premises.

[Signature] 26/02/2016
Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

To
The Director,
M/s.V.B.MEDICARE PRIVATE LIMITED,
Plot No-59,61,62,63,66A and 67, Sipcot Industrial Area, Phase-II, Krishnagiri Road, HOSUR.,
Pin: 635109

Copy to:

1. The Commissioner, SHOOLAGIRI-Panchayat Union, Hosur Taluk, Krishnagiri District.
2. The District Environmental Engineer, Tamil Nadu Pollution Control Board, HOSUR.
3. The JCEE-Monitoring, Tamil Nadu Pollution Control Board, Vellore.
4. File

POLLUTION PREVENTION PAYS

சுற்றுச்சூழல் பாதுகாப்புக்கு முன்பாக தடுப்பு நடவடிக்கை எடுக்க வேண்டும்

Annexure-3

DG Stack Report



TAMIL NADU POLLUTION CONTROL BOARD
District Environmental Laboratory, Hosur

STACK MONITORING SURVEY - Report of Analysis

Report No. 42 / AAQS / SM / 2012 - 13

Dated : 27.07.12

1. Name of the Industry : M/s V. B. Medicare Private Limited
2. Address of the Industry : Plot No. 59, 61, 62, 63, 60A & 67,
SIPCOT Industrial Complex, Phase II,
Hosur - 635 103
3. Date of Survey : 24.07.12

Stack Monitoring Survey Results

Sl. No.	Stack attached to	Stack Temp. °C	Velocity in (m/sec)	Discharge rate in (Nm ³ /day)	Pollutants (mg / Nm ³)			
					SPM	SO ₂	NO _x	HCl (times)
1	Boiler - 10 Ton/hr - Cyclone separator and Bag filter outlet	90	19.6637	1,293,885.36	70.47	12.80	33.23	(-)
2	Boiler 1500 KVA	244	27.9887	133,611.18	48.53	5.33	27.31	(-)
2	(GHC) - Wet scrubber outlet	27	16.4558	24,997.76	(-)	(-)	(-)	4.37

Special observation :-

1. Boiler running at the rate of 2.0 Ton/hr
2. Bag filter contains 200 bags

[Handwritten Signature]
27/07/12

Dy. Chief Scientific Officer
District Environmental Laboratory
Tamil Nadu Pollution Control Board
HOSUR-635 126.

Annexure-4

Ambient Noise level Report



TAMIL NADU POLLUTION CONTROL BOARD
District Environmental Laboratory, Hosur.

AMBIENT NOISE LEVEL SURVEY - Report of Analysis.

Report No : 88 / AAQS / SM / 2015 -16,

Dated : 11.01.2016

1	Name of the Industry	M/s. V. B. Medicare Private Limited,		
2	Address of the industry	Plot No : 59, 61, 62, 63, 66A & 67, Sipcot Industrial Complex, Phase II, Hosur - 635 109.		
3	Date of survey	29.12.2015		
4	Category	Large / Red	Land use classification	Industrial
5	Type of Survey	Ambient	Time of Survey	Day
6	Meteorological conditions	Calm / Windy / Rainy	Calm	

Logging Parameters

Instrument Used	Quest Technologies -1900	Serial No.	CC 811 0029
Logging interval	10 minutes each point	Measuring Range	50 to 110
Weighing	A' Peak weighing	C' Time weighing	10 min
Sound incidence	Random	Time in hrs	12.30 hrs

Report of Noise Level Monitoring

Sl. No.	Location	Duration (min)	Distance (m)	Direction	Sound level dB (A)					
					Leg	L ₉₀	L ₅₀	L ₁₀	Low	High
1	Behind Waste storage Yard	10	70	N	53.3	45.2	46.8	58.1	44.8	63.2
2	Near Water sump	10	150	NE	56.4	55.5	55.8	57.4	55.3	60.7
3	Near Main gate	10	110	E	56.6	55.5	56.4	57.5	55.1	58.1
4	Near Gate No. 2	10	150	SE	53.8	46.4	48.9	59.2	45.8	61.7
5	Near Fence	10	70	S	53.5	49.4	50.7	56.9	49	61.7
6	Near Old Admin building	10	150	SW	54.5	48.7	50.7	58.6	48.4	64.5
7	Behind spent Oil tank	10	110	W	53	46.8	49.6	57.3	45.2	62.2
8	Near Scrap yard	10	150	NW	54.1	46.4	48.7	59.3	46.2	62.4

The Direction and Distance from the Centre of the Plant

Note : L ₉₀ value refers to background Noise :	L ₅₀ value refers to mean noise :
L ₁₀ value refers to nuisance or annoyance level	Leg value is the average energy for the measured period

Special Observation (Noise Source) :-

1. Boiler
2. Water Pump
3. Compressor

Environmental Scientist (Spl.Gr)
DEL, TNPC Bd, Hosur.


 Deputy Chief Scientific Officer,
 District Environmental Laboratory,
 TamilNadu Pollution Control Board,
 Hosur.

Annexure-5

Treated water Test Report



TAMIL NADU POLLUTION CONTROL BOARD
District Environmental Laboratory, Hosur.

REPORT OF ANALYSIS

ROA No : 04645 / DEL / TNPCB / HSR / 2013 - 14, Dated : 08.07.2013

- 1 DEE Code Assigned : G - 211 & G - 212
- 2 Lab Code Assigned : 255 & 256
- 3 Date and Time of Sample collection : 28.06.2013 at 3.15 pm & 3.20 pm
- 4 Date and Time of Sample receipt : 01.07.2013 at 11.00 am
- 5 Point of collection : Outlet of STP & Outlet of ETP

Sl.No	PARAMETER	UNITS	REPORTED VALUE	
			1	2
1	p ^H	Number	6.82	7.17
2	Total Suspended Solids	mg/l	42	12
3	Total Dissolved Solids	mg/l	--	1020
4	Chloride	mg/l	--	460
5	Sulphate	mg/l	--	28
6	Oil and Grease	mg/l	--	1.0*
7	BOD 3 days at 27°C	mg/l	48	14
8	COD	mg/l	--	56
9	Iron	mg/l	--	0.020
10	Total Chromium	mg/l	--	0.006*
11	Hexavalent Chromium	mg/l	--	0.005*
12	Pottassium	mg/l	--	28
13	Sulphide	mg/l	--	0.40*
14	Phosphate	mg/l	--	0.72
15	Total Kjeldal Nitrogen	mg/l	--	11.2
16	Cynaide	mg/l	--	0.001*

Amount claimed : Rs. 5,470/-

(Sample collection charge : Rs. 800/- + Analysis charge : Rs.4,670 /- = Rs.5,470 /-)

* : Indicates less than


Deputy Chief Scientific Officer,
District Environmental Laboratory,
Tamil Nadu Pollution Control Board,
Hosur.