

## 1. PROJECT DESCRIPTION

### 1.1 Introduction

M/s. Vettuvapalayam Common Effluent Treatment & Recycling Plant Pvt. Ltd., having their office at SF No.40, Sambavayal Thottam, Vettuvapalayam, Mangalam, Tirupur – 63, is proposing to establish a **COMMON EFFLUENT TREATMENT AND RECYCLING PLANT** to treat and reuse the trade effluent generated from their member bleaching units. The company has decided to setup a **Full Fledged Common Effluent Treatment Plant, Reverse Osmosis Plant and a Multiple Effect Evaporator** for attaining **Zero Liquid Discharge**.

The combined effluent is treated in the CETP. The treated water from the CETP is further treated in the Reject Management System. In the reject management system, the treated effluent is first treated in the three stage Reverse Osmosis System and the rejects generated from the Reverse Osmosis system will be treated in the Multiple Effect Evaporator.

The permeate recovered from the Reverse osmosis System and condensate from the evaporator will be distributed to the member units through a Over Head Tank and a distribution pipe line system.

### 1.2 Site Location

The proposed CETP is located at S.F.No.30/1, 30/2, 30/3, Iyyapillai Thottam, Somanur Road, Vettuvapalayam, Mangalam, Tirupur – 641 663.

There are 9 numbers of bleaching units have joined in this CETP. All the member units are existing and located within 1.60 km radius from the CETP site. The member units are proposed to discharge their trade effluent either by pumping or by gravity based on their location. The proposed **Common Effluent Treatment Plant** has been designed for **1500 Cu.m/day**.

### 1.3 Project Cost

**Table 1 Total Project Cost**

	<b>CAPITAL COST IN LACS</b>	<b>O &amp; M COST IN LACS</b>
Air pollution	12.00	1.00
Wastewater treatment	642.00	225.00
Solid waste management	15.00	35.00
Green belt development	5.00	2.00
Environmental Monitoring	16.00	2.00
<b>Total</b>	<b>690.00</b>	<b>265.00</b>

### 1.4 Wastewater Generation from Member Units

All the member units are processing bleaching of hosiery cloth. The production details of the 9 member units and the quantity of wastewater generation is given below.

**Table 2 List of Member Units**

<b>Sl.No</b>	<b>Name of the member units</b>	<b>Production capacity</b>	<b>Expected qty of effluent generation in ltrs/day.</b>
1	M/s Vignesh Bleaching,	2000 kg/day	1,50,000
2	M/s.Senthivelavan Bleaching,	2650 kg/day	2,00,000
3	M/s.Shree Alagapa Bleaching Company,	1330 kg/day	1,00,000
4	M/s.H.M.Bleahcers,	2650 kg/day	2,00,000
5.	M/s.Bleachwell Company,	2650 kg/day	2,00,000
6	M/s. Gangai Bleaching,	1330 kg/day	1,00,000

7.	M/s.Sri Tirupathi Bleachers,	2000 kg/day	1,50,000
8.	M/s. New Balaji Bleaching Company,	1330 kg/day	1,00,000
9.	M/s.S.N.R.Bleaching Factory,	1330 kg/day	1,00,000
	<b>Total</b>	<b>17,270 kg</b>	<b>13,00,000</b>

**About 17,500 Kgs of hosiery cloth shall be processed from the above units and the expected quantity of effluent generation is 13, 00,000 lit/day.**

### 1.5 Waste Water Characteristics

Water plays a vital role as the Bleaching unit consumes about 75 lit/kg of hosiery cloth processed. The quantity and nature of waster water discharged varies with process and from time to time.

**Table 3 Combined Characteristics of Bleaching Effluent**

Sl.No	Parameters	Value
1.	pH	6.0 – 9.0
2.	BOD 5 days 30 deg.C	100-150 mg/lit
3.	COD	300-400 mg/lit
4.	Total Suspended Solids	100-200 mg/lit
5.	Total Dissolved Solids	3550-4000 mg/lit
6.	Free Chlorine	65.0 mg/lit

### 1.6 Effluent Collection and Transportation

The effluent from the member units will be transported through pipe line or by pumping the wastewater.

#### Pipe Line Design

The size of the pipe diameter has been calculated according to the flow metering so as to ensure that the pipe will carry the corresponding units effluent flow, and a peak factor of 2 has been adopted in the design. The minimum dia of the pipe is taken as 160 mm (O.D) and the maximum varies upto 250 mm (O.D).

The effluent generated from 2 Nos. of member units namely **M/s. VIGNESH BLEACHING** and **M/s.SRI THIRUPATHY BLEACHERS** will be pumped to CETP and the effluent from the remaining member units will be discharged by gravity line to the CETP.

### 1.7 Capacity of the CETP

The total quantity of the discharged effluent is estimated to be about 1300 m<sup>3</sup> / day in 24 hours, considering the future expansion of the units the Common Effluent Treatment Plant has been designed for 1500 m<sup>3</sup> / day.

### 1.8 Raw Materials Required

**Table 4 Quantity of Raw Materials Required Per Day**

S.NO.	DESCRIPTION	QUANTITY
	Bleaching effluent	1300 KLD
	Lime	450 kg/day
	Alum	450 kg/day
	Polyelectrolyte (cationic)	3.0 kg/day
	Polyelectrolyte (anionic)	3.0 kg/day
	Sodium Meta Bi Sulphite	24.0 kg/day
	Antiscalant	7.50 kg/day
	Hydrochloric acid	10.0 litres/day
	Fire-wood for boiler	2000 kg/day

## 1.9 CETP Treatment Process

Raw effluent from various processing unit reaches the Common Effluent Treatment Plant by either gravity or by pumping main. The effluent conveyed by gravity mains shall flow in to the Screen Chamber in the Common Effluent Treatment Plant. Bar Screen shall be suitably placed in the Screen Chamber to remove suspended and Floating Coarser materials if any. The Effluent from the Screen Chamber flows to the receiving sump, which is designed for a retention of 1 hour for peak flow.

The effluent from the receiving sump shall be pumped to the equalisation tank by Non-Clog, Monoblock, submersible pumps. The equalisation tank shall be provided with hydraulic retention of 16 hours for an average flow.

High speed floating aerators shall be provided in the Equalisation tank to homogenise the effluent. The homogenised effluent shall be pumped to the flash mixer at a uniform rate where the flocculant and lime solution shall be dosed, alongwith SMBS.

The agitator provided in the flash mixer provides or rapid dissipation of the chemical. The effluent from flash mixer shall flow to the peripherally driven clariflocculator.

The overflow from the clariflocculator shall be collected in a Clarified Water Sump. The clarified effluent shall be pumped to the special type of fabric filter, having a special type of filter cloth made in polytetrafluoroethylene having a pore size of 0.1  $\mu\text{m}$ . The outlet of filter press is collected in a tank called stabilization tank I.

The sludge from clariflocculator shall be transferred to the thickener through a sludge **Sump**. The thickened sludge shall be dewatered in a **plate filter press**. The overflow from the sludge thickener and filtrate from the plate filter press shall be taken back to **Equalisation Tank** for treatment. The sludge leaving the filter will be in cake form with upto 25-30% solid concentration. This shall be collected in a trailer, and will be carted away for disposal.

### **Pre-Treatment for R.O.**

The effluent from the stabilization tank is pumped in to pressure sand and activated carbon filter, positioned in series, to remove the escaping finer impurities, organics, residual colour etc. if any. In the stabilisation tank, the chemicals like SMBS solutions shall be dosed for removal of free chlorine if any. This stabilised effluent is pumped to the filtration plants. The residual waste and the Back wash from the Sand Filter and Activated Carbon Filter will be sent back to the Receiving Sump, for the further treatment.

Acid dosing for pH correction and anti-scalant dosing for preventing scale formation are done on membranes after the Activated Carbon Filter. The system comprises of dosing pumps and solution preparation tanks.

**2 nos. of Micron Filter** units (5 $\mu$  and 1 $\mu$ ) are provided for removals of fine suspended solids, which escape from upstream units. This units can remove fine solids upto 1 $\mu$  which if carried over can clog the R.O. Membrane.

### **RO Process Description**

The outlet of Micron Filter is further treated in the R.O. system for obtaining the potable quality of product water.

The capacity of the proposed treatment plant shall be 1500  $\text{m}^3/\text{day}$ , 20 hrs operation, suitable to the R.O's feed flow. The Reverse Osmosis System is designed for a Three Stage Recovery. The Permeate from the Stage - I shall be about 75% of water will be obtained from the feed flow of 1300  $\text{m}^3/\text{day}$ . The remaining 25% shall be the rejects from Stage - I.

It is proposed to install a Stage - II Reverse Osmosis System to treat the 25% of the rejects from Stage - I. The Permeate from Stage - II shall be about 55% of water will be obtained from the feed flow. The remaining 45% shall be further treated in the III Stage RO. In this III Stage R.O, about 35% will be obtained as product water and the balance 65% will

be the reject which is treated in the four stage Falling Film Evaporator and fifth stage Forced Circulation Evaporator.

### 1.10 Rejects Management

The total quantity of Reject generated from the R.O. System III will be about **95.3m<sup>3</sup>/day**. To handle this huge volume of reject, it is better to go in for a **Multiple Effect Evaporation system is having 5 effects**. The evaporator is designed to have better steam economy, since steam required for evaporation will be high.

**Total capacity : 95.3 KLD**  
**Designed Capacity : 100 KLD**  
**Input TDS : 78419.85 mg/lit.**

### Solar Evaporation Pan

Daily Flow to Evaporator : 95.3 KLD  
Rejects of Evaporator : 7.64 KLD

The temperature of Rejects coming out from the Evaporator Plant will be about 50° C. At this temperature the evaporation will be higher than the normal climatical and meteorological conditions. Under this condition, the evaporation rate is assumed as 5 mm/day. Therefore for 7640 Lit/day, the total area required is 1697.7 m<sup>2</sup>. Area provided for Solar Evaporation Pan : 1,700 m<sup>2</sup>

### 1.11 Treated Water Distribution

The outlet from the R.O – I, R.O – II and R.O – III Module will be collected in the R.O. Permeate Collection tank. From this collection tank, the Permeate is pumped to the overhead storage tank of capacity 200 m<sup>3</sup>. The Permeate will be distributed from the overhead tank to the member units by gravitational pressure, through PVC/HDPE pipe line system. The pipe lines are laid along the berms of the roads. Laterals will be provided from the main line to supply the Permeate to the member unit. One no. of flow meter shall be fixed at each unit to measure the intake of permeate from the CETP. Charges will be levied based on the meter reading from each member unit.

## 2. BASELINE ENVIRONMENTAL DATA

### 2.1 Sampling Locations

The sampling locations for water, air, noise and soil are as follows. There are 5 locations were selected for sampling.

- CETP
- Vettuvapalayam
- Agraharapudur
- Vaduvamkalipalyam
- Mangalam

### 2.2 Land use

The land use of the study area is studied by analyzing the available secondary data such as the District Primary Census Handbooks of Coimbatore district for the year 2001. As per the census records, the entire geographical area of all settlements covered in the study work out to about 31199.69 ha. There is no notified forest land in the study area. More than one fourth of the study area falls in this category of land and admeasures about 9242.74 ha which works out to about 29.62% of the study area. Altogether 4898.78 ha land in study area is not available for cultivation. The share of this category of land in the study area works out to about 15.70%.

### **2.3 Seismicity**

The area under study falls in Zone-II, according to the Indian Standard Seismic Zoning Map. Suitable seismic coefficients in horizontal and vertical directions respectively, have to be adopted while designing the structure.

### **2.4 Soil Environment**

The present soil investigation comprising three exploratory boreholes in the CETP area revealed uniform soil stratification. However, the top sand clay found in the south side is not found in the north side. The top sand clay up to about 1.60 m is low plasticity type. This soil has some permeability under normal condition. This soil will have much lower permeability after re-working. Very dense laterite/limestone derived from complete weathering of rock is present below 1.60 m to 2.0 m below the existing ground levels. The elevation of this very laterite/limestone is dipping towards north. Highly weathered rock is present at about 4.50 m. ground water table was at about 1.50 m below existing ground level (w.r.t. elevated area) as observed from open well. The soil sample were collected in 5 locations and analysed for the various parameters.

It has been observed that the texture of soil is mostly clay in the study area. It has been observed that the pH of the soil quality is 7.87 indicating that the soil is usually neutral to moderately alkaline in nature. The maximum pH indicates that the soil is moderately alkaline and the minimum value indicates that the soils are neutral in nature.

The Electrical Conductivity was observed to be 0.35 mm hos/cm, with the maximum observed at project site (SI) and 0.18 mm hos/cm minimum observed at Mangalam (SS5).

The nitrogen values ranged between 6723-7177 kg/ha. The phosphorus values range between 1839 – 10058 kg/ha. The potassium values range between 25823 – 33804 kg/ha. The observed N, P & K observed values are indicating that the study area has more than sufficient quantity of Nutrients.

The detailed assessment of the obtained results shows that the soil is good for vegetation and greenbelt development.

### **2.5 Meteorological Environment**

The meteorological data recorded at the project site during post monsoon season of October month. The temperature was observed at the existing site during the study period ranged from 24.5°C to 28.5°C. The observed maximum temperature was 28.8°C. during the period of observation the relative humidity ranged from 73.0% to 93.0%. The rainfall is nil during the study period. A review of the wind rose diagram shows that predominant winds are mostly from NE and NW direction. Calm condition is nil.

### **2.6 Air Environment**

Ambient air quality monitoring has been carried out for 24 hours during post monsoon season of 2008 at four locations. The concentrations of important air pollutants like SPM, SO<sub>2</sub>, NO<sub>x</sub> and CO at the study area are well within the permissible limits prescribed by Central Pollution Control Board (CPCB).

### **2.7 Water Environment**

The analytical results of the five water samples collected during the post monsoon season of October 2008 for each location and the results were compared with Indian Standards 10500 – 1993 drinking water specifications. The pH values for all the locations are well within the desirable range of 7.19 – 7.54. The result shows that the quality of water is basic in nature.

Total Dissolved Solids (TDS) are various from 594 to 5480 mg/l. In all the sampling location having higher value of TDS than the desirable and permissible limit of 500 & 2000 mg/l. It shows the hardness of water little bit high in the project proposed area.

The desirable limit and permissible limit as per IS 10500 for hardness is 300 mg/l & 600 mg/l, in the water samples collected, the hardness value is varying from 434 to 1900 mg/l which shows that these waters are not suitable for drinking purposes without treatment. Heavy metals like Cr, Cd, Pb, etc are very less than STD limits, some of them are the detection limits of (BDL).

Hence keeping the above observations in view, it can be concluded that the water quality of some of the sources in the study area is fairly good and can be used for drinking and other domestic needs some are having high hardness and chlorides etc and also these analytical results are comply with the analytical results of various location nearby project site that has analysed by TNPCB.

## **2.8 Noise Environment**

The daytime ( $L_{day}$ ) noise levels at all the residential locations are observed to be in the range of 45.6 dB (A) to 64.3 dB (A). The maximum noise level of 61.0 dB(A) was observed at Mangalam Village (SN5) and the minimum noise level of 45.6 dB (A) was observed at Vettuvapalayam Village (SN2). It is also observed that the day time noise levels at all the residential locations are exceeding the prescribed limit of 55 dB(A) may be due to highway and District road motor vehicle activities nearby location except at Vettuvapalayam Village (SN2).

The daytime ( $L_{day}$ ) noise level at project site, near national highway (NH-45) is observed 61.6 dB (A). It is also observed that the day time noise levels within the prescribed limit of 75 dB(A).

The night time ( $L_{night}$ ) noise levels at all the residential locations are observed to be in the range of 38.9 dB(A) to 56.4 dB(A). The maximum noise level of 56.4 dB(A) was observed at Mangalam Village (SN5) and the maximum noise level off 38.9 dB(A) was observed at Vettuvapalayam Village (SN2). It is also observed that the night time noise levels at all the residential locations are exceeding the prescribed limit of 45 dB(A) may be due to highway and District Road motor vehicle activities nearby location except at Vettuvapalayam Village (N3).

The night time ( $L_{night}$ ) noise levels at project site, near State Highway (NH-45) is observed 58.5 dB(A). It is also observed that the night time noise levels within the prescribed limit of 70 dB(A).

## **2.9 Ecological Environment**

The existing Flora and Fauna in the study area is mentioned below. As per Botanical Survey of India records and available published literature pertaining to the study area and current detailed study of project site, no threatened, endangered and rare plant species were observed from the study area. No reserve forest, protected forest, turtle breeding ground, elephant and / or tiger reserve is within 10 km radius of the project.

## **2.10 Traffic Scenario**

Traffic survey has been carried towards Mangalam Somanur road (NH-45) near proposed project site. The total daily traffic has been divided into various categories like two wheeler, three wheeler, four wheeler and heavy vehicles. It could be seen from the traffic density analysis below those two wheelers and heavy vehicles are most prevalent in the State Highway. From the traffic density study it is clear that the peak hour for traffic density in the Mangalam Road is 8.00 AM – 10.00 AM and the peak hour for traffic density in the Sate Hightway towards Somanur road is 6.00 PM – 8.00 PM and the movement of heavy vehicle and four wheelers are more in the State Highways.

### **2.11 Socio Economic Environment**

Review of secondary data (District Census Statistical Handbooks-2001) with respect to population, occupation-1 structure and infrastructure facilities available for 10 km radius study area.

As per 2001 census, the males and females constitute to about 48.71% and 49.82% of the study area population respectively. The study area had a family size of 4.0 as per 2001. As per 2001 census about 14.40% of the population are belongs to Scheduled Castes (SC) and 0.08% to Scheduled Tribes (ST). The study area experiences a considerably good literacy rate of 70.21 % (2001). The marginal workers and non workers constitute to 4.41% and 58.20% of the total population respectively.

### **2.12 Infrastructure Facilities**

The infrastructure and amenities available in the study area denotes the economic well being of the region. Reasonably good levels of infrastructure facilities are available in the study area, which consists of education, health care, communications, transportation, etc.

As per 2001 census, the study area had a good level of educational facilities. In all, there were 117 primary schools, 35 middle schools and 19 high schools in the study area. The middle schools and high school are situated in larger villages. Some smaller villages were devoid of any educational institutions.

Different types of health facilities such as Nursing homes and Family Welfare Centers are available in the study area. The study area has good communication network.

## **3. ENVIRONMENTAL IMPACTS OF THE PROPOSED PROJECT**

The anticipated environmental impacts due to the proposed CETP during construction as well as operation phase are described below.

### **3.1 During Construction Phase**

The construction phase impacts are expected to be minimal, as for as construction of the main units are concerned. During the construction phase, the following activities among others are considered to be important towards development of impact.

- Site preparation
- Excavation and back filling
- Piling, cutting and drilling
- Mixing of concrete and mortar
- Concrete construction
- Erection of steel structure
- Road construction
- Painting and finishing
- Cleanup operations
- Landscaping and afforestation.

At one premises, proper construction, placing system would be adopted, so that the impact due to construction phase will be very low.

### **Transportation and construction**

Construction does not involve any heavy construction equipment. Transportation of raw material through trucks may not affect traffic in main roads.

### **Land Use**

Tamil Nadu government has recognized the location of the unit as unclassified area and encouraging entrepreneurs to come forward for setting up industries.

### **Water Resources**

The demand at present case will vary from 40 to 60 m<sup>3</sup> per day depending on the day to day activity. Average demand shall be 50 m<sup>3</sup> per day. The construction shall take place

for twelve months. Hence total quantity of water consumed is  $50 \text{ m}^3 \times 25 \text{ days} \times 12 \text{ months} = 15000 \text{ m}^3$ .

### **Air Quality**

During construction phase like cutting, filling, construction of building, handling of construction material, etc will generate dust resulting in higher SPM levels but they mostly remain within the premises as they will generally fugitive type. Further due to deployment of various mechanical equipment and transport vehicles enhanced  $\text{SO}_2$ ,  $\text{NO}_x$  and CO levels are expected. Thus air quality is likely to be affected marginally which may not require any mitigation measures of considerable magnitude. Moreover, the impact on the air quality will be temporary and reversible in nature.

### **Biological Conditions**

The present site is devoid of trees and shrubs. The only vegetation covered on the land is grass, which will be disturbed and some part will be lost in construction activity. This could lead to soil erosion. Hence site without structure will be covered with vegetation.

### **Noise**

Noise generation would be high due to construction activity. Reducing the activities from 5 pm to 9 am so as to avoid noise in the evening and night period will give pleasant feelings to everybody. During operation phase, the noise level will be negligible. So that the impacts on noise will be eliminated.

### **Community Structure**

Community structure will be benefited by generation of employment. Around 150 jobs will be created for twelve months during construction activity.

### **Accidental Risk**

Accident may occur during construction which could be avoided with proper supervision, safety equipments and hiring skilled labour along with proper planning.

### **Resources**

Fuel resources will meet by trucks during construction period. Purchasing the raw material from the nearest place and proper planning of routes could minimize this. Water resources are conserved by adopting new techniques with new materials like concrete blocks instead of bricks, which needs less water compared with later.

## **3.2 Operation Phase**

### **Water Environment**

Water environment is the least affected on implementation of this project. The effluent will be treated and reused in the processes to achieve zero-liquid discharge to the environment. The fresh water required for the dyeing process in the member units also will be reduced by reusing the treated water from the recycling plant.

The wastewater will be treated in a full fledged Effluent treatment plant and reverse osmosis system. The reject will be treated in the Evaporator and concentrate from the evaporator is further treated in a solar evaporation pond. The permeate recovered from RO and condensate from Evaporator will be reused in the dyeing process. The domestic sewage generated will be sent to the septic tank followed by dispersion trench and the quantity of sewage generated will be about 950 lit/day.

### **Air Environment**

The air emission from the proposed CETP will be only during the operation of the Boiler and DG Set and the air pollutants are SPM,  $\text{SO}_2$  and  $\text{NO}_x$ . The capacity of the Boiler is about 2000 kg/hr. The boiler is of firewood fuelled type and firewood requirement for the boiler is about 2000 kg/day. The ash generated from the boiler is about 100-120 kg/day.

The capacity of the proposed D.G.Set will be about 225 KVA. The Low Sulphur Diesel will be used as fuel in D.G.Set and fuel requirement for the proposed D.G.Set will be

about 20 lit/hr. The diesel required for the D.G.Set will be purchased from the nearby petrol Bunks in TIRUPUR. The diesel will be stored M.S. Barrels. This will be protected and safety measures will be provided as per the rules of Fire service department/inspectors of Factories Act. The control measures will be adopted in the unit will be as follows.

**Table 5 Air Pollution Control Measures**

Sl.No.	Description of Chimney/Stack attached	MOC of Chimney/Stack	Diameter of top of stack	Stack/Chimney height above ground level
1	Boiler	M.S	30 cm	12 m
2	D.G. Set	M.S	15 cm	7.5 m

### Noise Environment

The impact due to noise the noise level would be insignificant on the surrounding population and marginal on the workers. There is no noise generating equipments are installed in the site except the DG set. As the office building is fully Air conditioned, the noise generated from the DG set will not reach the work place and hence there will not be any hazardous effects. Even then, the DG set is provided with Vibration pads, silencers and other provisions for reducing the noise level.

### Solid waste generation

The solid waste generated during the process of ETP and recycling plant is given in the following table. CETP had become a member of Industrial Waste Management Association, Chennai and the solid waste generated will be sent to the Association for further treatment.

**Table 6 Solid Waste Generation Units**

Sl. No.	Waste Generating Units	Type of Wastes	Mode of disposal
1.	Screen Chamber	Coarser suspended and floating materials	Sent to Industrial Waste Management Association.
2.	Filter Press	Cake	Disposed to Industrial Waste Management Association.
3.	Filter cloth from Fabric filter and Filter press	Cloth	Volume of the filter cloth will be 72 kg for both. This will also be disposed through Industrial Waste Management Association.
4.	Pressure Sand Filter	Sand, Gravel etc.	Disposed to Industrial Waste Management Association.
5.	Activated Carbon Filter	Carbon	Regeneration and Reuse
6.	Membranes from Reverse Osmosis System	Membranes	Life time of membrane: 4-5 years. After 4-5 years, the used membrane will be sent to the Industrial Waste Management Association for disposal. Total number of membrane: 140 nos. of Polyamide material. Micron filter's cartridge: 12 nos. Life time: 3-4 months. This will also send to Industrial Waste Management Association.
7.	Boiler	Ash	Will be sent to the Industrial Waste Management Association
8.	Solar evaporation pond	Salt	Disposed to Industrial Waste Management Association.

## **Hazard**

The unit will not handle any hazardous material.. Hence the community shall not have any danger on the proposed unit.

## **Biological Environment**

Adverse impacts on flora or fauna at the Project sites will be minimal and short term and it will be eliminated. The construction of the CETP will not affect any endangered or threatened species of vegetation, animal, or bird. The site is currently used for farming purposes. So construction traffic and activities will pose no additional adverse impact on any native flora and fauna that may live in the wider area. The site is comparatively remote from human residence.

## **Socio Economic Environment**

The Socio-Economic Environment shall not be disturbed in the proposed project area. The employment will be generated to the extent of 150 persons per day during construction of the proposed project and for 15 persons per day during operation phase of the project.

## **Traffic Impact**

The proposed project will have only one truck per 10 days for the transportation of waste to the SLF facility. Similarly, only one truck movement into the plant for supply of chemicals once in 10 days. So there will not be any further increase in traffic in the State Highway due to the proposed CETP activity.

## **4. ENVIRONMENTAL MONITORING PROGRAMME**

The project monitoring should be done for regular check on the quality of environment around the unit. The main parameters will be water quality, Soil quality, air quality.

**Table 7 Environmental Monitoring Schedule**

<b>S.NO</b>	<b>Particulars</b>	<b>Parameters to be measured</b>	<b>Monitoring frequency</b>
1	Air Quality Analysis Within Premises	SO <sub>2</sub> ,NO <sub>x</sub> , PM	Once in a Month
2	Ground Water Quality Analysis	TDS, Chloride, Sulphate, BOD, COD	Once in a Month
3	Soil Quality Analysis	Conductivity, Chloride, Sulphate	Pre monsoon and post Monsoon
4	Noise Quality Main Gate/Boundary Process Area Boiler D.G Set Room		Once in a Month

## **5. ADDITIONAL STUDIES**

### **5.1 Public Consultation**

Public consultation will reveal new information, improve understanding and enable better choices to be made. The community should not only be consulted but they should also actively involve in decision making in environmental matters.

Public consultation will be done through public hearings, public meetings, and generating public awareness through media, local news papers, TV or radio, posters. During public consultation the importance of the project and benefits to the society also to be discussed with peoples. The views of the proposed project from the public side also will be taken into consideration. The detailed consultation will be given in the EIA report.

## 5.2 Risk Assessment

For the effective & safe implementation of the project, it is important to identify associated safety hazards and carry out a basic risk assessment. In the proposed project, HCl is the only hazardous chemicals used for pH correction, which will be handled as per MSDS without human contact. The possibilities of risk may due to human error or by equipment failure. The risk will be avoided by

Giving Training and awareness to the workers, training of staff and many others.

Analyzing the possibility of accidents either due to human errors or due to equipment/system failure.

If any possibility of risk may occur, the risk will be eliminated by taking necessary measures. Safety measures will be taken during material handling.

## 5.3 Socio-Economic Assessment

Vettuvapalayam is the nearby village of the proposed project site. The income for the people of Vettuvapalayam will be depending upon the surrounding Dyeing industries. The proposed CETP will also provide income to the nearby peoples.

There will be significant positive environmental impacts for Vettuvapalayam and the CETP member units by the provision of effluent collection and treatment. These benefits will directly and indirectly improve the quality of life of the urban residents and the environment of the streams because the effluent is currently discharged over a wide area.

## 6. PROJECT BENEFITS

- The main benefits of the proposed unit will be no ground water pollution and surface water pollution due to the 9 member units.
- The proposed project is not only minimizing the intake of water from the groundwater or other sources but also reuses the wastewater by recycling method.
- Saving in Capital and Operating cost of treatment plant. The Common treatment is always cheaper than small scattered treatment units.
- It provides employment opportunities directly for about 15 people & indirectly about 150 people.
- Socio – economic status of the project surroundings will improve.
- Fresh water consumption by the member units will be decreased.
- There is no human re habilitation due to the proposed project site.

## 7. ENVIORNMENTAL MANAGEMENT PLAN

The purpose of the **Environmental Management Plan (EMP)** is to minimize the potential environmental impacts due to proposed project and reflects the promoter's commitment to protect the environment as well as the surrounding population. Environmental Management Plan (EMP) has been prepared to prevent and mitigate the possible adverse environmental impacts due to the construction / operation of the proposed landfill facility as given in Table below.

**Table 8 Environmental Management Plan**

S.No.	Activity	Environmental Hazardous	Management Action to be Taken
<b>(A) Managing Sludge Handling</b>			
1	Unloading of chemical	Spillage of chemical	As far as possible all chemicals will be purchased either in container or in the HDPE bags
		Adverse health impact on	Required protective safety

		labour	components will be supplied
2	Loading of the solid waste in the dumber trucks etc.	Fugitive emission of the waste	Spray Water to suppress the dust
		Spillage of the Waste	
		Leakage of the Waste	
		Adverse Health Impact on the Labourers	
<b>(B) Transportation</b>			
1	Transportation of the waste	Littering of the waste on the road	As far as possible solid waste should be transported in closed containers.
		Spillage of the waste on the way	Loaded waste should be fully covered with HDPE sheet.
<b>(C) Air management</b>			
1	Boiler	SPM, CO, NOx etc., will be released due to burning of wood.	Stack of height 12 m will be provided at 30 cm diameter.
2	D.G Set		Stack of height 7.5 m will be provided at 15 cm diameter.
<b>(D) Water management</b>			
1	Sewage	Water pollution	Sewage generated from the proposed unit will be about 950 lit/day.  Sewage collection pipe lines and man holes should be cleaned periodically.
<b>S.No.</b>	<b>Activity</b>	<b>Environmental Hazardous</b>	<b>Management Action to be Taken</b>
<b>(E) Noise management</b>			
	D.G.Set	Noise pollution	The noise generated from the D.G. Set will be eliminated by providing Vibration pads, silencers and other provisions for reducing the noise level
<b>(F) Solid waste management</b>			
1	Solid waste	Land pollution	Coarse and fine particles from screen chamber, used filter cloth and cake from

			filter press, used media like sand and gravel from pressure sand filter, used membranes from reverse osmosis system, ash generated from boiler and salt from solar evaporation pan will be sent to the Industrial Waste management Association.
<b>(G) Monitoring Programme</b>			
1	Monitoring activity (Monitoring activity should continue even after closure of the facility)	Ground water	Dig/drill bore wells around the site based upon ground water flow and take samples of ground water periodically for analysis. In case of pollution of ground water is noticed develop adequate redemption plan and execute it and keep monitoring
		Air Quality	Air samples will be taken once in a month and the quality of the SO <sub>2</sub> , NO <sub>x</sub> , and Particulate Matter will be analysed. If the result is exceeding the limit, necessary measures will be taken immediately.
		Soil quality	Soil samples will be taken once in a month and the quality of the soil will be analysed. If the result is exceeding the limit, necessary measures will be taken immediately.
(H)	Green Belt Development		Green belt will be developed for 0.5 acres of land to control the noise pollution and particulate emissions generated during operations.