EXECUTIVE SUMMARY

Environment Impact Assessment Report

Expansion of
Sugar Unit & Cogeneration Power Plant from
6000 TCD to 8500 TCD and 30 MW to 50 MW

M/s Gangakhed Sugar & Energy Limited. (GSEL)
Vijay Nagar, Makhani Kodri Road, Gangakhed,
District - Parbhani
Maharashtra - 431514

EXECUTIVE SUMMARY

Introduction

Gangakhed Sugar & Energy Limited (GSEL) a manufacturer of Sugar, Power & Distillery products, located at Taluka Gangakhed District Parbhani in Marathwada Division of Maharashtra State (India). Ganagkhed Sugar & Energy Ltd. has cane crushing capacity of 6,000 TCD with two roller mill technology, the 60 KLPD Multi Product Distillery Plant with incineration fired boiler & 30 MW co-generation power plant.

- Gangakhed Sugar & Energy Private Limited is a Special Purpose Vehicle (SPV) and a wholly owned subsidiary of Sunil Hi-Tech Engineers Ltd. (SHEL).
- Gangakhed Sugar & Energy Limited. (GSEL) is a public limited company register under company act 1956.
- Gangakhed Sugar & Energy Limited has been registered under registration. **U15421MH2007PTC174599 dated September 28, 2007.**

Scope of the Study

The EIA studies were carried out for various environmental components so as to assess the anticipated adverse impacts due to the proposed facilities and to suggest suitable mitigation measures. Project was appraised in 114th State Level Expert Appraisal Committee (SEAC)-1 held on 19th, 20th & 21st November 2015 (Item No. 22). As per approved ToR the EIA Notification dated 14th September 2006 of the Ministry of Environment & Forests (MoEF &CC), New Delhi EIA report is prepared.

Nature and Size of the Project

- GSEL is expanding their sugar plant complex from existing 6000 TCD capacity to 8500 TCD capacity and cogen power plant from 30 MW to 50 MW.
- GSEL has secured environmental clearance for the existing in-house activity from MoEF &CC vide letter no. **F.No. J-11011/1272/2007-IA II (I) dated 16/10/2008.**

Project Location

The proposed project located at Vijay Nagar, Makhani Kodri Road, Gangakhed, District – Parbhani, Maharashtra

Salient Features of the Project & Cost

Sr. No.	Particulars	Details
1	Land	Already acquired and developed for industrial use
2	Topography	Flat
3	Plot Area	200 Acre
4	Industrial Activity Area	22 Acre
5	Proposed Cogen Area	6 Acre
6	Green Belt Area	Existing : 15 Acre Proposed: 7 Acre
7	Water Supply	Masoli Tank (1.5 KM)
8	Power Supply	MSETCL substation at Substation at Gangakhed (5.5 Km Away)
9	Railway Station	Gangakhed 5 km
10	Road	SH 219 7 km
11	Nearest Town	Gangakhed– 5 KM
12	Availability of Raw Material	Rich Cultivated area for Sugarcane
13	Market	Sugar- Domestic Market, Power will export to MSEDCL
14	Manpower	Easily available from nearby villages

Project Highlights: The project highlights have been given below:

Project Highlights

Name and Address of sugar factory	:	Ganagkhed Sugar & Energy Ltd Vijay nagar, Makhani, Kodri Road, Gangakhed.Distt Parbhani (Maharashtra), INDIA - 431514 Telefax - +91-2453-221455 E-Mail – info@gangakhedicpp.com Website - www.gangakhedicpp.com
Existing capacity – Sugar, TCD	:	6000 TCD
Proposed capacity – Sugar, TCD	:	8,500 TCD
Existing capacity – Cogen, MW	:	30 MW
Proposed capacity – Cogen, MW	:	20 MW
Capacity utilization	:	85% in 1st year, 90% in 2nd year and 95% from 3rd year onwards

Project Cost: (Rs. In lakh)

Particulars		Cogen Project	Sugar Expansion	Total
Site Development	:	25	0	25
Civil works & Buildings	:	1035	1336	2371
Indigenous Plant and Machinery	:	8736	5695	14431
Other Fixed Assets	:	226	0	226
Preliminary & Pre-Op.Expenses	:	555	363	918
Contingencies	:	211	148	359
Working Capital	:	0	670	670
Total	**:**	**10788**	**8212**	**19000**

Project Description in Brief

<table>
<tr><th>No.</th><th>Features</th><th colspan="2">Description</th></tr>
<tr><td>1.</td><td>Plot Area</td><td colspan="2">200 Acre</td></tr>
<tr><td>2.</td><td>Industrial Activity Area</td><td colspan="2">22 Acre</td></tr>
<tr><td>3.</td><td>Proposed Cogen Area</td><td colspan="2">6 Acre</td></tr>
<tr><td>4.</td><td>Green Belt Area</td><td colspan="2">Existing : 15 Acre + Proposed : 7 Acre = 22 Acre</td></tr>
<tr><td rowspan="3">5.</td><td rowspan="3">Project Configuration</td><td>Unit Specification</td><td>Capacity</td></tr>
<tr><td>Sugar Expansion</td><td>6000 TCD to 8500 TCD</td></tr>
<tr><td>Expansion of Cogen Power</td><td>Existing : 30 MW
Proposed : 20 MW</td></tr>
<tr><td>6.</td><td>Operational Days</td><td colspan="2">Season : 160 Days Off Season: 120 Days</td></tr>
<tr><td>7.</td><td>Power Evacuation Line</td><td colspan="2">132 KV Line at 132/33 KV Substation at Gangakhed (5.5 Km Away)</td></tr>
<tr><td>8.</td><td>Power Scheme</td><td colspan="2"><table><tr><th>Period</th><th>Generation</th><th>Consumption</th><th>Export</th></tr><tr><td>Season</td><td>47.51 MW</td><td>13.60 MW</td><td>33.91MW</td></tr><tr><td>Off-Season</td><td>20 MW</td><td>2.15 MW</td><td>17.5MW</td></tr></table></td></tr>
<tr><td>9.</td><td>Capital Cost</td><td colspan="2">Expansion Sugar Factory 8212.0 Lakh
Cogeneration power Plant 10788.0 Lakh
Total 19000.0 Lakh</td></tr>
</table>

Basic Requirement of the Project

Land Requirement: This is an existing operating sugar plant and adequate land is available within the premises for locating the new Cogeneration plant. The new Cogeneration plant has been located close to the sugar plant in 6 acre of land.

Fuel Requirement: The main fuel for sugar unit is sugarcane & fuel for the proposed co-gen power project is Bagasse. The details are given below.

Material Requirement /Material Balance

Sr. No.	Raw Material	Product	Byproduct/ Waste Product	Quantity		
				Existing	Proposed	Total
1	Sugarcane 13.60 Lakh/ MT / season	White Crystal Sugar	Bagasse Molasses Press mud	 38400 38400	 16000 16000	380800 54400 54400
2	Bagasse Coal	Season : 50 MW Off- Season : 20 MW	Ash : 1.5 % Ash : 6 %	Bagasse = 5712 MT Coal = 1428 MT		7140

Water Requirement and its Source

Water required for the sugar complex is made available from Masoli dam at a distance of 2 kms from the site location and the ground water available, which ensures the excellent water availability throughout the year

The sugar factory presently has the agreement with the irrigation department for 2.101 million m^3/year. The water requirement of the Power plant can be met by the existing sanction.

Power Balance

The existing power needs averages at 9 MW/day for the sugar complex & cogen auxiliary the operation of the cogeneration plant should be well coordinated with the sugar plant operation and the power export to MSETCL grid.

Power balance for the season and off-season:

Power Scheme Unit : MW	Period	Generation	Consumption	Export
	Season	47.51	13.60	33.91
	Off Season	20	2.15	17.5

Description of the Environment

The baseline status of environmental quality

Study Period: The studies were conducted during December 2015 to February 2016

Study Area: The study area for monitoring of environmental quality includes 10 km region around the project site. Site area covers the 10 KM radial study area in Survey of India (SOI) Toposheet Nos. (56 B/9) (56 B/13).

Environmental Setting (10 km radius)

Particulars	Details
Latitude	18^0 54' 18.22" N
Longitude	76^0 43' 40.43" E
Site Address	M/s Gangakhed Sugar & Energy Limited. (GSEL) Vijay Nagar, Makhani Kodri Road, Gangakhed, District - Parbhani Maharashtra
No. of villages in the study area	42
Total Population	114351
Nearest Habitation	Akoli (North) : 1.25 km Sanglewadi (East) : 1.75 km Makhani (South) : 3.25 km
Nearest River /Water Body	Masoli Tank/ Weir : 1.5 km Godavari River : 7.5 km
Nearest IMD Observatory	Parbhani 45 km
Nearest Town	Gangakhed 5 km
Nearest Railway Line	Gangakhed 5 km
Nearest Air Port	Nanded : 80 km Aurangabad : 250 km
Approach to site by Road	SH-219 (7 km)
Religious / Historical Place	None
Archaeological monuments	None
Ecological Sensitive Area/	None
Seismic Zone	III

Monthly Metrological Data during Study Period

Sr. No.	Particulars		Details
1	Monitoring Period		December 2015 to February 2016
2	Temperature(^{0}C)	Min	December : 14.8
			January : 15.7
			February : 16.3
		Max	December : 34.8
			January : 32.9
			February : 34.6
3	Avg. Wind Speed (m/s)		December : 1.2
			January : 1.3
			February :1.2
4	Pre dominant Wind Direction December 2015 to February 2016		NE
5	Relative Humidity (%)		December : 54
			January : 44
			February : 40

Air Environment:

Ambient air quality of the study area has been assessed during winter period of December 2015 to February 2016 through a network of eight ambient air quality stations within an area of 10 km region around the project site

The concentrations of PM_{10} $PM_{2.5}$, SO_2 and NO_x were found within the National Ambient Air Quality Standards (NAAQ).

Noise Environment:

The minimum noise level 39.1 dB (A) and the maximum noise level 58 dB (A) were observed in day time. The relative high values of noise recorded in factory premises and suburban areas were primarily due to vehicular traffic and other activities.

Water Environment

- pH of the surface water sample was 7.42 whereas ground water shows ranges from 6.75 to 8.42
- Hardness of the ground water is high as compared to the surface water. Hardness of ground water shows these values in between 68 to 192 mg/lit.
- The total suspended solids shows the values in between 6 to 14 mg/lit.
- Total Dissolved Solids ranges from 394 to 492 mg/lit.
- Chloride concentration of the sample is between 38 to 175 mg/lit.

Soil Environment

- pH of soil samples in range of 6.95-7.38.
- Conductivity of the samples is in between 92 to 158 μmho/cm.
- Heavy metals like Copper, Cadmium, Lead, Boron, Chromium, Manganese, and Molybdenum are not detected in all the samples.
- Overall it is observed that the soils of the region are good for agriculture**Socio**

Economic Environment:

The 10 km of study area includes 42 Villages. According to the 2011 Census of India estimate, the population of the Study area is 114351 living in 22204 Households. The population comprises of 59119 Male (52%) and 55232 Female (48%).

In the study area about 14.63% of the populations belong to scheduled castes (SC) and 2.32 % to scheduled tribes (ST) respectively.

The literacy rate of study area is 63 % which is lower than literacy rate for Parbhani district i.e.73.34%.

The occupational pattern of area shows that the percentage of main + marginal and non-workers is 43.56 % and 56.44 % respectively. The main workers comprise majority of cultivators followed by agricultural labour, other workers, and household labours workers are 43 % and 57 % respectively.

Ecology and Biodiversity:

As per the ecological studies conducted it can be seen that the study area shows extreme species diversity. Total 81 tree species recorded & no endangered species of flora is reported in the study area. *Acacia catechu* (L.f.) Wild., *Acacia nilotica* (L) Willd., *Aegle marmelos* (L.) Corr., *Annona squamosa* L., *Azadirachta indica* Linn., *Balanites aegyptiaca* (L.) Del & *Ziziphus jujuba* L. are the typical indicator of water scarce region. The study area that more species & low abundance of species

Species such as *Vulpes bengalensis* (Shaw, 1800) (Bengal Fox), *Antilope cervicapra (Linnaeus, 1758)* (Blackbuck), *Gazella bennettii* (Sykes, 1831) (Indian Gazelle) *& Pavo cristatus* Linnaeus, 1758 (Indian Peafow) are under the Schedule II Part – II, Schedule I, Part- I, Schedule I, Part- I & Schedule I, Part – III of Indian Wild Life Protection Act 1972 However these are not threatened species as per Red Data Book for Animals of International Union for Conservation of Nature and Natural Resources (IUCN).

The majority of bird species found would be least impacted because their habitat requirements are too general and will be met easily from the adjoining areas.

Land Use Land Cover:

Table No. 10.9 Land Use Land Cover Statistics of the Study Area

Land Use Class	Area in Sq Km.	Area in Hectare	Area in %
Cultivable land	127.57	1.28	41
Open land	110.77	1.11	35
Cropped land	53.27	0.53	17
Buildup area	12.94	0.13	4
Vegetation	7.00	0.07	2
Water	2.69	0.03	1
Total Area	314.24	3.14	100

Anticipated Environmental Impacts & Mitigation Measure

Prediction of impacts depends on the nature and size of activity being undertaken and also on the type of pollution control measures that are envisaged as part of the project proposal. However, the good management practices would be followed to ensure that the environmental pollutants concentrations remain within the limits. The proposed plant may cause impact on the surrounding environment in two phases.

- During construction phase
- During Operation phase

Mitigations of these likely impacts are described in the following sub-sections.

Impact on Air Quality and Management

Increase in PM_{10}, SO_2, NO_X, levels due to construction activities and movement of vehicles. The dust generated will be fugitive in nature, which can be controlled by sprinkling of water. The impacts will be localized in nature and the areas outside the project boundary are not likely to have any major adverse impact with respect to ambient air quality.

Air pollution generating sources at proposed plant will be due emissions on account of operation of bagasse boilers. The main air pollutants to be generated during bagasse operation from the proposed activity are mainly particulate matter (PM), Sulphur dioxide (SO_2) and Oxides of Nitrogen. Electrostatic Precipitators (ESP) & bag filters having high operational efficiency shall be provided for the boilers.

Impact on Noise Levels and Management

The impact of noise due to construction activities are insignificant, reversible and localized in nature and mainly confined to the day hours.

All rotating items shall be well lubricated and provided with enclosures as far as possible to reduce noise transmission. In general, noise generating items such as generators, fans, blowers, compressors, pumps, motors etc. are so specified as to limit

their speeds and reduce noise levels. Operators will be provided with necessary safety and protection equipment such as ear plugs, ear muffs etc.

Impact on Water Quality & Management

During construction, water will be required for construction activities, sprinkling on pavements for dust suppression and domestic & non domestic usages The impact on water environment during construction phase is likely to be short term and insignificant.

Aqueous discharges arise from a number of sources. These include cooling tower blow down, sluice water from the bottom ash handling system, boiler chemical cleaning solutions, gas side water washing waste solutions, as well as a variety of low volume wastes including ion exchange regeneration solutions from the demineralizing water plants, RO reject water from the RO plant, boiler blow down, sewerage system discharges from buildings and plant floor drains.

The acid and alkali effluents generated during the regeneration process of the ion-exchangers would be drained into an epoxy lined underground neutralizing pit.

The wastewater generated would be 1250 m^3/day and would include the following:

- Cooling tower blow down
- Boiler blow down
- Effluent from water treatment plant
- Air pre-heater wash water effluent
- Plant wash down
- Floor and equipment drainage
- Effluents from various buildings in the plant

Solid Waste

During construction phase solid waste envisaged chemical wastes, used oil, waste lubricants, paints, maintenance-related wastes, used air and liquid filtration media, and empty or nearly empty chemical containers, most of these materials will be disposed off

by authorized vendor/ incineration. While others will be sold in the market through a contractor, keeping record of them and informing the contractor of their hazards and rational use. Generation of solid waste during this phase shall be controlled by mitigation measures and impact will be insignificant.

During operation phase ash will be generated, the same will be Sell to brick and cement manufacturing unit

ETP Sludge Used for land filling & fertilizer for gardening in own factory premises

Biological Environment

Most of the impact of the proposed project on biodiversity is secondary effects from environmental pollution, such as discharge of effluent into water body. Proposed expansion project generate effluent that can cause pollution when discharge. Soil can be negatively affected by poorly managed application of wastes (by- products) from sugar processing. However, waste can be used a beneficial soil amendments, if properly applied. The air emissions from chimney & vehicular pollution will affect the vegetation.

Social Aspects

The requirement of direct manpower for Power & additional manpower for sugar has been estimated based on the equipment / facilities to be operated in each section of the project. Total manpower requirement has been estimated at 80. Apart from this, all associated projects for efficiency improvement, fuel collection, storage, substitution, etc. will give potential for employment in the rural masses, adjoining the sugar factory location and improve their economic status

Environmental Monitoring Programme

The environment, safety and health-monitoring programme in the factory shall be implemented as follows:

- Regular monitoring of stack emissions
- Daily monitoring of water and wastewater
- Quality monitoring of ambient air, noise and work place air

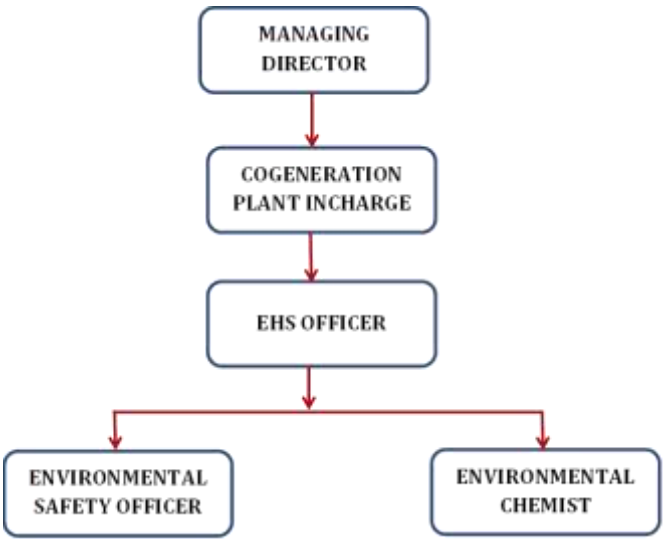
- Monitoring of occupational safety

The project management, being aware and conscious of its responsibilities to environment, is committed that the project operations will be made keeping in line with the internationally accepted sustainable measures/practices and methods thus leaving negligible adverse impacts on any segment of environment due to proposed activity.

Environmental Management Plan / Environment Management Costs

Environmental Management Plan includes the protection, mitigation and environmental enhancement measures to be implemented to nullify the adverse impact on the environment. While implementing the project GSEL will follow guidelines specified by CPCB under the Corporate Responsibility for Environmental Protection (CREP) for co-gen power plant. The EMP operation/implementation will be the responsibility of the "EHS Officer", who will be coordinating, arranging the collection and reporting of the results of all emissions, ambient air quality, noise and water quality monitoring.

Environmental Management Cell will be established, which will be supervised and controlled by an independent Plant Manager supported by a team of technically qualified personnel apart from other operating staff



Environmental Management during Construction Phase

The construction activities of the proposed unit will increase in dust concentrations and fugitive emission due to vehicles movement. Frequent water sprinkling in the vicinity of the construction sites will be undertaken. The following control measures are recommended to mitigate the probable adverse impacts:

- During construction phase M/s GSEL will be taken care to provide all necessary facilities to construction workers such as water supply, sanitary facilities, temporary housing, sewage treatment facilities, drainage facilities and domestic fuels
- Vehicles transporting loose construction material (clay, sand etc.) to be covered with tarpaulins.
- During construction periods with abnormal wind speeds, in particular during dry weather conditions, workers on the construction site should be provided with adequate inhalation and eyes protection gears. In case particulates in air hamper a clear view over the site completely, so that safety is impaired, the construction should be interrupted until weather conditions improve.
- Necessary care will be taken as per the safety norms for the storage of the petroleum products (Diesel, Petrol, Kerosene etc).
- It will be ensured that both gasoline and diesel powered vehicles are properly maintained to comply to the exhaust emission standards.
- Contractor will supervise the safe working of their employees.
- Barricades and fences are provided around the construction area personnel protective equipment's e.g. safety helmet, goggles, gumshoes, etc. will be provided to the workers.
- Accidental spill of oils from construction equipment and storage sites will be prevented.
- Though the effect of noise on the nearby inhabitants due to construction activity will be negligible, noise prone activities will be restricted to the day time.
- As soon as construction is over, surplus of excavated material will be utilized to fill up low lying areas and all surfaces will be reinstated.

- Routing and scheduling construction trucks to reduce delays to traffic during peak travel times would reduce secondary air quality impacts caused by a reduction in traffic speeds while waiting for construction trucks
- M/s GSEL will give preference to local eligible people through both direct and indirect employment.
- Tree plantation will be undertaken during the construction phase for strengthen the existing green belt so that air pollution will be nullify in operation phase of the project.
- Educational needs of the region will be improved by encouraging the workers to allow their children to attend school.

Environmental Management during Construction Phase

Air Environment

The major pollutants from existing & proposed activity are PM_{10} & $PM_{2.5}$ Sulphur Dioxide and Oxides of Nitrogen.

Stack Emissions: The following measures will be adopted for the control of emissions from the stacks of the proposed unit.

- The height of the stack will be 74 m for proposed 100 TPH boiler with single chimney as per CPCB Norms.
- Suitably designed ESP with efficiency of 99.9 % will be placed downstream of the stack which will separate out the incoming dust in flue gas so as to maintain the emissions PM_{10} & $PM_{2.5}$ (50 mg/Nm^3) at the outlet of the stack.
- Stack emissions will be regularly monitored by GSEL/external agencies on periodic basis to check the efficiency of air polluting control devices and necessary action.

Noise Environment

- All rotating items will be well lubricated and provided with enclosures as far as possible to reduce noise transmission. Vibration isolators will be provided to reduce vibration and noise wherever possible

- Manufacturers and suppliers of machine/equipment like compressors, STG turbines and generators will be manufactured as per OHSAS/MoEF guidelines.
- The personnel safety such as ear muffs, ear plugs and industrial helmets will also act as a noise reducers

Water Environment

- Raw water will be drawn from Masoli Dam through required sized pipeline. The pump house will equipped with building, jack well, turbine pumps intake, RCC pipes, auxiliary equipment's, electrical systems etc.
- The raw water received will be stored in RCC / stone masonry reservoir of 10000 m^3
- Backwash water and Regeneration water from the water treatment plant will be neutralized in neutralizing pit and discharged to effluent treatment plant.
- The clarified sludge from the sludge tank is pumped to sludge drying bed.
- Blow down water from Boiler will be sent to ETP after cooling to ambient temperature. Flash from CBD tank will be fed to deaerator.
- ETP plant will be provided with surface aeration, and other facilities to treat both sugar plant and cogen plant effluent to the standards prescribed by the Maharashtra State Pollution Control Board.
- The treated effluent will be used for irrigation in own farms.
- Overflow from Ash Handling System is stored in a settling tank, which is treated with alum and lime and the overflow of this water is used for ash handling systems or gardening within the factory area.

Ecology and Biodiversity:

Following activities needs to be paid attention to:

- Construction activities needs to be restricted to day hours only and the movements of workers and vehicles should be completely banned during early morning and late evening when wildlife activities are at peak.

- Strict instructions to the workers and contactors need to be given on ban on hunting of any faunal species and cutting of vegetation.

- In addition, do the awareness program among the school children & local community about the ecology & biodiversity.

Bagasse Handling System : Bagasse / biomass fuels will be fed to the boiler through series of conveyor belts and silo of suitable size manufactured for 10 minute storage of bagasse to drum feeder driven by variable frequency drive. Rotary drum feeders will feed the fuels to extraction type screw feeder driven by constant speed drives

Ash handling System: Submerged belt type conveyor to collect & convey the ash from the boiler bed. This conveyor has to be mounted in a MS trough; the belt should be submerged in water with a level of minimum 250 mm.

Screw conveyor to feed the ash from APH & Economizer on to the cross belt conveyor

Screw conveyor to feed the ash from ESP Hoppers on to the cross belt conveyor

Cross belt conveyor to convey the ash to the Ash Silo of 50 M 3 capacities.

Ash Silo of 100M3 capacity with the supporting structure & sluice gate with chain to operate the gate from ground.

Green Belt Development Plan : Creation of green belt development using local species along the approach road, inside campus, open space, near ETP Plant etc. will helpful for the aesthetic development of the area with sound ecological management

Occupational Health and safety:

All precautionary methods will be adopted by the company to reduce the risk of exposure of employees to occupational safety and health hazards.

Pre & post medical check-ups will be done of all the employees. Employees will be regularly examined and the medical records will be maintained for each employee. Pulmonary function test and periodical medical checkup shall be done once in every year. The following tests shall be conducted for each worker.

- Lung Function Test
- Radiology – X-ray
- Pulmonary Function Test
- Audiometric Test
- General clinical examination with emphasis on respiratory system
- Pre-employment examinations

Fire Fighting

The different types of fire protection / detection system envisaged for the entire project are given below.

- Hydrant System for entire area of power plant.
- High Velocity Water Spray System (HVWS) for Generator Transformer (GT), Unit Auxiliary transformer (UAT), Station Transformer (ST), and turbine lube oil canal pipe lines in main plant, Boiler burner front, diesel oil tank of DG set, main lube oil tank, clean and dirty lube oil tanks.
- Medium Velocity Water spray system – Cable gallery / Cable spreader room, bagasse conveyors, Transfer points and F.O. pumping station and F.O. tanks.
- Foam system for Fuel oil tanks.
- Portable and mobile fire extinguishers for entire plant.
- Fire tenders (minimum 2 nos.).
- Inert Gas System for Central Control Room, Control Equipment Room, Computer Room and UPS Room in the TG building.
- **Fixed Foam System:** This system is provided for LDO and HFO storage tanks. The water for the foam system will be tapped from the Hydrant system.
- **Inert gas system:** Inert gas system will automatically detect and suppress fire within a protected area. The system will be a total flooding fire suppression system with automatic detection and/or manual release capability. Complete system design will be in accordance with NFPA. The inert gas system will be generally provided above false and below false ceiling of Central Control room, UPS Room, Control equipment room and Computer room.

Budgetary Provision for Environmental management plan

- The Capital Cost of Cogen Power project is Rs.10788.00 Lakhs & Sugar expansion is Rs. 8213.00 Lakh (Total Cost is Rs. 19000.00 Lakh)

No.	Particulars	Amount in INR, Lakhs
One Time Installation Cost (Capital Cost)		
1	Air Pollution Control System	200
2	Noise Control System	15
3	Green Belt Development	10
4	Environment Monitoring and Management	20
5	Water Pollution Control System - ETP	100
6	Occupational Health & Safety	10
	Total	**355**
Recurring Cost		
1	Environmental Monitoring /APH Maintenance	10
2	General Maintenance of ETP	15
3	Greenbelt maintenance	2
4	Noise Pollution Control	2
5	Occupational Health	3
6	Environmental Management	5
Total		**37**