Executive Summary

ENVIRONMENTAL IMPACT ASSESSMENT STUDY
FOR
EXPANSION OF SUGAR PLANT AND POROPOSED COGENERATION PLANT
(2500 TCD TO 10,000 TCD AND 32 MW)
AT
Gut No.803, Post: Chimangaon, Taluka: Koregaon, District: Satara (MS).

Applicant

M/s. Jarandeshwar Sugar Mills Pvt. Ltd.

Gut No.803, Post: Chimangaon, Taluka: Koregaon, District: Satara (MS).

EIA Consultant

MANTRAS GREEN RESOURCES LTD.

Engineers & Environment Consultant

(QCI/NABET Accreditated Consultant)

Hall No.1, First Floor, NICE Sankul, ITI Signal, MIDC Satpur, Nasik-07

Phone: +91-253-2355665, 2370086; Fax No.: +91-253-2316781

e-mail: info@mantrasresources.com, uksharma@mantrasresources.com

July , 2017

TABLE OF CONTENTS

Sr. No.	Title	Page No.
1.0	Introduction	1
2.0	Need of the Project	2
3.0	Justification for Proposed Plant	2
3.1	Raw Material Requirement	4
4.0	Plant Capacity and Project Cost	4
4.1	Screening Category	5
4.2	Project Location	5
5.0	Technology and Process Description	5
6.0	Draft Environment Impact Assessment Report	9
7.0	Description of the Environment	9
8.0	Anticipated Environmental Impact and Mitigation Measures	11
8.1	Analysis of Alternative Site	14
8.2	Additional Studies	14
8.3	Environmental Monitoring Plan	14
8.4	Budget Allocation for EMP	15
8.5	Occupation Health and Safety	16
9.0	Conclusion	16

LIST OF TABLE

Table No.	Title	Page No.
1	Magnitude of project	3
2	Proposed Products and By-products of Sugar plant	4
3	Composition of Press Mud	9
4	Environmental Monitoring Programme	14
5	EMP Budget	15

LIST OF FIGURE

Figure No.	Title	Page No.
1	Manufacturing Process Flow Chart	6
2	Refined Sugar Manufacturing Process	7
3	Co-gen Power Plant Process Flow Diagram	8

Executive Summary

1.0 Introduction

M/s Jarandeshwar Sugar Mills Pvt. Ltd. is a Proposed project for Expansion of Sugar Unit from 2,500 TCD to 10,000 TCD and setting up of a new 32 MW Cogeneration Power Plant at Gut No. 803, At-Post-Chimangaon, Taluka-Koregaon, District-Satara-415 501(Maharashtra). JSMPL has about 834742.81m^2 of land in its possession to conduct its desired various operations of sugar mill and cogeneration power plant. The Existing Sugar Project is established over an existing area of 34021.31m^2**.** The Expansion project is planned to be established in the same area in 800721.50m^2 which is already available within the Existing Sugar Mill. The Proposed Project will produce Sugar as product and by-products generated will be Bagasse, Press mud and Molasses. The purpose of the EIA report is to provide a coherent statement of the potential impacts of proposed project and the measures that should be taken to establish the impacts and suggest mitigation measures. Jarandeshwar Sugar Mills Pvt. Ltd. is a Private Limited Company. It is an existing company incorporated under Company's Act, 1956. Its Registration No. is U15421PN2010PLC13769.

The process of Environmental Impact Assessment serves to meet the primary goal of Parliament in enacting Environmental (Protection) Act (EPA), 1986 to establish a national policy in favor of protecting and restoring the environment. As per EIA Notification SO 1533 dated 14th September 2006, prior environmental clearance is mandatory for establishment of projects/activities listed in the schedule of above notification. The expansion project is categorized under 5(j) Category 'B1', 1(d) Category 'B1', hence require prior environmental clearance from the State Level Expert Appraisal Committee (SEAC) of Maharashtra.

JSMPL has retained Mantras Green Resources Limited (MGRL), Nasik as Environment consultant. MGRL initiated process of obtaining Environment Clearance. MGRL prepared application documents consisting of Basic information, Form-1 and Prefeasibility report and applied to SEAC-1 for obtaining "TOR" for the project. SEAC allotted "TOR" for the Proposal in 140th Meeting of State Level Expert Appraisal Committee held between 20th July, 2017 under item No.2.

MGRL carried out Environmental Impact Assessment (EIA) study encompassing baseline scenario with respect to different components of the environment viz. Air, Noise, Water, Land, Biological and Socio-economic, etc. including parameters of human interest for evolving suitable Environmental Management Plan (EMP). The EIA report is being submitted for the purpose of requirement of obtaining environmental clearance from statutory authorities. The EIA report covers the identified impacts with elaborate EMP so as to prevent any damage to environment and ecological balance of the area.

2.0 Need of the Project

India is predominately an agro based economy. Sugarcane plays a very vital role in the agro based economy by providing sugar, the main sweetener used in India. With the growing demand for sugar, the emphasis has been on increasing sugar production.

India is the second largest producer of sugar over the globe. With more than 45 millions of sugar cane growers in the country, the bulk of the rural population in India depends on this industry. One of the major agro-based industries in India, sugar industry is the second largest agricultural industry followed after the textile industry.

It will also ensure saving in foreign exchange. Employment benefit to local communities will grow exponentially as raw material base is agriculture.

3.0 Justification for Proposed Plant

JSMPL has planned to expand its capacity from 2500 TCD to 10,000 TCD for Sugar mill along with setting up a New Cogen 32 MW to produce power. By products of Sugar Mill are – Molasses, Bagasse and Press mud. Latest trend is to convert the Press Mud into Bio-compost. For Bio-composting filter material is required. Here press mud is available as filter material. After bio-composting Press Mud from Sugar mill will be sold to nearby farmers.

The Power situation in Maharashtra is worsening every day. Power interruption leads to unplanned shut downs and consequences are excess consumption of utilities, compromise in quality of sugar and overall increase in manufacturing costs. Hence, it was decided to utilize Bagasse produced for cogeneration of power.

With site as center 10 km radius area does not involve any places of Archeological interests or any reserve forest, or any ecologically sensitive area, or critically polluted area, or the interstate boundary. Land is in possession of promoters and there are no rehabilitation or resettlement issues pending. There is no litigation against this project.

Table 1: Magnitude of project

Sr. No.	Particulars	Details	
1.	**Area Statement**	**Area (m^2)**	
	Total Plot Area	8,34,742.81	
2.	**Water Resources**		
	Surface Water	Tailganga River	
	Fresh Water Demand	After Expansion Sugar mill: 1395 CMD	
3.	**Power Requirement**		
	Sugar plant & Cogen plant		
	Back-up power	1010 KVA x 2 sets	
	DG Set rating	1010 KVA x 2 sets	
	Fuel Used	HSD	
	Fuel Consumption	202 L/hr (If used at full Load)	
4.	**Man Power**	**Sugar & Cogen Unit**	
	Total	625 Nos.	
5.	**Project Cost**		
	Total Investment	Rs 24685.30 lacks	
6.	**Utilities**		
	Steam generation capacity	87 ata pressure ,540^0 C	
	Boiler Capacity	160 TPH	
7.	**Ash Generation from Boiler**	**Existing**	**Proposed**
	Total Ash generation	12.00 MTD	32.64 MTD
	Expected Fly Ash	9.6 MTD	26.11 MTD
	Expected Bottom Ash	2.40 MTD	6.52 MTD
	Fly Ash Dust Collector	ESP to limit dust emission	
	Fly Ash and Bottom Ash Disposal	To brick manufacturers	
8.	**SO_2 emission**		
	SO_2 emission from Bagasse	3.60 MTD	9.78 MTD
9.	**Details of Stack**		
	Height provided	52 m	82 m
	Diameter	3.5 m	4.5 m
10.	**Wastewater Generation**		

Sr. No.	Particulars	Details
	Effluent generation after expansion	525 CMD
	Treatment	ETP
	Disposal	Gardening/process
11.	**Solid Waste Generation**	
	ETP sludge from ETP/ DM Plant	35 Kg/day

3.1 Raw Material Requirement

The raw materials required can be broadly categorized as follows:

Total requirement of cane crushing capacity for existing sugar mill is 2500 TCD and proposed plant 7500 TCD for expansion. Total cane crushing capacity will be 10000 TCD after expansion. About 1632 TPD bagasse will be required for 32 MW cogeneration power plant. Bagasse generation after expansion will be around 2800 TPD. Total requirement of cane is from nearby farmers having lot of cane growing farmers around the sugar mill factory.

Table 2: Proposed Products and By-products of Sugar plant

Existing Sugar Mill		Proposed Sugar Mill	Total	Products and By-products
Products	**Capacity**			**Uses**
Sugar Mill	2,500 TCD	7,500 TCD	10,000 TCD	Sugar
By-products				
Bagasse	700 TPD	2,100 TPD	2,800 TPD	Useful as fuel
Molasses	100 TPD	300 TPD	400 TPD	Sold to nearby Distillery
Press Mud	100 TPD	300 TPD	400 TPD	Used as Manure

4.0 Plant Capacity and Project Cost

The Proposed Project is expansion of sugar unit along with cogen unit. Total requirement of sugarcane is 15 lakhs MTD for existing and proposed expansion of 10,000 TCD Sugar Mill. About 1632 TPD bagasse will be required for 32 MW Co-gen Power plant. Total generation of bagasse from expansion of sugar mill is about 2800 TPD which is more than sufficient for power generation. For fulfilling water requirement, the Company has KT Weir on the bank of the Tailganga River.

The estimated project cost of expansion of sugar mill and Cogeneration plant is worked out as Rs. 24685.30 Lachs.

4.1 Screening Category

The Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India has issued EIA Notification: S.O. 1533 dated 14th September 2006. As per the EIA Notification the proposed expansion project of sugar and proposed Cogen Project is bagasse based, it comes under category 'B' under Schedule 5(j) and 1(d). Therefore, the Projects require prior Environmental Clearance from the State Expert Appraisal Committee (SEAC 1), Maharashtra.

4.2Project Location

M/s Jarandeshwar Sugar Mills Pvt. Ltd. is Proposing for Expansion of Sugar Plant and setting up of new Cogen Power Plant with the following facilities at Gut No. 803, at Post: Chimangaon, Taluka: Koregaon, District: Satara (Maharashtra).

5.0 Technology and Process Description

(a) Sugar Manufacturing

JSMPL will manufacture plantation white sugar. Sugarcane will be brought to the factory, weighed and sent to the milling plant. Juice will be extracted in the milling plant and then it will be heated and treated by double sulphitation process. In this double sulphitation process, juice will be heated to 75^0C and treatment with lime and sulphur dioxide (SO_2) will be given. The juice will be adjusted to neutral pH and passed to the heat exchanger to raise its temperature to the boiling point. It will be then sent for clarification where juice will be clarified and then sent to the Multiple Effect Evaporator (MEE) and the sediment from the clarifier will be sent to the vacuum filter. The concentrated syrup from the evaporator will again bleached by passing SO_2 through and the pH of the syrup drops down to about 5.1. It will then send to the vacuum pan, where the thickened syrup will be boiled 3-4 times as per purity in order to extract the sucrose content on the crystals. After this, the sugar and molasses will be separated in the centrifuges. To avoid bacterial contamination and to control dextran, 10-17 ppm of quaternary ammonium compound base effective biocide will be used; steam/hot water washing will be carried out twice in a shift. Screening of raw juice will be carried with double stage DSM screen having 0.6/0.7millimetre (mm) aperture. Mixed juice phosphate level will be kept 300 to 325

mg/l by addition of Food Grade Phosphoric Acid. Raw juice will be heated to 76 -78^{0}C. Simple sulphitation process will be followed by adding milk of lime of 10 to 11 brix and SO_2 gas to maintain the pH in the range 7.1 to 7.3. Juice will be heated up to 102^{0}C to 103^{0}C and clarified. Addition of 1 - 3 ppm of mud setting and colorant will be added to get brilliant color. Massecuite boiling system will be followed. **Curing:** An m/c will be cured in flat bottom centrifugal machine and time cycle of an m/c will be adjusted according to quality of dropping sugar without any lumps. **Conveying:** Sugar will be conveyed in sugar hoppers blowing hot and cold air. **Grading:** Six deck grader fitted with different mesh size screens will be used for gradation of sugar in different grades. Sugar manufacturing process flow chart is given in **Fig. 1** and refined sugar manufacturing process given in **Fig. 2.**

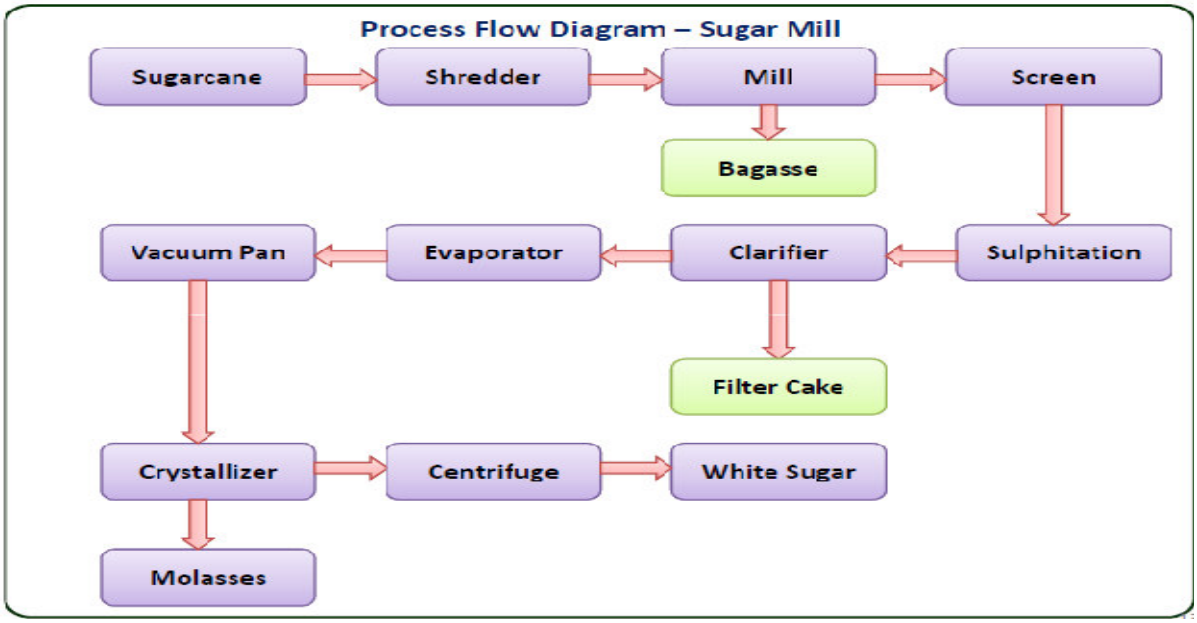

Fig. 1: Manufacturing Process Flow Chart

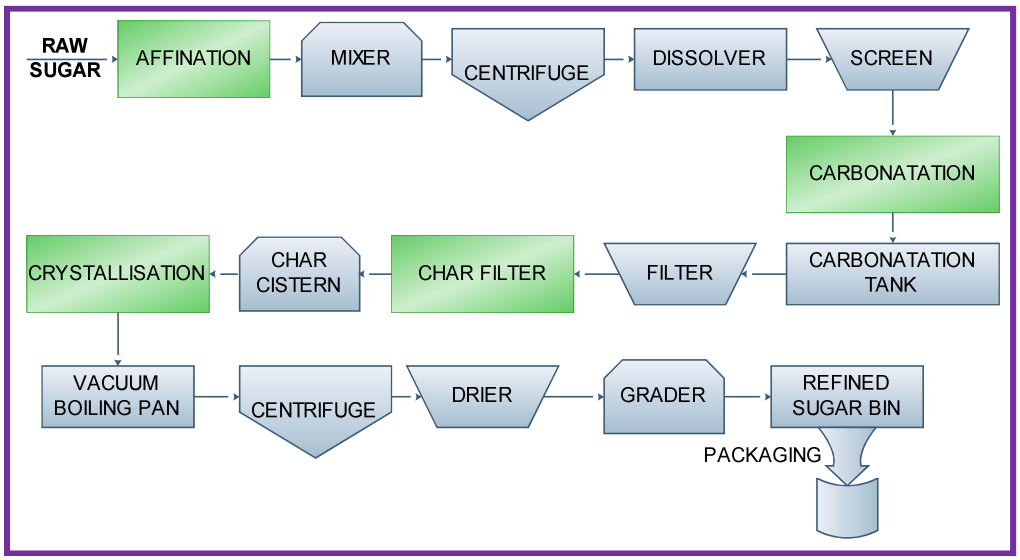

Fig. 2: Refined Sugar Manufacturing Process

(b) Cogeneration of Power Process

The unit is proposed to set-up a 160 TPH @ 87 ata boiler for generation of 32 MW Power. When a properly coiled wheel is rotated within magnetic field electricity is generated. To rotate the wheel mechanical, water or steam may be used. Steam generated in a boiler is fed to a turbine coupled to an alternator. Steam is produced in a boiler by burning of bagasse and coal as fuel. Steam at high pressure moves the turbine which rotates alternator and electricity is produced. Part of steam is ejected at low pressure is used for heating requirement of sugar mill, de-aeration of incoming water and balance is condensed and recycled. The management is planning to add 7500 TCD sugar mill along with proposed 32 MW Co-gen Power Plant. The proposed cogeneration project will be equipped with a new 160 TPH Travelling Grate Boiler along with 32MW extractions cum condensing Turbine with existing set up. The process Flow Sheet is given in **Fig. 3.**

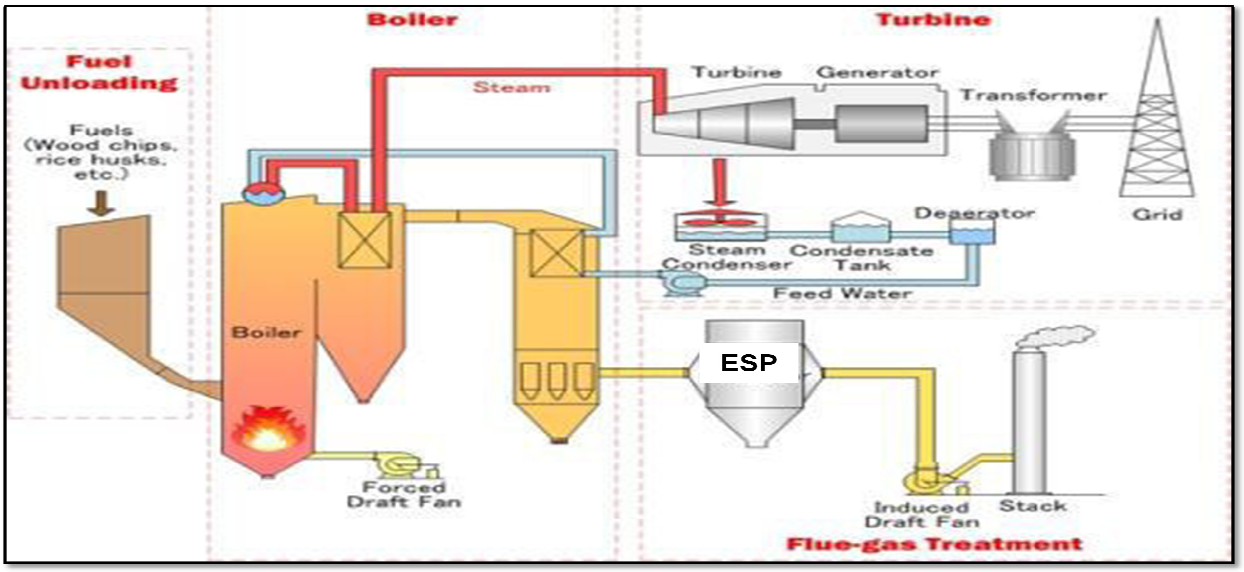

Fig. 3: Co-gen Power Plant Process Flow Diagram

Bio-fertilizers are known to play a number of vital roles in soil fertility, crop productivity and production in agriculture as they are eco-friendly. The main advantages of bio-fertilizer are as follows:

- Increase crop yield by 20-30%
- Replace chemical Nitrogen and Phosphorous by 25%
- Stimulate plant growth
- Activate soil biologically
- Restore natural fertility
- Provide protection against drought and some soil borne diseases.

Table 3: Composition of Press Mud

Compound	Percentage
Cellulose	11.4
Hemi cellulose	10.0
Lignin	9.3
Protein	15.5
Wax	8.4
Sugar	5.7
Sodium	0.22

6.0 Draft Environment Impact Assessment Report

MGRL was assigned the project of preparing Environment Impact Assessment Report for the proposal in light of background of Existing Sugar mill and cogeneration plant. For the environmental impact assessment studies, an area covering 10 km radial distance from the center of Project area (covering around 10 km area from the boundary of proposed plant on all sides) was identified as impact zone. Sampling points have been chosen from both the Impact zones. The EIA study was carried out for each individual environmental component during winter season, (October – December, 2016) is briefly reported below and the details of which are presented in the report.

MGRL established the baseline, studied the process requirement, raw material requirement, products generated, safety measures adopted, mitigation measures recommended and predicted impacts. Environment Management Plan was prepared and budget is estimated. Post project monitoring plan was finalized to ensure predicted impacts are within line of control norms. A draft EIA report is prepared and will be submitted for public hearing. After public hearing, the draft EIA will be modified and final EIA prepared will be incorporated with public suggestions.

Final EIA will be submitted to MoEF for obtaining Environment Clearance.

7.0 Description of the Environment

Land use

The land use is changed to industrial use. The sugar and cogen projects will require land for entire basic infrastructure, plant equipments, storage of plant inputs and finished products. Besides this

Administrative Office, Security arrangements, Fire fighting arrangements etc shall also have to be considered.

Meteorology

The wind-rose diagram indicates that the predominant winds are from E, ESE sectors with the dominant wind speed class of 0.5-11.2 m/s and calm condition of 0.00%. Local prevailing wind pattern during the study period was the conformity with the climatologically normal of the region. The data indicate that the average temperature and relative humidity varied in the range of 22.8.^{0}C to 35.5 ^{0}C and 35% to 38.6% respectively.

Ambient Air Quality

The minimum and maximum ranges of PM_{10} were 22.20-62.50 µg/$m^{3.}$, the $PM_{2.5}$ ranges from 10.10-32.10 µg/m^3, SO_2 BDL-28.80 µg/m^3 and NOx 15.20-43.10 µg/m^3.

Ambient Noise Quality

Noise levels in around the project site were observed between 57.5 dB (A) to 72.6 dB (A) with an average of 65.19 dB (A) during day time while during night time the noise levels were observed between 52.1 dB (A) to 65.5 dB (A) with an average value of 58.92 dB (A) which is observed in comparison to the noise standards prescribed by CCCB.

Soil Quality

Soil pH in the study area is observed to be moderately alkaline in reaction ranged from 7.6 - 8.37. The average value of 3 samples of EC of the soil analyzed and the results are in the range of 184 – 306 µMho/cm found to be below average.

Surface Water Quality

The results of average of three surface water viz. pH, TSS, TDS and Conductivity, during study period of surface water are found in the range of 7. 62- 8.41, <0.2 mg/l, 196.66 mg/l – 455.66 mg/l and 320.66 µMho/cm -574.66 µMho/cm respectively.

Ground Water Quality

The average of three ground water quality viz. pH, TSS, TDS and conductivity are observed in the range of 7.44 – 7.92, <0.2 mg/l, 365.33 – 1285.3 mg/l and 495.0 - 2100 µMho/cm respectively.

Biodiversity:

During the floristic survey a total plant 192 plant species comprises of 101 trees, 32 shrubs, 21 herbs, 22 species of grasses and bamboo, 14 climbers and 2 species of parasite were recorded in the study area. In the study area total 20 species of medicinal plant species. Out of 192 Plants, 1 species observed as Vulnerable (VU), 94 species were Least Concerned (LC), 1 species of each NE (Not Evaluated) and DD (Data Deficient). Remaining 95 species were not accounted under IUCN category. A list of wildlife (mammals 10 species, avifauna/birds 25 species and reptiles 2 species) total 37 Wildlife species were recorded with their schedule of wildlife protection Act, 1972 and IUCN category.

Socio-economic

Total population in the study region worked out to be 47,914 out of which 24,010 (50.11%) male and 23,904 (49.89%) female. Out of the total population, SC and ST are 4289 (8.95 %) and 353(0.74%) respectively. The literacy rate of the total population is worked out to 36,158 (75%). Male literacy 19,207 (40%), and female literacy is 16,951 (35%). Sex ratio (number of females per thousand of males) in the region is recorded as 996 indicating male population in the region is marginally higher than the female population.

The total population of main worker, marginal worker and non-worker category are 19,922 (41.58%), 2,333 (4.87%) and 25,659 (53.55%) respectively.

The majority of the main worker recorded was, cultivator worker and agricultural workers 8,930 (44.82%) and 5,888 (29.56%) respectively. There are 500 (2.51%) and 4,604 (23.11%) as household worker and other workers.

8.0 Anticipated Environmental Impact and Mitigation Measures

Construction Phase

During the construction phase air pollution will be due to construction activities i.e. leveling of site, movement of vehicles on road and operation of DG set and machineries. Water sprinkling on road will be on continuous intervals. Top soil will be stacked separately and will be used for green belt development. Domestic effluent will be treated in 90 KLD capacity of sewage treatment plant.

Operation Phase

Air Pollution Control

- Adequate Stack height (82m) will be provided for better dispersion of the air pollutants
- ESP of 99.9% efficiency will be installed to control the particulate matter emission from sugar/cogen plants
- Ambient air quality and stack emission would be regularly monitored and effective control exercised, so that the stack emission load limits would be met at all the time.
- Providing road surface with black toping to avoid dust emission due to transportation and all the roads will be asphalted
- Green belt will be developed on 33% area of the total project area which will help in attenuating the pollutants emitted by the plant
- Adequate measures for control of fugitive dust emissions will be taken

Wastewater Treatment

- Fresh water requirement of the project will be met by Tailganga River
- Existing 250 KLD ETP plant will be upgraded to a capacity of 1000 KLD with advance treatment technology
- The treated water will be used for gardening and flushing purposes
- The sewage generated from the sanitary blocks will be treated in STP and used for irrigation, greenbelt development and gardening
- Plant should ensure that the treated effluent quality shall comply with norms set by MSPCB
- Rainwater harvesting will be done and the water will be discharge in ground water

Noise Management

- The proposed cogeneration plant causes noise pollution due to presence of centrifugal pumps, motors, DG sets, EOT Cranes etc.
- Noise pollutions can be controlled to a considerable extend by providing proper maintenance to equipments

- Providing thick Green belt development in (33%) of total area (plantation of dense trees across the boundary) will help in reducing noise levels in the plant as a result of attenuation of noise generated due to plant operations and transportation
- Personal protective equipments like ear plugs and ear muffs will be provided to employees working in the noise prone areas.
- Time to time oiling and servicing and O and M of machineries will be done
- Provision of acoustic enclosure for Turbine and D.G. sets would be used
- The plant should ensure that the ambient noise levels standards set by CPCB

Solid Waste Management

- Press mud is solid in nature, act as soil conditioner will be sold immediately to farmers for using as manure
- Bagasse will be used for power generation
- Fly ash and bottom ash will be used for bricks manufacturing
- ETP sludge can also be send to landfill or as per the direction of MPCB
- Establishment of waste reduction measures will be adopted

Flora and Fauna

- There is no endangered flora and fauna or rare species of plant and animals exist in the study area

Socio-Economic Environment

- M/s. JSMPL will actively contribute to improve the socio-economic conditions of the area and also will actively participate in various socio economic activities like; educational campaigns, health check-ups, training programs, awareness campaigns etc (as per the need) which will lay stress on the overall development of the project site. Following points will be stressed upon:
- During operation the plant will generate employment for local population
- Skilled employees will be recruited through open recruitment process
- To Identify and focus on drinking water source, its utilization by the surrounding villagers, impact on their livelihood and health

- Trained operators and workers in various aspects of EHS (Environment, Health and Safety) will be employed
- The managers and officers involved in Environment Management Cell would undergo refresher workshop and up-gradation of information on various environmental issues from time to time
- The industry would help in promoting the activities related to environmental awareness in the nearby villages.

8.1 Analysis of Alternative Site

- For the proposed project adequate land is already available with JSMPL hence, no alternate site has been proposed for the expansion of plant.

8.2 Additional Studies

- Risk assessment studies for both phases i.e. construction and operational phase have been done and plant and personnel will be well protected.
- Public consultations will be done as per the CPCB guidelines
- Public hearing will also be conducted and public comments will be incorporated within the project.

8.3 Environmental Monitoring Plan

Monitoring of the post project environment is of utmost importance and has legal requirements. Proposed project will adopt an effective monitoring plan with planned schedule as a step forward to ensure better environment management practices. This would be done by collection of samples of surface/ground waters, ambient air / noise, stack emission and analyzing the samples by standard methods. To ensure mitigation measures are effectively working a post project environment plan has been worked out as below:

The monitoring parameters and frequency of monitoring shall be as per **Table-4.**

Table 4: Environmental Monitoring Programme

Sr. No	Item	Parameters	Frequency
1.	Ambient Air quality	PM_{10},$PM_{2.5}$, SO_2, NO_x, CO, etc.	Once in a Month

2.	Stationary Emission from Stack	PM, SO_2, NO_X	Continuous online monitoring
3	Process emission	Fugitive gasesous pollutant expected	Monthly
3.	Wastewater	pH, Temperature, Total Dissolved Solids, DO, COD, BOD	Continuous online monitoring system
5.	Noise	Equivalent noise level- dB (A)	Monthly
6.	Soil, Solid wastes and Manure / Compost	pH, Humidity, Texture, Organic matter, N, P, K, Sulphate, Calcium, Magnesium, C: N ratio.	Quarterly
7.	Greenbelt	Number of plantation (Units), Number of Survived plants/ trees, Number of poor plants/ Trees	Ongoing- round the year
8.	Environmental Audit	As per Direction of ISO 14001	Once in a Year

8.4 Budget Allocation for EMP

The cost of the proposed expansion project is 24685.30 Lacs.

Table 5: EMP Budget

S. No.	Particulars	Capital cost	Annual Recurring cost
		Rupees in lacs.	
1.	Air Pollution control equipments	49	16.50
2.	Chimney	25.63	4.00
3.	Ash collection system	8.75	2.45
4.	Water pollution control treatment	100.00	14
5.	Noise Pollution control	6.15	2.34
6.	Solid waste Management	30.00	7.66
7.	Occupational health	12.85	4.80
8.	Safety Management	18.22	4.90
9.	Development of green belt	28.95	1
10.	Maintenance of pollution control devices	86.66	46.48
	Total	**366.21**	**104.13**

There will be a separate cell that will ensure regular inspection and maintenance of pollution control systems, statutory approval, waste treatment and disposal including stack emission etc

8.5 Occupation Health and Safety

- During the construction and operation phases there are chances of major or minor accidents at the project site
- There shall be regular medical checkup of the workers
- LFT (Lung function test) will be conducted annually for all operating persons.
- Adequate safety precautions shall be exercised strictly for observing safety norms
- Protective equipments shall be stocked and made available to the workers as below:
- All the workers will be provided with helmets, goggles and safety equipments, welder equipments for eye and face protection, ear plug, ear muffs, dust masks, boiler suit, safety belt, hand gloves, and safety shoes along with safety instructions in the form of manual and first-aid facilities will be made available.

9.0 Conclusion

The development of proposed Sugar & Cogen plant of 10000 TCD & 32 MW capacities at chimangaon area is technically and economically feasible and environmental friendly. The conclusions of the project report may be drawn from the following points:

- Baseline environmental status, anticipated environmental impacts and mitigation measures have been prepared and included in the report to ensure there is no damage to the existing environment.
- To check post project scenario a post project monitoring program is included in environment management plan.
- All the activities of Sugar & Cogen units will be confined to the acquired area of JSML emissions will be restricted well within allowed limits. Thus, the environment will not be adversely affected in any way.
- Sugar operations from processes will be zero discharge projects. Thus there will not be any wastewater discharge in the environment.

- The by-products (Bagasse, Pressmud and Molasses) produced from sugar manufacturing process will be used in distillery process for manufacturing of Rectified spirit, Alcohol, Ethanol, Electrical Power and Biogas, etc.
- The development of plantation as green belt (33%) will help to increase the biodiversity of the area. It will effectively mitigate environmental pollution.
- Rain water harvesting, recycling of water, passive enclosures/ dust suppression method for dust generating machines in the project areas reduce the demand of fresh water.
- The unit will generate power from renewable resources bagasse. It will generate power in excess of its own requirement and feed to state grid.
- Being agro based industry it will offer ready market for local sugar cane growers.
- Farmers producing other variety of grains will also find ready market. Apart from selling their produce to factory farmers will get back bio compost from factory to enhance nutrient level of their farms.
- JSMPL will deliver its obligations under corporate social responsibility (CSR). Under CSR policy JSML will ensure development of the surrounding villages and the area and Quality of Life of local people will be improved.
- Preference will be given to local population for employment as well as in awarding works contract to ensure small scale industries are promoted in the area
- JSMPL will also a helping hand in improvement of infrastructural facilities like education, medical, transport etc.
- In view of such several advantages the management requested public to award their approval for the project.

.