EXECUTIVE SUMMERY

1.0 Introduction:-

Kumbhi Kasari Sahakari Sakhar karkhana Ltd., is situated at Kuditre, Tal. Karvir, Dist. Kolhapur. It was eastiblished in the year 1964 in co-operative sector. The existing sugar cane crushing capacity is 3000 TCD and has been running successfully. The Karakhana has attached Co-generation unit with an installed capacity of 2 MW in Phase I. Factory have proposed to expansion of sugar & co-generation project ,for expansion of changing in production capacity of sugar plant from 3000 TCD to 5000 TCD & co-generation from 2 MW to 19.5 MW. Which would be expanded to 2000 TCD & co-generation expansion of 17.5 MW in Phase II. The Director body of factory has widespread experience of setting up & managing large scale industries, Hotels, Agro Based Industries and management of large scale Entertainment and Hospitality units.

The KKSSK has proposed to expand 2MW power generation to 19.5 MW. The total bagasse required after expansion of power generation unit to 19.5 MW is 42,976 MT /M.

As per government regulation Chandradeep Narake K.K.S.S.K.L approached MoEF New Delhi for environmental clearance for expansion of changing in production capacity of sugar plant from 3000 TCD to 5000 TCD & co-generation from 2MW to 19.5MW. Regd. No. of factory: G-282/DATED-20/06/1960

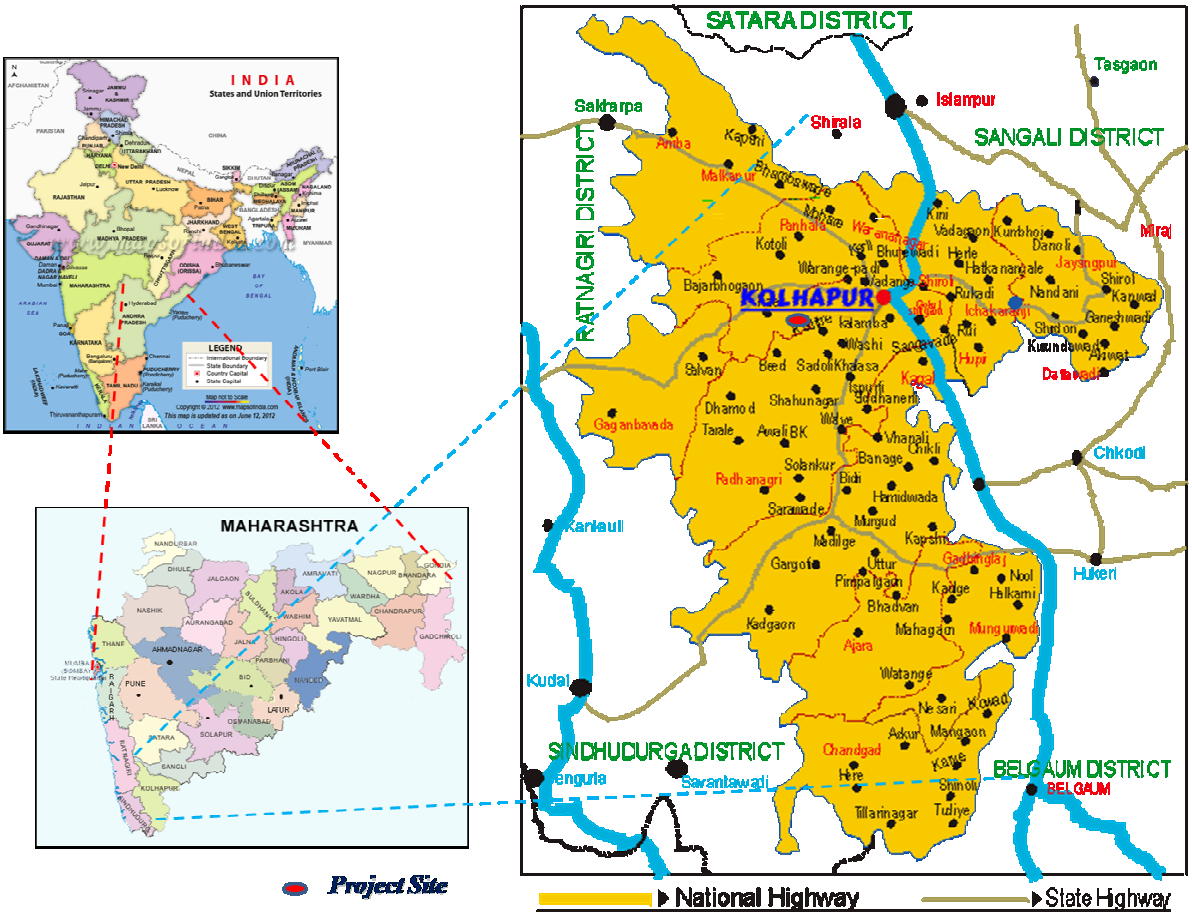
The purpose of the preparation of Environment Impact Assessment (EIA) report is not only to obtain Environment Clearance from Ministry of Environment & Forests, Govt. of India, New Delhi, but also to understand the likely impacts and to take Environment Protection measures during and after commissioning of the project.

2.0 PROJECT DETAILS:-

The management of Kumbhi Kasari Sahakari Sakhar Karkhana Ltd. Propose production capacity of sugar plant from 3000 TCD to 5000 TCD & co-

generation from 2 MW to 19.5 MW.at Kuditre, Tal- Karvir, Dist- Kolhapur. Chairman is Chandradeep Narake,MLA & Shamarao Godhade is Vice-Chairman of K.K.S.S.K.L.

Location Site Map:



1 Director Body of K.K.S.S.K.L:-

Table No.-1.1: List of Board of Directors.

Sr. No.	Name of Director	Designation
1	Shri.Chandradeep Shashikant Narake, B.E (civil)	Chairman
2	Shri.Shamarao Bapu Godhade	Vice-Chairman
3	Shri.Arun Rauso Patil, B.A.	Director

4	Shri.Vilas Ananda Patil, B.A.,M.S.W	Director
5	Shri.Shankar Shripati Patil, B.A	Director
6	Shri.Dadaso Arjuna Lad	Director
7	Shri.Shailendra Babaso Varute, M.Arch.	Director
8	Shri.Bharat Ganpati Khade	Director
9	Shri.Kishor Ananda Patil, B.Sc.	Director
10	Shri.Bhagwan Rama Patil	Director
11	Shri.Ananda Namdev Patil	Director
12	Shri.Sanjay Balawant Patil, B.A	Director
13	Shri.Aambaji Shankar Patil	Director
14	Shri.Jaysingh Yashwant Patil	Director
15	Shri.Sanjay Shripati Patil	Director
16	Shri.Subhash Pandurang Patil, B.A	Director
17	Shri.Aba Rama Patil	Director
18	Shri.Prakash Dattatray Patil, B.E.(Chemical)	Director
19	Shri.Pandurang Gunda Shinde, B.A	Director
20	Shri.Balawant Tukaram Patil	Director
21	Shri.Yallappa Mahadev Kamble, B.A	Director
22	Shri.Anandrao Shivaji Mane, B.A,G.DC&A	Director
23	Sou.Anita Santaji Patil	Director
24	Sou.Rama Subhash Bondre, B.A	Director
25	Shri.Pandurang Dadu Dabholkar	Director
26	Shri.Vishwanath Annasaheb Shinde, B.Com	Managing Director
27	Representative, Regional Dy.Director, Kolhapur	
28	Representative, M.S.C. bank Ltd., Mumbai	
29	Shri. Avinash Krushnat Patil	Worker Representative
30	Shri.Pandit Alias Suresh Balawant Patil	Worker Representative

The proposed project is located at Kuditre, Tal-Karvir, Dist-Kolhapur.The project falls at North Latitude: 16˚41' 21.29'' & East Longitude: 74˚07' 13.79''

Table No.-1.2: Location Details

1.	Project site	Kumbhi Kasari Sahakari Sakhar Karkhana Ltd., Village Kuditre, Tal. Karvir, Dist. Kolhapur.(Sy No.- Suger Factory- 275,276,278,279,195, Distillery- 303,304,305,306, Co-gen- 195,274,276.)
2.	Latitude & longitude	Latitude: 16˚41' 21.29'' N , Longitude: 74˚07' 13.79'' E
3	Factory Registration no.	Regd.No.of factory G-282/dated-20/06/1960
4	Nearest Railway station &distance in K.M	Kolhapur at 15 K.M.
5	Nearest City/Market Place in K.M.	Kuditre at 2 K.M.
6	Nearest Air port & distance in K.M.	Kolhapur at 25 K.M.
7	Nearest post & distance in K.M.	Kuditre at 2 K.M.
8	Nearest Highway & distance in K.M	N.H.No4 at 20 K.M.
9	Nearest River/Canals & distance thereof in K.M.	Kumbhi River at 2 kms

Table: 2.3 Technical Information of Existing Sugar Unit and Cogeneration Plant

Parameter	**Description**
Production Capacity	3000 TCD Sugar Unit and 2 MW Cogeneration Plant
Raw Materials Requirement	a. Sugar Plant:-Sugar Cane: 90,000MT / M b. Lime:- 177 MT / Month c. Sulphar : 53 MT / Month d.Caustic soda: 3.5 MT/Month
Water source and	Water will be sourced from Kumbhi River. The intake

Requirement	point of water is at a distance of 2 km from the project site.
Boiler Capacity	The boiler would have steam generation capacity of 110 MT/Hr at low pressure and 450°C temperature
Power Generation	The KKSSKL has proposed to expand 2 MW power generation to 19.5 MW The raw materials required are bagasse 40,550 MT /M.

Table: 2.4 Technical Information of Proposed Sugar Unit and Cogeneration Plant

Parameter	**Description**
Production Capacity	5000 TCD Sugar Unit and 19.5 MW Cogeneration Plant
Raw Materials Requirement	a. Sugar Plant:-Sugar Cane: 1,50,000 MT / M b. Lime:- 225 MT / Month c. Sulphar : 75 MT / Month d. Caustic soda: 4.50MT/Month
Water source and Requirement	Water will be sourced from Kumbhi River. The intake point of water is at a distance of 2 km from the project site.
Boiler Capacity	The boiler would have steam generation capacity of 116 MT/Hr at high pressure and 450°c temperature
Power Generation	The KKSSKL has proposed to expand 2 MW power generation to 19.5 MW The raw materials required are bagasse 42,976 MT /M. This quantity is used for new expanding 19.5MW power generation.

2.4 Process Description

The flow diagram of sugar co-gen power plant is given in below figure.

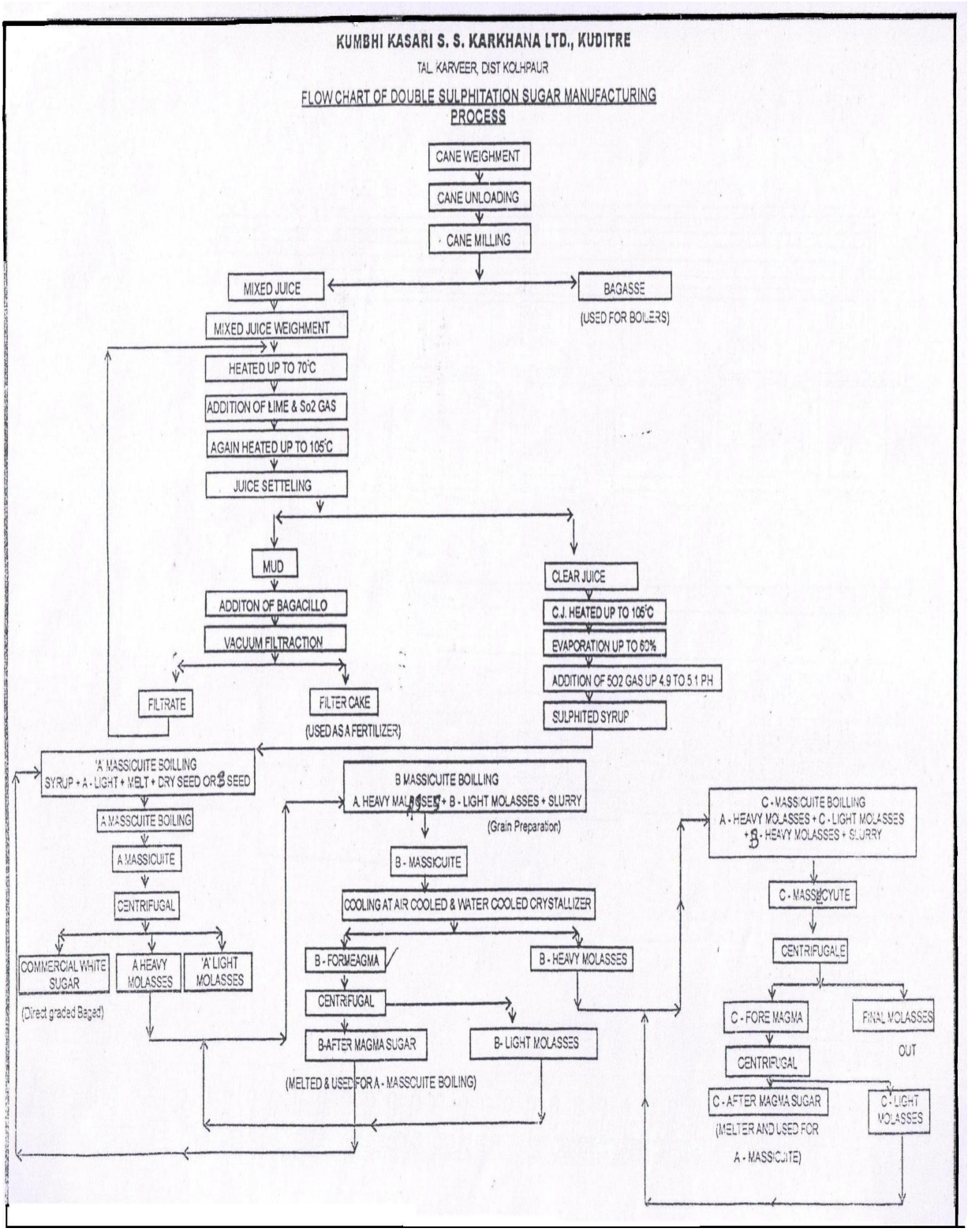
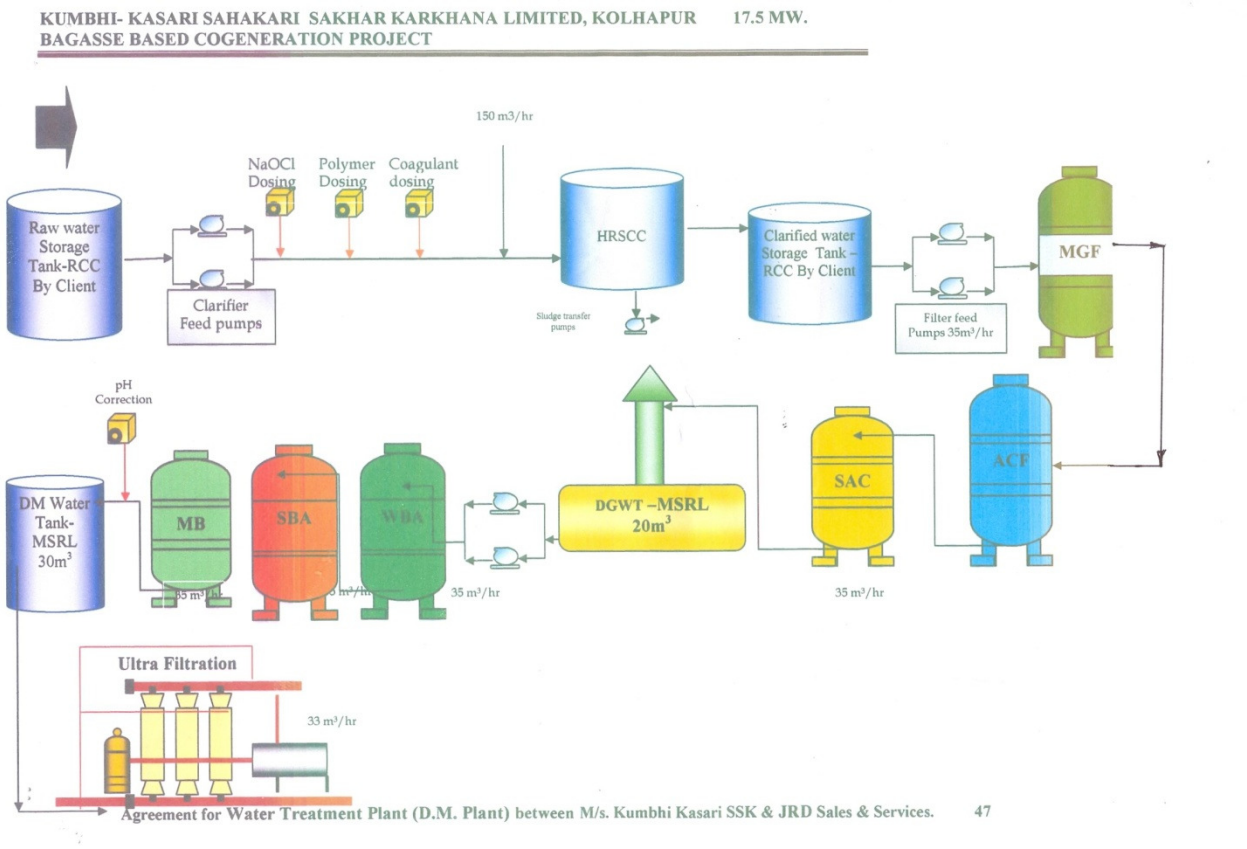

KUMBHI KASARI S. S. KARKHANA LTD., KUDITRE
TAL KARVEER, DIST KOLHPAUR
FLOW CHART OF DOUBLE SULPHITATION SUGAR MANUFACTURING PROCESS
CANE WEIGHMENT
CANE UNLOADING
CANE MILLING
MIXED JUICE
BAGASSE
(USED FOR BOILERS)
MIXED JUICE WEIGHMENT
HEATED UP TO 70°C
ADDITION OF LIME & So2 GAS
AGAIN HEATED UP TO 105°C
JUICE SETTELING
MUD
ADDITON OF BAGACILLO
VACUUM FILTRACTION
FILTRATE
FILTER CAKE
(USED AS A FERTILIZER)
CLEAR JUICE
C.J. HEATED UP TO 105°C
EVAPORATION UP TO 60%
ADDITION OF SO2 GAS UP 4.9 TO 5.1 PH
SULPHITED SYRUP
'A' MASSICUITE SOILLING
SYRUP + A - LIGHT + MELT + DRY SEED OR B SEED
A MASSCUITE BOILING
A MASSICUITE
CENTRIFUGAL
COMMERCIAL WHITE SUGAR
(Direct graded Bagad)
A HEAVY MOLASSES
'A' LIGHT MOLASSES
B MASSICUITE BOILLING
A. HEAVY MALASSES + B - LIGHT MOLASSES + SLURRY
(Grain Preparation)
B - MASSICUITE
COOLING AT AIR COOLED & WATER COOLED CRYSTALLIZER
B - FORMEAGMA
CENTRIFUGAL
B-AFTER MAGMA SUGAR
(MELTED & USED FOR A - MASSCUITE BOILING)
B - HEAVY MOLASSES
B- LIGHT MOLASSES
C - MASSICUITE BOILLING
A - HEAVY MOLASSES + C - LIGHT MOLASSES
+ B - HEAVY MOLASSES + SLURRY
C - MASSICUITE
CENTRIFUGALE
C - FORE MAGMA
CENTRIFUGAL
FINAL MOLASSES
OUT
C - AFTER MAGMA SUGAR
(MELTER AND USED FOR
A - MASSICUITE)
C - LIGHT MOLASSES

Figure 2.4 Flow Diagram of DM plant & detailed process



2.7.1 Water Requirement:

Irrigation department of state of maharashtra has sanctioned water supply i.e 950m^3/day and it is sufficient for existing as well as proposed sugar and co-generation unit.

Table No. 2.5: Water Requirement (Existing)

Purpose	Water intake M^3.(one time)	Consumption & Losses M^3.	Recycle & Reuse M^3.	Net dischargeable effluent M^3
A)Domestic	165	15	……	150(used for gardening)
B)Industrial				
1. Boiler	2400	100	2280	30

2. Cooling	1200	100	1100	……
c)Industrial process floor washing generating biodegradable waste water	800 400	380 40	420 ……..	……. 360
D)Industrial process floor washing generating non-biodegradable waste water	Nil	Nil	Nil	Nil
E)Other uses like gardening etc.	Nil	Nil	Nil	Nil
Total	4965	635	3800	380

Table No. 2.6: Water Requirement (proposed)

Purpose	**Water intake m3.(one time)**	**Consumption & Losses m3.**	**Recycled m3.**	**Net dischargeable effluent m3**
A)Domestic	75	15	……	60(used for gardening)
B)Industrial				
1. Boiler	3000	210	2760	30
2. Cooling	1350	150	1200	……
c)Industrial process floor washing generating biodegradable waste water	445 (270 from SP)	100 SP & 150 WS	…….	195
c)Industrial process floor washing generating non-biodegradable waste water	Nil	Nil	Nil	Nil

D)DM plant	245 130 (for cleaning)	Makeup to boiler	……..	135
E)Other uses like gardening etc.	Nil	Nil	Nil	Nil
Total	5375	300	3960	360+60 Domestic

2.7.6 Fuel:

Fuel requirement is mainly for generation of steam in the boiler. Bagasse generated from the Sugar Plant i.e 59.69TPH will be used as fuel for operation of the boiler. The fuel characteristics are given as under:-

Table No. 2.7: Characteristics of Bagasse

S.No.	Particulars	Value
1	Calorific Value	2250Kcal/Kg
2	Moisture content	50%
3	Ash Content	1.5%

2.7 Raw Material Requirement

Table No. 2.8: Raw Material Requirement

List of row material to be used	Quantity (MT/Month)	
	Existing	Proposed
Sugarcane	90,000	60,000
Lime	177	48
Sulphar	53	22
Caustic soda	3.5	1.0

Name of products & By products	Existing	Proposed activity
Main Products :		

a) Sugar b) Electricity	11700 MT/Month 2.0 MW/hr	7800 MT/Month 17.5 MW/hr
By-Products: a) Molasses b) Bagasse c) Pressmud	 3,600 MT/M 26,550 MT/M 3,600 MT/M	 2,400 MT/M 17,700 MT/M 2,400 MT/M

3.0 Baseline Environment

The climate of this district is on the whole agreeable and is characterised by general dryness in the major part of the year. The cold season is from December to about the middle of February. The hot season which follows, lasts till the end of May. June to September is the south-west monsoon season and the two months, October and November, constitute the post-monsoon or retreating monsoon season

A detailed survey of the quality of environment with relation to water, air, soil, noise, meteorology, land-use, flora, fauna, socio-economic and demographic pattern is carried out. EIA needs a datum on which the evaluation can be done. Therefore through baseline studies on present quality of the environment has been done.

3.1 Micro-Meteorology:-

The climate of this district is on the whole agreeable and is characterised by general dryness in the major part of the year. The cold season is from December to about the middle of February. The hot season which follows, lasts till the end of May. June to September is the south-west monsoon season and the two months, October and November, constitute the post-monsoon or retreating monsoon season.

The climate of Kolhapur district is, by and large, a temperate climate, characterized by hot summer. The year is usually divided into four seasons. The period from March to May is reckoned as the summer season, June to September monsoon and October to February as winter.

3.2 Air Environment:-

In general air quality is expressed in amount of pollutants present in air at respective time like Particulate Matter, Sulphur Dioxide and Oxides of Nitrogen. Many sources add to concentrations of these agents in ambient air like vehicular movement, venting of gases from industrial processes, construction and erection activity, units in the vicinity, dust storms, high speed winds etc.

The ambient air quality i.e. Suspended Particulate Matter (SPM), Sulphur Dioxide (SO_2) and Oxides of Nitrogen (NO_X) levels in the area are well within the limits prescribed by National Ambient Air Quality Standards.

Air quality was monitored and reported at surrounding villages like Yevaluj, Khupire, Sangrul, Mharul & Ganeshwadi at K.K.S.S.K.L, ambient air monitoring is performed each year and always observed well in limits prescribed by MPCB.

3.3 Noise Environment

A preliminary reconnaissance survey has been undertaken to identify the major noise generating sources in the area. Noise at different noise generating sources has been identified based on the activities in the village area, ambient noise due to industries and traffic and the noise at sensitive areas like hospitals and schools. The noise monitoring has been conducted for determination of noise levels at select locations in the study area. Except for occasional time noise levels have been generally within limits.

3.4 Water Environment

The main source of water in the study area is Kumbhi River.The water samples from wells in the field where effluent is applied and also other wells bore wells in the study area were collected for detailed analysis and the results are given in Annexure II. All the bore well waters examined are found to be fit for irrigation purpose. The ground water is good and it can be used for drinking after filtration and disinfection.

3.5 Land Environment

The land in the surrounding area of the industry is fertile and irrigated with surface water, bore well and well Water. Geologically the depth of hard strata is after 9 meters with a ground water level is 30-35 meter. Soil is derived from the Latin word solium, which means upper layer. The physical properties of soil are important to be considered from engineering point of view.

3.6 Biological Environment

The important features of environment are flora and fauna. They have countless life cycle modes, forms and activities that are important to be considered in EIA.

The facet of the natural environment includes vegetation and animals, flora & fauna. Human activity should not disturb the biological habitat, because then the man-kind itself will be harmed in turn. It will be necessary to know the natural existing environment as a background inventory. In the study area of 10 km radius of K.K.S.S.K.L, the Biological survey conducted and the list of flora and fauna given in the EIA report.

3.7 Socio –Economic Environment

Socio-economic environment forms an integral part of an EIA study. As regards to baseline environmental data in respect of Demography, Occupational Structure, Community Services such as Post Offices, Post & Telegraph Offices, Telephone, Educational and Health Care Facilities, Banks and Co – Operative institutes, social and Cultural Institutions present Buffer zone were collected from Department of Census operations, Government of India, Department of Statistics and Economics of the Government of Maharashtra, Village for preparation of existing environmental scenario in respect of these parameters. The amenities available in the villages under the study area denote the economic well being of the region. The study area as a whole possesses poor to moderate level of infrastructural facilities. The above data is obtained from Census 2001

4.0 Environmental Impact Prediction

4.1 Impacts during Construction & operation Phase and Mitigation Measures

Probable environmental impacts during construction phase are typically due to activities related to clearing of vegetation, leveling of site, civil constructions erection of structures and installation of equipment. During the Operation Phase the establishment of the project, results in emissions, generation of wastewater and solid waste.

i) Impact on Air Quality

The main sources for impact of air quality during construction period is due to movement of vehicles and construction equipment at site, dust emitted during leveling, grading, earthmoving, foundation works, transportation of construction material etc. Major sources of air pollution in Sugar & co-generation plant are boiler, and crushers.

Air Pollution Mitigation Measures

The dust generated will also be fugitive in nature, which can be controlled by sprinkling of water. Frequent water sprinkling in the vicinity of the construction sites would be undertaken and will be continued after the completion of plant construction as there is scope for heavy truck mobility. It will be ensured that diesel powered vehicles will be properly maintained to comply with exhaust emission requirements.

ii) Impact on Noise Levels

The major sources of noise during the construction phase are vehicles and construction. The operation of the equipment can generate noise in the range 85-90 dB (A) near the source.

Noise Levels Mitigation Measures

The noise control measures during the construction phase include provision of caps on the construction equipment and regular maintenance of the

equipment. High noise producing construction activities will be restricted to daytime only.

iii) Impact on Water Resources and Quality

Impact on water quality during construction phase is due to non-point discharges of sewage generated from the construction work force stationed at the site. Runoffs from the construction yards and worker camps during monsoon could affect the quality of water bodies in the project area.

Water Pollution Mitigation Measures

Toilets with septic tanks will be constructed at site for workers. Construction yards will be constructed properly.

iv) Impact on Land use

Preparatory activities like construction of access roads, temporary offices, and go-downs, piling, storage of construction materials etc. will be confined within the project area. No forestland is involved. Therefore, impact will be negligible.

v)Impact on Topography

Most of the area forms plain land covered with mixed soil. Adequate storm water drains will be provided to collect and carry the surface runoff during monsoon to the natural drainage system of the project area.

vI) Socio-economic Environment

The socio-economic impacts during the construction phase of the proposed Enhancement Sugar plant with Cogeneration Plant could result due to migrant workers, worker camps, induced development etc. The local population will have employment opportunities in related service activities.

4.2 Facilities to be provided by Labour Contractor

The contractor will be made to provide the following facilities to construction work force:

First Aid

At work place, first aid facilities will be maintained at a readily accessible place where necessary appliances including sterilized cotton wool etc. Ambulance will be kept at the site and made available at workplace to take injured person to the nearest hospital.

Potable Water

Sufficient supply of water fit for drinking will be provided at suitable places.

Sanitary Facility

Sanitary facilities will be provided at accessible place within the work zone and kept in a good condition. The contractor will conform to requirement of local medical and health authorities at all times.

Canteen

The canteen will be provided for the benefit of workers.

Security

K.K.S.S.K.L. will provide necessary security to work force in co-ordination with State authorities.

4.3 Waste water generation

The total waste water generation from the Sugar plant along with the Cogeneration Plant of existing unit will be 380 M^3/day & waste water generation from proposed unit will be 360 M^3/day. The generated wastewater will be sent to Effluent Treatment Plant (ETP) and the treated wastewater will be used for cane irrigation and green belt development.

4.4 Dry fly ash and Furnace bottom ash

Fly ash collected from the ESP hoppers and the airheaters hoppers and the ash collected from the furnace bottom hoppers can be used as landfill. The ash content in bagasse is less than 2%. The total fly ash 40 TPD will be used as manure. The high potash content in the bagasse ash makes the ash as good manure.

4.5 Impact on Ecology

The enhanced project will not have any significant impact on ecology as there are no reserve forests in the study area and in addition to that the project will implement an effective environmental management plan to control the emissions from the project.

4.6 Green belt development

The total project area acquired for plant is 7, 15,500M^2, and 33% of it, 2, 36,115 M^2 will be used for green belt development. Local species will be preferred for green belt development.

4.7 Impact on Health

Adequate air pollution and noise control measures will be provided. The environmental management and emergency preparedness plans will be prepared to ensure that the probability of undesired events and consequences would be reduced, and adequate mitigation measures will be provided in case of an emergency. The overall impact on Human health is negligible during operation of plant.

5.0 Environmental Monitoring Program

Pollution Monitoring and Surveillance Systems For Proposed Enhanced Sugar Plant and Cogeneration power plant, the Indian Emission Regulations stipulate the limits for particulate matter emissions and appropriate stack heights will be maintained for keeping the emission levels in the ambient within the air quality standards.

5.1 Air Quality monitoring programme

It is proposed to monitor particulate emission qualitatively and quantitatively in the stack and with the aid of a continuous particulate stack monitoring system. The stack monitoring data would be utilized to keep a continuous check on the performance of wet scrubber. Further it is proposed to monitor and record the weather parameters such as temperature (maximum & minimum), Relative humidity, wind direction, wind speed, rainfall etc. on daily basis, for this purpose, it is proposed to install Weather Monitoring Station with necessary gadgets.

5.2 Post Project Environmental Monitoring

Environmental monitoring will be conducted on regular basis to assess the pollution level in the plant as well in the surrounding area.

6.0 Risk Assessment and Disaster Management Plan

An emergency occurring in the proposed Enhancement plant is one that may affect several sections within it and/ or may cause serious injuries, loss of lives, extensive damage to environment or property or serious disruption outside the plant. It will require the best use of internal resources and the use of outside resources to handle it effectively. . It is imperative to conduct risk analysis for all the projects where hazardous materials, fuels are handled.

6.1 Methodology

The Risk Analysis Study carried out under the following task heads:-

- **System Study**

  The system description covers the plant description, storage & handling of fuels / chemicals, etc.

- **Hazard Identification**

  The hazards associated with the proposed Enhancement Project have been discussed in terms of material hazards due to fuel storage.

- **Frequency of Hazard Occurrence**

Based on the available international statistics and in-house risk database, the frequencies of occurrence for the different accident scenarios were determined. The frequencies derived from the historical database have been checked with the possible hazard scenario identified during hazard identification.

- **Consequence Analysis**

  Based on the identified hazards, accident scenarios and the frequency of occurrence, consequence calculations were done for spreading distances (zone of influence) or risk distance for Pool fires.

- **Risk Reducing Measures**

  Necessary risk reducing measures have been suggested based on the consequence scenarios.

6.2 Remedial measures:

- ✓ Storage in tightly closed containers in a cool, well-ventilated area away from WATER, HEAT, COMBUSTIBLES (such as WOOD, PAPER and OIL) and LIGHT.
- ✓ Storage away from incompatible materials such as flammable materials, oxidizing materials, reducing materials, strong bases.
- ✓ Use of corrosion-resistant structural materials and lighting and ventilation systems in the storage area.
- ✓ Wood and other organic/combustible materials will not be used on floors, structural materials and ventilation systems in the storage area.
- ✓ Use of airtight containers, kept well sealed, securely labelled and protected from damage
- ✓ Use of suitable, approved storage cabinets, tanks, rooms and buildings.
- ✓ Suitable storage will include glass bottles and containers.
- ✓ Storage tanks will be above ground and surrounded with dikes capable of holding entire contents.
- ✓ Limit quantity of material in storage. Restrict access to storage area.
- ✓ Post warning signs when appropriate. Keep storage area separate from populated work areas. Inspect periodically for deficiencies such as damage or leaks.
- ✓ Have appropriate fire extinguishers available in and near the storage area.

The following measures are adopted for reducing the risk involved in pipeline systems.

7.0 Project Benefits

This project development will give rise to social and economic development measures in the study area.

7.1 Improvement in Physical Infrastructure

- Road Transport facilities
- Educational facilities
- Water supply and sanitation

7.2 Improvement in Social Infrastructure

- ✓ Education facilities
- ✓ Banking facilities
- ✓ Post offices and Communication facilities
- ✓ Medical facilities
- ✓ Recreation facilities
- ✓ Business establishments

  Community facilities

8.0 Environmental Management Plan

The Environmental Management Plan (EMP) of the Expansion plant with respect to noise, air quality, water quality, solid waste, ecology, landscape socio-economic measures.

8.1 Air Environment

- All sources of dust generation in the Sugar Plant with Cogeneration Plant shall be well designed for producing minimum dust and shall be provided with high efficiency Bag filters and Wet Scrubber.
- Particulate Matter emission level from the stack chimney will be less than 50 mg/Nm3 and the stack height is 30m, 30m, 35m
- SO2 concentration will be negligible as the bagasse will be used as fuel for boiler.
- The periodic evaluation for the efficiency performance of Wet Scrubber will be carried out.

- For controlling fugitive dust, in hopper, reclaimer, conveyors, silos etc. bag filters shall be installed.
- Fugitive emissions due to storage, transportation, etc. and the leakages and spillages shall be continuously monitored and controlled.
- Water conservation measures shall be undertaken for effective implementation. Cooling water is put into closed circuit to minimize the evaporation losses.
- Thermal insulation will be provided wherever necessary to minimize heat radiation from the equipment, piping etc., to ensure protection of personnel.

8.2 Noise Environment

- ✓ The design features of machineries shall be provided to ensure low noise levels in the working areas.
- ✓ Extensive vibration monitoring system will be provided to check and reduce vibrations. Allfans, compressors etc., are provided with vibration isolators to reduce vibration and noise.
- ✓ Provision for silencers wherever possible.
- ✓ Green belt development will be done and it will act as noise reducers.
- ✓ Requisite enclosures will also be provided on the working platform/areas to provide local protection in high noise level areas.
- ✓ All heavy earthmoving equipment will be kept in a well maintained condition.
- ✓ Proper lubrication and house equipment will be kept in better condition.

8.3 Waste water Management

- ❖ No trade effluent shall be discharged from the Plants
- ❖ Cooling water is put into closed circuit to minimize the evaporation losses
- ❖ The domestic sewages from the Plants, Sugar Plant with Cogeneration Unit and Township shall be treated in the Sewage Treatment Plant.
- ❖ No percolation of treated water to deep ground water table is done.
- ❖ Periodical monitoring for specific parameters shall be done regularly.
- ❖ Rainwater harvesting structures shall also be developed.

8.4 Rain Water harvesting System

The rain (storm) water from the building roofs, non-process area and grade level surfaces will be directed through the rain water harvesting structures and excess water will be directed through open drains to the storm drainage system. The storm water from the storm drainage system will be discharged outside the plant boundary.

8.5 Occupational Health & Safety

During operation stage, dust causes the main health hazard. Other health hazards are due to gas cutting, welding, noise and high temperature and micro ambient conditions especially near the boiler and platforms, which may lead to adverse effects (Heat cramps, heat exhaustion and heat stress reaction) leading to local and systemic disorders.

8.6 Design of Green Belt

Green belt development in around 33 % of the total plant area i.e. 2, 36,115 M^2 will be developed. Green belt of around 50 m width will be provided throughout the periphery of the existing project site.

9.0 Conclusion

The potential environmental, social and economic impacts have been assessed. The proposed Sugar Unit and Cogeneration Plant will have certain levels of marginal impacts on the local environment. Implementation of the project will have beneficial impact in terms of providing direct and indirect employment opportunities. There will be a positive socio-economic development in the region. Quality of life of the people will be improved. Recommendations made in the CREP for Sugar Plant will be implemented. K.K.S.S.K.L will also undertake various community welfare measures for the upliftment of the villages of the study area

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