

#### **IV. EXECUTIVE SUMMARY:**

Padmabhushan Krantiveer Dr. Nagnath Anna Nayakawadi Hutatma Kisan Ahir Sahakari Sakhar Karkhana Ltd. has a Sugar Factory of 3500 TCD. It proposes to modernize the sugar factory capacity from 3500 TCD to 5000 TCD and also establish 24 MW Co-generation Plant.

The industry has already received Environmental Clearance vide File J-11011/661/2007 – IA II (I) dated 17<sup>th</sup> September 2007 for establishing 30 KLPD Distillery, expansion of sugar factory capacity from 2500 TCD to 3500 TCD and establishing 18 MW cogeneration plant, for which the public hearing was held on 13/02/2007. The sugar factory capacity was only increased from 2500 TCD to 3500 TCD. The present application is for the expansion of sugar factory capacity from 3500 TCD to 5000 TCD and establishing 24 MW cogeneration plant. As the time limit is over for the extension of the validity of the environment clearance, for distillery unit, a fresh application is made for TORs.

The industry has already provided full-fledged Effluent Treatment Plant facilities which would be adequate for the proposed sugar factory modernized capacity of 5000 TCD. However, it is proposed to convert existing stone media anaerobic filter with plastic media to improve the efficiency of anaerobic filter. The proposed 24 MW co-generation unit shall not have any effluent which requires treatment. The effluent generated from the cogeneration plant shall be mainly cooling tower blow down, boiler blow down and the RO reject. These effluent streams having daily quantity of 1180 Cum/day during the season and 948 Cum/day during off season.

The sugar crushing season is 160 -200 days in a year and with the saved bagasse, agricultural trash and other biomass the cogeneration shall work for another 20 days in the off season. The salient features of the proposed project is given separately.

The total area available with the factory is 26.0 Hectares. Out of which 8.667 Hectares is used for green belt development.

The water requirement of 3670 Cum/day shall be drawn from Krishna River which is situated around 2.2 Km from the factory site.

It is proposed to high pressure boiler of 140 TPH at 87 bar and temperature of 525 °C +/- 5 °C. The ESP having 99 % efficiency shall be provided as air pollution control equipment to meet emission standards. Bagasse of 55 T/Hr shall be used as fuel. The daily quantity of ash generated is 20 tonnes per day which shall be consumed in compost plant and excess amount shall be sold to brick manufacturers.

The effluent quantity is to be treated is 440 Cum/day and the treated effluent is disposed for irrigation purpose. Thus the total quantity from all sources is around 1100 cum/day is used on 40 hectares of land for irrigation purposes only.

The existing ambient air quality of PM<sub>10</sub>, PM<sub>2.5</sub>, Sulphur Dioxide (SO<sub>2</sub>), and Oxides of Nitrogen (NO<sub>x</sub>) in the factory premises and study area are well within the limits prescribed by National Ambient Air Quality Standards. Existing ambient noise levels in the area meet permissible noise standards.

As per the Air Impact assessment, taking into considerations the worst case the GLC after expansion of all the villages of 10 Km radius of the surrounding area of the factory, PM<sub>10</sub> varies between 36.85 to 66.77 ug/m<sup>3</sup>, PM<sub>2.5</sub> varies between 26.20 to 40.50 ug/m<sup>3</sup> and NO<sub>2</sub> varies between 11.0 to 18.0 ug/m<sup>3</sup>. All these values are less than AAQS for PM10, PM2.5 and NO2. There will not be any incremental increase in SO2 as the fuel bagasses do not content any sulphur.

Detailed studies were carried out with regard to Air, Water, Soil and Noise within radius of ten kilometer of the proposed distillery plant. It is seen from the data that, the ambient air quality and soil and groundwater quality are well within the norms. The water quality is also satisfactory and fit for irrigation. It is suggested to provide filtration and chlorination, before it is used for drinking purposes.

The establishment of the industry is likely to raise the economic status of people in the area and help in the establishment of ancillary industries in small-scale sector.

It is proposed to collect storm water from the office buildings, colony and the factory area and recharge in the existing borewells situated in the factory premises.

There will not be any separate colony and the existing facilities shall be used for the cogeneration Plant. The domestic waste shall be treated in septic tanks followed by anaerobic filters. The treated effluent is being used for gardening / irrigation.

The capital cost of the expansion of sugar factory capacity from 3500 TCD to 5000 TCD and establishment of 24 MW cogeneration would be 195 Crores. It is proposed to reserve around 2% of total cost for environment and pollution control measures and 0.1 % for operation and maintenance. Every year 0.5% of the project cost shall be spent for corporate social responsibility.

## **1.1. INTRODUCTION, BACKGROUND & LOCATION**

### **1.1 Introduction**

Padmabhushan Krantiveer Dr. Nagnathanna Nayakawadi Hutatma Kisan Ahir Sahakari Sakhar Karkhana Ltd., proposes to modernize the sugar factory capacity from 3500 TCD to 5000 TCD and establish 24 MW cogeneration plant at Walwe, situated at 30 km from Sangli City.

#### **1.1.1 Highlights of the Project**

Name and Address: Padmabhushan Krantiveer Dr. Nagnath Anna Nayakawadi Hutatma

Kisan Ahir Sahakari Sakhar Karkhana Ltd.

Factory Site:

Walwe, Taluka Walwe

District – Sangli – 416313

Maharashtra

Ph: (0) (02342) 267540, 267538,267541

Fax: (0) (02342) 267539

**Constitution & Type:** Co-operative factory.

**Products** : Sugar factory 5000 TCD and 24 MW Cogeneration Plant.

**Capacity Utilization** : 90% in the first year and 100% in the second year.

#### **1.1.2 Project Cost:**

Total project cost for proposed expansion from 3500 to 5000 TCD & establishment of 24 MW cogeneration plant shall be around Rs. 195 Crores.

### **1.2 Background:**

M/s. Padmabhushan Krantiveer Dr. Nagnath Anna Nayakawadi Hutatma Kisan Ahir Sahakari Sakhar Karkhana Ltd. has an existing sugar factory of 3500 TCD capacity.

**1.2.1 The Board of Directors are.**

<b>Sr. No.</b>	<b>Name</b>	<b>Post</b>
1	Shri Vaibhav Nagnath Nayakawadi	Chairman
2	Sou. Vandana Mahadeo Mane	Vice Chairman
3	Shri Shankar Anna (Maruti) Khot (Kadam)	Director
4	Shri Bajirao Nivrutti Mohite	Director
5	Shri Janardhan Dattu Jadhav	Director
6	Shri Suresh Nemu Hore	Director
7	Shri Balaso Yashwant Tandale	Director
8	Shri Tukaram Hari Kadam	Director
9	Shri Balkrishna Tukaram Ghare	Director
10	Shri Popat Shamrao Jadhav	Director
11	Shri Shivaji Dattu Patil	Director
12	Shri Sunil Bhanudas Rakate	Director
13	Shri Ananda Bandu Patil	Director
14	Shri Ekanath Bhau Waghmare	Director
15	Late. Shankar Tukaram Patil	Director
16	Shri Suryakant Bapu Kumbhar	Director
17	Shri Kondiba Rama Maske	Director
18	Sou. Suita Ankush Mali	Director
19	Shri Narendra Laxmanrao Kapadnis	Managing Director

### **1.3 JUSTIFICATION:**

Padmabhushan Krantiveer Dr. Nagnath Anna Nayakawadi Hutatma Kisan Ahir Sahakari Sakhar Karkhana Ltd., is an existing Sugar factory capacity of 3500 TCD. The Sugar cane availability in this area is sustainable as the factory is situated very close to Krishna River which provides perennial sources of irrigation water.

#### **1.3.1 Environmental Significance:**

- a. High Pressure Boilers of 140 TPH with 87 bar pressure will be very efficient with regard to Bagasse consumption.
- b. Less use of bagasse, also means less particulate matter emissions.
- c. Electro static precipitator (ESP) is provided as air pollution control equipment.

#### **1.3.2 Benefits:**

The expansion of sugar unit and implementation of cogeneration unit would improve the economy of the industry by paying higher cane prize to share holders. It would also help to fulfill the requirement of power in the surrounding area and to yield better price and the timely utilization of the raw material sugarcane which can give high recovery.

### **1.4 Location and Plant Layout:**

#### **1.4.1 Location of the site:**

There are no sensitive, historical, forest reserves and wild life sanctuaries etc within 10 Km radius of the factory site. The State Highway is 6 Km away from the factory site. The Latitude and longitude are 17<sup>0</sup> 2' N & 74<sup>0</sup> 27' E respectively. The Elevation above the Mean Sea Level is 548 m.

The Project Site is conveniently located for development of the Project.

- a. 30 Km away from Sangli, which is district place
- b. Other important towns nearby are
  - i. Islampur, at a distance of 12 Km.
- c. Kolhapur is nearest airport and Bhilawadi is nearest railway station to the site.

### **1.5 Waste Treatment Facilities :**

The total quantity of waste water generated per day shall not exceed 1180 m<sup>3</sup>/day., which includes sugar, co-generation, and domestic. The industry has already provided full fledged Effluent Treatment Plant facilities for 440 Cum/day which would be adequate for the proposed sugar factory of the expanded capacity of 5000 TCD. Existing stone media of anaerobic filter shall be replaced with plastic media to improve the efficiency of anaerobic filter. The proposed 24 MW co-generation unit shall not generate effluent which requires treatment. The effluent generated from the cogeneration plant shall be mainly cooling tower blow down, boiler blow down and the RO reject. These effluent streams of 710 Cum/day can be directly discharged as irrigation water. The domestic effluent shall be 30 m<sup>3</sup>/day, which shall be treated in septic tanks followed by anaerobic filter, and disposed off as irrigation water..

### **1.6 Raw Water Requirement:**

The raw water requirement for the expansion of sugar & establishment of cogeneration unit shall be 3670 m<sup>3</sup>/day and it shall be met from Krishna River. For drinking purpose, the clarified water shall be treated in sand filters and chlorinated. The daily requirement of Domestic water is estimated as 100 Cum/day.

### **1.7 Air Environment:**

There shall be one Boiler of 140 T/hr having a pressure of 87 Kg/Sqcm at 525°C +/- 5°C. The Stack height shall be 72 meter with 4.0 meter diameter. The Electrostatic Precipitator (ESP) shall be installed which shall have 99 % removal efficiency of PM.

### **1.8 Solid Waste Generation:**

The total quantity of ash generated is estimated as 600 MT per month which is consumed in compost plant and remaining is sold to brick manufacturers.

The daily quantity of pressmud shall be 200 MT which is sold as soil conditioner to share holders of the factory.

### **1.9 Hazardous Wastes:**

The only hazardous waste is spent oil from sugar and cogeneration units. The spent oil is mixed with bagasse and burnt in boiler.

## **OBJECTIVES AND SCOPE OF WORK:-**

The main objective of this study is to assess the Environmental Aspects of the expansion / modernization of sugar factory and Co-generation project.

- a. Evaluation of the effluent treatment plant facilities & provision of further facilities if required, for the proposed expansion.
- b. Assessment of ambient air quality.
- c. Stack emission measurements.
- d. Assessment of noise pollution.
- e. Field survey soil & water. (Existing)
- f. Study of land use pattern and cropping pattern:  
This is primarily based on the information obtained from Government Departments, field interviews and discussions with farmers.
- g. Human health and population: -  
Population data was obtained from Census Records and health status was determined by visiting hospitals, dispensaries and interviews with private practitioners.
- h. Socio- Economic conditions and Living standards:  
These were studied with the help of interviews and available data from Tahsil and Collector Offices.

## **1.10 METHODOLOGY:-**

All the information is collected by personnel surveys, sample collection, laboratory analysis, monitoring at the site, record of the Govt. agencies, field interviews and discussions with farmers.

For collection and analysis of Samples and interpretation of the results, the following references was used -

### **(A) WATER:-**

- i APHA- WPCF (2005)- ‘Standard method for examination of Water and Waste water’ 21<sup>st</sup> edition.
- ii EPRF (1990) – ‘ Laboratory Manual for Water Waste water, Soil and Air Quality Analysis’.
- iii Mathur P.M. (1988) ‘Water and Wastewater Testing – Laboratory Manual’ 2<sup>nd</sup> edition.
- iv NEERI (1988) ‘Manual on Water and Wastewater analysis’.

### **(B) SOIL :-**

- i Bear F.E. (1964) ‘Chemistry of the Soil’ 2<sup>nd</sup> edition.
- ii Dept of Agriculture Maharashtra (1969). ‘Board Soil Zones of Maharashtra’.
- iii ICAR (1985) ‘Hand Book of Agriculture’.
- iv. Jackson M.L. (1967). ‘Soil Chemical Analysis’.
- v. Vidya V.C., Sahasrabudhye K.R. (1987).  
‘Introduction of Agronomy and Soil and water management’ 4<sup>th</sup> edition.

### **(C) AIR :-**

- i. Montnis Katz ‘ Method of Air Sampling and Analysis’ 2<sup>nd</sup> edition.
- ii Mornison and Roger Perry ‘Handbook of Air Pollution Analysis’ 2<sup>nd</sup> Edition.
- iii. Stern ‘Air Pollution’ Vol. 1 to 7.
- iv. Wark and Warner ‘ Air Pollution’.
- v. Macgill ‘Air Pollution Handbook’.



**(D) ENVIRONMENTAL STUDY: -**

- i Koromondy E.J. (1959) 'Concept of Ecology'.
- ii Odum E.P. (1975) 'Ecology' 2<sup>nd</sup> Edition.
- iii. Sambasiviah, ITTA, Kamalakar Rao A.P., Chellapa S.A., (1987) 'Animal Physiology and Ecology' 2<sup>nd</sup> edition.
- iv. Sharma P.D. (1981) 'Elements of Ecology'
- v. Verma V. (1987), 'A text book of Plant Ecology' 4<sup>th</sup> Edition.

**(E) EIA MANUAL:-**

Technical Guidance Manual for Sugar Industry prepared by IL&FS Ecosmart for Ministry of Environment & Forest, Govt. of India.

**(E) DATA :-**

Necessary information is collected from census records, from Statistical Department, Tahsil office, Health Centers, Agricultural Research Institutes, Geology Department, Indian Meteorology Department and other relevant Government offices. The available data is used for study of land use pattern, socio economic status and population etc. The air, water & soil quality is based on actual sampling, monitoring and laboratory analysis. The data presented thus gives a fair and representative status of environment in and around the factory site.

**1.11 PROPOSED SCHEDULE OF IMPLEMENTATION:**

After all the clearances from the State and Central Governments are received.

Expected time of commissioning of shall be in October 2015.

**1.12 ENVIRONMENTAL SETTING**

- 1) Location – 17° 2' N & 74° 27' E
- 2) Nearest Village – Walwe
- 3) Nearest town – Islampur – 12 Km
- 4) Nearest City – Sangli – 30 Km
- 5) Nearest Head Quarters – Sangli – 30 Km
- 6) Nearest National Highway – NH 4 – 20 Km
- 7) Nearest Railway Station – Bhilawadi – 18 Km
- 8) Nearest Airport – Kolhapur – 70 Km
- 9) Nearest River – Krishna River – 2.2 KM
- 10) Seismicity – Seismic Zone III 6 to 8 Richter Scale