EXECUTIVE SUMMARY

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

PROPOSED EXPANSION OF SUGAR UNIT 5000 TCD TO 10000 TCD & COGENERATION 15 MW TO 32 MW

AT PO. TIRTHPURI, TAL. GHANSAWANGI, DIST. JALNA

PROJECT PROPONENT

M/S. KARMAYOGI ANKUSHRAO TOPE SAHAKARI SAKHAR KARKHANA LTD., UNIT NO.2 (SAGAR)

TIRTHPURI, (KATSSSK U-II) AT. PO. TIRTHPURI, TAL. GHANSAWANGI, DIST. JALNA

EXECUTIVE SUMMARY

1.1 Introduction

M/s. Karmayogi Ankushrao Tope Sahakari Sakhar Karkhana Ltd., Unit No.2 (Sagar) Tirthpuri, (KATSSSK U-II) At. Po. Tirthpuri, Tal. Ghansawangi, Dist. Jalna was registered under the Maharashtra Co-Operative Societies Act, 1960 vide Registration No. JAL/PRG /(A)-1 dated 10/02/1982.

It is one of the most progressive sugar factory in the state of Maharashtra and is located at Tirthpuri, Tal. Ghansawangi, Dist. Jalna. The nearest state highway is National Highway No. 52 (Solapur – Dhule) which is about 34Km away from the site. The nearest railway station is Jalna and is about 50Km away from the site. The nearest airport is Aurangabad and is about 93Km away from the site.

The crushing capacity of the factory is 2500 TCD and the first crushing season was conducted in the year 2009-2010.

Based on increasing availability of sugarcane in area of operation, the sugar mill is planning to expand its capacity from sugar unit 5000 TCD to 10,000 TCD & 15 MW to 32MW cogeneration plant at existing premises of unit II.

Unit	Existing	Expansion	Total
Sugar	5000TCD	5000TCD	10,000TCD
Cogeneration unit	15 MW	17 MW	32 MW
Distillery	60KLPD	-	60 KLPD

KATSSSK Unit-II has obtained environment clearance for the expansion 2500 TCD to 5000 TCD sugar unit & 15 MW Cogeneration & 60 KLPD molasses-based distillery from SEIAA, Maharashtra. (vide letter No…SIA/MH/IND2/62223/2021 dated 10/02/2022)

Construction work 60 KLPD distillery project is in progress. Sugar and cogeneration construction work not yet started.

As per EIA Notification dated 14th Sep. 2006 and its subsequent amendments, the project sugar unit falls in Category B, Activity 5(j) & Cogeneration unit falls in category B1, Activity 1(d) as per (MoEF&CC) O.M.15th April,2019.

Terms of Reference has been approved by SEIAA, Maharashtra on 1st march 2022. TOR letter SIA/MH/IND2/72790/2022 dated 1st March 2022.

Environmental Impact Assessment studies are carried out. Draft EIA and EMP report was prepared as per Standard terms of reference and report submitting to SRO, Jalna for Public hearing

There are no litigation pending against the project and/ or any direction / order passed be any court of law against the project.

1.2 Project location

The project is located at, Tirthpuri, (KATSSSK U-II) At. Po. Tirthpuri, Tal. Ghansawangi, Dist. Jalna Maharashtra. Site is geographically located at latitude 19°28'44.22"N & longitude 75°56'9.46"E.

1.3 Project Description

1	Name and Address	M/s. Karmayogi Ankushrao Tope Sahakari Sakhar Karkhana Ltd., Unit No.2 (Sagar) Tirthpuri, (KATSSSK U-II) At. Po. Tirthpuri, Tal. Ghansawangi, Dist. Jalna
2	Area of the project	Total Plot Area – 110.08 ha • Sugar cogeneration: 12.00 ha • Distillery: 9.0 ha • Green Belt area –37.28 ha
3	Latitude & Longitude	Latitude; 19°28'44.22"N longitude 75°56'9.46"E.
4	Plant Capacity	Expansion & Modernization of sugar unit from 5000 TCD to 10000 TCD Bagasse based Co generation- 15 MW to 32 MW Molasses based Distillery Unit – 60 KLPD construction work is in progress
5	Operational days	Sugar unit- 150 days Co-gen unit- Season -150 days Distillery – 330 days
6	Products and by products with Quantity	**Products:** • Sugar 78750 MT/A • Power: 15 MW • Distillery: ENA/ RS/ Ethanol:60 KLPD + 2 MW (Total Spirit; 60KLPD, Fuel Ethanol: 54.28 KLPD & Impure Spirit: 3 KLPD) **After Expansion:** • Sugar 157500 MT/A • Power: 32 MW **By products** • Bagasse: 225000 MT/A

		• Molasses: 33750 MT/A • Press Mud: 33750MT/A After expansion: • Bagasse: 450000 MT/A • Molasses: 67500 MT/A • Press Mud: 67500 MT/A
7	Proposed Project Cost	Sugar Expansion: 150 Cr. Cogeneration: 150 cr . **Total Cost: 300 Cr.**
8	Capacity of Boiler	• Existing boiler of 60 TPH capacity 46 ata pressure 440 0C temp revamp to 490 0C with new 15 MW BP TG set • Proposed boiler of 50 TPH capacity 46 ata pressure 490 0C with new matching 15 MW DEC TG set • Existing 3 MW BP Type TG , 46 ata pressure will be scrapped once co gen boiler is put in to operation successfully • Boiler for distillery: 20 TPH,45 ata, 400 ^{0}C with 2 MW TG **Expansion** • Proposed boiler of 110 TPH capacity 46 ata pressure 490 0C with 17 MW TG.
9	Total water Requirement	**Existing:** Sugar Unit (2500 TCD) - 300 CMD Domestic - 55 CMD **Under Construction:** (Distillery Unit - 624 CMD **After Expansion:** Sugar expansion (10000 TCD) & Co-gen(32MW): 2185 CMD
10	Total Power Requirement	1. Power consumption for 10000 TCD and TG set (15MW) during season as 10.80 MW 2. Power consumption for 60 KLPD Distillery unit: 1.47 MW
10	Steam Requirement	• Sugar unit (10000 TCD)- 196.9 TPH • Distillery unit (20 TPH,45 Bar(g) 400 C 16.5 TPH (The steam requirement will be 7.5 - 8.00 TPH for the 60 KLPD distillery plant, 4.50 - 5.00 TPH for standalone spent wash evaporation plant, 5.00 – 5.25 TPH for ATFD dryer.)
11	Total Fuel Requirement	**Sugar and cogeneration Unit ‘** Existing 60 TPH & proposed 50 TPH Boiler: 1056 MT/day bagasse Distillery: under construction: 20 TPH Boiler: 218 MT/day & Proposed 110 TPH; 996 MT/day
12	Manpower	**Total Manpower = 205 Nos.** For Existing Unit –155 Nos. For Cogen Unit- 50.

1.4 Basic Raw Material

Land requirement

Total land 110.08 ha is in possession of KATSSKL Unit II. Out of 110.08 ha land, 37.28 ha land is allocated for green belt. The proposed expansion will be within the existing distillery unit.

Sr.No.	Discription	Area (SQ.M.)
1	**Total Plot Area**	**1100800.0**
2	Area Lease to M.S.E.B.	22500.0
3	Net plot Area	1078300.0
A	Existing Sugar Area	92426.1
B	Proposed Sugar and Co generation	30000.0
C	Distillery Area	43674.0
D	Residential sector and Aminity Area	6505.5
E	Parking Area [12%]	129476.7
F	Green Belt Area[34.58%]	372898.3
G	Internal Road area	136565.0
H	Agriculture land Area	266754.4
	Total Area (A+B+C+D+E+F+G+H)	**1078300.0**

Raw material:

The command area comprises Ghanswangi Tehsil with 117 villages. Area under irrigation in Ghanswangi Tehsil of Jalna District 39970 ha, out of which 20000 ha area under sugar cane considering the average cane productivity of 90 MT/ha 18.00 lakh MT cane is available from command area. For the 100000 TCD crushing, 15.00 Lakh MT sugar cane will be required.

Sr. No.	Particulars	Unit	Values
I	**About Factory**		
1	Capacity of Plant	MT/day	10000
2	Working hrs/day	Hrs	22
3	Capacity	TCH	454.54
4	Days of operation	days	150
5	Total cane crushing in season	MT	1500000
6	Bagasse % cane	%	30
7	Bagasse available for the season	MT	450000
II	**Steam to Fuel Ratio**		2.5
III	**Fuel Balance**		
	Cogeneration unit		

1	Bagasse Required for existing 60 TPH & 50 TPH Boiler	MT	158400 MT
2	Bagasse Required for proposed 110 TPH Boiler	MT	149433 MT
	Distillery		
1	Bagasse for distillery 20 TPH boiler of 60 KLPD (330 days) as fuel	MT	59773
	Available bagasse from own sugar unit	MT	450000
	Balance bagasse	MT	82394

Water Requirement

KATSSKL lifts the water from KT Weir on Mandala dam, 5 km away and stores it in one water reservoir having 10,000m3 capacity situated in the sugar plant complex. Permission is obtained from irrigation department. Water permission enclosed as annexure IV.

- Water Requirement for 10000 TCD & 32 MW: 2518 m3/day

Power requirement:

- Power consumption for 10000 TCD and TG set (32MW) during season as 10.80 MW
- Power consumption for 60 KLPD Distillery unit: 1.47 MW

Cost and implementation schedule:

Sugar Expansion & Cogeneration: Rs. 300 Cr

Proposed expansion will be completed within 12 months from receipt of NOC from statuary Authorities.

1.5 Benefits of the Project

The project is going to have positive impact on consumption behavior by way of raising average consumption and income through multiplier effect. The following changes in socio-economic status are expected to take place with this project. People perceive that the project will help in the development of social infrastructures/such as.

- ❖ Education facilities
- ❖ Banking facilities
- ❖ Post offices and Communication facilities
- ❖ Medical facilities
- ❖ Recreation facilities
- ❖ Road Transport facilities

- ❖ Educational facilities
- ❖ Water supply and sanitation

1.6 Baseline Environment

The study area is considered to be within 10 km radius of the project site for baseline environment monitoring. The studies were conducted for the period of March 2021 to May 2021.

Ambient Air Quality Status:

Air Quality monitoring reports showed that all the parameters are under limit as per NAAQS Standards. It can be seen that PM10 and PM2.5 ranges from 46.98 to 78.10 µg /m3 and17.55 to 26.80µg/m3. SO2, NOx & CO ranges from 14.96 to 28.50 µg /m3 19.54 to 40.20 µg /m3 and 0.18 to 0.58 mg/m3 respectively

Inference: All the parameters were found well within the prescribed limits of NAAQ Standard, CPCB.

Noise Level

Noise monitoring was carried out as per MoEF and CPCB guidelines. To understand the Noise Quality with respect to zone category, nine representative locations were selected. Noise monitoring was carried out from time 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs. Obtained results are compared with Noise pollution rules 2000. Higher noise level recored at project site due to the project activities and vehicular movement.

All values during day and night period are under the permissible standards.

Surface water Environment

- **pH:** pH of the all surface water sample ranges from 6.7 to 7.7
- **Total Dissolved Solids:** The dissolved solids consist mainly of bicarbonates, carbonates, sulphates, chlorides, nitrates and possibly phosphates of calcium, magnesium, sodium and potassium. The amount of dissolved solids present in water is a consideration for its suitability for domestic use. Results show the ranges of TDS 110.5 mg/l to140.1 mg/l .
- **Biological Oxygen Demand (BOD):** BOD values are in the range of 3.1 to 4.6 3 mg/l.
- **Chemical Oxygen Demand:** The recorded results of COD below 10 mg/l.
- **Total Hardness:** The desirable limit for total hardness, as per the Indian standards is 200 mg/lit and the values observed in samples are below the desirable limit
- **Chloride: :** The concentrations of the chlorides of all samples were between 35.4 and 46.9 mg/lit.

- **Sulphate:** The concentration values ranged from 26.5 to 37.4 mg/lit,

Groundwater Environment

- **pH**: The pH is a measure of the activity of the (solvated) hydrogen ion. The range of pH is neutral to slightly alkaline (6.8 to 7.4)
- **Total Dissolved Solids:** The dissolved solids consist mainly of bicarbonates, carbonates, sulphates, chlorides, nitrates and possibly phosphates of calcium, magnesium, sodium and potassium. The amount of dissolved solids present in water in the range of 154.1 to 610.2 mg/l.
- **Total Hardness:** The values of the samples analysed are in the of 102 to 530.2mg/l
- **Chloride:** The chloride values are in the range on 39.8 to 160.5 mg/l
- **Sulphate:** The concentrations of sulphates in the in the range on 23.8 to 80.2 mg/l.

Soil Environment

The pH of the samples varied from 7.15 to 7.8 . Electrical Conductivity value ranges from 0.16 µS/cm to 0.62 µS/cm. it can be stated that the soil is not harmful for germination or cropping. The bulk density of soil in the study area is found to be in the range of 1.25 - 1.48 g/cc. It can be observed from the results that the soil is ideal for plant growth. The porosity of soil observed in the study area ranged from 35.95to 49.2 %.

It is observed that Calcium and Magnesium concentrations are in the range of 17.2- 25.8 mg/kg and 1.92-3.68 mg/kg respectively whereas; Sodium and Potassium are in the range of 15- 48 mg/kg and 198- 624mg/kg respectively.

Organic matter is found to be in the range of 0.37- 1.38% and Phosphorus is present in soil more than sufficient limit i.e. in the range of 6.8- 13.25 mg/kg. The soil porosity is found to medium hence, the water holding capacity of the soil will be medium. From above observations it can be concluded that soil moderately fertility in nature. the sand percentage varied between 25.0 to 31.0 % and silt percentage varied from 47.0 to 50.0 % whereas clay percentage is in the range of 20.0 to 26.0 %

Ecology

The proposed expansion and new unit is located in existing premises of factory . As per guidelines of MoEF for Environmental Impact Assessment, the study area was restricted upto 10 km periphery of the project site. Detail assessment was carried out for the determination of Floral, Fauna, Avifauna and Aquatic Ecology species.

Based on field survey Primary observed that approx. 85 species of trees & shrubs were observed within the study area. Common trees *Albizia saman*, *Terminalia catappa*, *Spathodea campanulata*, *Peltophorum pterocarpum*, *Cassia siamea* few of *Mangifera indica*, *Azadirchta indica* and varieties of Ficus were observed in the study area.

From the faunal study it was observed that there were 59 different species of birds, 17 species of butterfly's, 6 species of mammals, 5 species of amphibians and reptiles in the study area. None of the species were found in Schedule 1 as per Wildlife Protection Act, 1972. In the project area green belt is developed with native species. pollution load of the proposed expansion will be minimal and will not affect the Flora and Fauna of the study area

Socio Economic survey:

Study area includes 31 villages from Ambad Tahsil and Ghansawangi Tahsil

- The Ambad Tahsil include 4 villages and Ghansawangi Tahsil 27 villages
- Total study area consisting of 29042.18 ha with the population density of 521person / km².
- Total population in the study region (Census 2011) is worked out as 55706 out of which 28629 (51.393%) are male and 27077(48.60%) female respectively.
- Sex ratio (No. of females per 1000 males) is 945 which indicates that females are less number than their male counterpart in the study are.
- Out of the total population, Scheduled Caste population is 7348 (13.19%) out of which 3743 (50.93%) Male and 3605(49.06%) female population.
- Out of the total population, Scheduled Tribe is 1248 (2.24%), out of which 620 (49.67%) Male and 628 (50.32%) Female population respectively.
- The literacy rate of the total population is worked out to 31578 (56.68%). Male literacy 18539 (58.70%), and female literacy is 13039 (41.29%)
- The Illiteracy rate of the total population is worked out to 24128 (43.31%). Male literacy 10090 (41.81%), and female literacy is 14038 (58.18%)
- The total population of main worker, marginal worker and non-worker category are 25992 (46.65%), 2514 (4.51%) and 27200 (48.82%) respectively.
- Male population is marginally higher in the region as compared with the female.

Observations recorded during survey in the study area are

- Every villages having Gram panchyat
- Most of the surveyed villages are having Anganwadi facilities.
- The survey reported that most of the villages have primary and middle school facility, for further education student have to go about 10 km away. Maximum educational level of the study area is up to 10th standard. In the study area observed that most of student choose English medium for education .For higher & technical education people have to go to Taluka place Ambad Tahsil Ghansawangi Tahsil .
- Communication facilities are very good; people are using mobile cell phone. Dish TV are also available in the study area.
- A road approach is mainly pakka road. Road construction is very good. Each and every village connects to the pakka(main) road. For travelling purpose government bus service and other private sources are available for villagers in this region.
- Bore well, tank water, well and hand pump are the main source of drinking water supply in the region. There is no drinking water problem.
- Sanitation facilities are good condition. 70% villagers are using toilets. Most of the villages having proper gutter line for waste water disposal.
- Health condition of villagers is good in this area; villagers are satisfied with the health centers because they are getting proper treatment from Government Hospitals. Private clinics are also available in study area.
- Electricity is available in almost all the villages. Most of the villages having irrigation facility through electricity. Electricity use for all purpose in the study area.
- LPG gas and Wood is major fuel for cooking purpose;
- Most of the people are engaged in agricultural and livestock activities. Farming is the main occupation, a few respondents have service in government sector and most of respondent are labor. Some other is trying to migrate in other places. In the study area villagers are engaged in agriculture work, industrial work, small business like shop, vegetables. Sugarcane, toor, cotton, Bajra, is main agriculture crops in study area.
- Qualities of houses are in satisfactory condition and mostly people have cemented concrete constructed houses but some villagers are living in poor condition.
- Self Help Group (SHG) is actively strong in maximum villages.
- Marathi is main language in the study area.

1.7 Environment Impact and its Mitigation Measures

Air Environment

Sr No	Boiler details	Fuel	APC measures
1	60 TPH capacity 46 ata pressure 440 0C temp revamp to 490 0C	Bagasse	60 M stack height along with wet scrubber
2	50 TPH capacity 46 ata pressure 490 0C	Bagasse	60 M stack height along with ESP
3	20 TPH, capacity 45 ata, 400 ^{0}C for distillery	Bagasse	45 M stack height along with ESP
4	Proposed 110 TPH Boiler	Bagasse	80 m stack height with ESP
4	Existing DG set 320 KVA	HSD	7 m stack height
5	Proposed DG set 1010 KVA	HSD	4.5 m stack height

- Stack emissions will be regularly monitored by factory /external agencies on periodic basis to check the efficiency of air polluting control devices and necessary action.
- Online Monitoring system is installed and connected to CPCB and MPCB server for exiting boiler ad will be provided to proposed 50 TPH and 20 TPH Boiler
- To control of the airborne fugitive emissions from the ash handling area will be achieved through regular water sprinkling in this area.

The green belt development at ash handling areas will be undertaken

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 cane handling equipment's i.e. Belt Conveyor, Compressors, STG, Turbine and generators will be manufactured as per OSHA/ MoEF guidelines.
- The personnel safety such as ear muffs, ear plugs and industrial helmets will also act as a noise reducers will be provided workers.
- Acoustic laggings and silencers will be provided in equipment wherever necessary. The compressed air station will be provided with suction side silencers. Ventilation fans will be installed in enclosed premises
- The silencers and mufflers of the individual machines will be regularly checked

Water Environment

Sugar and Cogeneration

- 5000 TCD & 15 MW Cogeneration: 550 m3/day
- After expansion 10000 TCD & 32 MW Cogeneration: 1200 M3/day

It is proposed to upgrade the capacity of existing effluent treatment plant to 1200 m3/day

Solid waste management

Bagasse will be used for existing 60 TPH, 50 TPH & 20 TPH & proposed 110TPH Boiler. Molasses will be used as raw material for distillery unit. Press mud will be used for composting and sale to farmer as soil conditioner. Ash will be sale to brick manufacturer.

No.	Type of waste	Waste & Quantity		Total	Unit	Treatment	Disposal
		Existing	Proposed				
1	Bagasse	225000	225000	450000	MT/A		Used as fuel for cogeneration boiler
2	Molasses	33750	33750	67500	MT/A		Used as raw material for distillery unit
3	Press Mud	33750	33750	67500	MT/A		Composting and sale to farmer as soil conditioner
4	Domestic waste	0.25	0.25	0.50	TPD	Compost	Factory farm
5	Bagasse ash	28	34	62	TPD		Sale to brick manufacturer
7	ETP Sludge	7.0	5.0	12.0	MT/M	-	Manure
8	Yeast Sludge	2.0		8.0	MT/D		Dried and burn into boiler or composting

Green belt development plan

→ Special attention is planned to maintain green belt in and around the factory premises.

→ Adequate provisions shall be made to facilitate daily watering of all plants and lawns.

→ Special attention provided during summer to ensure that the green belt does not suffer from water shortage.

→ Development & maintenance of green belt to be considered as a priority issue.

→ No outside soil is brought for any building/ greenery developments.

Factory has provided green area of 372898.2 Sq.m. i.e about 34% of Total Plot Area. Total number of plant is about 25000 in factory premises. Proposed number of plants 50000 nos

Socio Economic Environment

- Health and safety related displays will be exhibited at strategic locations in the industry.
- Workers will be educated and trained in occupational health safety.
- Regular health checkup of the workers will be carried out and health records of individual workers will be maintained.
- Utility rooms provided will be provided with facilities and properly maintained.
- First aid facilities will be provided at different locations. Further first aiders will be trained.
- CSR activities will be implemented

1.8 Environment Monitoring

Environment monitoring is prescribed during pre-construction, construction and operation phase. During operation phase of project, it is important to understand the baseline environment status which is caused due to proposed project activity. Environmental monitoring will comply Air, Water, Soil, Ecology, and Noise parameters as per monitoring compliance norms and schedule. All parameters will be tested as per standard tools and methods and obtained results should be compared with CPCB norms.

1.9 Corporate Environment Responsibility (CER)

As per New Office Memorandum Published by MOEF &CC, New Delhi on 1st May 2018 regarding applicability of CER and Budget to the decided towards CER activities.

The total project cost is Rs. 300 Cr. 0.75 % of the total cost it becomes Rs.2.25 cr approx. Hence we have dedicated Rs 2.25 cr for Corporate Environment Responsibility (CER) activities to be carried out in surrounding villages based on need assessment.

1.10 Cost for Environment Management Plan

Cost of Environmental Protection Measures

S. No.	Environmental Aspect	Capital Expenditure Rs in lakh	Recurring Expenditure Rs in lakh/Year
Construction Phase			
1	Ambient Air quality for PM_{10}, $PM_{2.5}$, SO_2 and NO_X	**-**	**1.0**
2	Noise level		**0.50**
3	Health		**1.50**
	Total		**3.0**
1	**Air Emission control**		
	Stack – Cogeneration boiler	100.0	5.0
	ESP	225.0	10.0
2	**Water & Wastewater management**		
	Effluent treatment plant up-gradtion	200.0	
3	Ash handling system	90.00	5.0
4	Green Belt Development	50.0	5.0
5	Environment Monitoring (stack, Ambient Air, Water and Soil and Noise) and meteorology	-	5.0
7	Rain Water Harvesting	20.0	2.0
9	Health & Safety	10.0	1.0
10	Online Monitoring System	15.0	2.0
	Total	**710.0**	**35.0**