

ES

EXECUTIVE SUMMARY

ES.1 Introduction

M/s Mylar Sugars Ltd., headed by Shri. M.V Gachinmath, are planning to expand Sugar Complex having Sugar cane crushing unit from 3500 TCD to 10,000 TCD, Co-generation unit from 14MW to 60 MW and establishment of 120 KLPD distillery along with the installation of 5 MW incineration boiler at Birrabbi Village and Kotihal village, Hoovina Hadagali Taluk, Bellary District, Karnataka

According to EIA Notification dated 14th September 2006, the project falls under Category "A", Project or Activity 5 (g), 1 (d), 5(j). Therefore, it's necessary for M/s Mylar Sugars Ltd to obtain Environmental Clearance from Ministry of Environment, Forest and Climate Change (MoEF), New Delhi.

ES.2 Project Description

The project has obtained Consent for establishment for the establishment of 3500 TCD sugar cane crushing, 14 MW cogeneration unit from Karnataka State Pollution Control Board (KSPCB) also accorded consent for operation (CFO). Now based on the demand, management has decided to expand the sugar unit to 10000 TCD and cogeneration unit to 60 MW and it was also planned to establish 120 KLPD distillery along with 5 MW power by the installation of incineration boiler. Salient features of the proposed expansion project are detailed below:

Table ES.1 Salient features of the proposed project

Sl.No	Items	Particulars
1	Objective of the Project under consideration	Expansion of sugar cane crushing capacity from 3500 TCD to 10,000 TCD, Co-generation unit from 14MW to 60 MW and establishment of 120 KLPD distillery along with the installation of 5 MW incineration boiler
2	Total capacity of the plant after expansion	10,000 TCD sugar unit, 60 MW cogeneration, 5 MW from incineration boiler and 120 KLPD distillery
3	Promoters	Mylar Sugars Ltd
4	Total Investment, Rs	545 Crores
5	Project location	Sy No 241/C3, 158/2, 251/a, 257/1, 248/1, 267/B, 248/B/1b, 263/2a, 269/C, 240/A, 247/A, 241/B, 243/A,247/B, 247/D, 241/C1, 241/C2 of Birrabbi Village, 157/3, 157/1 of Kotihal village, Hoovina Hadagali Taluk, Bellary District
6	Latitude & Longitude	14°55'1.75"N & 75°47'40.60"E
7	Extent of land	64 Acres (Expansion will be within the premises)
8	Category of Project	5 (j) Sugar, 1 (d) Thermal, 5 (g) Distillery

Sl.No	Items	Particulars
9	Man Power	800No's (550 no's for expansion)
10	Fresh Water demand and Source	10,000 TCD sugar cane crushing and 60MW cogeneration During season: 672 KLD During off season: 499KLD For Distillery:960 KLD Source: Tunga-Bhadra River
11	Power supply	<u>During construction phase:</u> 500 kwh –from KPTCL <u>During operation phase,</u> Sugar and Cogen unit During Season Power generation: 60 MW for sugar unit, Colony and cogeneration unit: 13.98 MW Power export: 46.02MW During Off season Power generation: 49 MW For sugar and cogeneration unit: 4.52 MW Power Export: 44.48MW Source: Co generation unit Distillery unit <u>During operation phase,</u> Power requirement in the distillery unit is 2.5 MW
12	Number of working days	Sugar unit: 160 days Cogeneration: 217days Distillery: 330 days
13	Nearby distillery	Nil in the study area

ES 2.1 Raw material Requirement

List of raw material required for sugar unit, Cogeneration unit, Distillery unit and Incineration boiler are as follows:

Table ES.2 Raw Material Statement - Sugar unit

Sl. No	Particulars	Quantity, T/day	Quantity, T/month	Source	Storage
01	Sugar cane	10,000	300000	From nearby areas	Sugar Cane from field is transported to factory premises through vehicles, the vehicles after reaching the factory premises will be parked in queue at Cane yard, after weighing, it is directly taken into milling process.
02	Sulphur	5	150	Mumbai	Stored in Sulphur godown
03	Lime	20	600	Rajasthan	Stored in Lime godown
04	Caustic Soda flakes	1	30	Mumbai	Stored in WTP sub store

Sl. No	Particulars	Quantity, T/day	Quantity, T/month	Source	Storage
05	Lubricants (Wheel bearing greases, lubricating oils etc.)	0.5	15	Oil companies	Stored in Main Store
06	HCl	0.66	20	Mumbai	Stored in WTP sub store
07	OP acid	0.6	18	Mumbai	Stored in Main Store

Table ES.3 Raw material requirement - Cogeneration

Fuel	Quantity	Source	Storage
Bagasse as fuel at 100% of heat input	2559 T/day	Own sugar mill	Stored in Bagasse Yard

Table ES.4 Raw material requirement – Distillery

Sl. No	Raw Material	Quantity/120 KLPD	Source	Storage
1	Molasses	510MT	Own production plus other sugar factories through tankers	1 X 6000 KL existing Molasses storage tank 1x 6000KL Molasses Tank (Proposed)
2	Sulphuric Acid	240 to 260 lit	Mumbai	Closed storage sheds
3	Nutrients N, P	72 Kg	Mumbai	
4	Turkey Red Oil (TRO)	240 to 260Kg	Mumbai	

Table ES.5 Raw material for Incineration Boiler

Sl No	Fuel	Quantity	Source	Transportation	Storage
01	Spent wash	262 T/day	Own Distillery unit	Pipeline	Spent wash storage tank
02	Bagasse	216 T/day	Bagasse	Tractor	Bagasse storage yard

ES 2.2 Process flow sheet

Following flowchart details the manufacturing process of sugar, cogeneration and distillery.

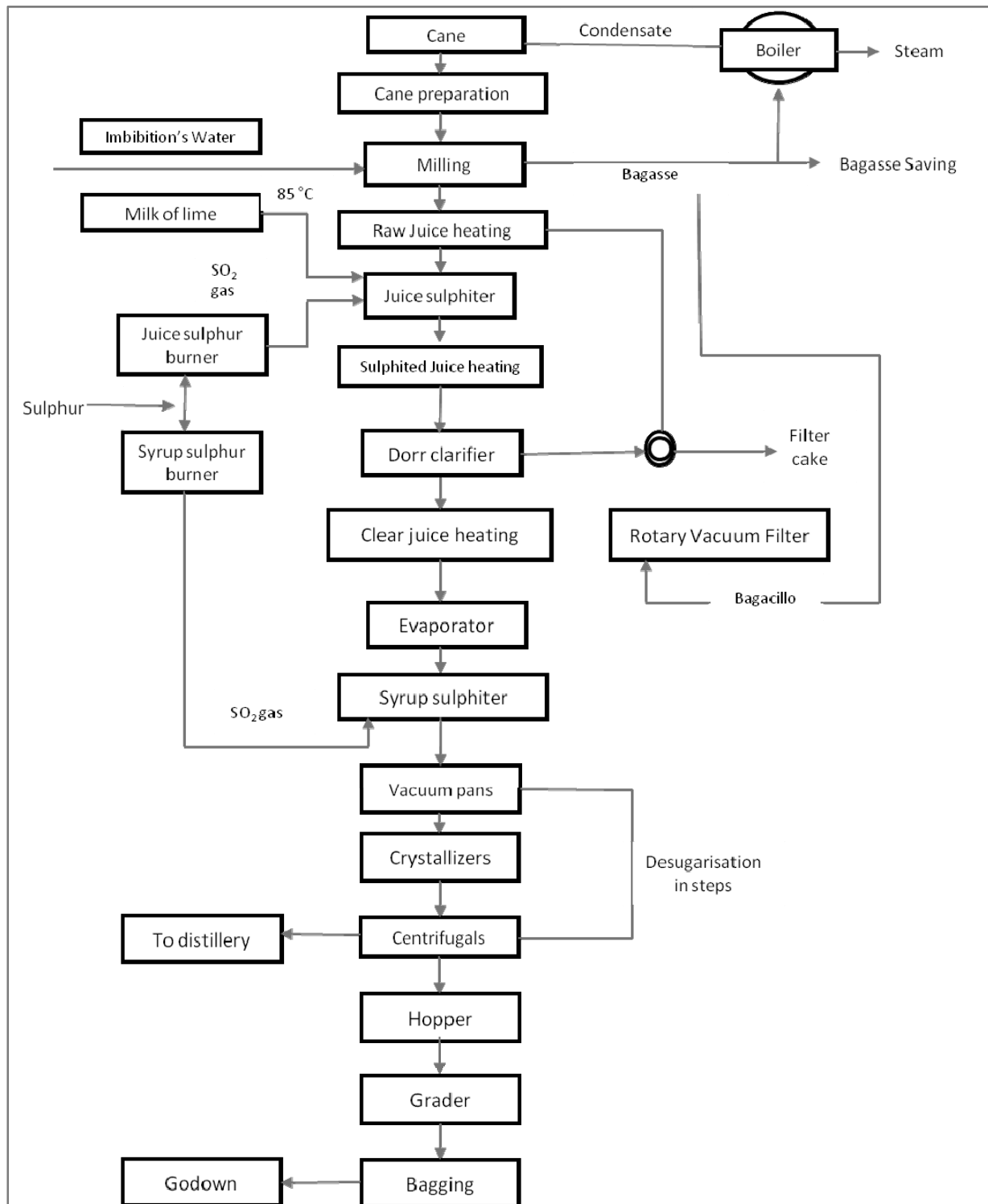


Fig ES.1 Process flow diagram - Sugar section

ES 2.3 Cogeneration process flow sheet

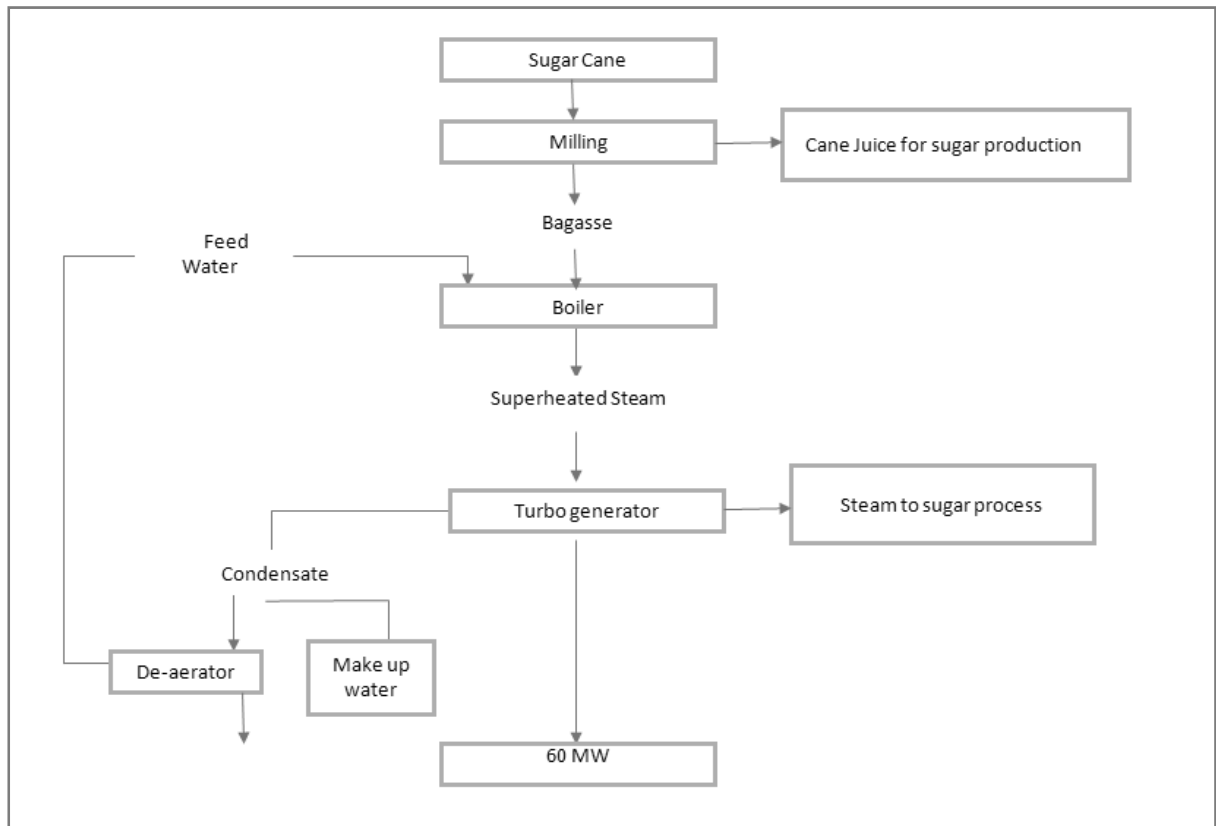


Fig ES.2 Process flow diagram - Cogen section

ES 2.4 Process flow diagram- Distillery section

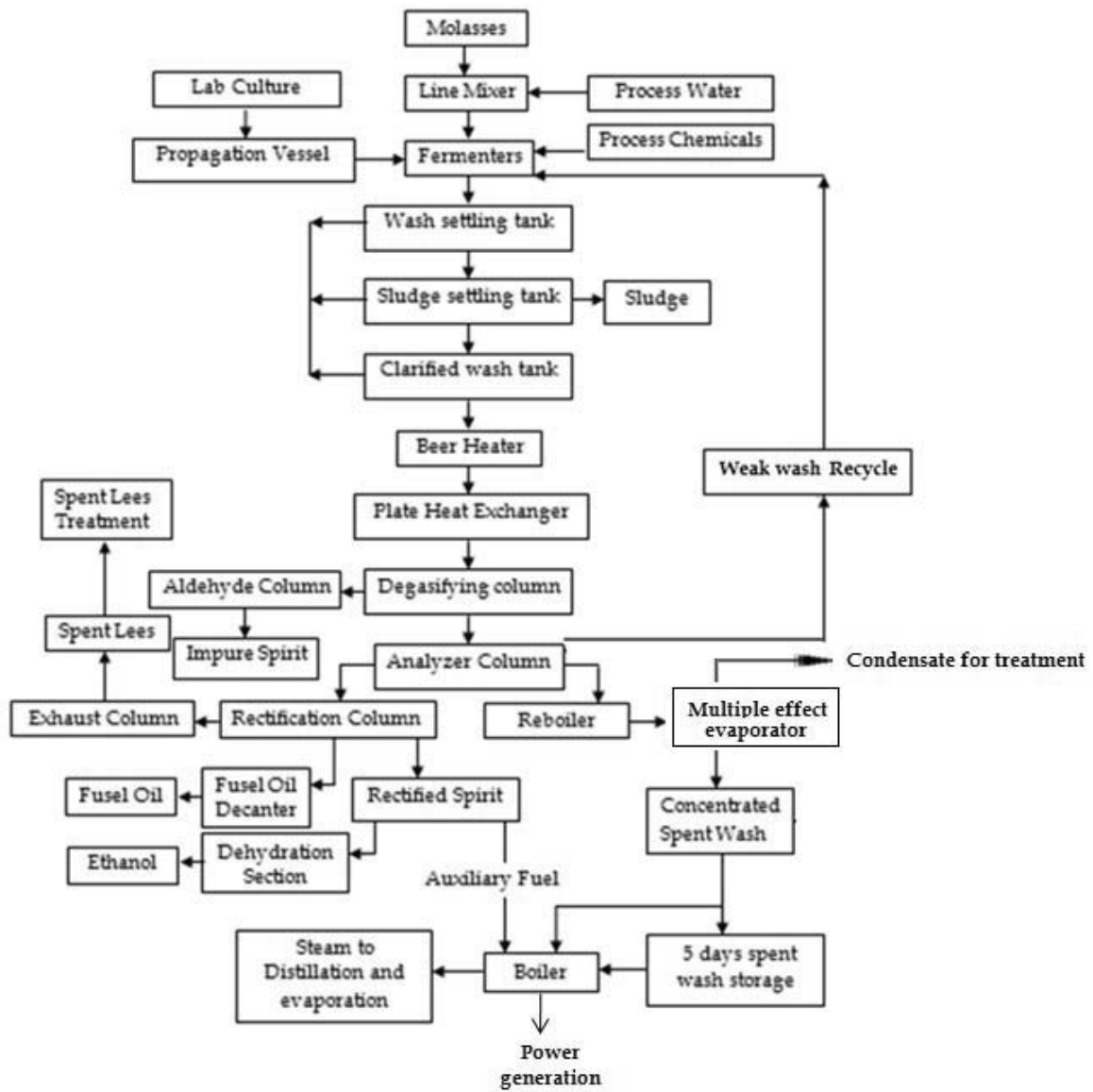


Fig ES.3 Process flow diagram - Distillery section

ES 2.5 Products and by products

Following table lists the final product and by product details.

Table ES.6 Proposed Product Mix

Sl.No	Product	Quantity
Products		
1	Sugar	1200TPD
2	Power	65 MW /hr (60 MW cogeneration + 5 MW from incineration boiler)
3	Ethanol Rectified spirit (RS)/ Ethyl alcohol (EA)/ Extra neutral Alcohol (ENA)/ ethanol (E)	120 KLPD
By products		
4	Bagasse	3000TPD
5	Pressmud	400 TPD
6	Molasses	400 TPD

ES.3 Description of the Environment

In order to assess the baseline environmental status of the project, monitoring of various environmental attributes were conducted by EHSCPL during December 2016 - Feb 2017. In addition to the baseline environmental monitoring, field inspection in the study area, collection of secondary information for all the environmental components and discussions with the officials and local public were conducted by the study team.

Environmental status during crushing season: All the parameters were found to be within the limits.

Land Use: The study area of 10 Km radius from the project site comprises of majority agricultural activities. The land use of study area reveals that majority of the area is crop land (85.13%) followed by Dry Deciduous Forest (2.96%).

Land Environment: Soil samples were collected at nine locations. It is observed that top soils of the study area having higher proportion of sand particle followed by silt and clay. In the present study particle sizes of lower than 2 mm were considered, and the categories of course, medium, fine and very fine sands were taken together as 'sand'. Hence the soils of the region were falling with the category of sandy clay loam. The highly weathered schists and loams of the region are very porous as indicated by their low bulk densities. The soils of the region are slightly alkaline with good nutrient content.

Meteorology: Meteorological monitoring was carried out at project site during December 2016 to February 2017. Watchdog 2900 ET was installed at site to record Solar Radiation (Watt / sq. m), Relative Humidity (%), Temperature (°C), Rainfall (mm), Wind Direction (Deg), Wind Gust (km/hr), Wind Speed (km/hr) and Dew Point (°C). The maximum mixing height of 4000 mt above ground level is observed while the minimum mixing height observed is 90 mt. Temperature during the study period was in the range of 14.8⁰C - 40.3⁰C.

Air Environment: Ambient air quality monitoring was carried out at eight locations. The results of the AAQM reveals that, measured values for PM₁₀, PM_{2.5}, SO₂, NO₂ and CO were within the NAAQ standards, 2009 and parameters like Benzene, Benzo (a) pyrene, Arsenic, were not detected But in some locations parameter mainly nickel and lead were detected in trace quantity. The ambient air quality was satisfactory.

Noise Levels: Ambient Noise Level Monitoring conducted at 8 locations in and around the proposed project site was found within the CPCB standards.

Surface and ground water quality: Three surface water sample and six Ground water (Bore well water) samples were collected in the study area and have been analyzed for describing the baseline water environment. Most of the heavy metals in all samples were found below detectable limits. Overall, all the samples collected from the study area were found to be fit for human consumption.

Geology: Major part of the study area in the eastern and central part of the study area is occupied with Migmatites, Granodiorite and Tonalitic Gneiss formations. Western part of the study area comprises of Greywacke and Argillite. A narrow strip of meta Volcanics are out cropping in the eastern part of the study area. The gneisses falling in the area are composed of amphibolic facies gneisses of tonalitic – trondhjemitic – granodioritic rocks.

Hydrology: study area and ground water occurs under semi confined to water table condition. Depth of existing bore wells in the study area varies from 50 to 200 m bgl. It is reported that the potential fractured zones exist from 50 to 100 m bgl. Yielding 1.0 to 3.0 litres per second (lps).The potential fractured zones are recharged from the saturated weathered zone through vertical leakage as well as from horizontal flow from adjacent areas.

Biological Environment: From the reconnaissance survey it was observed that, project site is surrounded by agriculture lands and there were 27 tree species recorded in 10 km radius of the project site belongs to 18 families. The dominant species in the study area are *Azadirachta indica*, *Acacia catechu* and *Hardwickia binata*. Project site is comprise of 25 trees of *Terminalia catapa*, *Phyllanthus emblica*. Due to severe droughts from last 4 years, the plantation activity was minimal. However, it is planned to take up the greenbelt activity in the current financial year upon offset of monsoon.

Socio Economic Studies: Focal group discussions and structured interactions with stakeholders were organized in all the 15 villages surrounding 10 km radius of the project. The participants include villagers from all walks of life. Structured questionnaires were used for the interactions and information to be collected and the overall impression of the villagers about the sugar factory was good. The company provides them employment and several local developments in the area are steered by them. This includes provision for drinking water, improved facilities in schools, better roads, and supports for festivals in temples, etc. many of them requested to provide additional irrigation facilities in the area to grow their crops

ES.4 Anticipated Environmental Impacts and Mitigation Measures

ES 4.1 Land Environment

During construction phase the land use of the site area will get modified by the implementation of the proposed project. The probable impacts will arise due to site leveling/clearing, excavation, laying foundation and other construction activities. Hence, impact is considered to be permanent in nature with the development of new land use.

Activities such as clearing, leveling, cutting and filling, foundation works through excavation will significantly leads to dislodging of soil particles and intern erosion due to loosening of top soil. Removal of earth material also results in formation of scars (i.e., pits unused and not suitably rehabilitated). The impacts may also be anticipated due to dumping of solid wastes (from labour camps), remains of excess excavated earth material and from debris. However, these impacts are short term and likely to be insignificant. It may cause some other secondary impacts such as decrease the water infiltration and also reduce the ground water level in the region. Hence suggested green belt development and rain water harvesting plan for the proposed project site will improve the situation.

During operation phase For existing 100 TPH boiler ESP installed with stack height of 85 mt and ESP will be provided to the proposed boiler of 150 TPH with stack height of 90mt and Distillery section Incineration Boiler capacity of 32 TPH will be connected to ESP chimney height 85 mt. Other sizeable structures would substantially alter the place and rural landscape. However, the construction of green belts, parks, will largely offset the change to the existing landscape and will provide visual comfort. The spent oil generating from the D.G. sets and steam turbines are categorized as Hazardous waste may lead to soil pollution, which need to be disposed off to the authorized recyclers/reclamation units as per the Pollution Control Board guidelines

M/s Mylar Sugars Ltd will implement zero wastewater discharge methodology at Distillery. Hence, there would be no impact due to any treated wastewater disposal on land as the same will comply with KSPCB discharge standards for on land for irrigation / gardening / Greenbelt Development.

The soils within the impact zone might undergo changes due to deposition of pollutants from the discharge of treated effluent which will be utilized for on land for irrigation/gardening; where in the fertility of the land is anticipated for improvement.

ES 4.2 Air Environment

During construction phase: The impact of construction activities on air quality is a cause for concern mainly in the dry months due to settling of dust particles. The main sources of emission during the construction period are the movement of equipments at site and dust emitted during leveling, grading, earthworks, foundation works and other construction related activities. The impact of such activities would be temporary and restricted to the construction phase. The impact will be confined within the project boundary and is expected to be negligible outside the project boundaries.

During the operation Phase: The main sources of Air Pollution in the proposed project are the operation of Boilers. Even though DG sets will be used at site, for the prediction of air pollution from the project, it is not included as the same will be only used during power failure during initial stages and rest of the time, captive power will be utilized from cogeneration unit. Stacks/chimneys will be provided to Boiler and D.G.Sets as per KSPCB Norms. For existing 100 TPH boiler ESP installed with stack height of 85 mt and for proposed 150TPH boiler will be connected to 90 mt chimney and ESP, and 32 TPH incineration boiler with stack height of 85 m and ESP will be provided. From the Air quality modeling studies it is found that, impact on air quality will be minimum during this stage with the installation of APC. Greenbelt development of 33% of total land will create aesthetic environment and also acts as a pollution sink for pollutant emissions.

ES 4.3 Noise Environment

During construction phase, various sources of noise pollution will be from the operation of machineries like compactors, concrete plant, cranes etc. Other sources of noise pollution during construction period includes movement of vehicles for unloading of construction materials, fabrication, handling of equipment and materials, operation of batching plants. Overall, the impact of noise generated on the environment is likely to be insignificant, reversible and localized in nature and mainly confined to the day time. Construction equipment generating minimum noise and vibration will be chosen.

Noise generating machinery operations at Sugar unit are Crushing, Sugar separation, Steam Production, mixers, pumps, boilers etc. Provision of insulating caps and ads at the exit of noise source on the machinery are proposed. The use of damping materials such as thin rubber / lead sheet for wrapping the work places line compressors, generators sets. Shock absorbing techniques will be adopted to reduce impact; Ear plugs will be provided to the workers exposed to high noise prone activity and it will be enforced to be used by the workers; Greenbelt/Landscape development along the periphery of the proposed site will act as a noise attenuator. Monthly ambient noise level monitoring will be conducted during construction phase and operation phase to conform to the KSPCB stipulated standards both during day and night time. Construction activities will be restricted only during day time. D.G.Sets with acoustic enclosures will be used.

ES 4.4 Water Environment

During construction phase water will be brought from nearby villages through tankers.

During operation phase, fresh water requirement of the plant is proposed to be met by Tunga Bhadra River.

In order to reduce the impact on ground water quality during the construction stage, the sewage generate from the labour activities will be disposed through Septic Tank & Soak Pit. During the operation phase, effluent will be treated in 1000 KLD ETP (Upgraded from 500KLD). The treated effluent will be reused for on land for irrigation/gardening/greenbelt development. The sewage generated from the domestic activities will be disposed to septic tank and soak pit. The spentlees and condensate generated in the Distillery section will be treated in the condensate polishing treatment section and spent wash will be concentrated and used as fuel in the incineration boiler and intern generating 5 MW power.

All along the internal road network, storm water drains (0.8 m X 0.6 m) will be provided to collect water during rains. The storm water collection system will be designed in such a manner so that storm water from garden, parking area, roadways and lawns is used for recharging of ground water through Recharge pits (15 No's). Rainwater harvesting sump of capacity 300 KL (15 m X 7 m X 3 m) proposed.

ES 4.5 Biological Environment

During construction phase: The impact of construction activities would be primarily confined to the project site. There is no direct impact on biological environment (flora and fauna) due to the project. However, changes occurring on air, water and land environment will have indirect impact. However, as part of the greenbelt development, native species are proposed at site which helps in improvement of the biota of the region

During Operation phase: No major impacts will be anticipated during operation phase of the project on biological environment. However, with the development of green belt inside the project site, increase the movement of birds, butterflies, etc positively. Maintenance of greenbelt will be undertaken with proper watering during summer

ES 4.6 Socio Economic Environment

During construction: The peak workforce strength would rise-up to hundred persons. Though the technical persons and skilled labors would by and large, be hired from outside the study area, bulk of the labor force would comprise of unskilled and semi-skilled workers. A substantial number of persons would presumably be recruited from the surrounding areas itself.

Construction of any major industrial project invariably results in socio-economic changes. The influx of material and money lead to change the economic status of the community. Markets, workshops and commercial centers would develop in the area.

Moreover, a sizeable number of service class people who are directly connected with the operation of the plant, e.g. house servants, workshops, washer man, shopkeepers etc. will flow in from the neighboring areas. As the plant and its ancillary facilities act as an active nucleus of activity, a shift of population towards this center will also occur within the study area.

During operation phase: There will be a large flow of financial and material resources; there remains a large possibility of growth of population in the business, trade, commerce and service sector. Thus, a simple backward community may be transformed into a semi-urban complex within a short time frame. At the same time, however, farmers may be induced to adopt more intensive agricultural and animal husbandry practices, resulting in higher production and boosting up of the area economy.

ES 4.7 Solid Waste

During construction phase: Solid wastes such as excavated soil, debris, some metal waste and domestic waste will be generated. The solid waste generated from labour sheds of about 88 Kgs/day will be segregated and organic portion of it is composted and inorganic waste will be handed over to authorised dealers. Excavated soil/earth will be reused within the site. Debris will be reused in internal drain/road works. Metal waste/scrap waste will be disposed off to recyclers in the Bellary town.

During Operation phase: The solid waste generated such as Bagasse, will be used as fuel in cogeneration unit, incineration boiler-ash, press mud, yeast sludge & ETP sludge will be mixed in required proportions and re-used as manure, boiler ash will be utilised in making ash bricks, Lime grit will be re-used in low lying areas/ construction purpose and domestic organic solid waste will be composted, while the inorganic solid waste will be handed over to Gram Panchayat.

ES.5 Environmental Monitoring Program

Table ES.7 Environmental Monitoring Programme during Construction Phase

Sl. No	Particulars of the Monitoring	No. and Place of Monitoring	Monitoring frequency	Parameters for Monitoring	Monthly Budget (Rs.)
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Sl. No	Particulars of the Monitoring	No. and Place of Monitoring	Monitoring frequency	Parameters for Monitoring	Monthly Budget (Rs.)
1	Ambient Air Quality Monitoring - 24 Hrs	5 Nos Near main gate, Construction area-sugar, Construction area- cogen, Construction area-distillery, Labour camp	Monthly	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂	12,500/-
2	Ambient Noise Level Monitoring - 24 hrs	5 Nos Near main gate, Construction area-sugar, Construction area- cogen, construction area-distillery, Labour camp	Monthly	Leq Day dB(A) and Leq Night dB(A)	6250/-
3	Ground Water Quality	1 Nos Near Labour camp	Monthly	pH, Colour, Odour, Turbidity, Total Dissolved Solids, Total Hardness, Ca, Mg, SO ₄ , F, NO ₃ , DO, Cl, Fe, Coliform Count.	1800/-
4	Soil quality	1 Nos Near Labour camp	Once in season	Color, pH, Conductivity, Moisture Content, Calcium, magnesium, Nitrogen Phosphorous, Potassium, Organic Matter, Sulphate, Chloride.	1850/- (Rs.617/-)
Total					21,167/-

Table ES.8 Monitoring Schedule for Environmental Parameters during operation phase

Sl. No.	Particulars	Monitoring frequency	Duration/ type of monitoring	Important parameters for monitoring	Monthly Budget (Rs.)
I	Air Quality				
1	Ambient Air Quality Monitoring within premises - 5 locations <ul style="list-style-type: none"> Near main gate Sugar mill house Near Boiler house Distillery unit Near ETP 	Once in a month	24 hrly sample	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂	12500/-
2	Stack/Chimney Monitoring for Boilers, D.G sets - 3 samples <ul style="list-style-type: none"> 100 TPH boiler – 85 m Chimney 150 TPH boiler – 90 m chimney 32 TPH boiler - 85 m chimney 	Once in a month	Grab	SO ₂ , PM, NMHC & CO	12,000/-
II	Water Quality				
1	Ground water analysis within the premises and in nearby villages - 2 samples	Once in a month	Grab	As per drinking water quality standards (IS10500:2012)	5,400/-
2	Effluent - ETP inlet	Once in a fortnight	Grab	BOD, COD, pH, TSS, oil and grease	800/- (Rs. 1600/)
3	Effluent- ETP outlet	Once in a fortnight	Grab	pH, BOD, COD, TSS, Oil & Grease	800/- (Rs. 1600/)
III	Soil Quality				
1	Soil quality analysis (landscape area where treated water is being utilised)	Once in season	Grab	pH, C, Organic matter, N, K, P.	1,000/- (Rs. 333/)
IV	Ambient Noise level monitoring :- near Main Gate/Boundary Mill house section, Co-generation Plant, Distillery section D.G Set Room, Crushing Areas, Godowns, Parking bay,	Once in a Month	24Hrs Monitoring	Noise levels in dB (A) both during day & night time.	18,000/-

Sl. No.	Particulars	Monitoring frequency	Duration/ type of monitoring	Important parameters for monitoring	Monthly Budget (Rs.)
	Loading and Unloading areas. (10 locations)				
	Total				51,433/-

M/s Mylar Sugars Ltd will implement various productivity management programs in the plant to improve the work environment, effective housekeeping and environment quality. All the necessary steps will be taken in the plant to meet standards prescribed by the Karnataka State Pollution Control Board /Central Pollution Control Board / KSEIAA / MoEF.

ES.6 Risk Assessment and Disaster Management Plan

The plant proposes adequate number of portable fire extinguishers in various strategic areas of the plant including the control room, administration building, stores, pump house, etc., medium velocity water spray system will also be installed.

Occupational Health and safety

- All precautionary methods will be adopted by the company to reduce the risk of exposure of employees to occupational safety and health hazards.
- Pre & post medical check-ups will be done of all the employees. Employees will be regularly examined and the medical records will be maintained for each employee. Pulmonary function test and periodical medical checkup shall be done once in every year. The following tests will be conducted for each worker as Occupational health surveillance programme: Lung Function Test, Radiology – X-ray, Pulmonary Function Test, and Audiometric Test.
- For the safety of workers, personnel protective appliances like hand gloves, goggles, aprons, ear mufflers, nose mask etc. will be provided.
- Proper ventilation system will be provided in the process area.

ES.7 Project Benefits

- With the expansion of the industry, the distance of transportation of cane to the neighbouring industries will be reduced.
- For planning the expansion of factory will help the local farmers to sell their cane, who otherwise have to depend on the sugar factories located at far distance, which in turn causes them delay in disposal, less price, less payment etc.
- The company's management will recruit semi skilled & unskilled workers from the nearby villages. This will enhance their income and lead to overall economic growth of the area. It creates employment opportunities to 800 No's directly & 1000 No's indirectly. Socio-economic status of the surrounding farmers will improve.
- Further, the management will support the local administration and provide other form of assistance for the development of public amenities viz., water distribution, building of school rooms, health centres, Education programme, Health camps, Agricultural programmes & sponsorships to meritorious students.

- Green belt will be developed within the plant premises, on either side of roads, on the plant boundary covering a total area of about 21.50 acres (33 % of total area). This will not only help to create healthy environment in the area but also acts as pollution sink. Further avi-fauna population of the area will increase.
- With the implementation of the total project, the socio-economic status of the local people will further improve, there by infrastructure facilities like roads, communication systems, etc., will improve. The land rates in the area will further improve in the nearby areas due to the project. This will help in upliftment of the social status of the people in the area.
- Educational institutions will also come-up and will lead to improvement of educational status of the people in the area. Medical facilities will certainly improve due to the project.

ES.8 Environmental management plan

Table ES.9 EMP during operational phase of the project

Activity	Anticipated Impacts	Environmental Management Plan
1. Land		
Disposal of wastewater	Soil contamination & Groundwater contamination	Wastewater generated from the project will be treated in the 1000 KLD (upgraded from 500 KLD)
2. Air		
Boilers, Process, storage, transportation of raw materials and finished products, DG sets	Gaseous and fugitive emissions	<ul style="list-style-type: none"> • New Boilers of 150 TPH and 32TPH will be connected with ESP and to the chimney of 90 mt and 85 mt each. • 15 mt above the nearest working platform with acoustic enclosures will be provided for the additional DG Sets (2 X 625 KVA and 1000 KVA) and HSD (High Speed Diesel) with sulphur content of <0.05% will be used for D.G.Sets • Monitoring of stack emissions will be carried out monthly to ascertain the performance of the air pollution control equipments. • Ladder, porthole, power supply points are provided to the boiler for monitoring of emissions. • Water spraying will be adopted at loading and unloading points and storage yards which will reduce fugitive emissions due to movement of truck. • All the internal roads will be asphalted to reduce the fugitive dust due to truck movement. • Greenery cover will be provided. For this, the project has proposed to have greenery cover of 33% of the total site area. • A good housekeeping and proper maintenance will be practiced in the industry, which helps in controlling pollution.

Activity	Anticipated Impacts	Environmental Management Plan
		<ul style="list-style-type: none"> • Proper maintenance air pollution control equipment • Regular maintenance of vehicles and machinery's in order to control emissions.
	Bagasse storage	<ul style="list-style-type: none"> • Designing of stockpiles to reduce exposure to prevailing winds; • Minimising the distance that bagasse falls during movement; • Fully enclosing the bagasse handling conveyors, particularly transfer points; • Installing belt cleaning systems so that bagasse is not carried back on the underside of conveyor belts; • Implementing bagasse dust management plan that prescribes mitigation measures for unfavourable weather conditions; • Installing water spray system to reduce dust emissions around, and from, the site;
	Cane handling	<ul style="list-style-type: none"> • Water spraying for dedusting. Plantation around source.
	Transportation	<ul style="list-style-type: none"> • Water sprinklers will be provided to reduce dust.
Vehicular traffic	Exhaust Emissions	<ul style="list-style-type: none"> • The conditions of the internal roads will be checked & maintained at least once in a year. • Trained securities will be deployed to guide the vehicles for smooth entry/exit without causing any traffic congestion. • Greenery development will create aesthetic environment and also acts as a pollution sink for dust emissions.
3. Surface and Ground Water		
Process Effluent, Sewage, Storm water run off	Ground water & soil pollution, flooding	<ul style="list-style-type: none"> • The process waste water/effluent including sewage from the domestic activities will be treated in 1000 KLD (upgraded from 500 KLD) • Spentlees and condensate polishing pond of 1000 KLD will be installed and treated water recycled back to process and used for greenery development. • Achieving Zero Discharge at distillery unit. • Storm water drains will be provided to avoid flooding in the proposed Storm water gutters/drains will be constructed in the premises on either side of the haul roads (0.8 m X 0.6 m) and along the periphery of 1.0 m X 0.6 m • Garland channels will be provided around the storage yards. • As per estimation rain water thus collected and harvested of about 5,00,000 lts/annum will be used for

Activity	Anticipated Impacts	Environmental Management Plan
		<p>greenery development/ sprinkling applications and non potable uses thereby conservation fresh water requirement.</p> <ul style="list-style-type: none"> • Rainwater harvesting sump of capacity 300 KL (15m X 7m X 3m) is proposed for implementation • 15 recharge pits will be provided for the purpose of ground water recharge which will be constructed along the way of internal drains.
4. Geology and Hydrology		
Extraction of water	Depletion of water table	<ul style="list-style-type: none"> • Since, there is no water extraction from the borewell for the project, no impact anticipated. • However, implementation of recharge to ground water body through rainwater harvesting. • Conjunctive use of surface and ground water ensures rise in ground water level and improves water quality.
5. Noise		
Manufacturing process, cogeneration unit, transportation of raw materials and finished products, D.G Set operation, Vehicular traffic,	Increase in noise levels	<ul style="list-style-type: none"> • Personnel working near noisy areas will be provided with adequate personal protective equipment such as earplugs and earmuffs, use of which will be strictly enforced. • Sophisticated and low noise generating equipments will be selected. • Proper mounting of equipments and providing noise insulating enclosures or padding where practicable. • The equipments will be maintained at all times to ensure permissible noise levels. • Appropriate advanced silencers, acoustic barriers; vibration-reducing pads will be provided for all noise generating equipments. • The sources of continuous noise generating equipment such as compressors, pumps etc will be designed to have noise level not exceeding 85-90 dB (A). • It would be ensured that there would not be any operator near the noise generating equipments on continuous basis. • Boundary walls and dense greenery will be erected to act as acoustic barriers. • Adequate and appropriate type of greenery will be developed in and around the proposed project site for noise mitigation in the area. • Proper maintenance of machineries especially oiling and greasing of bearing and gears etc. • 33 % land area around the factory is covered with greenery. It includes greenery of 6 to 10 m width around storage yards.

Activity	Anticipated Impacts	Environmental Management Plan
		<ul style="list-style-type: none"> • Trees are planted on either side of the roads with in the factory premise and with in the vicinity around the factory. • Trees species are selected as per guidelines of CPCB.
6. Solid and Hazardous Waste		
Domestic garbage, solid waste from sugar industry, cogeneration unit	Improper handling will affect the land/soil and water environment	<ul style="list-style-type: none"> • Bagasse generated from the sugar plant will be sent to cogeneration unit to use it as fuel for boiler for power generation • Boiler-Bottom ash, boiler flyash will be handed over to flyash brick manufacturers, lime grit will be used in low laying area/ construction purpose, pressmud, ETP sludge, yeast sludge will be mixed in required proportion and used as manure. • Used oil from DG sets, spent turbine oil, waste oil residue from ETP will be used as lubricant within the industry. • Domestic organic solid waste will be composted, while the inorganic solid waste will be handed over to Birabbi Gram Panchayat.
7. Ecology and Biodiversity		
Green belt development	Improvement of local flora and fauna	<ul style="list-style-type: none"> • With the development of green belt inside the project, will increase the movement of birds, butterflies, etc positively. Watch & ward arrangements with proper watering during summer.
8. Socio-economics		
Quality of Life, Sharing of local resources	Employment generation, Improvement in quality of life, development of infrastructure facilities, increase in housing accommodation	<ul style="list-style-type: none"> • There is a great possibility of industrialization in the vicinity of the proposed sugar complex. This is likely to bring drastic changes by transforming this backward area into an industrially developed one. • The project has very strong positive impact, which is likely to result in the improvement of economic situation of nearby Villages • Overall peoples' perception on the project is a mix of advantages and disadvantages. On one hand, they expect job opportunities, market expansion etc. as advantages and on the other hand they are worried about the damage to agriculture. • As an impact of identification of the project, small-scale industrial economy is likely to flourish in the surrounding area. The small-scale industrial units are expected to get financial supports from the financial institutions and banks. In this way, an overall development may take place in this area. • The process of development will have maximum impact on the lifestyle of the local people. The project

Activity	Anticipated Impacts	Environmental Management Plan
		<p>and the consequent peripheral industrial economy will generate income to the local and migrated people which will increase the aggregate demand. This demand will get realized in the market and finally, lead to the market in the locality of the project. Market expansion supported by expected infrastructural developments like roads, electricity, water supply etc. will result in improving the economic development in the entire region.</p>

Budgetary provision: Capital investment to be made on environmental management measures of Rs. 18.5 Crores and Rs. 67.10 Lakhs/ year will be reserved for the recurring