

EXECUTIVE SUMMARY

1.1 INTRODUCTION

Bastar Botanics Private Limited has Proposed 1.0 KLD Mahuwa flower based Spirit Manufacturing Plant & bottling of IMIL liquor to the tune of 250 cases per day at Khasra No.592/1 Part, Patwari Halka No.14, Village-Dhuragaon, Tehsil-Lohandiguda, District-Bastar, Chhattisgarh. The proposed project is covered under the ambit of EIA Notification, 2006 & its subsequent amendment dated 13.06.2019 and thus requires prior environmental clearance. The estimated capital cost for the project is Rs.365 Lakh.

The project activity is listed under item 5(g) categorized as Category “B” {all grain based distilleries \leq 200 KLPD)} as per the Schedule of EIA Notification, 2006 and subsequent amendments vide gazette notification S.O. 1960(E) dated 13.06.2019 and thus requires prior environmental clearance from SEIAA, Chhattisgarh..

1.2 BRIEF DESCRIPTION OF THE PROJECT

Table 1.1: Brief Description of the Project

S. No.	Particular	Details	
1.	Plant Area	12100 Sq. m.	
2.	Greenbelt / Plantation Area	4000 Sq. m. (~33% of plant area)	
3.	Plot No / Khasra no / Villgae / District / State	Khasra No.592/1 Part, Patwari Halka No.14, Village-Dhuragaon, Tehsil-Lohandiguda, District-Bastar, Chhattisgarh	
4.	Product Configuration		
	Component	Capacity	Product
	Mahuwa flower based distillery with ZLD	1.0 KLD	Mahuwa flower based Spirit
	Bottling unit (not covered under EIA Notification, 2006)	250 cases per day	IMIL (Country liquor)



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S. No.	Particular	Details
5.	Project Cost	Rs. 365 Lakhs
6.	Project requirements	
a.	Water requirement & Source	<ul style="list-style-type: none"> Daily total water requirement: 19.6 KLD Daily total fresh water requirement: 9.0 KLD (Source: ground water) Daily total recycled/re-circulated water availability: 10.6 KLD (Source: treated effluent from ETP & STP).
b.	Power requirement	55 KW Source: State power supply grid
c.	Power Back up source	DG Set of capacity 30 KVA (01 Nos.) Fuel: HSD
d.	Manpower	Construction Phase: 52 nos Operation phase: 9 nos
e.	Project cost:	Capital Cost Rs. 365 lakh
f.	Cost of EMP	Capital cost: Rs. 47 Lakh Crore Recurring cost: 7.1 lakh/annum
8.	Connectivity & environmental sensitivity	
a.	Major road / Highway	<ul style="list-style-type: none"> Road connecting Jagdalpur ~1.0 KM towards NNE N.H.- 30 ~16.85 KM towards NE S.H.- 63 ~17.0 KM towards SSE
b.	Nearest Railway station	<ul style="list-style-type: none"> Bade Arapur ~17.4 KM towards SSE Dilmili - Train Station ~19.6 KM towards SSW
c.	Nearest Airport	Maa Danteshwari Airport, Jagdalpur ~28.5 KM towards ESE
d.	Nearest village	Usribera ~2.5 KM towards WNW
e.	Nearest Major Town/ Nearest Densely Populated or Built-up Area	None within 15 km radius area
f.	National Park, Wild Life Sanctuary, Biosphere Reserve, Tiger/ Elephant Reserve, Wildlife Corridor	None within 15 km radius



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S. No.	Particular	Details		
g.	Reserve Forest (RF) / Protected Forest (PF)	Madhota Protected Forest* ~6.8 km towards NE		
h.	Nearest Streams/ Rivers/ Water Bodies	Water body	Distance (aerial)	Direction
		Indravati River	~ 3.0 Km	NW
		Narangi River	~ 3.8 Km	NW
		Kapari Nala	6.9 Km	NW
		Markandi River	9.65 Km	NE
		Tamra Nala	13.55 Km	WNW
i.	Interstate boundary	NA		
j.	Defence installations	NA		
k.	Seismic Zone	The site is located in the Seismic Zone II, as per the seismic zoning map of India given in BIS code IS: 1893 (Part1)-2002, which is Low Damage Risk Zone.		

1.3 DESCRIPTION OF THE ENVIRONMENT

1.3.1 AIR ENVIRONMENT:

Ambient air quality monitoring has been carried out with a frequency of twice a week for one season at 09 locations. Ambient air quality of the study area is in conformity with respect to norms of National Ambient Air Quality standards by CPCB.

Summary of Baseline monitoring results

- PM₁₀ found to be varying between 48.50 µg/m³ and 87.30 µg/m³.
- PM_{2.5} found to be varying between 19.21 µg/m³ to 49.38 µg/m³
- SO₂, found to be varying between 6.82 µg/m³ to 13.45 µg/m³
- NO_x found to vary between 9.89 µg/m³ to 18.63 µg/m³
- CO found to be varying between 0.29 mg/m³ to 0.99 mg/m³

1.3.2 WATER ENVIRONMENT



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Ground water quality has been monitored at 09 locations in the study area. Surface water quality has been monitored at 03 locations.

Ground Water:

- During study period, pH values observed were in the range of 7.25 to 7.53.
- TDS concentration: 364 to 546 mg/l
- The total hardness is varying from 145.0 to 205.32 mg/l.
- Alkalinity concentration range 72.54 mg/l to 182.08 mg/l
- The concentration of Heavy metals was found to be within the acceptable limit.

Surface Water:

The analysis results for SW 1 indicate that

- pH of the surface water are in range of 7.25 to 7.46
- Dissolved Oxygen is in the range of 6.0 mg/l to 6.8 mg/l.
- BOD is in the range of 4.0 mg/l to 7.8 mg/l
- COD in the range of 12.0 mg/l to 21.0 mg/l
- Electrical conductivity in the range of 385 μ S/cm to 496 μ S/cm
- The TDS was observed to be in the range of 246 – 294 mg/l
- Total Hardness (as CaCO₃) was in the range of 124.0 mg/l to 136.0 mg/l
- Total Alkalinity was in the range of 140 mg/l to 195 mg/l

1.3.3 SOIL ENVIRONMENT

Soil Samples were collected as per standard procedure from 09 locations. Sampling was done from the ground up to one foot depth.

Results

- Samples collected from identified locations indicate pH value ranging from 7.27 to 7.89, which shows that the soil is slightly to moderately alkaline in nature. The organic



carbon in the soil ranged from 0.38 % to 0.56 % & concentration of NPK varied between 274.0 Kg/Ha to 311.0 Kg/Ha (available nitrogen), 30.02 Kg/Ha to 56.84 Kg/Ha (Total P), 56.04 Kg/Ha to 95.21 KG/Ha (Total K) respectively

NOISE ENVIRONMENT

The sources of noise pollution in the study area are industrial noise, noise due to commercial activities, noise generated by community, vehicular traffic, etc.

Day time Noise Levels $L_{eq}(\text{day})$

The day time $L_{eq}(\text{day})$ noise levels at all the residential locations were observed to be in the range of 47.2 dB (A) and 54.4 dB (A).

Night time Noise Levels $L_{eq}(\text{night})$


The night time $L_{eq}(\text{night})$ noise levels at all the residential locations was observed to be in the range of 36.8 dB (A) and 42.62 dB (A).

The day & night time noise levels monitored for pre-monsoon at the project site & at sensitive receptors in the impact zone / study area is within the prescribed limit by CPCB & MoEF&CC.

1.3.4 BIOLOGICAL ENVIRONMENT

Buffer Zone
Flora
Trees - 46
Shrubs - 23
Herbs, Grasses and Climbers - 34
Fauna
Birds- 125 Species
Mammals – 9 Species
Reptiles & Amphibian - 15 Species

1.3.5 SOCIO-ECONOMIC ENVIRONMENT

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S. No.	Particulars	Details
1.	No. of Villages	49
2.	Total Population	66814
	a. Male	32900
	b. Female	33914
3.	No. of Households	15294
4.	No. of Literates	27500
	a. Male	16373
	b. Female	11127
5.	Main Workers	17570
6.	Marginal Workers	17221
7.	Non-workers	32023
<i>(Source: Census, 2011)</i>		

1.4 ANTICIPATED ENVIRONMENTAL IMPACTS

The potential environmental impacts due to the proposed project have been assessed in detail. These include impact on air quality, noise, water quality, waste, ecology and socio economics, etc. The modelling and analysis of the data indicate that the predicted impacts are minimal and are within the prescribed norms and standards. Comprehensive mitigation measures have been incorporated in the environmental management plan to ensure that the environmental quality is protected and enhanced. These have been summarised in **Table below:**

Table 1.2: - Anticipated Environmental Impacts & Mitigation Measures

S. No.	Impact	Mitigation Measure & Management
1.	Change of Land Use/ Land Cover	<ul style="list-style-type: none"> Land use will change permanently. Greenbelt development & plantation will improve aesthetics of the area.
Solid and Hazardous Waste generation & disposal		
	Impact	Mitigation Measure and Management



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3.	Solid Waste	The total municipal waste generated from the project will be segregated in biodegradable and non-biodegradable waste collected using color coded bins and disposed off to municipal waste disposal site.				
	I. Domestic Waste	<ul style="list-style-type: none"> Disposal of untreated MSW onto land/on soil and water may cause pollution Create foul odor and nuisance in surrounding area 				
	II. Industrial Non-Hazardous Waste	<table border="1"> <thead> <tr> <th>Particulars</th> <th>Management</th> </tr> </thead> <tbody> <tr> <td>Scrap/ Plastic packing material, wood, card board etc.</td> <td>Dispose off to authorized recyclers.</td> </tr> </tbody> </table>	Particulars	Management	Scrap/ Plastic packing material, wood, card board etc.	Dispose off to authorized recyclers.
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Scrap/ Plastic packing material, wood, card board etc.	Dispose off to authorized recyclers.					
Hazardous Waste generated from industrial process may have impact on Land/Soil, Water Quality if not properly stored and disposed off.	<p>The hazardous waste mitigation measure is as follows:</p> <ul style="list-style-type: none"> The soil will be scrapped off if oil / waste oil spill on the land and soil will be stored and sent to TSDF site for final disposal. Hazardous waste storage in covered room with impervious flooring. Log book will be maintained. The records of hazardous waste manifest will be maintained Hazardous waste will be disposed off as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. 					

4. Water environment

S. No.	Project component	Activity	Impact	Mitigation measure
a.	• Thick slops from Distillation	Discharge of effluent on land &/or surface water	Acidic effluent may alter soil profile, contaminate ground water & may affect biological environment in surface water bodies.	<ul style="list-style-type: none"> The unit will maintain ZLD. Thick slop & other effluent streams will be treated using Decanter, MEE and treated water recycled for process & allied activities.



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b.	Sewage generation	Discharge of sewage on land &/or surface water	<ul style="list-style-type: none"> Contamination of surface water, ground water and land/ soil if not treated properly. Odour problem and nuisance to surrounding environment. 	<ul style="list-style-type: none"> Domestic sewage will be treated in STP STP treated water utilized to meet greenbelt development water demand. Good housekeeping practices will ensure no odour related nuisance to surrounding area.
c.	Water required for domestic needs & production process	Abstraction of ground water without any recharge measures in place	Depletion of ground water resource	<ul style="list-style-type: none"> Rain water harvesting will be done for optimum utilization of natural resources. Ground water abstraction will be done only after obtaining permission from CGWA.

Air Environment

S. No.	Activity	Management
1.	Material handling & transfer	Dust collectors at material handling points & closed conveyors for material transfer.
2.	Emissions from D.G. Set	DG Sets will have adequate stack height (3.5 m above roof) as per CPCB guidelines.
3.	Odour Management	<ul style="list-style-type: none"> Thin slop from plant shall be transferred in closed conduit and concentrated in MEE. The equipment & process tanks shall be operated under slight vacuum to eliminate leaks The vent vapours shall be collected, condensed and washed with a scrubber & condensed water and acids shall be returned to the process. All treatment vessels, distillation vessel agitator and process pumps shall be mechanically sealed.



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		<ul style="list-style-type: none"> • Good housekeeping practices will be adopted in the plant premises.
4.	Mitigation measures	<ul style="list-style-type: none"> • Roads within the plant will be paved to control the dust getting air borne. • Greenbelt & plantation in ~33% of total plot area will be developed in the plant area. • The ambient air quality will be monitored and maintained within the limits prescribed by CPCB / SPCB after the commencement of the operations of proposed project.

NOISE ENVIRONMENT

S. No.	Project Activity	Impact	Mitigation Measure
1.	<ul style="list-style-type: none"> • Grinding, milling • Boiler • Screw conveyors and bucket elevators, • Pumps, compressors etc 	Irritation, Headache, Hearing loss, Impact on output of Workers	<ul style="list-style-type: none"> • Silencers, sound dampeners will be installed with machinery wherever feasible. • Greenbelt on project boundary will help attenuate noise propagation. • Use of PPEs (ear muffs) by workers will be ensured at work place • Noise level at work place will be kept below OSHA guidelines for permissible exposure limit (PEL) by means of engineering controls (use of certified machinery, acoustic enclosures & silences), administrative control (work shifts) & use of hearing or protection devices (Ear plugs/muffs). • Regular monitoring of noise level will be carried out.
2.	DG set	Noise	DG Set(s) compliant to “Silent” norms of CPCB will be procured which will be housed in acoustic enclosure.
3.	Vehicular Movement	<ul style="list-style-type: none"> • Noise generation 	<ul style="list-style-type: none"> • Vehicles having PUC certificates will be allowed to transport materials at project site



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		<p>from vehicular movement</p> <ul style="list-style-type: none"> • Work zone noise level increase inside the premises 	<ul style="list-style-type: none"> • Speed controlled vehicles will be used. • Unnecessary horn honking will be avoided and strictly prevented
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1.5 ENVIRONMENTAL MONITORING PROGRAMME

Regular monitoring of environmental parameters like air, water, noise and soil as well as performance of pollution control devices and safety measures in the project and proper environmental management will be carried out periodically as per conditions stipulated in statutory clearances, rules and guidelines & as recommended for proper environmental management.

1.6 ADDITIONAL STUDIES

Risk Assessment & Safety Measures

Details of risk assessment and disaster management plan are given in Chapter VII.

Following procedure will be followed for effective management risk & hazard:

Step 1: Identification of Disaster risk.

Step 2: Identification of persons at risk

Step 3: Removal of Hazard

Step 4: Evaluation of the risk

Step 5: Control measures to be taken

Step 6: Maintain Assessment records

Step 7: Review



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1.7 PROJECT BENEFITS

Bastar Botanics Private Limited will contribute to the upliftment of socio-economic environment of nearby areas through CER, in addition to generation of employment opportunity. Activities under Social-EMP(CER Plan will be planned based on socio-economic survey findings, stakeholder concerns & recommendation of Hon'ble SEAC during EC appraisal as per MoEF&CC O.M. dated 30.09.2020

The project will generate revenue for state & central government & contribute in ethanol based fuel independence by reducing quantum of imports.

1.8 ENVIRONMENT MANAGEMENT PLAN

A site-specific Environmental Management Plan as per EMP given in this report shall be formulated and will be diligently practiced.

EHS cell and a site-specific environment management policy shall be put in place to address environmental issues, monitoring and compliance of statutory clearances.

1.9 CONCLUSION

It can be concluded that after the implementation of the suggested mitigation measures and outlined environmental management plan, the proposed project activities would have manageable impacts on the environment and the project will have a net positive impact on the socio-economic conditions of the surrounding areas.



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