



Prasol Chemicals Pvt. Ltd.

EXECUTIVE SUMMARY (ENGLISH)

For

PROPOSED PROJECT FOR MANUFACTURING OF SYNTHETIC ORGANIC CHEMICALS UNIT

At

Survey No. 146,150,151,152,154 & 174/3, At Village: Dheku,
Taluka: Khalapur, District: Raigad, Maharashtra - 410203.

Land/Plot Area: 30,000 m² (3.0 Ha.)

Total Proposed Production Capacity: 57,500 TPA

[Schedule 5 (f) Category – “A” as per EIA Notification 2006]

[Study Period: 1st October 2020 to 31st December 2020]

APPLICANT

PRASOL CHEMICALS PVT. LTD.

Survey No. 146,150,151,152,154 &
174/3, At Village: Dheku,
Taluka: Khalapur, District: Raigad,
Maharashtra- 410203.

E-Mail: projmgr@prasolchem.com

Tel No.: +91- 22-61952577

CONSULTANT

ECO CHEM SALES & SERVICES

Office Floor, Ashoka Pavilion - A
New Civil Road, Surat, 395001
NABET Accredited No.

NABET/EIA/2023/RA 0181

E-mail: eco@ecoshripad.com

Tel No. +91 8460545050



1. INTRODUCTION

Prasol Chemicals Pvt. Ltd. is one of the steadily growing chemical manufacturing companies in India. Incorporated in 1992, the manufacturing of unsaturated polyester resins was commissioned. In the year 1995, Prasol became a deemed Public limited company and set up a manufacturing unit at Khopoli near Mumbai, India. Prasol is prevalent in various sectors spanning paints, coatings, thinners, flavours & fragrances, agrochemicals, lubricant additives, surfactants, cosmetics and pharmaceutical industries.

1.1 Project Location and Magnitude

M/s Prasol Chemicals Pvt. Ltd. is planning to set-up a new project for manufacturing of synthetic organic chemicals at survey No. 146,150,151,152,154 & 174/3 at Village: Dheku, Taluka: Khalapur, District: Raigad, Maharashtra - 410203. The center co-ordinate of the project site is 18°46'44.80"N Latitude and 73°18'11.98"E Longitude.

Prasol is a Large scale unit having total plot area 30,000 m² and total investment for the proposed project is Rs. 50.0 Crores.

Table 1: Salient Features

S. No.	Particulars	Details																																																
1.	Approx. Geographical Co-ordinates of the project site	<table border="1"> <thead> <tr> <th>Corner</th> <th>Latitude</th> <th>Longitude</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>18°46'41.99"N</td> <td>73°18'15.06"E</td> </tr> <tr> <td>B</td> <td>18°46'43.63"N</td> <td>73°18'7.80"E</td> </tr> <tr> <td>C</td> <td>18°46'45.83"N</td> <td>73°18'8.30"E</td> </tr> <tr> <td>D</td> <td>18°46'46.47"N</td> <td>73°18'7.94"E</td> </tr> <tr> <td>E</td> <td>18°46'47.84"N</td> <td>73°18'8.16"E</td> </tr> <tr> <td>F</td> <td>18°46'48.18"N</td> <td>73°18'10.18"E</td> </tr> <tr> <td>G</td> <td>18°46'47.28"N</td> <td>73°18'10.68"E</td> </tr> <tr> <td>H</td> <td>18°46'46.99"N</td> <td>73°18'11.45"E</td> </tr> <tr> <td>I</td> <td>18°46'47.45"N</td> <td>73°18'12.09"E</td> </tr> <tr> <td>J</td> <td>18°46'46.09"N</td> <td>73°18'12.47"E</td> </tr> <tr> <td>K</td> <td>18°46'45.37"N</td> <td>73°18'14.47"E</td> </tr> <tr> <td>L</td> <td>18°46'46.67"N</td> <td>73°18'14.91"E</td> </tr> <tr> <td>M</td> <td>18°46'46.37"N</td> <td>73°18'16.18"E</td> </tr> <tr> <td>N</td> <td>18°46'44.81"N</td> <td>73°18'15.70"E</td> </tr> <tr> <td>O</td> <td>18°46'44.10"N</td> <td>73°18'16.24"E</td> </tr> </tbody> </table>	Corner	Latitude	Longitude	A	18°46'41.99"N	73°18'15.06"E	B	18°46'43.63"N	73°18'7.80"E	C	18°46'45.83"N	73°18'8.30"E	D	18°46'46.47"N	73°18'7.94"E	E	18°46'47.84"N	73°18'8.16"E	F	18°46'48.18"N	73°18'10.18"E	G	18°46'47.28"N	73°18'10.68"E	H	18°46'46.99"N	73°18'11.45"E	I	18°46'47.45"N	73°18'12.09"E	J	18°46'46.09"N	73°18'12.47"E	K	18°46'45.37"N	73°18'14.47"E	L	18°46'46.67"N	73°18'14.91"E	M	18°46'46.37"N	73°18'16.18"E	N	18°46'44.81"N	73°18'15.70"E	O	18°46'44.10"N	73°18'16.24"E
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2.	Topography of the plant site	Flat terrain																																																
3.	Nearest Village	Dheku – 1.0 km in N direction																																																
4.	Nearest City	Khopoli – 8.5 km in E direction																																																
5.	Nearest Highway	NH-4 – 0.30 km in W direction																																																
6.	Nearest Railway station	Khopoli – 1.0 km in N direction																																																
7.	Nearest Airport	Mumbai International Airport - 80 km in NNW direction																																																
8.	Nearest River	Patalganga river – 2.0 km in N direction																																																
9.	Nearest Sea	None within 10 km radius of project site																																																
10.	Ecologically sensitive area within 10 km radius from project site	No ecologically sensitive area such as National Park, Wild life sanctuary, marine sanctuary within 10 km radius																																																



S. No.	Particulars	Details
11.	Reserve Forest	
List of Reserve Forest in study area:-		
	Forest Detail	Location
	Reserve Forest Comp. No. 511	Ghodivali, Navandhe, Khalapur District Raigadh
	Reserve Forest Comp. No. 512	Bid Chichavali, Terfe Atgaon, Bid Khurd Dist. Raigadh
	Reserve Forest Comp. No. 514	Jamrung, Dist. Raigadh
	Reserve Forest Comp. No. 516	Dhamani, Kumbhivali, Dist. Raigadh
	Reserve Forest Comp. No. 518, 519	Madap, District Raigadh
	Reserve Forest Comp. No. 468, 469	Umbra, District Raigadh
	Reserve Forest Comp. No. 470	Doorshet, District Raigadh
	Reserve Forest Comp. No. 466	Tuksai, District Raigadh
	Reserve Forest Comp. 460	Chavani N, District Raigadh
	Reserve Forest Comp. 463	Chavani N, District Raigadh
	Reserve Forest Comp. 464, 465	Chavani N, District Raigadh
	Reserve Forest Comp. 498	Horale, Apti, Parkhade, District Raigadh
	Reserve Forest Comp. 499	Tambati, District Raigadh
	Reserve Forest Comp. 467	Sangade, District Raigadh
	Reserve Forest Comp. 472	Khanav, District Raigadh
	Reserve Forest Comp. 473	Tondali, District Raigadh
	Reserve Forest Comp. 474	Tondali, District Raigadh
	Acquired Forest Sr No. 133	Chilthan, District Raigadh
	Acquired Forest Sr No. 13/1	Acquired Forest Sr No. 13/1, District Raigadh
12.	Seismicity	Zone IV considered the high-damage risk zone
13.	Sites of Historical / Archaeological Importance	None within 10 km radius of project site
Note: All the above-mentioned distances are the aerial distances from the project site.		

1.2 JUSTIFICATION OF THE PROJECT SITE

- The land for the proposed project is already in the possession with client.
- The project is very well connected to National Highway 4 and central railways.
- Easy availability of infrastructure facilities.
- No prime agricultural land / forest land needed to be converted for industrial use.
- Area where proposed site is located has no history of natural calamities like floods, cloud burst etc.
- Proximity to raw material suppliers.
- The human resource required for the proposed project will be easily available.

2. PRODUCT & RESOURCE REQUIREMENT

Prasol Chemicals Pvt. Ltd. has proposed to manufacture various synthetic organic chemicals with total production capacity 57,500 TPA. Best available technology will be adopted for the proposed project.



Table 2: List of Proposed Products along with Capacity

S. No.	Products	CAS No.	Quantity (TPA)	End - Use
1.	3,5 Dimethyl Phenol	108-68-9	3000	Pharmaceuticals industry
2.	Bisphenol-S	80-09-1	5000	Food industry
3.	Bisphenol-S AE	41481-63-4	2000	Coating, cosmetics, skin & hair care
4.	3-3' Diallyl Bisphenol-S	41481-66-7	2000	Dyes & pigments industry
5.	Isophorone	78-59-1	5000	Paint industry
6.	Perchloric Acid	7601-90-3	1000	Rocket fuel component
7.	Dimethyl Acrylic Acid	541-47-9	1000	Nail primers
8.	Chloroform (By-product)	67-66-3	2000	Pharmaceuticals industry
Hydrogenated Products				
9.	Hexylene Glycol (HG)	107-41-5	15000	Coating, cosmetics, skin & hair care
10.	3,3,5 Trimethylcyclohexanone (TMCnone)	873-94-9	2000	Paint industries
11.	3,3,5 Trimethylcyclohexanol (TMCnol)	116-02-9	1500	Pharmaceuticals industries
12.	Methyl Isobutyl Ketone (MIBK)	108-10-1	10000	Paint & pharmaceuticals industries
13.	Methyl Isobutyl Carbinol (MIBC)	108-11-2	5000	Surface coatings, thinners, printing inks, adhesives, cosmetics, toiletries & cleaners
14.	Di Isobutyl Ketone (DIBK)	108-83-8	1500	Paint industries
15.	Di Isobutyl Carbinol (DIBC)	108-82-7	1000	Coatings, chemical intermediate & ore flotation
16.	Benzyl Acetone	2550-26-7	500	Preparation of perfume & odorant of soap
Total			57500	

Table 3: Resource Requirement

Components	Proposed	Source of Supply
Land, m ²	30,000	Possession with Prasol Chemicals
Power, KW	2000	Maharashtra State Electricity Board
Water, KLD	770	Patalganga River - Irrigation Department
Imported Coal / Furnace Oil for Steam Boiler of 10 TPH	Imported Coal - 60 TPD OR Furnace Oil - 18 KLD	Local dealer
HSD for D. G Set (400 kVA), Lit/day	2400	Local dealer

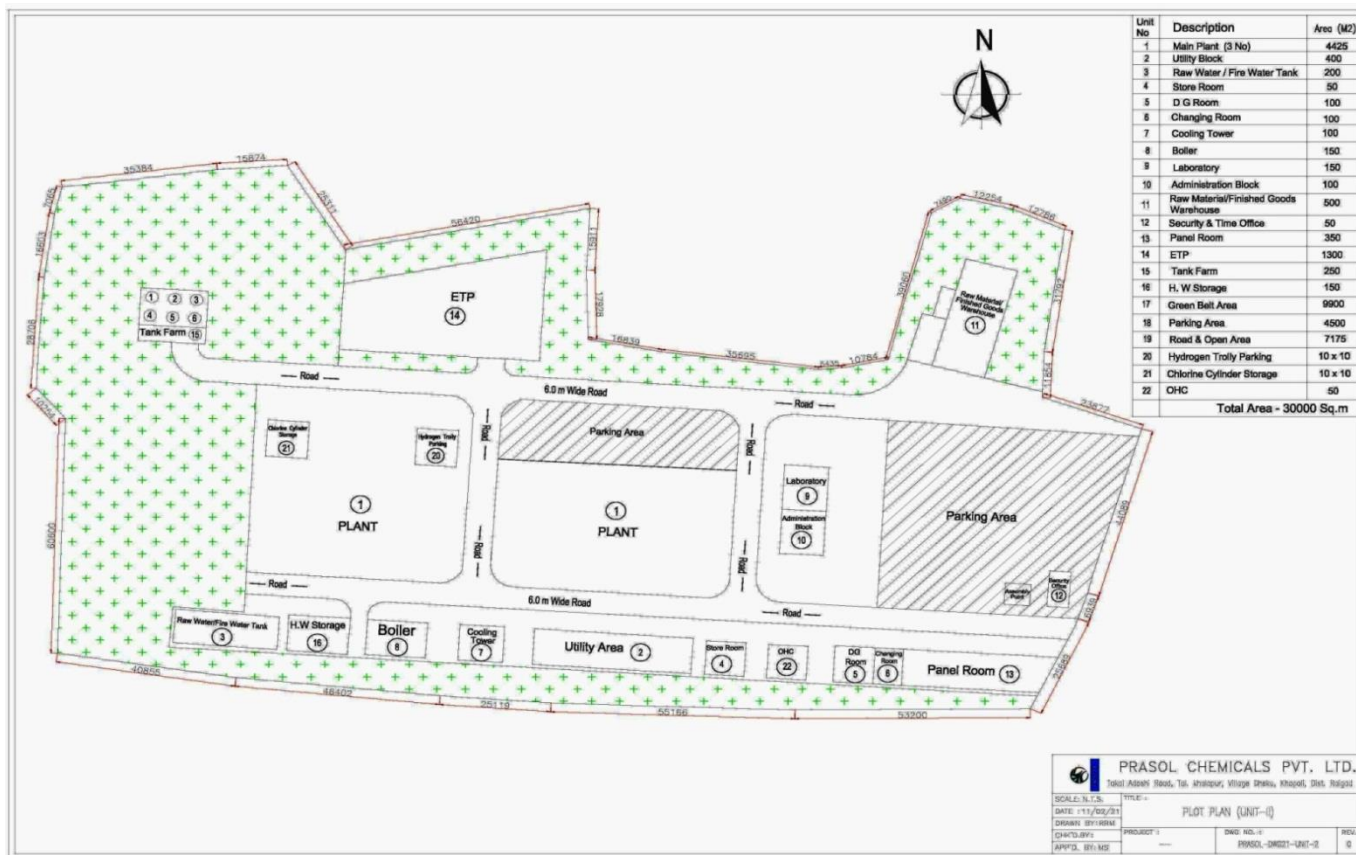


Figure 1: Layout Plan of the Project Site

3. BASELINE ENVIRONMENTAL STATUS

The baseline environmental quality is assessed through field studies within the impact zone for various components of the environment viz. air, noise, water, soil, biological and socio-economic. All the locations have been selected within 10 km radius from the project site and environmental samples were collected from the selected locations of the study area.

The study was conducted and micrometeorological data were collected for the period 1st October 2020 to 31st December 2020. Samples were collected for environmental parameters like ambient air quality, noise, ground water, surface water and soil quality. The analysis was carried out in NABL Approved Laboratory having valid NABL Certificate number TC - 6603, issued on dated 15/11/2019 valid up to 14/11/2021 for testing of water, wastewater, sewage, air, noise and soil.

Sampling locations covered within study area are shown in the **Figure 2**.

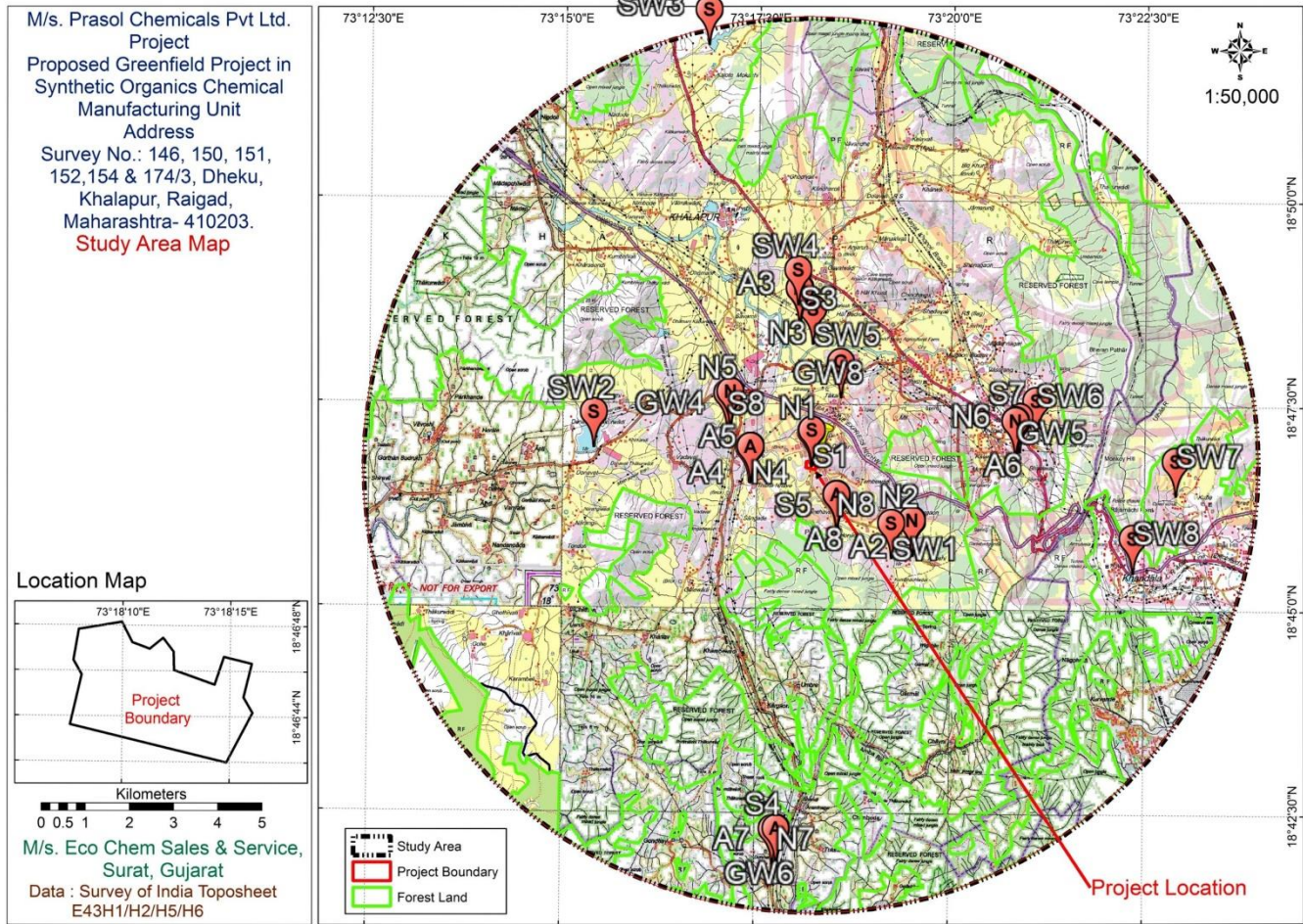


Table 4: Summary of Sampling Locations

Sr. No.	Sampling Location	Ambient Air	Ground water	Surface water	Soil	Noise
1.	Project site	Yes	-	-	Yes	Yes
2.	Adoshi	Yes	Yes	Yes	Yes	Yes
3.	Mahad	Yes	Yes	Yes	Yes	Yes
4.	Thanenhave	Yes	Yes	-	Yes	Yes
5.	Dahivali	Yes	Yes	-	Yes	Yes
6.	Khopoli	Yes	Yes	Yes	Yes	Yes
7.	Durshet	Yes	Yes	-	Yes	Yes
8.	Honad	Yes	Yes	-	Yes	Yes
9.	Sarsan	-	Yes	-	-	-
10.	Donvat	-	-	Yes	-	-
11.	Kalote	-	-	Yes	-	-
12.	Kune	-	-	Yes	-	-
13.	Khandala	-	-	Yes	-	-
14.	Patalganga River	-	-	Yes	-	-



Table 5: Summary of Baseline Data

Ambient Air Quality Monitoring						
Sr. No.	Criteria Pollutants	Unit	Maximum Value	Minimum Value	98 th Percentile Value	Prescribed Standard
1.	PM ₁₀	µg/m ³	85.2	60.4	84.2	100
2.	PM _{2.5}	µg/m ³	46.0	31.2	44.9	60
3.	SO ₂	µg/m ³	15.9	9.2	15.9	80
4.	NO _x	µg/m ³	20.6	14.3	20.5	80
5.	CO	µg/m ³	530	394	529	2000
6.	Cl ₂	µg/m ³	<1	-	<1	-
7.	Total VOC	ppm	1.4	0.4	1.4	-
<p>All the results of ambient air quality parameters have been found well within the limit as per NAAQS. Based on comparison study of results for tested parameters with NAAQS, it is interpreted that ambient air quality of studied locations is satisfactory. This interpretation relate to the results found for particular locations and study period.</p>						
Noise Monitoring						
Sr. No.	Parameter	Unit	Maximum Value	Minimum Value	Prescribed Standard	
1.	Ld (Day)	dB(A)	62.3	50.6	-	
2.	Ln(Night)	dB(A)	58.8	42.2	-	
<p>Based on noise level data obtained during the survey for residential area and industrial area, it is interpreted that noise levels are within the standard norms prescribed by MoEF&CC. Looking towards the increase in noise generating sources it is suggested that there is need to apply noise reducing devices at noise generating sources and generate public awareness.</p>						
Soil Quality and Characteristics						
Sr. No.	Parameter	Unit	Maximum Value	Minimum Value		
1.	pH	-	7.52	7.16		
2.	Electrical Conductivity	dS/m	1.58	0.88		
3.	Exchangeable Sodium	meq/100gm	4.4	2.4		
4.	Exchangeable Potassium	meq/100gm	1.8	1.0		
5.	Total Phosphorous	meq/100gm	15.6	8.8		
6.	Total Nitrogen	%	0.071	0.045		
<p>Based on soil analysis data it is concluded that soil at the project site is saline (EC > 0.8 dS/m). The soils are high in nitrogen, low in phosphorus and high in available potassium status. The levels of total Fe, Cu, Cr, B and Zn are within the limits. However, for successful greenbelt development liberal quantity of organic manure (50 tons/ha) and double the quantity of recommended doses of N and double the recommended dose of P fertilizers should be applied. The potassium is adequate; hence 20% less than the recommended dose for green belt should be applied. Soil at the site is having good fertility based on CEC value. The soil at the project site should be periodically monitored for EC, pH and ESP as well as OC (organic carbon), available P and K status.</p>						
Ground Water						
Sr. No.	Parameter	Unit	Maximum Value	Minimum Value	Desirable Limit	Permissible Limit
1.	pH	-	7.26	6.55	6.5 - 8.5	No Relaxation
2.	TDS	mg/L	288	82	500	2000



3.	TSS	mg/L	<2	<2	-	-
4.	Total Hardness	mg/L	192	66	200	600
5.	Chloride	mg/L	38	6	250	1000
6.	Total Alkalinity	mg/L	192	70	200	600
7.	Fluoride	mg/L	0.7	0.5	1.0	1.5
8.	Iron	mg/L	0.18	0.02	0.3	No Relaxation

Based on comparison study of test results with drinking water norms it is interpreted that it is interpreted that results for all the locations meet with the drinking water permissible limit and desirable limit as per the IS:10500: 2012 except Turbidity. Turbidity is marginally higher than desirable limit but within permissible limit. It shows that they can be used in drinking in absence of alternate source. RO filtration system should be used to bring the results up to desirable range for daily uses as drinking water.

Surface Water

Sr. No.	Parameter	Unit	Maximum Value	Minimum Value	Permissible Limit
1.	pH	-	7.35	6.58	6.5 - 8.5
2.	TDS	mg/L	248	91	2100
3.	DO	mg/L	5.7	4.5	-
4.	COD	mg/L	22	6	-
5.	BOD	mg/L	7	4	-

Based on the test results data comparison study with CPCB standard, it is interpreted that surface water quality meets with the criteria D and E, it means these water sources can be used for fisheries, Irrigation and industrial. Results of DO, COD and BOD found more than desired range which indicate that surface water bodies are contaminated with organic matter. This contamination may be due to leaf fall and animal approach. DO level for all the locations are >4.0 mg/L. DO level >4.0 mg/L is considered suitable for the survival of all aquatic life.

Ecology and Biodiversity

% composition of flora was recorded as trees 45%, shrubs 22% herbs 24%, climbers 4% epiphytes 2% and grasses 3%. Total 60 residential species of birds, 8 species of reptiles, Species of amphibian, 6 species of insects and 12 species of Mammals were identified during the survey. Endemic species were not sighted during the survey. A protected fauna peacock has been reported during the survey. Conservation plan along with budget has been prepared for the said protected fauna. Based above scenario and data it can be interpreted that studied area is having the good biodiversity with respect to flora but the health of ecosystem can be considered poor with respect to presence of fauna in the study area. The species composition of flora is almost similar except the human settlement area.

Socio Economic

During the primary survey it was observed that almost pakka road facility is available in all villages within 10 km radius. Literacy rate of the study region is from 25.75% to 85.15%. On the basis of survey for literacy rate data it is interpreted that there is need to promote education to more and more people of the villages having low literacy rate. Almost all the villages have more than 50% of population as non-workers. It indicates that the problem of unemployment can be solved by providing proper training and education. More employment could be generated by establish industries. Basic amenities like education facilities, health care facilities, water supply, electric power supply, mode of transportation etc. are available in all villages.



4. PROBABLE IMPACTS ASSESMENT & MITIGATION MEASURES

Table 6: Environmental Impact and Mitigation Measures

Impact	Mitigation Measures
Air Environment	
<ul style="list-style-type: none"> • Flue gas emission from steam boiler • Process gas emission from process • Fugitive emission 	<ul style="list-style-type: none"> • To control flue gas emission from steam boiler, Multi cyclone separator & Bag filter will be installed as APCM and 50 meter stack height will be provided. • To control chlorine gas emission, water scrubber followed by alkali scrubber will be installed as APCM. • The raw materials will be stored in closed containers and will be handled through closed system to avoid the handling loss. • Manufacturing activity will be carried out in closed reactors and vessels. • Pucca road shall be provided within plant premises to avoid dusting. • Water sprinkling shall be carried out during unloading of coal trucks to prevent dusting. • The sprinkling of water will be done along the internal roads in the plant in order to control the dust arising due to the movement of vehicular traffic. • Thick greenbelt will be developed around the plant to arrest the fugitive emissions.
Water Environment	
<ul style="list-style-type: none"> • Industrial wastewater generation • Domestic wastewater generation 	<ul style="list-style-type: none"> • Industrial effluent generated will be segregated into two different streams i.e. High COD/TDS stream and Low COD/TDS stream. High COD/TDS effluent stream generated from process will be sent to MEE followed by stripper. The condensate from MEE will be reused for industrial purpose. Low COD/TDS effluent stream generated from utilities will be treated into ETP and treated water will be sent to RO plant. RO permeate will be reused for industrial purpose and RO reject will be sent to MEE. Thus, unit will maintain Zero Liquid Discharge (ZLD). • Domestic wastewater will be treated into STP and treated water will be used for gardening/toilet flushing.
Hazardous/Solid Waste	
<ul style="list-style-type: none"> • Handling and disposal of hazardous/solid waste 	<ul style="list-style-type: none"> • Waste will be stored in separate hazardous waste storage area having impervious layer and roof cover. • Wastes will be handled/disposed according to the Waste Management Rules, 2016 • Waste minimization practices will be adopted. • Used oil, Discarded drums/barrels will be disposed by selling to authorized party/recycler.



Impact	Mitigation Measures
	<ul style="list-style-type: none"> • ETP sludge, MEE salt will be disposed to TSDF site for landfilling. • Distillation residue, Filter residue, Tar will be disposed by selling to authorized party/ CHWIF / pre-processor / co-processor / re-processor. • STP sludge will be used as manure within plant premises. • Fly ash will be disposed to brick manufacturer / cement industry
Noise Environment	
<ul style="list-style-type: none"> • Noise generation due to various industrial activities, utilities operation, plant machineries, vehicular movement etc. 	<ul style="list-style-type: none"> • Acoustic enclosures wherever possible will be provided for abatement of noise from equipments/machineries. • Silencers, mufflers and anti-vibrating pads will be provided to all pumps and motors from its installation. • PPE like ear muffs & ear plugs will be provided to worker working near boiler, ETP etc. • Oiling and greasing will be done periodically of all pumps and motors installed in proposed facilities. • Strict instruction to all the vehicles entering in plant premises not to blow horn unnecessarily and exceed the speed limit. • Greenbelt area developed within plant premises will be act as a noise barrier.
Soil Environment	
<ul style="list-style-type: none"> • Soil contamination due to spillages/leakages of raw materials, leakages of ETP pipeline, leachate generated from waste. 	<ul style="list-style-type: none"> • Pucca floor will provided at material storage area and production area to avoid soil contamination during storage and handling. • ETP with proper treatment facility will be installed. Regular checking and maintenance of ETP pipeline shall be carried out to avoid any leakages. • Waste generated will be properly collected and stored in separate waste storage area having impervious floor, leachate collection system and roof cover to avoid soil contamination. • Proper care will be taken to avoid spillage/leakage of material.
Risks and Hazards	
<p>Fire and explosion may occur due to storage/handling of hazardous chemicals</p>	<ul style="list-style-type: none"> • Tanker unloading activity will be carried out under supervision of trained person. • SOP for handling hazardous chemicals will be displayed in local language for safe operating procedure. • Flame proof type equipments and lighting shall be provided. • Adequate PPE's will be provided to workers for handling hazardous chemicals. • Fire extinguishers and fire hydrant systems will be provided at designated places.



Impact	Mitigation Measures
	<ul style="list-style-type: none"> Safety training will be provided to workers.
Ecology and Biodiversity	
<ul style="list-style-type: none"> Discharge of wastewater into water body impact on aquatic ecology. Flue gas, process gas emission lead to increase in air pollution and impact on terrestrial ecology 	<ul style="list-style-type: none"> Effluent generated from proposed plant will be treated into in-house ETP, MEE & RO and treated water will be reused for industrial purpose. Unit will maintain Zero Liquid Discharge. Sewage will be treated into STP and treated sewage will be used for gardening /toilet flushing. To control flue gas and process gas emission, proper air pollution control system and adequate stack height will be provided. Greenbelt development cause positive impacts on the flora by enhancement of green spaces and also create habitats for avifauna.
Socio-Economic	
<ul style="list-style-type: none"> Employment generation Social welfare & upliftment 	<ul style="list-style-type: none"> Around 100 Nos. of employees will be recruited directly and indirectly. Preference should be given to local people. Local service providers may be appointed for allied works and services. All the CER activities will be done based on the needs/requirements of the local people. A budget of Rs. 100 Lakhs has been allocated for welfare activities of nearby villages.

5. ENVIRONMENT MANAGEMENT PLAN

5.1 Air Environment

There will be flue gas emission from one steam boiler of capacity 10 TPH. One stand by D. G Set of capacity 400 KVA will be installed which will be used in case of power failure.

There shall be emission of Cl₂ gas due to proposed manufacturing process. To control chlorine gas emission, water scrubber followed by alkali scrubber will be installed as APCM.

Table 7: Air Emission Details

S. No.	Source of emission With Capacity	Stack Height (m)	Stack Diameter (m)	Type of Fuel	Fuel Consumption	Type of emissions i.e. Air Pollutants	Air Pollution Control Measures (APCM)
Flue Gas Emission							
1.	Steam Boiler (10 TPH)	50	1.5	Imported Coal OR	Imported Coal – 60 TPD OR	PM SO _x NO _x	Multi cyclone separator & Bag filter



				Furnace Oil	Furnace Oil – 18 KLD		
2.	D. G Set – stand by (400 KVA)	6.5	0.2	HSD	2400 Lit/day	PM SO _x NO _x	Adequate Stack height
Process Gas Emission							
3.	Reaction vessel	10	0.15	--	--	Cl ₂	Water scrubber followed by Alkali scrubber

Fugitive Emission:

For control of fugitive emission following practices will be implemented in unit.

- The raw materials will be stored in closed containers and will be handled through closed system to avoid the handling loss.
- Manual handling of raw materials will be avoided.
- Manufacturing activity will be carried out in closed reactors and vessels.
- To prevent dusting, water sprinkling shall be carried out during unloading of coal trucks.
- Pucca road shall be provided within plant premises to avoid dusting.
- The sprinkling of water will be done along the internal roads in the plant in order to control the dust arising due to the movement of vehicular traffic.
- Thick greenbelt will be developed around the plant to arrest the fugitive emissions.

5.2 Water Environment

Water required for proposed project will be sourced from Patalganga River. Unit has obtained permission for the withdrawal of 2.5 MLD water from Patalganga river from Irrigation department on dated 25.09.2018. No ground water shall be used.

Table 8: Water Consumption

S. No.	Particulars	Water Consumption (KLD)
A.	Domestic	10
B.	Industrial	
	Process & Washing	110
	Boiler	90
	Cooling	520
	Total Industrial	720
C.	Gardening	40
	Grand Total (A+B+C)	770

Table 9: Wastewater Generation

S. No.	Particulars	Wastewater Generation (KLD)
A.	Domestic	9
B.	Industrial	
	Process & Washing	100
	Boiler	24
	Cooling Tower	80
	Total Industrial	204

Industrial effluent generated will be segregated into two different streams i.e. High COD/TDS stream and Low COD/TDS stream.

High COD/TDS effluent stream generated from process (100 KLD) will be collected separately and sent to MEE followed by stripper. The condensate from MEE will be reused for industrial purpose.

Low COD/TDS effluent stream generated from utilities (104 KLD) will be treated into ETP consisting of Primary, Two Secondary and Tertiary Treatment. ETP treated water will be sent to RO plant. RO permeate will be reused for industrial purpose and RO reject will be sent to MEE. Thus, unit will maintain Zero Liquid Discharge (ZLD).

Domestic wastewater generation will be 9 KLD which will be separately treated into STP and treated water will be used for gardening purpose/toilet flushing.

5.3 Hazardous/Solid Waste

Hazardous/solid wastes will be generated at the end of manufacturing process and waste treatment process. It will be stored in separate hazardous waste storage area having impervious floor. Hazardous/solid waste will be disposed as per Hazardous Waste [Management, Handling and Transboundary Movement] Rules, 2016.

Table 10: Hazardous/Solid Waste Generation and it's Management

S. No.	Type of Waste	Category	Quantity, TPA	Disposal
1.	Used Oil	5.1 (Sch. I)	9.9	Collection, Storage, Transportation and Disposal by selling to authorized party / recycler
2.	Filter Residue	36.1 (Sch. I)	50	Collection, Storage, Transportation and Disposal by selling to authorized party/ CHWIF / preprocessor/co-processor/re-processor
3.	Tar	36.1 (Sch. I)	500	Collection, Storage, Transportation and Disposal by selling to authorized party / CHWIF / preprocessor / co-processor/re-processor
4.	Distillation Residue	36.1 (Sch. I)	18775	Collection, Storage, Transportation and Disposal by selling to authorized party/ CHWIF for Incineration/preprocessor/co-processor
5.	Discarded Drums / Barrels	33.1 (Sch. I)	150 (10,000 Nos./Annum)	Collection, storage and Utilize for packing of hazardous waste / Disposal by selling to authorized recycler / by selling to authorized party



S. No.	Type of Waste	Category	Quantity, TPA	Disposal
6.	ETP sludge	35.3 (Sch. I)	250	Collection, Storage, Transportation and Disposal to TSDF site for landfilling/preprocessor/co-processor
7.	Spent catalyst	28.2 (Sch. I)	20	Collection, Storage, Transportation and Disposal by selling to authorized party/recycler/re-processor
8.	MEE salt	35.3 (Sch. I)	1750	Collection, Storage, Transportation and Disposal to TSDF site for landfilling
9.	Spent carbon from process	36.2 (Sch. I)	5	Collection, Storage, Transportation and Disposal to CHWIF/preprocessor/co-processor/disposal by selling to authorized party
Solid Waste				
10.	STP Sludge	--	5	Used as a manure within plant premises
11.	Fly Ash	--	2100	Collection, Storage, Transportation and Disposal to brick manufacturer / cement manufacturer
12.	Ion exchange resin	--	1	Collection, Storage, Transportation and Disposal to TSDF site/Sale to Authorized Party /Recycler
13.	Sand from water filtration	--	10	Collection, Storage, Transportation and Disposal to TSDF site/Sale to Authorized Vendor/Local Body
14.	Miscellaneous (Rubber & Teflon Gasket/ Packing/Transmission Belt/V Belt/PP/FRP etc.)	--	1	Collection, Storage, Transportation and Disposal by selling to authorized vendor / local body
15.	Used hand gloves cotton/PVC/Rubber	--	5000 Pairs per annum	Collection, Storage and Disposal to authorized vendor / recycler

6. ADDITIONAL STUDY

Additional study Risk Assessment (RA) has been carried out for the proposed project. Public hearing is applicable for the proposed project. The Public Hearing issues of stakeholders will be addressed by the proponent after conducting the Public Hearing and it will be addressed in the Final EIA/EMP report.

The Risk Assessment has been carried out to address major hazards and review the effectiveness of selected safety measures and to expand the safety measures in order to achieve a safety culture at the industry. The Risk Assessment also encompasses Disaster Management Study and Occupational Health & Safety.

7. POST PROJECT MONITORING

Table 11: Post Project Monitoring Plan

S. No.	Particular	Parameter for Monitoring	Frequency of Monitoring
1.	Air quality		
	i. Ambient Air Quality monitoring within plant premises & work zone monitoring	PM _{2.5} , PM ₁₀ , SO ₂ , NO _x , CO & VOC	Monthly



S. No.	Particular	Parameter for Monitoring	Frequency of Monitoring
	ii. Stack monitoring <ul style="list-style-type: none"> • Flue gas stack (Boiler) • Process vent 	PM, SO ₂ , NO _x Cl ₂	Monthly
2.	Water quality (Ground & Surface)	As per IS 10500:2012	Six monthly
3.	Wastewater quality (ETP & STP treated water)	As per Consent conditions	Monthly
4.	Noise quality		
	Within plant premises	Leq Levels for Day and Night Time	Monthly
5.	Soil quality	Routine Physical and chemical parameters, Organic matter, Moisture content, Chloride ions, Phosphorous, Nitrates, Sulfates and Cations	Six monthly
6.	Solid / Hazardous waste generation	Records of quantity of generation, storage and transportation (disposal) of solid / hazardous waste will be maintained.	
7.	Occupational health checkup	Pre-employment and periodical health checkup for eye test, lung test, hearing capacity, skin test, step test and other test in respect of air borne concentration of hazardous chemicals in ppm etc. of every employee at least once in six months.	
8.	Greenbelt development	Number of plantation (Units), Number of survived Plants / Trees, Number of Poor plant / Trees	Yearly
9.	Consents and authorization	Consent to establish and operate under applicable acts	Renewing 90 days before expiry of validity
10.	Compliance of EC conditions	Submission of 6 monthly compliance reports	June and December

8. GREENBELT DEVELOPMENT PLAN

Unit will develop 9900.0 m² (33 % of total plot area) greenbelt area within plant premises. Domestic species suitable for the local climatic conditions, perennial and evergreen trees, Air pollution resistive plants shall be considered to be planted in the proposed greenbelt area. approx. 1500 Nos. of trees will be planted within project premises. The greenbelt helps to capture the fugitive emissions and to attenuate the noise generated in the plant apart from improving the aesthetics of the plant site. In order to control the industrial pollutants, dense tree plantations are necessary.

9. RAIN WATER HARVESTING PLAN

Unit has proposed to install Rain Water collection and storage system to prevent runoff and to help reduce fresh water consumption. Storm water network will be designed throughout the site for collection of rain water from roof top area during the monsoon season. Pipeline and storm water drainage will be

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connected / diverted to water storage tank without any contamination or after removing impurities i.e. leaves, floating materials, birds drop out etc.

During rainy season, the rain water will be collected from roofs in collection tank having 75 KL capacity and the collected water will be used for industrial activities / firefighting etc. Average annual rainfall was 3029 mm (Source: CGWB).

Following basic details have been worked for designing the Rain Water Harvesting System:

Total Area available for Water Harvesting	:	Roof Top Area: 850 m ²
Average Annual Rainfall	:	3029 mm
Total Rain Water that can be harvested per year	:	(850) * (3.029) * (0.8) = 2059.72 m³

10. BUDGETARY PROVISIONS FOR EMS

Cost of EMS estimates based on cost of wastewater treatment facility, air pollution control equipments, waste management facility, greenbelt development, safety measures and other components of the EMP will be implemented along with the commissioning of the proposed project. Estimated capital cost for EMS is Rs. 500 Lakhs and Recurring cost will be Rs. 370 Lakhs/annum.

Table 12: Budget for Environment Management System (EMS)

S. No.	Particulars	Capital cost (Rs. in Lakhs)	Recurring cost (Rs. in Lakhs/Annum)
1.	Air pollution management	90.00	50.00
2.	Water pollution management	300.00	200.00
3.	Hazardous/solid waste management	10.00	80.00
4.	Occupational health and safety	92.00	25.00
5.	Green belt development	8.00	15.00
	Total	500	370

11. SOCIAL WELFARE AND UPLIFTMENT PLAN

Previously, M/s. Prasol Chemicals Pvt. Ltd. has spent Rs. 23,40,756/- in CSR Activities like Promotion of education and employment by enhancing skills and Promoting education to local people in Khopoli (Maharashtra).

Unit will undertake various activities around the project site as a mark of their Corporate Environment Responsibilities. A budget of Rs. 100 Lakhs [i.e 2 % of the proposed project cost Rs. 50 crores] will be allocated for Corporate Environment Responsibility (CER) and will be implemented in next 5 years after implementation of project.

Table 13: CER Activities with year wise Budget

S. No.	Description	Year					Total Budget (Rs. in Lakhs)
		1 st	2 nd	3 rd	4 th	5 th	
1.	Upgrading medical facilities in Government hospitals	4	6	8	10	12	40

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2.	Provision of solar street lights, rain water harvesting system and renovation of road in village	2	3	5	8	12	30
3.	Provision of safe drinking water supply facility in village	2	3	5	5	5	20
4.	Plantation of trees in surrounding area	1	1	2	3	3	10
Total (Rs. in Lakhs)		9	13	20	26	32	100

Note: CER activities will be updated as per the suggestions received during public hearing.

12. CONCLUSIONS

M/s. Prasol Chemicals Pvt. Ltd. has proposed to establish new Manufacturing unit of synthetic organic chemicals with total production capacity 57,500 TPA at survey No. 146,150,151,152,154 & 174/3 at Village: Dheku, Taluka: Khalapur, District: Raigad, Maharashtra. The EIA study has been carried out with respect to the Terms of Reference (ToRs) awarded by MoEFCC, New Delhi. All the impacts likely to have an effect on the environment have been identified and efficient/adequate mitigation measures have been proposed for the same.

Considering the probability of likely impacts, the proponent has planned adequate mitigation measures and Environment Management Plan (EMP). The waste generation in form of gas (flue gas and process gas), effluent and solid/hazardous waste may have impacts on environmental parameters but the proponent has planned to install most efficient technologies for prevention of gas emission and treatment of effluent. Further, the solid/hazardous waste management will be done as per HW (Management, Handling and Transboundary Movement) Rules, 2016. Measures like rainwater harvesting, energy conservation and greenbelt development are also noteworthy. Further, the proponent will also undertake CER activities which shall have beneficial impacts on the socio-economic environment. Looking to the overall project scenario, employment potential and allied development plans; it has been noticed that the proposed project would significantly help in the improvement of the society and nation at large. All the relevant safety norms with latest technology have been incorporated in the proposed project. Hazards and associated risks, safety and security provision associated with the project activities appear to be acceptable. Hence the project in totality may be considered environmentally safe.