

EXECUTIVE SUMMARY

ENVIRONMENTAL IMPACT ASSESSMENT (EIA – EMP) REPORT

For

PROPOSED API AND API INTERMEDIATES MANUFACTURING UNIT OF CAPACITY 15600 TPA

Terms of Reference File No. IA-J-11011/440/2021-IA-II(I), dated 02nd November, 2021

Category A, Schedule 5(f) Synthetic Organic Chemicals Industry

Baseline period: Pre Monsoon Season March 2021 to May 2021 (01.03.2021 to 31.05.2021)

Project Proponent

M/s. RAMA ENTERPRISES

At

SURVEY NO., 48/1, 48/2, 48/3A, 48/3B, 49/1, 55/1A,
VILLAGE – HONAD, TEHSIL – KHALAPUR,
DISTRICT – RAIGAD, MAHARASHTRA

Environmental Consultant



M/s Anacon Laboratories Pvt. Ltd., Nagpur

QCI-NABET Accredited EIA Consultant for (Sector 21 5(f)) Synthetic Organic Chemicals Industry

MoEF&CC (GOI) and NABL Recognized Laboratory

ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

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Report No. ANqr /PD/20A/2022/188

MARCH 2022

	Environmental Impact Assessment for Proposed API and API intermediates Manufacturing unit of capacity 15600 TPA At Survey No., 48/1, 48/2, 48/3A, 48/3B, 49/1, 55/1A, Village- Honad, Tal- Khalapur, Dist - Raigad, Maharashtra – 410203 by M/s. Rama Enterprises	
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1.0 INTRODUCTION

M/s. Rama Enterprises has proposed to manufacture Bismuth derivatives, Sodium Iodide, Potassium iodide, and also Iodine derivatives, Selenium derivatives, Solvent manufacturing plant, Solvent distillation plant and Covid 19 drugs with total capacity 15600 TPA. As per EIA Notification, the nature of the project falls under synthetic organic chemicals 5 (f) “A” category.

M/s. Rama Enterprises is a Small-scale unit established in 2020. M/s. Rama Enterprises is India based pharmaceutical intermediates manufacturer. The group is highly experienced technocrats and their past performance in the field is impressive, with proven results. The Group is professionally managed and building a strong organization. The company gives the assurance of timely delivery, excellent quality and competitive rates and that is what they call as core competence at M/s. Rama Enterprises.

They welcome importers, distributors and agents who help to introduce products in to the domestic as well as export markets. M/s. Rama Enterprises provides comprehensive range of services as well as prompt and reliable assistance for all their customers around the world with full Product Range from M/s. Rama Enterprises. Each and every functional area of organization is led by professionally qualified people who had thorough knowledge and experience in their fields. That is the way how the qualitative measures are taken by qualified people, thoroughly to meet the customers’ demands.

In order to fulfill statutory requirement for the proposed project for manufacturing of API and API derivatives to obtain environmental clearance, Form-1, Pre-feasibility report along with proposed draft TOR were submitted to MoEF&CC on date 16 October 2021. The committee approved the Terms of Reference No. No.IA-J-11011/440/2021-IA-II(I), dated 02 November, 2021 and Proposal no. IA/MH/IND3/230573/2021 dated 16 October 2021, Ministry of Environment, Forest and Climate Change, EAC, New Delhi (**Annexure-I**).

Anacon Laboratories Pvt. Ltd., Nagpur, is QCI-NABET accredited in ‘Category A’ environment consultant organization has been assigned to undertake an Environmental Impact Assessment (EIA) study and preparation of Environment Management Plan (EMP) for various environmental components, which may be affected due to the impacts arising out of the proposed project.

The Environmental Impact Assessment (EIA) and Environment Management Plan report is prepared for obtaining Environmental Clearance (EC) from MoEF&CC, New Delhi.



This EIA report is prepared based on the ToR conditions recommended by EAC (Industry – 3), New Delhi and project related technical details provided by M/s. Rama Enterprises.

1.1 IDENTIFICATION OF PROJECT

The proposed project is an API and API intermediate manufacturing project falling under “A” category. It will be an independent project that will be engaged in the API and API intermediate manufacturing unit with capacity 15600 TPA, at Industrial zone as per Special planning Authority, MSRDC, Raigad Regional planning Department (Copy of notification enclosed **Annexure II**), Survey No., 48/1, 48/2, 48/3A, 48/3B, 49/1, 55/1A, Village Honad, Tal- Khalapur, Dist- Raigad 410203, Maharashtra in 26785 Sqr. Mtr (2.6785ha) area.

1.2 NATURE AND SIZE OF THE PROJECT

M/s. Rama Enterprises has proposed to manufacture Bismuth derivatives, Sodium Iodide, Potassium iodide, and also Iodine derivatives, Selenium derivatives, Solvent manufacturing plant, Solvent distillation plant and Covid 19 drugs with total capacity 15600 TPA. As per EIA Notification, the nature of the project falls under synthetic organic chemicals 5 (f) “A” category.

	Environmental Impact Assessment for Proposed API and API intermediates Manufacturing unit of capacity 15600 TPA At Survey No., 48/1, 48/2, 48/3A, 48/3B, 49/1, 55/1A, Village- Honad, Tal- Khalapur, Dist - Raigad, Maharashtra – 410203 by M/s. Rama Enterprises	
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The details of proposed products along with capacities to be implemented by the company are given in **Table 1.1**.

**TABLE 1.1
PROPOSED PRODUCTION CAPACITY**

Name of the products	Quantity MT (Annual)
Proposed Products	
Inorganic Iodine Derivatives	
(1) Sodium Iodide, (2) Potassium Iodide, (3) Ammonium Iodide, (4) Copper Iodide, (5) Zinc Iodide, (6) Silver Iodide, (7) Calcium Iodate, (8) Potassium Iodate, (9) Sodium Iodate, (10) Sodium Meta Par Iodate, (11) Potassium Meta Par Iodate, (12) Lithium Iodide Hydrate, (13) Nickel Iodide, (14) Lead Iodide, (15) Cadmium Iodide, (16) Thallium Iodide, (17) Antimony Iodide, (18) Hydroiodic Acid, (19) Calcium Iodide Hydrate, (20) Iodine Monochloride, (21) Iodic Acid, (22) Per-Iodic Acid	240
Organic Iodine Derivatives	
(23) Methyl Iodide, (24) Ethyl Iodide, (25) Iodopropane, (26) 2-Iodopropane, (27) Iodobenzene, (28) 2-Iodo Benzoic Acid, (29) 3-Iodo Benzoic Acid, (30) 4-Iodo Benzoic Acid, (31) 2-Iodoaninile, (32) 3-Iodoaninile, (33) 4-Iodoaninile, (34) Iodobutane, (35) Trimethyl Sulfoxonium Iodide, (36) 3,5 Diiodo salicylic Acid, (37) Di Iodo Methane, (38) Di Iodo Ethane.	360
Inorganic Bismuth Derivatives	
(39) Bismuth Oxide, (40) Bismuth Citrate, (41) Bismuth Subsalsicylate, (42) Bismuth Subgallate, (43) Bismuth Carbonate, (44) Bismuth Nitrate, (45) Bismuth Hydroxide, (46) Bismuth Subnitrate, (47) Bismuth Sulphate, (48) Bismuth Oxychloride	60
Inorganic Selenium Derivatives	
(49) Sodium Selenite, (50) Sodium Selenate	60
Anti Covid-19	
(51) Dexamethazone	120
Pharma Solvent	
(52) 1,4 Dioxane, (53) 1,3 Dioxalane, (54) Dibutyl Ether, (55) Monoglyme, (56) Acetonitrile, (57) Diisopropyl Ether, (58) N-Methyl Pyrrolidone	14760
Total	15600

1.3 LOCATION OF THE PROJECT

The project area falls under Industrial zone as per Special planning Authority, MSRDC, Raigad Regional planning Department, Survey No., 48/1, 48/2, 48/3A, 48/3B, 49/1, 55/1A, Village- Honad, Tal- Khalapur, Dist- Raigad, Maharashtra – 410203. Latitude: 18°46'9.60"N to 18°46'15.50"N, Longitude: 73°18'46.80"E to 73°18'50.10"E, Layout on the Topo sheet No. 47 F/1, 47 F/2, 47 F/5, 47 F/6.

The nearest city is Khopoli which is around 3.0km in east south east direction. Nearest airport is Chhatrapati Shivaji International Airport, Mumbai is near around 59 km in North West direction. Nearest railway station is Khopoli Railway Station 4.0 km in North East direction.

The details of environmental setting are given in **Table 1.2** and the study area of 10 km radius given in **Figure 1.1**.

**TABLE 1.2
ENVIRONMENTAL SETTING OF THE SITE**

Sl.N.	Particulars	Details		
1.	Project Location	Survey No.48/1, 48/2, 48/3A, 48/3B, 49/1, 55/1A Industrial zone as per Special planning Authority, MSRDC, Raigad Regional planning Department. Village_ Honad Tahsil, Khalapur, District Raigad, Pin Code_410203, State_ Maharashtra		
2.	Co-ordinates	Latitude: 18°46'9.60"N to 18°46'15.50"N, Longitude: 73°18'46.80"E to 73°18'50.10"E, Layout		
3.	Toposheet No.	47 F/1, 47 F/2, 47 F/5, 47 F/6		
4.	Climatic Conditions	Mean annual rainfall Temperature: Pre monsoon 21.4 ⁰ C (Min.) 33.6 ⁰ C (Max.) : Winter 17.3 ⁰ C (Min.) 32.4 ⁰ C (Max) : Post monsoon 21.3 ⁰ C (Min.) 33.7 ⁰ C (Max.) Source: IMD, Mumbai (Santa Cruz).		
5.	Nearest representative IMD station	Chhatrapati Shivaji International Airport, Mumbai 59km / NW		
6.	Land Form, land Use and Ownership	The total land identified for the proposed project is 26785 sq.m. (2.6785 ha), It is under Industrial zone as per Special planning Authority, MSRDC, Raigad Regional planning Department, Survey No., 48/1, 48/2, 48/3A, 48/3B, 49/1, 55/1A, Village- Honad, Tal- Khalapur, Dist- Raigad, Maharashtra - 410203.		
7.	Site topography	Project site located at min. 62m, max. 69 m (above MSL)		
8.	Nearest roadway			
9.	Nearest Railway Station	Khopoli railway station 4.0km NE		
10.	Nearest Air Port	Chhatrapati Shivaji International Airport, Mumbai 59 km/ NW		
11.	Nearest Port	Mandva Port 45.5 km/ W		
12.	Nearest lake	1.Khandla lake	6.2 km	ESE
		2.Donavat reservoir	6.0km	WNW
		3.Savroli lake	5.7km	NNW
		4.Kalote lake	10.8km	NNW
		5.Palasdari lake	11.9km	N
		6.Surge lake	6.0km	SE
		7.Shankar lake	4.2km	ENE
13.	Nearest State/National Boundaries	Gujarat 143 km/ WNW		
14.	Nearest major city with 2,00,000 population	Panvel– 30.0 Km, NW		
15.	Nearest village/major town	Village - Mandad At Kargaon 5.0 km / E		
16.	Distance for sea coast	Arabian Sea 49 km / W		
17.	Hills/valleys	Khandala hills/ canyon valley	6.6	E
		Monkey valley	5.5	ENE
		Tiger valley	5.5	E
		Lonawala valley	5.0	SSW
		Mt. Altara hills	3.2	E

Sl.N.	Particulars	Details		
18.	Archaeologically important places	Shri Vireshwar Temple	4.3	ENE
		Manekgad Fort	14.0	NW
		Bor Ghat	5.5	E
		Gangangiri Ashram	4.5	ENE
		Kondhane Buddhist Caves	10.7	NE
19.	Nearest Reserved/ Protected forests	1.PF. nr Honad village	1.1	W
		2.RF. nr Sangade	1.6	SW
		3.RF. nr Tondali	3.8	W
		4.RF. nr Gothivali	6.7	SW
		5.RF. nr Gohe	9.5	SW
		6.RF. nr Tambathi	5.5	WSW
		7.RF. nr Navandhe	8.0	NW
		8.RF. nr Adoshi	2.3	SE
20.	Nearest water bodies	1.Patal ganga river	3.5km	NE
		2.Balganga river	6.2km	W
		3.Amba river	4.8km	S
		4.Adoshi river	1.1km	SE
		5.Atkargaon river	0.4km	S
21.	Nearest Industries	1.Gargi Huttenes-Albertus Pvt. Ltd.	0.25	ENE
		2.Metplast Industries	0.28	S
		3.Venus Wire Industries Pvt. Ltd.	0.66	SE
		4.NewAge Fire Protection Industries Pvt. Ltd.	0.65	W
		5.Jaisingh Alloys Pvt. Ltd.	0.71	W
		6.Aakkamani Pvt. Ltd	0.76	WNW
		7.Echjay Forgings Pvt. Ltd. (Pushpaman Forging Division)	1.01	NW
		8.Mahavir Industries	3.5	NNE
		9.Leno Pack Industries	3.4	NNE
22.	Areas already subjected to pollution or environmental damage	Nil		
23.	Seismic zone	zone III (Moderate intensity zone)		

1.4 COST OF THE PROJECT

Total estimated cost of complete project is Rs. 50 Crores.

1.5 EIA/EMP REPORT

In line with the approved ToR obtained from EAC (Industry –3), MoEF&CC, New Delhi, baseline environmental monitoring was conducted during Pre-monsoon season (1st March 2021 to 31st May 2021) for determining the status of ambient air quality, ambient noise levels, surface and groundwater quality, soil quality, status of flora, fauna and eco-sensitive areas and socio-economic status of the villages within 10 km radius study area from the project site (**Figure 1**). The observations of the

studies are incorporated in the draft EIA/EMP report. Impacts of the proposed project activities during construction and operation stages were identified and duly addressed in the draft.

REGULATORY FRAMEWORK

Description of Process	Date
ToR Application submitted at MOEF for Proposal no. IA/MH/IND3/230573/2021	16 October 2021
EDS generated by MS IND 3	20 October 2021
EDS submitted by Project proponent	29 October 2021
Standard ToR granted for proposed project Vide letter No J-11011/440/2021-IA.II(I)	02 November 2021
Baseline Data Generation (Pre-Monsoon)	March 2021 to May 2021

As per the TOR issued by GOI, Ministry of Environment, Forest and Climate Change, EAC, New Delhi

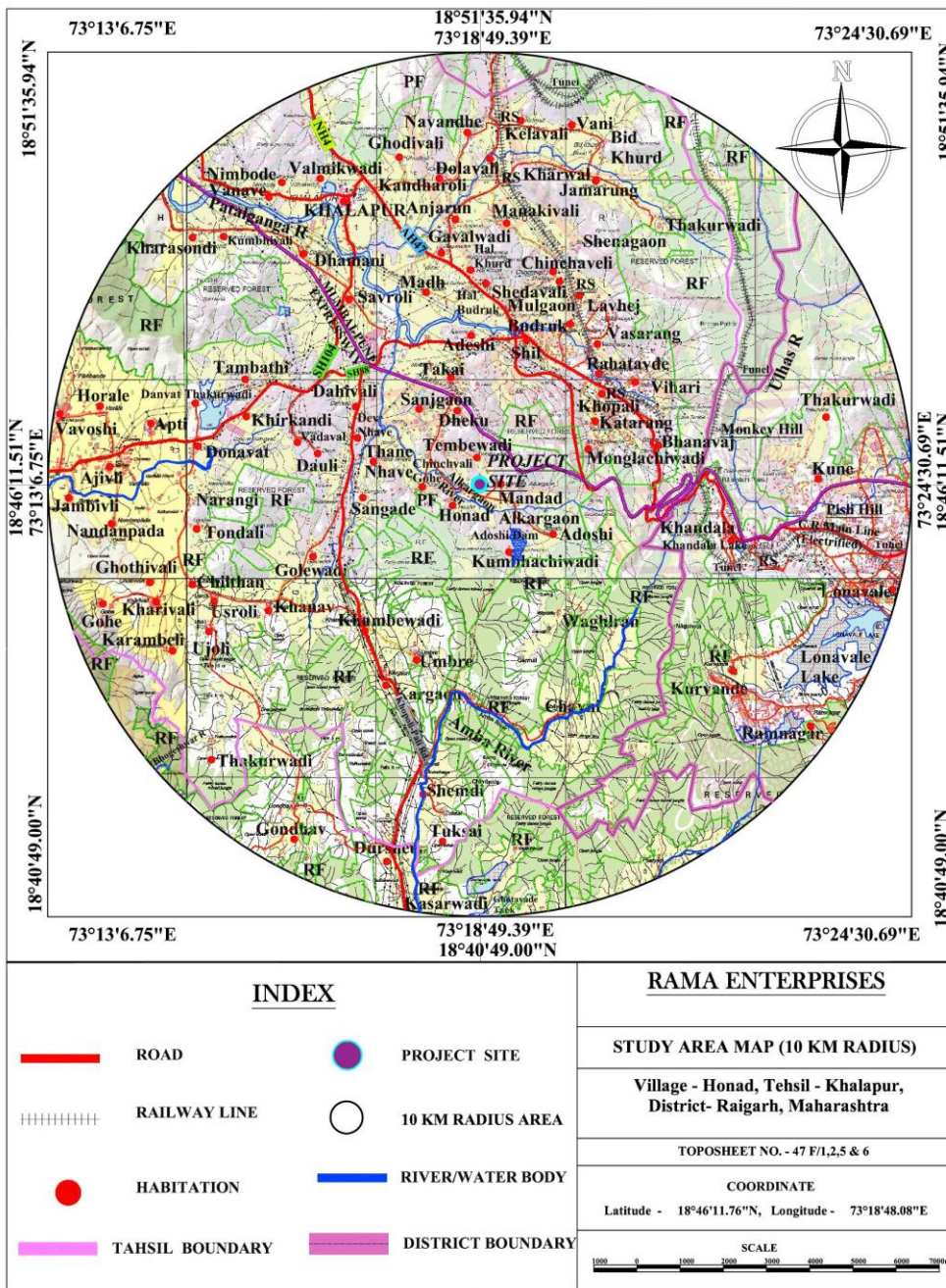




FIGURE 1: STUDY AREA MAP (10 KM RADIUS)

	<p>Environmental Impact Assessment for Proposed API and API intermediates Manufacturing unit of capacity 15600 TPA At Survey No., 48/1, 48/2, 48/3A, 48/3B, 49/1, 55/1A, Village- Honad, Tal- Khalapur, Dist - Raigad, Maharashtra – 410203 by M/s. Rama Enterprises</p>	
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2.0 PROJECT DESCRIPTION

2.1 TYPE OF PROJECT

M/s. Rama enterprises has pro Proposed API and API intermediates Manufacturing unit of capacity of 15600 TPA at Survey No. 48/1, 48/2, 48/3A, 48/3B, 49/1, 55/1A Village Honad, Tal- Khalapur, Dist- Raigad 410203 Maharashtra, India.

According to the EIA Notification 2006 and its subsequent amendments, the project comes under the **project activity of 5(f), Synthetic Organic Chemicals industry**. The overall project activity falls under “**Category- A**”.

2.2 PROCESS DESCRIPTION OF PROPOSED PRODUCT

The process for manufacturing as and know how about manufacturing are available with the company as given in EIA report Chapter 2, section 2.6.4.

Latest clean technology which is internationally available will be adopted. In respect of the products the Company has the necessary know-how and do-how to manufacture these products. The company has also identified the routes they intend to take for manufacturing of the products.

The company uses tested technology which is proven for performance, reliability and safety. At the same time, the company also develops new and innovative products and production techniques through in-house research and development to deliver products of international quality.

2.3 DETAILS ABOUT RESOURCES

2.3.1 Raw Materials

Overall 55.89 TPD materials will be transported through road (considering 330 working days) for the plant. Thus, around 3 trips per day i.e. 6 trucks per day will be required to transport the materials by road with the capacity of each truck 21 Tons is considered.

2.3.2 Solid and Hazardous waste generation

The total estimated hazardous waste generation will be 0.258 TPD. It will be disposed off to CHWTSDF.

2.3.3 Land Requirement

The total land identified for the proposed project is 26785 sq.m. (2.6785 ha), It is under Industrial zone as per Special planning Authority, MSRDC, Raigad Regional planning Department, Survey No., 48/1, 48/2, 48/3A, 48/3B, 49/1, 55/1A, Village- Honad, Tal- Khalapur, Dist- Raigad, Maharashtra – 410203. **Annexure III, IV** land documents.

2.3.4 Power Requirement and Supply

1920 KWA (2574 HP) Electricity will be sourced from MSEDCL power supply & permission is under process. 2DG set of capacity 1000 KVA will be available as standby.

Power requirement for plant related activities will be 960 KWA.

2.3.5 Water Availability and Wastewater Generation

Water will be sourced from Maharashtra Industrial Development Corporation (Raigad) ~14.130 KLD water will be required for plant activities. Daily water requirement after recycle will be 6.500 KLD.

2.3.6 Waste water generation & management plan

Total quantity of wastewater including domestic in the form of rejects from various treatment systems will

be (9.130 KLD).

Industrial effluent of 8.63 KLD will be treated in the effluent treatment plant.

Reuse:7.630.KLD

Sent to ETP : 8.130 KLD

Domestic waste water: 1 KLD will be disposed off in soak pit.

Waste water generation & management plan-

Infra-structural services including water supply, sewage, drainage facilities and electrification will be made. Domestic wastewater generated will be treated

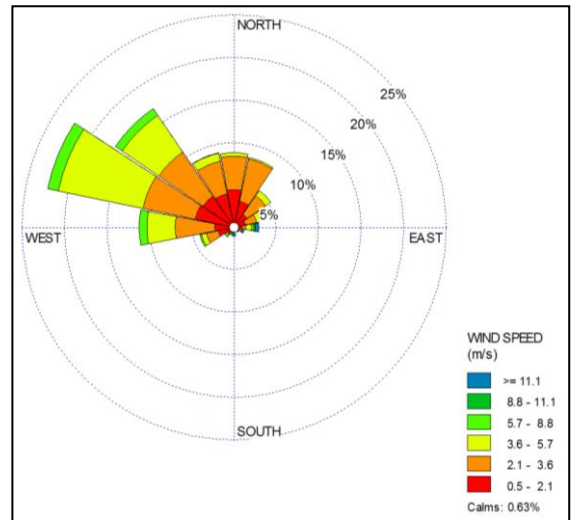
Domestic wastewater 1KLD will be collected in soak pit.

2.3.7 Manpower Requirement

Appx 50 nos. directly and 50 indirect.

3.0 DESCRIPTION OF ENVIRONMENT

The meteorological data recorded during the study period was very useful for selection of sampling locations as per upwind and downwind directions for proper on-site monitoring to be undertaken for various meteorological variables in order to generate the site specific data. Data was collected for proposed project site on hourly basis continuously for **pre-monsoon season (1st March 2021 – 31st May 2021)**. The generated data was then compared with the meteorological data collected by nearest India Meteorological Department (IMD) station located at Mumabi (Santa Cruz) (**Maharashtra**).



**SITE SPECIFIC WINDROSE
(1st March 2021 – 31st May 2021)**

Predominant Wind Direction			Pre-monsoon season
First Predominant Direction	Wind		WNW (22.37)
Second Predominant Direction	Wind		NW (16.89%)
Calm conditions (%)			0.63
Avg. Wind Speed (m/s)			3.09

This chapter of the report provides an overview of the environmental baseline conditions within the study area of 10 km radius. Baseline environmental studies were conducted at project site along with 10 km radial distance from the project site. The baseline environmental quality data for various components of environment, viz. Air, Noise, Water, Land were monitored during **pre-monsoon season (1st March 2021 – 31st May 2021)**.

3.1 AIR ENVIRONMENT

3.1.1 Meteorology

3.1.2 Baseline Data

The status of ambient air quality within the study area was monitored from 1st March to 31st May 2021 for at 8 locations covering Project site, Honad, Dheku, Ninave, Adoshi, Kumbhachiwadi, Sangade, Khopoli

All these 8 sampling locations were selected based on the meteorological conditions considering upwind and downwind, cross wind directions and reference point. The levels of Respirable Particulate Matter (PM₁₀), Fine Particulates (PM_{2.5}), Sulphur Dioxide (SO₂), Oxides of Nitrogen (NO_x) and carbon monoxide (CO), Ammonia, Ozone, Benzene and BAP were monitored.

It has been observed that minimum and maximum concentration of PM₁₀ is ranged between 49.7-81.1 µg/m³. The concentrations of PM_{2.5} vary from 17.2-37.3 µg/m³. SO₂ concentration level ranged from 8.7-20.2 µg/m³ and NO₂ concentration ranged from 15.5-29.4 µg/m³ in the study area. CO concentration was found to be 0.256-0.618 mg/m³. Ozone in the range between 4.2-11.9 µg/m³ and NH₃ concentration was found to be 5.9-12.2 µg/m³.

Pb concentration values in the range 0.15 to 0.25 µg/m³, As, Ni Benzene and BaP in PM₁₀ were found below detectable limits.

3.2 NOISE ENVIRONMENT

AMBIENT NOISE LEVELS

Ambient noise level monitoring was carried out at the 8 monitoring locations. The monitoring results are summarized in **Table 3.1**.

**TABLE 3.1
SUMMARY OF AMBIENT NOISE LEVEL MONITORING RESULTS**

Sr. No.	Monitoring Locations	Equivalent Noise Level	
		Leq _{Day}	Leq _{Night}
Residential Area			
1.	Kumbhachiwadi	52.3	39.7
2.	Mandad Atkargaon	50.6	38.4
CPCB Standards dB(A)		55.0	45.0
Commercial Area			
3.	Dheku	54.6	47.3
4.	Tembewadi	51.4	45.2
CPCB Standards dB(A)		65.0	55.0
Silence Zone			
5.	Ninave	45.2	35.5
6.	Adoshi	46.9	36.1
CPCB Standards dB(A)		50.0	40.0
Industrial Area			
7.	Project Site	58.3	46.7
8.	Honad	60.5	47.8
CPCB Standards dB(A)		75.0	70.0

Source: Field monitoring and analysis by Anacon Laboratories Pvt. Ltd., Nagpur.

3.3 WATER ENVIRONMENT

Site Specific Geology

Project area is mostly covered by soil cover which is having thickness of around 0.2-1.0m and soil is reddish lateritic soil. Outcrops of Basalt are observed at project site.

Site specific Hydrogeology:

Ground water in Deccan Trap Basalt occurs mostly in the upper weathered and fractured parts down to 10 – 15 m bgl under unconfined condition. The water bearing strata at deeper depth exists under semi confined to confined conditions. The dugwells in these areas show rapid decline in water level during postmonsoon period and practically go dry in peak summer. In foot hill zones the water table is relatively shallower near water course. The yield of dugwells tapping upper phreatic aquifer ranges between 45 to 60 m³ /day, whereas that of borewells varies from 0.50 to > 20 m³ /hr. depending upon the local hydrogeological conditions, however in most of the borewells it is up to 5 m³/hr.

Depth to water level scenario in the study area:

Water levels in Pre-monsoon: 3.5 to 20m bgl

Water levels in Post-monsoon: 1 to 5m bgl

Geomorphology

Study area is highly undulating terrain in which hilly area covers 80% part. Highly dissected plateaus also observed in study area. Complex geomorphological landforms are observed.

SURFACE AND GROUND WATER QUALITY

13 water samples were collected from various sampling locations, eight (8) from each groundwater and five (5) surface water sources. These samples were collected as grab samples, preserved and analyzed for various parameters. The samples were analyzed as per the procedures specified in standard methods for the examination of water and wastewater published by American Public Health Association (APHA/ IS 10500).

Physico-chemical Characteristics

A. Groundwater Quality

The analysis results indicate that the pH ranged 6.96 - 7.71. The TDS was ranging from 345 - 436 mg/l. Total hardness was found to be in the range of 211.8 – 311.70 mg/l. The fluoride concentration was found to be in the range of 0.19 – 0.33 mg/l. The nitrate was found below detection limit (DL - 2) at all locations and sulphate was found in the range of 18.29 – 54.32 mg/l. The Total suspended solid concentration was found below detection limit (DL -10mg/l) at all sampling location.

Sr. No.	Locations	WQI	Quality	Remark
1	Project site	61.48	Good	Water quality assessed based upon above physico-chemical parameters and samples were found to be physico-chemically good.
2	Honad	52.14	Good	
3	Dheku	55.81	Good	
4	Tembewadi	52.79	Good	
5	Ninave	56.33	Good	
6	Adoshi	54.72	Good	
7	Kumbhachiwadi	51.08	Good	
8	Mandad Atkargaon	53.35	Good	

B. Surface Water Quality

The analysis results indicate that the pH ranged between 6.76 - 8.04. The TDS was observed to be 299 - 365 mg/l. The total hardness recorded was in the range of 156.61 – 229.88 mg/l. The levels of chloride and sulphate were found to be in the range of 19.51 – 32.58 mg/l and 12.46 – 44.73 mg/l respectively.

Dissolved oxygen (DO) reported value of range of 5.9 - 6.5 mg/l. Phosphorus (as PO₄) is ranges from 0.24-0.32 mg/l. Chemical oxygen demand reported value of range of 12.46 – 16.32 mg/l. Biochemical oxygen demand reported value of range of 4.12-7.65 mg/l. The Total suspended solid concentration was found below detection limit 12-18 mg/l at all sampling location. Heavy metals like As, Pb, Ni were found below detection limit i.e. BDL (DL-0.01), BDL (DL-0.001), BDL(DL-0.1) respectively.

C. Bacteriological Characteristics

Coliform group of organisms are indicators of faecal contamination in water. All surface water samples were found to be bacteriologically contaminated. Presence of total coliforms in surface water indicates that a contamination pathway exists between any source of bacteria (septic system, animal waste, etc.) and the surface water stream. A defective well can often be the cause when coliform bacteria are found in well water. For surface water, treatment followed by chlorination or disinfection treatment is needed before use for domestic purpose. Groundwater samples were not found to be bacteriologically contaminated.

3.4 LAND ENVIRONMENT

3.4.1 Land use of Study Area

The land-use & land cover map of the 10 km radial study area from the periphery of project site has been prepared using Resource SAT-1 (IRS-P6), sensor-LISS-3 having 23.5m spatial resolution and date of pass 15th Sept 2021 satellite image with reference to Google Earth data. In order to strengthen the baseline information on existing land use pattern, the following data covering 10 km radius is approximate about 18°40'44.30"N to 18°51'19.40"N latitude and 73°13'09.25"E to 73°24'25.96"E longitude and elevation 40 – 620 meters are used as per the project site confined within that area.

The Land Cover classes and their coverage are summarized in **Table 3.2**.

TABLE 3.2
LU/LC AND ITS COVERAGE WITHIN 10 KM RADIUS

LU/LC Classification System				
S.No.	Level-I	Level-II	Area (Sq.Km)	Percentage (%)
1	Built-up land	Settlement	30.28	9.64
		Industrial Settlement	5.26	1.68
		Road Infrastructure	3.29	1.05
2	Agricultural Land	Cropland	70.22	22.36
3	Scrubs/Wastelands	Barren Land	8.36	2.66
		Land with scrub/Open Scrub	28.19	8.98
4	Forest	Reserve Forest	152.75	48.65
5	Waterbodies	River/Nala/Stream	10.54	3.36
		Pond/Tank	3.89	1.24
6	Others	Mining/Stone Quarry	1.22	0.39
		Total	314	100.00

Soil Characteristics

Total 8 representative samples were collected from different locations within the study area and analyzed. The bulk density of the soil in the study area ranged between 1.475 - 1.714 g/cc which indicates favourable physical condition for plant growth. The water holding capacity is between 21.46 - 23.19%. Infiltration rate, in the soil is in the range of 18.52 – 21.64mm/hr, the pH of the soil in the study area and it is found to be neutral (6.71 – 7.16) in reaction. Electrical conductivity, a measure of soluble salts in the soil is in the range of 259.7 - 294.3 μ S/cm.

The important soluble cations in the soil are calcium and magnesium whose concentration levels ranged from 264.1 – 301.8 mg/Kg and 104.7 - 141.6 mg/Kg respectively. Chloride is in the range of 317.9 – 402.6 mg/Kg.

Organic matter and organic carbon present in the soil influences its physical and chemical conditions and is responsible for stability of soil aggregates. Organic matter and organic carbon were found in the range of 0.176% – 0.358% and 0.10% – 0.21%.

3.5 BIOLOGICAL ENVIRONMENT

Floral composition in Study Area

Details floristic observation has been made by Anacon team and it is presented in tabular format **Annexure – VII A**. However, the precise study is summarized in following **Table 3.3**.

**TABLE 3.3
FLORA IN STUDY AREA**

Habit	Study Area
Tree (T)	60
Shrub (S)	28
Herb (H)	36
Grasses (G)	05
Climber (C)	06
Epiphytes (E)	03
Total	138

Note: No Rare, Endangered and Threatened species observed in the study area

Fauna Details:

The fauna of the study area included Mammals, Reptiles, amphibians, Aves, Butterflies. These species are listed in **Annexure VII (B)**.

The fauna of study area included spotted deer and wild boar were a commonly sighted in the forests of the study area. The common mammalian species were, spotted deer, rabbit, monkey, barking deer, wild boar, Jungle cat, squirrel, rat, mongoose and bat etc. The common reptiles such as Common Indian monitor lizard, garden lizard, and different varieties of snakes were seen in the locality.

Birds were observed throughout the study area but mostly seen near water bodies viz., Patalganga River, Donvat and Adoshi water Reservoir etc., Forest areas and Agricultural fields. Reptiles and amphibians were also observed in the study area. River Patalganga is a major source of fresh water fishes within study area.

Rare and Endangered fauna of the study area

- **As per IUCN RED (2013) list**

The IUCN Red List is the world's most comprehensive inventory of the global conservation status of plant and animal species. It uses a set of criteria to evaluate the extinction risk of thousands of species and subspecies. These criteria are relevant to all species and all regions of the world. With its strong scientific base, the IUCN Red List is recognized as the most authoritative guide to the status of biological diversity.

Among the reported animals, the categorization of species as per IUCN is as follows:

As per Indian Wild Life (Protection) Act, 1972

Wild Life (Protection) Act, 1972, as amended on 17th January 2003, is an Act to provide for the protection of wild animals, birds and plants and for matters connected therewith or ancillary or incidental thereto with a view to ensuring the ecological and environmental security of the country.

Some of the sighted fauna was given protection by the Indian Wild Life (Protection) Act, 1972 by including them in different schedules.

Among the birds in the study area, Pea fowl (*Pavo cristatus*) is included in schedule - I and many other birds are included in schedule - IV. House Crow (*Corvus splendens*) is included in schedule - V of Wild Life Protection Act (1972).

Indian Skipping Frog (*Euphlyctis cyanophlyctis*) which is amphibian observed within the study area which is included in schedule - IV of Wild Life Protection Act (1972).

Among the reptiles, Bengal Monitor Lizard (*Varanus bengalensis*) categorized as Schedule – I Whereas, Russell's viper (*Daboia russelii*), Indian Cobra (*Naja naja*), Common rat snakes (*Ptyas mucosus*) and Checkered keelback water snake (*Xenochrophis piscator*) are provided protection as per Schedule-II of Wild Life Protection Act, (1972), while some other species of reptiles are not included in any of the schedule.

Among mammals, Common Langur - (*Presbytis entellus*), Bonnet monkey – (*Macaca radiate*), Rhesus monkey – (*Macaca mulatta*) and Jungle Cat – (*Felis chaus*) are schedule – II animals. Wild boar (*Sus sucrofa*), Spotted Deer (*Axis axis*) and Barking Deer (*Muntiacus muntjak*) is protected as Schedule - III animal and Black naped Hare (*Lepus nigricollis*) are included in Schedule - IV of Wild Life Protection Act, (1972).

3.6 SOCIO-ECONOMIC ENVIRONMENT

Information on socio-demographic status and the trends of the communities in the 10 km radius was collected through primary social survey and secondary data collection from census 2011. Summary of the socio-economic status of the study area is given in **Table 3.4**.

TABLE 3.4
SUMMARY OF SOCIO-ECONOMIC ENVIRONMENT OF VILLAGES
WITHIN 10 KM RADIUS AREA

No. of villages	45
Total households	17903
Total population	82281
Male Population	43525
Female population	38756
SC Population	5123

ST Population	16797
Total literates	57701
Total Illiterates	24580
Total workers	35502
Total main workers	28026
Total marginal workers	7476
Total non-workers	46779

Source: Source: Primary census abstract 2011 *District Raigarh & Pune*, Maharashtra.

TABLE 3.4(A)
IN PERCENTAGE DETAILS REGARDING INFRASTRUCTURE FACILITIES WITHIN 10 KM
RADIUS STUDY AREA

Education	Medical	Drinking water	drainage	Communication	Transportation	Banks/ Society	Roads	Recreation	Electricity
100	23.68	100	56.57	93.42	100	43.42	100	39.47	100

Source: *District Census handbook 2011, District Raigarh & Pune, State Maharashtra.*

Salient observation of the survey

- **House pattern:** Types of housing varied from thatched to pucca (pakka) houses 75% houses were in pucca (pakka) form 15% in semi pakka and 5% houses were observed in kaccha form
- **Employment:** Main occupation in the study area was Labour Work and Agricultural its allied activities eg. Cattle rearing, dairy farming etc. Other income generation sources of the area, small business; private jobs etc. The labours were getting daily wags in the range of 400-500 Rs, depending on type of work they set. A damaging impact on an economy as large study area due a total lockdown was impact. There are problems in employment .This was possibly a result of a decrease in demand as well as the disruption of workforce faced by companies due to which people is not getting employment.
- **Fuel:** The primary sources of cooking fuel were LPG, cow dung etc.
- **Main crops:** About 60% of the study area, as per site survey, belongs to the agricultural land category. Both (Rabi and Kharif) type of cropping practice is prevailing in this area and the type of crops includes paddy, wheat, Matki, Sugarcane and black gram. The principal crop grown in agricultural farm was Paddy, while discussion with villagers it was revealed that per acre paddy production was 10-12 quintal.
- **Migration from other states:** During survey it was found that local population were not migrating for employment purpose, they prefer only local employment
- **Sanitation:** Toilet facility is one of the most basic facilities required in a house. It was observed that more than 90% of the households were having toilet facilities in their houses. It was found that some people were resistant to have toilets in their houses and said that unless there is water supply at home, it is not possible to use the toilets. According to them, they would waste more time in getting water from outside to. There was proper drainage line in the villages.
- **Drinking water Facilities:** One of the most important factors responsible for the emergence of a settlement is availability of water. During the survey it was observed diverse sources of drinking water supply in villages. Many water sources such as wells, hand pumps, tube well, tank etc. are available in rural areas. In the villages under study, the main source of water is well, followed by hand-pump. The water of the hand-pump is used for drinking, bathing and household purposes. There are fewer ponds in the area and are mostly dry except for monsoon months. The water

from the ponds is generally not used by the villagers except for bathing animals. It was reported that during the summer season, large number of wells become dry and the major source of water in the villages during lean season are the hand pumps and some deep borings. However, more than half the hand pumps in these villages were not functional and required repair. Similarly, majority of the wells were in bad shape and required repair. They also required be cleaning and bleaching regularly. Arrangements should be made for proper embankment of the wells and to cover them to make their water safe for drinking purpose. .

- **Education facilities:** The Primary & secondary data reveals that literacy levels in all the villages is varying from 70 to 80 %. Most of the students in Villages in the study area are going to Khopoli approximate 8 km. The schools are also not having proper infrastructure facilities. Govt College facility is available in Gudheli in the study area. The rural areas of India lag behind in educational status, not only because of lack of facilities but also due to inefficiency of available facilities. A numbers of factors such as poverty, children being engaged in various activities for earning a livelihood or household chores, girls being engaged in taking care of younger siblings, lack of awareness about value of education, etc are responsible for aversion towards education.
- **Transportation facility:** For transportation purpose auto, jeep and private bus services were available in the study area; however villagers reported that transportation facilities were not frequently available. Private vehicles like bicycles & motor cycles were also used by villagers for transportation purpose.
- **Road connectivity:** Road condition was good .Most of the roads was pucca and the very few pucca roads were badly in need of repair and maintenance. More than half the households reported that roads they frequently used were semi pucca
- **Communication facilities:** For communication purpose mainly mobile phones, news papers & post offices were present in the villages
- **Medical facilities:** The Primary & secondary data reveals that there are only 17 nos. of Sub Health Centers & 03 nos. of PHC's in the Study area. During FGD villagers made various issues in health care facilities, such due to COVID-19 crisis, public health in particular workers' health and safety, converge not properly working. health facilities available at PHCs, Laboratory testing and Delivery facilities at Government Health Centers, availability of clean toilet and drinking water at PHCs, and distance of the nearest health center from the Village. To control the spread of diseases (Malaria & Dengue cases) and reduce the growing rates of mortality due to lack of adequate health facilities, special attention needs to be given to the health care in rural areas. The key challenges in the healthcare sector are low quality of care, poor accountability, lack of awareness, and limited access to facilities.
- **Electricity:** All villages were availing electricity facility for domestic and agriculture purposes. Solar Street lights were seen in some of the villages.
- **Market facility:** Study area was predominantly rural. In villages, small shops were available for daily need things. Weekly market facility was available in some villages. Wholesale market was available Khopoli. The basic amenities exist at all villages
- **Recreation facilities:** Television and radio are the main recreation facilities in the study area. News paper/magazine facilities are also used by villagers.

▪ Interpretation

Socioeconomic survey was carried out to know the infrastructural activities amenities available 10 km Radius project Site. The information regarding facilities available and the opinion of the people was sought by floating questionnaires and interaction with the people. This is done for observing the impact due to the project wrt social aspects so that proper actions / measures could be taken up for the benefit of the people (economically and wrt quality of life) and the project.

During the primary survey it was observed that almost pakka road facility is available in all villages 10 km Radius project Site. The sanitation coverage has increased from 65% in 2011 to 80 % in 2021. Literacy rate of the study region is from 70.13%. On the basis of survey for literacy rate data it is interpreted that there is need to promote educate more and more people. Almost all the villages have more than 56.85 % people as non-workers. It indicates that the problem of unemployment can be solved by providing proper training and education. There is also need to establish more industries so that maximum number of employment can be generated. Basic amenities like Education facilities Health care facilities, water supply, electric power supply, mode of transportation etc. are available in all villages.

The proposed project shall generate direct/indirect employment and indirect service sector enhancement in the region and would help in the socioeconomic upliftment of the state as well as the local area

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The simulations were made to evaluate particulate matter, SO₂, NO₂ incremental rise due to proposed project. These results are based on considering the emissions due to boiler and D.G. sets etc. In the short-term simulations, the incremental concentrations were observed to obtain an optimum description of variations in concentrations within the study area of 10 km radius.



The mathematical Model ISCST-3, was used for predicting the GLCs, which is entirely in line with the requirement of Central Pollution Control Board, New Delhi. The maximum ground level concentrations (GLCs) for particulate matter and gaseous emission of SO₂, NO₂ due to proposed installations were carried out. The predicted 24 hourly maximum concentrations for Scenario 1 (FO based boiler and DG sets) for particulate matter, SO₂ and NO₂ are found to be 0.85 µg/m³, 0.34 µg/m³ and 5.8 µg/m³ respectively. For scenario 2 (coal based boiler and DG sets) for particulate matter, SO₂ and NO₂ are found to be 0.48 µg/m³, 0.26 µg/m³, 5.8 µg/m³ at 2.8km ESE & SE direction respectively. The short term modeling results are presented in **Table 4.5**. The isopleths of particulate matter, SO₂ and NO₂ representing the GLCs for two scenarios are shown in **Figures 4.2 to 4.7** respectively.

The resultant concentration levels (Ambient + proposed incremental) revealed that the concentration levels for PM 10, PM2.5, SO₂ and NO₂ likely to be encountered in the operation of the project are respectively occurring at a distance of about 2.8 km each in the ESE and SE directions with a concentration levels (resultant) of 67.75 µg/m³, 28.88 µg/m³, 50.3 µg/m³ and 33.8 µg/m³ respectively and details are given in **Table 4.6**, which is well within the NAAQS levels prescribed by CPCB. Hence it is inferred that considering cumulative concentration levels, the pollution load exerted due to proposed project will be insignificant.

The mitigation measures adopted are:

The following mitigation measure are in order to prevent any planned / unplanned impacts on air quality

Industrial boiler

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The only source of air pollution will be Hot Water Generator 1500 Kcal/ hr. (FO based) and Thermic Fluid Heater 20000 Kcal/hr. (coal based). Plant area will be well ventilated, cross air flow and exhaust fans will be provided for extra air flow. Boiler -2 Nos. (30 mtr height, 140°C Temp, 8 m/s Velocity & 0.8 mtr dia).

Air pollution control devices:

Dust collector with bag filter , flue gas recirculation , Nox reduced controlling the particulate emissions within the statutory limit of 150 mg/Nm³ and 50 respectively for FO based and coal based boiler.

D. G. Sets

2 DG set of 1000 KVA will be required for power supply in case of power failure. The expected pollutants emitted from the DG set will be PM, SO₂, NO_x and CO. There will not be any impact on surrounding area as this will be the occasional activities.

The modern set ups including de-dusting and bag filters for combating fugitive emissions and particulate matter will be installed in the respective processes.

- **Noise Environment:**



During the normal operation of manufacturing process noise will be generated due to distillation plant, blower, ETP, compressor, boiler, utility area and DG Set, etc.the ambient noise levels are expected to increase significantly with the attributes of the respective equipment, but this noise will be restricted close to the concerned equipment. The preventive measures are given below:

- ❖ Equipment should be standard and equipped with silencer. The equipment should be in good working conditions, properly lubricated and maintained to keep noise within permissible limits.
- ❖ High noise zone should be marked and earplugs shall be provided to the workmen near high noise producing equipment. The workmen should be made aware of noise and vibration impacts on their health and mandatory use earplugs.
- ❖ Proper shifting arrangement shall be made to prevent over exposure to noise and vibration.
- ❖ Tall trees with heavy foliage shall be planted along the boundary / project site / plantation area, which will act as a natural barrier to propagating noise.
- ❖ Silent DG sets shall be used at project site.
- ❖ Speed limits shall be enforced on vehicle.
- ❖ Use of horns / sirens shall be prohibited.
- ❖ Use of loud speakers shall comply with the regulations set forth by CPCB.
- ❖ Regular noise monitoring shall be carried at construction camp / project site to check compliance with prevailing rules.

- **Water Environment**

Waste water generation:

- ❖ Industrial effluent of 8.63 KLD will be treated in the effluent treatment plant.
- ❖ Reuse:7.630.KLD

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- ❖ Sent to ETP : 8.130 KLD
- ❖ Domestic waste water: 1 KLD will be disposed off in soak pit

Zero discharge will be maintained by the plant.

- **Vehicular Movement**

All the major raw materials and finished products will be transported through covered trucks by road to the plant either from source or from nearby railway siding.

- **Biological Environment**

There is no national park, sanctuary, biosphere reserve except as Villages like Adoshi, Gohe, Chavani, Khambewadi, Tondali, Ghodivali, Jambarung, Tuksai, Karambeli in Khalapur taluka and Kurvande, Kune N.M. in Mawal taluka are listed as Eco-Sensitive Areas (ESA) in Order under section 5 of EP Act 1986 dated 3rd October 2018 issued by Ministry of Environment, Forest & Climate Change (MoEFCC). Nearest ESA, Adoshi village is about 1.9 Km towards SE, within 10 km radial distance from the project site. No forest land involved in the project activities. Thus, no significant impact envisaged on biological environment.

M/s. Rama Enterprises is having 26785 sq.m. (2.6785 ha), of land is in possession.

Total greenbelt area is 0.8839 Ha (33 %). Thus, total plantation will be 2210 nos. will be developed by considering 2500 trees/ha.

- **Socio-economic Impacts:**

The present land use is industrial. Moreover, the land is mostly low fertile barren land. The Increase in direct/indirect job opportunity shall take place. Services in the locality shall be used and accordingly growth in economic structure of the area will take place.

5.0 ANALYSIS OF ALTERNATIVES (SITE AND TECHNOLOGY)

- **Study of Analysis of Alternatives Related to Site**

The total land identified for the proposed project is 26785 sq.m. (2.6785 ha), It is under Industrial zone as per Special planning Authority, MSRDC, Raigad Regional planning Department, Survey No., 48/1, 48/2, 48/3A, 48/3B, 49/1, 55/1A, Village- Honad, Tal- Khalapur, Dist- Raigad, Maharashtra - 410203



The project site lies at **Latitude:** 18°46'11.76"N, **Longitude:** 73°18'48.08"E on the Toposheet No. 47 F/1, 47 F/2, 47 F/5, 47 F/6. The site is situated on flat terrain.

The site is selected based on the resources availability like raw materials, water, electricity, transport logistics, manpower etc.

- **Analysis of Alternatives Related to Technology**

Latest clean & environment friendly technology which is internationally available will be adopted by M/s. Rama Enterprises during proposed project. The company is in the process of reviewing and shortlisting the different alternative technology and technology suppliers of various products. In respect of the other products the Company has the necessary know-how and do-how to manufacture these products. The company has also identified the routes they intend to take for manufacturing of the products.

The best technological environment friendly approach is selected.

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6.0 ENVIRONMENTAL MONITORING PROGRAMME

Environmental monitoring will be carried out for monitoring of important and crucial environmental parameters to assess regularly the status of environment during operations. The monitoring program for implementation is given Chapter 6 **Table 6.1**.

BUDGET FOR IMPLEMENTATION OF ENVIRONMENTAL MONITORING PLAN

An effective Environmental Monitoring Plan is proposed during the construction and operational phases of the project to conserve the environment at site. A provision of Rs. 15.00 lakhs will be made available towards recurring cost and capital cost Rs. 40.0 Lakhs for environmental monitoring programme

7.0 ADDITIONAL STUDIES

PUBLIC CONSULTATION

The Draft EIA-EMP report for Proposed API and API intermediates Manufacturing unit of capacity 15600 TPA at Survey No., 48/1, 48/2, 48/3A, 48/3B, 49/1, 55/1A, Village - Honad, Tal - Khalapur, Dist - Raigad, Maharashtra – 410203 is prepared as per the standard TOR issued by EAC (Industry –III), MoEFCC, New Delhi and the report is submitted for public consultation process as per the provisions of EIA Notification 2006 and amendments thereof.

After completing the public consultation process, the points raised and commitment of project proponent during the public hearing will be incorporated in the final EIA/EMP report for final submission to Environmental Clearance.

RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN

Introduction

Risk assessment (RA) provides a numerical measure of the risk that a particular facility poses to the public. It begins with the identification of probable potential hazardous events at an industry and categorization as per the predetermined criteria. The consequences of major credible events are calculated for different combinations of weather conditions to simulate worst possible scenario. These consequence predictions are combined to provide numerical measures of the risk for the entire facility.



MCA analysis

The risk assessment report covers the following in terms of the extent of damage with resource to MCA (maximum credible accident) analysis and delineation of risk mitigations measures.

- Identification of potential hazardous sections and representative failure cases
- Visualization of release scenarios considering type and the quantity of the hazardous material
- Damage distance computations for the released cases at different wind velocities and atmospheric stability classes for heat radiations and pressure waves.
- Drawing of damage contours on plot plan to show the effect due to the accidental release of chemicals.

Hazard Identification

- Identification of hazards is an important step in risk assessment as it leads to the generation of accidental scenarios. The merits of including the hazard for further investigation are subsequently determined by its significance, normally using a cut-off or threshold quantity.

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8.0 PROJECT BENEFITS

The proposed project manufacturing unit will be made improvement in infrastructure as well as overall socio-economic development in the area. The people residing in the nearby areas are being benefited directly and indirectly as well. The project is providing benefits for the locals during operational phase of the activity.

Economic Development

The products that will be manufactured by M/s. Rama Enterprises will have a high market potential. Due to increasing demand of API products, the plant has own economic importance.

This will help to increase the economy of the region, state and thereby the country itself. There are other intangible benefits apart from the tangible benefits which will help to improve the economic status of the state and the country.

9.0 ENVIRONMENTAL COST BENEFIT ANALYSIS

M/s. Rama Enterprises has proposed to manufacture Bismuth derivatives, Sodium Iodide, Potassium iodide, and also Iodine derivatives, Selenium derivatives, Solvent manufacturing plant, Solvent distillation plant and Covid 19 drugs with total capacity 15600 TPA at Survey No., 48/1, 48/2, 48/3A, 48/3B, 49/1, 55/1A, Village Honad, Tal- Khalapur, Dist- Raigad 410203, Maharashtra in 26785 Sqr.Mtr (2.6785 ha) area.

All the basic requirements for the production are in placed including infrastructure availability. The increase in production of ion exchange resins will be available to the user. It will definitely boost the economic growth of the country; develop region and quality of life of the people in a sustainable manner without creating any significant.

ENVIRONMENTAL VALUE ENHANCEMENT (BIODIVERSITY, CROP PRODUCTIVITY, ECO-TOURISM)

The proposed project site is well connected to railways, roadways and airways. The vegetation is similar in the whole area with no sensitive ecosystem or rare and endangered flora or fauna, hence no environmental loss will be there in terms of net productive value.

The total project cost is estimated to be **Rs. 50 crores** and expenditure on implementation of the Environmental Management Plan (EMP) is presented in **Chapter 10** of this report. Besides tangible benefits, the project has got number of intangible benefits like minimum emission of the generated gases, no adverse impact on environment as far as air, noise and water environmental components are concerned.

ENVIRONMENTAL BENEFITS

The project shall benefit environment in following ways:

- To create an environment that could support the culture of good working standards.
- To emphasize the policy of afforestation/landscape and rainwater harvesting to create a better micro-climate in the area.
- A well designed drainage system to control flooding/overflow of water during the rainy season.
- The continuous inflow of people will require local transport system like autos, taxis, etc. which would help local transport business indirectly. Ancillary support system for transport will grow.

- Considerable number of people will be benefited by provision of job opportunity to local people. Thus, the direct and indirect employment generation will be more due to this project.
- The product waste generated is recycled, reused and the waste unutilized is being sold to small recycling industries.
- An overall socio economic benefit of the region is going to enrich.
- Total employment generation will be directly 50 and indirectly 50 during construction
- Due to export of products foreign exchange earnings will be more.
- Employees, company and region will be directly/ indirectly benefitted.

10.0 ENVIRONMENTAL MANAGEMENT PLAN

An Environmental Management Plan (EMP) is formulated for the mitigation of adverse impacts. It is based on the present environmental conditions and the environmental impact appraisal. This plan helps in formulating, implementing and monitoring the environmental parameters during and after commissioning of the project.



The Environmental Management Plan describes in brief, the management's plan for proper and adequate implementation of treatment and control system for pollutants and for maintaining the environment. It also includes development of green belt around the plant, proper safety of the workers, noise control, fire protection systems and measures.

Corporate Environment Responsibility (CER) Schemes for the Study Area

The proposed cost of the project is Rs.5000 Lakhs. Thus, as per CER 2.0 % i.e.100 lakhs will spend towards the Improvement of Environment. The action plan along with budgetary provision towards Corporate Environment Responsibility (C.E.R.) is provided in **Table 10.1**.

**TABLE 10.1
ACTION PLAN WITH BUDGETARY PROVISIONS TOWARDS CORPORATE
ENVIRONMENT RESPONSIBILITY**

General Head of expense	Amount to be spent for head (in Rs. (Lac))
Education (a) Donation of computers, books, furniture to village schools (b) Donation of stationary, books, scholarships to needy students.	20.00
Medical (a) Donation of furniture, necessary equipment to nearby Public Health Centers (b) Medical Camps in nearby villages	34.00
Plantation Tree plantations nearby villages	10.00
Agricultural Donation of seeds, fertilizers, manure to needy farmers, Financial assistance for Irrigation facilities, Construction of farm ponds for needy farmers	12.00
Infrastructure (a) Honad must be provided with Waste Bins Distribution (b) Rain water harvesting projects at nearest village under Rural Infrastructure Development. (c) Provision of solar street lights	24.00
Total	100

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BUDGETARY PROVISIONS FOR EMP

Adequate budgetary provision is made by the management of M/s. Rama Enterprises for executing the environmental management plan as delineated above. Total cost of project is 50.00 Crores including EMP cost. The capital cost required to implement the EMP for project estimated to be Rs. 700Lakhs. The annual recurring expenses will be Rs. 132 Lakhs allocated for implementation of the Environmental Management Plan.

11.0 SUMMARY AND CONCLUSIONS

The project is environmentally, technically and economically feasible with respect to followings:

All activities are confined to private industrial land and minimum possible emission is allowed to enter in to the environment due to proposed project. Thus environment will not be adversely affected in any way.



- Most of the wastewater generated will be recycled/reused in the process,.
- Wastewater will be treated in full-fledged effluent treatment plant. The treated wastewater will be used for green belt and gardening purposes. Domestic waste water will be send to soak pit.
- The development of green belt and plantation will help to attenuate the noise levels and restrict air pollution and will increase the aesthetics.
- Apart from this, the environmental management plan delineated may help to reduce pollution by implementation.
- The enterprise social commitment policy (formerly CSR) will work further to bring out the development of the surrounding villages and thus area and quality of life of people will be improved.
- The cost of environmental control and monitoring measures are computed and provision for capital & recurring is made by the management.
- The project has overall positive impact and it will provide employment to around ~50 persons directly during operation and indirectly ~50 during construction, which will be helping to improve quality of life of the people.
- This project being export oriented the additional capital investments will add to national exchequer and will be value addition in terms of revenue generation and enhanced foreign exchange earnings.
- Employees, company and region will be directly / indirectly benefitted.

Concluding Remarks:

Thus it can be concluded on a positive note that after the implementation of the mitigation measures, Environmental Management and Monitoring Plans as enumerated above, the normal operation of **M/s. Rama Enterprises** will have no significant impact on environment and the project will be benefitted to local people to some extent with an economic growth in state/ country level. All statutory compliances will be obtained prior to proposed project.

12.0 DISCLOSURE OF CONSULTANTS

The environmental studies for proposed project of **M/s. Rama Enterprises** are carried out by **M/s. Anacon Laboratories Pvt. Ltd.**, Nagpur (M/s ALPL). Anacon established in 1993 as an analytical testing laboratory and now a leading Environmental Consultancy firm backed by testing lab

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for environment and food in Central India region. M/s ALPL is a group of experienced former Scientists from the Government Institutions and excellent young scientist of brilliant career with subject expertise. It is recognized by Ministry of Environment & Forests, New Delhi for carrying out environmental studies & accredited by Quality Council of India (QCI) for conducting Environmental studies vide accreditation Certificate No: **NABET/EIA/1922/RA 0150 dtd. 03 Feb 2020 Valid till September 30, 2022** as category 'A' consultant for sector no. '21'.