EXECUTIVE SUMMARY & CONCLUSION

1.1 INTRODUCTION

M/s Maggo Chemical and pharmaceutical Unit -2 is a green field technical grade pesticide manufacturing project. It is scheduled under S.No. – 5 (b), Category 'A' as per EIA notification, 2006 and amendments there after. The organization of M/S Maggo Chemical and pharmaceutical Unit -2 has proposed to setup a greenfield "Technical grade Pesticide Manufacturing Plant" at Khasra no. No10//21(4-0),10//22(4-0),10/23(3-10),25//2(4-0),25//3/1 (2-18),25//3/2 (0-16),25//1(4-0),26//4/2 (1-9)26//5(4-0) Village Behra (Gulabgarh Behra Road), Tehsil- Derabassi, District- S.A.S. Nagar (Mohali), Punjab – 140507.The total cost of project will be around 898.22 lakhs.

The application for the scoping of the said project was submitted to the Expert Appraisal Committee (EAC) Industry 3, MoEF&CC, New Delhi on dated 12th March 2024 and the standard ToR was granted to the project vide F.No IA-J-11011/105/2024-IA-II(I) on 10th , April 2024.

1.2 LOCATION OF PROJECT

TABLE 1.1: LOCATION AND BRIEF DRSCRIPTION OF PROJECT

S.No.	Parameter	Description
1	**Name of Project**	Proposed for manufacturing of technical grade pesticides by M/s Maggo Chemical and pharmaceutical Unit -2
2	**Total Plot Area**	24159.73 SQ.M. (5.97 Acre)
3	**Project Cost**	8.9822 Crores (898.22 Lakhs)
4	**Latitude & Longitude of project site**	$30^0$34'7.89" N and $76^0$53'7.97" E
5	**Toposheet No.**	H43K14 & H43K15
6	**Khasra No.**	10//21(4-0),10//22(4-0),10/23(3-10), 25//2(4-0),25//3/1(2-18),25//3/2 (0-16),25//1(4-0),26//4/2 (1-9).26//5(4-0)
7	**Village, Tehsil, District, State**	**Village-** Behra (Gulabgarh Behra Road), **Tehsil-** Dera Bassi, **District**- S.A.S. Nagar (Mohali), **Punjab** – 140507.
8	**Proposed Production Capacity**	1011MT/Annum

S. No	Product name	Product Capacity	CAS No.
HERBICIDE (MT/Annum)			
1	Bispyribac-Sodium	33.00	125401-92-5
2	Metribuzin	55.00	21087-64-9
3	Clodinafop Propargyl	30.00	105512-06-9
INSECTICIDES (MT/Annum)			
4	Diafenthiuron	165.00	80060-09-9
5	Fenpyroximate	110.00	111812-58-9
6	Imidacloprid	33.00	138261-41-3
7	Thiamethoxam	44.00	153719-23-4
8	Cypermethrin	15.00	52315-07-8
9	Lambda - Cyhalothrin	88.00	91465-08-6
10	Chlorpyriphos	55.00	2921-88-2
11	Cartap Hydrochloride	55.00	15263-52-2
FUNGICIDE (MT/Annum)			
12	Hexaconazole	110.00	79983-71-4
13	Tebuconazole	110.00	107534-96-3
14	Azoxystrobin	42.00	131860-33-8
15	Metalaxyl	66.00	57837-19-1
Total		**1011**	**MTPA**

9	**Manpower**	**<u>During Construction Phase</u> –** Permanent -50nos. **<u>During Operation Phase</u>-** Permanent-40nos.
10	**Total Water Requirement**	75.14KLD
	Fresh Water	59.52KLD
	Recycle water	15.62KLD
	Source	Bore-Well. Permission will be obtained from Punjab Water Regulation and Development Authority (PWRDA)
11	**Total Wastewater Generation**	19.58KLD
	Industrial W/W	15.08KLD
	Domestic W/W	4.50KLD
12	**Power Load Require**	1600KVA
	Electricity source	Punjab state power supply ltd.
	D.G. set	Quantity – 3 i.e 2 x 500KVA & 1x 125 KVA
13	**Boiler**	6.00TPH
14	**Fuel**	1. Risk Husk Briquette for Boiler: 14 MT/Day 2.HSD for D.G Set: 150 Liters/Day
15	**Nearest Town, City, District Headquarters along with distance in Km.**	Dera Bassi -4. 12 K.M, WNW
State boundary of Punjab and Haryana 2.2 K.M away from project site.		

1.3 MONTHLY PRODUCTION AND EQUIPMENT DETAILS

TABLE 1.2: MONTHLY PRODUCTION CAPACITIES

S. No.	Product	Type	No of Working Day	Production (MT/Month)	Capacity (MT/Annum)
1	Bispyribac-Sodium	Herbicide	100	29.50	118
	Metribuzin				
	Clodinafop Propargyl				
2	Hexaconazole	Fungicide	100	82.00	328
	Tebuconazole				
	Azoxystrobin				
	Metalaxyl				
3	Diafenthiuron	Insecticide	100	141.25	565
	Fenpyroximate				
	Imidcloprid				
	Thiamethoxam				
	Cypermethrin				
	Lambda - Cyhalothrin				
	Chlorpyriphos				
	Cartap Hydrochloride				

TABLE NO. 1.3: LIST OF PROPOSED PLANT EQUIPMENT AND MACHINES.

Sr No	List of Equipment / Machine's	Capacity	Qty	Load (KW / HP)	Usage
1	MSGL Reactor	3000 Ltr.	1	7.5 HP	Reaction cum Distiliation vessel
2	MSGL Reactor	5000 Ltr.	1	10 HP	Reaction cum Distiliation vessel
3	MSGL Reactor	6300 Ltr.	2	15 HP	Reaction cum Distiliation vessel
4	MSGL Reactor	10000 Ltr.	1	20 HP	Reaction cum Distiliation vessel
5	MSGL Reactor	500 Ltr.	2	3 HP	Reaction cum Distiliation vessel
6	SS316 Reactor	500 Ltr.	2	3 HP	Reaction cum Distiliation vessel
7	SS316 Reactor	5000 Ltr.	3	7.5 HP	Reaction cum Distiliation vessel
8	SS316 Reactor	8000 Ltr.	4	15 HP	Reaction cum Distiliation vessel
9	SS316 Reactor	10000 Ltr.	2	20 HP	Reaction cum Distiliation vessel
10	ANFD	6 KL	1	15 HP	For Drying
11	Distiliation Assembly	7000 Ltr.	4 set	40 HP	Distiliation
12	Nutch Filter	8000 Ltr.	3	7.5 HP	Filter
13	Compressor	5 HP	1	5 HP	For Air Supply
14	Vaccum pump/ Ejector System	15 HP	4	15 HP	Vaccum Creation
15	SS Vessel	1000 Liter	2	3 HP	For Settling
16	Condensers / Heat Exchanger	MSGL/Graphite /SS/MS	20	-	Cooling
17	SS Tank	20 KL / 25 KL	4	5 HP	Storage
18	SS Tank	10 KL / 15 KL	3	5 HP	Storage
19	MS Tank	20 KL / 25 KL	4	5 HP	Storage
20	MS Tank	10 KL / 15 KL	4	5 HP	Storage
21	MS Tank	40 KL	4	5 HP	Storage
22	Fire Fighting Equipment	Complete system	1	40 HP	For Fire Control System

TABLE: 1.4 RAW MATERIAL CONSUMPTION

Sr. No	Name of raw material	MTPA	CAS NO	Physical State	Source	Type of storage	Max. Storage Cap. MT/M
Name of Product: Azoxystrobin-42.00MTPA							
1	Toluene	105.00	108-88-3	Liquid	Domestic	Tank	8.75
2	MHPMA	23.10	680-31-9	Liquid	Domestic	Drum	1.925
3	Potassium hydroxide 85%	7.35	1310-58-3	Solid	Domestic	PVC Bag	0.6125
4	4,6-Dichloropyrimidine	16.80	1193-21-1	Solid	Domestic	PVC Bag	1.4
5	2-Hydroxybenzonitrile	13.02	611-20-1	Solid	Domestic	PVC Bag	1.085
6	Sodium hydroxide	4.20	1310-73-2	Crystalline solid	Domestic	PVC Bag	0.35
Name of Product: Bispyribac sodium-33.00MTPA							
7	Ethyl acetate	41.25	141-78-6	Liquid	Domestic	Tank	3.4375
8	2,6-DHBA	12.38	303-07-1	Liquid	Domestic	Drum	1.0313
9	Dimethyl sulfate	10.73	77-78-1	Liquid	Domestic	Drum	0.8938

10	Sodium bicarbonate	7.43	144-55-8	Crystalline powder	Domestic	PVC Bag	0.6188
11	4,6-DMMSP	34.65			Domestic		2.8875
12	Potassium carbonate	23.10	584-08-7	Wet Solid	Domestic	PVC bag	1.925
13	Isopropanol	66.00	67-63-0	Liquid	Domestic	Tank	5.5
14	Sodium hydroxide	3.30	1310-73-2	Crystalline solid	Domestic	PVC Bag	0.275
Name of Product: Cartap hydrochloride-55.00MTPA							
15	2-Dimethylamino-1,3-dichloropropane	46.75	29559-55-5	Liquid	Domestic	Tank	3.8958
16	Sodium thiosulfate	8.36	7772-98-7	Solid	Domestic	PVC Bag	0.6967
17	Sodium cyanide	5.39	143-33-9	crystalline solid	Domestic	PVC Bag	0.4492
18	Cartap solution	173.25	15263-53-3	Liquid	Domestic	Tank	14.438
19	Hydrochloric acid	10.45	7647-01-0	Liquid	Domestic	Tank	0.8708
Name of Product: Chlorpyriphos-55.00MTPA							
20	NaTCP	41.965	Hydrochloric acid	Solid	Domestic		3.4971
21	DETC	35.75	2524-04-01	Liquid	Domestic	Tank	2.9792
22	Catalyst	0.495		Solid	Domestic	PVC Bag	0.0413
23	EDC	176	25952-53-8	Liquid	Domestic	Tank	14.667
24	Caustic lye 48%	2.75	1310-73-2	Liquid	Domestic	Drum	0.2292
Name of Product: Clodinafop propargyl-30.00MTPA							
25	Toluene	60.00	108-88-3	Liquid	Domestic	Tank	5.00
26	RHPPA	16.50		Liquid	Domestic	Tank	1.375
27	5-Chloro-2,3-DFP	13.50	41270-66-0	Liquid	Domestic	Tank	1.125
28	Sodium hydroxide	7.50	1310-73-2	Crystall	Domestic	PVC Bag	0.625
29	Propargyl chloride	5.25	624-65-7	Liquid	Domestic	Tank	0.4375
30	PTSA	0.30	6192-52-5	Solid	Domestic	PVC Bag	0.025
Name of Product: Cypermethrin-15.00MTPA							
31	Meta phenoxy benzaldehyde	7.275	39515-51-0	Liquid	Domestic	Drum	0.6063
32	Hexane	7.695	110-54-3	Liquid	Domestic	Drum	0.6413
33	CMAC	8.43	52314-67-7	Liquid	Domestic	Drum	0.7025
34	Catalyst	0.225		Solid	Domestic	PVC Bag	0.0188
35	Hexane	23.10	110-54-3	Liquid	Domestic	Tank	1.925
36	Soda ash	0.225	497-19-8	Solid	Domestic	PVC Bag	0.0188
37	Sodium cyanide	2.10	143-33-9	crystalline solid	Domestic	PVC Bag	0.175
38	Sodium hypochlorite	0.60	7681-52-9	Liquid	Domestic	Drum	0.05
39	Acetic acid	0.045	64-19-7	Liquid	Domestic	Drum	0.0038
Name of Product: Diafenthiuron-165.00MTPA							
40	Xylene	412.50	1330-20-7	Liquid	Domestic	Tank	34.375
41	2,6-DIPPTU	148.50	24544-04-5	Crystal	Domestic	PVC Bag	12.375
42	Isopropanol	330.00	67-63-0	Liquid	Domestic	Tank	27.5
43	Tert-Butylamine	33.00	75-64-9	Liquid	Domestic	Tank	2.75
Name of Product: Fenpyroximate-110.00MTPA							
44	Dichloroethane	330	107-06-2	Liquid	Domestic	Tank	27.5
45	1,3-DMPPCO	64.9		Liquid	Domestic	Drum	5.4083

46	TBCMB	63.86	216-699-2	Liquid	Domestic	Drum	5.3167
47	Potassium carbonate	19.8	584-08-7	Wet solid	Domestic	PVC Bag	1.65
Name of Product: Hexaconazole-110.00MTPA							
48	Toluene	165	108-88-3	Solid	Domestic	PVC Bag	13.75
49	2,4-DCPP	85.8	120-83-2	Solid	Domestic	PVC Bag	7.15
50	Dimethyl sulfide	23.1	75-18-3	liquid	Domestic	Tank	1.925
51	Sodium hydroxide	29.15	1310-73-2	Crystalline Solid	Domestic	PVC Bag	2.4292
52	1,2,4-Triazole	24.75	288-88-0	Powder Solid	Domestic	PVC Bag	2.0625
Name of Product: Imidacloprid-33.00MTPA							
53	CCMP	29.7		Powder solid	Domestic	PVC Bags	2.475
54	N-NII	24.816		Gas	Domestic	Cylinder	2.068
55	DMF	72.6	68-12-2	Liquid	Domestic	Tank	6.05
56	Catalyst	0.33		Solid	Domestic	PVC Bag	0.0275
57	Na_2CO_3	23.298	497-19-8	Crystalline solid	Domestic	PVC Bag	1.9415
58	Crude Imidacloprid	48.51	138261-41-3	Semi solid	Domestic	PVC Bag	4.0425
59	Methanol	13.2	67-56-1	Liquid	Domestic	Tank	1.10
60	Caustic lye	1.65	1310-73-2	Crystalline solid	Domestic		0.1375
Name of Product: Lambda cyhalothrin-88.00MTPA							
61	Lambda cyhalothrin acid	51.04	72748-35-7	Solid	Domestic		4.2533
62	DMF	0.44	68-12-2	Liquid	Domestic	Drum	0.0367
63	Thionyl chloride	25.52	7719-09-7	Liquid	Domestic	Tank	2.1267
64	n-Hexane	176	110-54-3	Liquid	Domestic	Tank	14.667
65	Sodium cyanide	10.12	143-33-9	Crystalline Solid	Domestic	PVC Bag	0.8433
66	3-Phenoxybenzaldehyde	39.60	39515-51-0	Liquid	Domestic	Tank	3.3
67	Isopropyl alcohol	176	67-63-0	Liquid	Domestic	Tank	14.667
68	Diisopropylamine	4.4	108-18-9	Liquid	Domestic	Drum	0.3667
Name of Product: Metalaxyl-66.00MTPA							
69	n-Hexane	165	110-54-3	Liquid	Domestic	Tank	13.75
70	2,6-Dimethylaniline	29.7	87-62-7	Liquid	Domestic	Tank	2.475
71	Sodium carbonate	26.4	497-19-8	Crystalline Solid	Domestic	PVC Bag	2.2
72	Methyl-2-chloropropionate	30.36	17639-93-9	Liquid	Domestic	Tank	2.53
73	2-Methoxyacetyl chloride	26.40	38870-89-2	Liquid	Domestic	Tank	2.20
Name of Product: Metribuzin-55.00MTPA							
74	4-Amino-6-tert-butyl-3-mercapto-1,2,4-triazin-5(4H)-one (ATMT)	55.00		Liquid	Domestic	Drum	4.5833
75	Dimethyl sulphate	35.86	77-78-1	Liquid	Domestic	Tank	2.9883
76	Sulphuric acid	70.07	7664-93-9	Liquid	Domestic	Tank	5.8392

77	Soda ash	88.00	497-19-8	Solid	Domestic	PVC Bag	7.3333
78	Caustic soda flakes	1.65	1310-73-2	Crystalline Solid	Domestic	PVC Bag	0.1375
Name of Product: Tebuconazole-110.00MTPA							
79	Dichloroethane	275	107-06-2	Liquid	Domestic	Tank	22.917
80	CPDMP	85.25	87413-09-0	Liquid	Domestic	Drum	7.1042
81	Dimethyl sulfide	23.65	75-18-3	Liquid	Domestic	Tank	1.9708
82	Sodium hydroxide	30.25	1310-73-2	Crystalline Solid	Domestic	PVC Bag	2.5208
83	1,2,4-Triazole	25.3	288-88-0	Solid	Domestic	PVC Bag	2.1083
Name of Product: Thiamethoxam-44.00MTPA							
84	DMF	110.00	68-12-2	Liquid	Domestic	Tank	9.1667
85	CCMT	26.4		Liquid	Domestic	Drum	2.20
86	MNIO	25.3		Liquid	Domestic	Drum	2.1083
87	Potassium carbonate	11.00	584-08-7	Wet solid	Domestic	PVC Bag	0.9167

TABLE NO. 1.5 : DETAILS OF UTILITIES SERVICES

Sr. No	Type of Utilities	Proposed	Qty	Load (KW/HP)	Usage	Location
1	Boiler	6.00 TPH	1	75 HP	Steam Generation	Utility Block
2	DG Sets	500 KVA	1	-	Electricity Generation	Utility Block
3	DG Sets	125 KVA	1	-	Electricity Generation	Utility Block
4	Cooling Tower	2 X 1000 TR	2	100 HP	Process Water Cooling	Utility Block
5	Brine Plant	2 X 60 TR - 10 Deg. C	1	100 HP	Refrigeration	Utility Block
6	Nitrogen Plant	60 M^3 per Hr	1	-	Nitrogen Blanking	Utility Block
7	Air Compressor	125 CFM	1	60 HP	Air Supply	Utility Block
8	Transformer	1600 KVA	1	-	Electricity	Utility Block
9	RO Plant	15 KLD	1	1 HP	W/W Treatment Plant	Utility Block
10	STP	5 KLD	1	25 HP	W/W Treatment Plant	ETP Block
11	ETP	20 KLD	1	45 HP	W/W Treatment	ETP Block
12	Incinerators	200kg/day	1	20 HP	HW Incineration	ETP Block
13	MEE	15 KLD	1	45 HP	Water Evaporation	ETP Block

1.4 INVESTMENT OF THE PROJECT

The overall investment in the project is assumed to be 8.9822 Crore. About Rs. 2.10 Crore are proposed for the environment protection program. This cost will be spending in phase wise along with the growth of project.

Table no. 1.6 Environment Management Budget

SN	Environment Issue	Component	Capital Cost of EMP (Lakhs)	Recurring cost of EMP/ ANNUM (Lakhs)
1	**Air /Noise Pollution Control**	Cost Stack Installation Cost of Cooling and Chilling units Cost of Venturi Scrubber, Cost of Multi Cyclone at Boiler Cost of Acoustic enclosure at DG Set Cost of online continuous emission monitoring system	**50**	**1.5**
2	**Water Pollution Control**	Cost of ETP, STP, MEE, RO Installation Cost of Flow meter at Inlet/outlet of Effluent at ETP	**100**	**4**
3	**Green Belt**	Cost of purchase of the sapling Cost of Tree planting Cost of watering Cost of maintenance Cost of Manuring Misc. Cost (lawn/garden and other form of greenery	**5**	**1**
4	**Occupational Health**	Cost of PPE, Oxygen Cylinder, Stretcher & Antidote etc. Imparting safety training to employees every 6 months Medical examination of employees (Permanent Doctor & Paramedical Staff) Cost of firefighting Extinguishers	**2.5**	**1.5**
5	**Hazardous Waste**	Cost Construction of Hazardous waste Storage yard Cost of TSDF Membership Cost of Incinerator Installation	**50**	**1**
6	**Environmental Monitoring**	Cost of RDS Cost of Stack Monitoring kit Cost of Dragen pump & tube Misc. Cost (Sensor, apparatus, Equipment	**2.5**	**1**
Total			**210**	**10**

ACTIVITIES IN PROVISION OF CER		
S. N	**Particulars**	**Proposed Budget in Lacs**
1	Installation of RO Plant in Govt. Sr. Secondary School, Derabassi	1
2	Solar Panel 10 KW donate to Sarvhitkari Vidya mandir school, Derabassi.	1
3	Surface runoff rainwater harvesting in Nearest village Pond (desilting of pond to recharge the rainwater, waste water of the village shall be diverted in one corner & improving beautification of surrounding pond area by providing green wire mesh fencing and	5

	flowering plantation around the pond	
4	Plantation on roads in industrial area with tree guards and maintenance	1
Total		**8**

1.5 DESCRIPTION OF ENVIRONMENT

The environmental monitoring for Ambient air quality, water quality, soil quality, noise levels, meteorology and traffic survey of the study area extending 10km beyond the site boundary was carried out by Environmental and Chemical Laboratory (Wolkem India Limited), E-101-102, Mewar Industrial Area, Madri, Udaipur, Rajasthan, India.

To predict the impact of the proposed activities on the surrounding environment, the current baseline environmental status was studied by collecting the data and carrying out monitoring for the period of October 2023 to December 2023. The environmental monitoring data has been analysed with respect to ambient air quality, water quality, noise levels, soil characteristics, flora & fauna and parameters concerning human interest. On the basis of monitoring data, the relevant impacts on various environmental components were also predicted by using appropriate mathematical models as well as impact assessment techniques. An appropriate environmental management plan was also delineated to minimize the adverse impacts.

A. AIR ENVIRONMENT

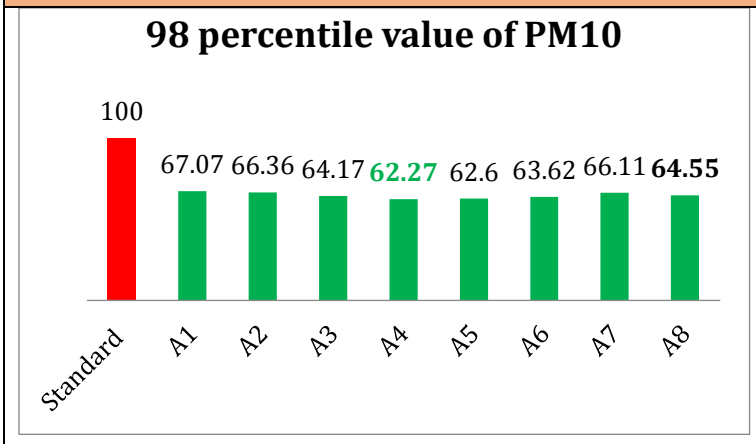
The monitoring has been carried out at a frequency of two samples per week at each of eight locations, adopting a continuous 24-hour schedule for the period of 1st October 2023 to 31st December 2023.

TABLE 1.7: AMBIENT AIR QUALITY MONITORING STATIONS

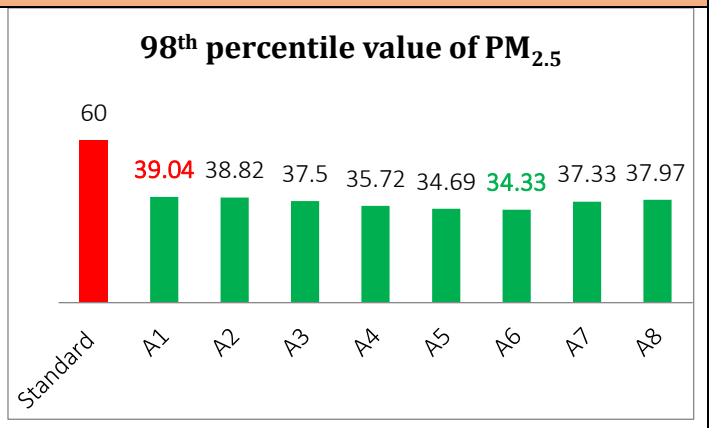
S. No.	Station	From the plant area		Coordinate	
		Distance in KM	Direction	Longitude	Latitude
A1	Project Site	0.00K.m.	…..	30°34'7.70"N	76°53'11.30"E
A2	Gulabhgarh Road	428m	SE	30°33'54.27"N	76°53'21.07"E
A3	Bharalli Village	4.95K.m.	SE	30°32'14.68"N	76°55'26.05"E
A4	Derabassi Village	4.11K.m.	NW	30°35'10.69"N	76°50'45.56"E
A5	Bhadurgarh Village	2.69K.m.	N	30°35'36.43"N	76°53'11.30"E
A6	Kheri Gujran Village	1.84K.m.	SW	30°33'16.80"N	76°52'31.11"E
A7	Mantatwala Village	7.42K.m.	NE	30°37'4.12"N	76°56'23.14"E
A8	Toghanpur Village	7.80K.m.	SW	30°31'22.13"N	76°49'24.57"E

Note:- Air Sampler was placed at height 3-4 m .

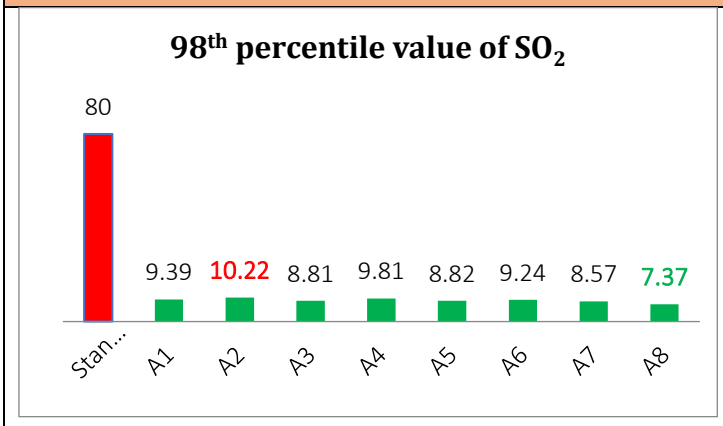
BASELINE PM_{10} CONCENTRATION V/S NAAQ STANDARDS



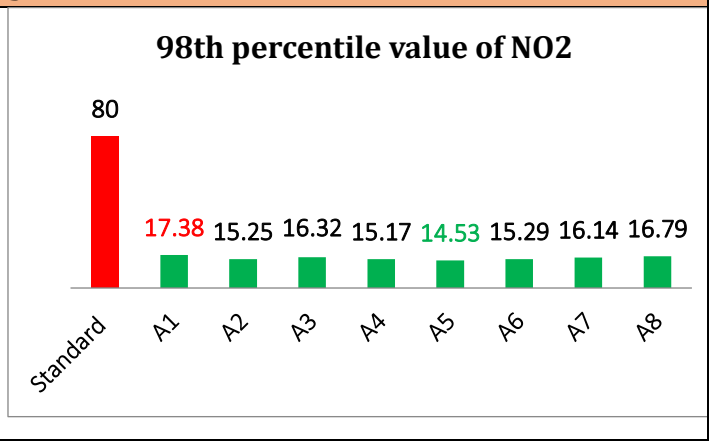
BASELINE $PM_{2.5}$ CONCENTRATION V/S NAAQ STANDARDS



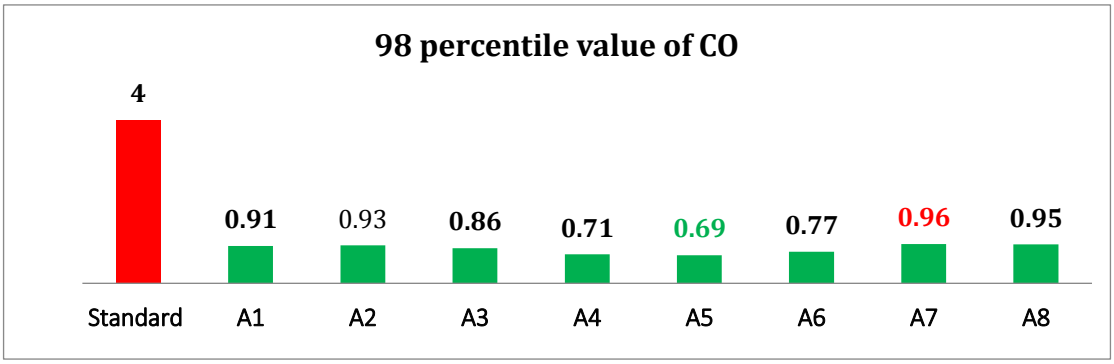
BASELINE SO_2 CONCENTRATION V/S NAAQ STANDARD



BASELINE NO_2 CONCENTRATION V/S NAAQ STANDARD



BASELINE CO CONCENTRATION V/S NAAQ STANDARDS



B. WATER ENVIRONMENT

✓ **Ground water quality**

Total 8 ground water sample were collected from 10K.m. radius of project site for check the quality of ground .Location table is given below:

TABLE 1.8 GROUND WATER MONITORING LOCATIONS

Station Code	Locations	From the plant area		Coordinate	
		Distance in KM	Direction	Latitude	Longitude
Ground Water					
W_1	Project site	45M	E	30°34'9.16"N	76°53'13.88"E
GW_1	Gulabhgarh Road	2.99	WNW	30°34'47.07"N	76°51'18.44"E
GW_2	Batawar Village	6.60	ESE	30°32'48.56"N	76°57'3.47"E
GW_3	Derabassi Village	4.16	NW	30°35'10.89"N	76°50'45.26"E
GW_4	Samgauri Village	3.60	SSE	30°32'12.66"N	76°53'48.02"E
GW_5	Bahadurgarh Village	2.58	NNE	30°35'28.89"N	76°53'44.49"E
GW_6	Mukandpur Village	4.11	SW	30°32'31.19"N	76°51'14.00"E
GW_7	Kheri Gujran	1.75	SSW	30°33'16.42"N	76°52'32.79"E
GW_8	Mantatwala village	7.30	NE	30°37'9.83"N	76°56'10.95"E
Surface Water					
SW_1	Dhangri River Upstream (Sultanpur)	6.15	E	30°34'17.02"N	76°57'2.80"E
SW_2	Dhangri River Downstream (Batawar)	8.24	ESE	30°32'9.95"N	76°57'50.86"E
SW_3	Ghaggar River Upstream (Sanauli)	7.88	NNW	30°38'20.93"N	76°52'23.33"E
SW_4	Ghaggar River Downstream (Bhankharpur)	7.01	SW	30°36'46.31"N	76°49'52.40"E

OBSERVATION ON GROUND WATER QUALITY

- The pH value of ground water is an important index of acidity or alkalinity. pH value of the sample varies from 7.15 to 7.90 in all locations, which is well within the specified standards.
- Electric Conductivity vary from 550.6 µs/cm to 1196 µs/cm. Highest Electric Conductivity was found at GW1(Gulabhgarh road)and minimum at GW8(Mantatwala village).
- Total dissolved solids ranges from 368 to 754 mg/l. Minimum value was found at (GW8) at Mantatwala village and maximum at (GW1) Gulab garh road. All the results were found well within permissible limit of IS 10500: 2012.
- The hardness values in ground water of the study area ranges between 136 to 400 mg/l. Maximum value was found at (GW2) Batawar Village and minimum at (GW6) Mukandpur Village. All the results were found below the acceptable limits of IS 10500: 2012.
- The chloride values in ground water of the study area ranges between 32 to 196 mg/l. Chloride values at all locations were found below the acceptable limit as per Indian Standard IS: 10500-2012.
- The fluoride content was found well within permissible limits at all location of study area.

INTERPRETATION: The analysis results of ground water samples of study area indicate that the quality of ground water is satisfactory and the obtained results are meeting the permissible limit of Indian Standard IS: 10500-2012. It is interpreted that water samples collected from the villages should not be directly used in drinking purpose but can be used in other domestic purposes like washing, bathing and irrigation.

OBSERVATION OF SURFACE WATER QUALITY

The maximum pH value of 7.70 observed in Dhangri river upstream water sample and minimum pH value observed in Ghaggar river upstream water sample. The maximum electrical conductivity value 892.4 µs/cm observed in Dhangri river upstream water sample and minimum electrical

conductivity value 568.8 µs/cm observed in Dhangri river downstream water sample.
No major difference observed in DO level of Dhangri river and Ghaggar river water sample. The maximum DO value 6.4 mg/l in Ghaggar river and 6.3 mg/l in Dhangri river was observed.

C. NOISE ENVIRONMENT

Eight locations were selected within 10 k.m. radius of project site for monitoring Noise level locations are tabulated below:-

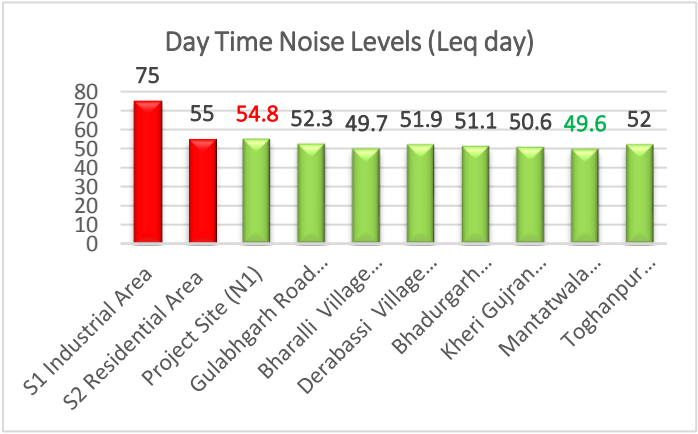
Ambient Noise Levels in The Study Area [dB(A)]

TABLE 1.9: AMBIENT NOISE QUALITY

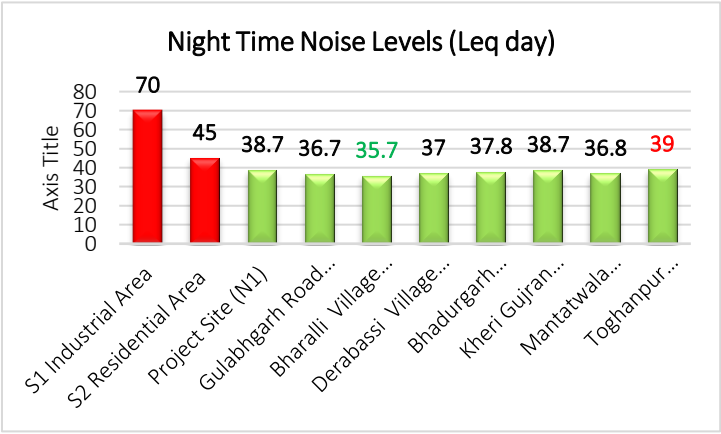
Station Code	Name of the location	Noise Location	Day			Night		
			L_{Max}	L_{Min}	Leq	L_{Max}	L_{Min}	Leq
		S1 Industrial Area			75			70
		S2 Residential Area			55			45
N1	Project Site	Industrial Area	66.7	42.0	54.8	42.7	34.8	38.7
N2	Gulabhgarh Road	Residential Area	62.2	42.5	52.3	38.2	35.0	36.7
N3	Bharalli Village	Residential Area	59.7	40.4	49.7	37.2	34.5	35.7
N4	Derabassi Village	Residential Area	62.3	42.6	51.9	38.7	35.9	37.0
N5	Bhadurgarh Village	Residential Area	62.8	43.1	51.1	39.4	36.6	37.8
N6	Kheri Gujran Village	Residential Area	63.3	40.8	50.6	40.4	36.9	38.7
N7	Mantatwala Village	Residential Area	55.7	35.3	49.6	43.2	33.2	36.8
N8	Toghanpur Village	Residential Area	63.7	38.0	52.0	40.7	37.2	39.0

The physical description of sound concerns its loudness as a function of frequency. Noise in general is sound, which is composed of many frequency components of various types of loudness distributed over the audible frequency range.

GRAPHICAL PRESENTATION OF NOISE RESULTS DAY TIME (Leq)



GRAPHICAL PRESENTATION OF NOISE RESULTS NIGHT TIME (Leq)



D. SOIL ENVIRONMENT

The soil samples were collected from core zone and buffer zone of project site, were analyzed in Environment and Chemical laboratory of M/s Chandigarh Pollution Testing Laboratory (CPTL) accredited by NABL and recognized by MOEF&CC

TABLE 1.10 SOIL MONITORING LOCATION

S. No	Locations	From Project Site		Latitude	Longitude
		Distance	Direction		
S_1	Project Site	0.00K.m.	…..	30°34'7.73"N	76°53'11.07"E
S_2	Bera Village	2.12 K.m.	ESE	30°33'39.50"N	76°54'24.68"E
S_3	Batawar Village	6.51 K.m.	ESE	30°32'50.44"N	76°56'59.49"E
S_4	Samgauri Village	3.65 K.m.	SSE	30°32'10.81"N	76°53'47.75"E
S_5	Mukandpur Village	4.12 K.m.	SW	30°32'30.93"N	76°51'14.59"E
S_6	Haibatpur Village	4.06 K.m.	NNW	30°36'7.47"N	76°51'55.71"E
S_7	Sultanpur Village	5.06 K.m.	ENE	30°34'35.68"N	76°56'18.80"E
S_8	Janetpur Village	6.14 K.m.	W	30°33'22.05"N	76°49'16.08"E

The average analysis of soil sample reveals that most of the soil of S.A.S. Nagar (Mohali) district has developed in situ.

- The average analysis of soil sample reveals that most of the soil of S.A.S. Nagar (Mohali) district has developed in situ.
- The bulk density of the soils was found in the range of 1.39 gm/cm3 at Batawar Village (S3) to 1.52 gm/cm^3 at Mukandpur village (S5).
- Water Holding Capacity of study area soils was observed as 34.26 % at Batawar village (S3) to 38.62 % at Haibatpur village (S6).
- The soil pH ranges from 7.76 Sultanpur village (S7) to 7.96 project site (S1).
- The Organic matter content of soil varied 0.33 Bera village (S2) to 0.45 % at Janetpur village(S8).
- Available nitrogen content in the surface soils ranges between 97.65 kg/ha at Haibatpur village(S6) to Bera village(S2) 119.70 kg/ha.
- Total phosphorus content ranges between 28.35 Kg/ha Janetpur village(S8) to 32.01kg/ha at Batwar village(S4).
- Total potassium content in these soils ranges between 241.6 kg/ha at Sultanpur village (S7) to 302.3 at Batawar village Kg/ha(S3).
- The available zinc in surface soils of the study area ranges from 30.20 % at Mukandpur village (S5)% and 38.40 % at Bera village (S2) village. As per the critical limit of available zinc (0.5-mg/kg), most of the study area soils are more than sufficient in available zinc in the vicinity of the project.
- EC of the soil sample was in the range of 182.2 µs Samguri (S4) to 321.20 µS project site S1).
- Chlorides were in the range of 0.0054 at Batawar village S3(Batawar) to 0.0064 % at Sultanpur village(S7).
- It was observed that levels of Cu, Cd, Fe, were found to be in the range of 15.8% Haibatpur village (S6) to 24.6 % Mukanduri Village (S5), Cd 0.8% (S1) to 1.1% (S4), Fe 1.78 % Haibatpur village(S6) to 2.24% Sultanpur village (S7). No toxic metals are observed in the soil-water extract.

1.6 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Air Environment

Main source of gaseous emission will be fugitive emissions and pollutant into air from the proposed project will be through flue gas stacks attached to boiler, DG set, through process vents and flue gas stack attached to incinerator.

Adequate stack height of DG set will be maintained and Multicyclone with dry scrubber will be installed at boiler to control emission pollutant under norms.

The table is given below for the sources of air pollution and its control.

TABLE 1.11: SOURCES OF AIR POLLUTION AND ITS CONTROL

Sr. No	Source of Emission	Type of Emission	Stack Height (meter)	Fuel Name & Quantity	Pollution Control Equipment
1	Boiler	SPM SOx NOx	30	Rice Husk Briquettes 13.9 MT/day	Multi-Cyclone and Dry Scrubber is proposed.
2	Process Vent	HCl, SO_2, Solvent Vapours Pesticide in the form of P.M.	15	-	- Caustic Scrubber - VOC control system - Activated carbon adsorption system
3	D.G. Set 125 KVA & &2x 500KVA):	SPM Sox NOx	15	HSD As and when required	Dust Collector, Silencer
4	Stack attached to Incinerator	SPM SOx NOx	30	HSD As and when required	- Caustic Scrubber

Water Environment

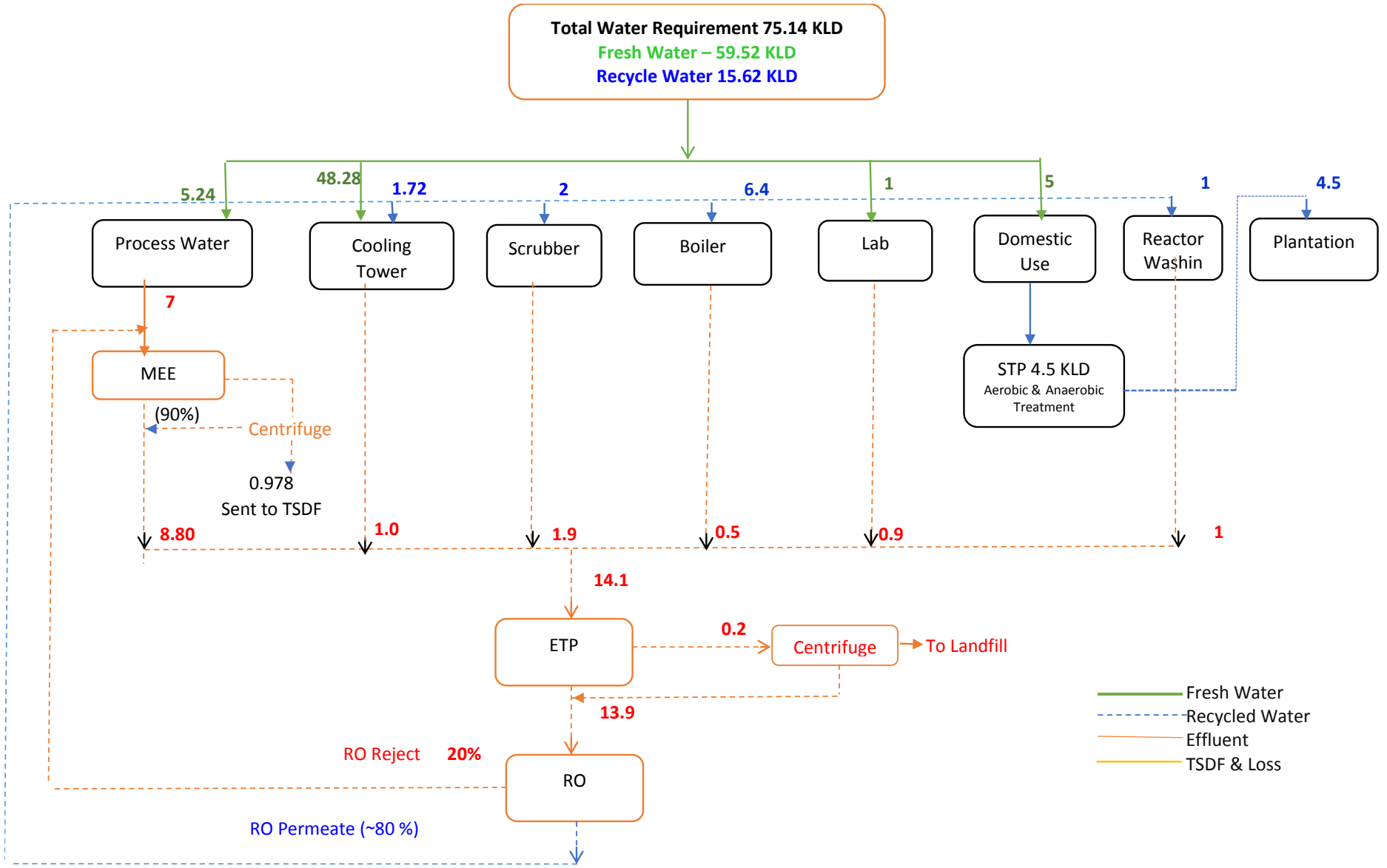
CONSTRUCTION PHASE: The total water requirement during construction phase will be 20 KLD out of which 15 KLD of water will be required for construction works and rest of 5 KLD water will be required for domestic purpose. Waste water generated from domestic usage will be treated in septic tank followed by soak pit.

OPERATION PHASE: Total Water requirement is 75.14KLD out of which 15.62KLD STP/ETP/MEE treated water will be recycled and hence only 59.52 KLD fresh water will be required which will be fulfilled from in-house bore well after permission from concerned authority i.e. Punjab water regulation and development authority (PWRDA).

TABLE 1.12: WATER REQUIREMENT

Particulars		Water Requirement KLD	Recycled Water KLD	Fresh Water Requirement KLD
Industrial	Process	5.24	-	5.24
	Cooling Tower	50.00	1.72	48.28
	Boiler	6.40	6.40	0.00
	Scrubber	2.00	2.00	0.00
	R. Washing	1.00	1.00	0.00
	Lab	1.00	-	1.00
	Plantation	4.50	4.5	0.00
Domestic		5.00	-	5.00
TOTAL (KL/DAY)		**75.14**	**15.62**	**59.52**
Domestic		**4.50**		
TOTAL (KL/DAY)		**19.58**		

WATER BALANCE



WASTE WATER GENERATION

DOMESTIC SEWAGE: Total 4.50KLD domestic sewage will be generated in proposed project and after proper treatment at sewage treatment plant the effluent will be used for irrigation of green belt area.

INDUSTRIAL EFFLUENT: The total industrial wastewater generation from project will be 19.58 KLD. Sources of industrial effluent generation will be from manufacturing process, scrubber, reactor washing, and utilities. Industrial effluent will be segregated at source for high COD, high TDS and low COD, low TDS and treated accordingly.

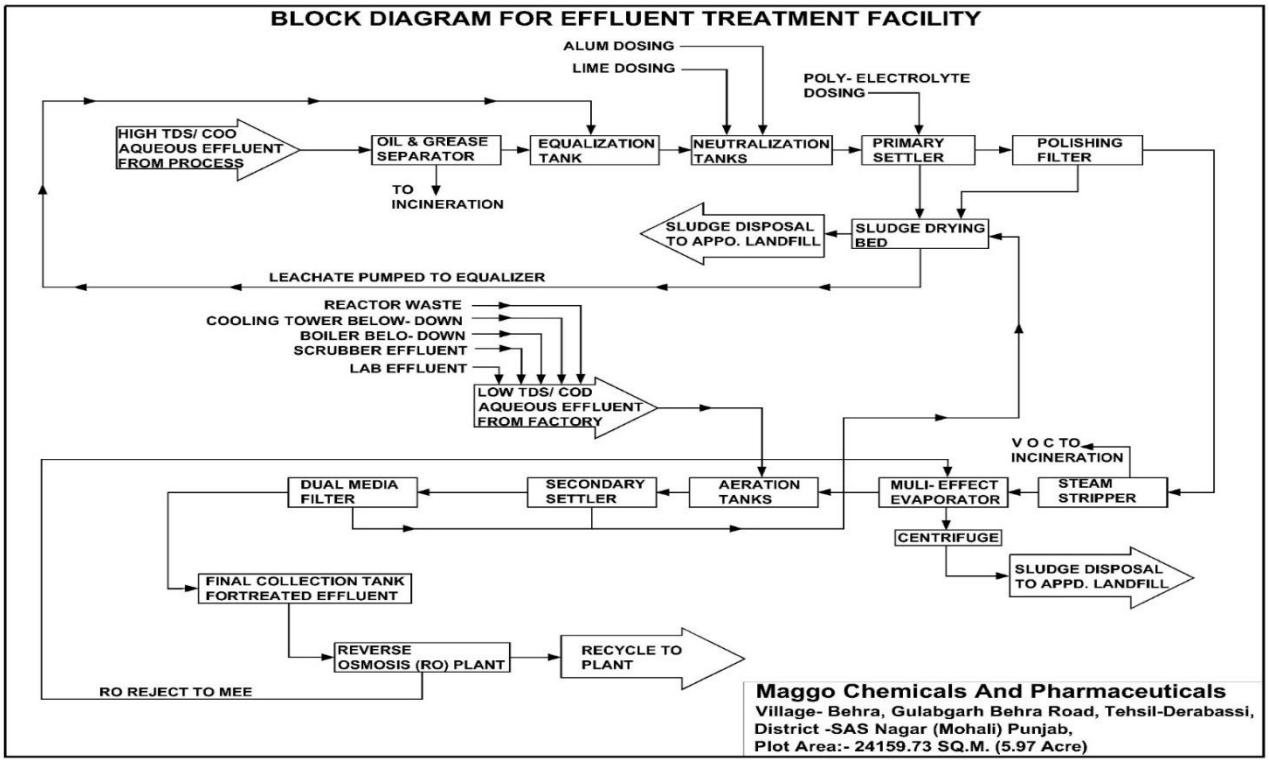
The sources of wastewater generation and quantity per day in proposed project are given in **above figure** and Water Balance Diagram is shown **Figure No1.13**

Table No. 1.13: Details of wastewater generation

Particulars		Wastewater Generation	Disposal Method
Industrial	**Process**	7.00	ALL EFFLUENT INCLUDING MEE CONSENSATE WILL BE SENT TO RO - PROCESSING. RO - PERMEATE WILL BE REUSE IN BOILER, COOLING TOWER, REACTOR WASHING & SCRUBBER. RO - REJECT WILL BE SENT TO MEE AND ZLD WILL BE MAINTAINED IN PROPOSED PROJECT
	Cooling Tower	1.00	
	Boiler	0.50	
	Scrubber	1.90	
	R. Washing	1.00	
	RO – Reject	2.78	
	LAB	0.90	
TOTAL INDUSTRIAL (KL/DAY)		**15.08**	DOMESTIC WASTEWATER WILL BE SENT TO STP FOR AEROBIC AND ANAEROBIC TREATMENT AND REUSED IN PLANTATION.

1.7 ETP PROCESS DESCRIPTIONS AND FLOW DIAGRAM

Wastewater generated from the proposed pesticide manufacturing plant will be segregated into separate streams depending on their pollution levels as given in wastewater treatment methodology.



Hazardous Waste Management

Entire quantity of hazardous waste will be handled and disposed as per Hazardous Waste (Management, Handling and Trans boundary movement) Rules'2016, amended time to time. Different categories sloid and liquid hazardous waste will be generated. SHE department shall insure to follow CPCB guideline during the collection, storage, handling, transportation and disposal of each category hazardous waste.

TABLE: 1.14 HAZARDOUS & SOLID WASTE GENERATION QUANTITY AND MODE OF DISPOSAL

S. No.	HW/Solid Waste	Category	Proposed	Disposal Method
Hazardous Waste MTPA				
1	Process Residue	28.1	104.23	TSDF/Cement
2	ETP Sludge	35.3	60.00	TSDF
3	MEE Sludge	35.3	293.40	TSDF
4	Empty	33.1	100	Sale to Authorized
5	Used/spent oil	5.1	50 Ltr/Month	Sale to Authorized
B. Solid Waste MTPA				
7	Fly Ash (Boiler)	….	802	Sale to brick
8	Incinerator Ash	37.2	5.00	TSDF

Noise Control Measures

The main sources of noise pollution will be from operation of boiler, D.G. set, process plant, APCM and other machineries etc. However, the noise transmitted outside the plant boundary will be low because most of the noise generating equipment's will be in closed structures provided with acoustic enclosure. Greenbelt will be developed around the periphery of the plant. Ear muff, ear plug will be provided to all workers working at noisy area.

Green Belt Development

The main objective of the green belt is to provide a barrier between the plant and surroundings areas. Total 24159.73 sq. m land area is available at site; out of this area about 7976 Sq.m (33.00%) area will be covered as greenbelt and other forms of greenery.
. Capital cost will be Rs.5.0 lakhs and recurring cost Rs. 2.0 Lakhs /Year.
The budget includes cost of digging of pits, fertilizers, saplings and maintenance for 3 years.

1.8 ENVIRONMENT MONITORING PROGRAMME

The details of monitoring are given below table:

TABLE 1.15 ENVIRONMENT MONITORING PROGRAMME

Nature of Analysis	Frequency of analysis	Parameters
Wastewater	Monthly by external agency	pH, COD, BOD,TDS, SS, Oil & Grease, etc.
Stack Monitoring of each stack	Monthly by external agency	PM, SO2, NOX,
Ambient Air	Monthly for 24 hours or as per the statutory conditions by external agency	PM10, PM2.5, SO2, NO_X, HCL, CO
Noise level	Monthly as per the statutory conditions by external agency	Near Main gate, Near. boiler, Process area, Near ETP, Near D.G. etc.
Work area monitoring	Monthly by external agency	RPM, VOC, Acid Fumes
Health check-up of workers	As per the statutory guideline.	

1.9 QUALITATIVE RISK ANALYSIS

Risk analysis and study have been carried out for identification of hazards, selection of credible scenarios, Risk Mitigation measures etc. All the hazardous chemicals will be stored and handled as per MSDS guidelines.

1.10 PROJECT BENEFITS

The proposed project will become beneficial to the surrounding area or community in terms of infrastructural development, Social development, employment and other tangible benefits. The proposed project has a potential for employment of skilled, semi-skilled and unskilled manpower during construction phase as well as operational phase.

1.11 ENVIRONMENTAL MANAGEMENT PLAN

Overall objective of EMP

Prevention: Measures aimed at impeding the occurrence of negative environmental impacts and/or preventing such an occurrence having harmful environmental impacts.

Preservation: Preventing any future actions that might adversely affect an environmental resource or attribute.

Minimization: Limiting or reducing the degree, extent, magnitude, or duration of adverse impacts.

1.12 CONCLUSION

Based on the study it is concluded that,

- **Domestic Sewage**: Total 4.50KLD domestic sewage will be generated in proposed project and after proper treatment at sewage treatment plant the effluent will be used for irrigation of green belt area.
- **Industrial effluent**: The total industrial wastewater generation from project will be 19.58 KLD. Sources of industrial effluent generation will be from manufacturing process, scrubber, reactor washing, and utilities. Industrial effluent will be segregated at source for high COD, high TDS and low COD, low TDS and treated accordingly.
- **Construction Phase**: The total water requirement during construction phase will be 20 KLD out of which 15 KLD of water will be required for construction works and rest of 5 KLD water will be required for domestic purpose. Waste water generated from domestic usage will be treated in septic tank followed by soak pit.
- **Operation Phase:** Total Water requirement is 75.14KLD out of which 15.62KLD STP/ETP/MEE treated water will be recycled and hence only 59.52 KLD fresh water will be required which will be fulfilled from in-house bore well after permission from concerned authority i.e. Punjab water regulation and development authority (PWRDA). Multi-Cyclone with dry scrubber will be installed at boiler. Hence pollutants will be well within the prescribed norms.
- Solvent recovery system shall be related to VOC control system and finally to activated carbon adsorption system will be provided to avoid release any solvent vapours/fumes in the atmosphere. In any emergency, carbon adsorption system will be disconnected, and vapours diverted to incinerator.
- To prevent Fugitive emission, various steps will be taken like regular sprinkling of water and paved road.
- Adequate arrangement for handling and disposal of Hazardous solid waste will be made.
- Fire protection and safety measures will be provided to take care of fire and explosion hazard.
- Suggestions of qualitative risk analysis study will be followed to minimize accidents and for safe operations.
- Recommendations suggested in Environmental Management Plan will be followed to minimize the impact of proposed project.

Overall, direct and indirect employment opportunities, improvement in basic infrastructures by development of industry etc. will be observed with negligible impact on environment. It can be concluded that on positive implementation of mitigation measures and environmental management plan during the construction and operational phase, there will be negligible impact on the environment.

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