Gujarat Industries Power Company Limited

At. : Nani Naroli,Ta.: Mangrol
Dist. : Surat -394110

Six Monthly Report of Valia and Mangrol Lignite Mines

ENVIRONMENTAL MONITORING & ANALYSIS REPORT

For the period of April - 2025 to September - 2025

Prepared By

ECOSYSTEM RESOURCE MANAGEMENT PVT. LTD.

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PREFACE

Consciousness at national level in the industrial sector is increasing day by day with the focus on environment and sustainable development. A good environment management policy requires a constant effort to analyses and monitors various operations and processes, to generate and transmit this information to the inspecting authority.

As per the Air & Water Consent Orders issued by **Gujarat Pollution Control Board** (GPCB) Gandhinagar & also as per the Environment Clearance certificate issued by Ministry of Environment, Forest and Climate Change (MoEF & CC), Govt. of India, New Delhi, it is mandatory to collect the samples of Air/Gaseous emissions and effluent, to analyses the samples from a recognized laboratory and submit the analysis reports to GPCB & MoEF.

Gujarat Industries Power Company Limited (GIPCL) - Surat Lignite Power Plant is situated at Village – Nani Naroli, Tal. Mangrol, Dist. Surat. This company engaged in the generation of Electricity. The Industry has awarded the contract for bimonthly monitoring and analysis to M/s. Ecosystem Resource Management Pvt. Ltd. Surat.

Ecosystem Resource Management Pvt. Ltd. is one of the leading companies in the field of Environmental Consultancy Service Providers in India. ERM has a well-equipped and developed **NABL Accredited and MoEF & CC** recognized laboratory to carry out the analysis in air, stack emission, fugitive emission, water & waste water, noise, soil, and solid waste etc.

Scope of work for Valia & Mangrol lignite Mine

I. Ambient Air Monitoring

Sr. No.	No. of stations & Location	Duration	Frequency	Parameters	Method of Analysis
1.	8 Nos within the radius of 10 km from the Core Zone and buffer zone.	24 hours	Bi-Monthly	PM_{10}	IS 5182 Part 23 2006/Reaffirmed 2017
				$PM_{2.5}$	SOP No.WI/5.4/02-B/03,Issue No.1Date:01/01/2010
				SO_2	IS 5182 Part II 2001/Reaffirmed 2017
				NO_2	IS 5182(Part VI):2006/Reaffirmed 2017
				CO	IS 5182(Part 10):1999/Reaffirmed 2014

II. Dust Fall measurement

Sr. No.	No. of station and locations	Duration	Frequency	Parameters	Method of analysis
1.	8 Nos within the radius of 10 km from the Core Zone and buffer zone.	One Month	Bi-Monthly	Dust fall	As per IS-5182

III. Noise Monitoring:

Sr. No.	Noise of stations and locations	Duration	Frequency	Parameters	Method of analysis
1.	8 Nos at various location within the plant premises	24 hours	Bi-Monthly	Day & night noise level	As per IS 9989 using the Noise level meter.

Weather Monitoring Data

Sr. No.	No. of stations and locations	Duration	Frequency	Parameters	Method of analysis
1.	1 No at site office of the Mine	24 hours	Bi-Monthly	Dry & Wet Bulb Temp. Relative Humidity wind speed & direction max & min. Temperature	As per IS 8829 on hourly basis for 24 hrs by using mechanical Instrument.

Water quality monitoring

Sr. No.	No. of stations and locations	Duration	Frequency	Parameters	Method of analysis
1.	10 Nos. of Bore well & 2 No. of Sump Water sample 2 No. of Pond water	1	Bi-Monthly	Physical parameters, Chemical Parameters, Heavy metals	As per the standard methods for the examination of water and waste water APHA 23rd Edition 2017 and various Indian standards IS 3025.

Comparative Ambient Air Monitoring & Dust fall Monitoring Report & Graphical Presentation

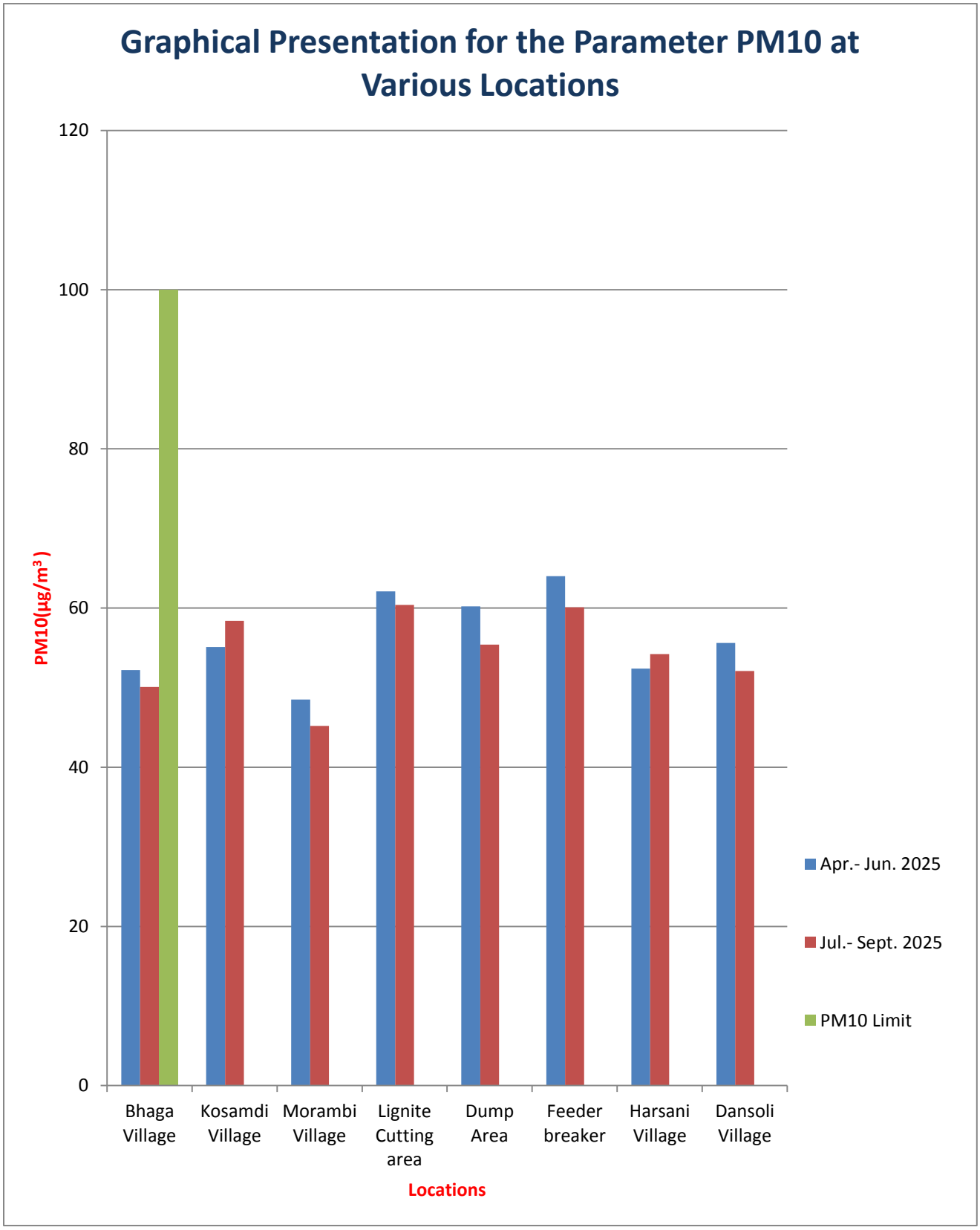
Six Monthly Variation in Ambient Air Quality Data

Parameter: PM_{10} (Respirable Particulate Matter)

Period: April – 2025 to September – 2025

Sr. No.	Location	Results ($\mu g/m^3$)	
		Quarterly April to June - 2025	Quarterly July to Sept. - 2025
1	Bhaga Village	52.2	50.1
2	Kosamdi Village	55.1	58.4
3	Morambi Village	48.5	45.2
4	Lignite Cutting area	62.1	60.4
5	Dump Area	60.2	55.4
6	Feeder breaker	64.0	60.1
7	Harsani Village	52.4	54.2
8	Dansoli Village	55.6	52.1
	Limit	100($\mu g/m^3$)	

Graphical Presentation for the Parameter PM10 at Various Locations



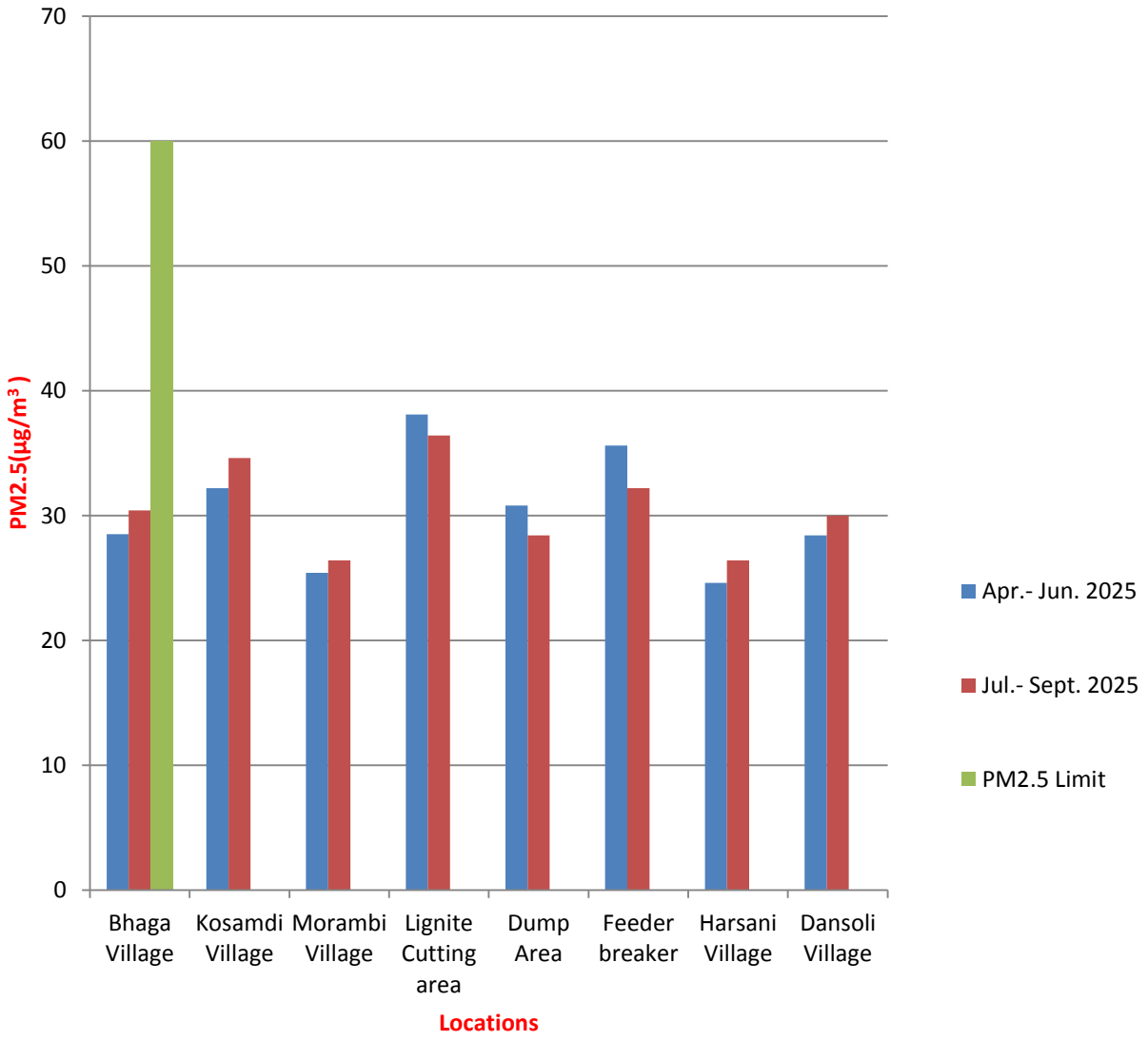
Six Monthly Variation in Ambient Air Quality Data

Parameter: $PM_{2.5}$ (Respirable Particulate Matter)

Period: April – 2025 to September – 2025

Sr. No.	Location	Results ($\mu g/m^3$)	
		Quarterly April to June - 2025	Quarterly July to Sept. - 2025
1	Bhaga Village	28.5	30.4
2	Kosamdi Village	32.2	34.6
3	Morambi Village	25.4	26.4
4	Lignite Cutting area	38.1	36.4
5	Dump Area	30.8	28.4
6	Feeder breaker	35.6	32.2
7	Harsani Village	24.6	26.4
8	Dansoli Village	28.4	30.0
	Limit	60 ($\mu g/m^3$)	

Graphical Presentation for the Parameter $PM_{2.5}$ at Various Locations



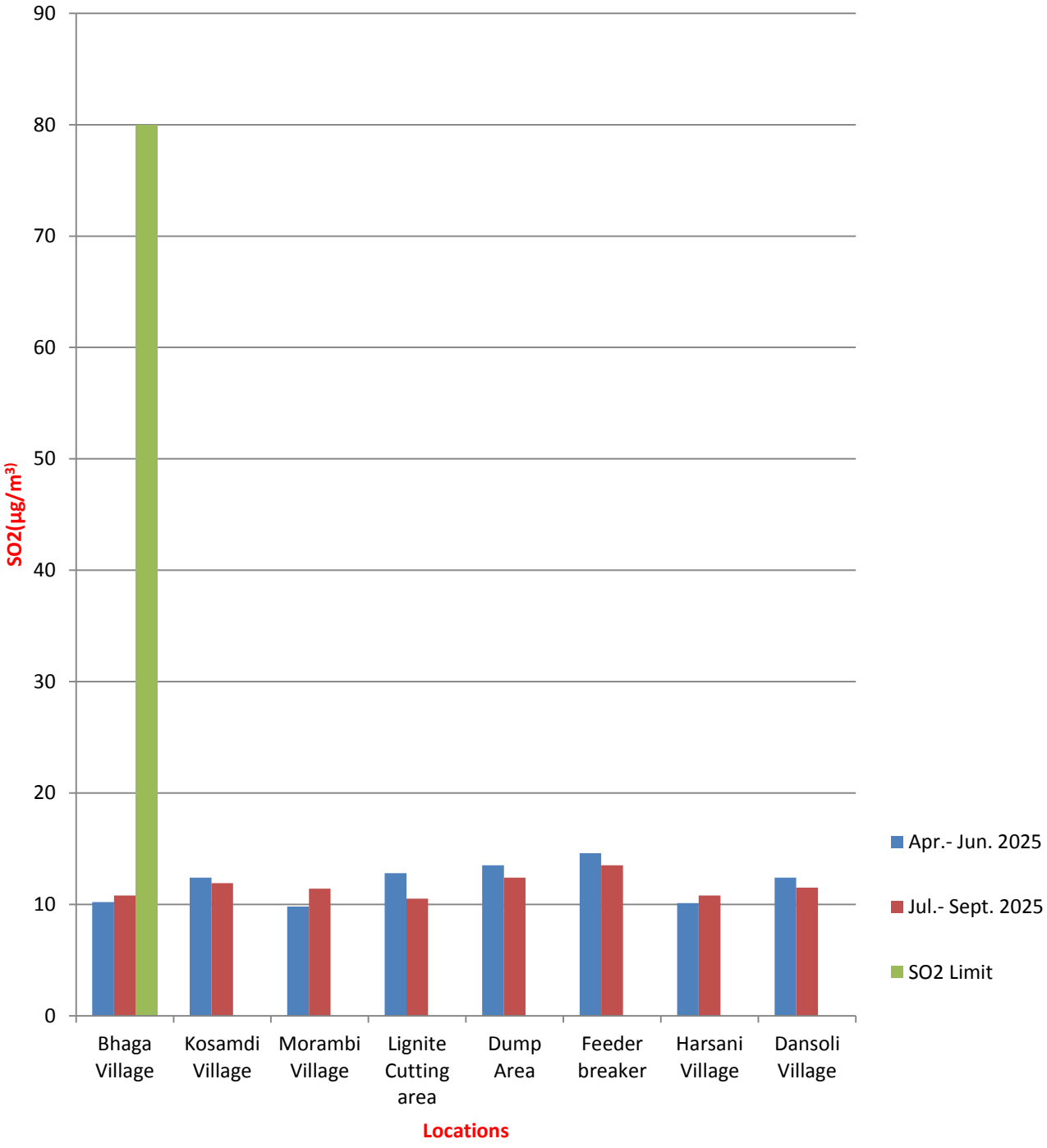
Six Monthly Variation in Ambient Air Quality Data

Parameter: SO_2 (Sulphur Dioxide)

Period: April – 2025 to September – 2025

Sr. No.	Location	Results ($\mu g/m^3$)	
		Quarterly April to June - 2025	Quarterly July to Sept. - 2025
1	Bhaga Village	10.2	10.8
2	Kosamdi Village	12.4	11.9
3	Morambi Village	9.8	11.4
4	Lignite Cutting area	12.8	10.5
5	Dump Area	13.5	12.4
6	Feeder breaker	14.6	13.5
7	Harsani Village	10.1	10.8
8	Dansoli Village	12.4	11.5
	Limit	80 ($\mu g/m^{3)}$	

Graphical Presentation for the Parameter SO2 at Various Locations

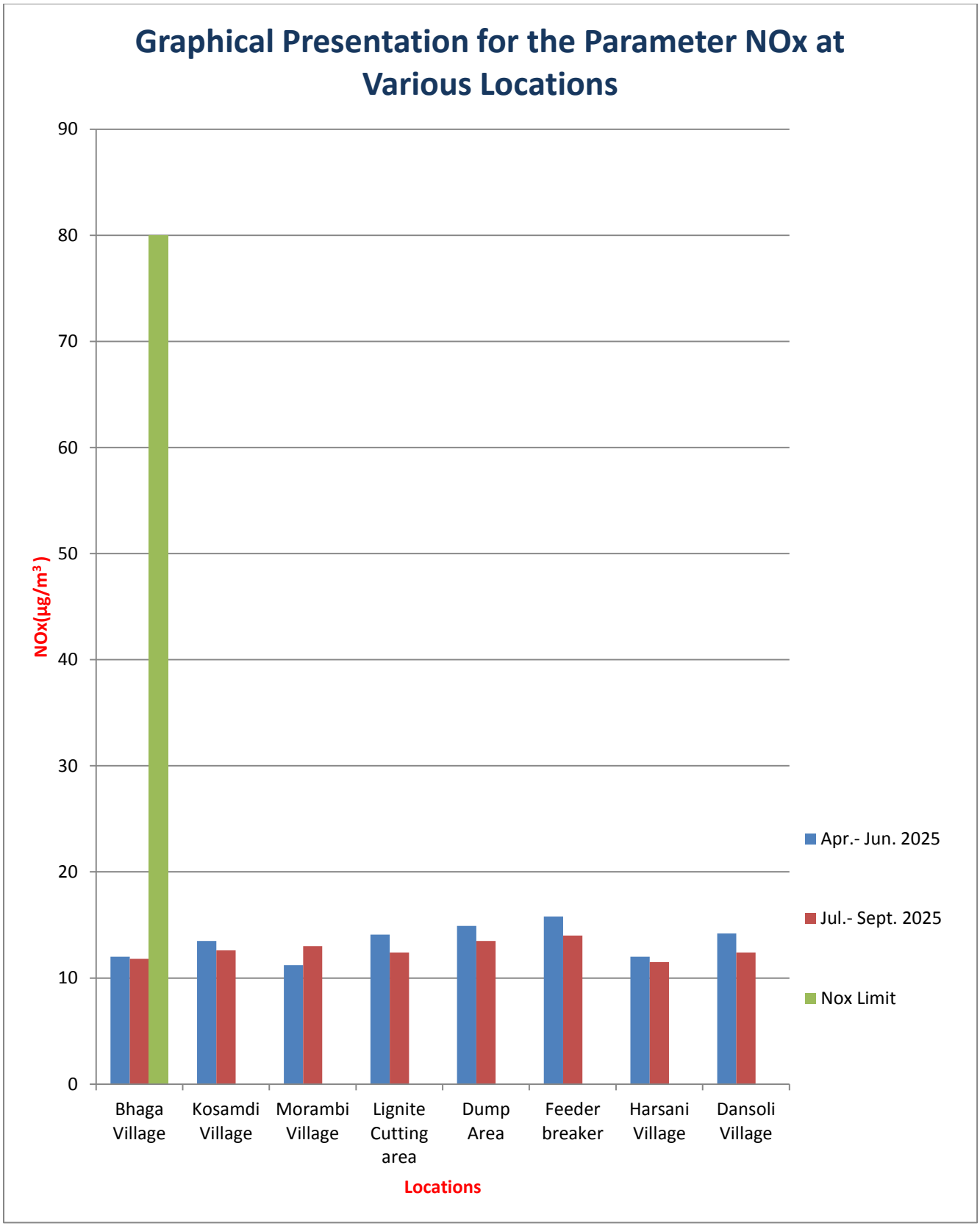


Six Monthly Variation in Ambient Air Quality Data

Parameter: NO_X (Oxides of Nitrogen)

Period: April – 2025 to September – 2025

Sr. No.	Location	Results ($\mu g/m^3$)	
		Quarterly April to June - 2025	Quarterly July to Sept. - 2025
1	Bhaga Village	12.0	11.8
2	Kosamdi Village	13.5	12.6
3	Morambi Village	11.2	13.0
4	Lignite Cutting area	14.1	12.4
5	Dump Area	14.9	13.5
6	Feeder breaker	15.8	14.0
7	Harsani Village	12.0	11.5
8	Dansoli Village	14.2	12.4
	Limit	80 ($\mu g/m^3$)	

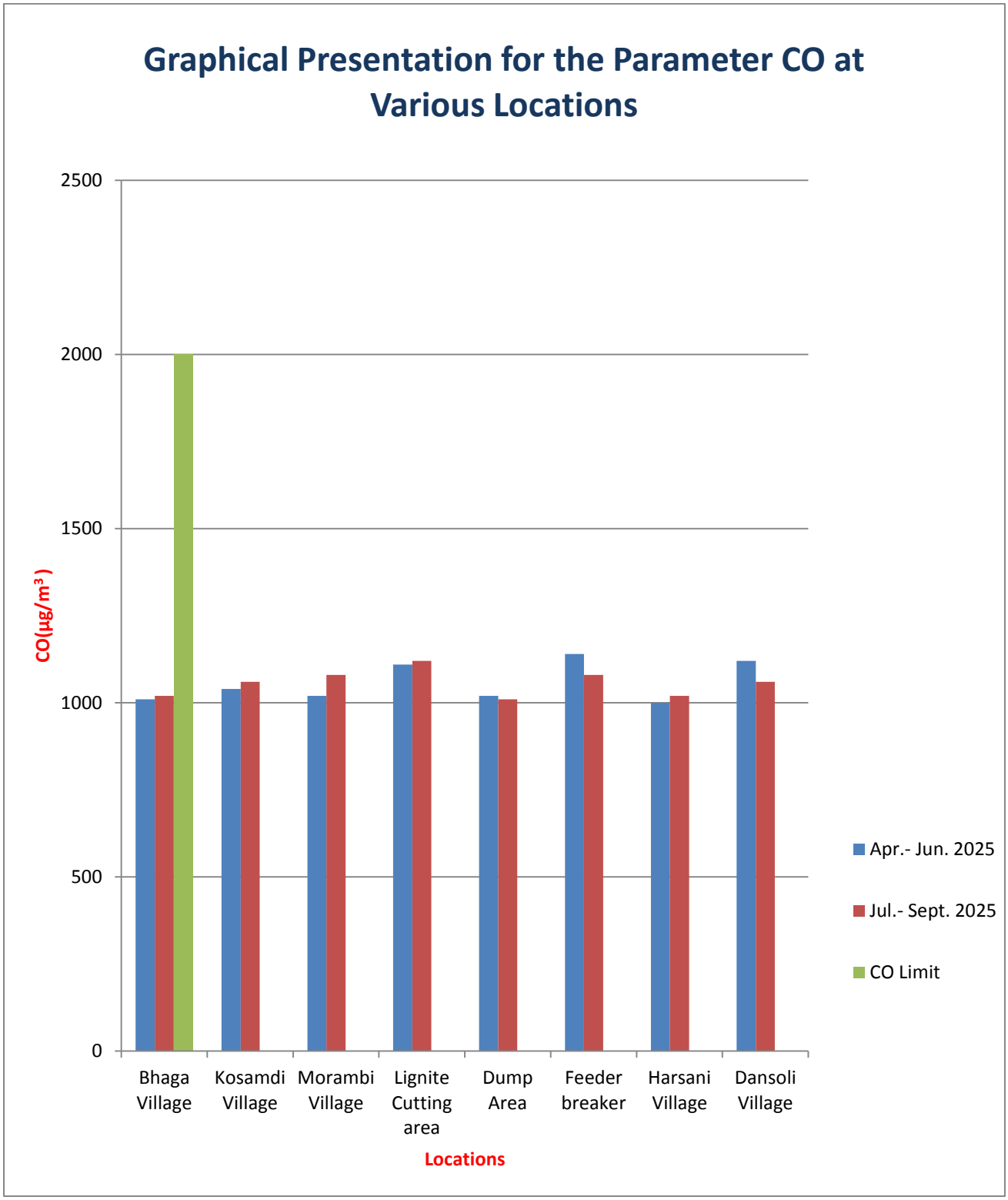

Graphical Presentation for the Parameter NOx at Various Locations
90
80
70
60
50
40
30
20
10
0
NOx(µg/m³)
Bhaga Village
Kosamdi Village
Morambi Village
Lignite Cutting area
Dump Area
Feeder breaker
Harsani Village
Dansoli Village
Locations
Apr.- Jun. 2025
Jul.- Sept. 2025
Nox Limit

Six Monthly Variation in Ambient Air Quality Data

Parameter: CO (Carbon Monoxide)

Period: April – 2025 to September – 2025

Sr. No.	Location	Results ($\mu g/m^3$)	
		Quarterly April to June - 2025	Quarterly July to Sept. - 2025
1	Bhaga Village	1010	1020
2	Kosamdi Village	1040	1060
3	Morambi Village	1020	1080
4	Lignite Cutting area	1110	1120
5	Dump Area	1020	1010
6	Feeder breaker	1140	1080
7	Harsani Village	1000	1020
8	Dansoli Village	1120	1060
	Limit	2000 ($\mu g/m^3$)	


Graphical Presentation for the Parameter CO at Various Locations
2500
2000
1500
1000
500
0
CO(µg/m³)
Bhaga Village
Kosamdi Village
Morambi Village
Lignite Cutting area
Dump Area
Feeder breaker
Harsani Village
Dansoli Village
Locations
Apr.- Jun. 2025
Jul.- Sept. 2025
CO Limit

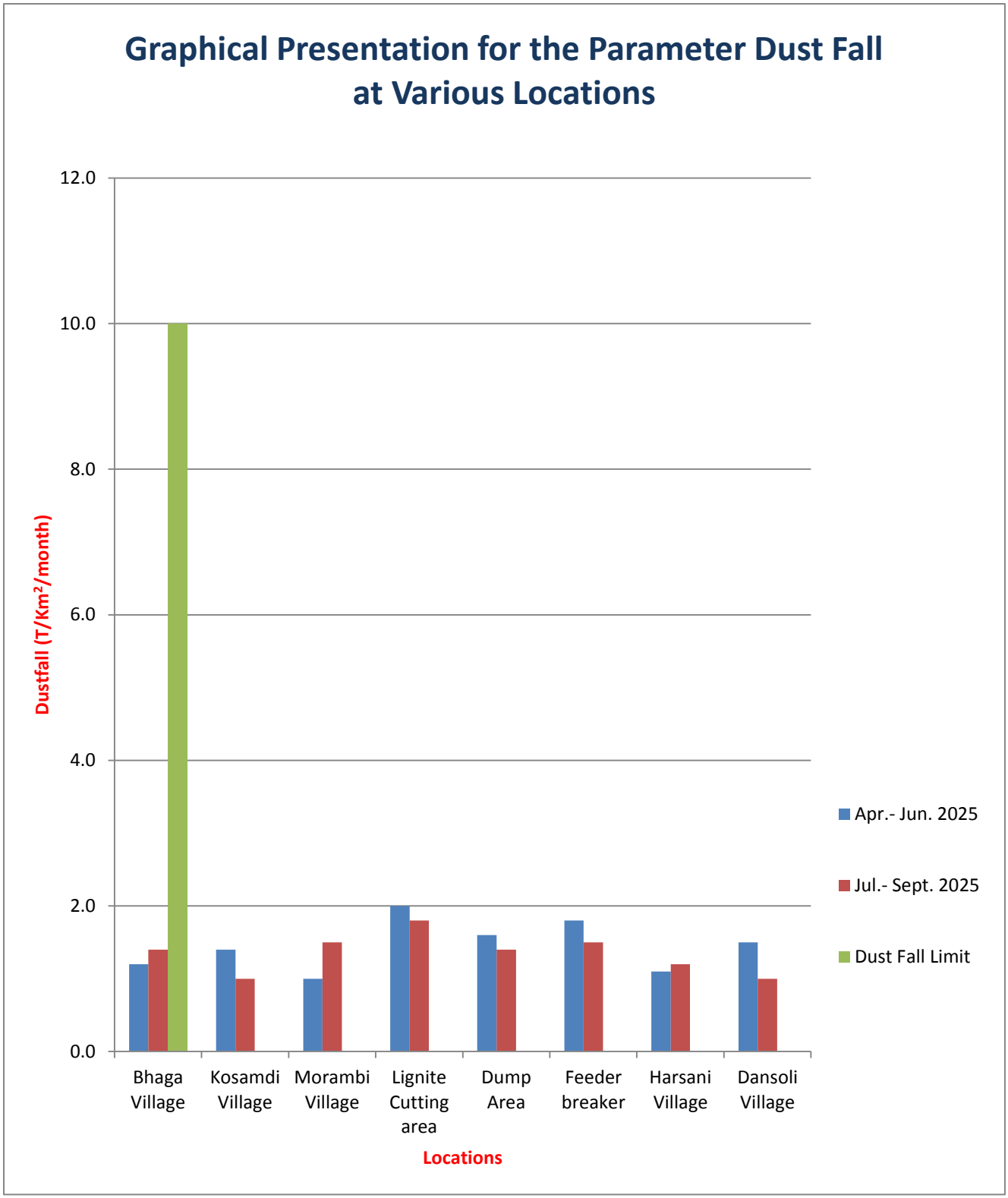
Six Monthly Variation in Ambient Air Quality Data

Parameter: Dust Fall

Period: April – 2025 to September – 2025

Sr. No.	Location	Results (T/Km^2/month)	
		Quarterly April to June - 2025	Quarterly July to Sept. - 2025
1	Bhaga Village	1.2	1.4
2	Kosamdi Village	1.4	1.0
3	Morambi Village	1.0	1.5
4	Lignite Cutting area	2.0	1.8
5	Dump Area	1.6	1.4
6	Feeder breaker	1.8	1.5
7	Harsani Village	1.1	1.2
8	Dansoli Village	1.5	1.0
	Limit	10 (T/Km^2/month)	

Graphical Presentation for the Parameter Dust Fall at Various Locations



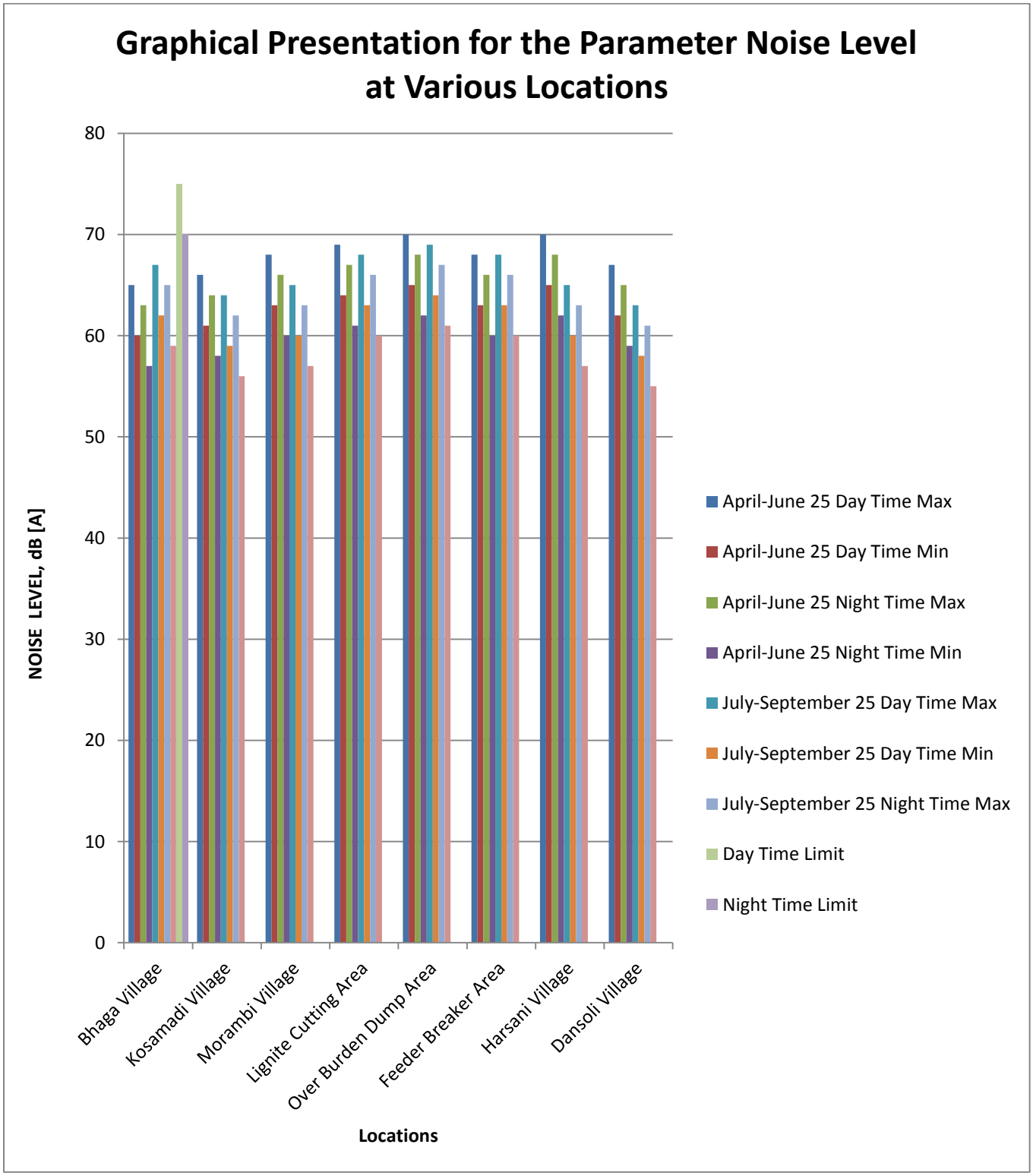
Comparative Noise Monitoring Report & Graphical Presentation

Six Monthly Variations in Noise Level Data

Parameter: Noise

Period: April to September – 2025

SR. NO.	LOCATION	NOISE LEVEL, dB [A]							
		Quarterly April to June - 2025				Quarterly July to September - 2025			
		Day Time		Night Time		Day Time		Night Time	
		Max	Min	Max	Min	Max	Min	Max	Min
1	Bhaga Village	65	60	63	57	67	62	65	59
2	Kosamadi Village	66	61	64	58	64	59	62	56
3	Morambi Village	68	63	66	60	65	60	63	57
4	Lignite Cutting Area	69	64	67	61	68	63	66	60
5	Over Burden Dump Area	70	65	68	62	69	64	67	61
6	Feeder Breaker Area	68	63	66	60	68	63	66	60
7	Harsani Village	70	65	68	62	65	60	63	57
8	Dansoli Village	67	62	65	59	63	58	61	55
	GPCB limit	**75 (dB)**		**70 (dB)**		**75 (dB)**		**70 (dB)**	


Graphical Presentation for the Parameter Noise Level at Various Locations
NOISE LEVEL, dB [A]
80
70
60
50
40
30
20
10
0
Bhaga Village
Kosamadi Village
Morambi Village
Lignite Cutting Area
Over Burden Dump Area
Feeder Breaker Area
Harsani Village
Dansoli Village
Locations
April-June 25 Day Time Max
April-June 25 Day Time Min
April-June 25 Night Time Max
April-June 25 Night Time Min
July-September 25 Day Time Max
July-September 25 Day Time Min
July-September 25 Night Time Max
Day Time Limit
Night Time Limit

Comparative Water Analysis Test Report & Graphical Presentation

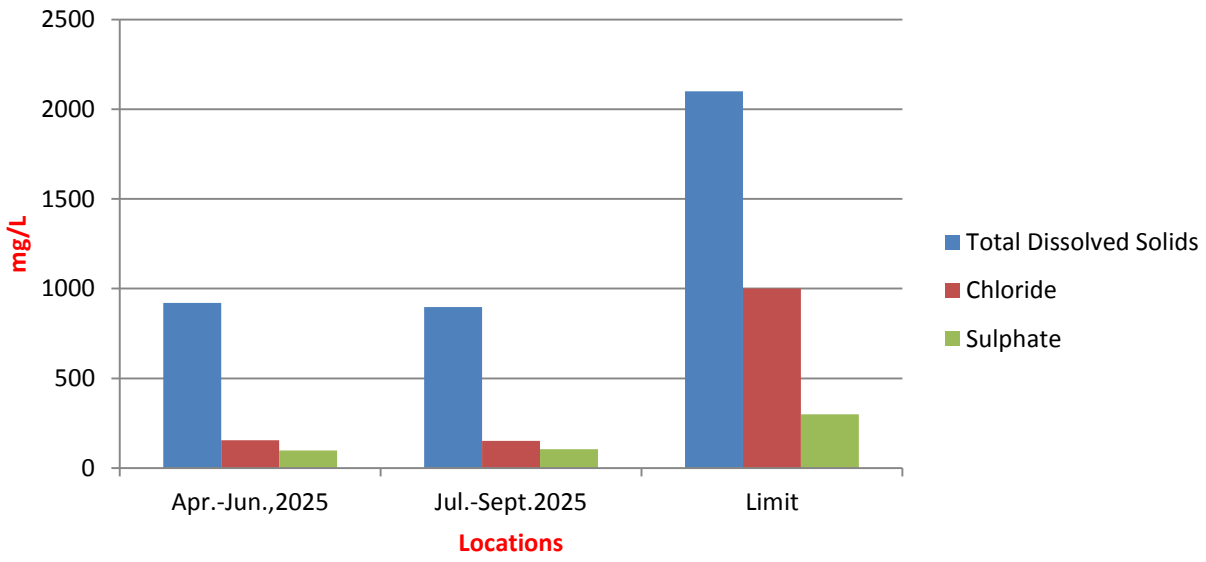
Six Monthly Variation in bore water Data

Location: Bore water Shah Nallah village

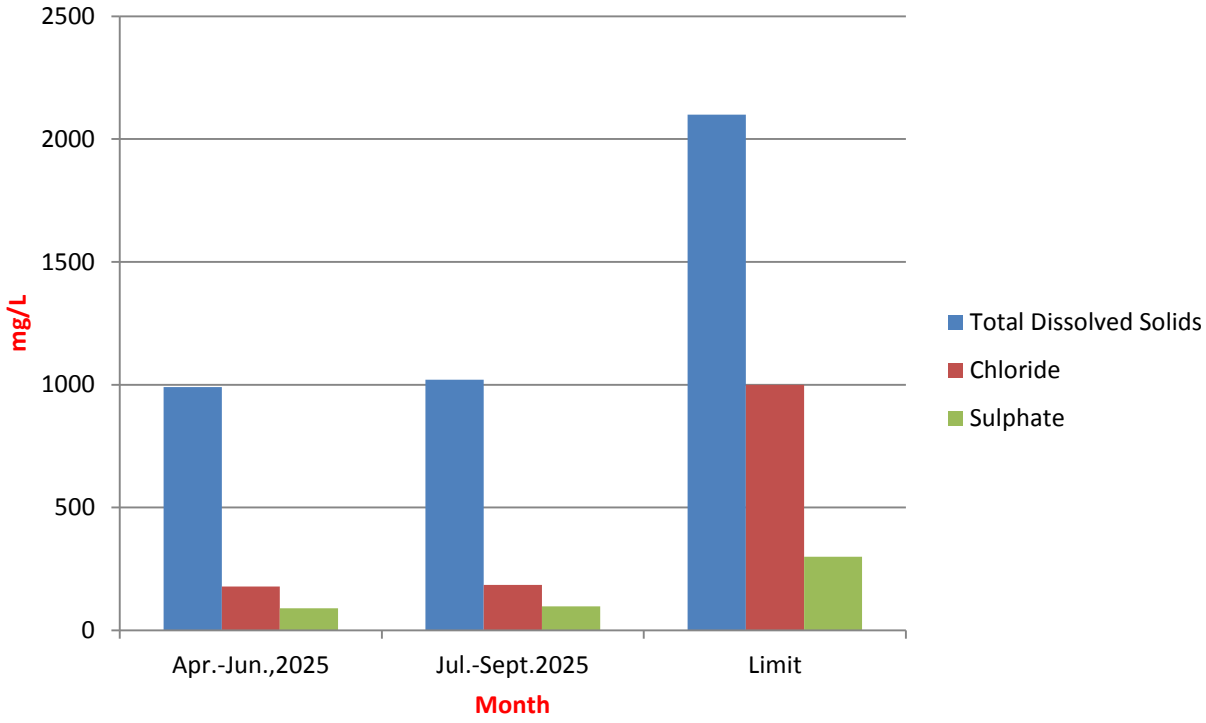
Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Quarterly April to June - 2025	Quarterly July to Sept. - 2025	MoEF Limit
1	Temperature	^{0}C	29	28	**Shall not exceed 5˚c above the receiving water temp.**
2	pH@ 25^{o}C	pH unit	7.48	7.40	**5.5-9.0**
3	Colour	pt. Co. Scale	<5	<5	**--**
4	Total Suspended Solids (TSS) @105 ^{o}C	mg/L	9.5	11.5	**100**
5	Total Dissolved Solids (TDS) @180^o C	mg/L	920	898	**2100**
6	Total volatile Solids	mg/L	1.2	1.0	**--**
7	COD	mg/L	<4	<4	**250**
8	BOD (5 days at 20^o C)	mg/L	<2	<2	**30**
9	Oil & Grease	mg/L	<1	<1	**10**
10	Chloride	mg/L	155	152	**1000**
11	Sulphate	mg/L	98	105	**300**
12	Fluoride	mg/L	0.8	0.5	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.4	0.4	**--**
14	Total Residual Chlorine	mg/L	< 0.1	< 0.1	**1.0**
15	Free Available Chlorine	mg/L	< 0.10	< 0.10	**--**
16	Phenolic Compound	mg/L	< 0.10	< 0.10	**1.0**
17	Lead	mg/L	< 0.02	< 0.02	**0.1**
18	Copper	mg/L	< 0.50	< 0.50	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.10	< 0.10	**5.0**
22	Iron	mg/L	< 0.10	< 0.10	**3.0**
23	Calcium	mg/L	88	84	**--**
24	Magnesium	mg/L	26	24	**--**
25	Percentage Sodium	%	28	25	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	**90%Survival of fish in 96 Hours in 100% of effluent**

Graphical Presentation for the variation of TDS, Chloride, Sulphate Bore water Shah Nallah village



Graphical Presentation for the variation of TDS, Chloride, Sulphate Bhaga Village (Valia Block)



Six Monthly Variation in bore water Data

Location: Bhaga Village (Valia Block)

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Quarterly April to June - 2025	Quarterly July to Sept. - 2025	MoEF Limit
1	Temperature	^{0}C	28	30	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25 ^{0}C	pH unit	7.52	7.48	**5.5-9.0**
3	Colour	pt. Co. Scale	<5	<5	**--**
4	Total Suspended Solids (TSS) @105 ^{0}C	mg/L	9.5	11.8	**100**
5	Total Dissolved Solids (TDS) @180 ^{0}C	mg/L	990	1020	**2100**
6	Total volatile Solids	mg/L	1.8	1.5	**--**
7	COD	mg/L	<4	<4	**250**
8	BOD (5 days at 20^o C)	mg/L	<2	<2	**30**
9	Oil & Grease	mg/L	< 1	< 1	**10**
10	Chloride	mg/L	178	185	**1000**
11	Sulphate	mg/L	90	98	**300**
12	Fluoride	mg/L	0.4	0.6	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.4	0.5	**--**
14	Total Residual Chlorine	mg/L	< 0.1	< 0.1	**1.0**
15	Free Available Chlorine	mg/L	< 0.1	< 0.1	**--**
16	Phenolic Compound	mg/L	< 0.10	< 0.10	**1.0**
17	Lead	mg/L	< 0.02	< 0.02	**0.1**
18	Copper	mg/L	< 0.50	< 0.50	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.10	< 0.10	**5.0**
22	Iron	mg/L	< 0.10	< 0.10	**3.0**
23	Calcium	mg/L	74	82	**--**
24	Magnesium	mg/L	24	22	**--**
25	Percentage Sodium	%	26	28	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	**90%Survival of fish in 96 Hours in 100% of effluent**

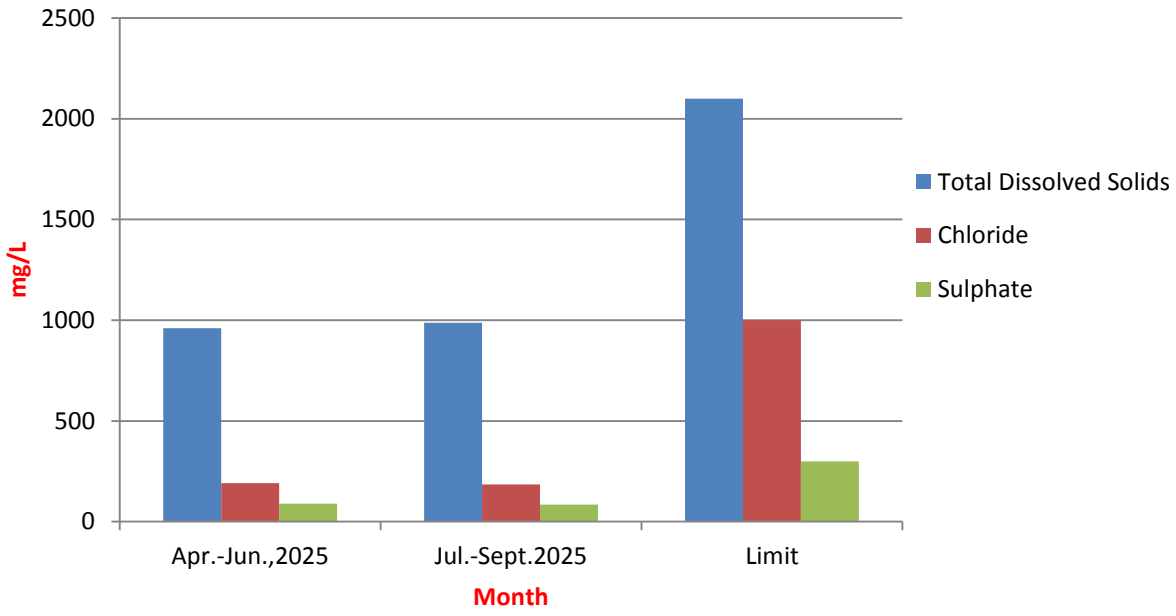
Six Monthly Variation in bore water Data

Location: Bore Well (Charetha Village)

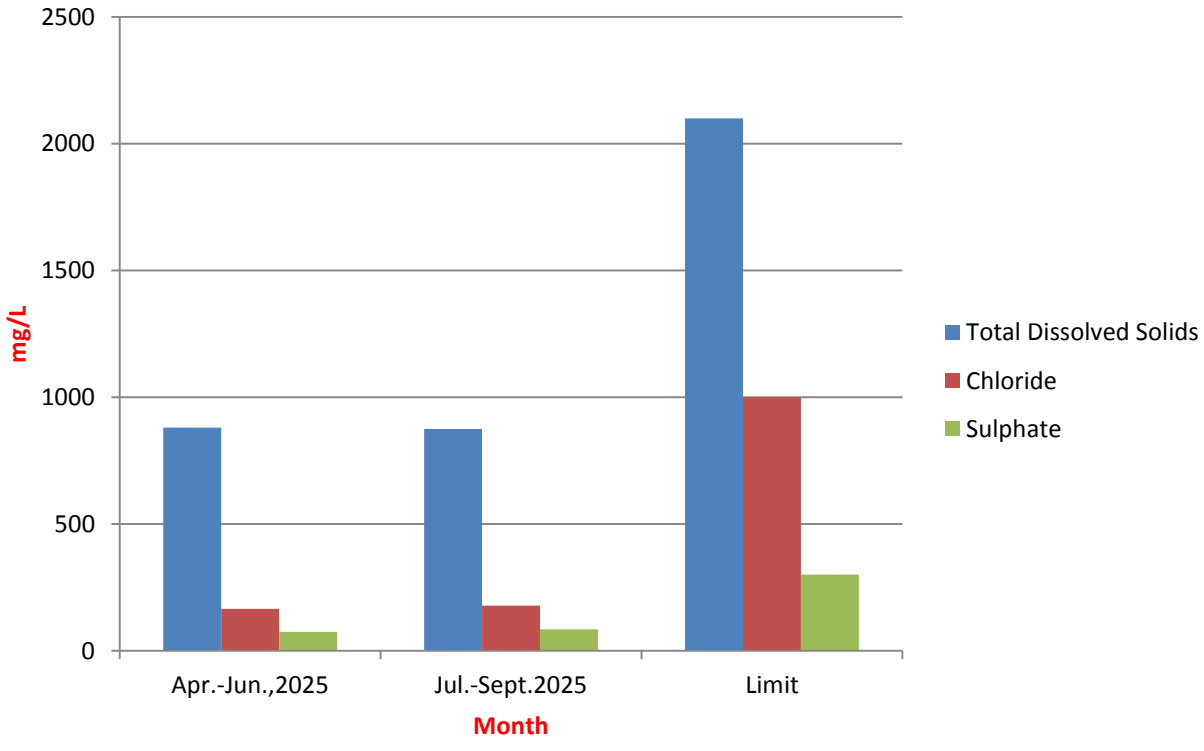
Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Quarterly April to June - 2025	Quarterly July to Sept. - 2025	MoEF Limit
1	Temperature	^{0}C	27	30	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25^{o}C	pH unit	7.42	7.50	**5.5-9.0**
3	Colour	pt. Co. Scale	<5	<5	**--**
4	Total Suspended Solids (TSS) @105 ^{0}C	mg/L	8.5	10.5	**100**
5	Total Dissolved Solids (TDS) @180 ^{0}C	mg/L	960	988	**2100**
6	Total volatile Solids	mg/L	1.5	1.2	**--**
7	COD	mg/L	<4	<4	**250**
8	BOD (5 days at 20 ^{0}C)	mg/L	<2	<2	**30**
9	Oil & Grease	mg/L	< 1	< 1	**10**
10	Chloride	mg/L	192	185	**1000**
11	Sulphate	mg/L	90	85	**300**
12	Fluoride	mg/L	0.5	0.8	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.4	0.4	**--**
14	Total Residual Chlorine	mg/L	< 0.1	< 0.1	**1.0**
15	Free Available Chlorine	mg/L	< 0.1	< 0.1	**--**
16	Phenolic Compound	mg/L	< 0.10	< 0.10	**1.0**
17	Lead	mg/L	< 0.02	< 0.02	**0.1**
18	Copper	mg/L	< 0.50	< 0.50	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.10	< 0.10	**5.0**
22	Iron	mg/L	<0.10	<0.10	**3.0**
23	Calcium	mg/L	80	78	**--**
24	Magnesium	mg/L	24	28	**--**
25	Percentage Sodium	%	26	30	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	**90%Survival of fish in 96 Hours in 100% of effluent**

Graphical Presentation for the variation of TDS, Chloride, Sulphate Bore Well (Charetha Village)



Graphical Presentation for the variation of TDS, Chloride, Sulphate Bore Well (Dansoli Village)



Six Monthly Variation in bore water Data

Location: Bore Well (Dansoli Village)

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Quarterly April to June - 2025	Quarterly July to Sept. - 2025	MoEF Limit
1	Temperature	^{0}C	27	30	**Shall not exceed 5°c above the receiving water temp**
2	pH@ 25^{o}C	pH unit	7.30	7.34	**5.5-9.0**
3	Colour	pt. Co. Scale	<5	<5	**--**
4	Total Suspended Solids (TSS) @105 ^{o}C	mg/L	8.5	7.5	**100**
5	Total Dissolved Solids (TDS) @180^o C	mg/L	880	875	**2100**
6	Total volatile Solids	mg/L	1.2	1.4	**--**
7	COD	mg/L	<4	<4	**250**
8	BOD (5 days at 20^o C)	mg/L	<2	<2	**30**
9	Oil & Grease	mg/L	< 1	< 1	**10**
10	Chloride	mg/L	165	178	**1000**
11	Sulphate	mg/L	75	85	**300**
12	Fluoride	mg/L	0.5	0.8	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.4	0.5	**--**
14	Total Residual Chlorine	mg/L	< 0.1	< 0.1	**1.0**
15	Free Available Chlorine	mg/L	< 0.1	< 0.1	**--**
16	Phenolic Compound	mg/L	< 0.10	< 0.10	**1.0**
17	Lead	mg/L	< 0.02	< 0.02	**0.1**
18	Copper	mg/L	< 0.50	< 0.50	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.10	< 0.10	**5.0**
22	Iron	mg/L	< 0.10	< 0.10	**3.0**
23	Calcium	mg/L	68	74	**--**
24	Magnesium	mg/L	22	26	**--**
25	Percentage Sodium	%	25	30	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	**90%Survival of fish in 96 Hours in 100% of effluent**

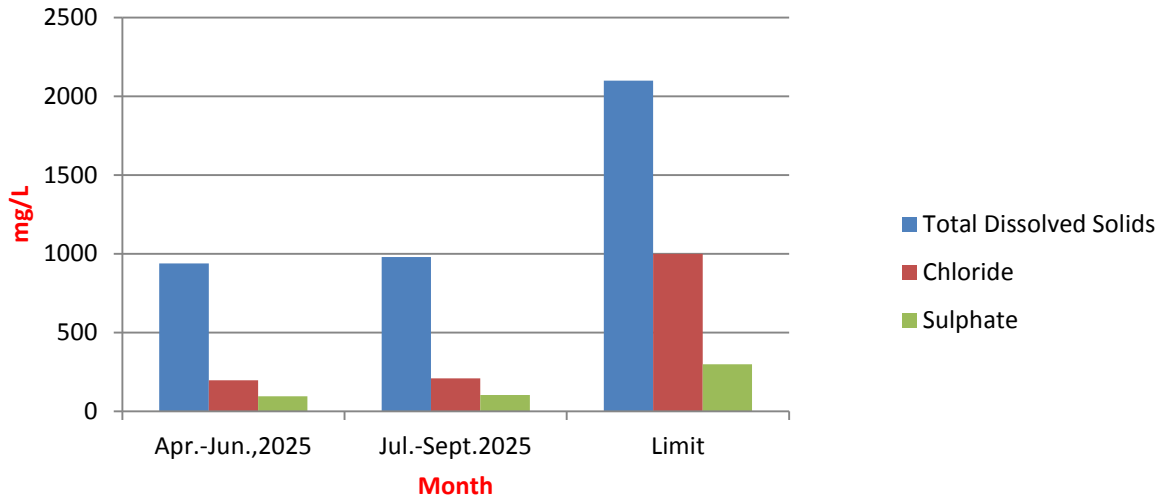
Six Monthly Variation in bore water Data

Location: Bore Well (Harsani Village)

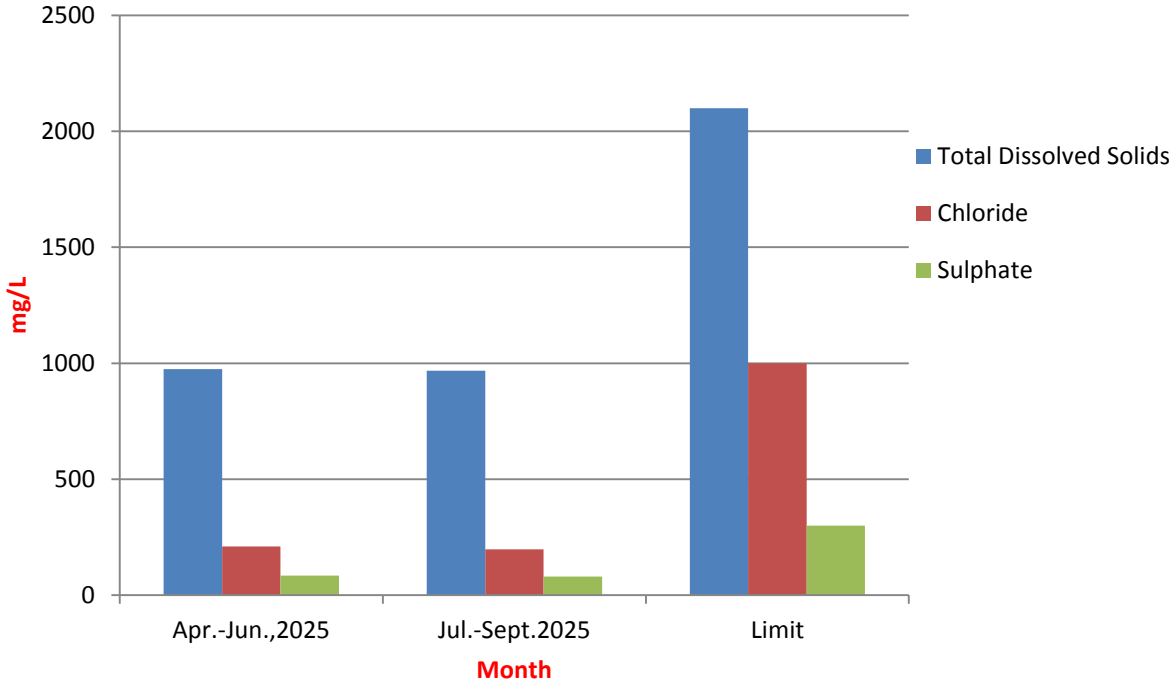
Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Quarterly April to June - 2025	Quarterly July to Sept. - 2025	MoEF Limit
1	Temperature	^{0}C	30	28	**Shall not exceed 5°c above the receiving water temp**
2	pH@ 25^{o}C	pH unit	7.48	7.44	**5.5-9.0**
3	Colour	pt. Co. Scale	<5	<5	**--**
4	Total Suspended Solids (TSS) @105 ^{o}C	mg/L	9.5	11.2	**100**
5	Total Dissolved Solids (TDS) @180^o C	mg/L	940	980	**2100**
6	Total volatile Solids	mg/L	1.2	1.4	**--**
7	COD	mg/L	<4	<4	**250**
8	BOD (5 days at 20^o C)	mg/L	<2	<2	**30**
9	Oil & Grease	mg/L	< 1	< 1	**10**
10	Chloride	mg/L	198	210	**1000**
11	Sulphate	mg/L	96	105	**300**
12	Fluoride	mg/L	0.5	0.8	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.2	0.4	**--**
14	Total Residual Chlorine	mg/L	< 0.1	< 0.1	**1.0**
15	Free Available Chlorine	mg/L	< 0.10	< 0.10	**--**
16	Phenolic Compound	mg/L	<0.10	<0.10	**1.0**
17	Lead	mg/L	< 0.02	< 0.02	**0.1**
18	Copper	mg/L	< 0.50	< 0.50	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.10	< 0.10	**5.0**
22	Iron	mg/L	<0.10	<0.10	**3.0**
23	Calcium	mg/L	78	80	**--**
24	Magnesium	mg/L	24	28	**--**
25	Percentage Sodium	%	30	32	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	**90%Survival of fish in 96 Hours in 100% of effluent**

Graphical Presentation for the variation of TDS, Chloride, Sulphate Harsani Village



Graphical Presentation for the variation of TDS, Chloride, Sulphate Bore Well (Kosmadi Village)



Six Monthly Variation in bore water Data

Location: Bore Well (Kosmadi Village)

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Quarterly April to June - 2025	Quarterly July to Sept. - 2025	MoEF Limit
1	Temperature	^{0}C	27	30	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25^{o}C	pH unit	7.35	7.38	**5.5-9.0**
3	Colour	pt. Co. Scale	<5	<5	**--**
4	Total Suspended Solids (TSS) @105 ^{o}C	mg/L	11.5	10.2	**100**
5	Total Dissolved Solids (TDS) @180^o C	mg/L	975	968	**2100**
6	Total volatile Solids	mg/L	1.5	1.4	**--**
7	COD	mg/L	<4	<4	**250**
8	BOD (5 days at 20^o C)	mg/L	<2	<2	**30**
9	Oil & Grease	mg/L	<1	<1	**10**
10	Chloride	mg/L	210	198	**1000**
11	Sulphate	mg/L	85	80	**300**
12	Fluoride	mg/L	0.5	0.8	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.4	0.5	**--**
14	Total Residual Chlorine	mg/L	< 0.1	< 0.1	**1.0**
15	Free Available Chlorine	mg/L	< 0.10	< 0.10	**--**
16	Phenolic Compound	mg/L	< 0.10	< 0.10	**1.0**
17	Lead	mg/L	< 0.02	< 0.02	**0.1**
18	Copper	mg/L	< 0.50	< 0.50	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.10	< 0.10	**5.0**
22	Iron	mg/L	< 0.10	< 0.10	**3.0**
23	Calcium	mg/L	80	78	**--**
24	Magnesium	mg/L	26	24	**--**
25	Percentage Sodium	%	30	28	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	**90%Survival of fish in 96 Hours in 100% of effluent**

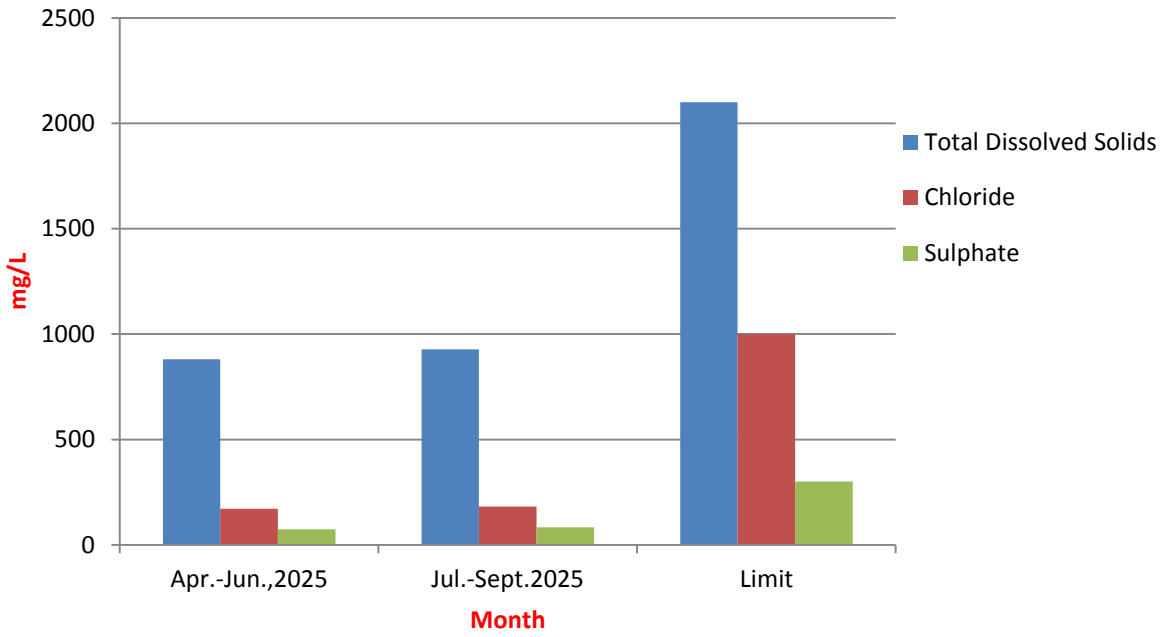
Six Monthly Variation in bore water Data

Location: Bore Water (Anoi Village)

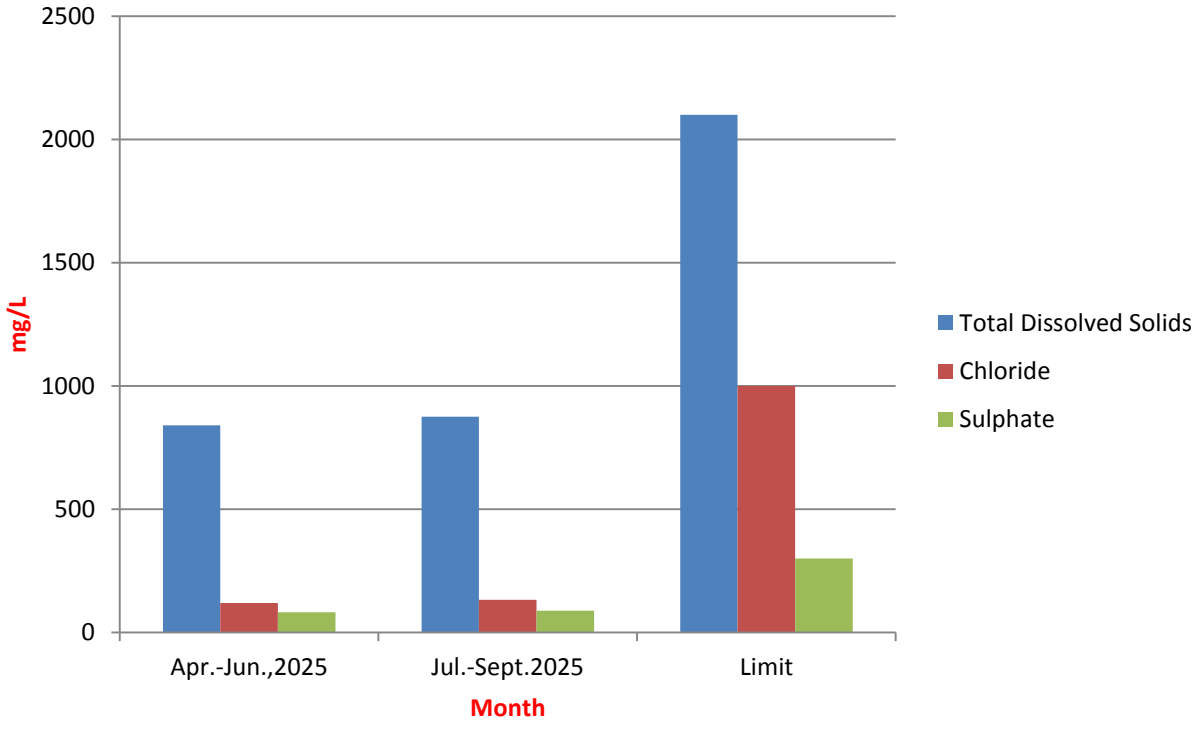
Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Quarterly April to June - 2025	Quarterly July to Sept. - 2025	MoEF Limit
1	Temperature	^{0}C	28	27	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25^{o}C	pH unit	7.44	7.50	**5.5-9.0**
3	Colour	pt. Co. Scale	<5	<5	**--**
4	Total Suspended Solids (TSS) @105 ^{o}C	mg/L	10.4	11.5	**100**
5	Total Dissolved Solids (TDS) @180^o C	mg/L	880	928	**2100**
6	Total volatile Solids	mg/L	1.0	1.2	**--**
7	COD	mg/L	<4	<4	**250**
8	BOD (5 days at 20^o C)	mg/L	<2	<2	**30**
9	Oil & Grease	mg/L	<1	<1	**10**
10	Chloride	mg/L	172	182	**1000**
11	Sulphate	mg/L	75	84	**300**
12	Fluoride	mg/L	0.6	0.5	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.4	0.4	**--**
14	Total Residual Chlorine	mg/L	< 0.1	< 0.1	**1.0**
15	Free Available Chlorine	mg/L	< 0.1	< 0.1	**--**
16	Phenolic Compound	mg/L	< 0.01	< 0.01	**1.0**
17	Lead	mg/L	< 0.02	< 0.02	**0.1**
18	Copper	mg/L	< 0.5	< 0.5	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.10	< 0.10	**5.0**
22	Iron	mg/L	< 0.10	< 0.10	**3.0**
23	Calcium	mg/L	74	72	**--**
24	Magnesium	mg/L	22	24	**--**
25	Percentage Sodium	%	26	28	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	**90%Survival of fish in 96 Hours in 100% of effluent**

Graphical Presentation for the variation of TDS, Chloride, Sulphate Bore Water (Anoi Village)



Graphical Presentation for the variation of TDS, Chloride, Sulphate Mine Water Sump – 2(Valia)



Six Monthly Variation in bore water Data

Location: Mine Water Sump – 2 (Valia)

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Quarterly April to June - 2025	Quarterly July to Sept. - 2025	MoEF Limit
1	Temperature	^{0}C	30	28	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25 ^{0}C	pH unit	7.45	7.40	**5.5-9.0**
3	Colour	pt. Co. Scale	<5	<5	**--**
4	Total Suspended Solids (TSS) @105 ^{0}C	mg/L	9.8	10.8	**100**
5	Total Dissolved Solids (TDS) @180^o C	mg/L	840	875	**2100**
6	Total volatile Solids	mg/L	1.2	1.4	**--**
7	COD	mg/L	<4	<4	**250**
8	BOD (5 days at 20^o C)	mg/L	<2	<2	**30**
9	Oil & Grease	mg/L	<1	<1	**10**
10	Chloride	mg/L	120	132	**1000**
11	Sulphate	mg/L	82	88	**300**
12	Fluoride	mg/L	0.8	0.5	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.4	0.4	**--**
14	Total Residual Chlorine	mg/L	< 0.1	< 0.1	**1.0**
15	Free Available Chlorine	mg/L	< 0.1	< 0.1	**--**
16	Phenolic Compound	mg/L	< 0.10	< 0.10	**1.0**
17	Lead	mg/L	< 0.02	< 0.02	**0.1**
18	Copper	mg/L	< 0.50	< 0.50	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.10	< 0.10	**5.0**
22	Iron	mg/L	< 0.10	< 0.10	**3.0**
23	Calcium	mg/L	86	84	**--**
24	Magnesium	mg/L	24	22	**--**
25	Percentage Sodium	%	28	30	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	**90%Survival of fish in 96 Hours in 100% of effluent**

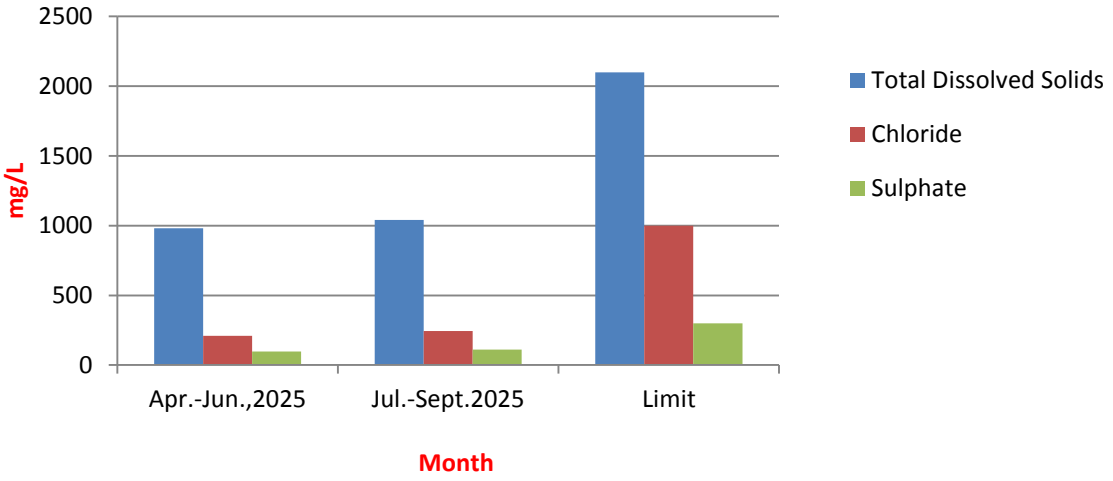
Six Monthly Variation in bore water Data

Location: Mine Water - 1 Mangrol Village

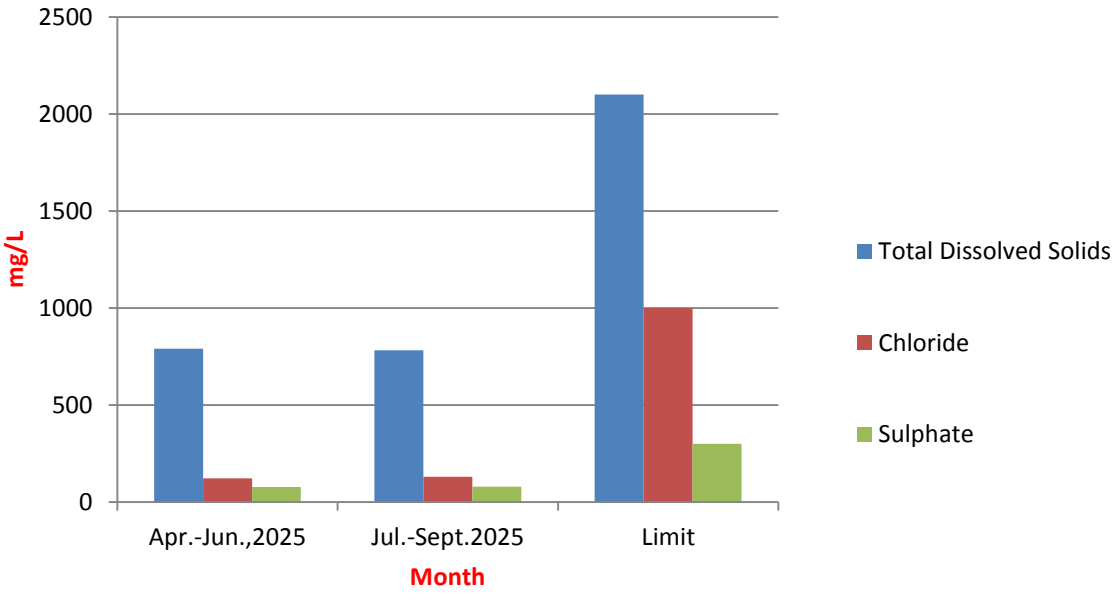
Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Quarterly April to June - 2025	Quarterly July to Sept. - 2025	MoEF Limit
1	Temperature	^{0}C	28	30	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25 ^{0}C	pH unit	7.44	7.44	**5.5-9.0**
3	Colour	pt. Co. Scale	<5	<5	**--**
4	Total Suspended Solids (TSS) @105 ^{0}C	mg/L	8.5	10.2	**100**
5	Total Dissolved Solids (TDS) @180^o C	mg/L	980	1040	**2100**
6	Total volatile Solids	mg/L	1.8	2.0	**--**
7	COD	mg/L	<4	<4	**250**
8	BOD (5 days at 20 ^{0}C)	mg/L	<2	<2	**30**
9	Oil & Grease	mg/L	< 1	< 1	**10**
10	Chloride	mg/L	210	245	**1000**
11	Sulphate	mg/L	98	110	**300**
12	Fluoride	mg/L	0.5	0.8	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.4	0.5	**--**
14	Total Residual Chlorine	mg/L	< 0.1	< 0.1	**1.0**
15	Free Available Chlorine	mg/L	< 0.10	< 0.10	**--**
16	Phenolic Compound	mg/L	< 0.10	< 0.10	**1.0**
17	Lead	mg/L	< 0.02	< 0.02	**0.1**
18	Copper	mg/L	< 0.50	< 0.50	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.10	< 0.10	**5.0**
22	Iron	mg/L	< 0.10	< 0.10	**3.0**
23	Calcium	mg/L	84	88	**--**
24	Magnesium	mg/L	24	26	**--**
25	Percentage Sodium	%	28	30	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	**90%Survival of fish in 96 Hours in 100% of effluent**

Graphical Presentation for the variation of TDS, Chloride, Sulphate Mine Water - 1 Mangrol Village



Graphical Presentation for the variation of TDS, Chloride, Sulphate Charetha Shah Nallah down stream



Six Monthly Variation in bore water Data

Location: Charetha Shah Nallah down stream

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Quarterly April to June - 2025	Quarterly July to Sept. - 2025	MoEF Limit
1	Temperature	^{0}C	27	28	**Shall not exceed 5°c above the receiving water temp**
2	pH@ 25 ^{0}C	pH unit	7.44	7.42	**5.5-9.0**
3	Colour	pt. Co. Scale	< 5	< 5	**--**
4	Total Suspended Solids (TSS) @105 ^{0}C	mg/L	8.5	10.5	**100**
5	Total Dissolved Solids (TDS) @180^o C	mg/L	790	782	**2100**
6	Total volatile Solids	mg/L	1.2	1.4	**--**
7	COD	mg/L	<4	<4	**250**
8	BOD (5 days at 20 ^{0}C)	mg/L	<2	<2	**30**
9	Oil & Grease	mg/L	< 1	< 1	**10**
10	Chloride	mg/L	122	130	**1000**
11	Sulphate	mg/L	78	80	**300**
12	Fluoride	mg/L	0.4	0.5	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.4	0.4	**--**
14	Total Residual Chlorine	mg/L	< 0.1	< 0.1	**1.0**
15	Free Available Chlorine	mg/L	< 0.1	< 0.1	**--**
16	Phenolic Compound	mg/L	< 0.10	< 0.10	**1.0**
17	Lead	mg/L	< 0.02	< 0.02	**0.1**
18	Copper	mg/L	< 0.50	< 0.50	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.1	< 0.1	**5.0**
22	Iron	mg/L	< 0.10	< 0.10	**3.0**
23	Calcium	mg/L	98	94	**--**
24	Magnesium	mg/L	26	24	**--**
25	Percentage Sodium	%	28	26	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	**90%Survival of fish in 96 Hours in 100% of effluent**

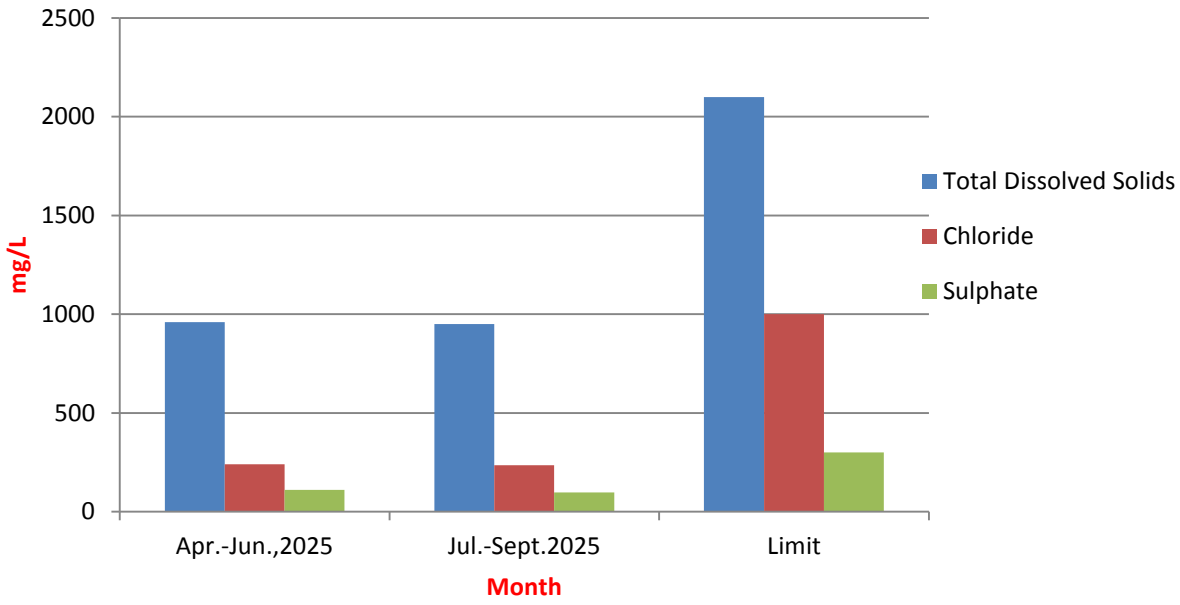
Six Monthly Variation in bore water Data

Location: Bore Well (Mosali Village)

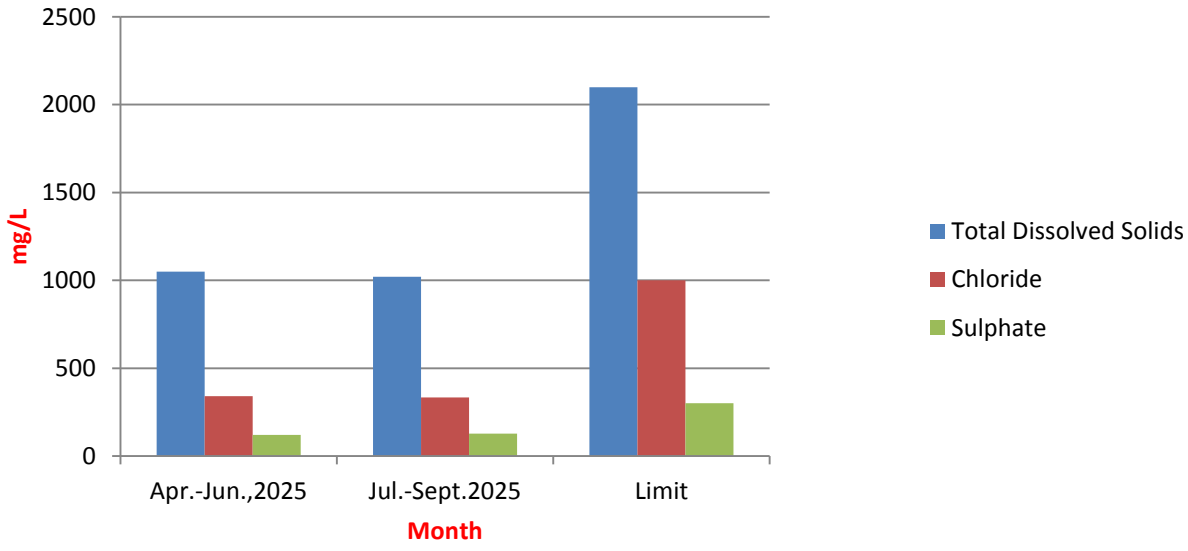
Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Quarterly April to June - 2025	Quarterly July to Sept. - 2025	MoEF Limit
1	Temperature	^{0}C	28	30	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25 ^{0}C	pH unit	7.42	7.38	**5.5-9.0**
3	Colour	pt. Co. Scale	<5	<5	**--**
4	Total Suspended Solids (TSS) @105 ^{0}C	mg/L	10.2	10.2	**100**
5	Total Dissolved Solids (TDS) @180 ^{0}C	mg/L	960	950	**2100**
6	Total volatile Solids	mg/L	1.2	1.24	**--**
7	COD	mg/L	<4	<4	**250**
8	BOD (5 days at 20 ^{0}C)	mg/L	<2	<2	**30**
9	Oil & Grease	mg/L	< 1	< 1	**10**
10	Chloride	mg/L	240	235	**1000**
11	Sulphate	mg/L	110	98	**300**
12	Fluoride	mg/L	0.5	0.4	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.5	0.4	**--**
14	Total Residual Chlorine	mg/L	< 0.10	< 0.10	**1.0**
15	Free Available Chlorine	mg/L	< 0.10	< 0.10	**--**
16	Phenolic Compound	mg/L	< 0.10	< 0.10	**1.0**
17	Lead	mg/L	< 0.02	< 0.02	**0.1**
18	Copper	mg/L	< 0.50	< 0.50	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.10	< 0.10	**5.0**
22	Iron	mg/L	< 0.10	< 0.10	**3.0**
23	Calcium	mg/L	85	82	**--**
24	Magnesium	mg/L	24	22	**--**
25	Percentage Sodium	%	28	25	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	**90%Survival of fish in 96 Hours in 100% of effluent**

Graphical Presentation for the variation of TDS, Chloride, Sulphate Bore Well (Mosali Village)



Graphical Presentation for the variation of TDS, Chloride, Sulphate Pond Water (Shah Nala Village)



Six Monthly Variation in bore water Data

Location: Pond Water (Shah Nala Village)

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Quarterly April to June - 2025	Quarterly July to Sept. - 2025	MoEF Limit
1	Temperature	^{o}C	28.0	30	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25^{o}C	pH unit	7.52	7.48	**5.5-9.0**
3	Colour	pt. Co. Scale	<5	<5	**--**
4	Total Suspended Solids (TSS) @105 ^{o}C	mg/L	11.5	9.5	**100**
5	Total Dissolved Solids (TDS) @180^{o} C	mg/L	1050	1020	**2100**
6	Total volatile Solids	mg/L	1.4	1.2	**--**
7	COD	mg/L	<4	<4	**250**
8	BOD (5 days at 20^{o} C)	mg/L	<2	<2	**30**
9	Oil & Grease	mg/L	< 1	< 1	**10**
10	Chloride	mg/L	340	334	**1000**
11	Sulphate	mg/L	120	128	**300**
12	Fluoride	mg/L	1.0	0.5	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.5	0.4	**--**
14	Total Residual Chlorine	mg/L	< 0.10	< 0.10	**1.0**
15	Free Available Chlorine	mg/L	< 0.10	< 0.10	**--**
16	Phenolic Compound	mg/L	< 0.10	< 0.10	**1.0**
17	Lead	mg/L	< 0.02	< 0.02	**0.1**
18	Copper	mg/L	< 0.50	< 0.50	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.10	< 0.10	**5.0**
22	Iron	mg/L	<0.10	<0.10	**3.0**
23	Calcium	mg/L	90	88	**--**
24	Magnesium	mg/L	42	40	**--**
25	Percentage Sodium	%	30	28	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	**90%Survival of fish in 96 Hours in 100% of effluent**

Comparative Micro Meteorological Data and Wind rose & Wind Frequency Distribution

Six Monthly Variations in Micro-meteorological data

Period: April – 2025 to September – 2025

Dry Bulb Temperature (^{0}C)		
Time in Hrs.	**Quarterly April to June - 2025**	**Quarterly July to September - 2025**
10.00	28.0	26.0
11.00	29.0	28.0
12.00	30.0	30.0
13.00	30.0	31.0
14.00	28.0	29.0
15.00	26.0	27.0
16.00	26.0	26.0
17.00	25.0	25.0
18.00	26.0	24.0
19.00	25.0	25.0
20.00	24.0	24.0
21.00	23.0	23.0
22.00	24.0	22.0
23.00	23.0	20.0
00.00	22.0	19.0
01.00	20.0	20.0
02.00	19.0	19.0
03.00	20.0	20.0
04.00	22.0	22.0
05.00	24.0	24.0
06.00	25.0	25.0
07.00	26.0	25.0
08.00	27.0	26.0
09.00	28.0	26.0
Maximum	**30.0**	**31.0**
Minimum	**19.0**	**19.0**
Average	**25.0**	**24.4**

Six Monthly Variations in Micrometeorological data

Period: April – 2025 to September – 2025

Wet Bulb Temperature (^{0}C)		
Time in Hrs.	**Quarterly April to June - 2025**	**Quarterly July to September - 2025**
10.00	24.0	22.0
11.00	25.0	24.0
12.00	26.0	26.0
13.00	26.0	27.0
14.00	24.0	25.0
15.00	22.0	23.0
16.00	22.0	22.0
17.00	21.0	21.0
18.00	22.0	20.0
19.00	21.0	21.0
20.00	20.0	20.0
21.00	19.0	19.0
22.00	20.0	18.0
23.00	19.0	16.0
00.00	18.0	15.0
01.00	16.0	16.0
02.00	15.0	15.0
03.00	16.0	16.0
04.00	18.0	18.0
05.00	20.0	20.0
06.00	21.0	21.0
07.00	22.0	21.0
08.00	23.0	22.0
09.00	24.0	22.0
Maximum	**26.0**	**27.0**
Minimum	**15.0**	**15.0**
Average	**21.0**	**20.4**

Six Monthly Variations in Micrometeorological data

Period: April – 2025 to September – 2025

Relative Humidity %		
Time in Hrs.	**Quarterly April to June - 2025**	**Quarterly July to September - 2025**
10.00	62.0	62.0
11.00	58.0	58.0
12.00	60.0	60.0
13.00	55.0	55.0
14.00	48.0	48.0
15.00	50.0	50.0
16.00	52.0	52.0
17.00	55.0	55.0
18.00	62.0	62.0
19.00	68.0	68.0
20.00	72.0	72.0
21.00	65.0	65.0
22.00	60.0	60.0
23.00	55.0	55.0
00.00	58.0	58.0
01.00	62.0	62.0
02.00	68.0	68.0
03.00	64.0	64.0
04.00	55.0	55.0
05.00	52.0	52.0
06.00	48.0	48.0
07.00	45.0	45.0
08.00	52.0	52.0
09.00	58.0	58.0
Maximum	**72.0**	**72.0**
Minimum	**45.0**	**45.0**
Average	**57.7**	**57.6**

Six Monthly Variations in Micrometeorological data

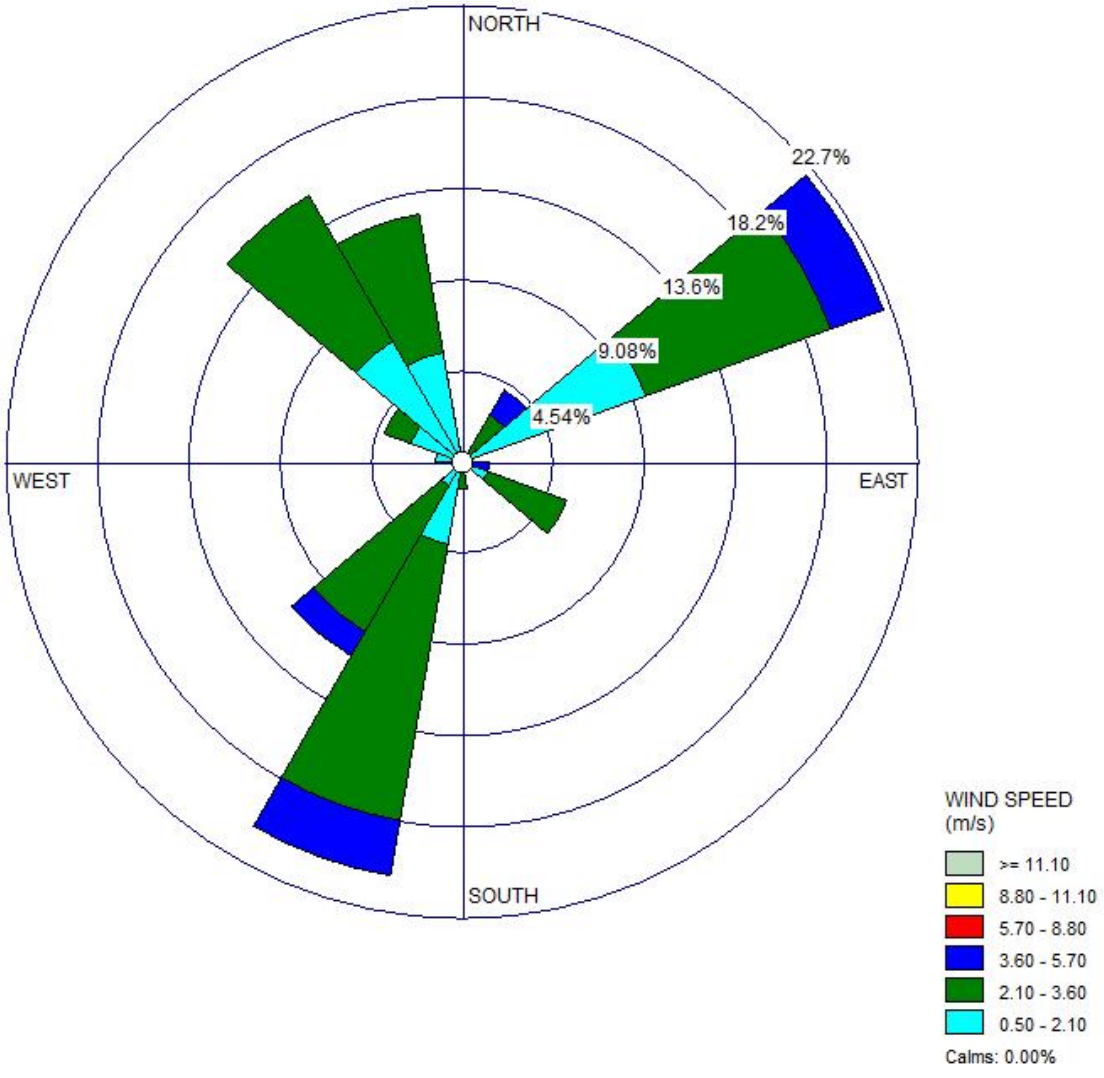
Period: April – 2025 to September – 2025

Wind Speed (km/hour)		
Time in Hrs.	**Quarterly April to June - 2025**	**Quarterly July to September - 2025**
10.00	9.0	4.0
11.00	8.0	5.0
12.00	8.0	8.0
13.00	9.0	9.0
14.00	11.0	11.0
15.00	12.0	12.0
16.00	11.0	11.0
17.00	13.0	13.0
18.00	12.0	12.0
19.00	14.0	15.0
20.00	10.0	16.0
21.00	9.0	9.0
22.00	10.0	10.0
23.00	12.0	12.0
00.00	14.0	13.0
01.00	12.0	12.0
02.00	9.0	10.0
03.00	8.0	8.0
04.00	6.0	6.0
05.00	8.0	5.0
06.00	7.0	7.0
07.00	6.0	6.0
08.00	7.0	7.0
09.00	10.0	5.0
Maximum	**14.0**	**16.0**
Minimum	**6.0**	**4.0**
Average	**9.8**	**9.4**

WIND ROSE PLOT:

M/s. Gujarat Industries Power Company Limited
Valia & Mangrol Mine

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: Start Date: 17-Apr-25 - 10:00 End Date: 19-Aug-25 - 09:00	COMPANY NAME: **Gujarat Industries Power Company Limited**	
		MODELER: **Ecosystem Resource Management Pvt Ltd.**	
	CALM WINDS: **0.00%**	TOTAL COUNT: **72 hrs.**	
	AVG. WIND SPEED: **2.46 m/s**	DATE: **08-Oct-25**	PROJECT NO.: