Gujarat Industries Power Company Limited

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

Six Monthly Report of Vastan Lignite Mine

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 Vastan Lignite Mine

I. Ambient Air Monitoring

Sr. No.	No. of stations & Location	Duration	Frequency	Parameters	Method of Analysis
1.	12 Nos. within the Core & 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_X	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.	9 Nos. within the Core & 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.	11 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.	24 hours	Bi-Monthly	Dry Bulb & Wet Bulb Temp., Atmospheric Pressure, Relative Humidity, Wind Speed, Wind Direction, Rain Fall and its Min. Max. & Avg. Value	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.	6 Nos. of Bore well & 6 Nos. of Surface Water sample located both in Core & Buffer Zone	1	Bi-Monthly	Physical parameters, Chemical Parameters, Heavy metals	As per the standard methods for the examination of water and waste water APHA 24rd Edition 2023 and various Indian standards IS 3025.

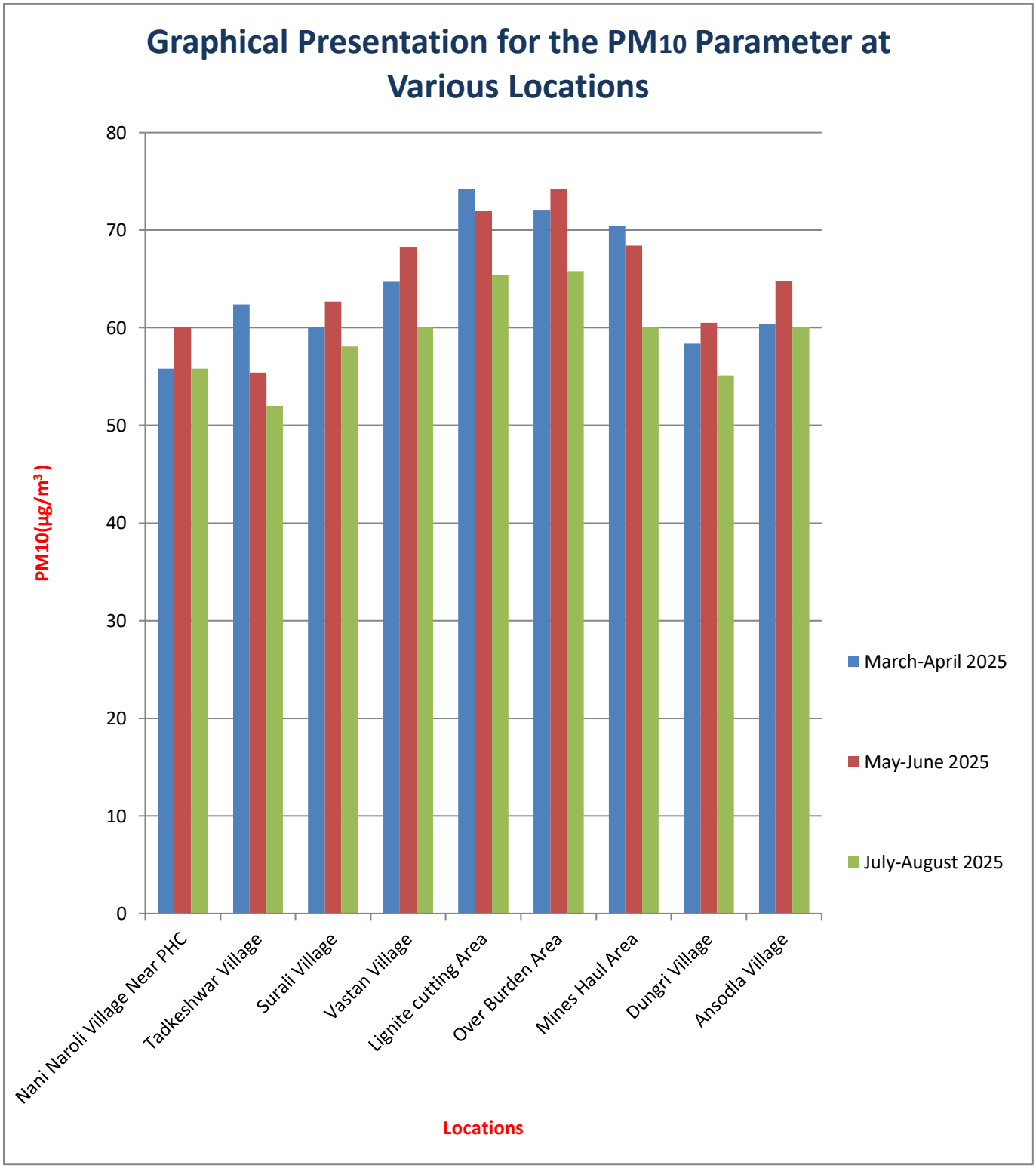
Comparative Ambient Air Monitoring & Dust fall Report & Graphical Presentation

Six Monthly Variations in Ambient Air Quality

Parameter: PM_{10} (Respirable Particulate Matter)

Period: April – 2025 to September – 2025

Sr. No.	Location	Results ($\mu g/m^3$)		
		Bi-Monthly March to April - 2025	Bi-Monthly May to June. - 2024	Bi-Monthly July to August - 2025
1	Nani Naroli Village Near PHC	55.8	60.1	55.8
2	Tadkeshwar Village	62.4	55.4	52.0
3	Surali Village	60.1	62.7	58.1
4	Vastan Village	64.7	68.2	60.1
5	Lignite cutting Area	74.2	72.0	65.4
6	Over Burden Area	72.1	74.2	65.8
7	Mines Haul Area	70.4	68.4	60.1
8	Dungri Village	58.4	60.5	55.1
9	Ansodla Village	60.4	64.8	60.1
	Limit	100 ($\mu g/m^3$)		


Graphical Presentation for the PM10 Parameter at Various Locations
PM10(µg/m³)
80
70
60
50
40
30
20
10
0
Nani Naroli Village Near PHC
Tadkeshwar Village
Surali Village
Vastan Village
Lignite cutting Area
Over Burden Area
Mines Haul Area
Dungri Village
Ansodla Village
Locations
March-April 2025
May-June 2025
July-August 2025

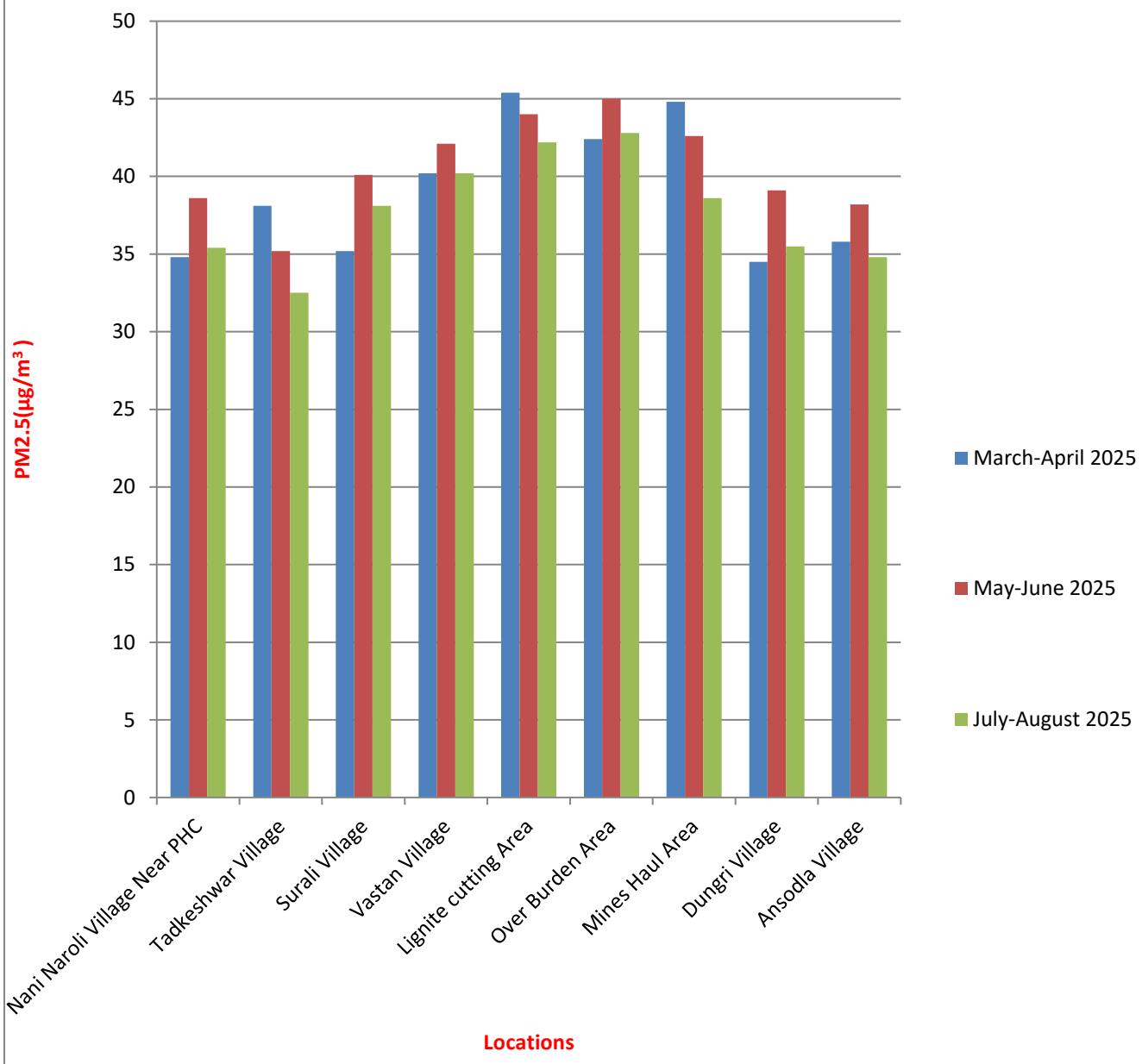
Six Monthly Variations in Ambient Air Quality

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

Period: April – 2025 to September – 2025

Sr. No.	Location	Results ($\mu g/m^3$)		
		Bi-Monthly March to April - 2025	Bi-Monthly May to June. - 2024	Bi-Monthly July to August - 2025
1	Nani Naroli Village Near PHC	34.8	38.6	35.4
2	Tadkeshwar Village	38.1	35.2	32.5
3	Surali Village	35.2	40.1	38.1
4	Vastan Village	40.2	42.1	40.2
5	Lignite cutting Area	45.4	44.0	42.2
6	Over Burden Area	42.4	45.0	42.8
7	Mines Haul Area	44.8	42.6	38.6
8	Dungri Village	34.5	39.1	35.5
9	Ansodla Village	35.8	38.2	34.8
	Limit	60 ($\mu g/m^3$)		

Graphical Presentation for the PM2.5 Parameter at Various Locations

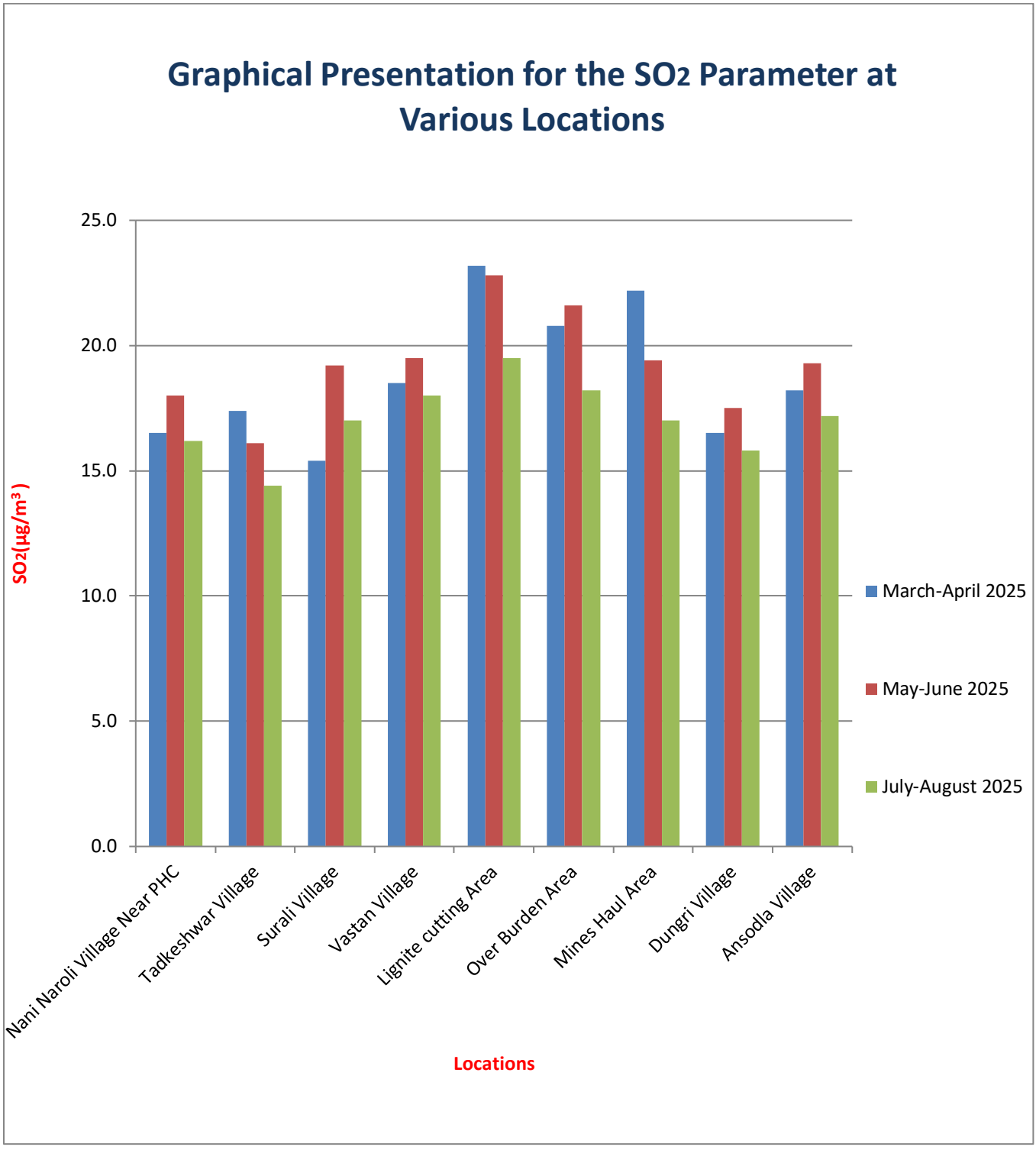


Six Monthly Variations in Ambient Air Quality

Parameter: SO2 (Sulphur Dioxide)

Period: April – 2025 to September – 2025

Sr. No.	Location	Reults (µg/m^3)		
		Bi-Monthly March to April - 2025	Bi-Monthly May to June. - 2024	Bi-Monthly July to August - 2025
1	Nani Naroli Village Near PHC	16.5	18.0	16.2
2	Tadkeshwar Village	17.4	16.1	14.4
3	Surali Village	15.4	19.2	17.0
4	Vastan Village	18.5	19.5	18.0
5	Lignite cutting Area	23.2	22.8	19.5
6	Over Burden Area	20.8	21.6	18.2
7	Mines Haul Area	22.2	19.4	17.0
8	Dungri Village	16.5	17.5	15.8
9	Ansodla Village	18.2	19.3	17.2
	Limit	80 (µg/m^3)		


Graphical Presentation for the SO2 Parameter at Various Locations
25.0
20.0
15.0
10.0
5.0
0.0
SO2(µg/m3)
March-April 2025
May-June 2025
July-August 2025
Nani Naroli Village Near PHC
Tadkeshwar Village
Surali Village
Vastan Village
Lignite cutting Area
Over Burden Area
Mines Haul Area
Dungri Village
Ansodla Village
Locations

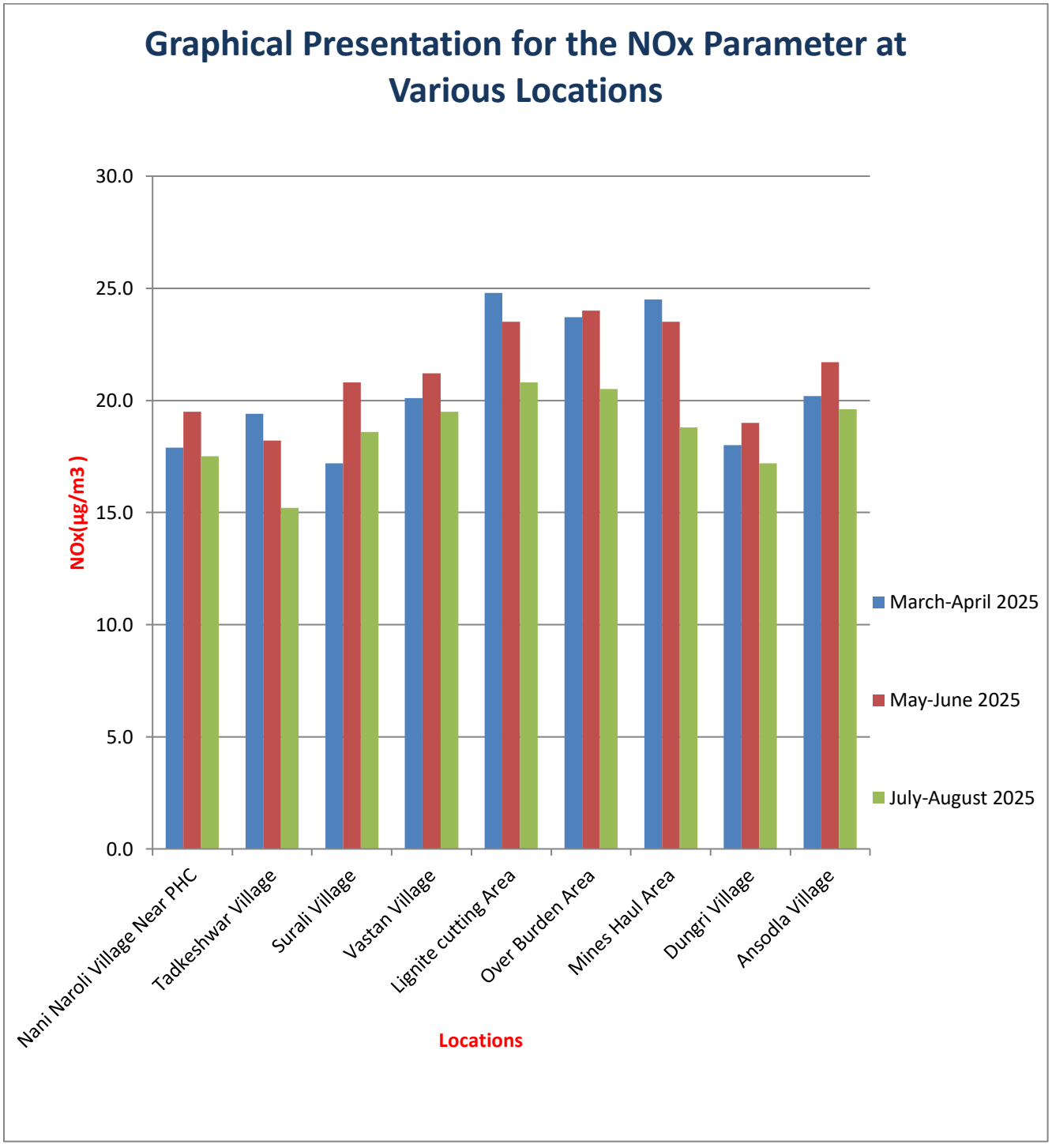
Six Monthly Variations in Ambient Air Quality

Parameter: NO_x (Nitrogen dioxide)

Period: April – 2025 to September – 2025

Sr. No.	Location	Results ($\mu g/m^3$)		
		Bi-Monthly March to April - 2025	Bi-Monthly May to June. - 2024	Bi-Monthly July to August - 2025
1	Nani Naroli Village Near PHC	17.9	19.5	17.5
2	Tadkeshwar Village	19.4	18.2	15.2
3	Surali Village	17.2	20.8	18.6
4	Vastan Village	20.1	21.2	19.5
5	Lignite cutting Area	24.8	23.5	20.8
6	Over Burden Area	23.7	24.0	20.5
7	Mines Haul Area	24.5	23.5	18.8
8	Dungri Village	18.0	19.0	17.2
9	Ansodla Village	20.2	21.7	19.6
	Limit	80 ($\mu g/m^3$)		

Graphical Presentation for the NOx Parameter at Various Locations



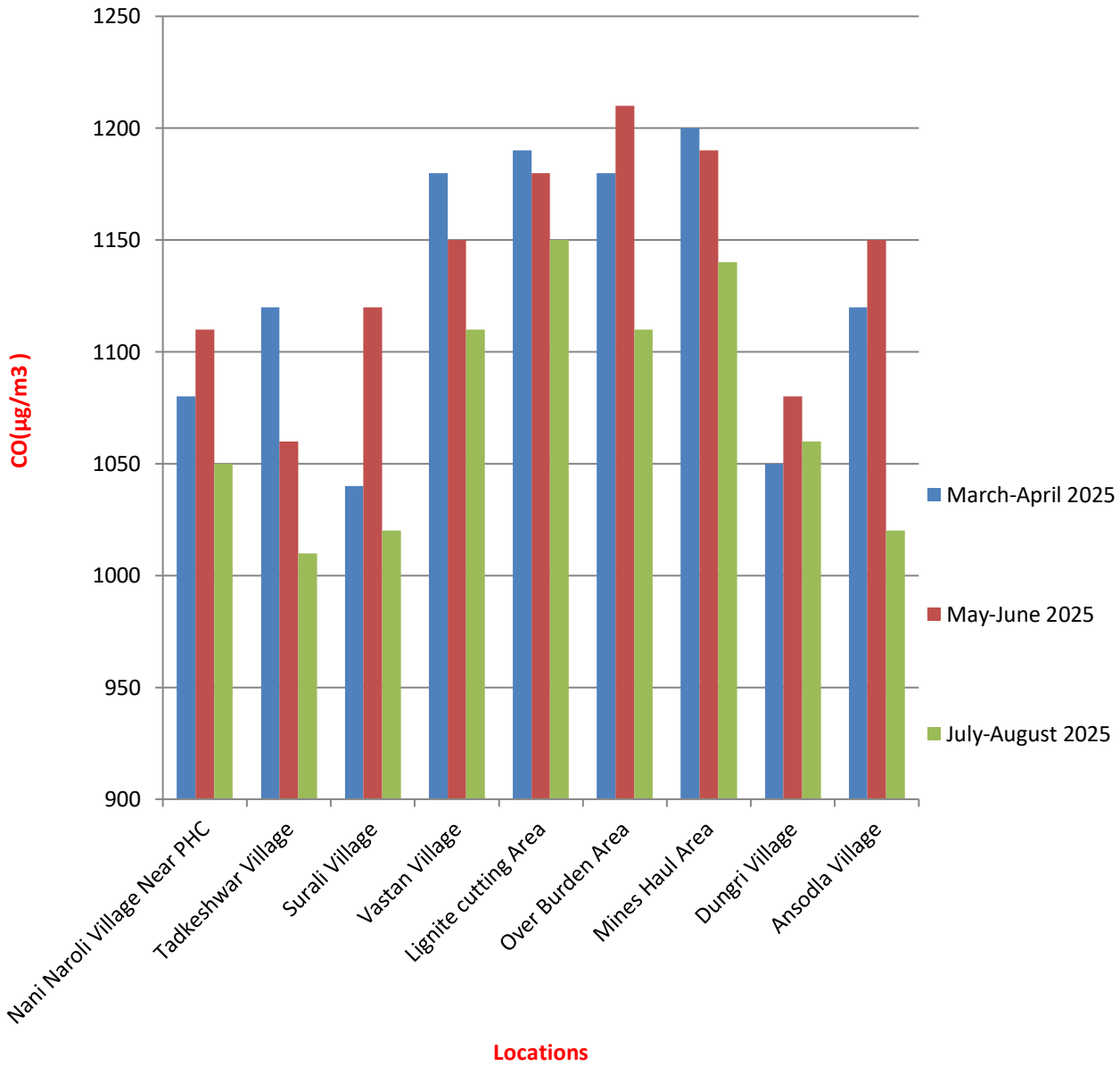
Six Monthly Variations in Ambient Air Quality

Parameter: CO (Carbon Monoxide)

Period: April – 2025 to September – 2025

Sr. No.	Location	Results ($\mu g/m^3$)		
		Bi-Monthly March to April - 2025	Bi-Monthly May to June. - 2024	Bi-Monthly July to August - 2025
1	Nani Naroli Village Near PHC	1080	1110	1050
2	Tadkeshwar Village	1120	1060	1010
3	Surali Village	1040	1120	1020
4	Vastan Village	1180	1150	1110
5	Lignite cutting Area	1190	1180	1150
6	Over Burden Area	1180	1210	1110
7	Mines Haul Area	1200	1190	1140
8	Dungri Village	1050	1080	1060
9	Ansodla Village	1120	1150	1020
	Limit	2000 ($\mu g/m^3$)		

Graphical Presentation for the CO Parameter at Various Locations

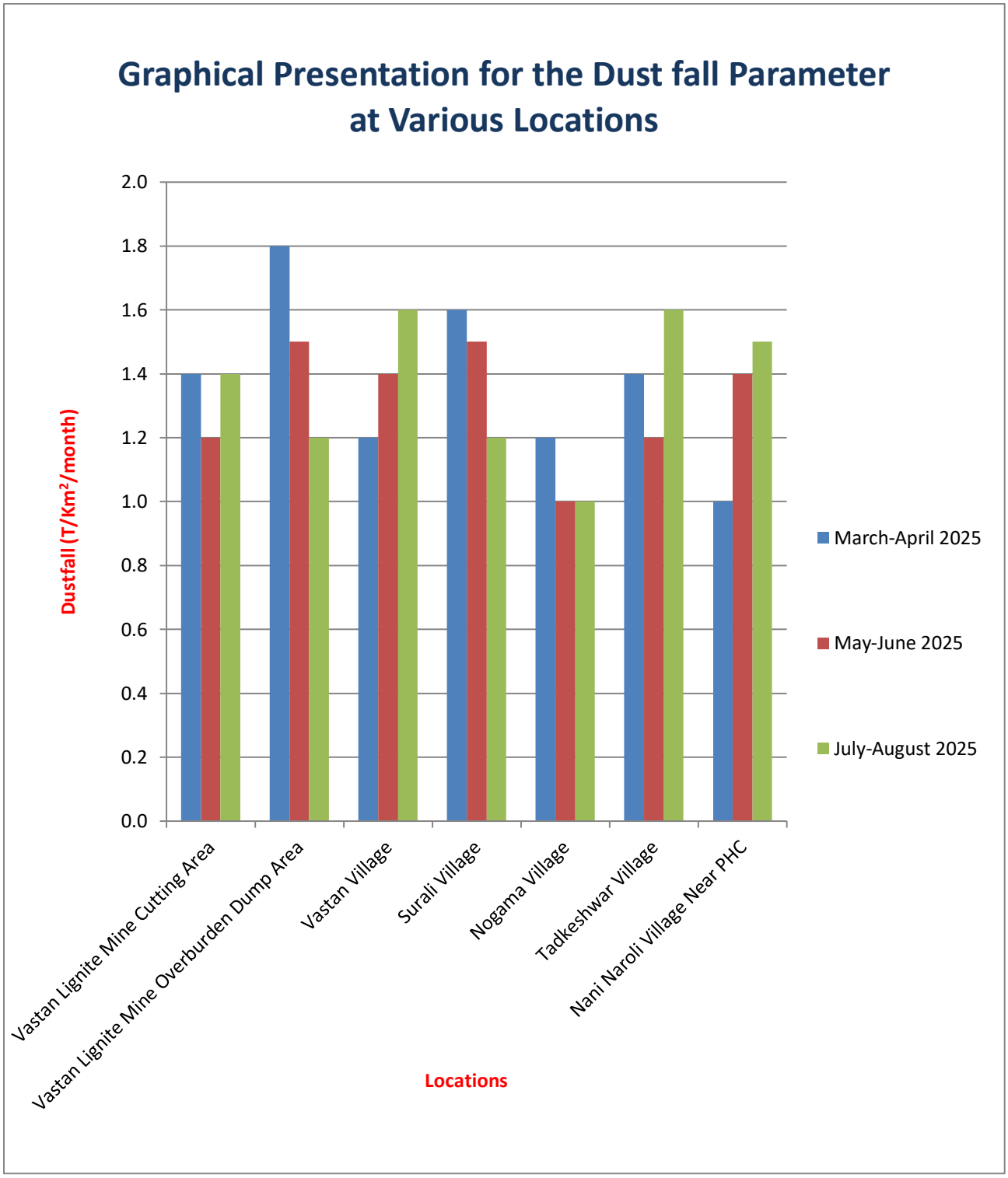


Six Monthly Variations in Ambient Air Quality

Parameter: Dust Fall

Period: April – 2025 to September – 2025

Sr. No.	Location	Results (T/Km^2/month)		
		Bi-Monthly March to April - 2025	Bi-Monthly May to June. - 2024	Bi-Monthly July to August - 2025
1	Vastan Lignite Mine Cutting Area	1.4	1.2	1.4
2	Vastan Lignite Mine Overburden Dump Area	1.8	1.5	1.2
3	Vastan Village	1.2	1.4	1.6
4	Surali Village	1.6	1.5	1.2
5	Nogama Village	1.2	1.0	1.0
6	Tadkeshwar Village	1.4	1.2	1.6
7	Nani Naroli Village Near PHC	1.0	1.4	1.5
	Limit	10 (T/Km^2/month)		


Graphical Presentation for the Dust fall Parameter at Various Locations
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Dustfall (T/Km²/month)
March-April 2025
May-June 2025
July-August 2025
Vastan Lignite Mine Cutting Area
Vastan Lignite Mine Overburden Dump Area
Vastan Village
Surali Village
Nogama Village
Tadkeshwar Village
Nani Naroli Village Near PHC
Locations

Comparative Micro Meteorological Data and Wind rose & Wind Frequency Distribution

Six Monthly Variations in Micrometeorological data

Period: April – 2025 to September – 2025

Dry Bulb Temperature (^{0}C)			
Time in Hrs.	**Bi-Monthly March to April - 2025**	**Bi-Monthly May to June - 2025**	**Bi-Monthly July to August - 2025**
10.00	30	28	27
11.00	32	30	28
12.00	34	30	30
13.00	35	31	30
14.00	36	30	29
15.00	35	28	28
16.00	34	26	25
17.00	33	28	26
18.00	32	26	28
19.00	30	25	25
20.00	29	24	24
21.00	28	22	21
22.00	29	29	22
23.00	27	27	20
00.00	26	26	19
01.00	25	25	22
02.00	24	24	23
03.00	25	25	25
04.00	24	24	24
05.00	23	23	23
06.00	26	24	24
07.00	28	26	25
08.00	29	26	26
09.00	30	27	27
Maximum	**36.0**	**31.0**	**30.0**
Minimum	**23.0**	**22.0**	**19.0**
Average	**29.3**	**26.4**	**25.0**

Six Monthly Variations in Micrometeorological data

Period: April – 2025 to September – 2025

Wet Bulb Temperature (^{0}C)			
Time in Hrs.	**Bi-Monthly March to April - 2025**	**Bi-Monthly May to June - 2025**	**Bi-Monthly July to August - 2025**
10.00	25	23	22
11.00	27	25	23
12.00	29	25	25
13.00	30	26	25
14.00	31	25	24
15.00	30	23	23
16.00	29	21	20
17.00	28	23	21
18.00	27	21	23
19.00	25	20	20
20.00	24	19	19
21.00	23	17	16
22.00	24	24	17
23.00	22	22	15
00.00	21	21	14
01.00	20	20	17
02.00	19	19	18
03.00	20	20	20
04.00	19	19	19
05.00	18	18	18
06.00	21	19	19
07.00	23	21	20
08.00	24	21	21
09.00	25	22	22
Maximum	**31.0**	**26.0**	**25.0**
Minimum	**18.0**	**17.0**	**14.0**
Average	**24.3**	**21.4**	**20.0**

Six Monthly Variations in Micrometeorological data

Period: April – 2025 to September – 2025

Relative Humidity %			
Time in Hrs.	**Bi-Monthly March to April - 2025**	**Bi-Monthly May to June - 2025**	**Bi-Monthly July to August - 2025**
10.00	38	65	68
11.00	35	66	72
12.00	30	69	69
13.00	28	70	70
14.00	25	70	70
15.00	22	72	72
16.00	24	74	74
17.00	25	78	78
18.00	28	78	78
19.00	30	80	79
20.00	40	81	80
21.00	45	85	82
22.00	48	78	78
23.00	52	78	78
00.00	55	80	80
01.00	58	82	82
02.00	62	82	82
03.00	60	85	85
04.00	58	85	82
05.00	55	84	80
06.00	54	84	78
07.00	55	80	75
08.00	50	82	72
09.00	48	80	70
Maximum	**62.0**	**85.0**	**85.0**
Minimum	**22.0**	**65.0**	**68**
Average	**42.7**	**77.8**	**76.4**

Six Monthly Variations in Micrometeorological data

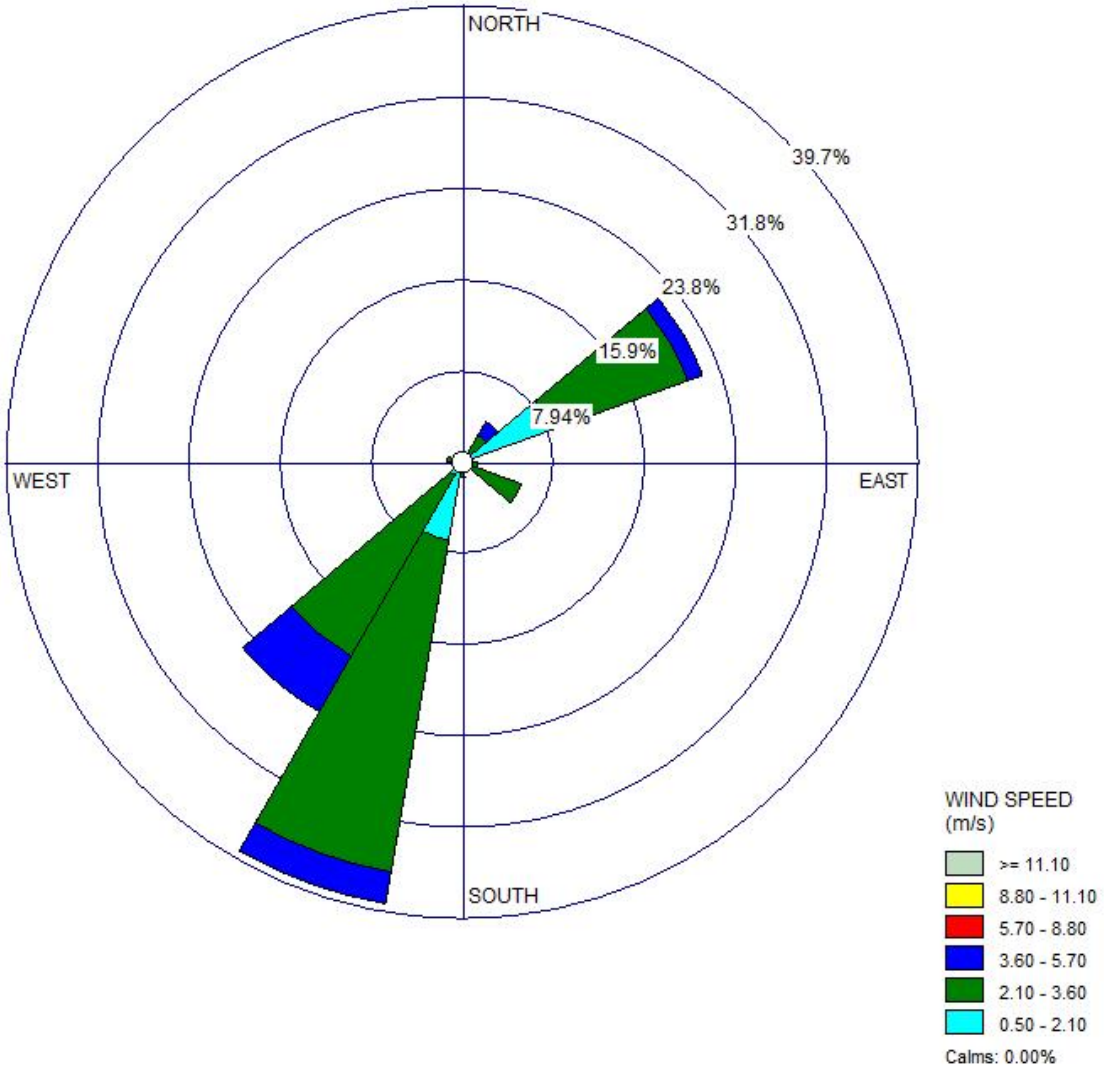
Period: April – 2025 to September – 2025

Wind Speed (km/hour)			
Time in Hrs.	**Bi-Monthly March to April - 2025**	**Bi-Monthly May to June - 2025**	**Bi-Monthly July to August - 2025**
10.00	9.0	10.0	12.0
11.00	8.0	12.0	11.0
12.00	9.0	8.0	9.0
13.00	10.0	6.0	6.0
14.00	12.0	7.0	7.0
15.00	14.0	8.0	8.0
16.00	15.0	10.0	10.0
17.00	12.0	12.0	12.0
18.00	11.0	14.0	14.0
19.00	10.0	16.0	15.0
20.00	9.0	8.0	9.0
21.00	8.0	9.0	10.0
22.00	9.0	6.0	8.0
23.00	10.0	8.0	7.0
00.00	12.0	10.0	9.0
01.00	14.0	12.0	10.0
02.00	13.0	9.0	9.0
03.00	12.0	10.0	10.0
04.00	10.0	8.0	8.0
05.00	11.0	8.0	8.0
06.00	12.0	6.0	6.0
07.00	10.0	7.0	7.0
08.00	9.0	6.0	6.0
09.00	8.0	9.0	10.0
Maximum	**15.0**	**16.0**	**15.0**
Minimum	**8.0**	**6.0**	**6.0**
Average	**10.7**	**9.1**	**9.2**

WIND ROSE PLOT:

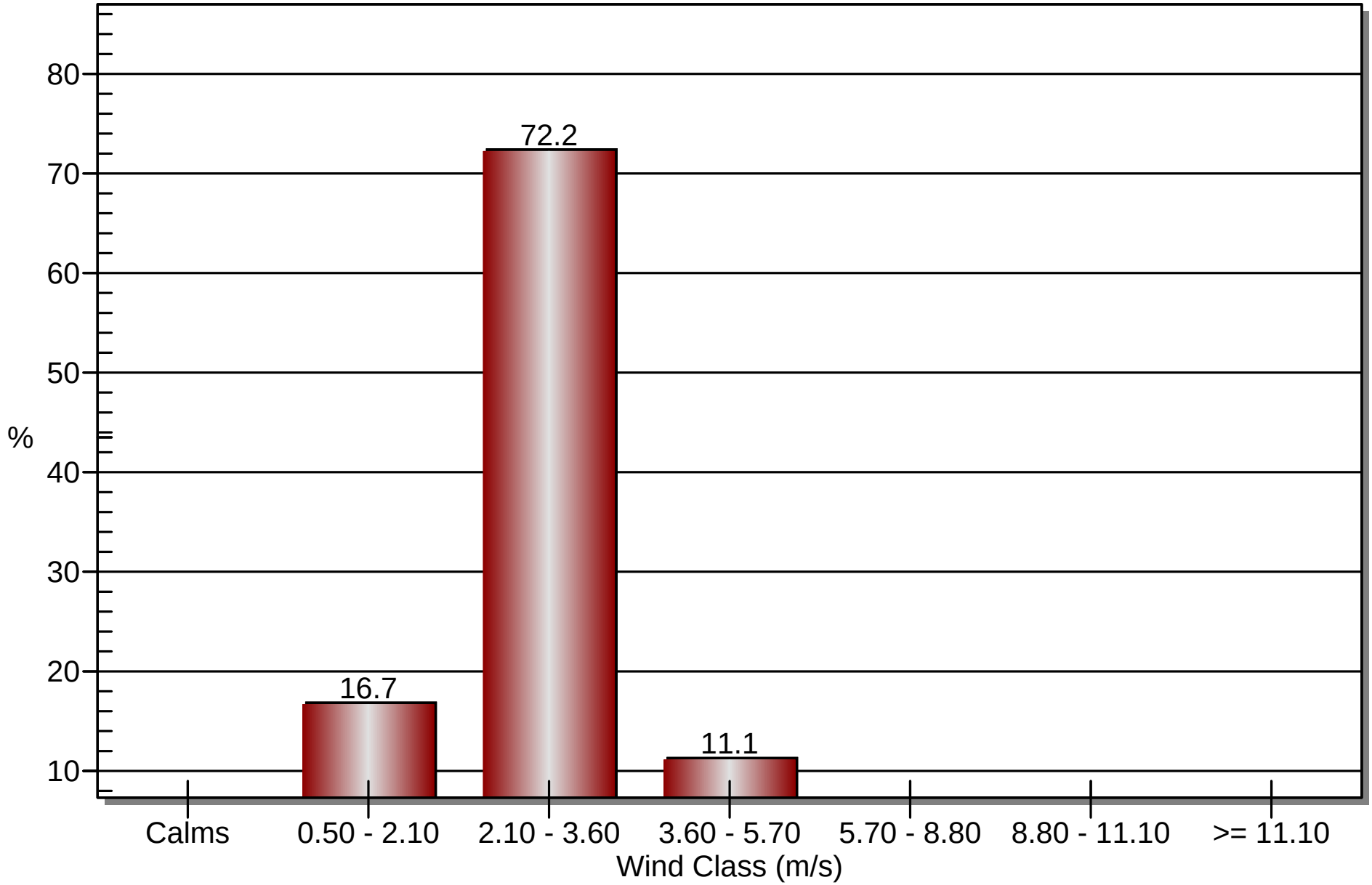
M/s. Gujarat Industries Power Company Limited
Vastan Lignite Mines

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: **2.68 m/s**	DATE: **04-Oct-25**	PROJECT NO.:

Wind Class Frequency Distribution



Comparative Noise Monitoring Report & Graphical Presentation

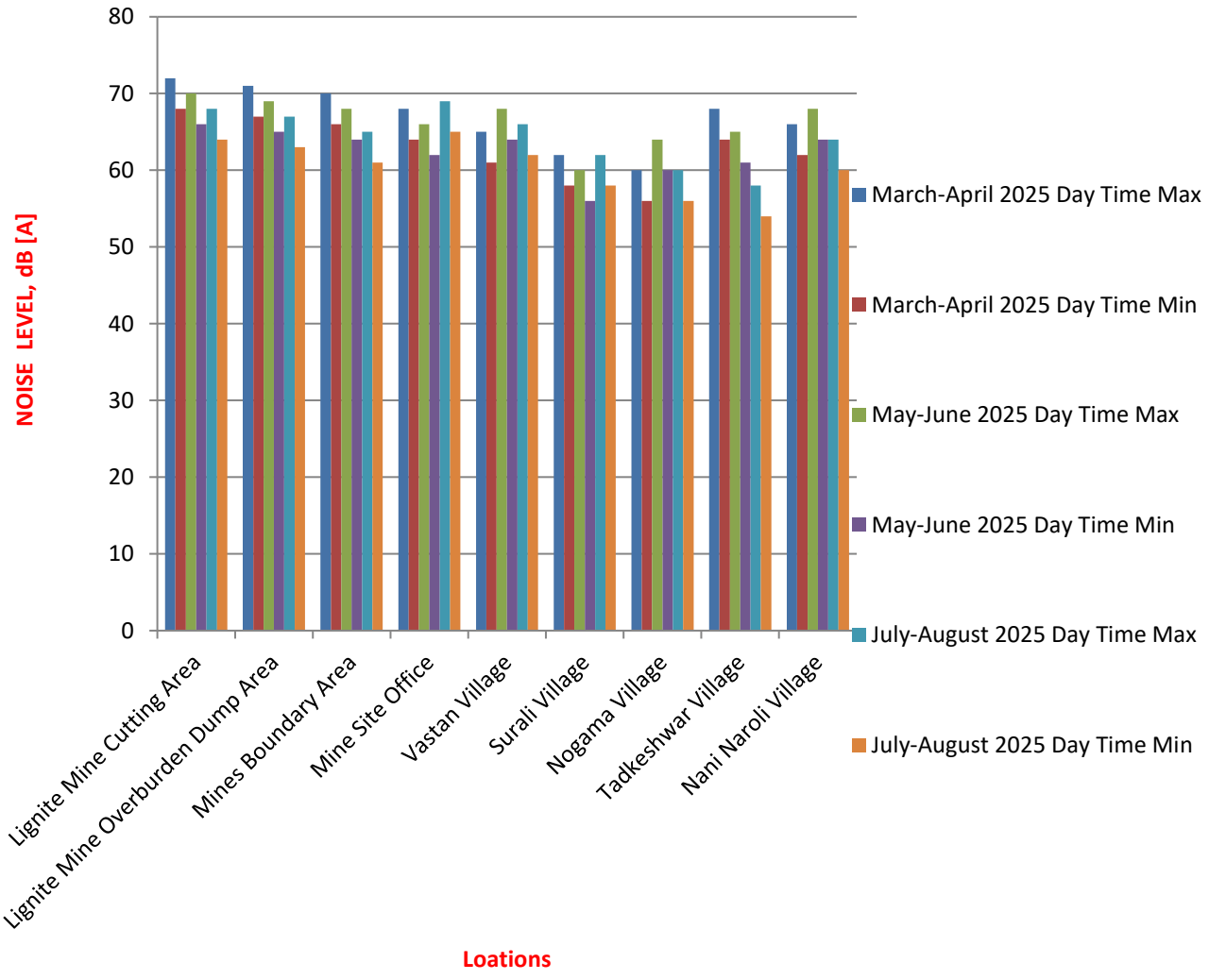
Six Monthly Variations in Noise Level

Parameter: Noise

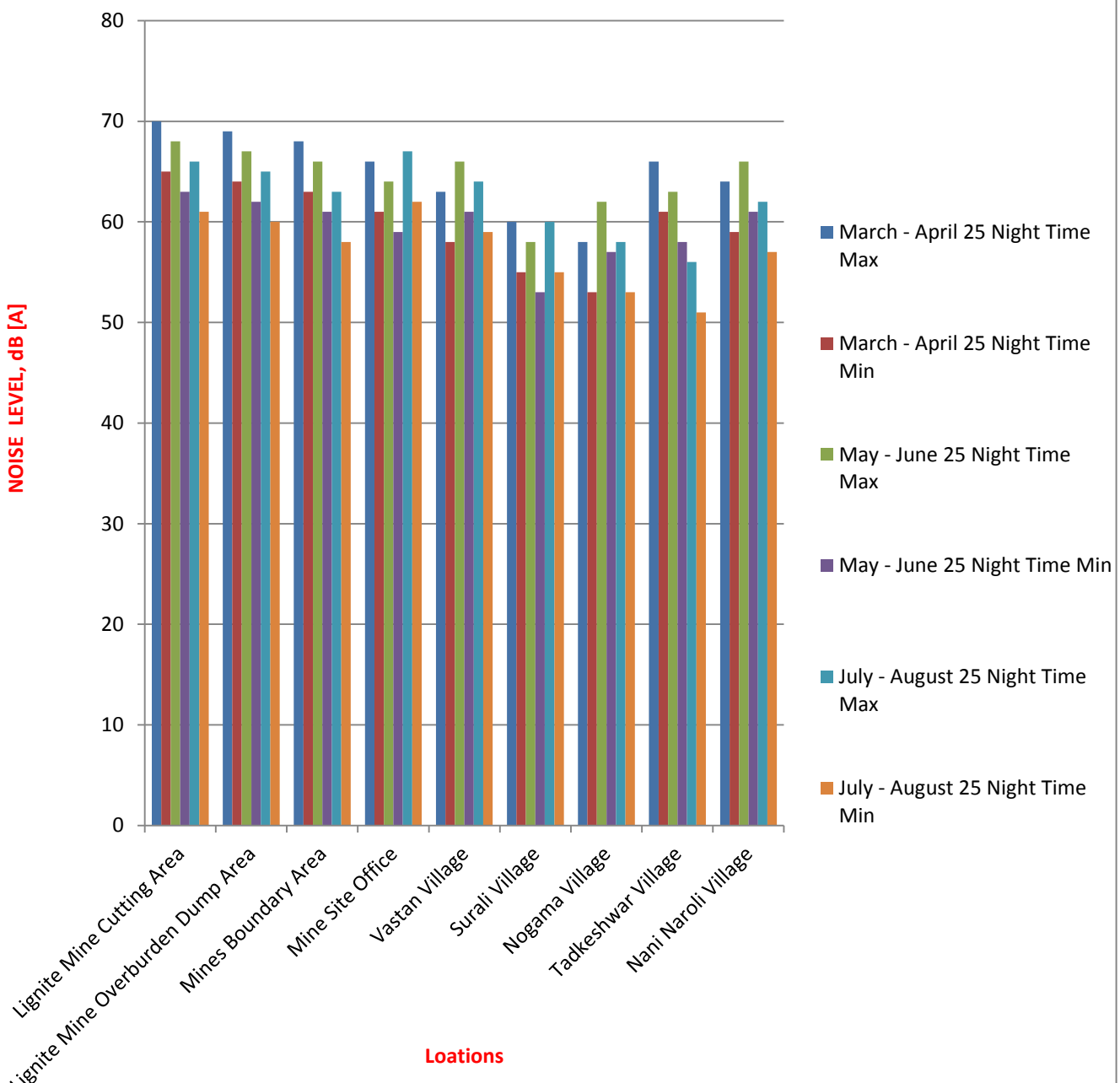
Period: April – 2025 to September – 2025

Sr. No.	LOCATION	NOISE LEVEL, dB [A]											
		Bi-Monthly March to April - 2025				Bi-Monthly May to June - 2025				Bi-Monthly July to August - 2025			
		Day Time		Night Time		Day Time		Night Time		Day Time		Night Time	
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1	Lignite Mine Cutting Area	72	68	70	65	70	66	68	63	68	64	66	61
2	Lignite Mine Overburden Dump Area	71	67	69	64	69	65	67	62	67	63	65	60
3	Mines Boundary Area	70	66	68	63	68	64	66	61	65	61	63	58
4	Mine Site Office	68	64	66	61	66	62	64	59	69	65	67	62
5	Vastan Village	65	61	63	58	68	64	66	61	66	62	64	59
6	Surali Village	62	58	60	55	60	56	58	53	62	58	60	55
7	Nogama Village	60	56	58	53	64	60	62	57	60	56	58	53
8	Tadkeshwar Village	68	64	66	61	65	61	63	58	58	54	56	51
9	Nani Naroli Village	66	62	64	59	68	64	66	61	64	60	62	57
	GPCB limit	75 dB [A]		70 dB [A]		75 dB [A]		70 dB [A]		75 dB [A]		70 dB [A]	

Graphical Presentation for the Parameter Noise Level at Various Locations During Day Time



Graphical Presentation for the Parameter Noise Level at Various Locations During Night Time



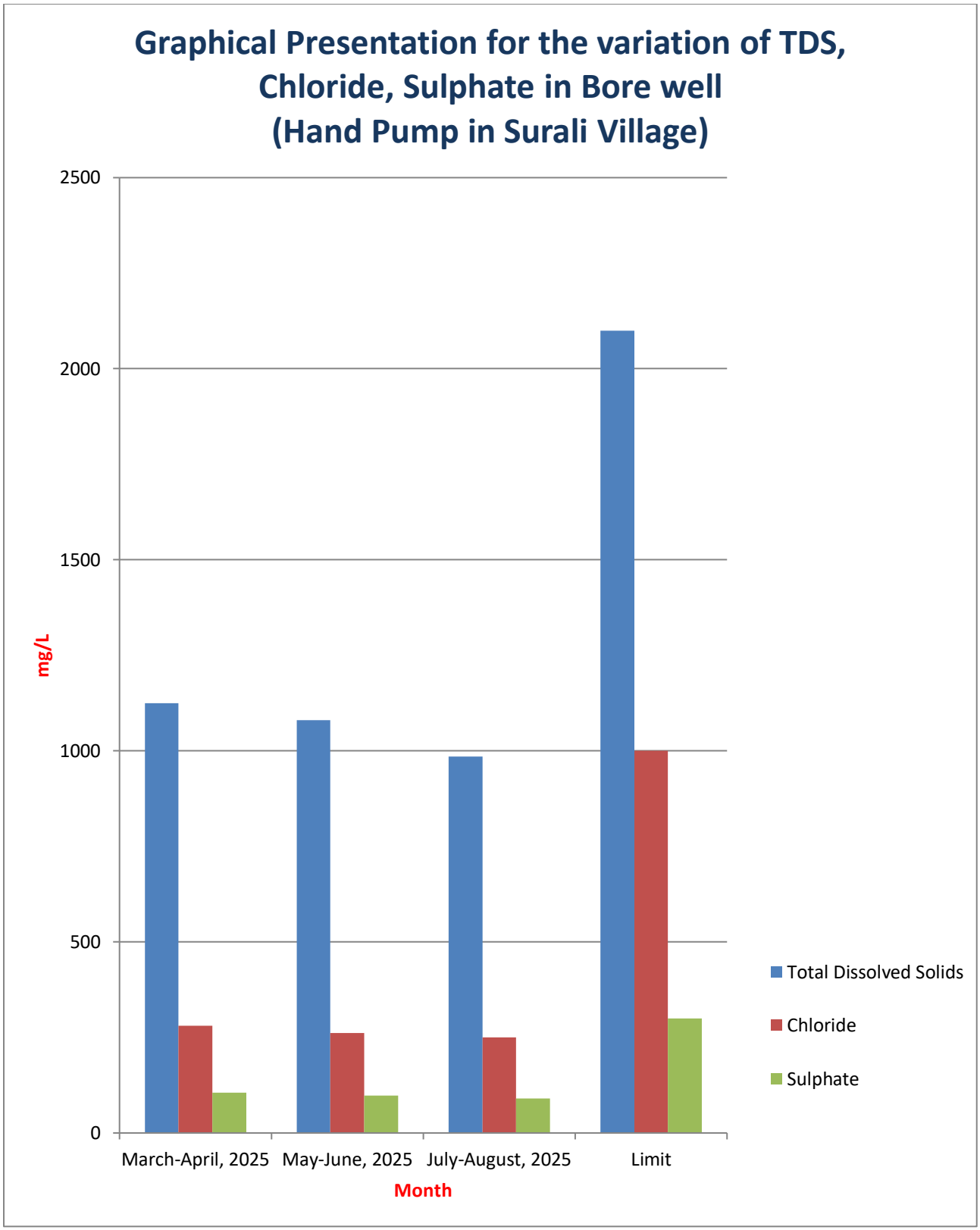
Comparative Water Analysis Test Report & Graphical Presentation

Six Monthly Variations in Bore water

Sampling point: Bore well (Hand Pump in Surali Village)

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Bi-Monthly March - April 2025	Bi-Monthly May - June 2025	Bi-Monthly July - August 2025	MoEF Limit
1	Temperature	^{0}C	31	28	30	**Shall not exceed 5˚c above the receiving water temp.**
2	pH@ 25^{o}C	pH unit	7.35	7.48	7.40	**5.5-9.0**
3	Colour	pt. Co. Scale	< 5	< 5	< 5	**--**
4	Total Suspended Solids (TSS) @105 ^{o}C	mg/L	10.2	11.5	9.5	**100**
5	Total Dissolved Solids (TDS) @180^o C	mg/L	1125	1080	985	**2100**
6	Total volatile Solids	mg/L	1.4	1.2	1.5	**--**
7	COD	mg/L	< 4	< 4	< 4	**250**
8	BOD (5 days at 20^o C)	mg/L	< 2	< 2	< 2	**30**
9	Oil & Grease	mg/L	< 1	< 1	< 1	**10**
10	Chloride	mg/L	280	262	250	**1000**
11	Sulphate	mg/L	105	98	90	**300**
12	Fluoride	mg/L	0.4	0.6	0.4	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.2	0.5	0.4	**--**
14	Total Residual Chlorine	mg/L	< 0.10	< 0.10	< 0.10	**1.0**
15	Free Available Chlorine	mg/L	< 0.10	< 0.10	< 0.10	**--**
16	Phenolic Compound	mg/L	< 0.02	< 0.02	< 0.02	**1.0**
17	Lead	mg/L	< 0.50	< 0.50	< 0.50	**0.1**
18	Copper	mg/L	< 0.03	< 0.03	< 0.03	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.10	< 0.10	< 0.10	**2.0**
21	Zinc	mg/L	0.62	0.74	0.65	**5.0**
22	Iron	mg/L	0.68	0.62	0.58	**3.0**
23	Calcium	mg/L	62	58	60	**--**
24	Magnesium	mg/L	28	24	26	**--**
25	Percentage Sodium	%	30	28	30	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	100	**90%Survival of fish after 96 Hours in 100% of effluent**


Graphical Presentation for the variation of TDS, Chloride, Sulphate in Bore well (Hand Pump in Surali Village)
2500
2000
1500
1000
500
0
mg/L
March-April, 2025
May-June, 2025
July-August, 2025
Limit
Month
Total Dissolved Solids
Chloride
Sulphate

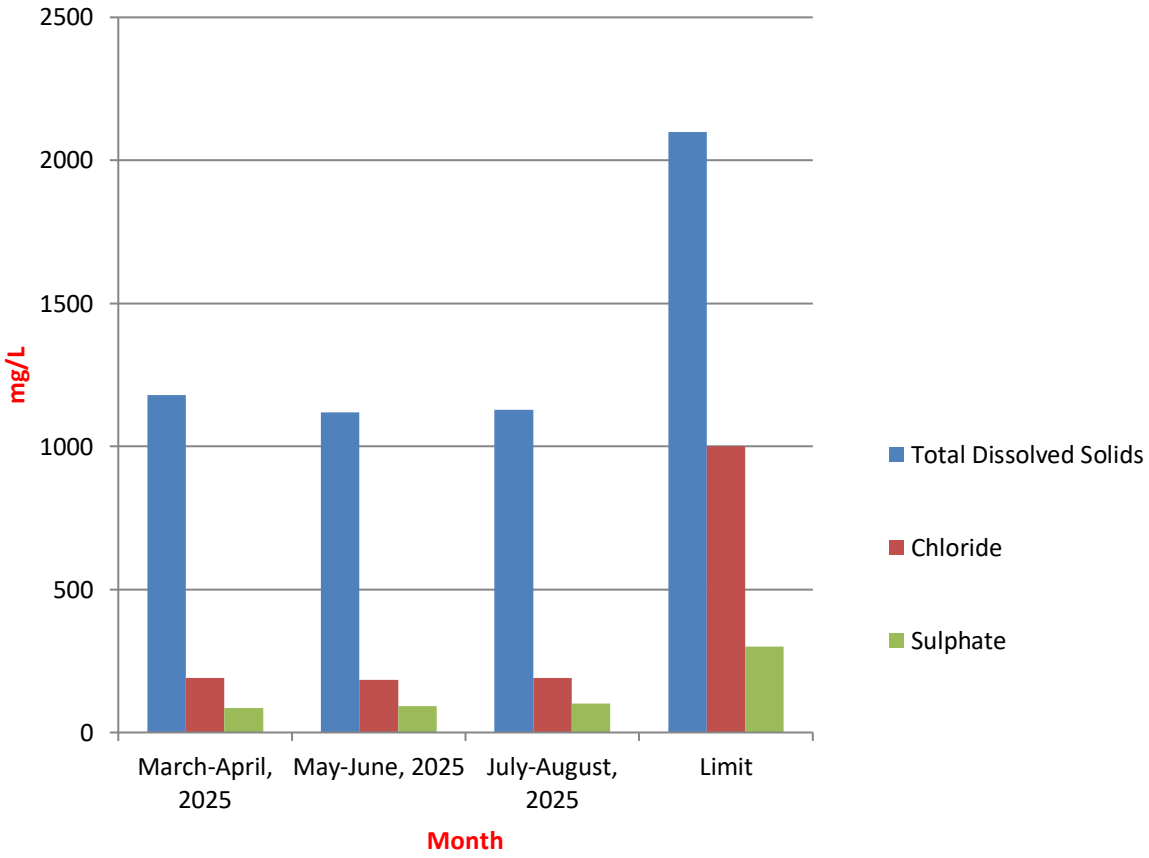
Six Monthly Variations in Bore water

Sampling point: Bore well (Vastan Village)

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Bi-Monthly March - April 2025	Bi-Monthly May - June 2025	Bi-Monthly July - August 2025	MoEF Limit
1	Temperature	^{0}C	30	28	27	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25^{o}C	pH unit	7.48	7.52	7.52	**5.5-9.0**
3	Colour	pt. Co. Scale	< 5	< 5	< 5	**--**
4	Total Suspended Solids (TSS) @105 ^{0}C	mg/L	9.5	10.5	9.5	**100**
5	Total Dissolved Solids (TDS) @180 ^{0}C	mg/L	1180	1120	1128	**2100**
6	Total volatile Solids	mg/L	1.4	1.2	1.4	**--**
7	COD	mg/L	< 4	< 4	< 4	**250**
8	BOD (5 days at 20 ^{0}C)	mg/L	< 2	< 2	< 2	**30**
9	Oil & Grease	mg/L	< 1	< 1	< 1	**10**
10	Chloride	mg/L	190	185	190	**1000**
11	Sulphate	mg/L	85	92	102	**300**
12	Fluoride	mg/L	0.4	0.5	0.6	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.4	0.4	0.5	**--**
14	Total Residual Chlorine	mg/L	< 0.10	< 0.10	< 0.10	**1.0**
15	Free Available Chlorine	mg/L	< 0.10	< 0.10	< 0.10	**--**
16	Phenolic Compound	mg/L	< 0.10	< 0.10	< 0.10	**1.0**
17	Lead	mg/L	< 0.02	< 0.02	< 0.02	**0.1**
18	Copper	mg/L	< 0.50	< 0.50	< 0.50	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.10	< 0.10	< 0.10	**5.0**
22	Iron	mg/L	0.55	0.62	0.68	**3.0**
23	Calcium	mg/L	78	74	78	**--**
24	Magnesium	mg/L	36	34	36	**--**
25	Percentage Sodium	%	30	28	26	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	100	**90%Survival of fish after 96 Hours in 100% of effluent**

Graphical Presentation for the variation of TDS, Chloride, Sulphate in Bore well (Vastan Village)



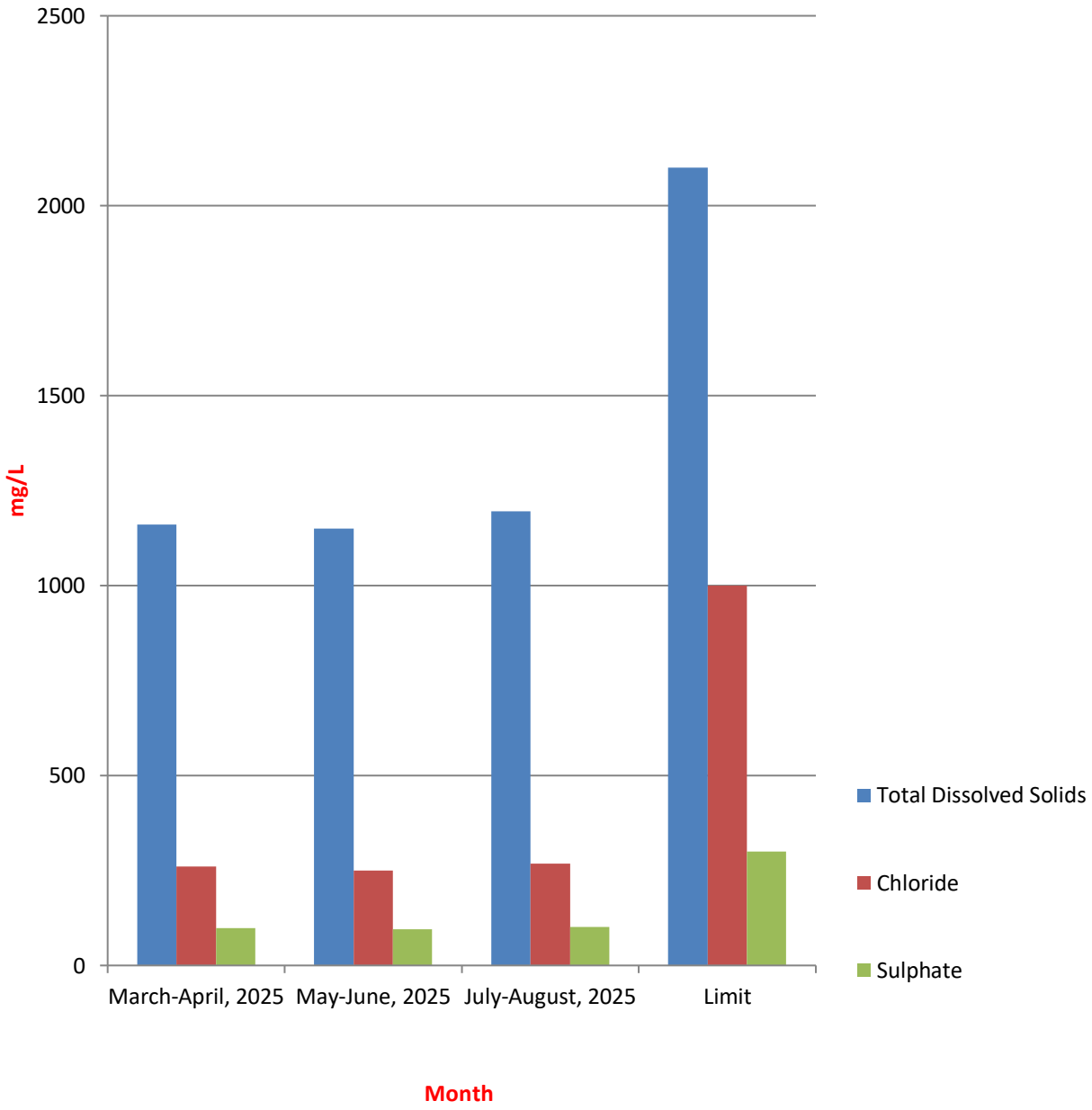
Six Monthly Variations in Bore water

Sampling point: Bore well (Hand Pump in Dungri Village)

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Bi-Monthly March - April 2025	Bi-Monthly May - June 2025	Bi-Monthly July - August 2025	MoEF Limit
1	Temperature	^{0}C	28	27	30	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25°C	pH unit	7.35	7.42	7.55	**5.5-9.0**
3	Colour	pt. Co. Scale	<5	<5	<5	**--**
4	Total Suspended Solids (TSS) @105 °C	mg/L	9.0	9.5	8.5	**100**
5	Total Dissolved Solids (TDS) @180° C	mg/L	1160	1150	1195	**2100**
6	Total volatile Solids	mg/L	1.5	1.4	1.5	**--**
7	COD	mg/L	< 4	< 4	< 4	**250**
8	BOD (5 days at 20° C)	mg/L	< 2	< 2	< 2	**30**
9	Oil & Grease	mg/L	<1	<1	<1	**10**
10	Chloride	mg/L	260	250	268	**1000**
11	Sulphate	mg/L	98	95	102	**300**
12	Fluoride	mg/L	0.4	0.5	0.4	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.2	0.5	0.4	**--**
14	Total Residual Chlorine	mg/L	<0.1	<0.1	<0.1	**1.0**
15	Free Available Chlorine	mg/L	<0.1	<0.1	<0.1	**--**
16	Phenolic Compound	mg/L	<0.01	<0.01	<0.01	**1.0**
17	Lead	mg/L	<0.02	<0.02	<0.02	**0.1**
18	Copper	mg/L	<0.01	<0.01	<0.01	**3.0**
19	Hexavalent Chromium	mg/L	<0.03	<0.03	<0.03	**0.1**
20	Total Chromium	mg/L	<0.03	<0.03	<0.03	**2.0**
21	Zinc	mg/L	<0.1	<0.1	<0.1	**5.0**
22	Iron	mg/L	0.75	0.78	0.70	**3.0**
23	Calcium	mg/L	88	82	75	**--**
24	Magnesium	mg/L	34	32	30	**--**
25	Percentage Sodium	%	28	30	32	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	100	**90%Survival of fish after 96 Hours in 100% of effluent**

Graphical Presentation for the variation of TDS, Chloride, Sulphate in Bore well (Hand Pump in Dungri Village)

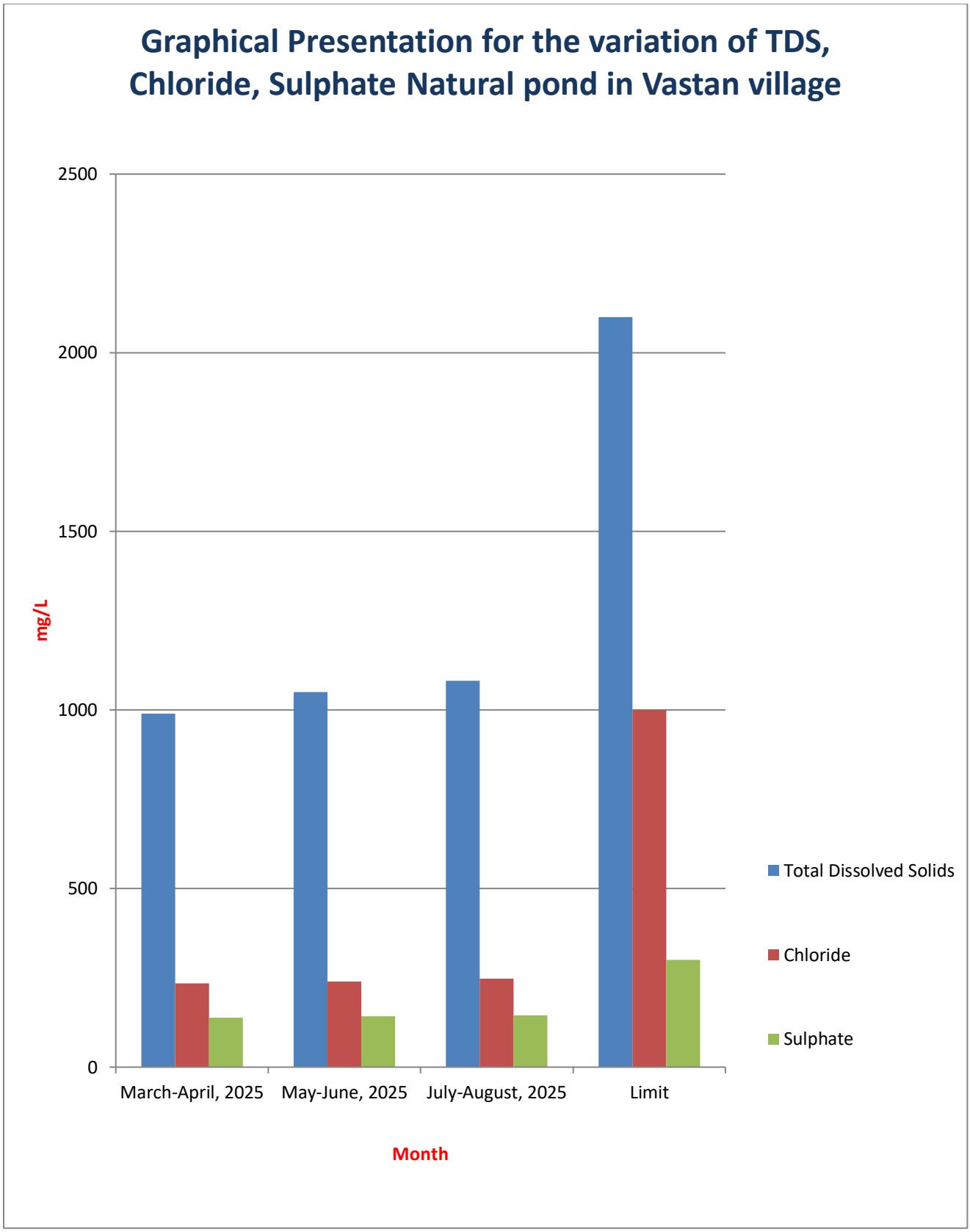


Six Monthly Variations in water

Sampling point: (Natural pond in Vastan village)

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Bi-Monthly March - April 2025	Bi-Monthly May - June 2025	Bi-Monthly July - August 2025	MoEF Limit
1	Temperature	^{0}C	29	30	28	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25^{o}C	pH unit	7.38	7.50	7.58	**5.5-9.0**
3	Colour	pt. Co. Scale	< 5	< 5	< 5	**--**
4	Total Suspended Solids (TSS) @105 ^{o}C	mg/L	8.5	11.2	10.2	**100**
5	Total Dissolved Solids (TDS) @180^o C	mg/L	990	1050	1082	**2100**
6	Total volatile Solids	mg/L	<1	<1	<1	**--**
7	COD	mg/L	<4	<4	<4	**250**
8	BOD (5 days at 20^o C)	mg/L	<2	<2	<2	**30**
9	Oil & Grease	mg/L	< 0.1	< 0.1	< 0.1	**10**
10	Chloride	mg/L	235	240	248	**1000**
11	Sulphate	mg/L	138	142	145	**300**
12	Fluoride	mg/L	0.5	0.4	0.4	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.6	0.4	0.5	**--**
14	Total Residual Chlorine	mg/L	< 0.1	< 0.1	< 0.1	**1.0**
15	Free Available Chlorine	mg/L	< 0.10	< 0.10	< 0.10	**--**
16	Phenolic Compound	mg/L	< 0.10	< 0.10	< 0.10	**1.0**
17	Lead	mg/L	< 0.05	< 0.05	< 0.05	**0.1**
18	Copper	mg/L	< 0.05	< 0.05	< 0.05	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.1	< 0.1	< 0.1	**5.0**
22	Iron	mg/L	<0.1	<0.1	<0.1	**3.0**
23	Calcium	mg/L	70	68	64	**--**
24	Magnesium	mg/L	20	24	28	**--**
25	Percentage Sodium	%	25	28	30	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	100	**90%Survival of fish after 96 Hours in 100% of effluent**

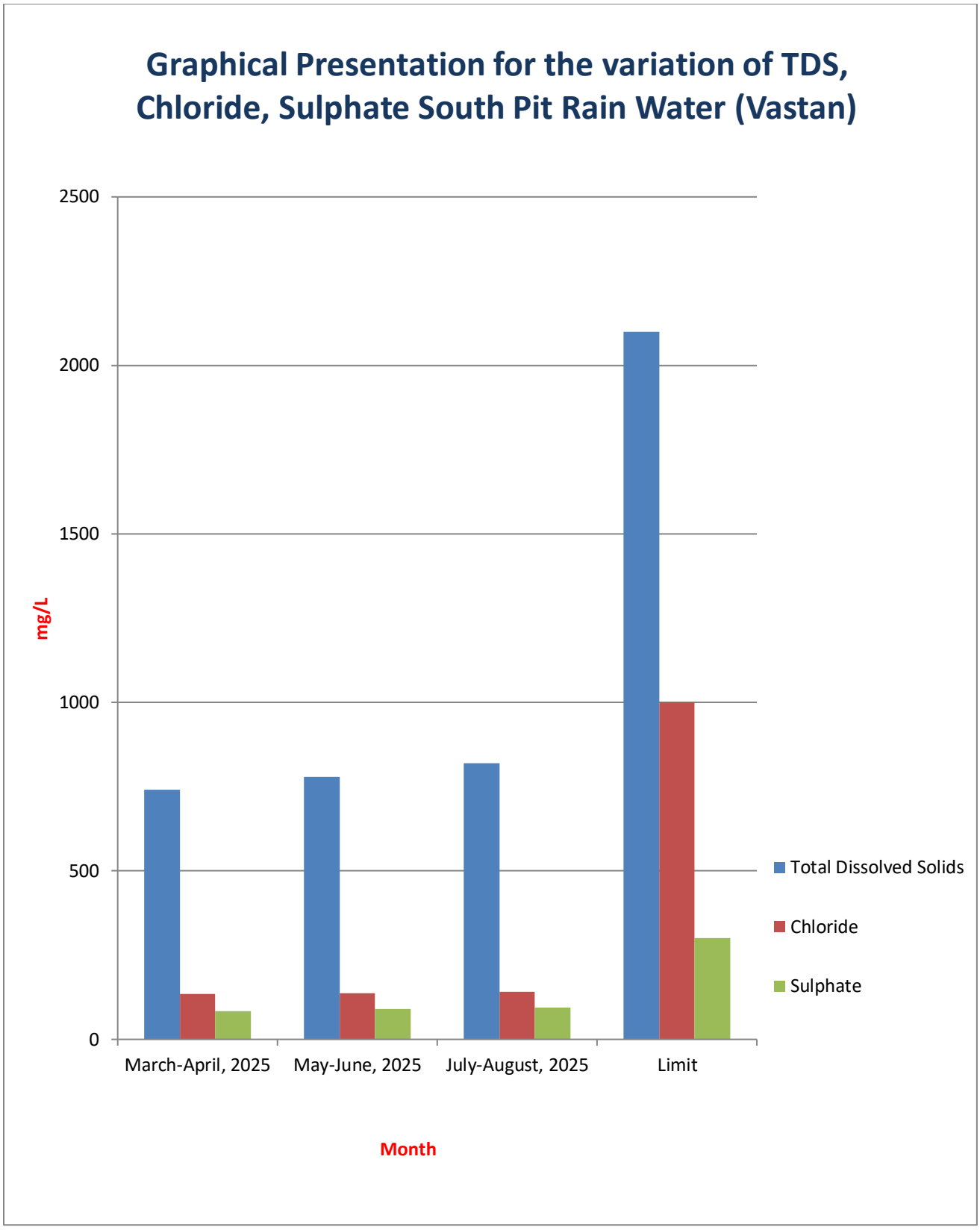

Graphical Presentation for the variation of TDS, Chloride, Sulphate Natural pond in Vastan village
2500
2000
1500
1000
500
0
mg/L
March-April, 2025
May-June, 2025
July-August, 2025
Limit
Month
Total Dissolved Solids
Chloride
Sulphate

Six Monthly Variations in Bore water

Sampling point: South Pit Rain Water (Vastan)

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Bi-Monthly March - April 2025	Bi-Monthly May - June 2025	Bi-Monthly July - August 2025	MoEF Limit
1	Temperature	^{0}C	28	30	28	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25°C	pH unit	7.42	7.48	7.44	**5.5-9.0**
3	Colour	pt. Co. Scale	< 5	< 5	< 5	**--**
4	Total Suspended Solids (TSS) @105 °C	mg/L	10.2	9.5	10.2	**100**
5	Total Dissolved Solids (TDS) @180° C	mg/L	740	780	820	**2100**
6	Total volatile Solids	mg/L	<1	<1	<1	**--**
7	COD	mg/L	<10	<10	<10	**250**
8	BOD (5 days at 20° C)	mg/L	<4	<4	<4	**30**
9	Oil & Grease	mg/L	< 1	< 1	< 1	**10**
10	Chloride	mg/L	134	138	142	**1000**
11	Sulphate	mg/L	84	90	95	**300**
12	Fluoride	mg/L	0.6	0.5	0.4	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.4	0.4	0.4	**--**
14	Total Residual Chlorine	mg/L	< 0.1	< 0.1	< 0.1	**1.0**
15	Free Available Chlorine	mg/L	< 0.10	< 0.10	< 0.10	**--**
16	Phenolic Compound	mg/L	< 0.10	< 0.10	< 0.10	**1.0**
17	Lead	mg/L	<0.02	<0.02	<0.02	**0.1**
18	Copper	mg/L	<0.50	<0.50	<0.50	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	<0.10	<0.10	<0.10	**5.0**
22	Iron	mg/L	<0.05	<0.05	<0.05	**3.0**
23	Calcium	mg/L	58	60	62	**--**
24	Magnesium	mg/L	24	26	28	**--**
25	Percentage Sodium	%	30	28	30	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	100	**90%Survival of fish after 96 Hours in 100% of effluent**


Graphical Presentation for the variation of TDS, Chloride, Sulphate South Pit Rain Water (Vastan)
2500
2000
1500
1000
500
0
mg/L
March-April, 2025
May-June, 2025
July-August, 2025
Limit
Month
Total Dissolved Solids
Chloride
Sulphate

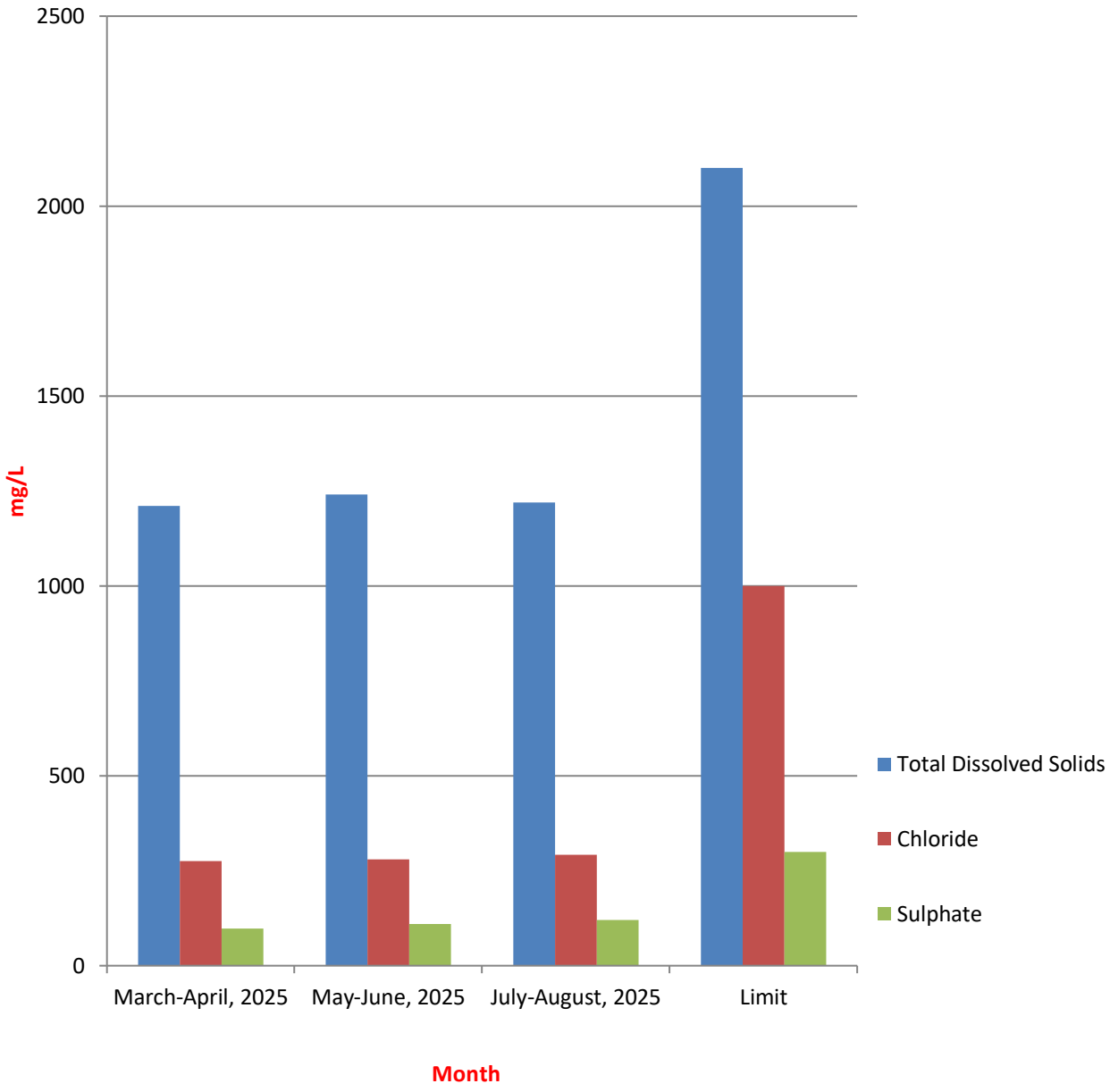
Six Monthly Variations in surface water

Sampling point: Bore water (Near Tadkeshwar Village)

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Bi-Monthly March - April 2025	Bi-Monthly May - June 2025	Bi-Monthly July - August 2025	MoEF Limit
1	Temperature	^{0}C	30	28	27	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25^{o}C	pH unit	7.52	7.55	7.52	**5.5-9.0**
3	Colour	pt. Co. Scale	< 5	< 5	< 5	**--**
4	Total Suspended Solids (TSS) @105 ^{o}C	mg/L	8.2	8.5	10.8	**100**
5	Total Dissolved Solids (TDS) @180^o C	mg/L	1210	1240	1220	**2100**
6	Total volatile Solids	mg/L	2.2	2.0	1.8	**--**
7	COD	mg/L	<4	<4	<4	**250**
8	BOD (5 days at 20^o C)	mg/L	<2	<2	<2	**30**
9	Oil & Grease	mg/L	< 1	< 1	< 1	**10**
10	Chloride	mg/L	275	280	292	**1000**
11	Sulphate	mg/L	98	110	120	**300**
12	Fluoride	mg/L	0.4	0.5	0.4	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.4	0.4	0.4	**--**
14	Total Residual Chlorine	mg/L	< 0.1	< 0.1	< 0.1	**1.0**
15	Free Available Chlorine	mg/L	< 0.10	< 0.10	< 0.10	**--**
16	Phenolic Compound	mg/L	< 0.10	< 0.10	< 0.10	**1.0**
17	Lead	mg/L	< 0.02	< 0.02	< 0.02	**0.1**
18	Copper	mg/L	< 0.50	< 0.50	< 0.50	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.10	< 0.10	< 0.10	**5.0**
22	Iron	mg/L	0.72	0.70	0.65	**3.0**
23	Calcium	mg/L	92	90	88	**--**
24	Magnesium	mg/L	38	36	34	**--**
25	Percentage Sodium	%	28	30	28	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	100	**90%Survival of fish after 96 Hours in 100% of effluent**

Graphical Presentation for the variation of TDS, Chloride, Sulphate Bore water (Near Tadkeshwar Village)

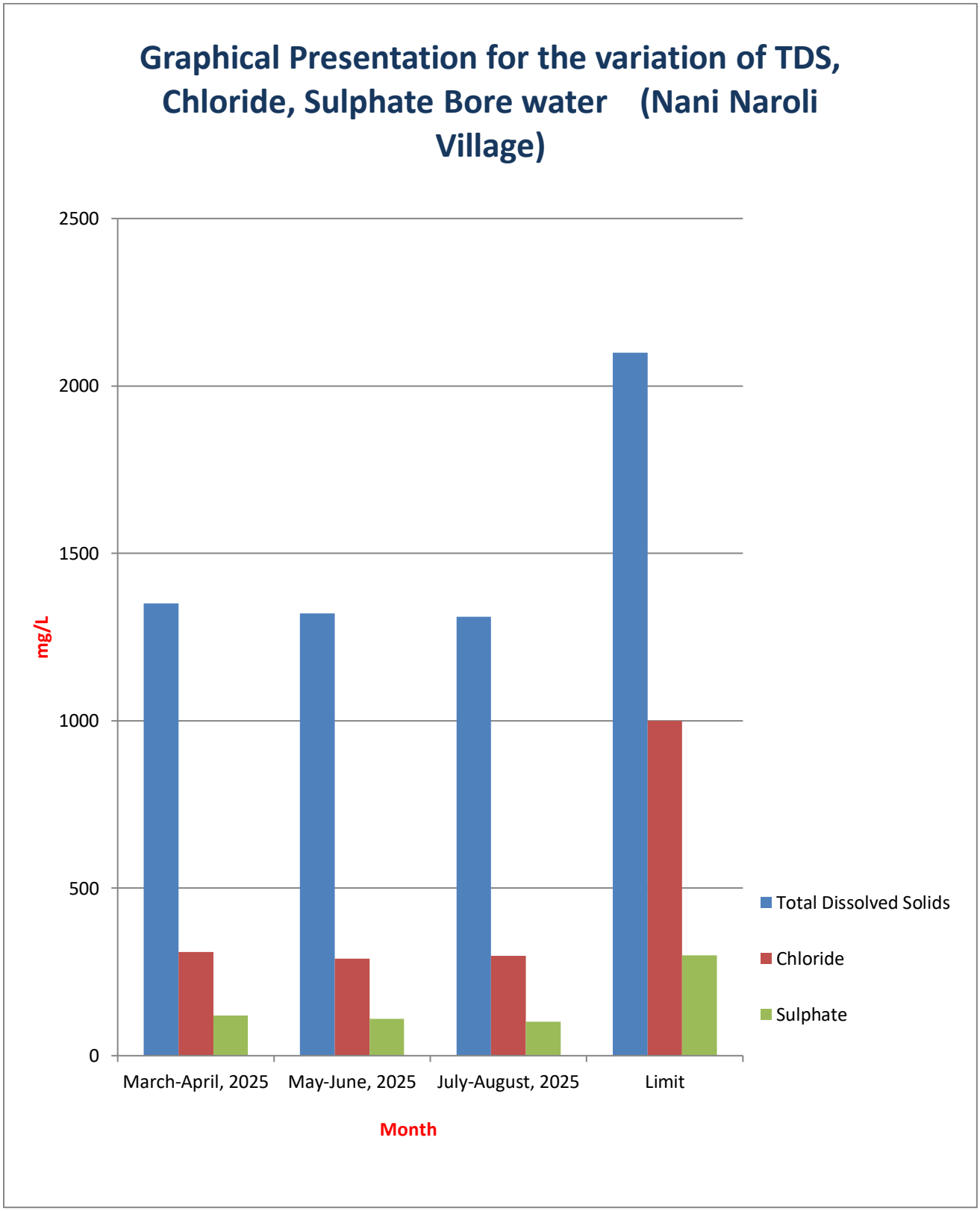


Six Monthly Variations in surface water

Sampling point:Bore Well water (Nani Naroli Village)

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Bi-Monthly March - April 2025	Bi-Monthly May - June 2025	Bi-Monthly July - August 2025	MoEF Limit
1	Temperature	^{0}C	31	28	30	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25^{o}C	pH unit	7.55	7.50	7.48	**5.5-9.0**
3	Colour	pt. Co. Scale	<5	<5	<5	**--**
4	Total Suspended Solids (TSS) @105 ^{o}C	mg/L	10	9.2	10.5	**100**
5	Total Dissolved Solids (TDS) @180^o C	mg/L	1350	1320	1310	**2100**
6	Total volatile Solids	mg/L	1.4	1.5	1.5	**--**
7	COD	mg/L	<4	<4	<4	**250**
8	BOD (5 days at 20^o C)	mg/L	<2	<2	<2	**30**
9	Oil & Grease	mg/L	<1	<1	<1	**10**
10	Chloride	mg/L	310	290	298	**1000**
11	Sulphate	mg/L	120	110	102	**300**
12	Fluoride	mg/L	0.6	0.5	0.4	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.4	0.4	0.5	**--**
14	Total Residual Chlorine	mg/L	<0.1	<0.1	<0.1	**1.0**
15	Free Available Chlorine	mg/L	<0.1	<0.1	<0.1	**--**
16	Phenolic Compound	mg/L	<0.01	<0.01	<0.01	**1.0**
17	Lead	mg/L	<0.02	<0.02	<0.02	**0.1**
18	Copper	mg/L	<0.01	<0.01	<0.01	**3.0**
19	Hexavalent Chromium	mg/L	<0.03	<0.03	<0.03	**0.1**
20	Total Chromium	mg/L	<0.03	<0.03	<0.03	**2.0**
21	Zinc	mg/L	<0.1	<0.1	<0.1	**5.0**
22	Iron	mg/L	0.80	0.75	0.66	**3.0**
23	Calcium	mg/L	130	110	120	**--**
24	Magnesium	mg/L	36	38	40	**--**
25	Percentage Sodium	%	32	30	32	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	100	**90%Survival of fish after 96 Hours in 100% of effluent**


Graphical Presentation for the variation of TDS, Chloride, Sulphate Bore water (Nani Naroli Village)
2500
2000
1500
1000
500
0
mg/L
March-April, 2025
May-June, 2025
July-August, 2025
Limit
Month
Total Dissolved Solids
Chloride
Sulphate

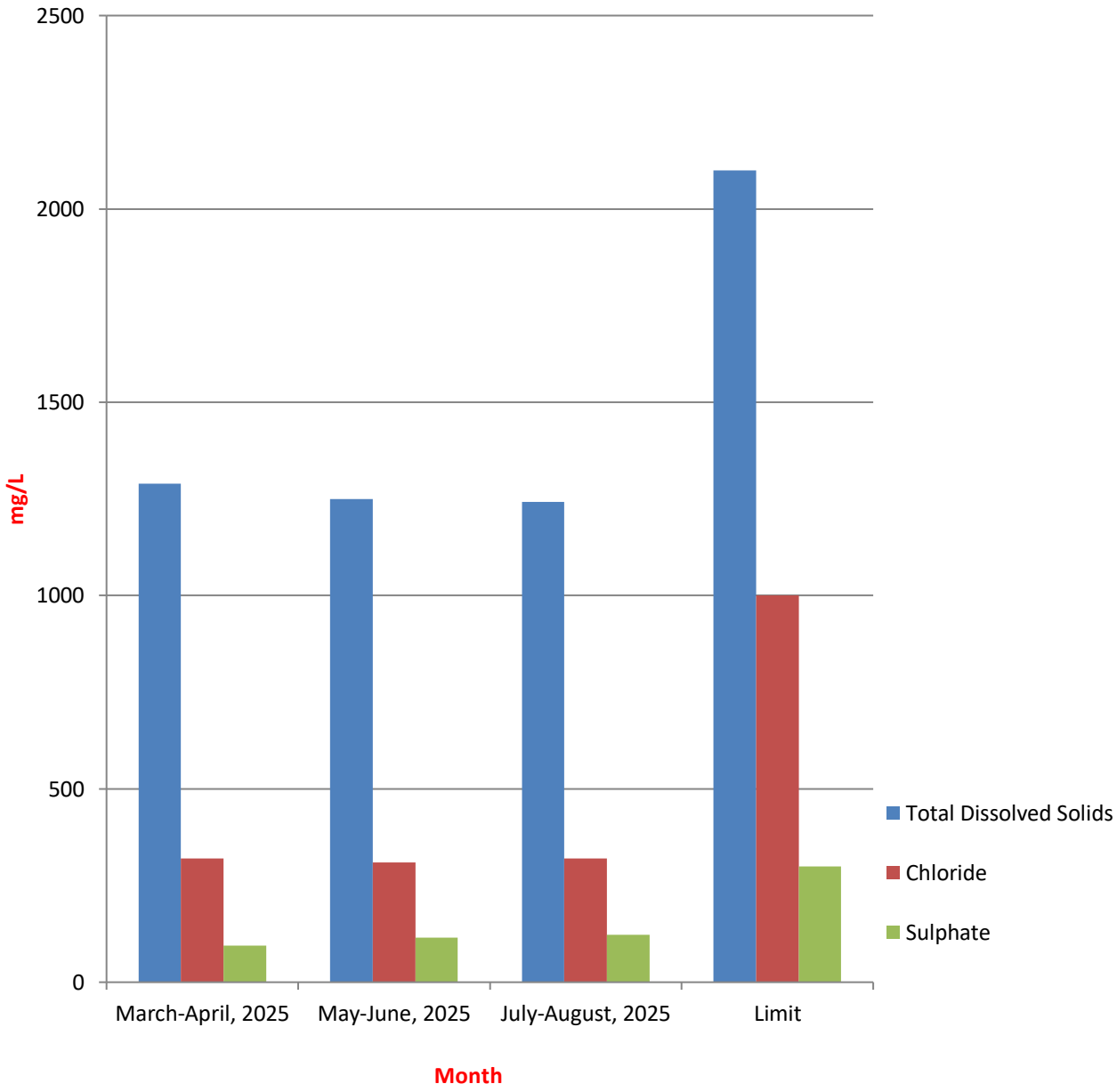
Six Monthly Variations in Bore water

Sampling point: Natural Pond Nani Naroli Village

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Bi-Monthly March - April 2025	Bi-Monthly May - June 2025	Bi-Monthly July - August 2025	MoEF Limit
1	Temperature	^{0}C	28	30	28	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25^{o}C	pH unit	7.44	7.50	7.55	**5.5-9.0**
3	Colour	pt. Co. Scale	<5	<5	<5	**--**
4	Total Suspended Solids (TSS) @105 ^{o}C	mg/L	9.5	9.5	9.5	**100**
5	Total Dissolved Solids (TDS) @180^o C	mg/L	1290	1250	1242	**2100**
6	Total volatile Solids	mg/L	1.8	1.5	2.0	**--**
7	COD	mg/L	<4	<4	<4	**250**
8	BOD (5 days at 20^o C)	mg/L	<2	<2	<2	**30**
9	Oil & Grease	mg/L	<1	<1	<1	**10**
10	Chloride	mg/L	320	310	320	**1000**
11	Sulphate	mg/L	95	115	122	**300**
12	Fluoride	mg/L	0.5	0.5	0.8	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.5	0.4	0.5	**--**
14	Total Residual Chlorine	mg/L	<0.1	<0.1	<0.1	**1.0**
15	Free Available Chlorine	mg/L	<0.1	<0.1	<0.1	**--**
16	Phenolic Compound	mg/L	<0.01	<0.01	<0.01	**1.0**
17	Lead	mg/L	<0.02	<0.02	<0.02	**0.1**
18	Copper	mg/L	<0.01	<0.01	<0.01	**3.0**
19	Hexavalent Chromium	mg/L	<0.03	<0.03	<0.03	**0.1**
20	Total Chromium	mg/L	<0.03	<0.03	<0.03	**2.0**
21	Zinc	mg/L	<0.1	<0.1	<0.1	**5.0**
22	Iron	mg/L	0.62	0.68	0.78	**3.0**
23	Calcium	mg/L	136	13	120	**--**
24	Magnesium	mg/L	38	35	36	**--**
25	Percentage Sodium	%	30	28	28	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	100	**90%Survival of fish after 96 Hours in 100% of effluent**

Graphical Presentation for the variation of TDS, Chloride, Sulphate Natural Pond (Nani Naroli Village)



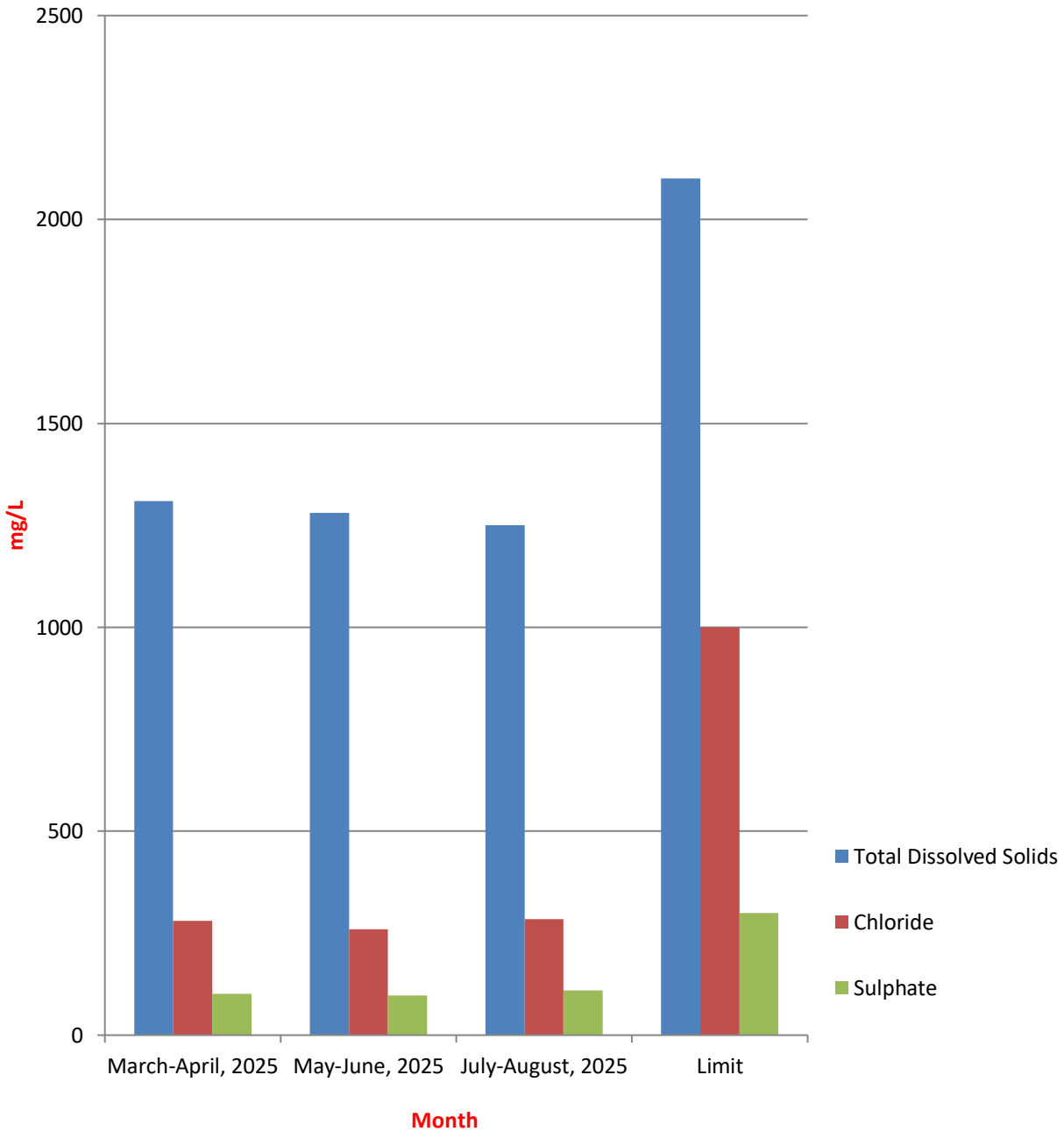
Six Monthly Variations in Bore water

Sampling point: Natural Pond Tadkeshwar Village

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Bi-Monthly March - April 2025	Bi-Monthly May - June 2025	Bi-Monthly July - August 2025	MoEF Limit
1	Temperature	^{0}C	28	30	28	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25^{o}C	pH unit	7.50	7.48	7.45	**5.5-9.0**
3	Colour	pt. Co. Scale	< 5	< 5	< 5	**--**
4	Total Suspended Solids (TSS) @105 ^{o}C	mg/L	9.5	10.5	9.2	**100**
5	Total Dissolved Solids (TDS) @180^o C	mg/L	1310	1280	1250	**2100**
6	Total volatile Solids	mg/L	1.5	1.4	1.5	**--**
7	COD	mg/L	<4	<4	<4	**250**
8	BOD (5 days at 20^o C)	mg/L	<2	<2	<2	**30**
9	Oil & Grease	mg/L	< 1	< 1	< 1	**10**
10	Chloride	mg/L	280	260	285	**1000**
11	Sulphate	mg/L	102	98	110	**300**
12	Fluoride	mg/L	1.0	0.5	0.4	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.6	0.4	0.5	**--**
14	Total Residual Chlorine	mg/L	< 0.1	< 0.1	< 0.1	**1.0**
15	Free Available Chlorine	mg/L	< 0.10	< 0.10	< 0.10	**--**
16	Phenolic Compound	mg/L	< 0.10	< 0.10	< 0.10	**1.0**
17	Lead	mg/L	< 0.02	< 0.02	< 0.02	**0.1**
18	Copper	mg/L	< 0.50	< 0.50	< 0.50	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.10	< 0.10	< 0.10	**5.0**
22	Iron	mg/L	0.85	0.80	0.72	**3.0**
23	Calcium	mg/L	90	88	84	**--**
24	Magnesium	mg/L	36	35	36	**--**
25	Percentage Sodium	%	30	28	30	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	100	**90%Survival of fish after 96 Hours in 100% of effluent**

Graphical Presentation for the variation of TDS, Chloride, Sulphate Natural Pond (Near Tadkeshwar Village)

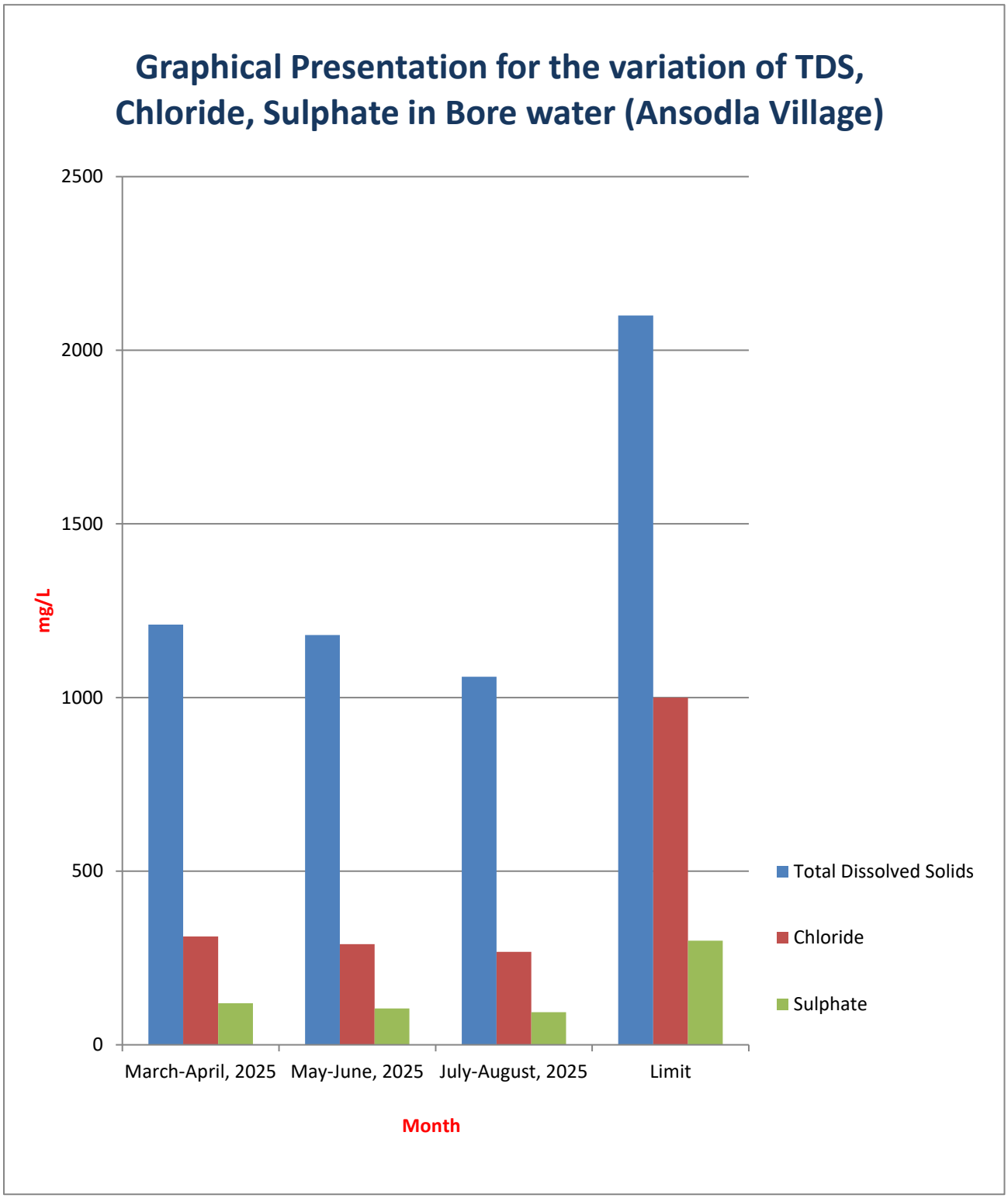


Six Monthly Variations in Bore water

Sampling point: Bore well at Ansodla Village

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Bi-Monthly March - April 2025	Bi-Monthly May - June 2025	Bi-Monthly July - August 2025	MoEF Limit
1	Temperature	^{0}C	30	28	30	**Shall not exceed 5˚c above the receiving water temp**
2	pH@ 25^{o}C	pH unit	7.40	7.44	7.35	**5.5-9.0**
3	Colour	pt. Co. Scale	< 5	< 5	< 5	**--**
4	Total Suspended Solids (TSS) @105 ^{o}C	mg/L	9.2	10.4	9.8	**100**
5	Total Dissolved Solids (TDS) @180^o C	mg/L	1210	1180	1060	**2100**
6	Total volatile Solids	mg/L	1.8	1.5	1.4	**--**
7	COD	mg/L	<4	<4	<4	**250**
8	BOD (5 days at 20^o C)	mg/L	<2	<2	<2	**30**
9	Oil & Grease	mg/L	< 1	< 1	< 1	**10**
10	Chloride	mg/L	312	290	268	**1000**
11	Sulphate	mg/L	120	105	94	**300**
12	Fluoride	mg/L	0.8	0.6	0.5	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.4	0.4	0.4	**--**
14	Total Residual Chlorine	mg/L	< 0.1	< 0.1	< 0.1	**1.0**
15	Free Available Chlorine	mg/L	< 0.10	< 0.10	< 0.10	**--**
16	Phenolic Compound	mg/L	< 0.10	< 0.10	< 0.10	**1.0**
17	Lead	mg/L	< 0.02	< 0.02	< 0.02	**0.1**
18	Copper	mg/L	< 0.50	< 0.50	< 0.50	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.03	< 0.03	< 0.03	**2.0**
21	Zinc	mg/L	< 0.10	< 0.10	< 0.10	**5.0**
22	Iron	mg/L	0.58	0.68	0.64	**3.0**
23	Calcium	mg/L	110	105	94	**--**
24	Magnesium	mg/L	32	30	28	**--**
25	Percentage Sodium	%	30	32	30	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	100	**90%Survival of fish after 96 Hours in 100% of effluent**

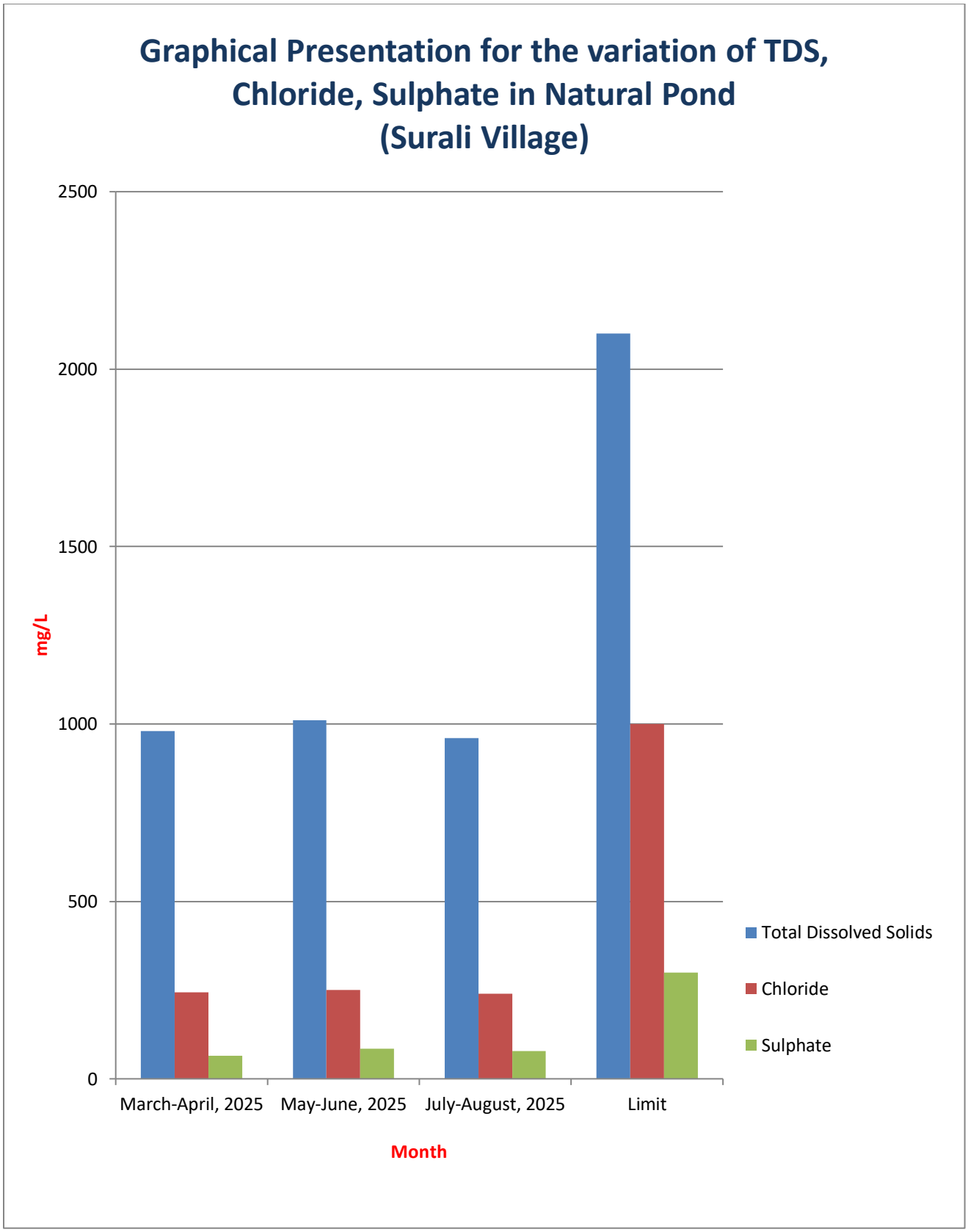

Graphical Presentation for the variation of TDS, Chloride, Sulphate in Bore water (Ansodla Village)
2500
2000
1500
1000
500
0
mg/L
March-April, 2025
May-June, 2025
July-August, 2025
Limit
Month
Total Dissolved Solids
Chloride
Sulphate

Six Monthly Variations in Bore water

Sampling point: Natural Pond Surali Village

Period: April – 2025 to September – 2025

Sr. No.	Parameter	Unit	Bi-Monthly March - April 2025	Bi-Monthly May - June 2025	Bi-Monthly July - August 2025	MoEF Limit
1	Temperature	^{0}C	27	30	27	**Shall not exceed 5˚c above the receiving water temp.**
2	pH@ 25^{o}C	pH unit	7.28	7.39	7.35	**5.5-9.0**
3	Colour	pt. Co. Scale	< 5	< 5	< 5	**--**
4	Total Suspended Solids (TSS) @105 ^{o}C	mg/L	9.5	11.5	10.4	**100**
5	Total Dissolved Solids (TDS) @180^o C	mg/L	980	1010	960	**2100**
6	Total volatile Solids	mg/L	1.2	1.4	1.2	**--**
7	COD	mg/L	< 4	< 4	< 4	**250**
8	BOD (5 days at 20^o C)	mg/L	< 2	< 2	< 2	**30**
9	Oil & Grease	mg/L	< 1	< 1	< 1	**10**
10	Chloride	mg/L	244	250	240	**1000**
11	Sulphate	mg/L	65	85	78	**300**
12	Fluoride	mg/L	0.5	0.4	0.5	**2.0**
13	Phosphate as PO_4^{--}	mg/L	0.4	0.4	0.4	**--**
14	Total Residual Chlorine	mg/L	< 0.10	< 0.10	< 0.10	**1.0**
15	Free Available Chlorine	mg/L	< 0.10	< 0.10	< 0.10	**--**
16	Phenolic Compound	mg/L	< 0.02	< 0.02	< 0.02	**1.0**
17	Lead	mg/L	< 0.50	< 0.50	< 0.50	**0.1**
18	Copper	mg/L	< 0.03	< 0.03	< 0.03	**3.0**
19	Hexavalent Chromium	mg/L	< 0.03	< 0.03	< 0.03	**0.1**
20	Total Chromium	mg/L	< 0.10	< 0.10	< 0.10	**2.0**
21	Zinc	mg/L	0.70	0.82	0.75	**5.0**
22	Iron	mg/L	0.62	0.68	0.55	**3.0**
23	Calcium	mg/L	70	72	68	**--**
24	Magnesium	mg/L	32	28	24	**--**
25	Percentage Sodium	%	28	30	28	**--**
26	Total Coliform(MPN)	Present/ Absent	Absent	Absent	Absent	**--**
27	Bioassay Test	% Survival of fish after 96 hrs in 100% effluent	100	100	100	**90%Survival of fish after 96 Hours in 100% of effluent**


Graphical Presentation for the variation of TDS, Chloride, Sulphate in Natural Pond (Surali Village)
2500
2000
1500
1000
500
0
mg/L
March-April, 2025
May-June, 2025
July-August, 2025
Limit
Month
Total Dissolved Solids
Chloride
Sulphate