

ATAL BHUJAL YOJANA (AtalJal)

State : HARYANA

**Department : IRRIGATION & WATER
RESOURCE DEPARTMENT**

BLOCK : BAPOLI

DISTRICT : PANIPAT

YEAR : 2023-2024

*Towards partial fulfilment of requirements for Disbursement of
Incentive under DLI -1*

HYDROGEOLOGICAL REPORT

(YEAR: 2023-24)

STATE	:	HARYANA
DISTRICT	:	PANIPAT
BLOCK/TALUK	:	BAPOLI
BLOCK/TALUK HQs	:	BAPOLI

A		GENERAL INFORMATION			
1.	Geographical area (Ha)	:	12945.3		
2.	No. of Gram Panchayats	:	24		
3.	No. of towns	:	2		
4.	No. of villages	:	28		
5.	Population (2022)	:	Male	Female	Total
			37019	31051	68070
6.	Rainfall (mm) (2022)	:	Monsoon	Non-monsoon	Annual
			472.86	151.11	623.97
7.	River basin	:	Yamuna river basin		
8.	Major soil types	:	Loamy to Sandy loamy in texture		

B		LAND USE		
1.	Forest area (Ha)	:	0	
2.	Cultivable area (Ha)	:	9498	
3.	Net sown area (Ha)	:	9498	
4.	Gross cropped area (Ha)	:	16895.60	

C		CROPPING PATTERN (As in 2022-23)				
1.	Major crops grown	:	Kharif	Rabi	Summer	Perennial
			Paddy	Wheat	NA	Sugar cane

D		IRRIGATION FACILITIES (As in 2022-23)					
1.	Net irrigated area (Ha)	:	9498				
2.	Gross irrigated area (Ha)	:	15185.48				
3.	Area under irrigation (Ha) (Source-wise)	:	DW	BW/TW	Tanks/Ponds	Canals	Others
			0	11215	0	3970	0

E		GEOLOGY & HYDROGEOLOGY		
1.	Predominant rocktype	:	Sand with Kankar, Silt and Clay	
2.	Major geological formations	:	Older & Newer Alluvium	
3.	Important water-bearing formations	:	Sand and Gravel	
4.	Status of coverage under NAQUIM	:	Covered	

F		GROUND WATER CONDITIONS						
1.	No. of wells used for Water Level (WL) monitoring.	:	Open wells			BW/TW/ PZ		
			CGWB	SGWB	Total	CGWB	SGWB	Total
			0	0	0	2	9	11
2.	Monitoring mechanism (Nos.)	:	Manual		DWLR		Telemetry	
			CGWB	SGWB	CGWB	SGWB	CGWB	SGWB
			2	7	0	2	0	2

3.	Monitoring frequency	:	Agency	No. of times monitored/year	
			CGWB	2 times/year	
			SGWB	2 times/year	
4.	Period of water level data availability.	:	Agency	Period of WL data availability (From - To)	
				From (year)	To (year)
			CGWB	2015	2023
			SGWB	2015	2023
5.	Water level range (m.bgl)	:	Minimum/Village	Maximum/Village	
	Pre-monsoon (2023)		8.39 (Khojkipur Khurd)	40.6 (Nurpur Muglan)	
	Post-monsoon (2023)		8.44 (Khojkipur Khurd)	43.5 (Nurpur Muglan)	
6.	Seasonal WL fluctuation range (m)	:	Minimum/ Village	Maximum/ Village	
			-1.0 (Jalpar)	2.86 (Nurpur Muglan)	

G GROUND WATER QUALITY								
1.	No. of wells used for Water Quality (WQ) monitoring.		Open Wells			BW/TW/ PZ		
			CGWB	SGWB	Total	CGWB	SGWB	Total
			0	0	0	1	9	10
2.	Monitoring frequency		Agency	No. of times monitored/year				
			CGWB	1 time per year				
			SGWB	1 time per year				
3.	Period of water quality data availability		Agency	Period of WQ data availability (Years)				
			CGWB	2015-2023				
			SGWB	2020to 2023				
4.	Parameters analysed		Agency	Parameters Analysed				
			CGWB	pH, EC, TH, Ca, Mg, Na, K, CO ₃ , HCO ₃ , SO ₄ , Cl, F, NO ₃				
			SGWB	EC				
			SGWB New	pH, EC, TH, Ca, Mg, Na, K, CO ₃ , HCO ₃ , SO ₄ , Cl, F, NO ₃				
5.	Known ground water quality issues, if any		Ground water is alkaline in nature and is fresh to moderately saline with fluoride contamination in deeper zones.					

H. GROUND WATER RESOURCES							
1.	Latest assessment year	2022					
2.	Assessment Unit	Taluk/ Block/Watershed					
3.	Annual extractable GW resource (ha.m)	2966.91					
4.	Current annual GW extraction (ha.m)	7285.21					
5.	Net GW availability for future use (ha.m)	0					
6.	Stage of GW extraction (%)	245.5%					
7.	Category of block/taluk (2022)	Over Exploited					
8.	Category of block/taluk/ in previous assessments	2020	2017	2013	2011	2009	2004
		Over Exploited	Over Exploited	Over Exploited	Over Exploited	Over Exploited	Over Exploited

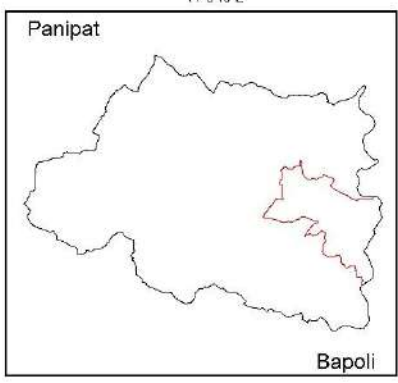
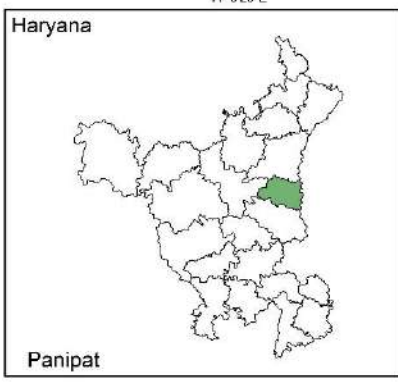
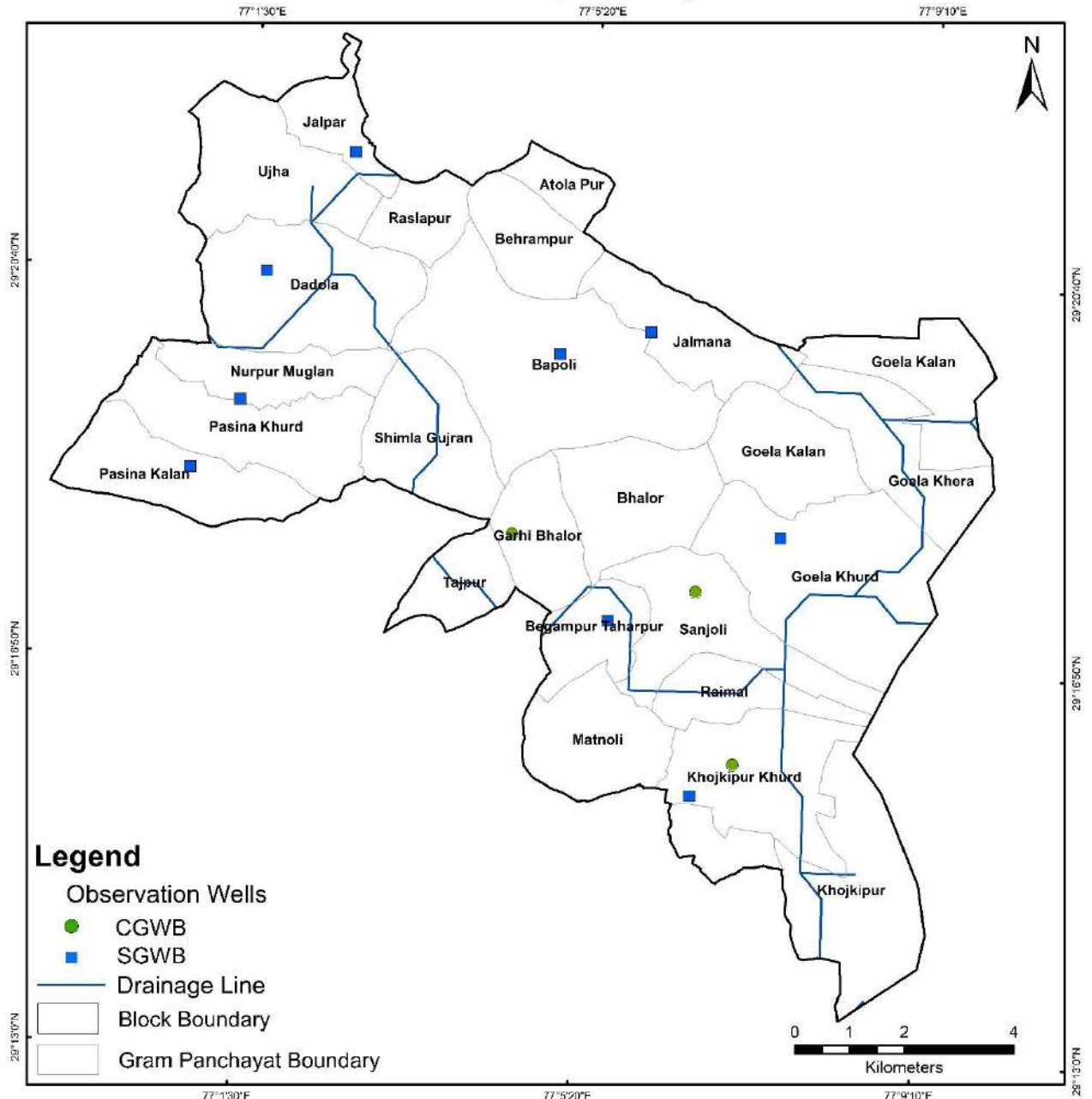
I WATER-RELATED SCHEMES			
1.	Schemes with a bearing on ground water, being implemented in the block / taluk.		
	Centrally Sponsored /Central Sector Schemes	i)	PMKSY
		ii)	JJM
		iii)	MGNREGA
		iv)	RKVY

	State Schemes	i)	State Plan Scheme (Head 2402)
		ii)	MPMV
		iii)	
		iv)	

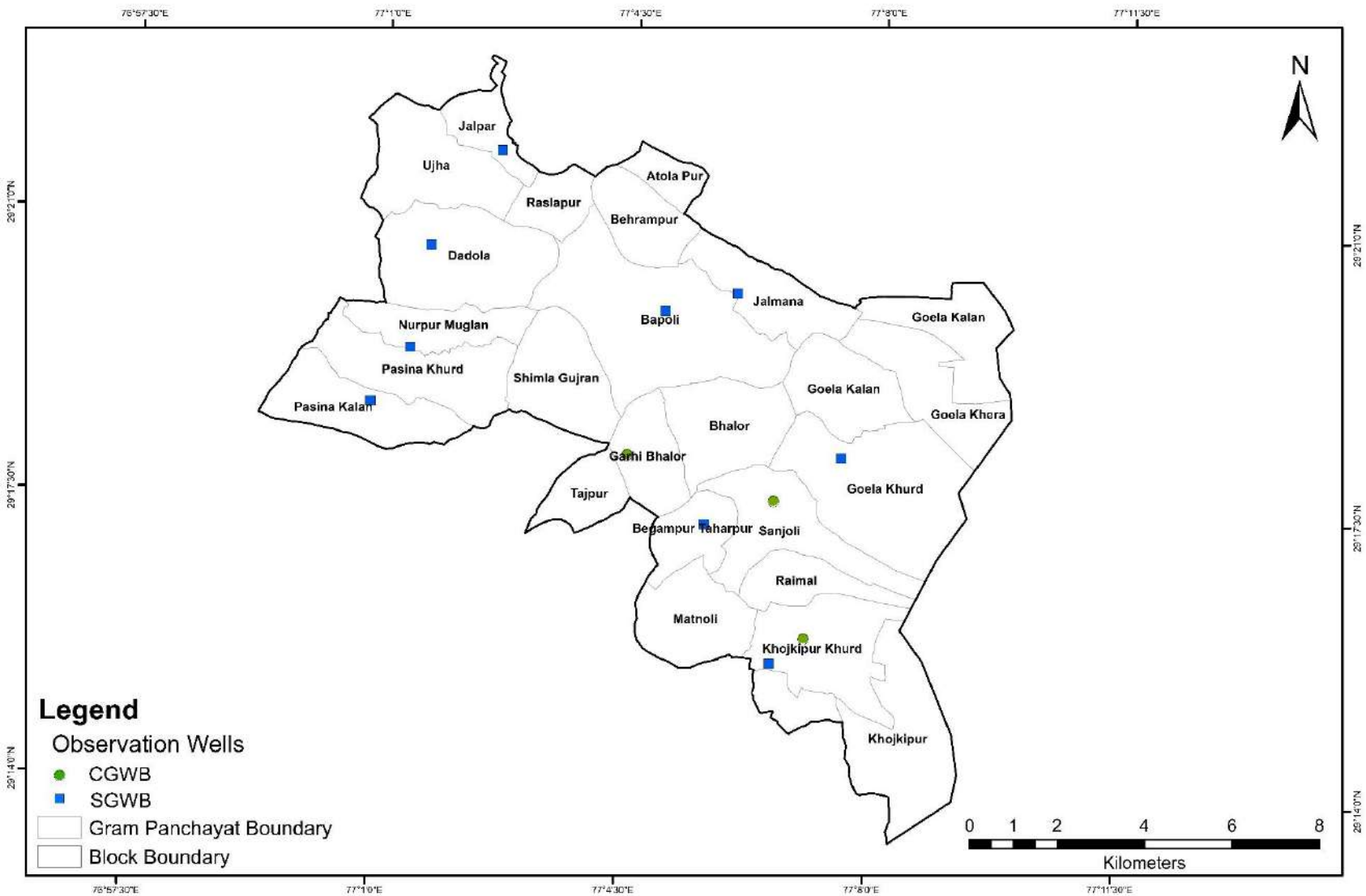
J	GROUND WATER RELATED ISSUES		
1.	Ground water related issues of the block/		
	i) Issues related to GW availability	:	Block under Over Exploited Category & Showing declining water level trend in last decades.
	ii) Issues related to GW quality	:	Ground water is alkaline in nature and is fresh to moderately saline with fluoride contamination in deeper zones.
	iii) Other issues if any.	:	No

K	ANNEXURES
I	Basic data of observation wells – Attached
II.	Historical water level data – Attached
III.	Historical water quality data – Attached

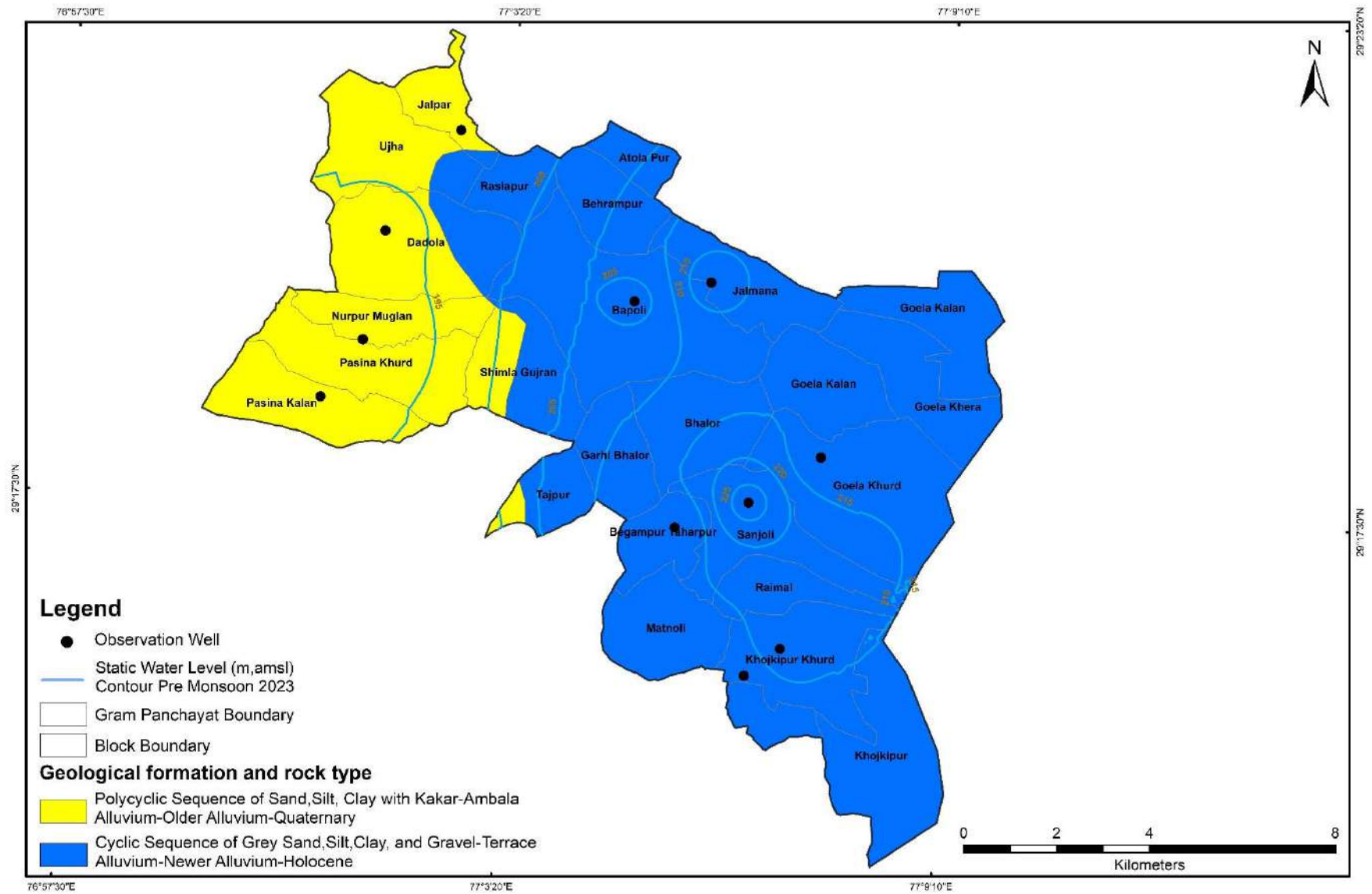
Location Map of Block-Bapoli, District- Panipat, Haryana



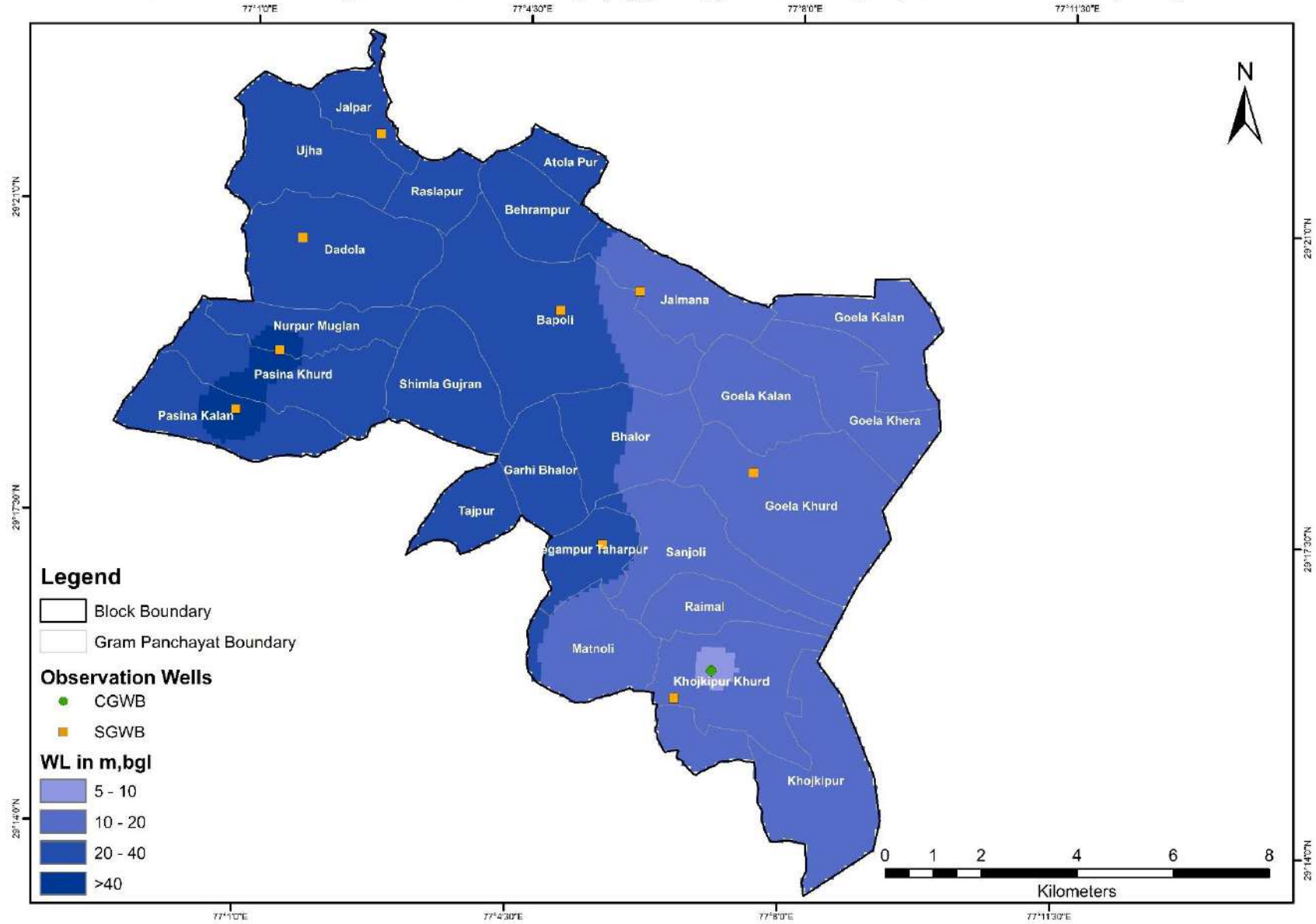
Location of Observation Wells for Monitoring Water Levels and Water Quality, Block- Bapoli, District- Panipat, Haryana



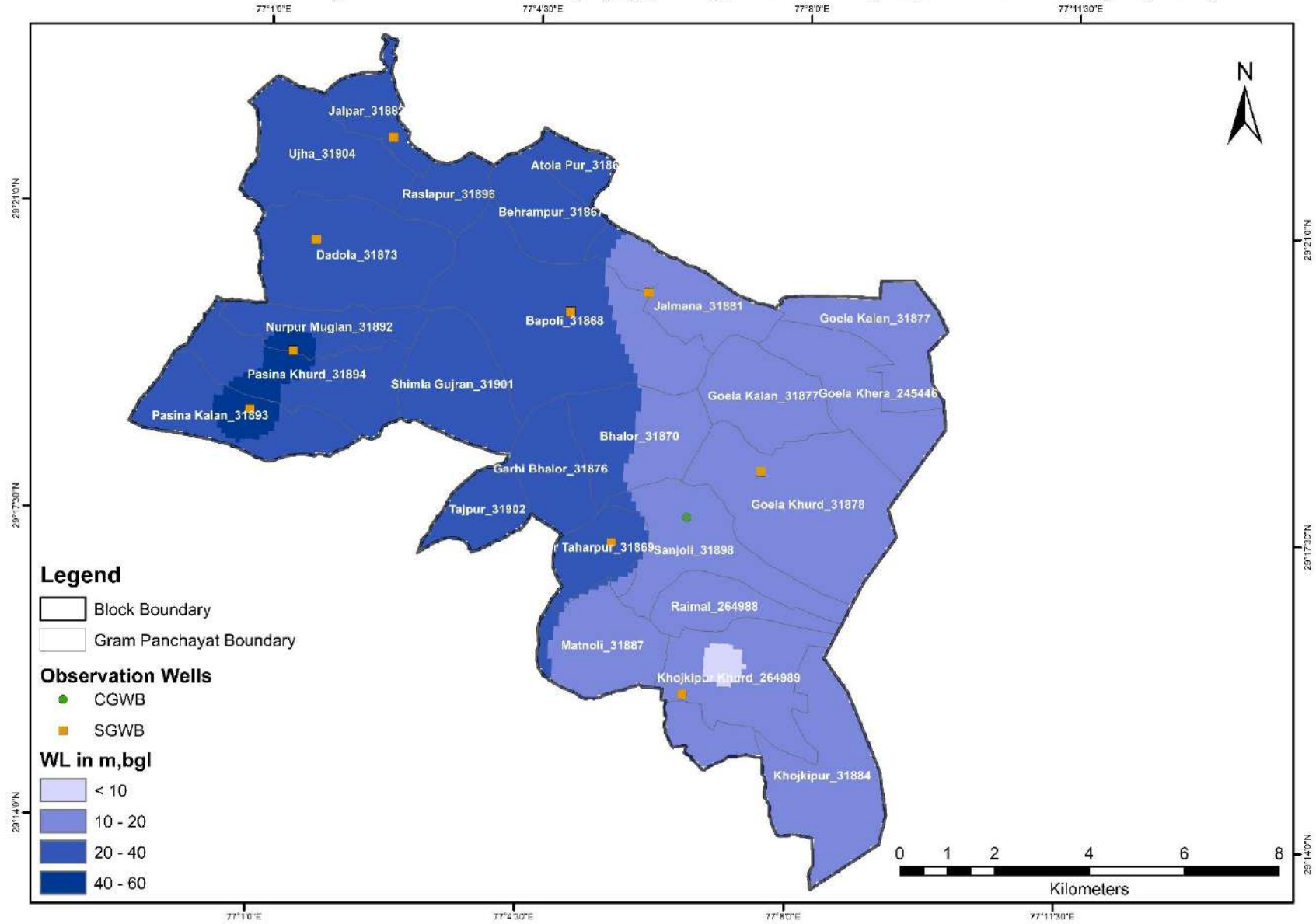
Hydrogeological Map, Block- Bapoli, District- Panipat, Haryana



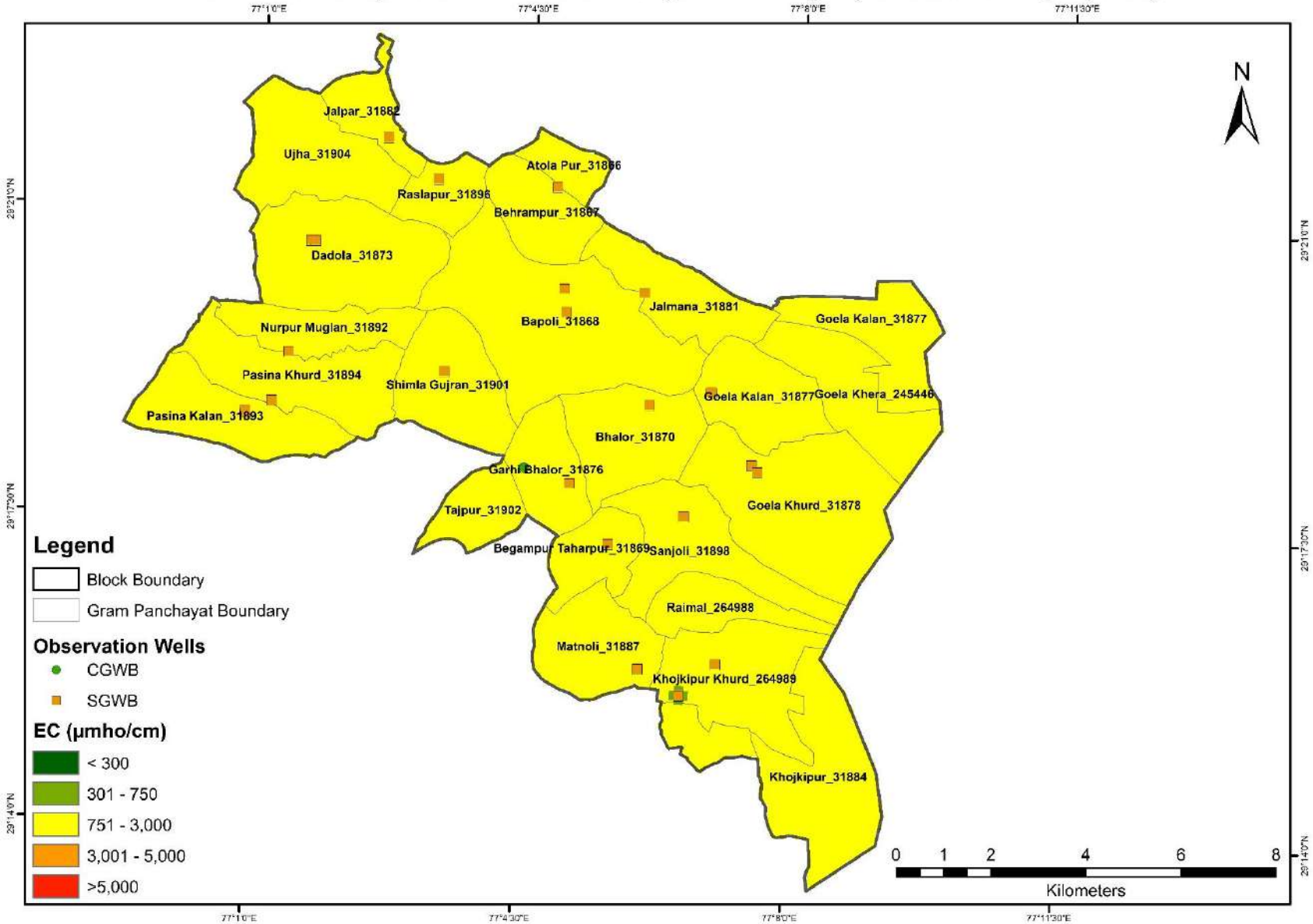
Pre Monsoon 2023 Depth to Water Level (m,bgl) Map, Block - Bapoli, District - Panipat, Haryana



Post Monsoon 2023 Depth to Water Level (m,bgl) Map, Block - Bapoli, District - Panipat, Haryana



Electrical Conductivity of Groundwater-2023, Block - Bapoli, District - Panipat, Haryana



ANNEXURE: 1

BASIC DATA OF MONITORING WELLS

State	Haryana			District	Panipat			Block	Bapoli		
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S.No	Well ID	Gram Panchayat	Name of the village	Site Name	Latitude	Longitude	Type of Well (DW/Pz)	Reduced Level (m,asl)	Aquifer Type/Lithology	Height of Measuring (m,agl)	Depth (m,bgl)	Diameter (m)	Purpose of Monitoring (WL/WQ)	Monitoring Mechanism	Agency
1	Da_29.344_77.0_274	Dadola_31873	Dadola	Govt. High School	29.344042	77.027437	PZ	230.9	Unconfined to Semi Confined	0.65	59.7	0.1	Both	Manual	SGWB
2	Go_29.3028_77.1255	Goela Khurd_31878	Goila Khurd	Behind Govt. School.	29.302805	77.125482	TW	223.75	Unconfined to Semi Confined	0.7	70	0.254	Both	Manual	SGWB
3	Ja_29.3361_77.0999	Jalmana_31881	Jalmana	Govt. High School.	29.336056	77.099939	PZ	229.8	Unconfined to Semi Confined	0.65	60	0.1	Both	Manual	SGWB
4	Kh_29.26_77.11	Khojkipur Khurd_264989	Khojgi Pur	North of village near Govt. school.	29.26	77.11	TW	226.4	Unconfined to Semi Confined	0.7	100	0.254	Both	Manual	SGWB
5	Pa_29.3115_77.0143	Pasina Kalan_31893	Pasina Kalan	Near Govt. School on the road.	29.311464	77.014294	TW	232.1	Unconfined to Semi Confined	0.7	100	0.254	Both	Manual	SGWB
6	Ba_29.332_77.0831	Bapoli_31868	Bapoli	B. D. P. O.office	29.331957	77.083091	PZ	230.02	Unconfined to Semi Confined	0.65	41.2	0.1	Both	Manual	SGWB
7	Ta_29.2883_77.0936	Begampur Taharpur_31869	Taharpur	East of Village.	29.28833	77.093628	TW	232.71	Unconfined to Semi Confined	0.7	100	0.254	Both	Manual	SGWB
8	Sa_29.372_77.091	Sanjoli_31898	Sanauli Khurd	Sanauli Khurd-Pz	29.293609	77.109756	PZ	228	Unconfined to Semi Confined	0.6	79	152mm	WL	Manual	CGWB
9	HR_GW_769	Jalpar_31882	JALPAR	Govt. Middle School, Jalpar	29.364004	77.043461	Piezometer	230	Unconfined to Semi-confined	0.5	93	0.1	Both	Telemetry	SGWB
10	HR_GW_772	Nurpur Muglan_31892	NURPUR MUGLAN	Govt. Middle School, Nurpur Muglan	29.322803	77.023273	Piezometer	231	Unconfined to Semi-confined	0.5	93	0.1	Both	Telemetry	SGWB

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11	W29155207706550 1	Khojkipur Khurd_264989	Khojkipu r	Khojkipur -Pz	29.26542	77.11777	Piezomete r	NA	Unconfined to Semi Confined	0.5	228	0.1	WL	Manual	CGW B
12	W2918080770430 01	Garhi Bhalor_31876	Tajpur	Tajpur	29.30222 2	77.075	Tube Well	NA	Alluvium	0.5	NA	0.254	WQ	Manual	CGW B

ANNEXURE: 2
WATER LEVEL (WL) DATA OF MONITORING WELLS

State	Haryana	District	Panipat	Block	Bapoli
Month of Pre-monsoon Water Level Measurement					June
Month of Post-monsoon water Level measurement					October/November

Observation Point	Source	Well Types	Co-ordinate		Water Level (m)																	
			Latitude	Longitude	2015		2016		2017		2018		2019		2020		2021		2022		2023	
					Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Dadola_31873	SGWB	Piezometer	29.344042	77.027437	27.07	26.64	29.22	29.84	30.45	30.31	31.15	32.15	35.56	35.12	22.3	21.19	36.81	38.25	37.6	38	37.8	39.8
Goela Khurd_31878	SGWB	Tube Well	29.302805	77.125482	8.93	8.39	10.03	9.82	10.42	9.48	11.58	11.25	13.98	14.05	16.45	17.23	14.3	13.47	13.7	13.6	11.4	12.7
Jalmana_31881	SGWB	Piezometer	29.336056	77.099939	12.01	11.52	13.63	13.88	14.81	14.25	15.97	16.13	16.17	19.1	27.7	28.08	16.72	16.1	16	15.9	15	17.7
Khojkipur Khurd_264989	SGWB	Tube Well	29.26	77.11	10.11	9.56	11.33	10.57	12.05	11.77	14.03	13.3	15.35	15.54	14.3	12.42	17.23	16.89	17.1	17.2	14.8	16.9
Pasina Kalan_31893	SGWB	Tube Well	29.311464	77.014294	35.64	35.32	36.43	35.62	36.54	35.66	37.67	35.97	38.28	36.43	35.75	37.73	40.08	39.1	40.5	40.4	40.6	41.6
Bapoli_31868	SGWB	Piezometer	29.331957	77.083091	19.07	21.32	19.32	22.27	21.7	21.58	23.9	NA	27.98	NA	39.35	38.36	27.46	26.53	25.8	25.9	24	26.1
Begampur Taharpur_31869	SGWB	Tube Well	29.28833	77.093628	14.23	14.01	15.25	14.43	15.94	14.38	17.06	16.29	21.15	19.22	34.9	36.89	22.86	20.89	22.8	22.6	21	22.1
Sanjoli_31898	CGWB	Piezometer	29.293609	77.109756	12.5	11.02	8.6	12.4	14	13.4	16.16	12.83	19.5	14.8	14.75	17.45	16.97	14.54	17.4	17	NA	Abandoned
Babail M	CGWB	Pz	29.4236	77.05	17.12	18.19	18	22	22.11	24.3	26.45	25.7	22.5	25.95	24.88	29.1	26.93	NA	10.9	30.2	30.1	29.7
Jalpar_31882	SGWB	Piezometer	29.364004	77.043461	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	34	33
Nurpur Muglan_31892	SGWB	Piezometer	29.322803	77.023273	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40.6	43.5
Khojkipur Khurd_264989	CGWB	Piezometer	29.26542	77.11777	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.39	8.44

ANNEXURE: 3
HISTORICAL WATER QUALITY (WQ) DATA OF MONITORING WELLS BY SGWB

State	Haryana	District	Panipat	Block	Bapoli
Month of Collection of sample for WQ monitoring*					June

Village	Source	Type of well	Latitude	Longitude	Year	pH	EC	TDS	TH	Ca	Mg	Na	K	CO ₃	HCO ₃	SO ₄	Cl	F	NO ₃	
Tajpur	CGWB	Tw	29.2955	77.0645	2015	8.6	671	ND	51.0	16.0	2.0	150.0	3.0	47.0	226.1	70.0	28.0	2.23	1.00	
Tajpur	CGWB	Tw	29.2955	77.0645	2016	8.32	808	ND	262.0	32.0	44.0	98.0	5.0	30.0	350.0	97.0	21.0	0.52	BDL	
Tajpur	CGWB	Tw	29.2955	77.0645	2017	8.53	900	ND	320.0	12.0	71.0	79.0	6.0	12.0	403.0	35.0	71.0	0.60	14.00	
Tajpur	CGWB	Tw	29.2955	77.0645	2018	8.89	640	ND	49.0	7.8	7.2	134.0	1.0	39.0	288.0	16.0	14.0	0.69	0.20	
Tajpur	CGWB	Tw	29.2955	77.0645	2019	Sample not collected from this location														
Tajpur	CGWB	Tw	29.2955	77.0645	2020	8.47	515	ND	160.0	12.0	32.0	73.0	3.0	12.0	244.0	81.0	21.0	0.00	0.68	
Tajpur	CGWB	Tw	29.2955	77.0645	2021	8.84	593	ND	62.0	8.2	10.0	142.0	2.0	47.0	301.0	0.0	21.0	1.82	0.00	
Tajpur	CGWB	Tw	29.2955	77.0645	2022	8.36	548	ND	120.1	24.0	14.6	86.0	2.8	60.7	200.7	0.0	28.4	1.31	0.00	
Tajpur	CGWB	Tw	29.2955	77.0645	2023	7.69	1587	ND	530.4	72.1	85.1	125.0	8.0	0.0	414.9	24.0	297.8	0.40	2.00	
Nurpur Muglan_31892	SGWB	Pz	29.322803	77.023273	2023	8.13	1160	750.46	451.55	139.53	24.76	95	20	0	402.8	50.24	139.03	0.61	17.25	
Jalpar_31882	SGWB	Pz	29.364004	77.043461	2023	7.78	1254	769.09	462.76	142.99	26.13	95	20	0	413.4	51.41	141.66	1.22	17.68	

Name of District	Name of Block	Source	Name of village/ OW data	Latitude	Longitude	Value of EC June 2020	Value of EC June-2021	Value of EC June-2022	Value of EC June-2023
Panipat_71	Bapoli_531	SGWB	PasinaKalan	29.31146	77.014294	850	900	800	800
Panipat_71	Bapoli_531	SGWB	Jalmana	29.33606	77.099939	800	900	850	850
Panipat_71	Bapoli_531	SGWB	Taharpur	29.28833	77.093628	750	750	800	750
Panipat_71	Bapoli_531	SGWB	KhojgiPur	29.26	77.11	700	700	600	700

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Panipat_71	Bapoli_531	SGWB	Bapoli	29.33196	77.083091	700	700	1000	900
Panipat_71	Bapoli_531	SGWB	GoilaKhurd	29.30281	77.125482	900	800	900	850
Panipat_71	Bapoli_531	SGWB	Biholi	29.284	77.042983	850	750	950	800
Panipat_71	Bapoli_531	SGWB	Dadola	29.34404	77.027437	800	810	900	900
Panipat_71	Bapoli_531	SGWB	Nurpur Muglan_31892	29.3228	77.023273	NA	NA	NA	1160
Panipat_71	Bapoli_531	SGWB	Jalpar_31882	29.364	77.043461	NA	NA	NA	1254