

Supplementary Materials



Figure S1. RBF well in Village 3 during logger data retrieval by co-author Mrs. K. Patil (Source: T. Boving).

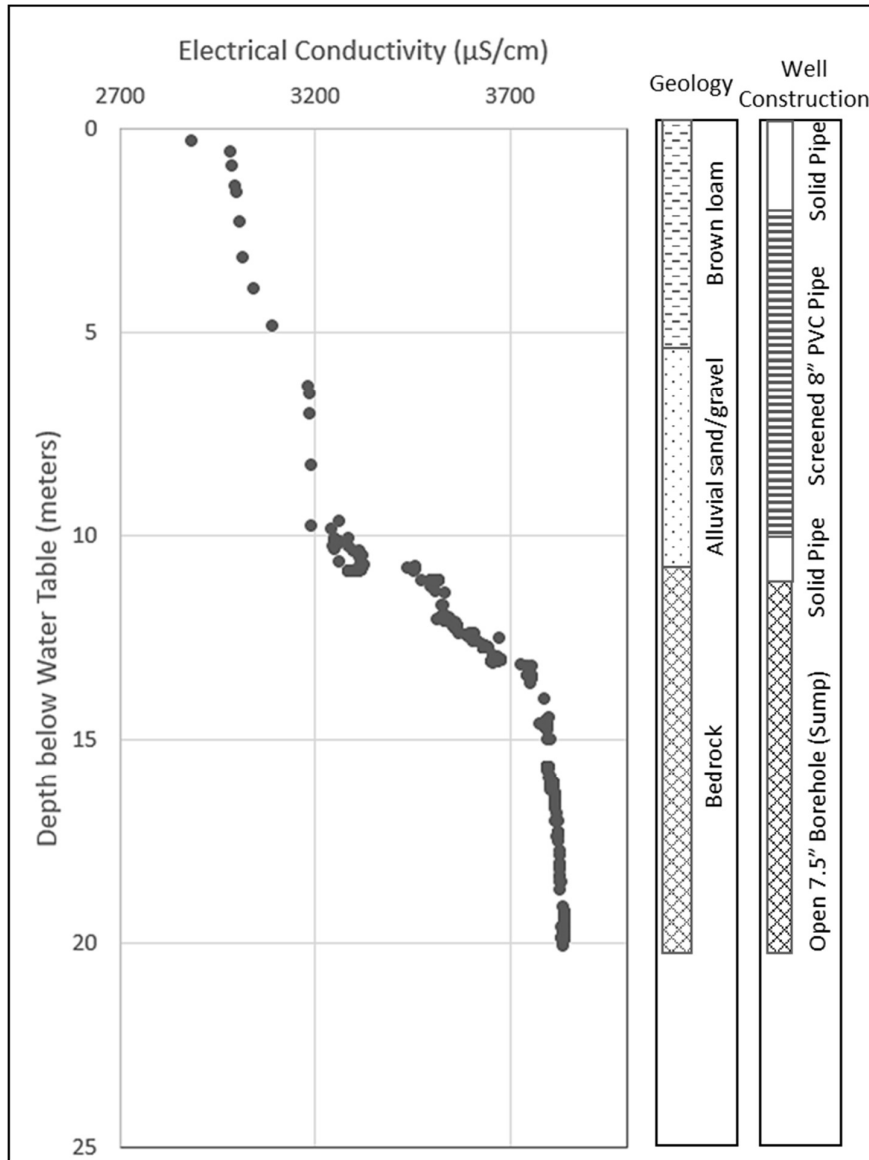


Figure S2. Vertical EC profile measured in RBF2 well at Village 4 in relation to the geologic profile and the well construction diagram. Reference level: Water table. At this location, the depth from the surface to the water table was 4.6 m. The brown loam above the alluvial sediment continued to the surface.

Table S1. Methods used for analysis of water samples. IS 3025—Bureau of Indian Standards (BIS) (Part 45) Method of Sampling and Test (Physical and Chemical) for Water and Wastewater (First Revision). APHA: Standard Methods for the Examination of Wastewater, America Public Health Association. Washington, DC, USA.

LIST OF PARAMETER		
Sr.No	PARAMETER	TEST METHOD
1	Potassium as K	mg/ltr IS 3025: Part 45
2	Sodium as Na	mg/ltr IS 3025: Part 45
3	Calcium as Ca	mg/ltr IS 3025: Part 40
4	Magnesium as Mg	mg/ltr IS 3025: Part 46
5	Ammonium as Ammoniacal Nitrogen	mg/ltr IS 3025: Part 34
6	Boron as B	mg/ltr IS 3025: Part 57
7	Chlorides as Cl	mg/ltr IS 3025: Part 32
8	Sulphates as SO ₄	mg/ltr IS 3025: Part 24
9	Carbonates as CO ₃	mg/ltr IS 3025: Part 51
10	Bicarbonates as HCO ₃	mg/ltr IS 3025: Part 51
11	Fluorides as F	mg/ltr APHA 22 nd Edition
12	Phosphates as PO ₄	mg/ltr IS 3025: Part 31
13	Nitrates as NO ₃	mg/ltr APHA 22 nd Edition
14	Nitrites as NO ₂	mg/ltr IS 3025: Part 34
15	Bio-Chemical Oxygen demand (3 days at 24°C)	mg/ltr IS 3025: Part 44
16	Chemical Oxygen Demand	mg/ltr APHA 22 nd Edition
17	Residual Chlorine	mg/ltr IS 3025: Part 26
18	Total Suspended Solids	mg/ltr IS 3025: Part 17
19	Fixed Solids	mg/ltr IS 3025: Part 18
20	Alkalinity to Phenolphthalein	mg/ltr IS 3025: 1964
21	Reactive Silica	mg/ltr IS 3025: Part 35
22	Total Dissolved Solids	mg/ltr IS 3025: Part 16
23	Total Alkalinity as CaCO ₃	mg/ltr IS 3025: Part 23
24	Total Hardness as CaCO ₃	mg/ltr IS 3025: Part 21
25	Manganese as Mn	mg/ltr APHA 22 nd Edition
26	Iron as Fe	mg/ltr IS 3025: Part 53
27	Total Organic Carbon	mg/ltr APHA 22 nd Edition 5310B

Table S2. Water quality parameters analyzed and BIS (2012) drinking water quality standards, where available. ND = Not defined.

Parameter	Unit	IS 10500:2012	
		Acceptable Limits	Permissible Limits
Major ions			
Calcium as Ca	mg/L	75	200
Magnesium as Mg	mg/L	30	100
Sodium as Na	mg/L	ND	ND
Potassium as K	mg/L	ND	ND
Boron as B	mg/L	0.5	1
Reactive Silica	mg/L	ND	ND
Bicarbonates as HCO ₃	mg/L	ND	ND
Carbonates as CO ₃	mg/L	ND	ND
Chlorides as Cl	mg/L	250	1000
Sulfates as SO ₄	mg/L	200	400
Fluorides as F	mg/L	1	1.5
Nitrates as NO ₃	mg/L	45	45
Nitrites as NO ₂	mg/L	ND	ND
Phosphates as PO ₄	mg/L	ND	ND
Ammonium as Ammoniacal Nitrogen	mg/L	0.5	0.5
Bacteria			
E.coli	MPN/100 ml	0	0
Total Coliform	MPN/100 ml	0	0
Other Parameters			
pH		6.5-8.5	6.5-8.5
Conductivity	μS/cm	ND	ND
Dissolved Oxygen	DO	ND	ND
Temperature	°C	ND	ND
Turbidity	NTU	1	5
Biochemical Oxygen Demand (BOD: 3 days at 27°C)	mg/L	ND	ND
Chemical Oxygen Demand (COD)	mg/L	ND	ND
Total Organic Carbon (TOC)	mg/L	ND	ND
Total Suspended Solids (TSS)	mg/L	ND	ND
Total Dissolved Solids (TDS)	mg/L	500	2000
Total Alkalinity as CaCO ₃	mg/L	200	600
Total Hardness as CaCO ₃	mg/L	200	600

Table S3. Sampling results for major ion concentrations in RBF wells, the Krishna River, and groundwater (mg/L). HP: Handpump, BW: Borewell. The listed data only include samples that passed quality control.

Location	Date	Ca	Mg	Na	K	B	HCO3	CO3	Cl	SO4	F	NO3	NO2	PO4	SiO2
RBF Wells															
Village 1 RBF1+2	11-Jan-17	40.1	91.2	283.0	2.5	0.0	440.8	71.7	159.8	163.9	0.5	14.4	NA	0.7	24.1
Village 1 RBF1+2	16-Feb-17	52.1	75.4	301.0	6.0	0.0	492.0	48.0	170.4	239.9	0.4	13.5	0.0	0.9	28.1
Village 1 RBF1+2	17-Mar-17	60.1	99.7	297.0	7.0	0.0	434.0	70.0	138.5	188.9	0.4	36.0	0.0	0.7	21.5
Village 1 RBF1+2	19-May-17	40.1	102.1	360.0	2.5	0.0	478.0	30.0	213.0	189.6	0.5	33.5	0.0	0.5	20.7
Village 1 RBF1+2	4-Jul-17	32.1	94.4	347.0	2.6	0.0	478.0	70.0	220.1	144.3	0.4	34.8	0.0	0.4	55.6
Village 1 RBF1+2	25-Jul-17	28.9	100.2	344.0	2.7	0.0	462.0	70.0	205.9	343.4	0.5	41.3	0.1	0.6	46.2
Village 1 RBF1+2	24-Aug-17	32.1	113.8	326.0	0.8	0.0	445.0	118.0	216.6	164.0	0.5	38.2	0.0	0.1	48.4
Village 1 RBF1+2	28-Sep-17	33.7	81.8	363.0	2.2	0.0	486.0	90.0	564.5	119.7	0.6	21.0	0.0	0.7	49.6
Village 1 RBF1+2	24-Oct-17	43.3	36.0	311.6	2.3	0.0	424.0	64.0	92.3	75.7	0.6	47.8	0.0	0.8	48.8
Village 2	16-Feb-17	88.2	299.1	556.0	6.0	0.0	430.0	50.0	582.2	996.9	0.9	11.5	0.0	1.1	35.3
Village 2	17-Mar-17	80.2	359.9	573.0	8.0	0.0	252.0	96.0	646.1	876.5	1.0	22.4	0.1	0.9	63.8
Village 2	19-May-17	128.3	367.2	405.5	3.2	0.0	434.0	10.0	752.6	553.6	1.0	30.6	0.0	0.7	28.7
Village 2	25-Jul-17	40.1	216.0	700.0	2.6	0.0	358.0	102.0	518.3	848.3	0.9	35.2	0.0	1.0	64.6
Village 2	24-Aug-17	48.1	161.5	506.0	0.1	0.0	368.0	64.0	450.9	358.8	0.9	31.4	0.0	0.7	67.3
Village 2	28-Sep-17	20.8	217.9	470.0	2.3	0.0	422.0	86.0	468.6	355.2	1.0	32.7	0.0	1.0	64.8
Village 3	11-Jan-17	60.1	124.0	376.0	4.0	0.0	234.0	25.2	426.0	238.3	0.6	47.8	NA	0.2	73.0
Village 3	17-Mar-17	100.2	75.4	304.0	5.0	0.0	304.0	28.0	319.5	422.9	0.4	33.8	0.0	0.2	67.7
Village 3	19-May-17	48.1	99.7	630.0	2.2	0.0	224.0	40.0	344.4	656.1	0.6	41.9	0.0	0.1	28.0
Village 3	4-Jul-17	33.7	132.3	462.0	2.3	0.0	342.0	52.0	489.9	172.5	0.6	52.4	0.0	0.0	77.1
Village 3	25-Jul-17	24.1	106.0	404.0	2.2	0.0	256.0	44.0	408.3	379.3	0.5	51.6	0.0	0.1	68.7
Village 3	24-Oct-17	78.6	101.2	309.6	1.8	0.0	268.0	32.0	379.9	175.5	0.7	44.4	0.0	0.0	94.8
Village 3	11-Jan-17	56.1	116.7	260.0	3.0	0.0	271.1	19.6	319.5	264.0	0.6	39.7	NA	0.3	77.1
Village 3	17-Mar-17	72.1	94.8	267.0	5.0	0.0	306.0	10.0	273.4	241.9	0.4	31.5	0.0	0.2	70.1
Village 3	2-May-17	80.2	111.9	386.0	2.5	0.0	328.0	11.2	447.3	178.6	0.5	24.5	0.0	0.1	51.6
Village 3	4-Jul-17	70.5	166.4	430.0	2.3	0.0	422.0	14.0	568.0	252.4	0.6	61.5	0.0	0.0	79.0
Village 3	25-Jul-17	41.7	106.0	387.0	2.3	0.0	234.0	42.0	429.6	510.0	0.6	54.8	0.0	0.1	67.9
Village 3	24-Aug-17	67.3	178.0	404.0	0.4	0.0	447.0	18.0	497.0	246.0	0.6	60.6	0.0	0.0	71.6
Village 3	28-Sep-17	80.2	88.5	179.0	2.1	0.0	412.0	32.0	230.8	140.8	0.4	35.9	0.1	0.1	45.8
Village 3	24-Oct-17	89.8	124.5	325.0	1.9	0.0	164.0	24.0	440.2	183.0	0.7	50.7	0.0	0.0	70.8
Village 3	15-Dec-17	68.1	138.6	411.0	6.8	0.0	154.0	16.0	394.1	1209.7	0.2	42.7	0.1	0.0	64.3
Village 4	1/11/2017	100.2	170.2	248.0	2.0	0.0	190.9	22.7	532.5	264.0	0.6	65.9	NA	0.0	11.7
Village 4	3/17/2017	128.3	26.8	246.0	4.0	0.0	316.0	36.0	404.7	215.0	0.5	60.8	0.0	0.1	46.1
Village 4	5/2/2017	136.3	145.9	297.0	1.7	0.0	190.0	224.0	447.3	266.5	0.4	73.3	0.0	0.1	27.2
Village 4	5/19/2017	132.3	150.8	289.0	1.5	0.0	116.0	0.0	443.8	410.0	0.6	57.3	0.0	0.0	20.1
Village 4	7/4/2017	142.7	153.7	262.0	1.6	0.0	332.0	10.0	486.4	194.5	0.5	70.6	0.0	0.0	42.6
Village 4	7/25/2017	75.4	146.9	293.0	1.8	0.0	242.0	52.0	479.3	576.6	0.5	91.7	0.0	0.1	38.0
Village 4	8/24/2017	75.4	180.0	289.0	0.3	0.0	305.0	22.0	461.5	156.3	0.5	66.1	0.1	0.0	41.7
Village 4	9/28/2017	78.6	123.6	227.0	0.8	0.0	118.0	38.0	458.0	195.4	0.4	49.3	0.1	0.1	41.1
Village 4	10/24/2017	24.1	173.2	260.8	1.8	0.0	142.0	38.0	493.5	175.5	0.6	33.5	0.0	0.0	40.5
Village 4	5/2/2017	160.3	209.2	233.0	2.6	0.0	130.0	3.8	571.6	253.7	0.4	129.5	0.1	0.2	33.3
Village 4	5/19/2017	216.4	211.6	243.0	2.6	0.0	48.0	0.0	699.4	194.8	0.6	237.5	0.3	0.0	21.9
Village 4	7/4/2017	43.3	256.8	207.0	2.3	0.0	314.0	0.0	504.1	131.5	0.4	77.0	0.0	0.0	53.7
Village 4	7/25/2017	62.5	228.6	192.0	2.4	0.0	256.0	0.0	518.3	284.5	0.5	71.3	0.1	0.0	44.3
Village 4	8/24/2017	81.8	245.2	182.0	0.8	0.0	300.0	0.0	532.5	164.0	0.4	63.1	0.0	0.0	46.8
Village 4	9/28/2017	57.7	200.0	201.0	1.9	0.0	272.0	0.0	529.0	130.0	0.4	69.6	0.0	0.2	44.3
Krishna River															
Village 1	16-Feb-17	16.0	26.8	114.0	3.0	0.0	146.0	14.0	88.8	98.9	0.3	33.4	0.0	0.1	13.6
Village 1	2-May-17	24.1	17.0	39.0	2.2	0.0	83.0	14.0	32.0	16.2	0.1	1.4	0.0	0.0	11.9
Village 1	19-May-17	24.1	29.2	31.0	1.8	0.0	100.0	8.0	49.7	64.1	0.3	2.2	0.0	0.0	11.6
Village 1	4-Jul-17	14.4	5.8	15.1	2.0	0.0	40.0	0.0	21.3	12.1	0.1	11.0	0.0	0.0	17.1
Village 1	25-Jul-17	17.6	2.9	11.2	1.7	0.0	64.0	0.0	17.8	27.7	0.1	6.8	0.0	0.1	0.2
Village 1	28-Sep-17	35.3	22.4	31.7	3.5	0.0	92.0	20.0	42.6	27.0	0.2	9.7	0.0	0.3	20.3
Village 1	24-Oct-17	50.3	20.4	46.8	3.6	0.0	136.0	8.0	63.9	33.5	0.4	17.2	0.0	0.3	28.7
Village 1	15-Nov-17	44.9	21.4	64.9	2.9	0.0	122.0	14.0	81.7	27.0	0.8	12.5	0.1	0.0	8.4
Village 2	11-Jan-17	48.1	7.3	100.0	2.0	0.0	122.3	16.0	106.5	51.8	0.3	4.7	NA	0.0	4.0
Village 2	19-May-17	28.1	34.1	40.0	1.8	0.0	134.0	10.0	46.2	148.6	0.2	2.0	0.0	0.0	9.5
Village 2	4-Jul-17	9.6	9.7	13.0	1.6	0.0	38.0	0.0	21.3	15.1	0.1	9.6	0.0	0.0	14.4
Village 2	25-Jul-17	17.6	10.7	14.2	12.0	0.0	50.0	10.0	14.2	27.7	0.2	6.8	0.1	0.1	16.7
Village 2	24-Aug-17	14.4	10.7	20.2	0.8	0.0	60.0	0.0	21.3	5.6	0.1	3.1	0.0	0.0	14.7
Village 2	28-Sep-17	40.1	14.6	65.7	4.5	0.0	94.0	30.0	53.3	18.5	0.2	10.1	0.0	0.1	22.5
Village 2	24-Oct-17	12.8	46.7	37.6	0.0	0.0	126.0	18.0	60.4	21.1	0.4	15.9	0.0	0.0	28.9
Village 2	15-Nov-17	43.3	23.4	64.8	3.0	0.0	112.0	16.0	78.1	24.2	0.8	12.0	0.1	0.0	18.4
Village 3	17-Mar-17	76.2	75.4	208.0	6.0	0.0	148.0	20.0	234.3	215.0	0.4	2.5	0.02	0.0	11.5
Village 3	2-May-17	20.0	21.9	46.2	1.8	0.0	78.0	22.0	39.1	17.4	0.2	0.1	0.0	0.0	10.7
Village 3	4-Jul-17	19.2	4.9	16.0	1.8	0.0	44.0	0.0	17.8	12.1	0.1	10.9	0.0	0.0	17.8
Village 3	25-Jul-17	16.0	2.3	11.1	1.7	0.0	36.0	0.0	10.7	29.2	0.0	6.8	0.0	0.1	15.7
Village 3	24-Aug-17	16.0	13.6	20.1	0.8	0.0	64.0	0.0	17.8	7.9	0.2	4.8	0.0	0.0	17.1
Village 3	28-Sep-17	40.1	15.6	36.2	3.2	0.0	110.0	22.0	52.3	21.4	0.2	10.9	0.0	0.2	25.2
Village 3	24-Oct-17	40.1	30.2	44.5	3.0	0.0	122.0	14.0	67.5	34.5	0.4	14.2	0.0	0.3	27.5
Village 3	15-Nov-17	52.9	23.4	73.1	3.2	0.0	114.0	26.0	88.8	32.7	0.7	13.6	0.1	0.0	23.7
Village 4	1/11/2017	80.2	58.4	206.0	2.0	0.0	96.8	10.3	284.0	220.7	0.4	2.6	NA	0.0	21.7
Village 4	3/17/2017	124.3	107.0	326.0	8.0	0.0	136.0	20.0	447.3	343.4	0.5	3.3	0.0	0.0	11.5
Village 4	7/4/2017	20.8	3.9	15.5	1.9	0.0	42.0	0.0	17.8	15.6	0.1	11.1	0.0	0.0</	

Location	Date	Ca	Mg	Na	K	B	HCO3	CO3	Cl	SO4	F	NO3	NO2	PO4	SiO2
Village 1 BW	21-Dec-17	100.2	73.0	440.0	9.7	0.0	124.0	6.0	362.1	211.1	1.2	77.6	0.0	0.0	29.3
Village 1 HP	15-Feb-18	112.2	289.4	841.0	4.2	0.0	230.0	0.0	653.2	952.3	1.4	211.0	0.1	0.0	47.0
Village 2 HP	21-Dec-17	280.6	359.9	939.0	9.5	0.0	66.0	4.0	731.3	1117.1	0.9	221.2	0.1	0.0	66.0
Village 2 BW	15-Feb-18	300.6	518.0	844.0	4.0	0.0	190.0	0.0	639.0	1513.5	1.1	209.4	0.1	0.0	66.1
Village 2 HP	21-Dec-17	188.4	138.6	443.0	20.6	0.0	108.0	12.0	411.8	741.3	0.5	19.5	0.0	0.0	22.2
Village 4 HP (120 ft)	21-Dec-17	180.4	272.4	456.0	6.0	0.0	64.0	46.0	745.5	178.1	0.4	480.0	0.1	0.0	41.5
Village 4 HP (120 ft)	15-Feb-18	216.4	313.7	436.0	6.9	0.0	170.0	10.0	738.4	227.8	0.5	330.5	2.6	0.0	37.0
Village 4 HP (70 ft)	10-Feb-17	36.9	297.7	310.0	2.0	ND	292.0	20.0	727.8	170.4	0.5	287.5	0.5	0.1	49.4
Village 4 HP (70 ft)	21-Dec-17	300.6	228.6	293.0	8.1	0.0	60.0	0.0	809.4	128.7	0.3	377.0	4.0	0.1	31.5
Village 4 HP (70 ft)	15-Feb-18	96.2	452.4	424.0	4.1	0.0	230.0	0.0	710.0	870.0	0.7	503.5	0.0	0.0	47.2

Location	Date	pH	EC (µs/cm)	DO (mg/L)	Turbidity (NTU)	E.coli (MPN/100 ml)
River						
Village 1	1-Dec-15	8.6	824	8.89	9.1	
Village 1	9-Dec-15	8.6	844	9.72	9.5	24.3
Village 1	16-Dec-15	8.7	903	6.82	10.23	33.6
Village 1	22-Dec-15	8.5	1001	7.82	9.54	43.5
Village 1	30-Dec-15	8.5	1040	7.04	12.6	48
Village 1	5-Jan-16	8.5	1040	6.52	7.82	131.4
Village 1	13-Jan-16	8.6	1099	7.8	8.54	501.2
Village 1	20-Jan-16	8.7	1040	8.4	9.24	17.5
Village 1	29-Jan-16	8.5	1236	7.14	11.31	39.3
Village 1	3-Feb-16	8.5	1275	7.09	12.4	45.2
Village 1	10-Feb-16	8.3	1354	5.46	17.6	336
Village 1	17-Feb-16	8.4	1628	5.84	15.1	121
Village 1	25-Feb-16	8.3	2354	6.74	17.7	2851
Village 1	2-Mar-16	8.09	3669	5.87	NA	52.9
Village 1	10-Mar-16	8.2	2982	5.89	NA	44.1
Village 1	16-Mar-16	7.6	1903	6.83	NA	8.6
Village 1	22-Mar-16	7.8	1884	7.75	NA	9.7
Village 1	28-Mar-16	7.7	1707	6.47	NA	2
Village 1	5-Apr-16	8.1	2747	6.53	7.19	238.2
Village 1	13-Apr-16	8.6	3728	5.95	10.7	186
Village 1	20-Apr-16	8.1	2139	5.49	4.31	1011.2
Village 1	28-Apr-16	7.8	1177	6.11	0.53	1011.2
Village 1	4-May-16	8.5	1275	10.74	5.89	21.6
Village 1	11-May-16	8.3	1354	7.09	8.01	53.7
Village 1	18-May-16	8.4	1628	6.8	17.9	17.6
Village 1	25-May-16	8.3	2354	4.75	57.7	549.3
Village 1	2-Jun-16	8.5	746	4.15	23	1011.2
Village 1	7-Jun-16	8.94	500	4.41	9.65	20.1
Village 1	15-Jun-16	8.57	647	7.67	32.6	333.3
Village 1	22-Jun-16	9.1	667	6.92	15.2	1011.2
Village 1	29-Jun-16	8.75	922	8.3	21.1	1011.2
Village 1	6-Jul-16	8.26	216	8.47	43.3	549.3
Village 1	13-Jul-16	8.26	353	5.81	60.3	1011.2
Village 1	23-Jul-16	7.61	373	6.12	11.5	549.3
Village 1	28-Jul-16	8.21	392	5.5	10.5	165.8
Village 1	3-Aug-16	8.4	294	5.68	28.3	1011.2
Village 1	19-Aug-16	8.22	334	5.75	8.19	456.9
Village 1	26-Aug-16	7.28	294	7.98	10.8	44.3
Village 1	30-Aug-16	8.27	334	7.79	9.31	214.2
Village 1	8-Sep-16	8.62	353	6.13	4.59	517.2
Village 1	17-Sep-16	5.55	549	6.47	5.16	109.5
Village 1	20-Sep-16	8.04	NA	4.87	16.2	108.1
Village 1	27-Sep-16	8.55	NA	6.87	40.5	145.9
Village 1	5-Oct-16	8.22	NA	4.38	13	228.2
Village 1	14-Oct-16	8.06	NA	4.63	9.77	44.8
Village 1	22-Oct-16	8.4	373	5.68	28.3	3.1
Village 1	26-Oct-16	8.3	294	5.88	3.06	5.1
Village 1	3-Nov-16	8.83	589	7.97	3.77	4.1
Village 1	9-Nov-16	8.92	510	7.23	17.3	68.2
Village 1	16-Nov-16	8.35	667	7.03	19.8	4.1
Village 1	23-Nov-16	8.23	824	6.18	20.9	30.5
Village 1	30-Nov-16	8.27	667	6.51	6.2	7.3
Village 1	7-Dec-16	8.29	667	5.50	2.43	2
Village 1	16-Dec-16	8.4	706	4.66	3.47	2419.6
Village 1	21-Dec-16	8.5	746	6.74	9.1	9.6
Village 1	30-Dec-16	8.45	706	5.55	18.2	107.6
Village 1	4-Jan-17	8.3	785	4.88	2.17	8.4
Village 1	11-Jan-17	8.47	824	6.58	7.39	10.9
Village 1	19-Jan-17	8.2	824	6.56	5.97	0.5
Village 1	27-Jan-17	8.57	863	6.86	3.64	2419.6
Village 1	31-Jan-17	8.57	863	5.97	4.12	85.7
Village 1	8-Feb-17	8.54	785	7.42	3.6	17.3
Village 1	15-Feb-17	8.44	903	5.39	1.23	6.3
Village 1	22-Feb-17	8.44	981	7.70	6.1	5.2
Village 1	1-Mar-17	8.41	883	6.77	4.09	116.2
Village 1	8-Mar-17	8.39	981	6.58	2.3	7.2
Village 1	16-Mar-17	7.97	1275	5.69	0.78	32.3
Village 1	22-Mar-17	8.26	1334	7.45	3.37	13.2
Village 1	27-Mar-17	8.12	1138	6.37	2.21	0.5
Village 1	5-Apr-17	8.21	1177	5.96	8.31	20.6
Village 1	13-Apr-17	8.3	1373	6.27	15.4	25.9
Village 1	19-Apr-17	7.99	1079	6.29	24.4	50.4
Village 1	3-May-17	8.58	451	7.03	12.6	31.8
Village 1	17-May-17	8.27	549	6.34	5.31	13.2
Village 1	19-May-17	8.26	726	5.18	9.54	9.6
Village 1	24-May-17	8.5	726	6.02	7.95	119.8
Village 1	31-May-17	7.92	863	5.59	7.78	4.1
Village 1	7-Jun-17	8.34	687	5.63	12.3	1
Village 1	14-Jun-17	8.31	726	5.71	7.65	9.6
Village 1	19-Jun-17	8.25	785	2.57	12.7	4.1
Village 1	29-Jun-17	8.36	942	5.54	17.1	408.3
Village 1	4-Jul-17	8.13	491	5.38	13.3	135.4
Village 1	15-Jul-17	8.31	235	5.70	19.8	67.7
Village 1	17-Jul-17	8.19	334	3.07	33.7	84.7
Village 1	24-Jul-17	8.47	530	5.88	25	248.1
Village 1	2-Aug-17	7.77	235	4.94	15.1	1046.2
Village 1	9-Aug-17	7.93	196	5.02	11	76.3
Village 1	16-Aug-17	8.1	785	4.67	8.52	21.8
Village 1	23-Aug-17	7.92	804	5.45	0.68	19.7
Village 1	24-Aug-17	8.36	628	5.08	0.69	126.8
Village 1	30-Aug-17	7.62	1177	5.09	2.69	2419.6
Village 1	5-Sep-17	7.97	824	5.26	9.93	365.4
Village 1	12-Sep-17	8.32	549	5.31	2.71	1413.6
Village 1	19-Sep-17	8.4	608	5.28	5.54	365.4
Village 1	30-Sep-17	7.56	706	4.95	9	517.2
Village 1	2-Oct-17	8.36	746	5.23	4.16	290.9
Village 1	7-Oct-17	7.5	647	5.15	7	866.4
Village 1	12-Oct-17	8.31	1236	4.99	6.26	10.2
Village 1	17-Oct-17	8.69	1001	5.88	13.2	9.6
Village 1	24-Oct-17	8.36	746	5.10	3.86	126.8
Village 1	3-Nov-17	8.4	1059	5.78	11.6	4.1
Village 1	8-Nov-17	8.61	863	5.63	9.36	113
Village 1	15-Nov-17	8.27	804	5.62	4.79	44.3
Village 1	22-Nov-17	8.39	824	5.50	6.76	101.7
Village 1	28-Nov-17	8.41	863	5.69	10.2	21.1
Village 1	29-Nov-17	8.93	1020	5.78	3.06	31.8
Village 1	6-Dec-17	8.7	1001	4.90	2.33	6.3
Village 1	13-Dec-17	8.74	922	6.22	8.33	45.7
Village 1	20-Dec-17	8.43	961	5.26	3.14	19.7
Village 1	21-Dec-17	8.57	1020	4.89	1.25	16
Village 1	26-Dec-17	8.6	1158	4.80	8.2	31.8

Location	Date	pH	EC (µs/cm)	DO (mg/L)	Turbidity (NTU)	E.coli (MPN/100 ml)
River						
Village 2	11-Nov-15	8.9	804	9.08	9.49	NA
Village 2	1-Dec-15	8.1	804	8.89	7.35	NA
Village 2	9-Dec-15	8.5	804	10.05	9.33	44.8
Village 2	16-Dec-15	8.8	824	7.56	9.59	23.6
Village 2	22-Dec-15	8.7	942	7.59	10.81	689.3
Village 2	30-Dec-15	8.6	1020	7.76	10.8	6.3
Village 2	5-Jan-16	8.6	1001	7.62	10.9	4.1
Village 2	13-Jan-16	8.5	1079	7.98	12.9	20.1
Village 2	20-Jan-16	8.6	1118	8.4	6.89	4.1
Village 2	16-Mar-16	8.6	1197	7.9	7.04	9.79
Village 2	3-Feb-16	8.6	1197	7.74	7.94	9.5
Village 2	10-Feb-16	8.6	1256	7.35	10.7	31
Village 2	17-Feb-16	8.5	1334	7.86	13.5	10
Village 2	25-Feb-16	8.5	1315	8.72	13.4	63
Village 2	3-Feb-16	8.3	1530	7.77	10	5.2
Village 2	10-Mar-16	8.1	1785	6.55	9.12	27.2
Village 2	16-Mar-16	8.2	1197	7.9	7.03	13.2
Village 2	22-Mar-16	8.1	1354	5.12	11.8	17.1
Village 2	27-Mar-16	7.9	1236	6.57	7.41	12.1
Village 2	2-Apr-16	8.1	1309	6.78	7.65	378.4
Village 2	9-Apr-16	8.2	2943	5.57	10	184.2
Village 2	20-Apr-16	7.9	2747	5.75	4.78	913.9
Village 2	26-Apr-16	7.7	1785	6.29	1.72	1011.2
Village 2	4-May-16	9.1	844	6.5	6.05	19.9
Village 2	11-May-16	9.2	589	6.55	7.71	53
Village 2	18-May-16	8.7	216	6.97	23.6	26.9
Village 2	25-May-16	8.8	275	4.66	6.35	4.1
Village 2	2-Jun-16	9.2	314	4.73	9.98	35
Village 2	7-Jun-16	9.21	432	5.45	6.93	32.8
Village 2	15-Jun-16	9.16	549	8.34	32.4	43.9
Village 2	22-Jun-16	9.04	530	7.58	7.86	2
Village 2	29-Jun-16	8.99	608	9.13	8.56	4.1
Village 2	6-Jul-16	8.22	196	7.73	42.2	574.8
Village 2	15-Jul-16	8.17	196	10.11	75.3	183.5
Village 2	23-Jul-16	7.35	353	5.56	7.22	140.3
Village 2	28-Jul-16	8	353	5.6	12.1	137
Village 2	3-Aug-16	8.21	275	5.67	22.4	960.6
Village 2	19-Aug-16	8.35	353	6.13	21.3	913.9
Village 2	26-Aug-16	7.61	275	7.61	8.34	40.6
Village 2	30-Aug-16	8.2	255	5.85	6.49	129.6
Village 2	8-Sep-16	8.46	314	5.67	4.6	1
Village 2	17-Sep-16	7.28	589	6.22	3.05	6.2
Village 2	20-Sep-16	7.9	NA	7.74	17.2	281.2
Village 2	27-Sep-16	8.28	NA	6.48	36.5	343
Village 2	5-Oct-16	8.06	NA	5.98	6.89	121.2
Village 2	14-Oct-16	8.3	NA	5.51	9.45	4.1
Village 2	18-Oct-16	8.66	412	6.91	6.55	5.2
Village 2	28-Oct-16	8.72	569	6.48	5.26	2
Village 2	3-Nov-16	8.23	451	6.64	12.3	4.1
Village 2	7-Nov-16	9.34	491	7.15	4.48	1
Village 2	14-Nov-16	8.12	1040	6.02	0.84	0.5
Village 2	21-Nov-16	8.34	667	6.95	4.59	5.1
Village 2	28-Nov-16	8.34	667	7.08	4.55	70.3
Village 2	5-Dec-16	8.8	706	5.73	4.08	60.3
Village 2	16-Dec-16	8.53	746	7.74	3.12	93.3
Village 2	23-Dec-16	8.3	687	5.42	4.86	8.4
Village 2	30-Dec-16	8.9	765	5.37	2.2	15.3
Village 2	4-Jan-17	8.26	667	5.05	9.89	15.3
Village 2	11-Jan-17	8.4	785	6.85	5.97	10.7
Village 2	19-Jan-17	8.03	746	4.40	1.89	0.5
Village 2	23-Jan-17	8.48	885	5.47	3.12	2419.6
Village 2	30-Jan-17	8.57	863	6.29	2.04	2419.6
Village 2	6-Feb-17	8.6	804	6.34	4.37	2
Village 2	13-Feb-17	8.43	844	7.48	7.98	111.8
Village 2	20-Feb-17	8.2	824	6.25	0.67	9.4
Village 2	27-Feb-17	8.46	903	6.52	1.91	2419.6
Village 2	6-Mar-17	8.68	1099	7.26	6.86	77.1
Village 2	13-Mar-17	7.96				

Location	Date	pH	EC (µS/cm)	DO (mg/L)	Turbidity (NTU)	E.coli (MPN/100 ml)
Village 3	22-Nov-15	8.63	1844	7.94	19.4	
Village 3	30-Nov-15	8.89	981	9.1	12.8	263.8
Village 3	7-Dec-15	8.6	1020	7.94	8.11	20.9
Village 3	14-Dec-15	8.6	981	10.9	12	93.3
Village 3	21-Dec-15	9	981	7.72	10.2	5.2
Village 3	28-Dec-15	8.3	1373	6.61	12.2	8.6
Village 3	4-Jan-16	8.5	1452	6.47	7.47	13.5
Village 3	11-Jan-16	8.8	1413	8.16	13.1	50.4
Village 3	19-Jan-16	8.7	1530	8.34	14.3	28.5
Village 3	27-Jan-16	8.3	1746	7.6	11.4	13.1
Village 3	2-Jan-16	8.6	1785	7.19	10.2	90.8
Village 3	8-Feb-16	8.7	1805	6.96	9.01	30
Village 3	14-Feb-16	8.5	2040	7.34	16.4	20
Village 3	22-Feb-16	8.4	2119	4.57	5.75	10
Village 3	29-Feb-16	8.1	2197	6.64	7.4	41
Village 3	7-Mar-16	8.5	2001	6.98	5.72	75.4
Village 3	14-Mar-16	8.7	2158	6.18	6.62	10.9
Village 3	21-Mar-16	8.6	2158	5.58	7.69	436
Village 3	28-Mar-16	8.3	2158	6.65	9.03	396.8
Village 3	4-Apr-16	7.7	2943	5.1	4.36	71.4
Village 3	11-Apr-16	7.5	2747	5.46	6.32	29.2
Village 3	18-Apr-16	7.8	2080	6.89	4.26	44.3
Village 3	27-Apr-16	7.6	1099	5.41	0.65	871.4
Village 3	2-May-16	8.4	2943	9.69	2.8	78.4
Village 3	9-May-16	9.2	491	6.59	7.71	55.6
Village 3	16-May-16	8.6	216	7.12	16.2	29.1
Village 3	23-May-16	8.8	235	7.35	8.21	3.1
Village 3	30-May-16	8.9	392	5.14	3.5	343
Village 3	6-Jun-16	9.1	647	5.04	6.87	0.5
Village 3	13-Jun-16	8.4	471	7.12	14.6	64.6
Village 3	20-Jun-16	8.25	451	7.23	4.24	2
Village 3	30-Jun-16	9.28	647	7.47	10.8	360.9
Village 3	4-Jul-16	8.5	216	10.51	31.4	280.9
Village 3	16-Jul-16	8.04	196	8.14	25.2	1011.2
Village 3	19-Jul-16	8.14	275	8.03	21.8	110.2
Village 3	29-Jul-16	8.14	373	6	10.1	62
Village 3	5-Aug-16	8.25	275	6.14	52.2	689.3
Village 3	8-Aug-16	7.82	255	6.67	39.8	396.8
Village 3	19-Aug-16	8.23	334	6.25	11.3	360.9
Village 3	23-Aug-16	7.84	353	6.35	13.9	64.1
Village 3	2-Sep-16	8.36	353	6.28	2.69	31.5
Village 3	7-Sep-16	8.65	314	7.22	6.85	3
Village 3	14-Sep-16	7.05	353	6.03	9.8	17.3
Village 3	19-Sep-16	8.13	314	4.77	7.32	9.7
Village 3	4-Oct-16	8.02	NA	6.1	5.35	35
Village 3	4-Oct-16	7.74	NA	5.46	7.55	42.5
Village 3	14-Oct-16	8.59	412	7.1	1.98	11.6
Village 3	19-Oct-16	7.22	530	7.24	5.57	9.7
Village 3	24-Oct-16	8.12	451	5.43	2.47	0.5
Village 3	2-Nov-16	8.69	471	8.70	2.54	8.6
Village 3	8-Nov-16	8.93	549	5.45	16.4	2
Village 3	14-Nov-16	8.44	824	6.86	3.1	4.1
Village 3	22-Nov-16	8.24	706	7.09	4.89	4
Village 3	29-Nov-16	8.49	765	5.05	3.16	4.1
Village 3	6-Dec-16	8.5	785	5.03	2.39	8.3
Village 3	17-Dec-16	8.52	883	6.01	5.29	6.3
Village 3	23-Dec-16	8.57	903	7.14	1.96	2
Village 3	29-Dec-16	8.2	1020	7.36	3.44	3
Village 3	3-Jan-17	8.2	1040	7.77	2.16	15.8
Village 3	11-Jan-17	8.29	1040	7.15	2.04	2
Village 3	20-Jan-17	8.33	1158	6.88	10.3	2
Village 3	27-Jan-17	8.25	1118	7.43	3.2	13.1
Village 3	31-Jan-17	8.31	1256	5.73	3.26	93.6
Village 3	7-Feb-17	8.48	1020	6.16	33.6	14
Village 3	14-Feb-17	8.6	1059	6.30	8.23	8.4
Village 3	21-Feb-17	8.77	1315	5.77	5.88	7.5
Village 3	28-Feb-17	8.52	1295	5.82	5	11
Village 3	7-Mar-17	8.39	1432	5.58	1.11	0.5
Village 3	14-Mar-17	8.02	1491	6.01	72.9	62
Village 3	16-Mar-17	8.04	1884	6.86	6.67	2
Village 3	22-Mar-17	8.21	1805	6.99	14.8	57.1
Village 3	31-Mar-17	8.31	1844	6.54	7.41	35
Village 3	7-Apr-17	8.14	1903	6.81	5.36	19.3
Village 3	12-Apr-17	8.07	1884	6.30	3.47	12
Village 3	21-Apr-17	8.12	1805	6.37	9.41	22.3
Village 3	1-May-17	8.59	510	7.14	6.08	7.3
Village 3	16-May-17	8.3	863	6.92	14.7	0.5
Village 3	18-May-17	8.29	863	5.15	9.8	14.8
Village 3	23-May-17	8.5	1197	5.73	10.6	7.3
Village 3	30-May-17	7.99	1236	4.81	13.1	23.7
Village 3	6-Jun-17	8.67	412	5.20	14.1	0.5
Village 3	13-Jun-17	8.44	412	5.48	12.2	365.4
Village 3	20-Jun-17	8.46	863	5.61	13.8	0.5
Village 3	27-Jun-17	8.44	647	7.01	69.4	44.3
Village 3	4-Jul-17	8.23	549	6.34	35.3	0.5
Village 3	17-Jul-17	7.88	196	5.59	19.3	123.6
Village 3	1-Aug-17	8.23	255	4.80	20.2	547.4
Village 3	8-Aug-17	7.85	804	5.13	42.1	60.9
Village 3	15-Aug-17	8.09	589	5.48	20.1	31.1
Village 3	22-Aug-17	7.96	785	5.42	18.9	34.5
Village 3	24-Aug-17	7.92	667	4.85	10.12	54.5
Village 3	29-Aug-17	7.91	785	5.31	18.4	344.8
Village 3	5-Sep-17	7.9	255	5.03	12.6	40.5
Village 3	12-Sep-17	8.1	373	4.98	6.85	21.6
Village 3	19-Sep-17	8.16	432	5.13	8.61	51.2
Village 3	26-Sep-17	8.24	412	5.63	6.24	22.8
Village 3	3-Oct-17	7.96	471	5.78	6.44	63.8
Village 3	10-Oct-17	8.19	373	5.71	8.23	22.3
Village 3	17-Oct-17	8.1	412	5.85	10.1	26.9
Village 3	24-Oct-17	7.45	863	5.04	5.71	51.2
Village 3	3-Nov-17	8.65	589	5.64	9.46	613.1
Village 3	7-Nov-17	8.13	824	5.79	10.2	360.9
Village 3	14-Nov-17	8.98	883	6.37	3.21	26.5
Village 3	21-Nov-17	8.49	922	6.56	4.14	18.7
Village 3	28-Nov-17	8.09	922	7.09	11.8	10.7
Village 3	5-Dec-17	8.91	903	4.44	4.09	160.7
Village 3	12-Dec-17	8.25	1216	6.23	0.37	114.5
Village 3	21-Dec-17	8.72	1275	5.11	1.23	10.9
Village 3	26-Dec-17	8.29	883	6.20	18.2	95.9

Location	Date	pH	EC (µS/cm)	DO (mg/L)	Turbidity (NTU)	E.coli (MPN/100 ml)
Village 4	22-Nov-15	8.54	1825	8.36	9.37	
Village 4	30-Nov-15	8.57	1903	11.13	36	104.2
Village 4	7-Dec-15	8.4	2158	8.19	17.1	53.7
Village 4	14-Dec-15	8.9	2158	10.71	8.8	33.6
Village 4	21-Dec-15	8.6	2354	7.56	14.6	135.4
Village 4	28-Dec-15	8.4	2551	7.51	12.9	129.6
Village 4	4-Jan-16	8.4	2747	7.74	14.9	25.9
Village 4	11-Jan-16	8.2	2747	5.76	3.03	56.8
Village 4	18-Jan-16	8.7	1452	7.2	13.2	83.9
Village 4	27-Jan-16	8.3	1922	7.32	15.2	21.6
Village 4	2-Jan-16	8.2	2551	7.39	11.4	35.9
Village 4	8-Feb-16	8.3	3139	7.19	19.3	31
Village 4	15-Feb-16	8.1	2747	5.71	6.86	158
Village 4	22-Feb-16	8.9	4905	4.28	16	52
Village 4	29-Feb-16	8.2	2276	3.98	5.74	908
Village 4	7-Mar-16	8.8	4120	4.68	6.88	83.6
Village 4	15-Mar-16	8.6	3728	5.25	7.34	4.1
Village 4	21-Mar-16	8.8	2943	6.01	9.62	549.3
Village 4	28-Mar-16	8.7	4513	6.47	10.3	689.3
Village 4	4-Apr-16	7.6	2747	6.52	10.9	119.6
Village 4	11-Apr-16	7.9	2551	5.2	0.98	100.6
Village 4	18-Apr-16	8.6	2747	7.6	1.38	4.1
Village 4	27-Apr-16	7.6	2158	6.18	2.32	1011.2
Village 4	2-May-16	8.5	3335	10.68	2.55	95.9
Village 4	9-May-16	8.2	2158	8.24	7.58	8.6
Village 4	16-May-16	8.2	235	7.74	26	36.4
Village 4	23-May-16	8.8	608	5.93	19.5	13.1
Village 4	1-Jun-16	9	824	4.86	13.6	62.9
Village 4	9-Jun-16	9.1	961	4.6	10.6	46.4
Village 4	14-Jun-16	9.2	589	7.93	15.2	53.6
Village 4	21-Jun-16	9.12	530	7.97	12.1	23.8
Village 4	30-Jun-16	9.14	1099	8.83	19.1	1
Village 4	9-Jul-16	8.61	196	7.89	14.4	74.3
Village 4	13-Jul-16	8.5	235	8.1	78.2	214
Village 4	18-Jul-16	8.41	275	7.64	15.2	78
Village 4	26-Jul-16	8.75	746	6.74	6.51	18.3
Village 4	1-Aug-16	9.06	412	7.54	6.13	12.8
Village 4	8-Aug-16	7.65	294	5.72	36	1011.2
Village 4	20-Aug-16	8.56	412	6.27	12.1	2
Village 4	29-Aug-16	8.43	922	6.49	13.6	7.4
Village 4	7-Sep-16	8.9	353	5.71	4.76	95.9
Village 4	17-Sep-16	8.11	687	7.14	49.1	5.2
Village 4	19-Sep-16	8.76	706	5.93	96.8	28.5
Village 4	1-Oct-16	8.12	NA	6.26	11.6	21.1
Village 4	4-Oct-16	8.01	NA	5.5	13.8	13.9
Village 4	13-Oct-16	8.61	NA	7.16	12.7	2
Village 4	20-Oct-16	8.26	687	6.4	8.61	0.5
Village 4	24-Oct-16	8.07	2394	4.72	6.68NTU	8.6
Village 4	3-Nov-16	8.62	608	7.80	3.77	4.1
Village 4	10-Nov-16	7.32	844	5.31	14.2	0.5
Village 4	17-Nov-16	8.49	903	6.05	64	6.2
Village 4	24-Nov-16	8.49	981	4.88	11.2	3.1
Village 4	1-Dec-16	8.38	1079	4.86	7.66	2
Village 4	8-Dec-16	8.43	1216	5.54	3.33	4.1
Village 4	17-Dec-16	8.22	1432	7.04	8.11	10.9
Village 4	22-Dec-16	8.52	1432	6.87	9.4	401
Village 4	28-Dec-16	8.49	1550	7.33	10.7	24.9
Village 4	6-Jan-17	8.37	1609	7.45	2.9	7.3
Village 4	11-Jan-17	8.5	1491	7.17	9.44	23.8
Village 4	20-Jan-17	8.51	1589	7.51	5.31	4.1
Village 4	27-Jan-17	8.47	1472	6.79	0.89	0.5
Village 4	31-Jan-17	8.5	1550	7.35	0.9	0.5
Village 4	9-Feb-17	8.2	1589	5.50	6.87	8.5
Village 4	16-Feb-17	8.66	1766	6.77	8.46	14.5
Village 4	23-Feb-17	8.11	1609	4.08	1.43	31.5
Village 4	2-Mar-17	8.3	1687	5.96	19.3	7.5
Village 4	9-Mar-17	8.5	1707	5.11	9.78	2
Village 4	16-Mar-17	8.34	1766	6.86	12.4	58.1
Village 4	17-Mar-17	8.15	1746	5.95	5.58	62.7
Village 4	24-Mar-17	8.22	1687	7.28	17.4	63.7
Village 4	30-Mar-17	8.1	1805	6.87	16.2	

Location	Date	pH	EC ($\mu\text{S}/\text{cm}$)	T ($^{\circ}\text{C}$)	Turbidity (NTU)	E.coli MPN/100 ml
Shallow Groundwater						
Village 1 HP	12/21/2017	8.1	8692	25°C	3.1	2.0
Village 1 BW	12/21/2017	8.6	3198	25°C	1.0	0.0
Village 1 BW	2/15/2018	7.7	5297	25°C	2.0	0.0
Village 2 HP	12/21/2017	8.2	6416	25°C	11.9	2.0
Village 2 HP	2/15/2018	7.0	6475	25°C	11.1	0.0
Village 2 BW	12/21/2017	8.5	3865	25°C	3.6	17.3
Village 2 BW	2/15/2018	7.5	2963	25°C	9.3	5.2
Village 4 HP	12/21/2017	8.0	4925	25°C	0.9	0.0
Village 4 HP	2/15/2018	7.3	4336	25°C	2.2	0.0
Village 4 HP	2/10/2017	7.6	3178	27°C	2.5	0.0
Village 4 HP	12/21/2017	8.0	4513	25°C	2.8	0.0
Village 4 HP	2/15/2018	7.3	5023	25°C	2.6	1.0