Statistical terms and quantities used in this manuscript

Table S1: Definitions and links for statistical parameters used in the manuscript.

Term	Description	Links
Confidence interval (CI)	an estimated range of values which is likely to include an unknown population parameter, the estimated range being calculated from a given set of sample data.	Full definition: http://www.stats.gla.ac.uk/steps/glossary/confidence_intervals.html#confinterval An explanation: http://www.stat.yale.edu/Courses/1997-98/101/confint.htm
Margin of Error (MOE)	the range of values below and above the sample statistic in a confidence interval. For example in figure 4, the sample estimate for the percentage of household indicated odor in the groundwater for Aa.Mathiveri is *p* = 73. The estimated margin of error is 10, at CI = 95%, which means the probability of the population statistic being within 73 ± 10 % (63% and 83%) is 95%. Margin of error depend on two variables, namely the sample size (n) and the estimated or assumed proportion (*p*) for 'large' populations. For finite populations (which is our case), this also depends on the know population size N. For any given CI, the maximum margin of error for a given sample size is obtained when the assumed proportion, *p* = 50%. This value then depends only on n and N. This is what is shown within parenthesis in Figure 1. For example for Aa.Mathiveri the sample size n = 45 and N = 110. This results in MOE = 11% at *p* = 50% for CI = 95%.	An explanation: http://www.prm.nau.edu/prm447/asa%20brochures/margin.pdf
Correlation tests and *p*-value (in correlation)	In this manuscript we use Correlation test to evaluate the association between variables (for example Color and Odor in figure 5. The *p*-value indicates the significance of the determined correlation. Specifically, *p*-value is a number between 0 and 1 representing the probability that this data would have arisen if the null hypothesis were true. For correlations null hypothesis is that there is no correlation between the variables. In figure 5 Odor and Color show a Person's r value of 0.9 with *p*-value <.001. This indicates that the probability of such data arising from non-correlated variables is one in 1000 (0.1%).	http://www.eecs.qmul.ac.uk/~norman/blog_articles/p_values.pdf
Student's t test	We use student's t test to test the hypothesis that the means of two samples are different. We compare the islands with at least 5% of people using groundwater for cooking against the rest of the islands. The results indicate that the *p*-value – the probability that the data at least as extreme as the differences observed with two populations that is not different from each other – is 0.01. This indicates a statistically significant difference (Probability of this result coming from non-different populations is one in hundred.)	https://www.bmj.com/about-bmj/resources-readers/publications/statistics-square-one/7-t-tests
LOESS	locally estimated scatterplot smoothing	https://www.itl.nist.gov/div898/handbook/pmd/section1/pmd144.htm

Results

Table S2: Descriptive Statistics of Perceived Groundwater Quality

	Presence of Odor in groundwater (%)	Experience of salinization in groundwater (%)	Presence of color change in groundwater (%)	Presence of debris in groundwater (%)
Valid	45	45	45	45
Missing	0	0	0	0
Mean	34.842	16.309	19.271	8.184

	Presence of Odor in groundwater (%)	Experience of salinization in groundwater (%)	Presence of color change in groundwater (%)	Presence of debris in groundwater (%)
Median	28.600	11.300	13.000	4.300
Std. Deviation	24.215	18.690	20.189	12.133
Minimum	0.000	0.000	0.000	0.000
Maximum	91.700	81.300	79.700	59.400

Table S3: Correlations on parameters for perceived groundwater quality

Correlation Table (Quality % internal correlations)					
Variable		**Presence of Odor in groundwater (%)**	**Experience of salinization in groundwater (%)**	**Presence of color change in groundwater (%)**	**Presence of debris in groundwater (%)**
2. Experience of salinisation in groundwater (%)	Pearson's r	0.270	—		
	p-value	0.073	—		
	Spearman's rho	0.411	—		
	p-value	0.005	—		
3. Presence of colour change in groundwater (%)	Pearson's r	0.890	0.193	—	
	p-value	< .001	0.205	—	
	Spearman's rho	0.897	0.450	—	
	p-value	< .001	0.002	—	
4. Presence of debris in groundwater (%)	Pearson's r	0.602	0.098	0.711	—
	p-value	< .001	0.522	< .001	—
	Spearman's rho	0.598	0.245	0.655	—
	p-value	< .001	0.105	< .001	—

Table s4: Correlations between portable use of groundwater and perceived groundwater quality

Correlation Table (Potable use and quality) – No significant correlations			
Variable		**Households using groundwater for drinking (%)**	**Households using groundwater for cooking (%)**
3. Presence of Odour in groundwater (%)	Pearson's r	−0.183	−0.185
	p-value	0.229	0.223
	Spearman's rho	−0.268	−0.110
	p-value	0.075	0.472
4. Experience of salinisation in groundwater (%)	Pearson's r	−0.041	0.096
	p-value	0.790	0.532
	Spearman's rho	0.100	0.286
	p-value	0.513	0.056
5. Presence of colour change in groundwater (%)	Pearson's r	−0.138	−0.077
	p-value	0.367	0.615

Correlation Table (Potable use and quality) – No significant correlations			
Variable		**Households using groundwater for drinking (%)**	**Households using groundwater for cooking (%)**
6. Presence of debris in groundwater (%)	Spearman's rho	−0.114	−0.035
	p-value	0.456	0.822
	Pearson's r	−0.104	−0.076
	p-value	0.496	0.620
	Spearman's rho	−0.089	0.099
	p-value	0.560	0.518

Table S5:: Correlations between potable use of groundwater and groundwater treatment

Correlation Table (Potable use % vs GW treatment)			
Variable		**Households using groundwater for drinking (%)**	**Households using groundwater for cooking (%)**
3. Boiling (%)	Pearson's r	0.214	0.114
	p-value	0.158	0.454
	Spearman's rho	0.234	0.265
	p-value	0.121	0.079
4. Chlorine Disinfection (%)	Pearson's r	0.432	−0.081
	p-value	0.003	0.596
	Spearman's rho	0.026	0.126
	p-value	0.867	0.408
5. Filtration (%)	Pearson's r	−0.055	−0.072
	p-value	0.721	0.636
	Spearman's rho	−0.192	0.159
	p-value	0.206	0.298

Table S6: Correlations between dry period water supply and groundwater quality in % of households

Correlation Table (Dry period water VS Quality %)				
Variable		**No.of years affected by dry period(past 5 years)**	**Total number of supplied water (in Tonnes)**	**V2017 (tons)**
4. Presence of Odour in groundwater (Frequency)	Pearson's r	−0.004	0.065	0.753
	p-value	0.979	0.671	< .001
	Spearman's rho	0.089	0.004	0.702
	p-value	0.560	0.978	0.002
5. Experience of salinisation in groundwater (Frequency)	Pearson's r	0.256	0.333	0.338
	p-value	0.090	0.026	0.201
	Spearman's rho	0.202	0.247	0.234
	p-value	0.184	0.101	0.383
6. Presence of colour change in groundwater (Frequency)	Pearson's r	−0.016	−0.011	0.672
	p-value	0.918	0.942	0.004
	Spearman's rho	0.212	−0.003	0.584
	p-value	0.163	0.982	0.017
7. Presence of debris in groundwater (Frequency)	Pearson's r	−0.003	−0.023	0.583
	p-value	0.984	0.879	0.018

Correlation Table (Dry period water VS Quality %)				
Variable		**No.of years affected by dry period(past 5 years)**	**Total number of supplied water (in Tonnes)**	**V2017 (tons)**
	Spearman's rho	0.309	0.181	0.581
	p-value	0.039	0.233	0.018

Table S7: Correlations between dry period water supply and groundwater quality in freq. of households

Correlation Table (Dry period VS Quality Freq.)				
Variable		**No.of years affected by dry period(past 5 years)**	**Total number of supplied water (in Tonnes)**	**V2017 (tons)**
4. Presence of Odour in groundwater (%)	Pearson's r	0.068	0.106	0.604
	p-value	0.658	0.490	0.013
	Spearman's rho	0.156	0.026	0.527
	p-value	0.307	0.865	0.036
5. Experience of salinisation in groundwater (%)	Pearson's r	0.244	0.299	0.229
	p-value	0.106	0.046	0.393
	Spearman's rho	0.223	0.232	0.180
	p-value	0.142	0.126	0.504
6. Presence of colour change in groundwater (%)	Pearson's r	0.032	0.024	0.565
	p-value	0.833	0.877	0.022
	Spearman's rho	0.227	−0.009	0.440
	p-value	0.134	0.954	0.088
7. Presence of debris in groundwater (%)	Pearson's r	0.114	0.085	0.600
	p-value	0.457	0.577	0.014
	Spearman's rho	0.348	0.216	0.554
	p-value	0.019	0.154	0.026

Table S8: Correlations between dry period water supply and groundwater potable uses (households in %)

Correlation Table (Dry period VS GW potable usage %)				
Variable		**No.of years affected by dry period(past 5 years)**	**Total number of supplied water (in Tonnes)**	**V2017 (tons)**
4. Households using groundwater for drinking (Freq.)	Pearson's r	−0.143	−0.152	−0.132
	p-value	0.347	0.318	0.627
	Spearman's rho	−0.077	−0.156	−0.084
	p-value	0.613	0.305	0.756
5. Households using groundwater for drinking (%)	Pearson's r	−0.119	−0.118	−0.132
	p-value	0.438	0.439	0.627
	Spearman's rho	−0.068	−0.150	−0.084
	p-value	0.659	0.324	0.756

Table S9: Correlations between dry period water supply and groundwater potable uses (households in freq.)

Correlation Table (Dry period VS GW potable usage Frequency)				
Variable		**No.of years affected by dry period(past 5 years)**	**Total number of supplied water (in Tonnes)**	**V2017 (tons)**
4. Households using groundwater for drinking (Freq.)	Pearson's r	−0.143	−0.152	−0.132
	p-value	0.347	0.318	0.627
	Spearman's rho	−0.077	−0.156	−0.084
	p-value	0.613	0.305	0.756
5. Households using groundwater for cooking (Freq.)	Pearson's r	0.314	0.234	0.056
	p-value	0.035	0.122	0.836
	Spearman's rho	0.387	0.181	−0.031
	p-value	0.009	0.233	0.909

Table S10: Correlations between geographic parameters and perceived groundwater quality

Correlation Table (Geographic parameters vs GW Quality)						
Variable		**Lat**	**Long**	**Area_Ha**	**Pop. Difference**	**Pop. Density derived**
6. Presence of Odor in groundwater (%)	Pearson's r	−0.159	0.005	−0.226	−0.206	0.255
	p-value	0.298	0.975	0.135	0.175	0.090
	Spearman's rho	−0.199	−0.008	−0.368	−0.112	0.207
	p-value	0.190	0.960	0.013	0.465	0.172
7. Experience of salinization in groundwater (%)	Pearson's r	−0.359	−0.088	−0.370	0.171	0.597
	p-value	0.015	0.565	0.012	0.261	< .001
	Spearman's rho	−0.409	0.106	−0.523	0.219	0.587
	p-value	0.005	0.488	< .001	0.149	< .001
8. Presence of color change in groundwater (%)	Pearson's r	−0.125	0.168	−0.157	−0.315	0.091
	p-value	0.412	0.270	0.302	0.035	0.551
	Spearman's rho	−0.164	0.178	−0.342	−0.207	0.164
	p-value	0.283	0.242	0.022	0.172	0.283
9. Presence of debris in groundwater (%)	Pearson's r	0.090	−0.112	−0.062	−0.377	0.050
	p-value	0.559	0.463	0.685	0.011	0.744
	Spearman's rho	0.013	−0.172	−0.242	−0.286	0.123
	p-value	0.930	0.259	0.109	0.057	0.422

Table 11: Correlations between population density and groundwater usage for cooking

Correlation Table (Pop. Density vs GW for cooking)			
Variable		**Households using groundwater for cooking (%)**	**Pop. Density derived**
1. Households using groundwater for cooking (%)	Pearson's r	—	
	p-value	—	
	Spearman's rho	—	
	p-value	—	
2. Pop. Density derived	Pearson's r	0.126	—
	p-value	0.410	—
	Spearman's rho	0.380	—
	p-value	0.010	—

Table 12: Correlations between groundwater quality and hydrometerological processes

Correlation Table (GW Quality VS hydrometeorological process)					
Variable		**Average annual rainfall**	**Relative Humidity 2017**	**Mean temperature**	**Mean Wind Speed 2017**
5. Presence of Odour in groundwater (%)	Pearson's r	0.092	0.092	−0.420	0.427
	p-value	0.550	0.550	0.004	0.003
	Spearman's rho	0.176	0.176	−0.369	0.369
	p-value	0.247	0.247	0.013	0.013
6. Experience of salinization in groundwater (%)	Pearson's r	0.374	0.374	−0.253	0.296
	p-value	0.011	0.011	0.093	0.049
	Spearman's rho	0.419	0.419	−0.181	0.181
	p-value	0.004	0.004	0.234	0.234
7. Presence of colour change in groundwater (%)	Pearson's r	0.050	0.050	−0.224	0.228
	p-value	0.745	0.745	0.139	0.132
	Spearman's rho	0.152	0.152	−0.232	0.232
	p-value	0.319	0.319	0.125	0.125
8. Presence of debris in groundwater (%)	Pearson's r	−0.141	−0.141	−0.128	0.110
	p-value	0.356	0.356	0.402	0.471
	Spearman's rho	−0.055	−0.055	−0.200	0.200
	p-value	0.722	0.722	0.188	0.188

Table 13: Correlations between published tourism related data and perceived groundwater quality

Correlation Table (Tourism Vs GW Quality) – No significant correlations found			
Variable		**Tourism No. of beds**	**Guest House No.**
3. Presence of Odour in groundwater (%)	Pearson's r	0.168	0.134
	p-value	0.643	0.711
	Spearman's rho	0.252	0.149
	p-value	0.482	0.681
4. Experience of salinisation in groundwater (%)	Pearson's r	−0.408	−0.416
	p-value	0.242	0.231
	Spearman's rho	−0.148	−0.259
	p-value	0.684	0.469
5. Presence of colour change in groundwater (%)	Pearson's r	−0.045	−0.086
	p-value	0.901	0.812
	Spearman's rho	0.148	−0.039
	p-value	0.684	0.915
6. Presence of debris in groundwater (%)	Pearson's r	0.304	0.264
	p-value	0.393	0.462
	Spearman's rho	0.423	0.185
	p-value	0.223	0.608

Table 14: Correlations between communicable diseases and perceived groundwater quality

Correlation Table (Communicable diseases vs GW Quality)				
Variable		**Acute respiratory infected 2017**	**Viral Fever 2017**	**Diarrhea 2017**
4. Presence of Odor in groundwater (%)	Pearson's r	0.104	−0.022	−0.002
	p-value	0.498	0.884	0.987
	Spearman's rho	0.019	0.007	−0.003
	p-value	0.900	0.963	0.987
5. Experience of salinization in groundwater (%)	Pearson's r	0.266	0.090	0.615
	p-value	0.077	0.554	< .001
	Spearman's rho	0.319	0.203	0.386
	p-value	0.033	0.182	0.009
6. Presence of color change in groundwater (%)	Pearson's r	−0.031	−0.108	−0.150
	p-value	0.842	0.481	0.325
	Spearman's rho	−0.089	−0.085	−0.132
	p-value	0.562	0.578	0.386
7. Presence of debris in groundwater (%)	Pearson's r	0.120	0.096	0.028
	p-value	0.434	0.529	0.857
	Spearman's rho	0.171	0.105	0.106
	p-value	0.261	0.493	0.488

Table 15: Correlations between potable groundwater use and non-communicable diseases

Correlation Table (Portable water GW use vs non communicable diseases)			
Variable		**Households using groundwater for drinking (%)**	**Households using groundwater for cooking (%)**
3. Acute respiratory infected 2017	Pearson's r	−0.104	0.063
	p-value	0.495	0.681
	Spearman's rho	0.023	0.132
	p-value	0.882	0.386
4. Viral Fever 2017	Pearson's r	−0.185	0.071
	p-value	0.224	0.642
	Spearman's rho	−0.315	0.409
	p-value	0.035	0.005
5. Diarrhea 2017	Pearson's r	−0.023	−0.071
	p-value	0.879	0.643
	Spearman's rho	−0.035	0.066
	p-value	0.821	0.668

Table 16: Correlations between non-communicable disease and practices of groundwater treatment

Correlation Table (GW treatment vs non communicable diseases)- No Significant correlations found				
Variable		**Boiling (%)**	**Chlorine Disinfection (%)**	**Filtration (%)**
4. Acute respiratory infected 2017	Pearson's r	−0.045	−0.084	−0.092
	p-value	0.768	0.582	0.550
	Spearman's rho	0.124	0.083	0.044
	p-value	0.418	0.587	0.773
5. Viral Fever 2017	Pearson's r	0.323	0.083	0.065
	p-value	0.030	0.587	0.672
	Spearman's rho	0.202	0.211	0.294
	p-value	0.184	0.164	0.050
6. Diarrhea 2017	Pearson's r	0.064	0.074	−0.106
	p-value	0.674	0.627	0.490
	Spearman's rho	−0.022	0.090	0.011
	p-value	0.886	0.557	0.941

Table S17: Correlations between income and groundwater treatment

Correlation Table (Income vs GW treatment)

Variable		**Average Monthly income per earner**	**Average Monthly Income per household**	**Median Monthly Income per household**	**Average Per capita Income**	**Median per capita Income**
6. Boiling (%)	Pearson's r	−0.002	−0.014	−0.005	−0.089	0.021
	p-value	0.992	0.926	0.976	0.562	0.889
	Spearman's rho	0.090	0.128	0.130	0.071	0.174
	p-value	0.557	0.401	0.395	0.644	0.252
7. Chlorine Disinfection (%)	Pearson's r	0.124	0.062	0.080	−0.117	−0.019
	p-value	0.417	0.684	0.603	0.446	0.902
	Spearman's rho	0.158	0.187	0.037	−0.124	0.002
	p-value	0.300	0.220	0.812	0.418	0.988
8. Filtration (%)	Pearson's r	−0.023	0.019	−0.020	0.232	0.119
	p-value	0.880	0.902	0.898	0.125	0.438
	Spearman's rho	−0.142	0.039	−0.087	−0.016	−0.015
	p-value	0.352	0.797	0.570	0.917	0.923

Table S18: Correlations between income and potable use of groundwater

Correlation Table (Income vs GW potable use)

Variable		Average Monthly income per earner	Average Monthly Income per household	Median Monthly Income per household	Average Per capita Income	Median per capita Income
6. Households using groundwater for drinking (Freq.)	Pearson's r	−0.028	−0.161	−0.085	−0.207	−0.158
	p-value	0.853	0.291	0.580	0.173	0.300
	Spearman's rho	0.040	−0.103	0.008	−0.142	−0.041
	p-value	0.793	0.502	0.960	0.351	0.791
7. Households using groundwater for drinking (%)	Pearson's r	−0.006	−0.187	−0.131	−0.198	−0.185
	p-value	0.971	0.218	0.390	0.191	0.224
	Spearman's rho	0.050	−0.092	0.014	−0.133	−0.033
	p-value	0.746	0.548	0.930	0.383	0.831
8. Households using groundwater for cooking (Freq.)	Pearson's r	0.216	0.287	0.295	−0.066	0.118
	p-value	0.154	0.056	0.049	0.667	0.440
	Spearman's rho	0.225	0.299	0.226	−0.066	0.079
	p-value	0.137	0.046	0.136	0.668	0.605
9. Households using groundwater for cooking (%)	Pearson's r	−0.037	0.036	0.098	−0.141	0.008
	p-value	0.812	0.816	0.523	0.354	0.959
	Spearman's rho	0.176	0.274	0.246	−0.067	0.121
	p-value	0.247	0.068	0.103	0.664	0.428

Table S19: Correlations between income and perceived groundwater quality

Correlation Table (Income vs GW Quality)

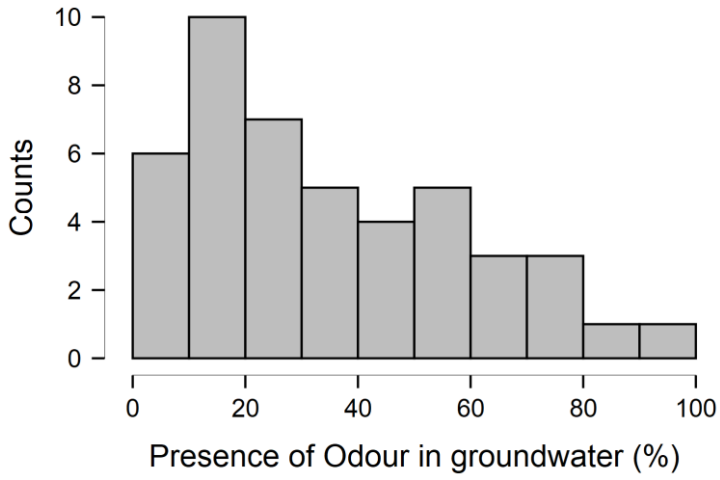
Variable		Average Monthly income per earner	Average Monthly Income per household	Median Monthly Income per household	Average Per capita Income	Median per capita Income
6. Presence of Odour in groundwater (%)	Pearson's r	−0.141	0.108	0.178	−0.086	0.183
	p-value	0.357	0.481	0.242	0.573	0.228
	Spearman's rho	−0.078	0.113	0.307	−0.061	0.222
	p-value	0.611	0.459	0.040	0.691	0.143
7. Experience of salinisation in groundwater (%)	Pearson's r	0.133	0.234	0.294	−0.046	0.200
	p-value	0.382	0.122	0.050	0.766	0.187
	Spearman's rho	−0.034	−0.039	0.120	−0.173	0.101
	p-value	0.826	0.800	0.434	0.255	0.511
8. Presence of colour change in groundwater (%)	Pearson's r	−0.148	−0.057	−0.012	−0.045	0.022
	p-value	0.333	0.712	0.938	0.771	0.884
	Spearman's rho	−0.173	−0.024	0.184	0.005	0.211
	p-value	0.256	0.876	0.226	0.974	0.165
9. Presence of debris in groundwater (%)	Pearson's r	0.024	0.065	0.067	−0.121	−0.091
	p-value	0.876	0.672	0.664	0.430	0.550
	Spearman's rho	−6.393e −4	0.056	0.102	−0.091	0.122
	p-value	0.997	0.713	0.504	0.551	0.423

Table S20: Correlations between fishing and perceived groundwater quality

Variable		NUMBER OF FISHING TRIPS BY LOCALITY, 2017
2. Presence of Odour in groundwater (%)	Pearson's r	−0.234
	p-value	0.121
	Spearman's rho	−0.180
	p-value	0.237
3. Experience of salinisation in groundwater (%)	Pearson's r	0.014
	p-value	0.927
	Spearman's rho	0.039
	p-value	0.797
4. Presence of colour change in groundwater (%)	Pearson's r	−0.179
	p-value	0.238
	Spearman's rho	−0.190
	p-value	0.212
5. Presence of debris in groundwater (%)	Pearson's r	−0.025
	p-value	0.868
	Spearman's rho	−0.017
	p-value	0.909

Table S21: Correlations between potable use of groundwater and fishing

Variable		NUMBER OF FISHING TRIPS BY LOCALITY, 2017
2. Households using groundwater for drinking (%)	Pearson's r	0.380
	p-value	0.010
	Spearman's rho	0.334
	p-value	0.025
3. Households using groundwater for cooking (%)	Pearson's r	0.106
	p-value	0.488
	Spearman's rho	0.049
	p-value	0.749



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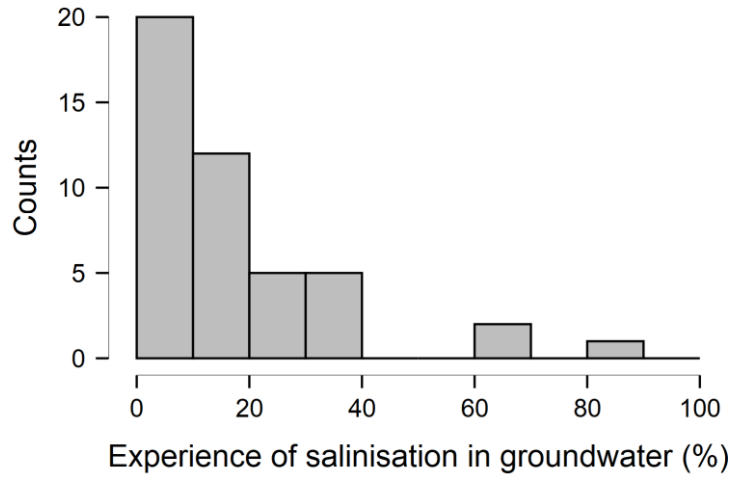

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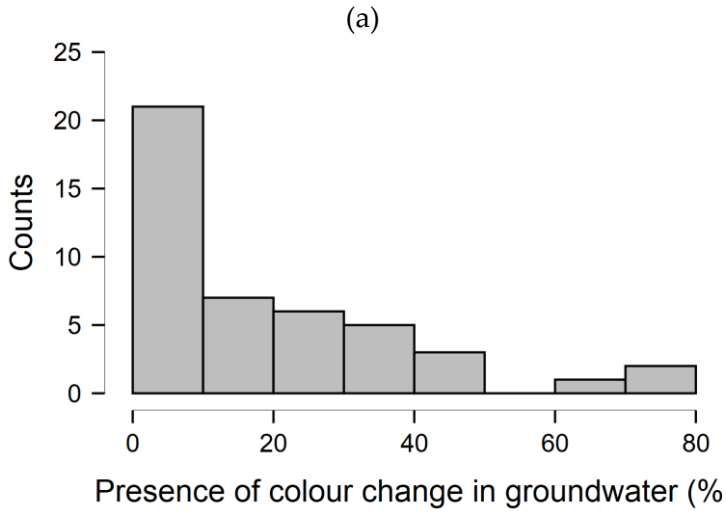
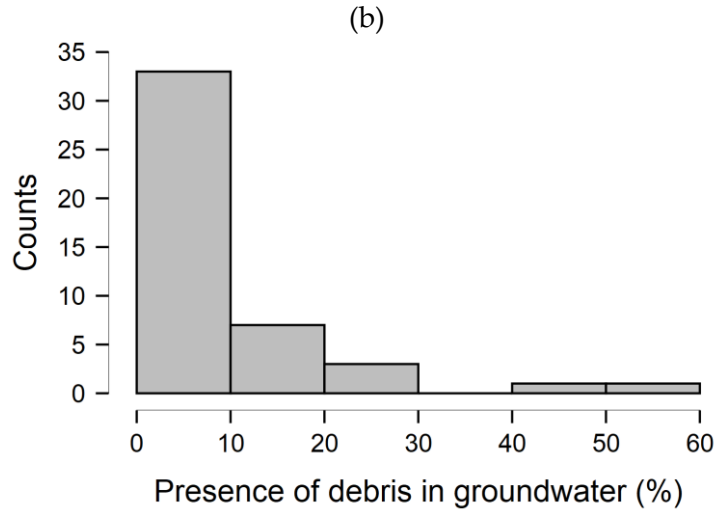


(c)



(d)

Figure S1: Distribution of water quality parameters. (**a**) Odor (**b**) Salinity (**c**) Color and (**d**) Debris.

Distributions

Table S22: Independent Samples T-Test for Water quality indicators in islands with >5% using groundwater for cooking (sig.cooking = True) vs others (sig.cooking = False). Sig.Cooking – more than 5% respondents above margin of error are using GW for cooking)

Independent Samples T-Test

					95% CI for Cohen's d	
	t	df	*p*	Cohen's d	Lower	Upper
Odor	−2.301	43	0.013	−1.375	-∞	−0.355
Color	−1.514	43	0.069 [a]	−0.905	-∞	0.096
Salinity	−0.976	43	0.167	−0.584	-∞	0.408
Debris	−0.538	43	0.297	−0.321	-∞	0.665

Note. For all tests, the alternative hypothesis specifies that group *TRUE* is less than group *FALSE* .

Note. Student's t-test.

[a] Levene's test is significant ($p < .05$), suggesting a violation of the equal variance assumption

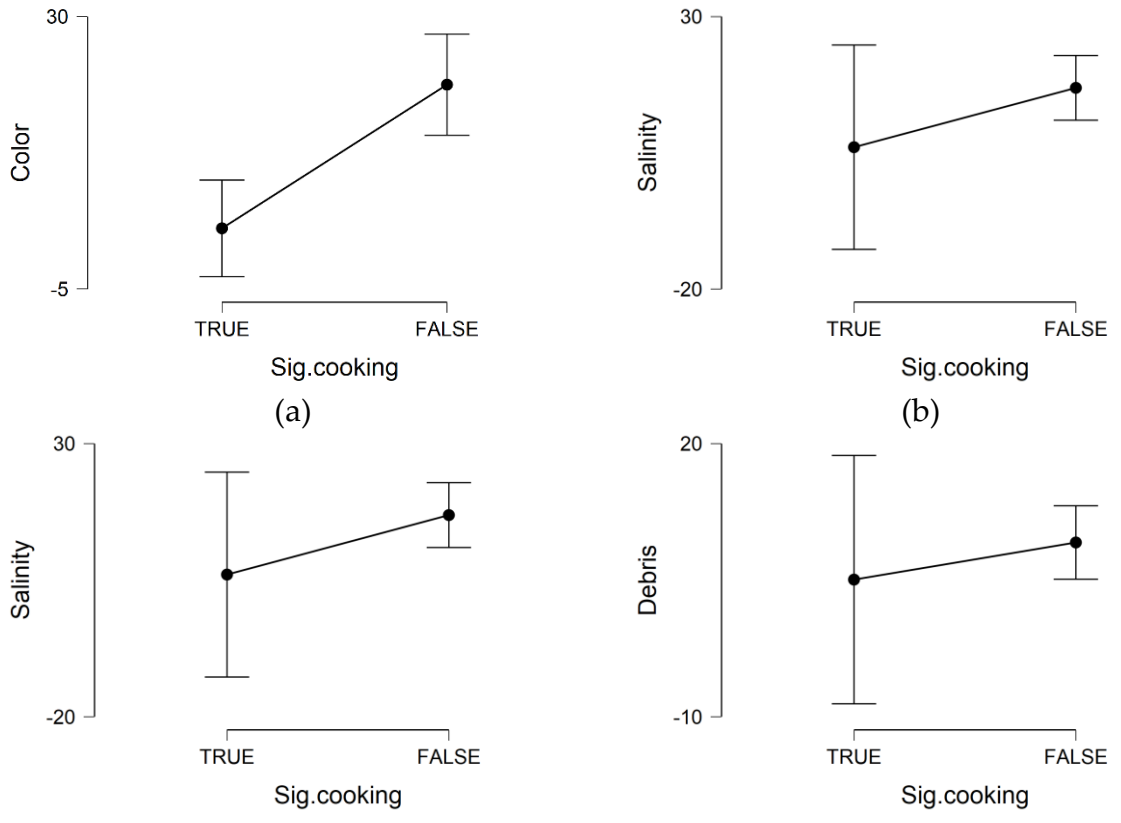


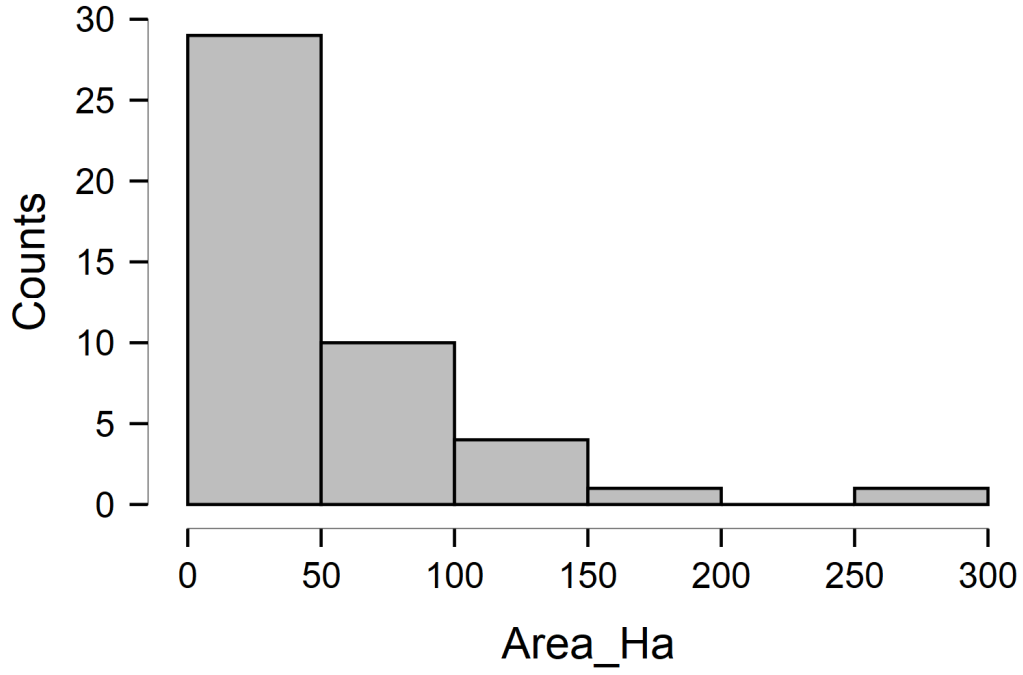
Figure S2: Water quality indicators in islands with >5% using groundwater for cooking (sig.cooking = True) vs others (sig.cooking = False). Sig.Cooking – more than 5% respondents above margin of error are using GW for cooking) (a) Color (b) Odor, (c) Salinity and (d) Debris)

Table S23 Descriptive statistics of Area (Ha), Population (from 2014 census) and Population Density (/Ha).

	Area (Ha)	Popn_2014	Pop. Density (/Ha)
Valid	45	45	45
Missing	0	0	0
Mean	56.551	591.667	18.731
Median	43.000	576.000	11.395
Std. Deviation	47.262	319.249	19.489
Minimum	5.600	113.000	1.884
Maximum	260.900	2099.000	88.704
25th percentile	26.100	426.000	7.639
50th percentile	43.000	576.000	11.395
75th percentile	79.700	719.000	22.762

Distribution Plots

Area (Ha)



Popn_2014

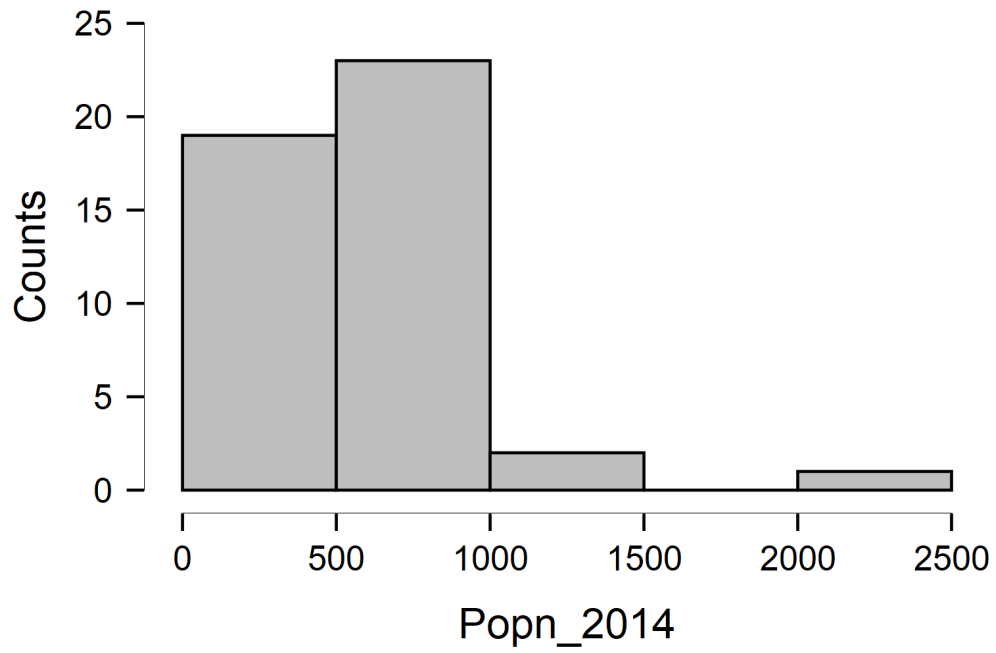


Figure S3 Distribution of (**top**) Area (Ha), (**bottom**) population from 2014 census.