

## Supplementary materials

**Table S1.** Survey questionnaires: Expert's opinions on the relative importance of hydrological/hydrogeological variables affecting groundwater occurrence.

**University/Organization:**

**Year:**

Note: I request your assistance in following survey on groundwater potential in semi-arid mountainous watershed region (South-west of Saudi Arabia). There are 66 pairwise comparison(s) between categories. Please do the pairwise comparison of all categories. With reference to groundwater potential zone, which is more important? Compare the relative IMPORTANCE (On the scale of 1 to 9) of each pair of consideration below. Circle one number per row closest to the choice. The survey results will be used only for statistical and academic/research purposes. Thank you very much for your cooperation.

Sl.No	A - wrt AHP priorities - or B?		Equa 1	How much more?								
1	Geology	Slope	(1)	1	2	3	4	5	6	7	8	9
2	Geology	Rainfall	(1)	1	2	3	4	5	6	7	8	9
3	Geology	Elevation	(1)	1	2	3	4	5	6	7	8	9
4	Geology	Lineament density	(1)	1	2	3	4	5	6	7	8	9
5	Geology	Drainage density	(1)	1	2	3	4	5	6	7	8	9
6	Geology	Land use/land cover	(1)	1	2	3	4	5	6	7	8	9
7	Geology	Proximity to surface water	(1)	1	2	3	4	5	6	7	8	9
8	Geology	Vegetation Cover	(1)	1	2	3	4	5	6	7	8	9
9	Geology	Topographic Wetness Index	(1)	1	2	3	4	5	6	7	8	9
10	Geology	Hydraulic Conductivity (K)	(1)	1	2	3	4	5	6	7	8	9
11	Geology	Soil Texture	(1)	1	2	3	4	5	6	7	8	9
12	Slope	Rainfall	(1)	1	2	3	4	5	6	7	8	9
13	Slope	Elevation	(1)	1	2	3	4	5	6	7	8	9
14	Slope	Lineament density	(1)	1	2	3	4	5	6	7	8	9
15	Slope	Drainage density	(1)	1	2	3	4	5	6	7	8	9
16	Slope	Land use/land cover	(1)	1	2	3	4	5	6	7	8	9
17	Slope	Proximity to surface water	(1)	1	2	3	4	5	6	7	8	9
18	Slope	Vegetation Cover	(1)	1	2	3	4	5	6	7	8	9
19	Slope	Topographic Wetness Index	(1)	1	2	3	4	5	6	7	8	9
20	Slope	Hydraulic Conductivity (K)	(1)	1	2	3	4	5	6	7	8	9
21	Slope	Soil Texture	(1)	1	2	3	4	5	6	7	8	9
22	Rainfall	Elevation	(1)	1	2	3	4	5	6	7	8	9
23	Rainfall	Lineament density	(1)	1	2	3	4	5	6	7	8	9
24	Rainfall	Drainage density	(1)	1	2	3	4	5	6	7	8	9
25	Rainfall	Land use/land cover	(1)	1	2	3	4	5	6	7	8	9
26	Rainfall	Proximity to surface water	(1)	1	2	3	4	5	6	7	8	9
27	Rainfall	Vegetation Cover	(1)	1	2	3	4	5	6	7	8	9
28	Rainfall	Topographic Wetness Index	(1)	1	2	3	4	5	6	7	8	9
29	Rainfall	Hydraulic Conductivity (K)	(1)	1	2	3	4	5	6	7	8	9
30	Rainfall	Soil Texture	(1)	1	2	3	4	5	6	7	8	9
31	Elevation	Lineament density	(1)	1	2	3	4	5	6	7	8	9
32	Elevation	Drainage density	(1)	1	2	3	4	5	6	7	8	9
33	Elevation	Land use/land cover	(1)	1	2	3	4	5	6	7	8	9
34	Elevation	Proximity to surface water	(1)	1	2	3	4	5	6	7	8	9
35	Elevation	Vegetation Cover	(1)	1	2	3	4	5	6	7	8	9
36	Elevation	Topographic Wetness Index	(1)	1	2	3	4	5	6	7	8	9
37	Elevation	Hydraulic Conductivity (K)	(1)	1	2	3	4	5	6	7	8	9
38	Elevation	Soil Texture	(1)	1	2	3	4	5	6	7	8	9
39	Lineament density	Drainage density	(1)	1	2	3	4	5	6	7	8	9
40	Lineament density	Land use/land cover	(1)	1	2	3	4	5	6	7	8	9

Sl.No	A - wrt AHP priorities - or B?		Equa 1	How much more?								
41	Lineament density	Proximity to surface water	(1)	1	2	3	4	5	6	7	8	9
42	Lineament density	Vegetation Cover	(1)	1	2	3	4	5	6	7	8	9
43	Lineament density	Topographic Wetness Index	(1)	1	2	3	4	5	6	7	8	9
44	Lineament density	Hydraulic Conductivity (K)	(1)	1	2	3	4	5	6	7	8	9
45	Lineament density	Soil Texture	(1)	1	2	3	4	5	6	7	8	9
46	Drainage density	Land use/land cover	(1)	1	2	3	4	5	6	7	8	9
47	Drainage density	Proximity to surface water	(1)	1	2	3	4	5	6	7	8	9
48	Drainage density	Vegetation Cover	(1)	1	2	3	4	5	6	7	8	9
49	Drainage density	Topographic Wetness Index	(1)	1	2	3	4	5	6	7	8	9
50	Drainage density	Hydraulic Conductivity (K)	(1)	1	2	3	4	5	6	7	8	9
51	Drainage density	Soil Texture	(1)	1	2	3	4	5	6	7	8	9
52	Land use/land cover	Proximity to surface water	(1)	1	2	3	4	5	6	7	8	9
53	Land use/land cover	Vegetation Cover	(1)	1	2	3	4	5	6	7	8	9
54	Land use/land cover	Topographic Wetness Index	(1)	1	2	3	4	5	6	7	8	9
55	Land use/land cover	Hydraulic Conductivity (K)	(1)	1	2	3	4	5	6	7	8	9
56	Land use/land cover	Soil Texture	(1)	1	2	3	4	5	6	7	8	9
57	Proximity to surface water	Vegetation Cover	(1)	1	2	3	4	5	6	7	8	9
58	Proximity to surface water	Topographic Wetness Index	(1)	1	2	3	4	5	6	7	8	9
59	Proximity to surface water	Hydraulic Conductivity (K)	(1)	1	2	3	4	5	6	7	8	9
60	Proximity to surface water	Soil Texture c	(1)	1	2	3	4	5	6	7	8	9
61	Vegetation Cover	Topographic Wetness Index	(1)	1	2	3	4	5	6	7	8	9
62	Vegetation Cover	Hydraulic Conductivity (K)	(1)	1	2	3	4	5	6	7	8	9
63	Vegetation Cover	Soil Texture	(1)	1	2	3	4	5	6	7	8	9
64	Topographic Wetness Index	Hydraulic Conductivity (K)	(1)	1	2	3	4	5	6	7	8	9
65	Topographic Wetness Index	Soil Texture	(1)	1	2	3	4	5	6	7	8	9
66	Hydraulic Conductivity (K)	Soil Texture	(1)	1	2	3	4	5	6	7	8	9

<b>Open questions</b>	<b>What had not satisfied you most?</b>											
	1.											
	2.											
	<b>What are your suggestion to enhance this survey</b>											
1.												
2.												

**Signature**