PART – 2 | Feedback Questionairre

Please indicate the extent to which you perceive that how important are these parameters for groundwater suitability and groundwater potential zone mapping. Field values for each of the parameters is given and you have to provide input on scale value for the respective field values (between 1 to 5). Kindly also provide your percent influence opinion in multiple of 5 (or a closer value in round figure), in order to achieve the ease of doing calculations, if possible. Kindly keep in mind that commulative percent influence values should be equal to 100 percent in total for each of the respective tables. Scale values should be given depending upon the relative importance of field values on a scale of 1-5 where 1 corresponds to least important or worst value for that parameter and 5 represents the most beneficial or best value for the parameter value depending upon the field value.

Kindly provide your opinion on weighted overlay for **Irrigation Groundwater Suitability**

S. No.	Raster Layer	Percent Influence ***(Please choose a percentage value close to or multiple of 5 for each of the factor given below, as you percieve the share of it among other factors, for irrigation groundwater suitability)***	Field Value	Scale Value ***(where, 1 = Least important; 2 = some but important; 3 = slightly important; 4 = important; and 5 = highly important)***
1	SAR		0 - 5	
			5 - 10	
			10 - 20	
			20 - 27	
2	Na %		0 - 25	
			25 - 50	
			50 - 80	
			80 - 100	
3	TDS (Irrigation)		0 – 500	
			500 - 1500	
			1500 - 3000	
			3000 - 7500	
4	EC		0 - 1000	
			1000 - 2000	
			2000 - 3000	

S. No.	Raster Layer	Percent Influence ***(Please choose a percentage value close to or multiple of 5 for each of the factor given below, as you percieve the share of it among other factors, for irrigation groundwater suitability)***	Field Value	Scale Value ***(where, 1 = Least important; 2 = some but important; 3 = slightly important; 4 = important; and 5 = highly important)***
	EC		3000 - 21000	
5	Mg-Ca Ratio		0 – 0.75	
			0.75 – 1.5	
			1.5 - 3	
			3 - 25	

Kindly provide your opinion on weighted overlay for **Drinking Groundwater Suitability**

S. No.	Raster Layer	Percent Influence ***(Please choose a percentage value close to or multiple of 5 for each of the factor given below, as you percieve the share of it among other factors, for irrigation groundwater suitability)***	Field Value	Scale Value ***(where, 1 = Least important; 2 = some but important; 3 = slightly important; 4 = important; and 5 = highly important)***
1	Nitrate		0 - 20	
			20 - 30	
			30 - 45	
			45 - 1500	
2	TDS (Drinking)		0 - 500	
			500 - 1000	
			1000 - 2000	
			2000 - 7500	
3	Fluoride		0 – 0.5	
			0.5 - 1	
			1 – 1.5	
			1.5 - 5	
4	pH		0 – 6.5	
			6.5 – 7.5	
			7.5 - 8	
			8 – 8.5	

APPENDIX - A

S. No.	Raster Layer	Percent Influence ***(Please choose a percentage value close to or multiple of 5 for each of the factor given below, as you percieve the share of it among other factors, for irrigation groundwater suitability)***	Field Value	Scale Value ***(where, 1 = Least important; 2 = some but important; 3 = slightly important; 4 = important; and 5 = highly important)***
	pH		8.5 - 11	
5	EC		0 - 1000	
			1000 - 2000	
			2000 - 3000	
			3000 - 21000	
6	Total Hardness		0 - 200	
			200 - 400	
			400 - 600	
			600 - 4000	
7	Na		0 - 50	
			50 - 100	
			100 - 200	
			200 - 2500	
8	Chloride		0 - 250	
			250 - 500	
			500 - 1000	
			1000 - 7000	
9	Ca		0 - 75	
			75 - 150	
			150 - 200	
			200 - 1500	
10	Mg		0 - 50	
			50 - 100	
			100 - 150	
			150 - 700	

S. No.	Raster Layer	Percent Influence ***(Please choose a percentage value close to or multiple of 5 for each of the factor given below, as you percieve the share of it among other factors, for irrigation groundwater suitability)***	Field Value	Scale Value ***(where, 1 = Least important; 2 = some but important; 3 = slightly important; 4 = important; and 5 = highly important)***
11	Sulphate		0 - 100	
			100 - 200	
			200 - 400	
			400 - 1800	

Kindly provide your opinion on weighted overlay for **Groundwater Potential Mapping**

S. No.	Raster Layer	Percent Influence ***(Please choose a percentage value close to or multiple of 5 for each of the factor given below, as you percieve the share of it among other factors, for irrigation groundwater suitability)***	Field Value	Scale Value ***(where, 1 = Least important; 2 = some but important; 3 = slightly important; 4 = important; and 5 = highly important)***
1	DEM		Very Low	
			Low	
			Moderate	
			High	
			Very High	
2	Slope		Very Low	
			Low	
			Moderate	
			High	
			Very High	
3	Soil		Loamy Sand	
			Loam	
			Clay Loam	
4	Land Use Land Cover		Water Body	
			Built Up	
			Agriculture I	

APPENDIX - A

S. No.	Raster Layer	Percent Influence ***(Please choose a percentage value close to or multiple of 5 for each of the factor given below, as you percieve the share of it among other factors, for irrigation groundwater suitability)***	Field Value	Scale Value ***(where, 1 = Least important; 2 = some but important; 3 = slightly important; 4 = important; and 5 = highly important)***
	Land Use Land Cover		Agriculture II	
			Barren Land	
5	Rainfall		Very Low	
			Low	
			Moderate	
			High	
			Very High	
6	Drainage Density		Very Low	
			Low	
			Moderate	
			High	
			Very High	

Remarks

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(Kindly provide any other comment you would like to add)

(Respondent Signature)

APPENDIX - B

JOURNAL PUBLICATIONS

1. Singh, Ajit Pratap, and Prashant Bhakar. "Development of groundwater sustainability index: A case study of western arid region of Rajasthan, India." Environment, Development and Sustainability (2020): 1-25. DOI: 10.1007/s10668-020-00654-9
2. Bhakar, Prashant, and Ajit Pratap Singh. "Groundwater quality assessment in a hyper-arid region of Rajasthan, India." Natural Resources Research 28, no. 2 (2019): 505-522.
3. Bhakar, Prashant, and Ajit Pratap Singh. "Life cycle assessment of groundwater supply system in a hyper-arid region of India." Procedia CIRP 69 (2018): 603-608.
4. Srinivas, R., Prashant Bhakar, and Ajit Pratap Singh. "Groundwater quality assessment in some selected area of Rajasthan, India using fuzzy multi-criteria decision making tool." Aquatic Procedia 4 (2015): 1023-1030.

WORKING PAPER

1. Prashant Bhakar, Ajit Pratap Singh, Ravi Kant Mittal. Assessment of groundwater suitability using Remote sensing and GIS: A case study of Western Rajasthan, India, Arabian Journal of Geosciences (Under Review).

APPENDIX - C

About the author (Prashant Bhakar)

Prashant Bhakar is a Ph.D. candidate in the Department of Civil Engineering at Birla Institute of Technology and Science, Pilani, Rajasthan, India. He is also serving as an Assistant Professor in Department of Civil Engineering at Government Engineering college Bikaner. He has over 12 years teaching experience. His research interests are Groundwater Sustainability, Water Resource Management, Life Cycle Assessment, and Remote Sensing and GIS applications for Water Resource Management. He has published papers in journals and conferences of International repute.

About the Supervisor (Prof. Ajit Pratap Singh)

Ajit Pratap Singh presently working as a Professor of Civil Engineering Department and Dean, Academic-Undergraduate Studies at Birla Institute of Technology and Science, Pilani (BITS Pilani)-Pilani Campus, Rajasthan. Professor Ajit Pratap Singh received Civil Engineering degrees from BITS Pilani, Rajasthan, India and is a Fellow of the Institution of Engineers (India) and Fellow of Indian Association of Hydrologists (FIAH). He has published over 90 papers and reports. He has also served as the Professor and Head of Department, Civil Engineering, BITS Pilani-Dubai Campus, UAE. He has more than 25 years of teaching and research experience in the area of sustainable water resources management, hydraulics and water resources engineering with a special focus on surface and groundwater-quality modelling and applications of advanced soft computing techniques.

About the Co-supervisor (Prof. Ravi Kant Mittal)

Prof. Ravi Kant Mittal is currently Associate Professor, Department of Civil Engineering, Birla Institute of Technology & Science, Pilani. Dr. Mittal obtained B.E. (Civil Engineering), M.E. (Soil Dynamics) and Ph.D. (Geotechnical Engineering) degrees from I.I.T., Roorkee. He has served as head of the civil engineering department of the institute from 2016-2018. His research interest includes static and dynamic behaviour of soil reinforced with waste tire-chip, plastic strips and coir fibers for geotechnical applications, liquefaction of soils, earthquake resistant design of foundations, machine foundation. He has authored and coauthored several research publications of national and international repute.