

# “Seasonal Groundwater Level Fluctuation analysis in Jagalur Taluk, Davanagere District, Karnataka State, India”.

Presentation

By

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# Presentation Outline

- Introduction.
- Study Area.
- Research Objectives.
- Methodology.
- Result and Discussion.
- Summary and Conclusion.
- References.



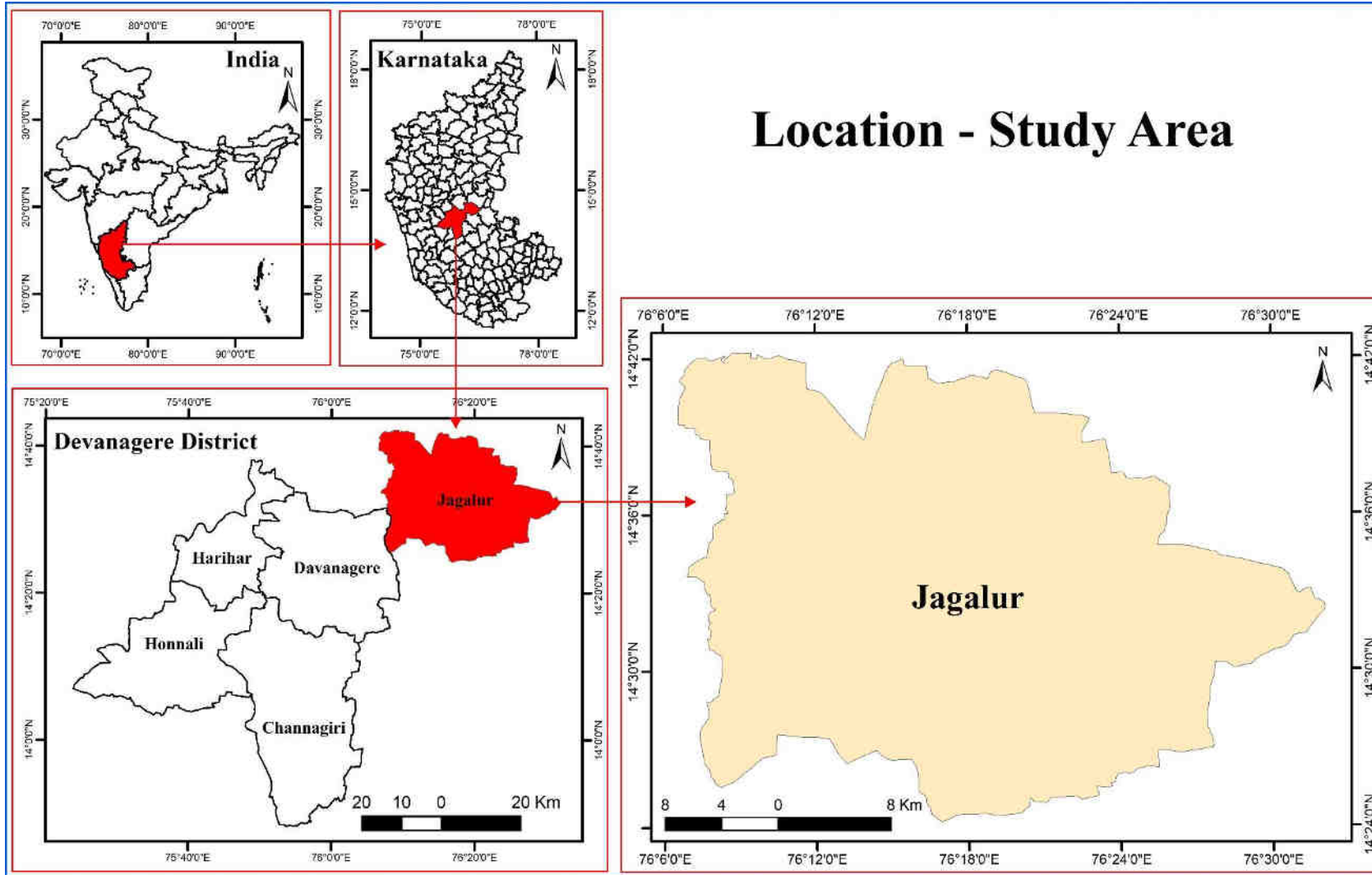
# INTRODUCTION

- Groundwater is the most precious and widely distributed renewable natural resource of the earth and no life on earth can exist without water it influences economic, industrial and agricultural growth.
- Ground water is a globally important and valuable and renewable resource for human life and economic development. It constitutes a major portion of the earth's water circulatory system known as the hydrological cycle.
- The most evident problem is the lowering of the water table beyond the reach of existing wells.
- The average annual water resources in our river basins are estimated as 1,869 billion cubic meters (BCM) of which utilizable resources are of the order of 1,086 BCM. Out of this, 690 BCM is available as surface water and the remaining 396 BCM as groundwater.



# Study Area

## Location - Study Area



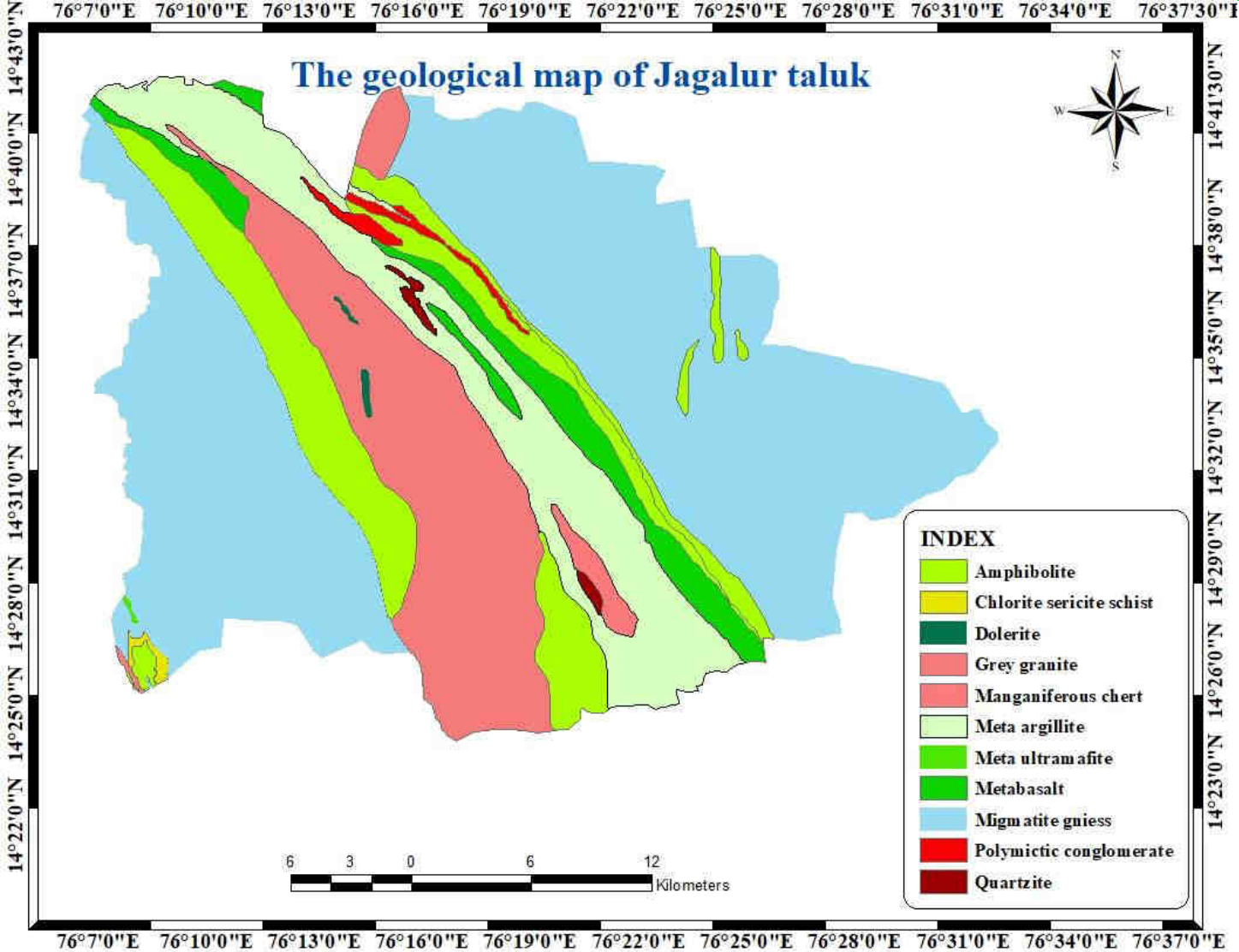
# Research Objectives

**The objective of the investigation is to evaluate the Hydrological & Hydrogeological condition of the study area.**

- To evaluate groundwater level measurement from different type of groundwater and surface water source around the study area.
- To evaluate groundwater level data within our study area.
- To evaluate average value from groundwater level measurement data to find fall and raise depth to water level measurements around the study area.

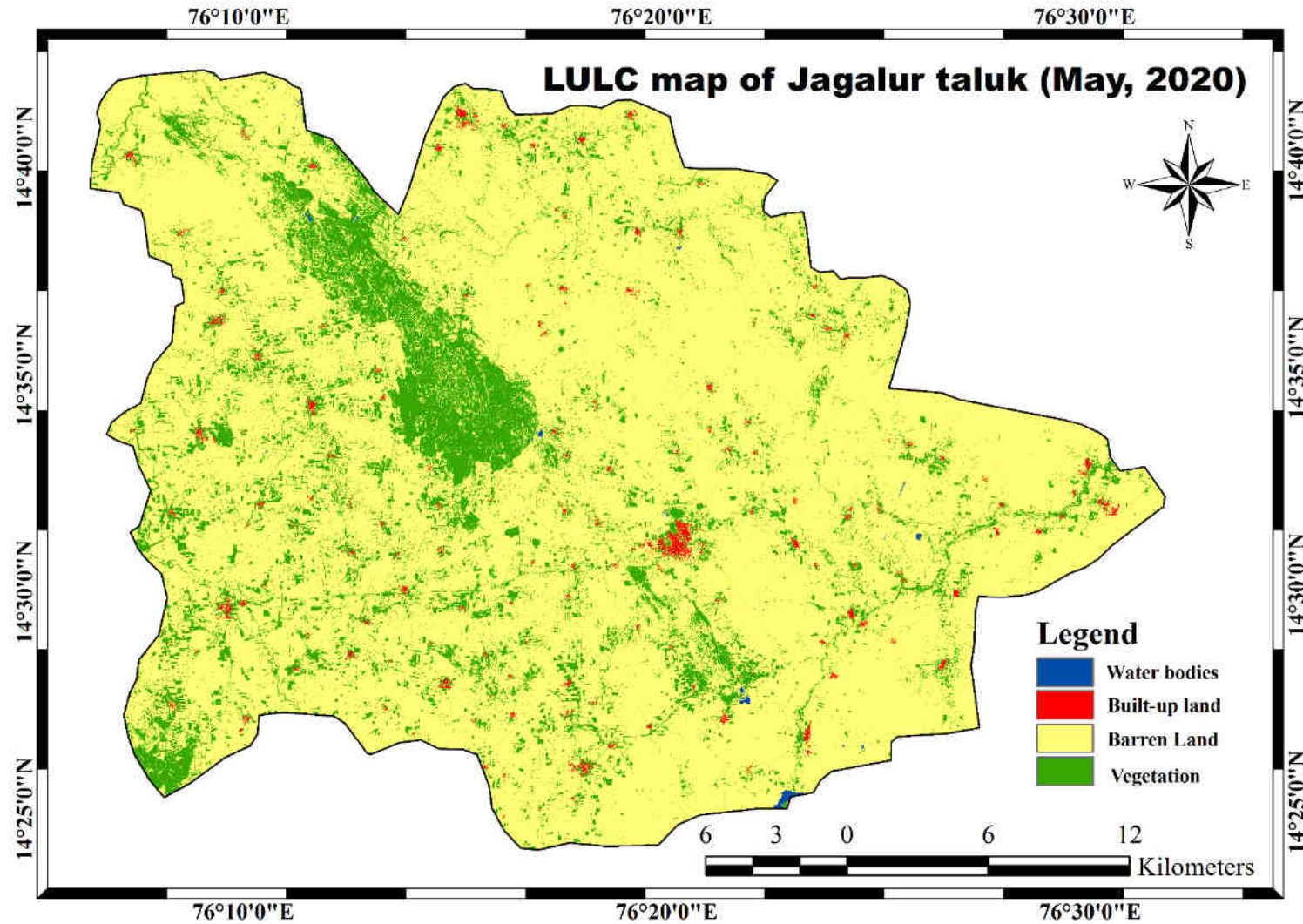


# Geology of Study Area



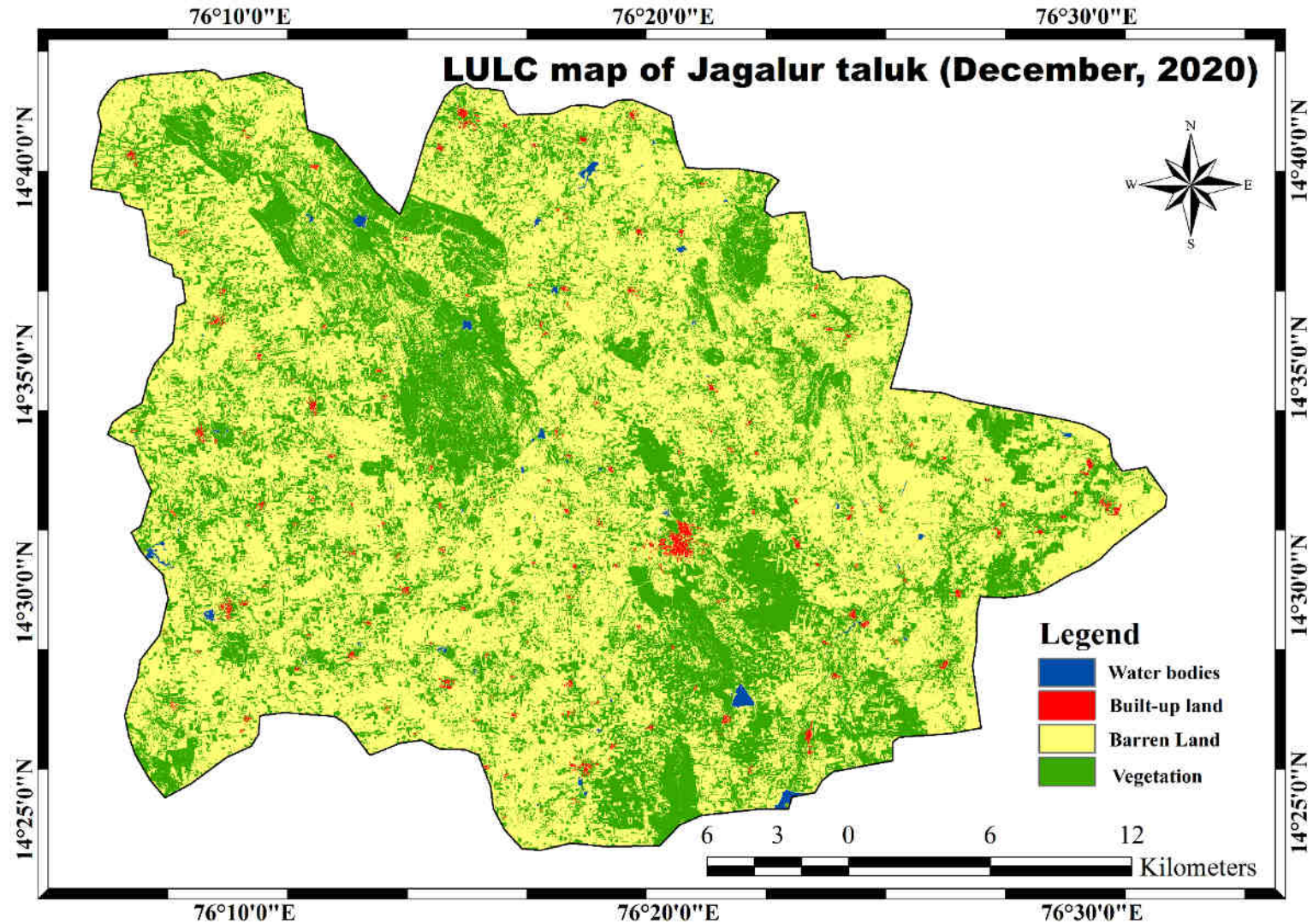


# Land Use Land Cover





# Land Use Land Cover

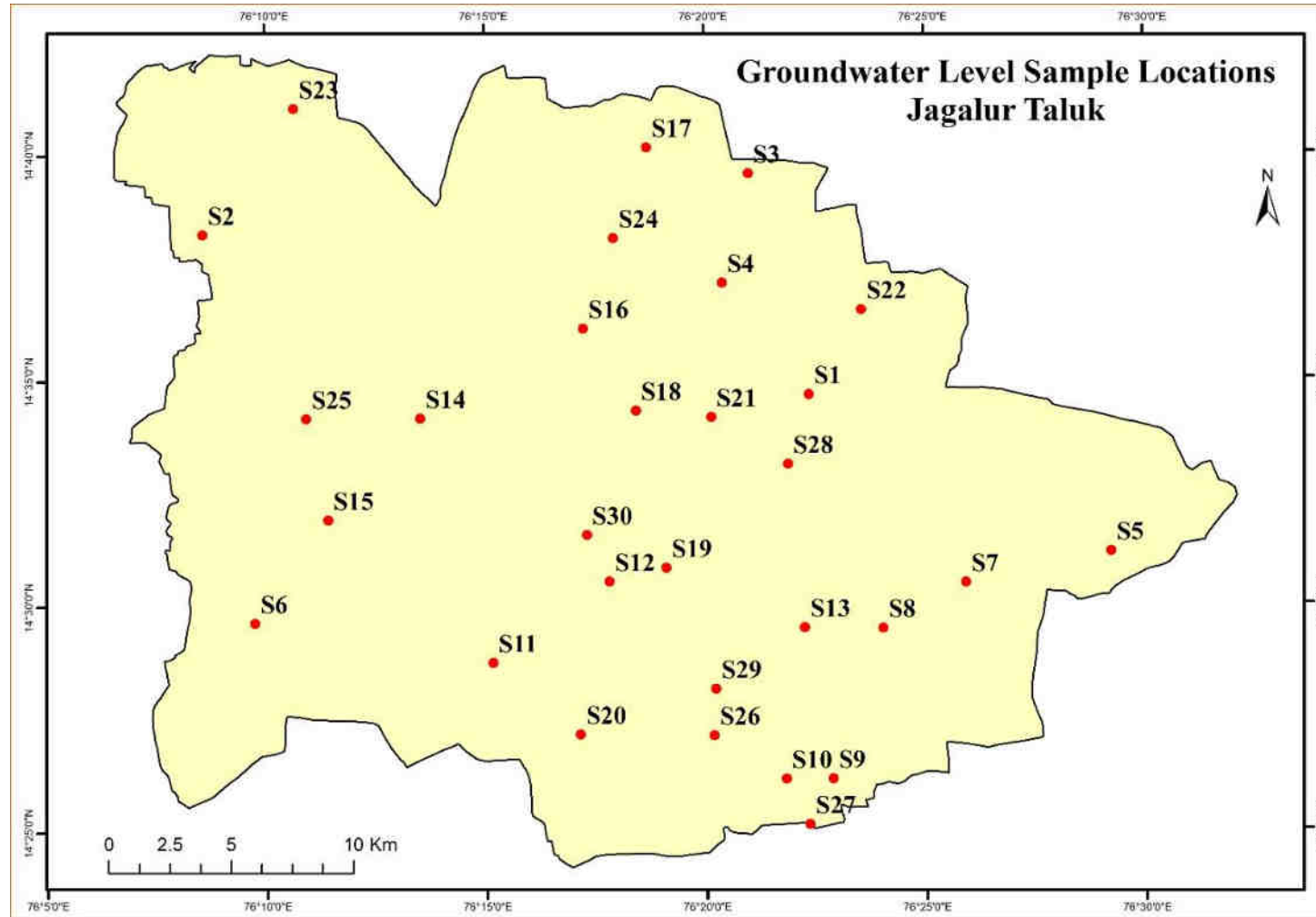


# Land Use Land Cover

<b>LULC class</b>	<b>May 2019</b>		<b>December 2019</b>	
	Area km2	%	Area km2	%
Water	0.3497	0.345637	3.3594	0.035979
Built up land	6.41593	0.660113	6.41593	0.660113
Barren Land	822.0588	84.57885	609.4486	62.7041
Vegetation	143.1193	14.72506	352.7198	36.29015
<b>Total</b>	<b>971.9437</b>	<b>100</b>	<b>971.9437</b>	<b>100</b>

# Methodology

# Groundwater Level of Jagalur Taluk



➤ Groundwater level Measurement.

➤ Borewell Inventory.

➤ Depth to Water Level.

➤ Water Level Fluctuation.



## **Result and Discussion**



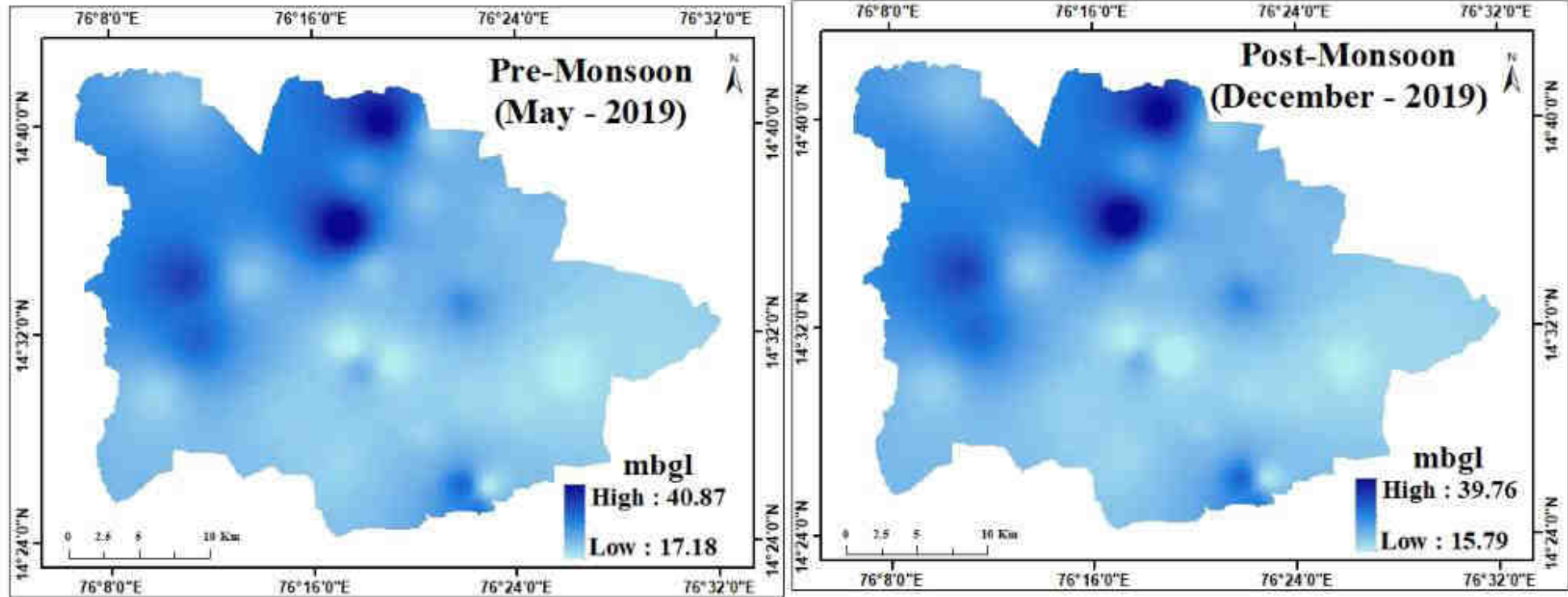
# Borewell Inventory

S/N	Locations	Well type	Static Water Level (Feet)	Measuring Point(cm)	Discharge (Inches)	Yield/Fract ure(Feet)	Pumping per day and Electricity (hours)	Established Year	BMP(Feet)	Purpose
1	KASAVANAHALLY	Bore well	128	80	2 1/2	90 110	6	2015	1 1/2	Agriculture
2	SIDDYANKOTE	Bore well	95	80	2	70 80	6	1999	2 1/2	Domestic
3	MARIKATTE	Bore well	135	80	2	110	6	2010	2 1/2	Agriculture
4	KYSANAHALLY	Bore well	138	85	3 1/2	90	6	2000	1 1/2	Domestic
5	DIBDAHALLY	Bore well	215	80	1 1/2	110 200	6	2014	1 1/2	Drinking
6	BILICHODU	Bore well	130	80	2 1/4	95 120	6	2018	1 1/2	Agriculture
7	MUDLAMACHIKERE	Bore well	250	80	2 1/2	110 180 210	6	2019	1 1/2	Drinking
8	DONNEHALLY	Bore well	189	85	2 1/2	60 150	6	2002	3	Agriculture
9	HONNAMARDI	Bore well	300	85	2 1/2	90 110 250	6	2010	3	Drinking
10	THORANAGATTE	Bore well	180	80	2 1/2	110	6	2010	1 1/2	Drinking
11	KORTIKERE	Bore well	255	80	2 1/4	120 250	6	2010	1 1/2	Agriculture
12	RASTEMAHAKUNTE	Bore well	260	110	3	150 220	6	2017	1 1/2	Agriculture
13	HIREARIKERE	Bore well	265	80	2 1/2	180 210	6	2016	2 1/2	Domestic
14	THAREHALLY	Bore well	165	80	1 1/2	110 225	6	2015	2 1/2	Drinking
15	KATENAHALLY	Bore well	190	80	2 1/2	75 185	6	2015	2 1/2	Agriculture
16	MALEMACHIKERE	Bore well	310	80	3 1/2	135 200 290	6	2010	1 1/2	Drinking
17	SOKKE	Bore well	350	80	2 1/2	180 320	6	2010	1 1/2	Drinking
18	KECCHANNAHALLY	Bore well	310	110	2 1/2	120 280	6	1998	1 1/2	Agriculture
19	JAGALUR	Bore well	280	80	2 1/2	130	6	2019	1 1/2	Drinking

# Groundwater level Fluctuation (May- 2019 and Decemeber-2019)

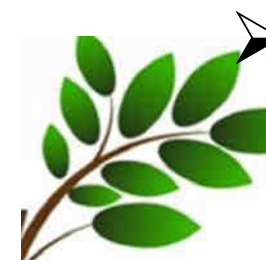
S/N	Location	May-2019,Pre-Monsoon (mbgl)	Decemeber-2019,Post-Monsoon (mbgl)	Fluctuation (mbgl)
1	Kasavanahally	22.29	21.83	0.46
2	Siddyankote	26.94	26.47	0.47
3	Marikatte	20.43	19.97	0.46
4	Kysanahally	21.36	20.9	0.46
5	Dibdahally	19.5	19.04	0.46
6	Bilichodu	19.97	19.5	0.47
7	Mudlamachikere	17.65	17.18	0.47
8	Donnehally	19.04	18.57	0.47
9	Honnamardi	18.11	17.65	0.46
10	Thoranagatte	29.72	29.26	0.46
11	Kortikere	20.43	19.5	0.93
12	Rastemahakunte	23.22	22.29	0.93
13	Hirearikere	19.5	18.57	0.93
14	Tharehally	20.9	19.97	0.93
15	Katenahally	29.72	28.79	0.93
16	Malemachikere	40.87	39.76	1.11
17	Sokke	38.08	37.62	0.46
18	Kecchannahally	20.9	19.97	0.93
19	Jagalur	17.65	15.79	1.86
20	Bistavally	19.97	19.04	0.93
21	Thamalhally	22.76	21.83	0.93
22	Jyothipura	21.36	20.9	0.46
23	Magadi	21.36	20.9	0.46
24	Lakkumpura	25.08	23.96	1.12
25	Diddagi	32.51	31.58	0.93
26	Arsinagundi	22.29	21.83	0.46
27	Gowramanahally	28.33	27.4	0.93
28	Kelogote	26.47	26.01	0.46
29	Linganahally	19.97	19.5	0.47
30	Byranyakanahally	17.18	17.14	0.04
	<b>Maximum</b>	<b>40.87</b>	<b>39.76</b>	<b>1.86</b>
	<b>Minimum</b>	<b>17.18</b>	<b>15.79</b>	<b>0.04</b>

## Groundwater Level - Jagalur Taluk



# Conclusion

- The result of the groundwater level assessment depicts that, the water level was increased during the post-monsoon season (December-2019) comparing with the pre-monsoon season (May-2019) which may have been caused due to the infiltration of rainwater during the monsoon season.
- The assessment of seasonal variability illustrates that the higher variation is present in the southern part whereas the low variation is present in the north and northeast part of the study area.
- The result of groundwater level interpolation showed that the groundwater level was found increased compared to that of pre-monsoon.
- Finally, we found a shortage of rainfall is one of the reasons for depth to water level decrease. Falls under semi arid region.





# During fieldwork- Groundwater Level Measurement





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*Thank You*