International Journal of Advance and Applied Research
www.ijaar.co.in
ISSN – 2347-7075 Impact Factor – 7.328
Peer Reviewed Bi-Monthly
Vol.11 No.1 Sept-Oct 2023

Hydrogeographical Study and Water Resource Assessment of Naraini Tehsil, Uttar Pradesh (A Focus on Gram Panchayats and Their Wells and Ponds of Naraini Tehsil, Banda)

Uday Pratap Singh[1], Dr. Seema Dwivedi[2]
[1](Research Schoolar, NET/JRF)
[2](Supervisor), Assosiate Professor,Head, Departmart of Geography,
Kesarwani College, Jabalpur(RDVV, Jabalpur)
Corresponding Author – Uday Pratap Singh
DOI- 10.5281/zenodo.10043167

Abstract:
The study area, Naraini Tehsil in Uttar Pradesh, India, is characterized by its geographical coordinates and surrounding districts. Positioned between specific latitudes and longitudes, it shares boundaries with several neighboring districts. Our exploration commences in Alia, a pivotal point in the region, marked by distinct coordinates. As we journey through various villages and panchayats, each with its own unique coordinates and water resources, we uncover the essence of this beautiful region. The villages and their respective wells unveil a narrative of the region's reliance on groundwater and the importance of preserving this vital resource. This abstract encapsulates the geographical, cultural, and hydrological aspects of the study area, painting a comprehensive picture of its significance and characteristics.

Keywords-Geographical Coordinates, Gram Panchayats, Wells and Pond

Introduction:

The study area, Naraini Tehsil, nestled within the Banda district of the Chitrakoot Dham Mandal in Uttar Pradesh, India, offers a compelling tapestry of geographical and cultural richness. Situated in the southern part of Uttar Pradesh, this tehsil spans between specific latitudes and longitudes, shaping its distinct identity over an area of 742.57 square kilometers.

The majestic Yamuna River graces the northeastern boundary, demarcating the district from Allahabad and Fatehpur. Towards the south, it shares borders with the Chhatarpur and Panna districts of Madhya Pradesh, while the eastern frontier is defined by the Chitrakoot district. To the west, Naraini Tehsil adjoins the Mahoba and Hamirpur districts. Embarking on our adventure, we delve into the intricate fabric of this region, commencing at Alia—a focal point boasting significant coordinates. The journey unfolds, unveiling various villages and panchayats, each with its unique geographical footprint and water resources.

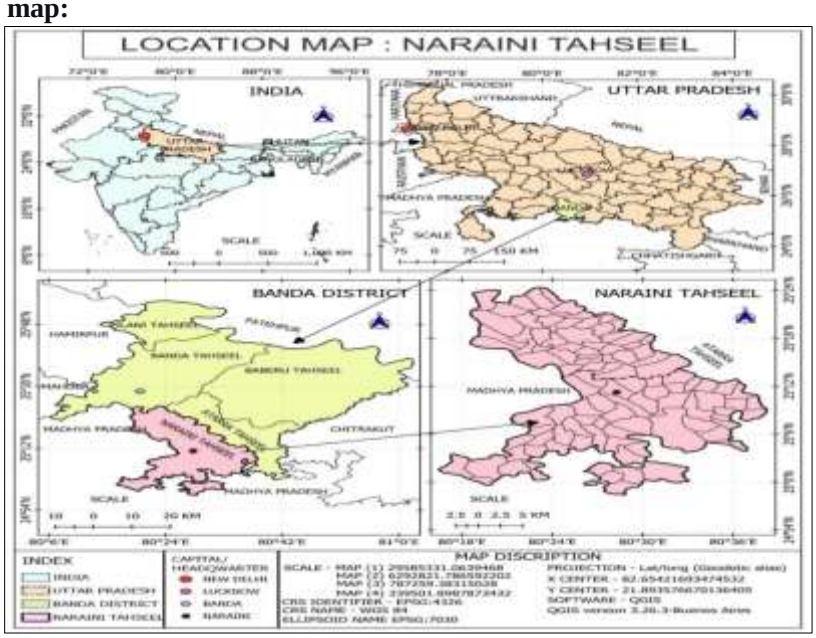
Through this exploration, we aim to depict the captivating landscapes, diverse charms, and individual significance of every village and panchayat. Each locale, etched with its coordinates, extends an invitation to discover and celebrate its distinctive essence, contributing to the rich tapestry of Naraini Tehsil. In our pursuit, we also delve into the critical aspect of groundwater resources, elucidating the importance of water in sustaining these communities and the necessity of its prudent management. Through this narrative, we endeavor to shed light on the vibrant and vital characteristics of this beautiful region.

Study Area:

The study area, Naraini Tehsil, is located in the Banda district of the Chitrakoot Dham Mandal in the state of Uttar Pradesh, India. It is situated in the southern part of Uttar Pradesh. Naraini Tehsil is positioned between the latitudes 24'53" and 25'55" North and longitudes 80'87" and 81'34" East. The total area of Naraini Tehsil is 742.57 square kilometers.

The Yamuna River flows to the northeast of the district, separating it from Allahabad and Fatehpur districts. To the south, it shares boundaries with Chhatarpur and Panna districts of Madhya Pradesh, to the east with Chitrakoot district, and to the west with Mahoba and Hamirpur districts.

Map No.1 Location map:



Methodology:

Chose Naraini Tehsil in Banda, UP, because it matters for our study. We found locations using GPS and online maps. To understand the area, we used satellite images and GIS. We picked important spots based on our goals and got their coordinates. We counted wells and ponds in each area from official records and field surveys. We tested specific wells based on where they are and how easy they are to reach. We looked at all this data to understand where the water sources are and their condition. We made maps and graphs to show this clearly. We then told a story about this place, focusing on what makes it special and why the water here matters.

Objectives:

1. To assess and document the distribution of wells and ponds across various Gram Panchayats in Naraini Tehsil, Uttar Pradesh.
2. To analyze the water quality of selected wells within the study area and evaluate its significance for the local communities.

Identification of Gram Panchayats:

Our adventure begins in Alia, a significant point in this region, positioned at approximately 25°18'24.66"N latitude and 80°26'6.76"E longitude. A short distance away lies Arjunah, with coordinates of 25°20'37.28"N latitude and 80°26'2.55"E longitude, inviting exploration. As we venture eastward, we arrive at Bachhei, embraced by coordinates 25°18'6.60"N latitude and 80°28'58.87"E longitude. Further south awaits Baheda Seodha, surrounded by the coordinates 25°15'32.74"N latitude and 80°28'33.27"E longitude, portraying the southern beauty of this region. Journeying southwest, we encounter Bahadurpur Kalinzar, a place of charm, marked by coordinates 25°1'21.84"N latitude and 80°31'22.62"E longitude. Heading towards the west, Baheri unfolds, showcasing its unique allure at approximately 25°16'24.78"N latitude and 80°28'17.02"E longitude. Continuing southwards, we reach Bande, offering its distinctiveness at coordinates 25°17'10.55"N latitude and 80°30'4.18"E longitude. Not far off lies Banska, a place of interest, standing at 25°19'24.91"N latitude and 80°28'23.57"E longitude. Bansi, where the coordinates 25°16'19.60"N latitude and 80°25'0.99"E longitude beckon us. Further southeast, Baraichha welcomes with coordinates 25°3'38.98"N latitude and 80°23'7.18"E longitude.

Table No. 1 Naraini Tehsil: Geographical Coordinates of Representative Gram Panchayats

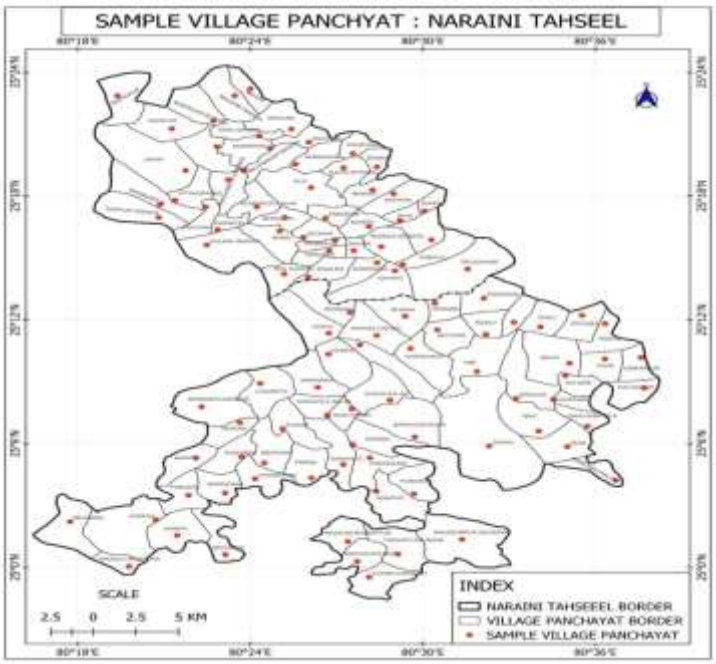
S.r	Village Panchayat	Longitude	Latitude	S.r.	Village Panchayat	Longitude	Latitude
1	Alia	25°18'24.66"N	80°26'6.76"E	23	Divali	25°11'39.11"N	80°34'4.88"E
2	Arjunah	25°20'37.28"N	80°26'2.55"E	24	Durgapur	25°19'28.75"N	80°25'23.15"E
3	Bachhei	25°18'6.60"N	80°28'58.87"E	25	Gadha	25°11'21.80"N	80°26'43.64"E
4	Baheda Seodha	25°15'32.74"N	80°28'33.27"E	26	Panchampur (Girwan)	25°18'47.61"N	80°23'13.72"E
5	Bahadurpur Kalinzar	25° 1'21.84"N	80°31'22.62"E	27	Gokhia	25°15'53.22"N	80°30'16.46"E

6	Baheri	25°16'24.78"N	80°28'17.02"E	28	Gopara	25° 5'57.83"N	80°27'33.35"E
7	Bande	25°17'10.55"N	80°30'4.18"E	29	Gore Mau Kalan	25° 4'13.40"N	80°36'42.76"E
8	Banska	25°19'24.91"N	80°28'23.57"E	30	Gudha Kalan	25° 8'6.13"N	80°28'50.78"E
9	Bansi	25°16'19.60"N	80°25'0.99"E	31	Hadaha	25°13'36.24"N	80°29'6.59"E
10	Baraichha	25° 3'38.98"N	80°23'7.18"E	32	Husenpur Kalan	25°17'29.11"N	80°24'12.54"E
11	Barimanpur	25°17'34.81"N	80°20'51.81"E	33	Jabarapur	25°10'14.99"N	80°37'54.26"E
12	Barkola Kalan	25° 7'19.96"N	80°26'50.82"E	34	Jamawara	25° 8'45.04"N	80°26'17.67"E
13	Barokhar Buzurg	25°21'33.36"N	80°22'44.57"E	35	Jarar	25°19'13.78"N	80°21'44.67"E
14	Barsanda Manpur	25° 7'47.52"N	80°22'17.47"E	36	Kabauli	25°14'37.11"N	80°29'10.26"E
15	Barua Kalinzar	25° 6'20.18"N	80°29'43.01"E	37	Kalyanpur	25° 8'41.35"N	80°37'43.24"E
16	Baruwa Syodha	25°10'47.21"N	80°27'47.38"E	38	Kanaya	25° 1'33.58"N	80°21'27.31"E
17	Bhawai	25°12'11.20"N	80°29'22.63"E	39	Karatal	25° 2'18.83"N	80°20'42.04"E
18	Bilharka	25° 2'13.40"N	80°17'43.92"E	40	Katara Kalinzar	24°59'31.77"N	80°28'7.72"E
19	Birauna	25° 7'56.82"N	80°33'10.65"E	41	Kazipur Girwan	25°16'57.98"N	80°20'48.73"E
20	Chandpura	25° 4'17.33"N	80°24'9.99"E	42	Khalari	25° 5'14.74"N	80°23'47.41"E
21	Chhataini	25° 8'8.20"N	80°34'32.50"E	43	Khanpur	25°16'21.90"N	80°22'50.91"E
22	Deorar	25°15'55.33"N	80°25'41.27"E	44	Kharaunch	25°10'37.82"N	80°29'33.91"E
45	Khurhand	25°20'0.01"N	80°27'34.61"E	75	Panchampur B	25° 6'50.88"N	80°35'43.00"E
46	Kolawal Raipur	25°15'37.47"N	80°22'30.26"E	76	Parasahar	25° 5'18.58"N	80°28'9.52"E
47	Kulsari	25° 9'18.78"N	80°34'57.92"E	77	Pataura	25°21'14.73"N	80°25'25.49"E
48	Lahureta	25° 8'54.55"N	80°24'20.86"E	78	Pathara	25°11'42.45"N	80°35'18.19"E
49	Madhopur	25°22'52.61"N	80°19'21.30"E	79	Pipara	25° 4'20.19"N	80°26'7.54"E
50	Mahui	25° 9'54.07"N	80°35'6.79"E	80	Piparhari	25°13'3.37"N	80°32'7.05"E
51	Mahuwa	25°23'38.35"N	80°25'23.59"E	81	Pithaurabad	25°17'47.55"N	80°21'21.28"E
52	Majhgawan Seodha	25°19'15.61"N	80°23'48.08"E	82	Piyar	25°10'9.98"N	80°37'8.48"E
53	Malehra Niwada	25°22'56.54"N	80°23'33.85"E	83	Pongari	25° 3'30.49"N	80°21'51.43"E
54	Manipur	25°21'15.56"N	80°21'15.08"E	84	Prempur	25°16'55.98"N	80°26'36.60"E
55	Masauni Bharatpur	25° 1'16.23"N	80°27'23.51"E	85	Pukari	25° 6'43.76"N	80°25'7.41"E
56	Masuri	25°18'17.85"N	80°28'15.12"E	86	Purainiya	25° 3'25.58"N	80°29'36.68"E
57	Mau Girwan	25°14'13.57"N	80°25'10.81"E	87	Ragauli Bhatpura	25° 0'3.00"N	80°19'46.80"E

58	Motiyari	25°11'29.96" N	80°30'30.04 "E	88	Rajapur	25°11'18.32 "N	80°32'10.55" E
59	Mudi	25° 5'1.19"N	80°35'22.81 "E	89	Ram Nagar Nisf	25° 0'17.39"N	80°27'42.60" E
60	Mukera	25° 7'1.47"N	80°23'38.13 "E	90	Ranipur	25° 3'41.46"N	80°28'22.76" E
61	Mungaura	25°11'52.77" N	80°33'9.26" E	91	Raxi	25° 6'30.25"N	80°33'44.58" E
62	Murawan	25°16'58.09" N	80°25'11.92 "E	92	Rehunchi	25° 0'37.19"N	80°23'7.26" E
63	Nahari	25° 5'18.23"N	80°22'6.95" E	93	Riga	25°16'47.69 "N	80°29'13.15" E
64	Nandwara	25°14'44.92" N	80°28'25.08 "E	94	Risaura	25°13'56.83 "N	80°26'0.18" E
65	Naraini (Dehat)	25°11'15.91" N	80°28'22.72 "E	95	Sadha	25° 5'53.04"N	80°32'18.35" E
66	Naseni	25°10'29.16" N	80°26'42.45 "E	96	Sarswaha	25°20'18.65 "N	80°24'49.57" E
67	Nauhai	25°15'21.08" N	80°27'34.54 "E	97	Sauta Syodha	25°19'21.97 "N	80°27'14.51" E
68	Nedhuwa	25° 4'32.45"N	80°23'47.38 "E	98	Shah Patan	25° 7'40.57"N	80°27'31.63" E
69	Nibi	25° 8'11.67"N	80°32'1.90" E	99	Singhauti	25° 4'59.91"N	80°27'13.11" E
70	Pachokhar	25°14'28.42" N	80°31'32.12 "E	100	Syodha	25°17'28.94 "N	80°22'27.18" E
71	Paramai	25°13'4.47"N	80°30'33.37 "E	101	Tarahati Kalinzar	25° 0'39.22"N	80°29'7.73" E
72	Pagnara	25°12'21.31" N	80°27'34.62 "E	102	Tarkhari	25°15'21.80 "N	80°26'45.54" E
73	Paharpur	25°15'54.98" N	80°26'56.78 "E	103	Tera Girwan	25°20'47.73 "N	80°24'17.98" E
74	Paigamberpur	25°20'22.26" N	80°23'3.29" E	104	Tera(B)	25°11'48.44 "N	80°36'20.43" E

Source- Google Earth Pro

Map Number 2 Geographical Coordinates of Gram Panchayats



Total Number of Wells and Ponds in Gram Panchayats and Selected and Surveyed Representatives:

In this landscape of villages and panchayats, each one has its own tale to tell, written in the number of wells it houses.Alia, with its eleven

wells, takes the lead, accompanied by a solitary sampled well for analysis. Nearby, Arjunah unfolds with six wells, offering a glimpse into its groundwater resources through a single sampled well. As we journey further, we encounter Bachhei, boasting five wells, one of which is selected for sampling. Baheda Seodha, a bit southwards, stands with six wells, letting one undergo analysis to understand the water quality. Bahadurpur Kalinzar, although with just two wells, opens its arms to examination through one sampled well. Moving towards Baheri, a single well represents its water source, giving insights into its quality. The path then leads to Bande, adorned with seven wells, one thoughtfully chosen for sampling and testing. Banska, not far off, has four wells, providing a glimpse into its groundwater health through one sampled well.

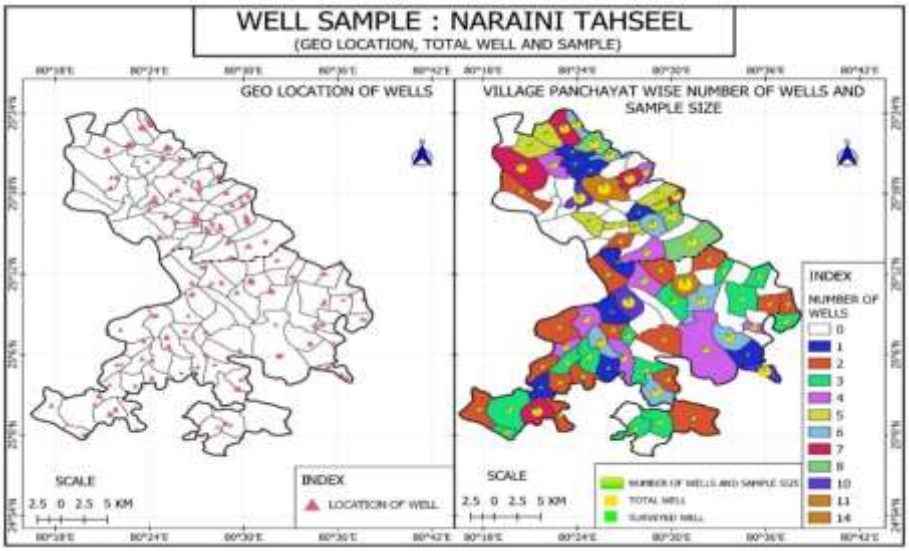
Bansi follows with five wells, showcasing the importance of water in this village, while Baraichha, with its two wells, contributes to the regional water resources, sampled through one well. As we navigate through this data, we uncover the diverse water landscapes of these villages and panchayats, each well representing a story of sustenance and a testament to the importance of this precious resource.

Table No.2 Naraini Tehsil: Gram Panchayat-wise Representative Wells

S.r	Village Panchayat	Total Well	Sample Well	S.r.	Village Panchayat	Total Well	Sample Well
1	Alia	11	1	38	Kanaya	7	1
2	Arjunah	6	1	39	Karatal	3	1
3	Bachhei	5	1	40	Katara Kalinzar	0	0
4	Baheda Seodha	6	1	41	Kazipur Girwan	0	0
5	Bahadurpur Kalinzar	2	1	42	Khalari	3	1
6	Baheri	1	1	43	Khanpur	0	0
7	Bande	7	1	44	Kharaunch	3	1
8	Banska	4	1	45	Khurhand	0	0
9	Bansi	5	1	46	Kolawal Raipur	0	0
10	Baraichha	2	1	47	Kulsari	0	0
11	Barimanpur	2	1	48	Lahureta	4	1
12	Barkola Kalan	2	1	49	Madhopur	0	0
13	Barokhar Buzurg	5	1	50	Mahui	3	1
14	Barsanda Manpur	2	1	51	Mahuwa	6	1
15	Barua Kalinzar	2	1	52	Majhgawan Seodha	1	1
16	Baruwa Syodha	0	0	53	Malehra Niwada	7	1
17	Bhawai	2	1	54	Manipur	5	1
18	Bilharka	2	1	55	Masauni Bharatpur	0	0
19	Birauna	0	0	56	Masuri	0	0
20	Chandpura	2	1	57	Mau Girwan	0	0
21	Chhataini	4	1	58	Motiyari	14	1
22	Deorar	0	0	59	Mudi	1	1
23	Divali	0	0	60	Mukera	4	1
24	Durgapur	0	0	61	Mungaura	3	1
25	Gadha	2	1	62	Murawan	0	0
26	Panchampur (Girwan)	0	0	63	Nahari	2	1
27	Gokhia	8	1	64	Nandwara	0	0
28	Gopara	0	0	65	Naraini (Dehat)	4	1
29	Gore Mau Kalan	10	1	66	Naseni	10	1
30	Gudha Kalan	0	0	67	Nauhai	5	1
31	Hadaha	4	1	68	Nedhuwa	3	1
32	Husenpur Kalan	10	1	69	Nibi	6	1
33	Jabarapur	2	1	70	Pachokhar	8	1
34	Jamawara	1	1	71	Paramai	0	0
35	Jarar	7	1	72	Pagnara	1	1
36	Kabauli	0	0	73	Paharpur	5	1
37	Kalyanpur	3	1	74	Paigamberpur	4	1

(Source - Obtained through Remote Sensing and Verified Physically**)**

Map Number 3 Gram Panchayat-wise Selected Wells



Conclusion-

The exploration of Naraini Tehsil in Banda district, Uttar Pradesh, has unravelled a rich tapestry of geographical and hydrological features. The study showcased the diverse landscapes and distinct charms of each village and panchayat within the region. From the serene banks of the Yamuna River to the vibrant villages like Alia, Arjunah, and Baheda Seodha, each place stood as a testament to the unique significance of Naraini Tehsil.The investigation into the wells and ponds across various Gram Panchayats shed light on the vital role of water resources in this region. Alia emerged as a leader with eleven wells, showcasing the importance of water accessibility. Water quality analysis from selected wells provided insights into the health of the groundwater, essential for sustaining the local communities. The study also emphasized the need for sustainable water management and conservation practices. With the Yamuna River to the northeast and neighbouring districts, Naraini Tehsil holds a crucial position in the larger regional context. Awareness and proactive measures are essential to ensure the continued availability and quality of water resources for the people of Naraini Tehsil. In conclusion, this exploration has not only deepened our understanding of the hydrological landscape but has also highlighted the value of water as a precious and indispensable resource for the communities in this beautiful region. It is imperative to preserve and manage these resources for a sustainable and thriving future.

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