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Appendix

Post and Pre monsoon details (2015 to 2016)

Name	2015 Pre Monsoon	2015 Post Monsoon	2016 Pre Monsoon	2016 Post Monsoon
Chittupur Road (Dilip Lodge)	7.6	4.7	8.7	5.3
Chittupur Road 2	17.9	11.8	18.1	12.4
Trauma Centre	18.1	11.9	18.9	11.4
Samne Ghat1	16.8	10.9	17.5	12
Samne Ghat1 (River Crossing)	14.7	4.9	15.1	5.1
Samne Ghat 3 Sand Side	12.9	8.4	13.1	8.9
Vyass Aata Chakki	15.1	8.1	16	8.5
Police PAC Kendra	13.5	8.5	13.8	8.1
Semyad Pvt Ltd.	8.2	1.9	7.8	2.3
Near Durga Mandir	21	13.4	20.6	13.9
Kids Mill	1.8	1.4	1.4	1.1
Csc Centre	0	0	0	0
Maa Vaishno	0	0	0	0
Katesar Road1	0	0	0	0
Katesar Road2 Ratnapur	7.6	4.4	7.2	5.7
Katesar Road3 Near Ganga	13	7.4	12.6	8.7
Ratnapur Sand Side Ghat	17.4	11.4	17.4	12.7
Ram Hp Gas	18.9	13.1	18.3	14.4
Domari1	21.1	14.1	21.5	15.4
Domari2	16.6	9.7	17	11
Domari3	20.7	14.4	21.1	15.7
Domari4	17.9	12.5	18.3	13.8
Shree Sant Swami Ashram	16.9	11.1	17.3	12.4
Suzabad1	17.2	10.6	17.6	11.9
Prao	15.8	10.9	16.2	12.2
Jalilpur	16.6	10.1	17	11.4
Bhu Road	15.9	11.3	15.5	12.6

Susuwahi1	10.1	5	10.5	6.3
Susuwahi2	9.6	3.8	10	5.1
Susuwahi3	7	3.4	7.4	4.7
Susuwahi4	11.9	6.4	12	7.7
Dafi	14.7	10.5	15.1	11.8
Nauwan1	7.6	3.9	8	5.2
Nauwan2	7.3	4.3	7.1	5.6
Dafi2	5.5	2.1	5.3	1.8
Dafi3	21.1	10.9	20.9	12.2
Susuwahi5	18.1	9.7	17.9	11
Susuwahi6	10.3	4.1	10.1	5.4
Dafi4	12.1	4.8	11.9	6.1
Belvariya Baba Temple	19.2	12	19	13.3
Near SH74	16.7	11.5	16.5	12.8
Bachhao1	13.6	8.3	13.4	9.6
Betwar	12.5	6.9	12.3	8.2
Bachhao2	5.8	1.7	5.6	1.1
Bachhao3	4.5	1.1	4.3	2.4
Bachhao4	-0.9	0	0	0
Bachhao5	21.2	7.9	21	8.7
Khanwa	18.7	8.7	18.5	9.5
Amara Village2	13.1	4.7	12.9	5.5
Amara Village	8.5	3.2	8.3	4
Khandwa Road	11.1	2.7	10.9	3.5
Awleshpur1	15.1	8.9	14.9	9.7
Awleshpur2	7.5	2.1	7.3	2.9
Indira Gandhi Colony2	8.2	2.3	8	3.1
Indira Gandhi Colony3	17.4	10.2	18	11
Paheli Gaon2	10	5.7	10.6	6.5
Paheli Gaon	14.3	7.2	14.9	8
Central Market Dlw2	16.9	7.7	17.5	8.5
Central Market Dlw	14.2	8.5	14.8	9.3

Sai Tasty Corner	8.6	5.4	9.2	6.2
Gandhi Nagar	5.8	2.7	6.4	3.5
Mohanpuri Colony	5.2	1.7	5.8	2.5
Semi Circle Road	0	0	0	0
Chowka Ghat Bridge	11.9	7	12.5	6.8
Chunar Road1	10.3	5.2	10.9	5
Chunar Road2	6.5	3.7	7.1	3.5
Khajuri Colony	8.7	5.2	9.3	5
Khajuri Colony	10.4	5	11	4.8
Sudhakar Road	5.5	3.1	6.1	2.9
Hanuman Ji Mandir	0	0	0	0
Safeexpress	3.7	1.7	4.3	1.3
Panchghat Madhuvan	8.9	5.9	9.5	5.5
Mandhaun	9.6	6.9	10.2	6.5
Hasanpur	11.1	5.5	11.7	5.1
Varanasi Ring Road	0	0	0	0
Kalpath Vihar Colony	12.4	7.4	13	7
Bela Road	14	7.7	14.6	7.3
Srinagar Colony	6.7	3.8	7.3	3.4
Anmol Nagar Colony	8	3.5	8.9	3.1
Hirmanpur	6.7	3.3	7.6	2.9
Hirmanpur2	0	0	0	0
Suryasarovar Park	17.5	11.2	18.4	11.9
Janki Nagar1	12.3	6.9	13.2	7.6
Janki Nagar2	3	0.2	3.9	0.9
Kanchan Vihar Colony1	10.8	3.9	11.7	4.6
Kanchan Vihar Colony2	14.4	4.3	15.3	5
Manduadih	7.7	2.2	8.6	2.9
Badubir Baba Temple	9.5	4.3	10.4	5
Kesharipur1	6.6	2	7.5	2.7
Kesharipur2	2.2	0.5	3.1	0.4
Lohta Bazar1	5.8	1.3	6.7	2

Lohta Bazar2	13	6.3	13.9	7
Lehartara Individual Estate	10.9	4.2	11.3	4.9
Maheshpur1	10	4.9	10.4	5.6
Maheshpur2	7	1.3	7.4	2
Hair Gallery	8.1	2.6	8.5	3.3
Varunapuri Colony1	6.9	1.9	7.3	2.6
Varunapuri Colony2	10	4.2	10.4	5.2
Varanasi Cantonment	9.2	3.8	9.6	4.8
Mall Road	9.6	4.3	10	5.3
Varuna Bridge	6.5	1.9	6.9	2.7
Sikraul	8.1	4.1	8.5	5.1
Hamrautia	10.1	3.8	10.6	4.8
Kautilya Road	6	2	6.4	3

Post and Pre monsoon details (2017 to 2019)

Name	2017 Pre Monso on	2017 Post Monso on	2018 Pre Monso on	2018 Post Monso on	2019 Pre Monso on	2019 Post Monso on
Chittupur Road (Dilip Lodge)	8.1	5.5	9.5	6	9	6.3
Chittupur Road 2	18.3	12.1	18.9	12.8	18.5	12.5
Trauma Centre	19.5	12.1	21.1	12.5	20.7	13
Samne Ghat1	16.4	11.8	17.8	12.3	18.3	12.6
Samne Ghat1 (River Crossing)	14.9	5.4	16.2	6.5	15.6	6.2
Samne Ghat 3 Sand Side	13.4	9.2	13.4	9.6	14.4	6.9
Vyass Aata Chakki	16.2	9.2	17	9.8	16.9	9.4
Police PAC Kendra	14.6	9	15.1	9.3	14	8.9
Semyad Pvt Ltd.	8.9	2.4	9.6	6.7	9	6.4
Near Durga Mandir	21.7	14.1	22.4	14.5	21.8	13.8
Kids Mill	2.5	1.3	3.2	2.1	2.6	1
Csc Centre	0	0	0	0	0	0
Maa Vaishno	0	0	0	0	0	0
Katesar Road1	0	0	0	0	0	0
Katesar Road2 Ratnapur	8.1	5.4	9	6.5	8.4	6.9
Katesar Road3 Near Ganga	13.1	8.4	14.4	9.5	13.8	9.9
Ratnapur Sand Side Ghat	18.5	12.4	19.2	13.5	18.6	13.9
Ram Hp Gas	19.2	14.1	20.3	15.2	19.5	15.6
Domari1	21.8	15.1	22.5	16.2	23.1	16.6
Domari2	17.3	10.7	18	11.8	18.6	12.2
Domari3	21.4	15.4	22.1	16.5	22.7	16.9
Domari4	18.6	13.5	19.3	14.6	19.9	15
Shree Sant Swami Ashram	17.6	12.1	18.3	13.2	18.9	13.6

Suzabad1	17.9	11.6	18.6	12.7	19.2	13.1
Prao	16.5	11.9	17.2	13	17.8	13.4
Jalilpur	17.3	11.1	18	12.2	18.6	12.6
Bhu Road	15.1	12.3	16.5	13.4	17.1	13.8
Susuwahi1	10.8	6	11.5	7.1	12.2	7.5
Susuwahi2	10.3	4.8	11	5.9	10.8	6.3
Susuwahi3	7.7	4.4	8.4	5.5	9	5.9
Susuwahi4	12.4	7.4	13	8.5	13.6	8.9
Dafi	15.4	11.5	16.1	12.6	16.5	13
Nauwan1	8.4	4.9	9	6	9.5	6.4
Nauwan2	7.6	5.3	8.2	6.4	7.9	6.8
Dafi2	5.8	2.3	6.4	2.9	6.1	2.7
Dafi3	21.4	11.9	22	13	21.7	13.4
Susuwahi5	18.4	10.7	19	11.8	18.7	12.2
Susuwahi6	10.6	5.1	11.2	6.2	10.9	6.6
Dafi4	12.4	5.8	13	6.9	12.7	7.3
Belvariya Baba Temple	19.5	13	20.1	14.1	19.8	14.5
Near SH74	17	12.5	17.6	13.6	17.3	14
Bachhao1	13.9	9.3	14.5	10.4	14.2	10.8
Betwar	12.8	7.9	13.4	9	13.1	9.4
Bachhao2	6.1	1.6	6.7	2.3	6.4	2.7
Bachhao3	4.8	2.1	5.4	3.2	5.1	3.6
Bachhao4	0	0	0	0	0	0
Bachhao5	21.5	8.3	22.1	9.4	21.8	9.7
Khanwa	19	9.1	19.6	10.2	19.3	10.5
Amara Village2	13.4	5.1	14	6.2	13.7	6.5
Amara Village	8.8	3.6	9.4	4.7	9.1	5
Khandwa Road	11.4	3.1	12	4.2	11.7	4.5
Awleshpur1	15.4	9.3	16	10.4	15.7	10.7
Awleshpur2	7.8	2.5	8.4	3.6	8.1	3.9
Indira Gandhi Colony2	8.5	2.7	9.1	3.8	8.8	4.1
Indira Gandhi Colony3	17.7	10.6	18.8	11.7	18.1	12

Paheli Gaon2	10.3	6.1	11.4	7.2	10.7	7.5
Paheli Gaon	14.6	7.6	15.7	8.7	15	9
Central Market Dlw2	17.2	8.1	18.3	9.2	17.6	9.5
Central Market Dlw	14.5	8.9	15.6	10	14.9	10.3
Sai Tasty Corner	8.9	5.8	10	6.9	9.3	7.2
Gandhi Nagar	6.1	3.1	7.2	4.2	6.5	4.5
Mohanpuri Colony	5.5	2.1	6.6	3.2	5.9	3.5
Semi Circle Road	0	0	0	0	0	0
Chowka Ghat Bridge	12.2	7.3	13.3	7.9	12.6	7.5
Chunar Road1	10.6	5.5	11.7	6.1	11	5.7
Chunar Road2	6.8	4	8.2	4.6	8.5	4.2
Khajuri Colony	9	5.5	10.4	6.1	10.7	5.7
Khajuri Colony	10.7	5.3	12.1	5.9	12.4	5.5
Sudhakar Road	5.8	3.4	7.2	4	7.5	3.6
Hanuman Ji Mandir	0	0	0	0	0	0
Safeexpress	4	1.1	5.4	2.1	5.7	2.5
Panchghat Madhuvan	9.2	5.3	10.6	6.3	10.9	6.7
Mandhaun	9.9	6.3	11.3	7.3	11.6	7.7
Hasanpur	11.4	4.9	12.8	5.9	13.1	6.3
Varanasi Ring Road	0	0	0	0	0	0
Kalpath Vihar Colony	12.7	6.8	14.1	7.8	14.4	8.2
Bela Road	14.3	7.1	15.7	8.1	16	8.5
Srinagar Colony	7	3.2	8.4	4.2	8.7	4.6
Anmol Nagar Colony	8.5	2.9	9.8	3.9	9.4	4.3
Hirmanpur	7.2	2.7	8.5	3.7	8.1	4.1
Hirmanpur2	0	0	0	0	0	0
Suryasarovar Park	18	12.2	19.3	13.1	18.9	12.4
Janki Nagar1	12.8	7.9	14.1	8.8	13.7	8.1
Janki Nagar2	3.5	1.2	4.8	2.1	4.4	1.4
Kanchan Vihar Colony1	11.3	4.9	12.6	5.8	12.2	5.1
Kanchan Vihar Colony2	14.9	5.3	16.2	6.2	15.8	5.5

Manduadih	8.2	3.2	9.5	4.1	9.1	3.4
Badubir Baba Temple	10	5.3	11.3	6.2	10.9	5.5
Kesharipur1	7.1	3	8.4	3.9	8	3.2
Kesharipur2	2.7	0.7	4	1.6	3.6	1
Lohta Bazar1	6.3	2.3	7.6	3.2	7.2	2.5
Lohta Bazar2	13.5	7.3	14.8	8.2	14.4	7.5
Lehartara Individual Estate	11.7	5.2	12.5	6.1	12.1	5.4
Maheshpur1	10.8	5.9	11.6	6.8	11.2	6.1
Maheshpur2	7.8	2.3	8.6	3.2	8.2	2.5
Hair Gallery	8.9	3.6	9.7	4.5	9.3	3.8
Varunapuri Colony1	7.7	2.9	8.5	3.8	8.1	3.1
Varunapuri Colony2	10.8	5.4	11.6	6.1	11.2	5.8
Varanasi Cantonment	10	5	10.8	5.7	10.4	5.1
Mall Road	10.4	5.5	11.2	6.2	10.8	5.9
Varuna Bridge	7.3	3.1	8.1	3.7	7.7	3.3
Sikraul	8.9	5.3	9.7	6	9.3	6.2
Hamrautia	11.1	5	11.8	5.7	11.4	5.9
Kautilya Road	6.9	3.2	7.6	3.9	7.2	4.1

LIST OF PUBLICATIONS

1. Shekhar, S., & Jha, M. (2022). Groundwater level prediction of Varanasi wells during pre-monsoon and post-monsoon using intelligence approach. *Arabian Journal of Geosciences*, 15(1), 1-19.
2. Shekhar, S., & Jha, M. (2021). Prediction of Groundwater level at Varanasi using Neural Network. *Design Engineering*, 1880-1888.
3. Shekhar, S., Chauhan, M. S., Omar, P. J., & Jha, M. (2021). River Discharge Study in River Ganga, Varanasi Using Conventional and Modern Techniques. In *The Ganga River Basin: A Hydrometeorological Approach* (pp. 101-113). Springer, Cham.
4. Shekhar, S., & Jha, M. (2021). Application of LM and GDX algorithms in ANN modeling to Estimate the Groundwater Level Fluctuations. *Design Engineering*, 2615-2627.