



Environment Management Plan for Shipra River Purification by Pollution abatement of Kanh River

Dr. Parag Dalal

Asst. Prof. School of Studies in Environment Management, Vikram University Ujjain

Abstract – To achieve the environment management in Ujjain, we have to see through the lifeline of Ujjain i.e. the Shipra River. [1] This river has many tributary one of them which pollutes the river most is Kanh River coming from Indore. The river Kanh takes the pollution of industrial area of Indore and also Indore city sewage directly, this gravitationally flows towards river Shipra. [2] The point of joining the Shipra River is known as Gandki River near Triveni. [3] The present stop dam is of mud and very small, so we have to make serious efforts so as to make river Shipra pollution free. For this achievement the pollution of Saraswati River and Kanh River should be reduced to ensure a good quality environment management plan for River Shipra.

Key Words – Ujjain, Shipra River, tributary, Kanh River, Indore, Gandki River, Triveni, Saraswati River.

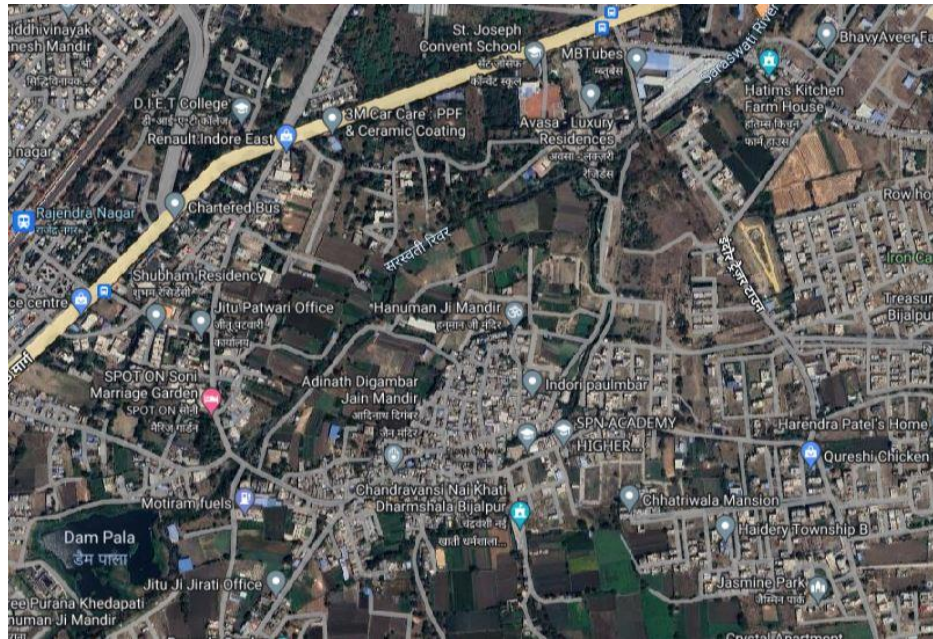
Introduction – There are various methods to analyze the pollution problem of Shipra River. There are various salient features of Ramwasa Stop Dam they are –

Table – 01 – Salient features of Ramwasa Stop Dam

Catchment Area	719.2 Km ²
Longitude	78°48'0"
Latitude	23°3'0"
Length of Stop Dam	76 m
Height	2.8 m
Gate Size	1.8m X 1.8m
Still Level	464 m
Storage Capacity	13MCFt
F.T.L. (Full Tank Level)	465 m

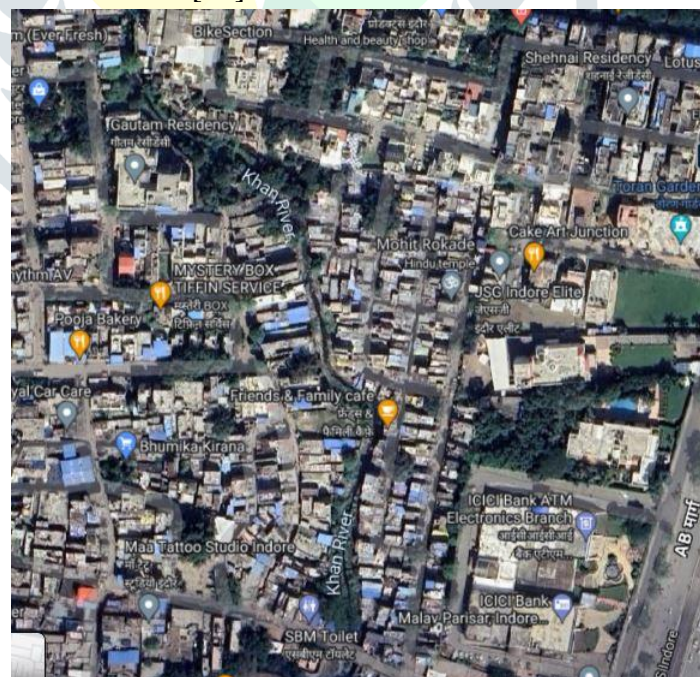
River Kanh Geography – The River Kanh is tributary of River Shipra which rises from Umariya about 10 Kms from Indore city. [4] The Kanh River has two streams as its tributary and more than 10 big sewers of Indore too. The Two main Rivers are –

1. **Saraswati River** – It Originates from Dam Pala, flows throughout the Indore City and join the Kanh River at Sanjay Setu with a total length of 9.47 Kms. [5] As this flow throws the city area the sewage is more in river than water. About 7 Big sewers and 12 small Sewers dump their waste in Saraswati River of Indore. [15]



Map – 01 – Origin of Saraswati River

2. **Kanh River** – The River Kanh originates from Asrawad Kund near Limbo-di-talab of Sanwer and the River Saraswati of Indore dumps into Kanh River. This River finally joins the Holy River Shipra near Ramwasa before Triveni Ghat. [6] The River flows through the 28 Kms of Indore city and has 2 big sewers and 12 small sewers as its tributary. The total length of Kanh River is about 72 Kms. The river Kanh does not have its original water; instead it's the sewage and Industrial discharge of Indore, Mangliya and Sanwer city area through which the Kanh flows. [14]



Map – 02 – Origin of Kanh River

The Various Big nallas that dump in Kanh are –

- i. Piliyakhal Nalla
- ii. Palasiya Nalla
- iii. Azad Nagar Nalla
- iv. Tulsi Nagar nalla
- v. Talawali Chandra Nalla
- vi. Khajrana Nalla

- vii. Bhamori Nalla
- viii. Narwar Nalla
- ix. Bhowrasala Nalla
- x. Arbindo Collage Nalla
- xi. Shakkar Khedi Nalla
- xii. Katkia Nalla

To analyze the pattern of pollution and make a sustainable Environment Management Plan we must study the river Kanh from its origin to whole journey till Ramwasa stop Dam near Triveni where it meets Holy River Shipra. [7, 19] The project done is from Ralamandal Indore to Triveni Ujjain where the total run of Kanh is 72 Kms out of which about 21 Kms it flows through Indore city area, collecting waste from the city. [8, 21]

There are about 470 sewers of Indore meeting Kanh River directly or through any channels out of these 470 sewers about 315 sewers are live out fall sewers directly flowing in River Kanh. There are 3 check Dams on Kanh, they are named after village they are placed. These are –

- i. Kayat Khedi Stop Dam
- ii. Panth Piplai Stop Dam
- iii. Ramwasa Stop Dam

These check dams store the sewage water of river, the local farmers use this water for irrigation purposes and various villages use its downstream water for drinking and sanitation too. Some outfalls meeting the Kanh River are –

Table – 02 – Outfalls Meeting Kanh River –

S. NO.	Water Body	Outfalls of Secondary Sewers
1.	Piliyakhal Nalla	160
2.	Saraswati River	67
3.	Palasiya Nalla	65
4.	Kanh River	61
5.	Khajrana Nalla	42
6.	Tulsi Nagar Nalla	37
7.	Azad Nagar Nalla	28
8.	Shakkar Khedi Nalla	7

For tackling with these contaminations in Indore there are three sewerage treatment plants with capacities 245 MLD, 80 MLD and 14 MLD are present at Kabit-khedi treatment Plant of Indore still it's not enough. [9, 16]

The sewage is to be lifted and taken to Kabit-khedi so in Indore they lift about 175MLD of sewage for the plant so we can say they are not running the Kabit-khedi treatment Plant to its capacity. [11] Remaining about 170 MLD flows directly in Saraswati and Kanh rivers throughout the city. The 175 MLD of Kabit-khedi treatment Plant also releases its purified water in Kanh so we can say that Kanh is partially treated water or sewage from Kanh River mixes to the river Shipra before Triveni about 4 Kms upstream of Ujjain city.

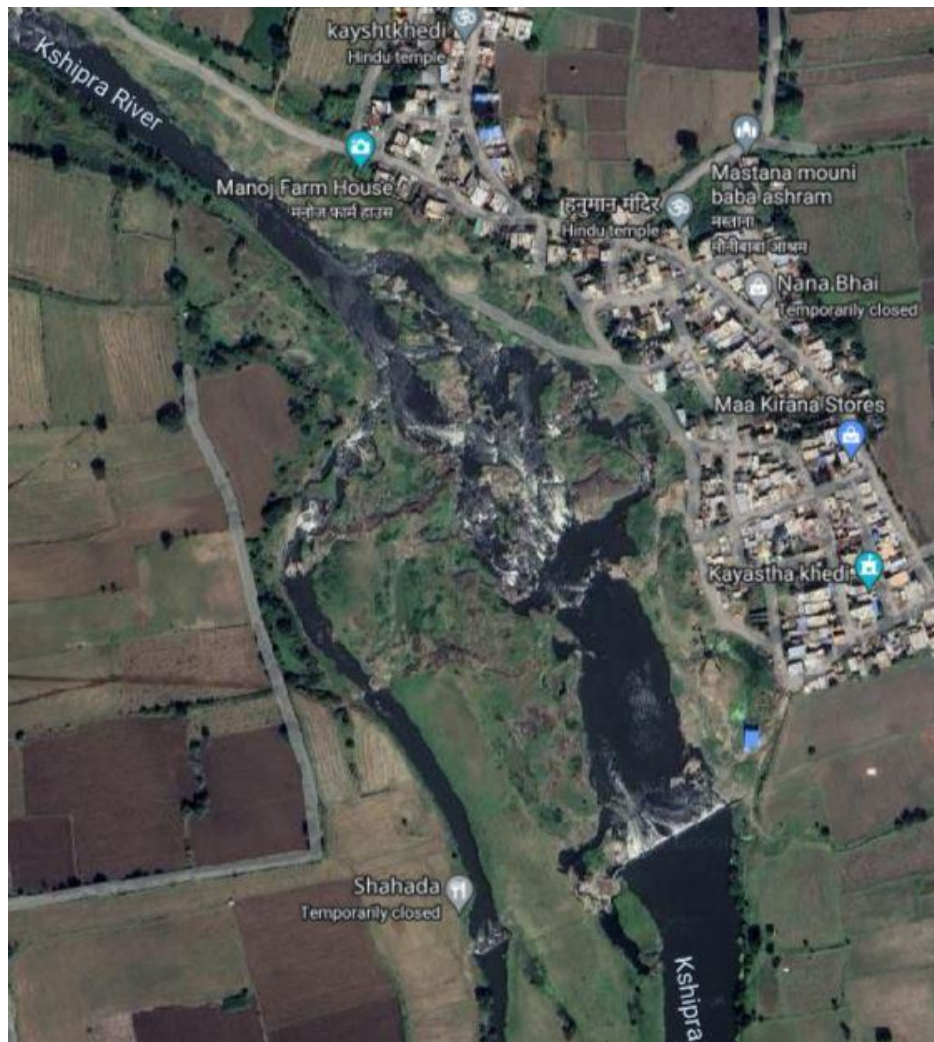
The Sanwer city bridge at Kanh River is named as Khan Bridge so the river also gets its name Khan after that bridge. [13, 18]

Result and Discussions – Various pollution characteristics of river Saraswati and Kanh are given in table no 3 we calculate the basic water parameters i.e. pH, T.D.S., B.O.D. and C.O.D. for 33 stations throughout the Journey of Saraswati and Kanh Rivers.

Table – 03 – Physico Chemical Characteristics –

S. No.	Drain Name	Drain Location	pH	BOD	COD	TDS
1.	Bijalpur	Saraswati River	7.96	104	588	1052
2.	Tejpur	Saraswati River	8.4	106	412	890
3.	Rajiv Gandhi square	Saraswati River	8.52	160	366	485
4.	Choitram Mandi	Saraswati River	7.66	110	862	955
5.	Badri bagh	Saraswati River	6.66	160	380	1170
6.	Karbala Bridge	Saraswati River	6.63	180	1176	1325
7.	Juni Indore	Saraswati River	6.65	170	1586	1850
8.	Lambadi	Kanh River	8.48	175	1568	1786
9.	Azad Nagar	Kanh River	6.35	140	2058	1683
10.	Piliyakhal Nalla	Saraswati River	5.96	480	1885	2136
11.	Palasiya Nalla	Kanh River	6.13	460	1088	1721
12.	Talawalichandra	Saraswati River	6.36	540	1736	1988
13.	Tulsi Nagar	Kanh River	6.88	260	1700	1300
14.	Khajrana Nalla	Kanh River	6.22	175	227	1360
15.	Narwar Nalla	Kanh River	6.40	154	150	920
16.	Bhowrasala Nalla	Kanh River	5.60	240	2560	8520
17.	Arbindo Collage Nalla	Kanh River	6.67	130	190	860
18.	Shakkar Khedi nalla	Kanh River	6.77	146	250	1220
19.	Katkiya Nalla	Kanh River	8.21	104	228	750
20.	Zoo Nalla	Kanh River	7.92	308	140	1500
21.	Toda Bridge Nalla	Kanh River	6.35	90	260	800
22.	Rambag Nalla	Saraswati River	7.73	147	268	650
23.	Bhagirathpura Nalla	Kanh River	8.91	100	500	680
24.	Kabitkhedi Nalla	Kanh River	8.25	350	170	860
25.	Shakkar khedi Nalla	Kanh River	7.01	120	600	850
26.	Dhan Khedi Nalla	Kanh River	8.52	80	556	882
27.	Darji Nalla	Kanh River	6.52	101	143	960
28.	Sanwer	Kanh River	8.10	80	150	600
29.	Badodiya Khan Nalla	Kanh River	7.72	138	350	630
30.	Jamalpura Nalla	Kanh River	8.40	100	265	860
31.	Ramwasa	Kanh River	7.98	220	358	760
32.	Ragho pipliya Nalla	Kanh River	7.79	190	320	788
33.	Triveni	Shipra River	8.01	100	360	670

The Proposal –



Map – 03 – Ramwasa Stop Dam

As in the above map we can see a temporary stop dam build near Ramwasa, this stop dam get damaged every rainy season as the runoff of the water is too high. [19] The length of this stop dam is 76m and height is 2.8 m the gates are also broken so the problem of pollution abatement is not been solved by this. [20] We are proposing a good stop dam at this place of 10 m height and more stop dams before and after it. If we construct a number small stop dam at a distance of 2 km throughout the running area of Kanh River and Saraswati River than this will increase the groundwater of the area and the runoff water will reduce in Shipra River. Also the farmers will take the water from this stop dams for their irrigation purpose.

What Happens in Rainy Season? Yes the stop dams will overflow so the current Kanh diversion should be completed as soon as possible so that it can be passed from Ujjain city so that Shipra is partially free from pollution.

References –

- 1 Dalal P, "Studies on Heavy Metal Exile through Natural Products Immobility in Water" International Journal of Science and Research Under process.
- 2 Dalal P., "Modeling of Screens and Grits for the Big Conduit of Nanakheda in Ujjain", International Journal of Science and Research (IJSR), Volume 12 Issue 5, May 2023, pp. 937-940, <https://www.ijsr.net/getabstract.php?paperid=SR23511101814>
- 3 Dalal P., "Disambiguation of Municipal solid waste to Syngas in Ujjain District by Plasma Gasification Technique", International Journal of Novel Research and Development (www.ijnrd.org), ISSN:2456-4184, Vol.8, Issue 4, page no.b359-b364, April-2023, Available :<http://www.ijnrd.org/papers/IJNRD2304139.pdf>

- 4 Dalal P., "Physico-chemical parameters of municipal solid waste analysis and disposal techniques at Ujjain city", International Journal of Engineering Development and Research (IJEDR), ISSN:2321-9939, Vol.11, Issue 1, pp.67-72, January 2023, URL :<http://www.ijedr.org/papers/IJEDR2301009.pdf>
- 5 Dalal P., "Direct Sludge Blanket Treatment of Cluster Industries in a Common Effluent Treatment Plant", International Journal of Emerging Technologies and Innovative Research (www.jetir.org), ISSN:2349-5162, Vol.10, Issue 3, page no.d401-d404, March-2023, Available :<http://www.jetir.org/papers/JETIR2303349.pdf>
- 6 Dalal P., "STOP PLASTIC BOTTLE POLLUTION WITH HOMEMADE EDIBLE WATER", International Journal of Current Science (IJCS PUB), ISSN:2250-1770, Vol.12, Issue 4, pp.1-4, October 2022, URL : <http://www.ijcspub.org/IJCS22D1001>
- 7 Dalal P., Pollution Abatement of Holy River Shipra Through Big Conduits of Nanakheda and Neelganga Journal of Indian Water Works Association Vol LIII(3) 2021 206-208 ISSN: 0970- 275X
- 8 Dalal P., Adsorptive stripping and voltammetric assurance of fabric colors International Journal of Chemical Science Volume 5(4), 2021, pp 04-10 ISSN: 2523-2843
- 9 Dalal P., Study on Colorant Industry Wastewater Treatment Process by Alum and Charcoal World Journal Of Advance Healthcare Research Vol 5 (2) 2021 223-225 ISSN: 2457 0400
- 10 Dalal P., Assessment of Water Quality in River Shipra in Scarc Water Conditions of 2019 World Journal Of Pharmacy And Pharmaceutical Sciences Volume 8(7), 2019 1017–1027 ISSN 2278 – 4357
- 11 Dalal P., et. al. A Case Study: Effect of industrial effluent contaminated water disposed in Chambal River on irrigation land International Research Journal of Engineering and Technology (IRJET) Volume: 05(03) 2018 2120–2123 ISSN: 2395–0072
- 12 Dalal P., Proposal For Live Turbidity Measurement Technique In Flowing Water World Journal Of Pharmacy And Pharmaceutical Sciences Vol – 7(5)2018 1628–1630 ISSN 2278 – 4357
- 13 Dalal P., et. al. Dye Industry Wastewater Treatment by Coagulation Process: Review Paper Imperial Journal of Interdisciplinary Research (I.J.I.R.) Vol–3(8) 2017 260–267 ISSN: 2454–1362
- 14 Dalal P., et. al. Drinking Water Purification with Ozone Process of Ujjain City Journal of Applied Science I.J.R.D.O. Vol. 3(06) 201720–24 ISSN: 2455–6653
- 15 Dalal P., et. al. Study on Dye Industry Wastewater Treatment by Coagulation Process International Journal Of Innovative Research In Technology Volume 4 (6) 2017 45–48 ISSN : 2349 – 6002
- 16 Dalal P., Vertical Flow Constructed Wetland for Treatment of Nitrogen Under Mesocosm Level Phragmites and Calamus Ecosystem of Gomutra IRA–International Journal of Applied Sciences Vol 5(2), 2016 66–73 ISSN 2455–4499
- 17 Dalal P., Seasonal Variations in Water Quality of Shipra River in Ujjain, India IRA–International Journal of Technology & Engineering Vol 3(3) 2016 236–246 ISSN 2455–4480
- 18 Dalal P., Pollution Prevention Management of Holy Saph Sagars in Ujjain City Journal of Environmental Science, Computer Science and Engineering & Technology Vol. 5(3) 2016 470–481 ISSN: 2278–1790
- 19 Dalal P., Liquid Bio–Medical Waste Management strategy Environment Conservation Journal Vol. 12(1&2) 2011 87–93 ISSN 0972–3099
- 20 Dalal P., Studies on Physico–Chemical parameters and development of an Environment Management module for purification of Holy river Shipra in Ujjain Journal on Indian Water Works Association Vol 42 (3) 2010 186–194 ISSN 0970–275X
- 21 Dalal P., Shipra river conservation by sewage treatment Pollution Research Journal Enviromedia Vol. 28(4) 2009 731–738 ISSN 0257–8050
- 22 Dalal P., Development of an Environment Management Module for Purification of Holy river Shipra Asian Journal of Chemical and Environmental Research Vol. 1(4) 2008 – 59–64 ISSN 0974–3049