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Assessment of Water Pollution Parameters in Sujan Ganga Canal and Its Impact on Environmental and Public Health

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Abstract

The Sujan Ganga Canal had substantial importance in shaping up the history and culture of Bharatpur. It has a length of approximately 2.9 km. More than 50 thousands people are living around Sujan Ganga Canal Our research is based on the pollution in Sujan Ganga Canal. Sujan Ganga Canal was used by people for drinking and other purpose but in due course of time the water had become so polluted that it could not be used for any purpose. Despite it, due to highly polluted water bad smell in the vicinity of Sujan Ganga Canal bothered the people. . In the present study, water samples were collected from Sujan Ganga Canal The samples have been analyzed for different physic chemical attributes like pH, BOD, COD, DO, Total Alkalinity, conductivity, Turbidity, Colour, Odour and TDS.The measurement of the water quality index has been taken into consideration

Key Words: BOD, COD, DO, Sujan Ganga Canal, emission, physicochemical, Turbidity, Total Alkalinity, conductivity, micro organism etc..

1.INTRODUCTION

The Sujan Ganga Canal is located in Rajasthan's Bharatpur district. This historically significant waterway had become a battleground for survival. It has also become a problem for the general public. The sacred Braj Land is thought to include the Bharatpur region (Braj Bhumi). Between 1733 and 1743, King Surajmal constructed a raw earthen fort in Bharatpur, which was bordered by a 2.9-kilometer Sujan Ganga canal. The depth of this canal, which has a width of 200-250 meters, is approximately 18.0 meters. There were arrangements from underground to fill water in the canal and discharge filthy water. The canal was refilled with water from the Ajan Dam, which is about 10 kilometers outside of town. Both systems have now completely crumbled. The city's dirt is currently being discharged into the canal as a result of this. A drain has also been installed around the canal with an estimated cost of 3 crores to stop the pollution, however it is absolutely idle.

Sujan Ganga Canal has taken on the appearance of a septic tank, with filthy drains, rubbish, polythene, and mud being dumped into the canal from all across the city. The canal's water has grown utterly filthy, causing people who pass by and live close to be upset by the stench.

The State Government has prepared a 120 crore action plan to revitalize the Sujan Ganga canal, clean it up, and make it environmentally important, but the sanction has yet to be granted.

The Archaeological Survey of India (ASI), which is under the Ministry of Culture, is in charge of preserving the mediaeval fort and the Sujan Ganga Canal. To avoid pollution in the Sujan Ganga canal,

the Municipal Corporation of Bharatpur, the Rajasthan State Pollution Control Board (RSPCB), and the Central Pollution Control Board (CPCB) are in charge. A Detail Project Report (DPR) was prepared by the Government of Rajasthan with the assistance of the Archaeological Survey of India (ASI) for the repair and upkeep of the Sujan Ganga Canal in accordance with an order of the Hon'ble Rajasthan High Court Bench in Jaipur. The case has been sent to the National Green Tribunal (NGT) in New Delhi, where it is currently waiting.

SALIENT FEATURES

I. In July 2013, New Dehli added Bharatpur District to the National Capital Region (NCR).

II. Bharatpur is a city in Rajasthan with a recently formed Municipal Corporation.

III. Bharatpur is also known as a Lohagarh and Rajasthan's Eastern Gate.

IV. Keoladeo National Park is a UNESCO World Heritage Site.

V. Bharatpur is located in the golden tourism triangle of Delhi, Jaipur, and Agra, and hence attracts a huge number of national and international visitors each year.

VI. Brij Bhumi also includes Bharatpur. because it is close to Lord Krishna's Birth Place in Mathura (U.P.)

VII. Bharatpur is well connected to other key cities in the country by road, rail, and air (the nearest airport is Agra Airport).

The Lohagarh Fort lies in the heart of Bharatpur city. The fort is built exactly in the centre of city with a very strategic planning outside fort wall, is a moat which is always filled up with water. Two bridges help to connect the fort to the way which runs the parkota wall of Bharatpur length about 2.90 Km. on the periphery of Sujan Ganga Canal.

FIGURE : 1

2. Body of Paper

CAUSES OF WATER POLLUTION

Water contamination can be caused by both natural and manmade factors. The most common anthropogenic causes of water contamination in Sujan Ganga Canal, however, include:

I. **Storm water runoff** – transporting a variety of hydrocarbons, petroleum products, and other pollutants from both urban and rural regions (ditches). On the water's surface, these frequently leave a sheen. Suspended sediment obstructs sunlight penetration and disrupts a body of water's natural balance.

FIGURE : 2 STORM WATER RUNOFF

II. **Sewage waste -** Pathogens (disease-causing microbes) and putrescible organic compounds are primarily found there. All sewage from cities and towns contains pathogens because pathogens are shed in faeces.

FIGURE : 4

SEWAGE WASTE

III. **Deliberate/illegal discharges of waste** – While illegal trash discharges into water bodies are less common today, they may still occur due to the expensive cost of effective waste disposal; illicit waste discharges into water bodies have been documented all around the world.

FIGURE : 3 ILLEGAL DISCHARGES OF WASTE

IV. **Construction activities** – construction work can release a number of contaminants into the ground that may eventually end up in groundwater.

V. **Plastic materials/waste in contact with water** – Solid trash encompasses a wide spectrum of junk products generated by both animals and humans. Solid cans and polythene are common household products. may deteriorate slowly, generating toxic substances that are hazardous to human health and the environment.

FIGURE : 5 SOLID WASTES

VI. **Disposal of personal care products and household wastes** – This is a severe issue because water releases are unexpected and difficult, if not impossible, to control. It is up to everyone of us to reduce our contribution to water pollution by limiting our use and disposal of such chemical items, as well as recycling as much as possible!

FIGURE : 6 HOUSEHOLD WASTES

VII. **Leaking landfills** – may contaminate the groundwater beneath the landfill with a wide range of pollutants (whatever is stored by the landfill).

VIII. **Animal waste** – contribute to biological contamination of waterways.

IX. **Aquatic Wastes** – Water contamination is caused by water hyacinth and aquatic plants. It is a long-leaved plant that grows quickly in water bodies and absorbs all critical nutrients that marine life requires.

FIGURE : 7 AQUATIC WASTES

X. **Religious Wastes** – Idols, flowers, and other items are submerged in the Sujan Ganga Canal durin g spiritual rituals.

FIGURE : 8 RELIGIOUS WASTES

1.9 CATEGORIES OF WATER POLLUTION

I. GROUNDWATER

Groundwater is formed when rain falls and seeps deep into the earth, filling the fractures, crevices, and porous areas of an aquifer (essentially an underground storage of water). For drinking water, about 60% of India's population relies on groundwater pumped to the surface. It is the only source of freshwater for some people in remote areas. When contaminants such as pesticides and fertilizers, as well as trash leached from landfills and septic systems, find their way into an aquifer, they make it unsuitable for human consumption. Contaminant removal from groundwater can be difficult, if not impossible, as well as expensive. An aquifer that has been poisoned may be unusable for decades, if not thousands, of years. As it seeps into a water body, groundwater can spread contaminants far from the initial polluting source. Because of pollution, most groundwater

in Bharatpur city and rural areas has become unsafe to drink.

II. SURFACE WATER

Surface water, which makes up around 70% of the earth's surface, is what fills our oceans, lakes, rivers, and all the other blue spots on the globe map. More than 40% of the water distributed to Indian homes comes from surface water from freshwater sources (i.e., sources other than the ocean). However, a large portion of that water is in jeopardy. According to the EPA's most current national water quality surveys, over half of our rivers and streams, as well as more than a third of our lakes, are filthy and unsafe for swimming, fishing, or drinking. Municipal and industrial waste discharges also contribute a significant amount of pollutants.

2.10 EFFECTS OF WATER POLLUTION

The Sujan Ganga Canal, which runs beside the fort walls, has been designated as a national monument. The flow of sewage water, trash, and filth into this waterway has resulted in harmful contamination and environmental damage. A lot of ailments are caused by contaminated water. Polluted water has an impact on not only the current generation, but also future generations, because its effects last a long time. Cancers, birth defects, and disorders of the skin, lungs, brain, kidneys, and liver are all more common as a result of contaminated water. The survival of human being is not possible without the water. Humans cannot survive without water. Pure, pollution-free water is essential for a healthy life. If water is polluted in any location, people and other living beings are obliged to consume it since they have no other choice and cannot survive without it. Water pollution in the Sujan Ganga Canal has become a severe problem in recent years. Thousands of fish died in November 2020 as a result of severely filthy water with low dissolved oxygen (O2) levels, according to Department of Fisheries scientists.

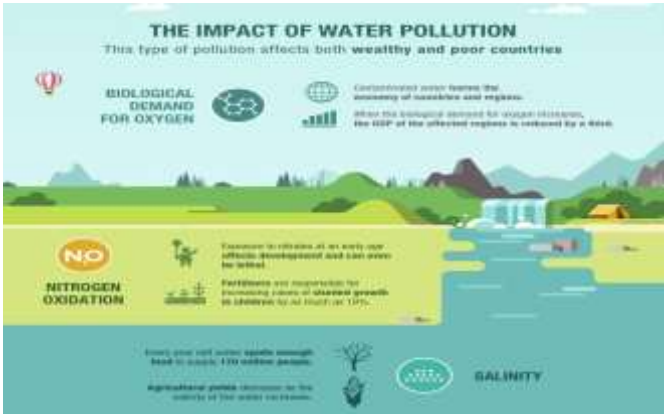

FIGURE : 9 IMPACT OF WATER POLLUTION

2.10.1 EFFECTS ON HUMAN BEINGS

Life follows a cycle, and humanity's irresponsible behavior frequently reappears. Adding toxins to water bodies has had a variety of consequences on the human family. According to a report published by the World Health Organization in 2017, 2.1 billion people lack access to safe drinking water. It was reported in 2019 that 785 million people lacked access to safe drinking water. Disease is one of the main consequences of this. The World Health Organization estimates that 120,000 people die each year from cholera. Mosquitoes born due to dirty water in canal & growing bushes which cause Malaria disease spreads in the city & other water related diseases.

FIGURE : 10 BAD SMELL

FIGURE : 11 UNSAFE WATER

2.10.2 DEATH OF AQUATIC LIFE

Polluted water has the greatest impact on animals and plants that rely on it for survival. The repercussions of the Deep Horizon disaster, according to statistics from the Center for Biological Diversity, provide a good peek into the impact of pollution on aquatic life. The 2010 Gulf of Mexico oil leak killed around 82,000 birds, 25,900 marine mammals, 6165 sea turtles, and an unknown number of fish and invertebrates, according to the report. In the month of November 2020, 20 thousand fish died in the Sujan Ganga canal.

FIGURE : 12 FISH DIED IN LACK OF DO

2.10.3 FOOD CHAIN DISRUPTION

Pollution causes the food chain to be disrupted by transporting toxins from one level to the next. Pollution has the potential to wipe out an entire food chain in some circumstances. These have an effect on other species by either producing excessive growth or death if the predator dies.

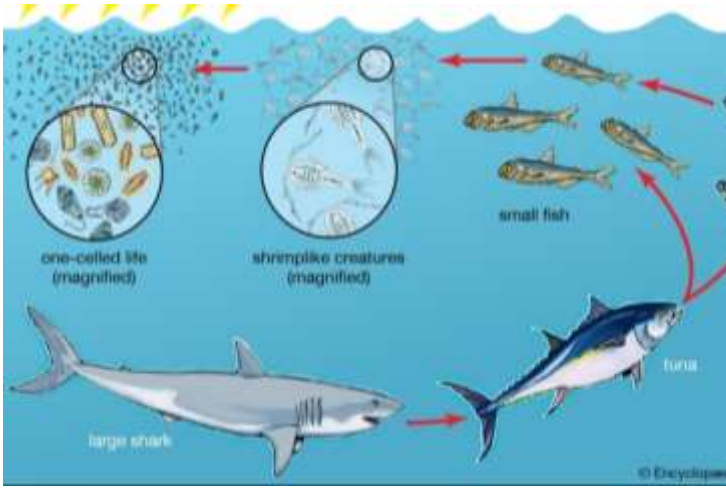

FIGURE : 13 FOOD CHAIN DISRUPTION

2.10.4 DESTRUCTION OF ECOSYSTEMS

The introduction or removal of some microbes causes ecological disruption. Nutrient pollution, for example, promotes the growth of algae, which depletes oxygen levels

in the water, resulting in the death of fish and other aquatic life.

2.10.5 ECONOMIC EFFECTS

It is costly to manage and restore polluted water bodies. Purifying drinking water costs more under normal circumstances, not to include the health costs of treating diseases caused by contaminated water.

2.11 PREVENTION OF POLLUTION

Bharatpur, in Rajasthan, is a historical site with its Fort proclaimed an officially protected monument under the Ancient Monuments and Archaeological Sites and Remains Act, 1958, and a canal named Sujan Ganga Canal encircling it. This canal, which is encircled by a moat wall, has been designated as a national monument. The sewage water, garbage, and filth in this canal pollute the ecosystem, resulting in environmental degradation. The State Pollution Control Board and the Municipal Council of Bharatpur are to blame for their purposeful inaction and the consequent deterioration of the locality's ecological ambiance to the detriment and prejudice of its residents.Cleaning of Sujan Ganga

2.11.1 CLEANING OF SUJAN GANGA

After dewatering dirty water, the heaps of dumped garbage, silt etc were partly removed from the bed & side of the canal. The vegetation, water weeds grown and rubbish dumped in the canal were also removed.

FIGURE : 14 CLEANING OF SUJAN GANGA

2.11.2 FILING CLEAN WATER

To promptly stop the pollution in the Sujan Ganga Canal encircling the Bharatpur Fort, remove the pilth and other trash, remove the pilth water, and make provisions for the flow of fresh water, as well as to remove the silt to preserve the canal's proper depth.

FIGURE : 15 FILING CLEAN WATER

2.11.3 CONSTRUCTION OF DRAIN

Construction of the peripheral wall around the aforesaid Sujan Ganga Canal and to take necessary steps that no dirty water or rubbish or pilth is thrown in Sujan Ganga Canal or by Municipality or by general hospital or by any other. Drain around the periphery of Sujan Ganga Canal was constructed to collect the sewage, domestic water & Zanana Hospital & water.

FIGURE : 16 **CONSTRUCTION OF DRAIN**

2.11.4 REMOVAL OF ENCROACHMENTS

To immediately remove encroachments made around the periphery of the Sujan Ganga Canal and to ensure that even in future no unauthorised constructions shall be done in the periphery of Sujan Ganga Canal. In compliance of Hon'ble Rajasthan High Court Bench Jaipur order dated 26.09.2013. The encroachments made around the periphery of the Sujan Ganga Canal and unauthorised constructions done were removed by the District Administration Bharatpur.

FIGURE : 17 **REMOVAL OF ENCROACHMENTS**

To develop necessary projects and schemes for the proper maintenance and reconstruction of damaged portions of Bharatpur Fort, which is a protected historical monument, as well as to develop necessary projects and schemes for the development of the Sujan Ganga Canal so that it becomes a tourist attraction.

To make necessary steps and projects and schemes for the proper disposal of sewerage water and other pilth and other unwholesome materials at the proper place;

2.11.5 FLOATING FOUNTAIN

To clean the dirty water of Sujan Ganga canal and to maintain oxygen level, it is best way to set up floating fountains as such in Nakki Lake Mount Abu. The proposal of floating fountains was submitted by Municipal Corporation Bharatpur before two years, But the permission yet awaited from the ASI Authority.

FIGURE : 18 **FLOATING FOUNTAIN**

2.11.6 FLOATING PADDLE WHEELS

30 floating paddle wheels will be setup by Municipal Corporation Bharatpur in Sujan Ganga Canal with estimated cost Rs. 1.92 Crore. The Floating Paddle Wheels will help to increase Dissolved Oxygen (DO) to save the aquatic life as presently it is measured almost zero. (Bharatpur Dainik Bhaskar 26.07.2021)

FIGURE : 19 **FLOATING PADDLE WHEELS**

2.11.7 WARNING SIGN BOARDS

The warming sign boards were also placed around the periphery of the Sujan Ganga Canal to prevent dirty water or rubbish in the canal. It came into force in compliance of Hon'ble Rajasthan High Court Bench Jaipur order Dated 26.09.2013. But some Boards have been damaged / spoiled by the anti social elements residing in the City. As per Rajasthan High Court order, public Health cannot put in hazard because of pollution.

FIGURE : 20 **WARNING SIGN BOARDS**

2.22 ASSESMENT OF WATER POLLUTION

Water contamination can be studied using a variety of approaches, including physical, chemical, and biological. The majority of them entail sample collection followed by specialised analytical procedures. Temperature, for example, can be measured in real time without the need for sample. To make it easier to compare results from different testing events, government agencies and research organisations have developed standardised, approved analytical test techniques.

I. Physical testing

Temperature, solids concentrations (e.g., total dissolved solids (TDS)), turbidity, colour, and odour are all common physical examinations of water.

II. Chemical testing

Analytical chemistry principles can be used to investigate water samples. For both organic and inorganic chemicals, there are numerous published test methods. pH, Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), nutrients (nitrate and phosphorus compounds), metals (including copper, zinc, cadmium, lead, and mercury), oil and grease, total petroleum hydrocarbons (TPH), pesticides, Total Alkalinity, Conductivity, and others are some of the most commonly used methods.

III. Biological testing

The use of plant, animal, or microbial indicators to assess the health of an aquatic habitat is known as biological testing. They're any biological species or collection of species whose function, population, or status can disclose the state of an ecosystem or the environment. Copepods and other small water

crustaceans, which are found in many water bodies, are an example of a group of bio-indicators. Changes (biochemical, physiological, or behavioural) in these organisms can be tracked to see if they signal a problem in their ecosystem.

RESEARCH METHODOLOGY

The approach is a technological procedure for monitoring and assessing water quality and pollution problems in large-scale water distribution networks, such as those located near significant bodies of water. The technique relies on low-cost field-kit instrumentation that may be handled by non-technical personnel, reducing the need for costly and time-consuming laboratory analysis.

The methodology is currently practical because instrument makers have made significant breakthroughs in the last 10 to 15 years, allowing a variety of analytical procedures, some of which are difficult, to be translated into field-kit technologies. The field-kit approach can now measure all of the primary parameters used in standard environmental analysis. Biochemical Oxygen Demand (BOD) and Total Organic Carbon Content (TOC) are the two primary outliers, both of which necessitate detailed, regulated laboratory techniques.

The first stage is for concerned departments or managers to determine which environmental issues are the most pressing and which areas are affected. They should next consult a local environmental specialist to determine which contaminants are the most dangerous and how often they should be measured (continuously, daily, weekly, fortnightly, monthly or continuously).

A preliminary site survey will be required at each chosen location to confirm the choice of parameter to be measured, the logistics of how the measurements will be carried out, and the identification of all required parameters. It's crucial to decide whether the goal is to gain a better understanding of how the water quality parameter changes over time (trend monitoring) or to conduct frequent surveillance that will allow any serious pollution incidents to be discovered and addressed.

Because the investigation sites may be of particular interest to other agencies with a formal interest in water quality monitoring, such as Pollution Control Authorities, Public Health Departments, and Universities, it should be investigated whether the proposed WQM procedure can be linked to any existing programmes. Not only would this aid in the development of the WQM technique, but it would also allow the information from other programmes to be used to check and counter-check the results.

3.1 SAMPLE COLLECTION OF WATER

Water sampling for physical or chemical testing can be done in a variety of ways, depending on the level of precision required and the contaminant's properties. Many contamination incidents are time-limited, most typically in conjunction with rainstorms. As a result, "grab" samples are frequently insufficient for accurately assessing contamination levels. Auto-sampler systems, which pump increments of water at either time or discharge intervals, are frequently used by scientists collecting this type of data.

Plants and animals are collected from the surface

water body during sampling for biological testing. The organisms may be recognised for biosurveys (population counts) and returned to the water body, or they may be dissected for bioassays to detect toxicity, depending on the type of evaluation.

3.2 NEED OF WATER TESTING

Water contamination can be studied using a variety of approaches, including physical, chemical, and biological. The majority of them entail sample collection followed by specialised analytical procedures. Temperature, for example, can be measured in real time without the need for sample. To make it easier to compare results from different testing events, government agencies and research organisations have developed standardised, approved analytical test techniques.

3.3 PERFOMING WATER TESTS

Samples for conducting tests to assess Dissolved Oxygen (D.O.), Biochemical Oxygen Demand (B.O.D.), Chemical Oxygen Demand (C.O.D.) and other pollutants were collected from MANSA DEVI GHAT, KORIYA GHAT CHOBURJA and KHERNI GHAT.

RESULTS AND FINDINGS

Water samples were collected from three locations (Ghats) of the Sujan Ganga Canal from the month November 2020 to July 2021 and tested for physical qualities, chemical contents. The prime water quality parameters, such as Conductance, DO, BOD, COD, pH, TDS, Turbidity, Color, Odour and Total alkalinity were analyzed. In the case of dissolve oxygen, standard for sustaining aquatic life is 4 mg/L, whereas for drinking purposes it is 6 mg/L. DO value for Sujan Ganga Canal along our particular reach lies in between 0 to 5.4 mg/L as shown in Table 4.1 to Table 4.5. While in the case of Biochemical Oxygen Demand (BOD), is 20 mg/l against which it is found 120 mg/L. Chemical Oxygen Demand (COD) is other important parameter of water quality assessment. A standard for drinking purposes is 4 mg/L, & 250 mg/l for polluted water which is not acceptable in-terms of our analyzed value as it comes out more than 420 mg/L. pH is the indicator of acidic or alkaline condition of water status. The standard for any purpose in-terms of pH is 6.5-8.5, in that respect; the pH value found 7.6 to 8.7 Total Dissolved Solids(TDS) concentrations are 3454 to 3754 mg/L against 500-2000 mg/l. This is due to the fact that waste assimilation capacity increased in Sujan Ganga Canal. Higher values of total solids are mainly due to the presence of silt and clay particles in the Canal. The value of conductance of Sujan Ganga Canal is 6423 to 6855µs against 2250 µs. Conductance depends on the number of ions present in water Turbidity is the indicator of clarity condition of water status. The standard value lies between 5 to 10 NTU but in Sujan Ganga Canal it was found 8 to 18 NTU. Color is the indicator of purity of water status. The standard value lies between 5 to 25 Hz but in Sujan Ganga Canal it was found 25 to 140 Hz which is greenish in color and highly polluted. Odour indicates the level of pollution of water. The odour of water should be unobjectionable as per standards but in Sujan Ganga Canal it was found of very bad smell. From the

above results of water samples collected from various locations/Ghats of Sujan Ganga Canal, it can be concluded that water of Sujan Ganga Canal is highly polluted & not useable for any purpose.

TABLE- 1

SHOWING WATER POLLUTANTS

LOCATION OF SOURCES	MANSA DEVI GHAT	KORIYA GHAT CHOBURJA	KHIRNI GHAT
VILLAGE / HABITATION	BHARATPUR	BHARATPUR	BHARATPUR
VILLAGE CODE	URBAN	URBAN	URBAN
DATE Of COLLECTION	21/03/2025	21/03/2025	21/03/2025
LAB SAMPLE No	1	2	3

ALL RESULT EXCEPT PH ARE IN MG/L

pH	7.6	7.7	7.6
TURBIDITY	9 NTU	8 NTU	9 NTU
COLOUR	26 HZ	25 HZ	26HZ
ODOUR	Bad Smell	Bad Smell	Bad Smell
TOTAL ALKALINITY	393	400	390
TDS	3566	3454	3545
CONDUCTIVITY	6655	6555	6423
DO[1 ST DAY]	0	0	0

TABLE – 2

TABULAR PRESENTATION OF DO, BOD & COD

BOD TEST FOR 3 DAY AT 27ºC

LOCATION OF SOURCES	MANSA DEVI GHAT	KORIYA GHAT CHOBURJA	KHIRNI GHAT
VILLAGE / HABITATION	BHARATPUR	BHARATPUR	BHARATPUR
VILLAGE CODE	URBAN	URBAN	URBAN
DATE Of COLLECTION	21/03/2025	21/03/2025	21/03/2025
LAB SAMPLE No	S-1	S-2	S-3

ALL RESULTS EXCEPT PH ARE IN MG/L

SAMPLE TEST	MANSA DEVI GHAT	KORIYA GHAT CHOBURJA	KHERNI GHAT
BOD @ 27º C for 3 days	120	110	100
COD	420	400	400
DO	0.0	0.0	0.0

TABLE - 3

TABULAR PRESENTATION OF DO, BOD &COD

LOCATION OF SOURCES	MANSA DEVI GHAT	KORIYA GHAT CHOBURJA	KHIRNI GHAT
VILLAGE / HABITATION	BHARATPUR	BHARATPUR	BHARATPUR
VILLAGE CODE	URBAN	URBAN	URBAN

DATE Of COLLECTION	24/05/2025	24/05/2025	24/05/2025
LAB SAMPLE No	1	2	3

ALL RESULTS IN Mg/L

SAMPLE TEST	**MANSA DEVI GHAT**	**KORIYA GHAT CHOBURJA**	**KHIRNI GHAT**
BOD AT 5 DAYS @ 20º C	6	3.2	5.5
COD	40	50	55.4
DO	3.1	2.3	3.3

TABULAR PRESENTATION OF POLLUTANTS

LOCATION OF SOURCES	**MANSA DEVI GHAT**	**KORIYA GHAT CHOBURJA**	**KHIRNI GHAT**
VILLAGE / HABITATION	BHARATPUR	BHARATPUR	BHARATPUR
VILLAGE CODE	URBAN	URBAN	URBAN
DATE Of COLLECTION	25/06/2025	25/06/2025	25/06/2025
LAB SAMPLE No	S 1	S 2	S 3

All result except Ph are in mg/L

pH	8.7	8.7	8.6
TURBIDITY	13NTU	18 NTU	15NTU
COLOR	134.6	135.8	140
ODOUR	Bad Smell	Bad Smell	Bad Smell
TOTAL ALKALINITY	200	230.8	287
TDS	3486	3754	3565
CONDUCTIVITY	6855	6765	6663
DO	3.6	4.1	5.4
BOD for 5 day	3	1	3.3
COD	124	112	120

TABLE -4
TABULAR PRESENTATION OF BOD ,COD ,DO POLLUTANTS

LOCATION OF SOURCES	**MANSA DEVI GHAT**	**KORIYA GHAT CHOBURJA**	**KHIRNI GHAT**
VILLAGE / HABITATION	BHARATPUR	BHARATPUR	BHARATPUR
VILLAGE CODE	URBAN	URBAN	URBAN
DATE Of SAMPLE COLLECTION	24/05/2025	24/05/2025	24/05/2025
LAB SAMPLE No	X	Y	Z

ALL RESULT IN Mg/L

SAMPLE TEST	***MANSA DEVI GHAT***	***KORIYA GHAT CHOBURJA***	***KHIRNI GHAT***
BOD AT 5 DAYS @ 20º C	*5.3*	*2.3*	*3.5*
COD	*110*	*126*	*125.8*
DO	*4.2*	*4.0*	*3.8*

CONCLUSIONS

Water pollution is a global concern, and the worst effects of polluted water are being felt by the international community. Discharge of home and agricultural wastes, population increase, excessive use of pesticides and fertilisers, and urbanisation are all major drivers of water contamination. Bacterial, viral, and parasite infections spread through contaminated water, posing a threat to human health. It is advised that a proper waste disposal system be in place, and that garbage be processed before entering the river. To combat pollution, educational and awareness programmes should be conducted. Water is essential to human and other living creatures' existence, hence its preservation and long-term supply cannot be overstated. The availability of clean water is jeopardized by a variety of human activities, the most notable of which is pollution, which has an impact on the ecosystem and produces a variety of climatic changes. While many wastewater treatment procedures are being investigated by industry and treatment plants, some industries continue to discharge untreated wastewater into water bodies. As a result, enforcing efficient environmental protection measures will be extremely beneficial to the ecosystem and, by extension, to humans. These environmental protection policies will operate better if they are aligned with the goals and objectives of diverse parties involved in environmental degradation. This will be a step in the right direction in terms of reducing water contamination.

SUGGESTIONS -

I. Use Less Plastic

It is extremely difficult to decompose plastic once it has been manufactured. Much of the plastic we use ends up in the world's water supply, making it much more difficult to remove and dispose of securely.

You will be helping the environment if you can use as little plastic as possible. Plastic garbage also spreads rot and pollutes the environment.

II. Reuse Items

When purchasing non-recyclable items, such as plastic, it is preferable to reuse them as many times as possible. This practise reduces your consumption, which means fewer of those products end up in water bodies like the Sujan Ganga canal.

III. Recyclable Options

If you have a choice between two items, choose the one that is easily recyclable. Glass bottles, for example, are far better for the environment than plastic bottles.

IV. Handle Toxic Chemicals Properly

Toxic substances such as ammonia, bleach, paint, paint thinner, and a variety of other chemicals are becoming a serious problem, and dumping them down the drain or toilet has serious consequences. As a result, proper disposal is critical.

For safe disposal of these hazardous materials, there are numerous recycling centres and drop-off sites that can recycle old paint, used motor oil, and other chemicals.

V. Shop to Stop Water Pollution

In the first place, try to avoid purchasing products that contain persistent and harmful substances. Non-toxic and biodegradable cleansers, as well as pesticides, are now widely available.

Spending a little more money on those items will automatically reduce water pollution.

VI. Do Not Throw Away Medicines

Also, never discard drugs in a body of water. It's not a good idea to flush pills, liquid or powder prescriptions, or narcotics down the toilet or smash them in your kitchen sink disposal, even if you don't need them.

Hormones and other substances contaminate drinking water and have negative effects on fish and other aquatic creatures. They also have negative impacts on septic systems. Follow the right procedures for disposing of all sorts of medical waste.

VII. Garbage Disposal

Despite the fact that most homes have a garbage disposal in the sink, it is best to use it as little as possible. Solid objects can be broken down by this mechanism, however those objects are detrimental to the water supply. When at all possible, dump them in the trash can.

VIII. Use Environmentally Friendly Detergents

Purchase environmentally friendly detergents, soaps, and dishwashing products wherever possible. While these are occasionally more expensive, you are helping the environment by utilising less toxic components.

IX. Conserve Soil

Because the topsoil is carried by the pouring rain, pollutants that get into the soil spread through the water. This is typical, but if the soil is exposed to too much phosphates or other toxic compounds, the ground might suffer major damage. To stop the soil from moving, put banks directly in front of rivers.

X. Cellar Drains or Septic Tanks

Make sure your cellar drain or septic tank is not emptying straight into your sewerage system. This might lead to major problems as well as contamination in the system. Consult your local water authority for information on how to properly manage a cellar drain or septic tank.

XI. Just Do Not Litter!

If you're visiting a place with a lake, river, or ocean nearby, don't dump any rubbish or litter into or near the water. Even if you put a wrapper on the beach, it will be picked up and carried into the water supply by the tide.

XII. Plant Fauna at Lakes or Rivers

If you live in an area where a water body, lake or river is present, you might want to think about planting some local fauna near the water.

Trees can also be beneficial. These natural objects not only appear beautiful when they develop, but they also help preserve the adjacent water supply from contamination by reducing erosion that washes pollution into the water. Fauna also reduces the amount of carbon dioxide in the water, bringing the pH level back into balance.

XIII. Clean Up Litter

If you see someone throwing trash near a water source, tell them to retain it and dispose of it somewhere. Pick up trash on the ground, put it in a bag, and dispose of it when you get home. It's all too easy to believe that someone else will take care of everything for us, but by being proactive, we can all help each other and the environment.

XIV. Stop Chemical Pollution

If you see someone pouring chemicals into a body of water or hear about such an occurrence, contact your local water authority. Tell them what you observed or learned, and beg them to act. You are allowing the situation to worsen if you remain silent.

XV. Eat Organic Food More

Sticking to an organic diet reduces the amount of chemical pollution that ends up in the water. Organic foods tend to be produced with few synthetic chemicals.

XVI. Join Water Conservation Organizations

You may join a water conservation organisation if you have the time. If you have a hectic schedule, try donating a couple times a year to a local group. Small donations can make a big difference for those striving to preserve our water supply safe and clean.

XVII. Education and Enforcement

Educate the people to reduce CO_2 emissions to prevent global warming and acidification of the water bodies and to follow rules and regulation of environmental acts.

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