सत्यमेव जयते

केवल शासकीय कार्य हेतु
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भारत सरकार
GOVERNMENT OF INDIA
जल शक्ति मंत्रालय
MINISTRY OF JAL SHAKTI

केंद्रीय जल आयोग
CENTRAL WATER COMMISSION
नर्मदा बेसिन संगठन, भोपाल
NARMADA BASIN ORGANISATION, BHOPAL

जल गुणवत्ता आँकड़े पुस्तक
नर्मदा बेसिन

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Water Quality Data Book
Narmada Basin

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प्रस्तावना

हमारे पूर्वज यह जानते थे कि पृथ्वी पर जीवों का जीवन तभी स्वस्थ, सुखी और दीर्घ रह सकता है, जब शुद्ध जल और शुद्ध वायु की उपलब्धता हो |

नदी घाटियों के समुचित नियोजन, संरक्षण और विकास में प्रभावी कार्यवाही के लिये केंद्रीय जल आयोग एक शीर्षस्थ तकनीकी संस्था के रूप में कार्यरत है | इस संस्था द्वारा विभिन्न जल विज्ञानीय प्रेक्षण तंत्र का प्रबोधन भारत की वृहद तथा मध्यम नदियों पर स्थित विभिन्न स्थलों से संचालित है | जल के प्रबोधन के लिये इन्ही कुछ महत्वपूर्ण स्थलों से जल नमूने एकत्रित किये जाते है | नर्मदा नदी के जल गुणवत्ता प्रबोधन से संबंधित आकड़ों का संकलन, नर्मदा मंडल, भोपाल तथा ताप्ती मंडल, सूरत स्थित प्रयोगशालाओं में किया जाता है | नर्मदा बेसिन के लिये इन आकड़ों का संकलन वर्ष 1978-79 में सात स्थलों से शुरू किया गया था | RDC II के पत्र क्रमांक File No.T-100014/5/2019-RD-II DTE, दिनांक-15.10.2019 के निर्देशानुसार वर्ष 2019-20 में 16 नवीन जल गुणवत्ता स्थलों पर जल गुणवत्ता का कार्य शुरू किया गया | वर्तमान में 32 स्थलों पर जल गुणवत्ता आकड़ों का आकलन कार्य किया जा रहा है |

नर्मदा नदी की जल गुणवत्ता के प्रभावी प्रबोधन हेतु जल गुणवत्ता आंकड़े पुस्तक का प्रकाशन किया जा रहा है| इस पुस्तक में वर्ष 2020-21 के दौरान नर्मदा बेसिन में 32 स्थलों के विश्लेषण आकड़ें संकलित किये गए है | संकलित आकड़ों के आधार पर ही जानकारी इस पुस्तक में समाहित है इसके आलावा प्रेक्षण तकनीक, आकलन पद्धति, स्थलवार वृतपत्र, रासायनिक घटक आदि भी इस पुस्तक में उल्लेखित है |

आशा है इस पुस्तक में दी गयी जानकारियां एवं संकलित आकड़ें, जल-गुणवत्ता एवं प्रबंधन के क्षेत्र में कार्य कर रही संस्थाओं के लिए काफी लाभप्रद रहेंगे, इस पुस्तक को और अधिक उपयोगी बनाने के लिये सुझाव आमंत्रित है |

इस पुस्तक के आकड़ों से संकलन, विश्लेषण तथा प्रकाशन हेतु नर्मदा बेसिन संगठन के अधिकारियों एवं कर्मचारियों ने समर्पण की भावना से एक दल के रूप में जो कार्य किया है, वह प्रशंसनीय है, मैं सभी का आभार व्यक्त करता हूँ |

स्थान- भोपाल
अप्रैल 2024

(नीलम नारोलिया)
अधीक्षण अभियंता (समन्वय)

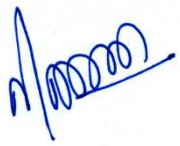
PREFACE

The Central Water Commission is functioning as an apex technical body for effective action in proper planning, conservation and development of river basins. The monitoring of various hydrological observation systems by this institution is conducted from various sites located on the major and medium rivers of India. Water samples are collected from some of these important places for monitoring of water quality. The data related to water quality monitoring of Narmada River is collected in laboratories located in Narmada Division, Bhopal and Tapi Division, Surat. The compilation of these data for Narmada basin was started in the year 1978-79 from seven sites. As per the instructions given by RDC II, letter number File No.T-100014/5/2019-RD-II DTE, dated-15.10.2019, water quality work has been started at 16 new water quality sites in the year 2019-20. At present, work is being done to assess the water quality data at 32 sites.

The book "Water Quality Data" is being published for effective monitoring of the water quality of Narmada River. In this book, analysed data of 32 sites in Narmada basin have been compiled during the year 2020-21. Information contained in this book is only on the basis of the collected data. Apart from this, observation techniques, estimation method, site wise circular, chemical components etc. are also mentioned in this book.

Hope the information and collected data given in this book will be very beneficial for the organizations working in the field of water quality and management; suggestions are invited to make this book more useful.

The work done by the officers and employees of Narmada Basin Organization in the form of a team with the spirit of dedication for compilation, analysis and publication of the data for this book is commendable for which I express my gratitude to all.



Place-Bhopal
April 2024

(Neelam Narolia)
Superintending Engineer (C)

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Abbreviation and Symbols Used

W YEAR	:	Water Year
cumec	:	Cubic metre per second
mmhos/cm	:	Micro mhos per centimetre
+	:	Cation
-	:	Anion
ppm	:	Part per million
m.e./ l	:	Milli equivalent per litre
^{0}C	:	Temperature in degree centigrade
pH	:	Negative logarithm of hydrogen ion concentration
K^{+}	:	Potassium ion
Na^{+}	:	Sodium ion
Ca^{++}	:	Calcium ion
Mg^{++}	:	Magnesium ion
NH_4^{+}	:	Ammonium ion
CO_3^{--}	:	Carbonate ion
HCO_3^{-}	:	Bicarbonate ion
Cl^{-}	:	Chloride ion
F^{-}	:	Fluoride ion
SO_4^{--}	:	SulpHate ion
SO_3^{--}	:	SulpHite ion
NO_3^{-}	:	Nitrate ion
NO_2^{-}	:	Nitrite ion
PO_4^{---}	:	PHospHate ion
SiO_3^{--}	:	Silicate ion
DO	:	Dissolved oxygen
BOD	:	Bio-chemical oxygen demand
Sod % age	:	Sodium percentage
SAR	:	Sodium Adsorption ratio
RSC	:	Residual Sodium Carbonate
NDN	:	Narmada Division
TDN		Tapi Division
NBO	:	Narmada Basin Organisation
MPN	:	Most probable number
mg/l	:	Milligram per litre
max	:	Maximum
min	:	Minimum
WQ	:	Water Quality
Sq km	:	Square Kilometre
m	:	Metre
TDS	:	Total Dissolved Solids
SNR	:	Sample not received
NF	:	No flow
RD	:	River dry
NTU	:	NepHelometeric Turbidity Unit

1 Introduction

1.1 Scope

Watersheds are valuable resource for the country. Adequate knowledge of these watersheds is necessary for a rational formulation of water management policies. Moreover growth of anthropogenic activities in river basins may lead to river pollution. Keeping this in mind, Central Water Commission observed a number of pHysico-chemical parameters of surface water to understand the water quality of large watersheds.

Narmada Basin is the fifth largest among the twelve major river basins of the country. Narmada is an interstate river having total length of 1312 km, of which 1079 km flows in Madhya Pradesh, 35 km flows along the common border of Madhya Pradesh and Maharashtra, 39 km flows along the border of Maharashtra, and Gujarat and 159 km flows in Gujarat. The total basin area is approximately 98796 sq km, out of which 85859 sq km lies in Madhya Pradesh, 1538 sq km in Maharashtra and 11399 sq km. lies in Gujarat. The river originates from the Amarkantak Plateau of Maikal range at about 1057 metre above Mean Sea Level (MSL) and major part flows through narrow elongated trough running east to west with slight inclination towards the south, before it drains into the Arabian Sea at the Gulf of Khambat near Bharuch in Gujarat.

In its 1312 km long stretch, tributaries of various sizes contribute water and their pollution load to the Narmada River. A characteristic change in the water quality is expected when the tributaries join the river. There are about 19 major tributaries of Narmada listed by Narmada Water Disputes Tribunal, out of which eight are being considered for water quality assessment during present observation period.

1.2 Sources of Information

During the reporting period of 2020-21 the results of water sample analysis carried out in the laboratory at Narmada Division Bhopal are compiled in this report. The water samples were collected at 34 hydro meteorological and water quality monitoring stations in Narmada basin on monthly basis, the same are shown in Plate-1. Out of 34, 32 water quality stations are functioning under the administrative control of Narmada Division, Bhopal while two stations (at Sl No. 1 and 2 of the Table1-1) are under the administrative control of Tapi Division, Surat. These stations are functioning under plan scheme viz. “Development of Water Resources Information System”, during 12th Five Year Plan. The sites and the codes of Water Quality Observation Stations in the Narmada basin are given in Table 1-1.

Table 1-1, Water Quality Observation Stations in Narmada Basin Organization

Sr.	Name of River/ Stations	Code No.	Sr.	Name of River/ Stations	Code No.
1.	Orsang at Chandwada	CW1NAL000513	18.	Gaur at Bhalwara	CW1NAU001445
2.	Narmada at Garudeshwar	CW1NAL000434	19.	Narmada at Gorakhpur	WQSS-202001
3.	Narmada at Mandleshwar	CW1NAM000189	20.	Narmada at U/S Dindori (Badaipur)	WQSS-202002
4.	Kundi at Kogaon	CW1NAM000442	21.	Narmada at D/S Dindori (Jogi Tikariya)	WQSS-202003
5.	Narmada at Handia	CW1NAM000392	22.	Narmada at Malpur	WQSS-202004
6.	Ganjal at Chhidgaon	CW1NAM000379	23.	Narmada at Mandla (Rangrejghat)	WQSS-202005
7.	Narmada at Hoshangabad	CW1NAM000278	24.	Narmada at Bargi Nagar	WQSS-202006
8.	Narmada at Sandia	CW1NAU000450	25.	Narmada at U/S Jabalpur	WQSS-202007
9.	Shakkar at Gadarwara	CW1NAU000391	26.	Narmada at D/S Jabalpur	WQSS-202008
10.	Narmada at Barmanghat	CW1NAU000188	27.	Hiran at D/S Patan	WQSS-202009
11.	Sher at Belkheri	CW1NAU000395	28.	Sher at D/S Point of Sher before cof. Narmada	WQSS-202010
12.	Hiran at Patan	CW1NAU000530	29.	Narmada at U/S Hoshangabad	WQSS-202011
13.	Banjar at Bamni	CW1NAU000781	30.	Narmada at D/S Hoshangabad	WQSS-202012
14.	Burhner at Mohgaon	CW1NAU000390	31.	Ganjal at Papan	WQSS-202013
15.	Narmada at Manot	CW1NAU000378	32.	Narmada at Mortakka	WQSS-202014
16.	Narmada at Dindori	CW1NAU000672	33.	Narmada at U/S Mandleshwar	WQSS-202015
17.	Narmada at Mandla	CW1NAU000327	34.	Uri at Dhulsar	WQSS-202016

1.3 Availability of Water Quality Data

The dates of starting water quality observations on the various water quality stations are given in **Table 1-2**. Long-term monitoring data may facilitate to assess and give an idea of the status of the aquatic environment in the Narmada basin.

Table 1-2, Details of Sites on Narmada River

Sl. No	Name of Site	Site Opening Date	Data availability
Group 'A' : Sites in operation	Orsang at Chandwada	15.03.1980	Up to date
	Narmada at Garudeshwar	15.06.1977	- do -
	Narmada at Barmanghat	01.06.1979	- do -
	Narmada at Mandleshwar	18.06.1979	- do -
	Narmada at Hoshangabad	15.07.1979	- do -
	Narmada at Handia	01.08.1979	- do -
	Shakkar at Gadarwara	16.08.1979	- do -
	Narmada at Sandia	15.09.1979	- do -
	Narmada at Manot	01.01.1980	- do -
	Hiran at Patan	01.09.1986	- do -
	Sher at Belkheri	01.09.1986	- do -
	Burhner at Mohgaon	16.09.1986	- do -
	Kundi at Kogaon	01.08.1986	- do -
	Ganjal at Chhidgaon	16.09.1986	- do -
	Narmada at Dindori	15.03.1990	- do -
	Banjar at Bamni	20.06.1999	- do -
	Narmada at Mandla	03/09/2019	-do-
	Gaur at Bhalwara	01.06.2019	-do-
	Narmada at Gorakhpur	07.08.2020	-do-
	Narmada at U/S Dindori (Badaipur)	07.08.2020	-do-
	Narmada at D/S Dindori (Jogi Tikariya)	07.08.2020	-do-
	Narmada at Malpur	07.08.2020	-do-
	Narmada at Mandla (Rangrejghat)	07.08.2020	-do-
	Narmada at Bargi Nagar	07.08.2020	-do-
	Narmada at U/S Jabalpur	07.08.2020	-do-
	Narmada at D/S Jabalpur	07.08.2020	-do-
	Hiran at D/S Patan	07.08.2020	-do-
	Sher at D/S Point of Sher before cof.	07.08.2020	-do-
	Narmada at U/S Hoshangabad	07.08.2020	-do-
	Narmada at D/S Hoshangabad	07.08.2020	-do-
	Ganjal at Papan	07.08.2020	-do-
	Narmada at Mortakka	07.08.2020	-do-
	Narmada at U/S Mandleshwar	07.08.2020	-do-
	Uri at Dhulsar	07.08.2020	-do-
Group ' B' Sites closed	Uri at Dhulsar	01.07.2008	Closed on 31.03.2017
	Goi at Pati	01.07.2008	Closed on 01.03.2017
	Narmada at Jamtara	28.10.1971	Closed on 31.03.2001
	Narmada at Rajghat	15.06.1979	Closed on 01.07.2007
	Chhota Tawa at Ginnore	16.07.1979	Closed on 31.03.1999
	Banjar at Hridaynagar	01.09.1986	Closed on 07.04.2002
	Tawa at Manegaon	15.09.1986	Closed on 20.08.1991
	Narmada at Mortakka	01.09.1999	Closed on 01.07.2007

1.4 Common Characteristics of Water

The water samples received at Divisional Laboratories are stored in deep freezer and analysed for various pHysical, chemical and biological parameters as mentioned in **Table 1-3**.

Table 1-3, Parameters analysed at the Divisional Laboratory

Physical					
1	Colour	3	EC_GEN (µmho/cm)	5	TDS (mg/L)
2	Odour	4	pH_GEN (pH units)	6	Temp (deg C)
				7	Turb (NTU)
Chemical					
1	Alk-PHen (mg $CaCO_3$/L)	6	F (mg/L)	11	NO_2+NO_3 (mg N/L)
2	ALK-TOT (mg $CaCO_3$/L)	7	HCO_3 (mg/L)	12	NO_2-N (mg N/L)
3	Ca (mg/L)	8	K (mg/L)	13	NO_3 -N (mg N/L)
4	Cl (mg/L)	9	Mg (mg/L)	14	o-PO_4-P (mg P/L)
5	CO_3 (mg/L)	10	Na (mg/L)	15	SiO_2 (mg/L)
				16	SO_4 (mg/L)
Biological					
1	BOD (mg/L)	3	DO (mg/L)		
2	COD (mg/L)	4	DO_SAT% (%)		
Chemical Indices					
1	HAR_Ca (mg $CaCO_3$/L)	3	Na% (%)	5	SAR (-)
2	HAR_Total (mg $CaCO_3$/L)	4	RSC (-)		

2 Water Quality Observation

2.1 Sampling

The periodicity of collection of water samples is monthly i.e., on the first working day of the month provided that the samples reaches to the Divisional Laboratory at Bhopal on the next day. These water samples are collected at 0.6 times the depth from surface without disturbing the bottom sediments, from the point across the river section having maximum depth or maximum flow along the cross section of the river, so that sample must be representative of the source (i.e. water stream) that is to be evaluated. The samples are collected in clean and pre-rinsed plastic bottles of one litre capacity, filled up to their full capacity without air bubbles. Measurements of some other parameters like in-situ temperature; depth, velocity of water etc. are written on paper slip and pasted on the polythene bottles for identification. The water samples thus collected are sent for analysis to Divisional Laboratory Bhopal by special messenger so as to reach within 24 hours of collection for minimum changes, if any, in the properties during the transit period (time when the samples are collected and the time when they are analysed).

2.2 Method of Analysis

The water sample preserved in laboratory is analysed using standard analytical and/or instrumental methods, which are quick, usually much faster than purely chemical procedures and suited for number of routine analysis. The quantitative estimation for the parameters detailed above are determined by titrimetric methods, electrical methods and optical methods. The applications of different methods to analyse pHysical and chemical characteristics of water sample are summarized below.

2.2.1 Physical Characteristics

The major pHysical characteristics or parameters of water are,

- **Discharge** in cumecs is measured by current meter and this average rate of volume of water with concentration of pollutant give the possibility to detect significant pollution sources and its peaking factor.

- **Colour** in water is the result of dissolved extracts from metals in rocks and soil, from organic matter in soil and plants, and occasionally from industrial by-products. The colour of the water sample is determined by visual comparison method.

- **Odour** of the water sample is determined by qualitative human receptor method.

- The in-situ **temperature** in degree centigrade is measured by thermometer and is recorded to decide the intended use of water, the treatment process to remove impurities and its transport.

- The **pH** of water is measure of the acidic or basic nature of the water. Water with pH lower than 7 are acidic and those with a higher pH are basic. This is observed with a pH meter which actually measures the electrical potential exerted by the H^+ ions.
- Measuring its **electrical resistance** between two electrodes dipped in the sample and comparing its resistance with the resistance of a standard solution of potassium chloride at 25° C by Electrical Conductivity meter determines the conductivity of the water sample. The value of conductivity coefficient is measured in micro-mhos/cm and is an indicator of type of dissolved salts in water.

- **Total Dissolved Solids (TDS)** concentration in mg/l, in conjunction with a detailed chemical analysis, is used to assess the suitability of various water sources for alternative uses such as industry or agriculture. Its value should be between 0.55 and 0.70 of the conductivity coefficient. This is measured with a potentiometer.

- **Turbidity** is defined as the presence of soil particles, clay, silt and other colloidal impurities in the water which obstruct the passage of light through water and hence decreases the clarity of water. The degree of turbidity measured in NTU depends on the fineness of the particles and their concentration. This is measured with a turbidity meter (discussed under nepHelometeric method) by measuring the interference to the passage of light through a water sample. Surface waters in which there is significant increase in the level of turbidity after a rainfall are often identified as "flashing waters". Such water is more difficult to treat than waters in which the level of turbidity remains reasonably constant.

2.2.2 Chemical Characteristics

The common tests used to quantify the inorganic constituents of water are:

- **Titrimetric Method**: The term titrimetric analysis refers to quantitative chemical analysis carried out by determining the volume of a solution of accurately known concentration (standard solution), which is required to react with the known volume of solution of the substance to be determined. The end point of titration is detectable by perceptible change of colour of the solution produced usually by the addition of an auxiliary reagent known as indicator. Parameters determined by this technique are **Carbonate, Bicarbonate, Chloride, Calcium, Magnesium, Oxygen Absorbed in four Hrs, Chemical Oxygen Demand [COD], Dissolved Oxygen [DO] and Biochemical Oxygen Demand [BOD].**

- **SpectropHotometeric/ Colorimeteric Method**: This instrument works on measurement of the amount of optical energy of a particular wavelength absorbed/transmitted by the solution. The instruments used in this method are UV Double Beam SpectropHotometer. A series of standard solutions of known concentration are prepared and treated with appropriate reagents to produce colored solution. Then the light of specific wavelength is passed through the standard solutions. The transmittance / absorbency is plotted against the concentration and this is termed as calibration or reference curve. Water samples are treated with the same reagents for colour development under the same experimental conditions and then transmittance/ absorbance is measured. Concentration of the constituent is being determined from calibration curve. Parameters analysed by this method are **Iron, Chromium, Ammonium, Fluoride, Nitrate, Nitrite, PHospHate and Silicate.**

- **Flame SpectropHotometery Method:** This is also an optical method of analysis based on measurement of the amount of energy of a particular wavelength emitted. If a solution containing 'a metallic salt is aspirated into a flame, the metal atoms are excited by the thermal energy of the flame and then electrons in the ultimate shell go to higher energy levels and eventually return to ground state and emit the energy in form of radiation. The filter, interposed between the flame and the pHotocell detector, is used to select a given emission line. To convert the measured emission values into the concentration of the substance being determined, a calibration curve is plotted by aspirating into the flame, samples of solutions containing known concentration of salts (standard solution). A grapH is plotted with measured emission against the

concentration of solutions. Then the test samples are aspirated for flame emission and emission intensity is measured. From these values of emission from unknown test solution, concentration of substance can be determined from the calibration curve. Parameters estimated through this method are **Sodium and Potassium**.

- **Nephelometeric Method**: The measurement of the intensity of the scattered light at right angles to the direction of the incident light as a function of the concentration of the solution is the basis of nepHelometric analysis. The calibration curve is plotted by measuring the scattering intensity of standard sulpHate solutions added with barium chloride to inhibit the growth of micro crystals of barium sulpHate against concentration of solution. Then the test samples are allowed for scattering. The concentration of sulpHate-ion content of unknown solution is determined from the calibration curve. Turbidity of the water sample is measured directly by calibrating the instrument with standard turbid solution of 10% Hexamethylene and 1 % Hydrazine sulpHate. The parameter analysed by nepHelometric method are **Sulphate and turbidity.**

2.3 Explanatory Notes

For dissemination of processed information, the water quality database has been tabulated in succeeding pages for making realistic assessments. The information is grouped under two headlines, namely, History Sheet and Water Quality Data of hydrological station. Tabular summaries bring together processed data from selected stations detailed previously in this book. These explanatory notes below are designed to assist in the interpretation of characteristics incorporated in the book.

- Frequency of publication of "**Water Quality Data Book**" is annual and water year starts from 1st June of every calendar year to the 31st May of the next calendar year and covers one complete hydrological cycle. This book presents updated water quality data for the period 1st June 2020 to 31st May 2021.

- In the history sheet, a catalogue is designed to identify the hydrological records grouping name of river basin, location, catchments area, period of the stream flow and water quality (including general comment on sediment transport) record and status of water quality.

- Every permanent site is given a unique identifier code that will be used to denote all data and other Information pertinent to the site. A unique nine-column numeric code system is used for site identification to facilitate multi data storage and its retrieval. The first two columns are identifiers measuring authority. Third and fourth columns are for drainage zone/basin. Fifth and Sixth columns are for Independent River and last three i.e. seventh, eighth and ninth columns are for station numbers within the region.

- The following four chemical indices namely Hardness number, Sodium percentage, Sodium Absorption Ratio and Residual Sodium Carbonate are calculated by empirical formula taking different observed values. These are detailed below:

Hardness number

Calcium and Magnesium are the principle ions that make the water hard. Hardness is expressed in milligrams per litre of equivalent Calcium Carbonate. Hardness Number is expressed by:

$$\textbf{Hardness Number} = (\mathbf{Ca^{++} + Mg^{++}}) \times \mathbf{50}$$

Sodium percentage

Salts of Calcium, Magnesium, Sodium and Potassium in irrigation water are critical for almost all crops. In excessive quantities these salts reduce the osmotic activity of plants, preventing the absorption of nutrients by plant and indirect chemical effects on the metabolism of the plant. These ions also affect soil permeability, preventing adequate drainage or aeration. Percent Sodium is defined as the percentage of the Sodium content of water in the total cations content.

Sodium percentage is determined by dividing the Sodium content by the sum of Calcium, Magnesium, Sodium and Potassium contents by formula given below:

$$\textbf{Sodium Percentage} = \frac{\mathbf{Na^{+}} \times \mathbf{100}}{\mathbf{Ca^{++} + Mg^{++} + Na^{+} + K^{+}}}$$

$$(\boldsymbol{all\ expressed\ as\ milliequivalents\ per\ litre})$$

Sodium Absorption Ratio

Since Calcium and Magnesium will replace Sodium more readily than vice versa, the ratio reflects the Sodium hazard. The SAR indicates the relative activity of the Sodium ions in exchange reactions with the soil. Irrigation water with a high SAR will cause the soil to tighten up. The Sodium Adsorption Ratio (SAR) is defined as:

$$\textbf{Sodium Absorption Ratio} = \frac{\mathbf{Na^{+}}}{\left[\frac{(\mathbf{Ca^{++}+Mg^{++}})}{\mathbf{2}}\right]^{\mathbf{1/2}}}$$

(Residual Sodium Carbonate)

Residual Sodium Carbonate is calculated using the following formula

$$\textbf{Residual Sodium Carbonate} = (\mathbf{CO_3^{--} + HCO_3^{-}}) - (\mathbf{Ca^{++} + Mg^{++}})$$

The U.S. Department of Agriculture has classified irrigation waters in four groups depending on SAR and the specific conductance (Diagram for classification and use of Irrigation Water is given at **Annexure -1**. Classification of water sample for suitability of agriculture as per salinity diagram is indicated lastly on compilation sheet.)

2.4 Comments on Site-wise Data of Water Quality for 2020-21

Orsang at Chandwada

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.12.2020 (2.6) and pH value below tolerance limit is on 05.10.2020 (8.5) and on 01.01.2021 (8.6) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at Garudeshwar

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 02.06.2020 (2.0) and on 01.09.2020 (2.1) and on 05.04.2021 (2.4) and other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at Mandleshwar

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.07.2020 (3.7) and on 07.08.2020 (2.6) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Kundi at Kogaon

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 02.07.2020 (3.1) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at Handia

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 02.11.2020 (3.3) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Ganjal at Chhidgaon

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 02.06.2020 (2.0) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at Hoshangabad

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.12.2020 (2.4) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at Sandia

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.09.2020 (2.8) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Shakkar at Gadarwara

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.12.2020 (3.1) and on 01.02.2021 (3.4) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at Barmanghat

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 07.08.2020 (3.8) and on 01.09.2020 (2.0) and on 01.02.2021 (2.8) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Sher at Belkheri

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 02.06.2020 (2.4) and on 02.11.2020 (2.7) and on 01.12.2020 (2.1) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Hiran at Patan

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.12.2020 (4.8) and on 01.01.2021 (2.6) and on 01.02.2021 (3.0) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Banjar at Bamni

The degree of hardness at this station is within 'Medium Hard Water' range, The ionic concentrations of all the chemical constituents analysed were below the tolerance limit attributed to all user classes A, B, C, D and E.

Burhner at Mohgaon

The degree of hardness at this station is within 'Medium Hard Water' range, The ionic concentrations of all the chemical constituents analysed were below the tolerance limit attributed to all user classes A, B, C, D and E.

Narmada at Manot

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 05.04.2021 (2.0) and pH value below tolerance limit is on 05.10.2020 (6.3) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at Dindori

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 07.08.2020 (2.6) and on 01.03.2021 (2.4) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at Mandla

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.09.2020 (2.6) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Gaur at Bhalwara

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.12.2020 (2.8) and on 05.04.2021 (2.4) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at Gorakhpur

The degree of hardness at this station is within 'Medium Hard Water' range, The ionic concentrations of all the chemical constituents analysed were below the tolerance limit attributed to all user classes A, B, C, D and E.

Narmada at U/S Dindori (Bidaipur)

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 02.03.2021 (4.6) and pH value below tolerance limit is on 02.11.2020 (8.11) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at D/S Dindori (Jogitikariya)

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 02.03.2021 (4.8) and pH value below tolerance limit is on 02.11.2020 (8.11) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at Malpur

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.12.2020 (3.2), 01.02.2021 (2.0) and on 01.03.2021(2.5) and pH value above tolerance limit is on 02.11.2020 (8.10) and on 05.10.2020 (8.8) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at Mandla (Rangrejghat)

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.12.2020 (3.2) and other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at Barginagar

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.12.2020 (2.8) and on 05.04.2021 (2.4)

and other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at U/S Jabalpur

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.01.2021 (2.4) and other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at D/S Jabalpur

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.01.2021 (2.3) and other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Hiran at D/S Patan

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.12.2020 (4.1), 01.01.2021 (2.2), 01.02.2021(3.0) and on 01.03.2021(2.7) and other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Sher at D/S point of sher before Conf. Narmada

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 02.11.2020 (2.1) and on 05.04.2021 (3.2) and other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at U/S Hoshangabad

The degree of hardness at this station is within 'Medium Hard Water' range, The ionic concentrations of all the chemical constituents analysed were below the tolerance limit attributed to all user classes A, B, C, D and E.

Narmada at D/S Hoshangabad

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.12.2020 (1.3) and other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Ganjal at Papan

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.03.2021 (2.2) and on 05.04.2021 (4.9) and other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at Mortakka

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 01.09.2020 (2.0) and on 22.05.2021 (2.5) and other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Narmada at U/S Mandleshwar

The degree of hardness at this station is within 'Medium Hard Water' range, The ionic concentrations of all the chemical constituents analysed were below the tolerance limit attributed to all user classes A, B, C, D and E.

Uri at Dhulsar

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were above the tolerance limits on 07.08.2020 (2.6) other parameters values were within their respective tolerance limits for all designated use classes. A, B, C, D & E.

Analysis Results

2.5 General

Based on discussion presented in Chapter 1 and 2, the results of chemical analysis carried out at each of 34 sites in respect of 24 parameters are presented in this chapter.

2.5.1 Method of Presentation

In the succeeding pages station wise water quality data/ parameters are presented comprising of history sheet and water quality analysis results in tabular form. The series of the water quality observation stations is arranged from the mouth of the river to the upstream giving priority to an intermediate tributary station in a similar fashion.

History sheets give brief description of the water quality observation station. This sheet also contains the status of water quality at the site as per Bureau of Indian Standard IS: 2296-1982. The water analysis result tables are given for the river water only and for the parameters analysed at the site and at the laboratory. The table showing tolerance limits of water quality parameters for various uses of water as per IS: 2296-1982 is given as Annexure -2.

Plate 1: Line Diagram of Narmada Basin

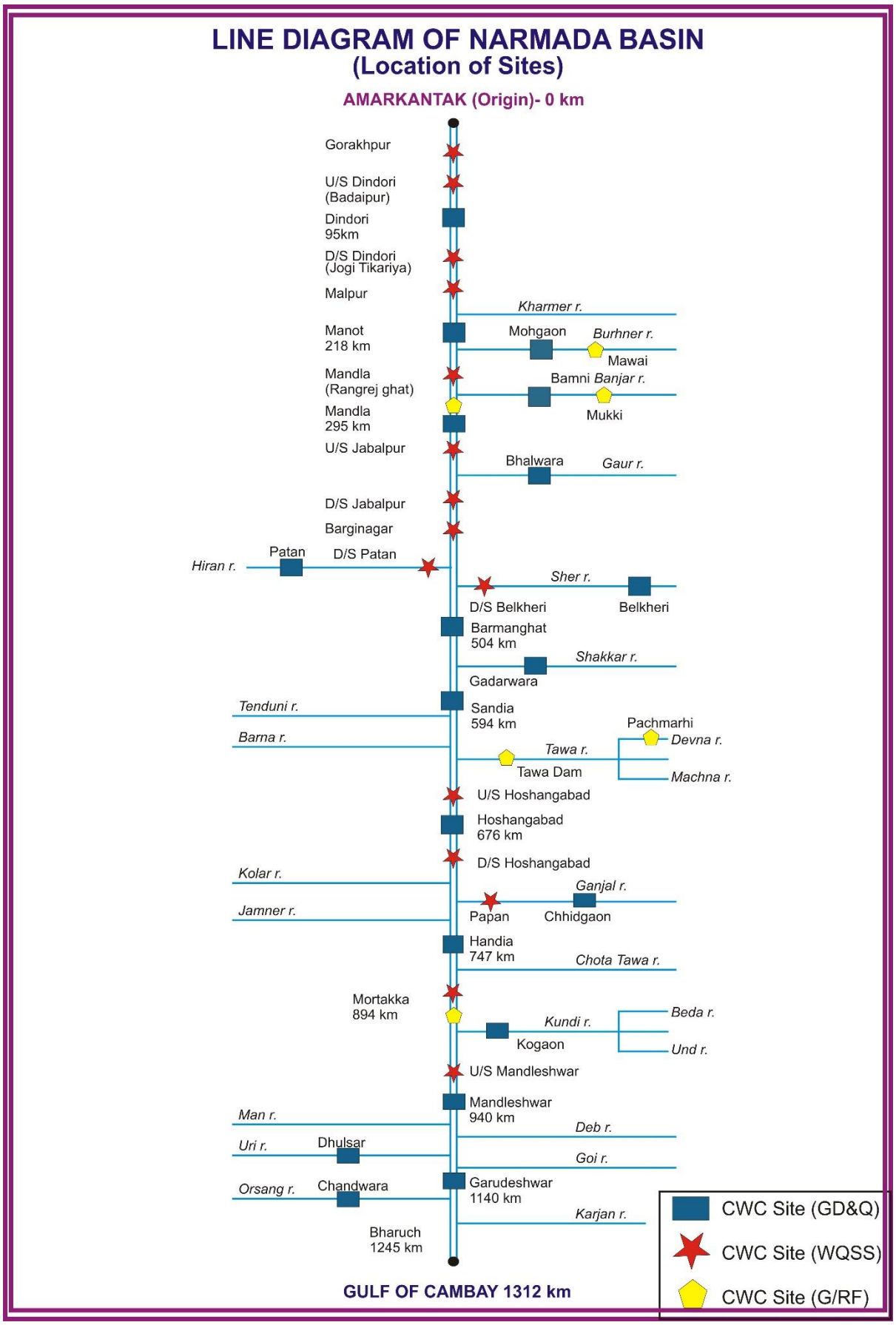
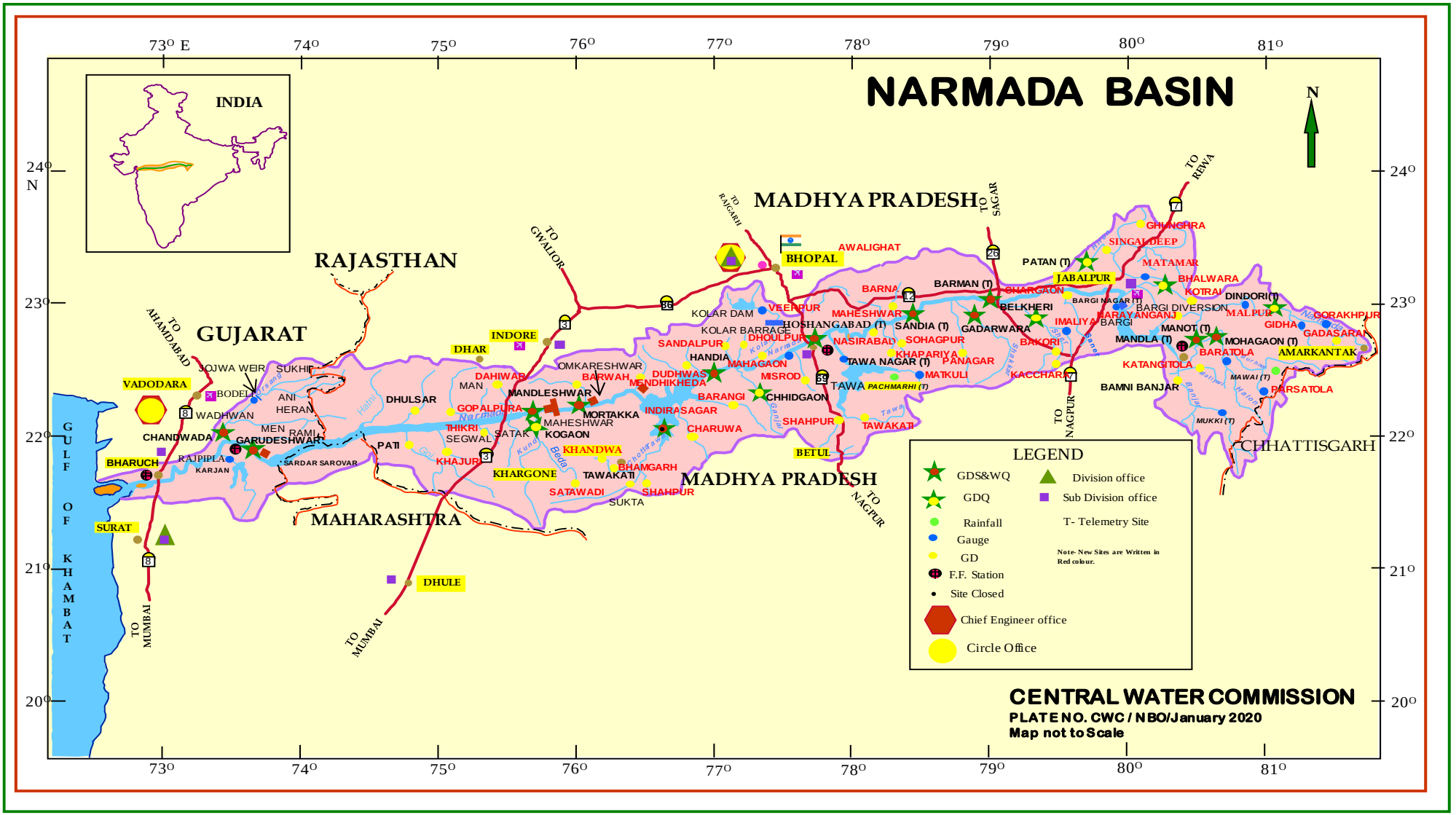


Plate 2: Index Map of Narmada Basin



For International / State boundaries and Coast Line refer to Survey of India Maps

2.6 Orsang at Chandwada

HISTORY SHEET

			Water Year	**:**	**2020-2021**
Site	**:**	**Orsang at Chanwada**	**Code**	**:**	CW1NAL000513
State	:	Gujarat	District		Vadodara
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:	Orsang	Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Orsang
Division	:	Tapi Division, Surat	Sub-Division	:	LNSD, Bharuch
Drainage Area	:	3846 Sq. Km.	Bank	:	Right
Latitude	:	22°30'00"	Longitude	:	73°27'58"
		Opening Date	Closing Date		
Gauge	:	11/09/1979			
Discharge	:	01/11/1979			
Sediment	:	01/08/1988			
Water Quality	:	15/03/1980			

Water Quality Datasheet for the period : 2020-21

Station Name : Orsang at Chandwada (CW1NAL000513) Division : Tapi Division, Surat
Local River : Orsang Sub-Division: LNSD Bharuch

River Water Analysis

S. No	Parameters	02/06/ 2020	01/07/ 2020	03/08/ 2020	01/09/ 2020	05/10/ 2020	02/11/ 2020	01/12/ 2020	01/01/ 2021	01/02/ 2021	01/03/ 2021	05/04/ 2021	01/05/ 2021	21/05/ 2021
	PHYSICAL													
1	Q (cumec)	0	2.92	0	0	88.37	8.38	5.71	5.66	0	0	0	0	0
2	Colour_Cod (-)	RIVER DRY	NO FLOW/ STAGNANT WATER	NO FLOW/ STAGNANT WATER	NO FLOW/ STAGNANT WATER	Clear	Clear	Clear	Clear	SAMPLE NOT RECEIVED	NO FLOW/ STAGNANT WATER	NO FLOW/ POOLING CONDITION	NO FLOW/ POOLING CONDITION	NO FLOW/ POOLING CONDITION
3	EC_GEN (µmho/cm)					486	562	668	680					
4	Odour_Code (-)					odour free	odour free	odour free	odour free					
5	pH_FLD (pH units)							8.8	7.3					
6	pH_GEN (pH units)					8.5	8.1	8.3	8.6					
7	SS (mg/L)					72	96	56	58					
8	TDS (mg/L)					285	350	396	408					
9	Temp (deg C)					28.0	21.0	22.0	16.0					
	CHEMICAL													
1	Alk-Phen (mgCaCO3/L)					3.9	0.0	11.9	7.9					
2	ALK-TOT (mgCaCO3/L)					158	171	193	205					
3	Ca (mg/L)					41	34	36	39					
4	Cl (mg/L)					44.0	76.0	89.0	87.0					
5	CO3 (mg/L)					4.7	0.0	14.3	9.5					
6	F (mg/L)					0.33	0.31	0.62	0.46					
7	HCO3 (mg/L)					183	209	206	231					
8	K (mg/L)					3.8	3.1	3.4						
9	Mg (mg/L)					15.8	19.7	24.1	24.5					
10	Na (mg/L)					32.7	56.2	64.9						
11	NH3-N (mg N/L)					0.07	0.06	0.06	0.83					
12	NO2+NO3 (mg N/L)					2.25	1.80	1.63	1.86					
13	NO2-N (mgN/L)					0.02	0.02	0.02	0.03					
14	NO3-N (mgN/L)					2.23	1.78	1.61	1.83					
15	P-Tot (mgP/L)					0.030	0.020	0.040	0.030					
16	SiO2 (mg/L)					32.1	24.6	24.3	29.3					
17	SO4 (mg/L)					12.7	11.8	14.4	13.6					
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)					1.1	1.7	2.6	1.8					
2	COD (mg/L)					7.9	13.7	16.9	13.6					
3	DO (mg/L)					6.6	8.5	8.9	8.9					
4	DO_SAT% (%)					84	95	101	90					
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)					102	85	89	97					
2	HAR_Total (mgCaCO3/L)					168	167	189	199					
3	Na% (%)					29	42	42						
4	RSC (-)					0.0	0.1	0.1	0.1					
5	SAR (-)					1.1	1.9	2.1						
	PESTICIDES													

Water Quality Summary for the period : 2020-21

Station Name : Orsang at Chandwada (CW1NAL000513) Division : Tapi Division, Surat

Local River : Orsang Sub-Division : LNSD Bharuch

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	184	1240.08	2.09	85.41
2	EC_GEN (µmho/cm)	4	680	486	599
3	pH_FLD (pH units)	2	8.8	7.3	8.1
4	pH_GEN (pH units)	4	8.6	8.1	8.4
5	SS (mg/L)	4	96	56	71
6	TDS (mg/L)	4	408	285	360
7	Temp (deg C)	4	28.0	16.0	21.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	4	11.9	0.0	5.9
2	ALK-TOT (mgCaCO3/L)	4	205	158	182
3	Ca (mg/L)	4	41	34	37
4	Cl (mg/L)	4	89.0	44.0	74
5	CO3 (mg/L)	4	14.3	0.0	7.1
6	F (mg/L)	4	0.62	0.31	0.43
7	HCO3 (mg/L)	4	231	183	207
8	K (mg/L)	3	3.8	3.1	3.4
9	Mg (mg/L)	4	24.5	15.8	21
10	Na (mg/L)	3	64.9	32.7	51.3
11	NH3-N (mg N/L)	4	0.83	0.06	0.25
12	NO2+NO3 (mg N/L)	4	2.25	1.63	1.88
13	NO2-N (mgN/L)	4	0.03	0.02	0.02
14	NO3-N (mgN/L)	4	2.23	1.61	1.86
15	P-Tot (mgP/L)	4	0.040	0.020	0.03
16	SiO2 (mg/L)	4	32.1	24.3	27.6
17	SO4 (mg/L)	4	14.4	11.8	13.1
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	4	2.6	1.1	1.8
2	COD (mg/L)	4	16.9	7.9	13
3	DO (mg/L)	4	8.9	6.6	8.2
4	DO_SAT% (%)	4	101	84	93
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	4	102	85	93
2	HAR_Total (mgCaCO3/L)	4	199	167	181
3	Na% (%)	3	42	29	38
4	RSC (-)	4	0.1	0.0	0.1
5	SAR (-)	3	2.1	1.1	1.7
	PESTICIDES				

Water Quality Seasonal Average for the period: 2015-2020

Station Name : Orsang at Chandwada (CW1NAL000513) Division : Tapi Division, Surat

Local River : Orsang Sub-Division : LNSD Bharuch

River Water

S.No	Parameters	2016	2017	2018	2019	2020	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2017	2018	2019	2020	2021
		Flood					Winter					Summer				
	PHYSICAL															
1	Q (cumec)	50.84	28.11	20.66	79.92	17.67	5.36	4.79	25.81	16.75	4.94	0	0	0	0	0
2	EC_FLD (µmho/cm)	350	700				650					300				
3	EC_GEN (µmho/cm)	383	492	591	386	486	553	572	673	572	637	580	1535			
4	pH_FLD (pH units)	7.8	8.0				8.2	7.9			8.1	8.0	9.3			
5	pH_GEN (pH units)	8.0	8.1	8.3	8.1	8.4	8.2	7.9	8.4	8.2	8.3	8.2	8.6			
6	SS (mg/L)	130	165	50	208	72	165	228	67	67	70	190	67			
7	TDS (mg/L)	253	320	361	236	285	359	377	417	340	385	384	912			
8	Temp (deg C)	25.0	26.0	27.6	26.0	28.0	13.5	16.3	15.7	21.0	19.7	24.0	28.0			
9	TS (mg/L)	383	485	340			524	632				574	979			
10	Turb (NTU)	16.0	1.6	8.0			1.0	2.3				1.0	2.0			
	CHEMICAL															
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	8.6	0.0	3.9	0.0	0.0	14.2	0.0	6.6	0.0	20.8			
2	ALK-TOT (mgCaCO3/L)	93	127	153	120	158	167	125	168	170	190	100	189			
3	Ca (mg/L)	35	42	36	32	41	38	41	40	40	36	32	45			
4	Cl (mg/L)	71.5	75.6	60.8	41.0	44.0	67.5	68.0	88.4	67.0	84.0	58.0	156.0			
5	CO3 (mg/L)	0.0	0.0	10.4	0.0	4.7	0.0	0.0	17.1	0.0	7.9	0.0	25.0			
6	F (mg/L)	0.10	0.13	0.21	0.39	0.33	0.13	0.17	0.27	0.61	0.46	0.14	0.31			
7	HCO3 (mg/L)	113	155	165	147	183	204	153	170	208	215	122	179			
8	K (mg/L)	3.7	5.0	2.9	2.1	3.8	3.6	4.6	3.2	2.7	3.2	3.8				
9	Mg (mg/L)	7.3	8.9	18.1	13.5	15.8	20.7	10.2	19.4	19.1	22.8	4.9	23.6			
10	Na (mg/L)	43.0	52.4	34.0	30.0	32.7	44.4	45.5	65.1	48.6	60.6	41.0				
11	NH3-N (mg N/L)	0.13	0.11	0.12	0.29	0.07	0.13	0.16	0.10	0.05	0.32	0.12	0.22			
12	NO2+NO3 (mg N/L)	0.17	0.20	1.19	1.90	2.25	0.20	0.20	0.85	1.95	1.76	0.18	0.64			
13	NO2-N (mgN/L)	0.06	0.07	0.04	0.05	0.02	0.08	0.08	0.01	0.02	0.02	0.05	0.09			
14	NO3-N (mgN/L)	0.11	0.13	1.14	1.85	2.23	0.11	0.12	0.84	1.94	1.74	0.13	0.55			
15	o-PO4-P (mg P/L)			0.120									0.080			
16	P-Tot (mgP/L)	0.135	0.130	0.062	0.090	0.030	0.110	0.137	0.053	0.040	0.030	0.150	0.080			
17	SiO2 (mg/L)	11.0	8.8	40.3	35.3	32.1	10.0	8.5	30.0	30.8	26.1	8.0	38.9			
18	SO4 (mg/L)	9.0	9.0	16.0	14.1	12.7	10.0	8.8	22.4	12.7	13.3	6.0	19.4			
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	1.3	1.6	1.3	1.9	1.1	1.6	1.9	1.6	1.7	2.0	0.6	2.5			
2	COD (mg/L)	28.0	30.8	9.2	12.0	7.9	22.0	16.5	9.8	10.8	14.7	44.0				
3	DO (mg/L)	8.0	8.1	6.6	6.8	6.6	7.7	8.1	7.8	7.0	8.7	4.5	5.2			
4	DO_SAT% (%)	97	100	83	84	84	73	83	78	78	96	54	67			
5	FCol-MPN (MPN/100mL)	950	940				1150	625				1100				
6	Tcol-MPN (MPN/100mL)	2200	2020				2450	1475				2300				
	TRACE & TOXIC															
1	Al (mg/L)	0.07	0.11	0.08			0.11	0.12	0.05			0.08	0.07			
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	88	106	91	80	102	95	102	101	101	91	80	113			
2	HAR_Total (mgCaCO3/L)	118	143	166	137	168	181	145	182	181	185	100	211			
3	Na% (%)	43	43	32	33	29	34	40	43	36	42	46				
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0			
5	SAR (-)	1.7	1.9	1.2	1.1	1.1	1.4	1.7	2.1	1.6	2.0	1.8				

2.7 Narmada at Garudeshwar

HISTORY SHEET

			Water Year	**:**	**2020-2021**
Site	**:**	**Narmada at Garudeshwar**	**Code**	**:**	CW1NAL000434
State	:	Gujarat	District		Bharuch
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:		Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Narmada
Division	:	TAPI DIVISION SURAT	Sub-Division	:	LNSD, Bharuch
Drainage Area	:	87892 Sq. Km.	Bank	:	Right
Latitude	:	21°53'11"	Longitude	:	73°39'16"
		Opening Date	Closing Date		
Gauge	:	22/11/1971			
Discharge	:	23/03/1972			
Sediment	:	21/03/1973			
Water Quality	:	15/06/1977			

Water Quality Datasheet for the period: 2020-21

Station Name : Narmada at Garudeshwar (CW1NAL000434) Division : Tapi Division, Surat

Local River : Narmada Sub-Division : LNSD Bharuch

River Water Analysis

S.No	Parameters	02/06/2020	01/07/2020	03/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	01/05/2021	21/05/2021
	PHYSICAL													
1	Q (cumec)	33.03	1042	21.56	31533	25.46	56.24	17.24	132	129.98	110.1	30.71	272	300
2	Colour_Cod (-)	Clear	Clear	Clear	Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	401	361	459	375	367	322	395	344	346	324	474	323	329
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_FLD (pH units)	7.7	7.3	7.2		7.0	7.3	7.2	6.9	7.3	7.2	7.0	7.1	7.3
6	pH_GEN (pH units)	8.2	8.4	8.5	8.2	8.3	8.2	8.1	8.2	8.2	8.2	7.8	8.2	8.1
7	SS (mg/L)	34	35	50	163	42	49	34	32	38	42	44	36	43
8	TDS (mg/L)	237	212	272	220	217	190	227	202	202	186	274	191	194
9	Temp (deg C)	29.0	29.0	28.0	28.0	25.0	25.0	24.0	23.0	22.0	22.0	26.0	27.0	28.0
	CHEMICAL													
1	Alk-Phen (mgCaCO3/L)	0.0	4.1	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	139	125	164	128	135	119	137	123	126	120	185	124	120
3	Ca (mg/L)	34	28	40	34	36	29	32	29	31	30	46	32	29
4	Cl (mg/L)	35.0	30.0	44.0	30.0	26.0	25.0	34.0	28.0	27.0	23.0	28.0	22.0	26.0
5	CO3 (mg/L)	0.0	4.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.21	0.24	0.29	0.21	0.11	0.26	0.35	0.23	0.16	0.47	0.19	0.27	0.23
7	HCO3 (mg/L)	170	143	190	156	165	145	167	150	154	146	226	151	146
8	K (mg/L)	3.3	2.2	3.3	4.6	2.4	3.0	2.4			2.0	1.9	2.6	2.4
9	Mg (mg/L)	14.3	15.8	18.0	12.6	13.9	12.6	17.0	13.6	12.9	12.6	21.1	11.7	12.6
10	Na (mg/L)	24.1	20.8	29.1	21.4	18.0	17.9	22.2			15.9	19.9	16.0	18.5
11	NH3-N (mg N/L)	0.03	0.59	0.04	0.03	0.04	0.03	0.05	0.15	0.04	0.00	0.00	0.00	0.00
12	NO2+NO3 (mg N/L)	0.56	0.26	0.95	2.66	2.06	1.43	1.90	1.32	1.08	1.22	2.58	0.78	0.77
13	NO2-N (mgN/L)	0.03	0.00	0.00	0.05	0.02	0.01	0.02	0.01	0.00	0.01	0.05	0.00	0.00
14	NO3-N (mgN/L)	0.53	0.26	0.95	2.61	2.04	1.42	1.88	1.31	1.08	1.21	2.53	0.78	0.77
15	P-Tot (mgP/L)	0.010	0.030	0.001	0.130	0.020	0.020	0.040	0.001	0.010	0.020	0.000	0.010	0.020
16	SiO2 (mg/L)	29.7	16.6	23.6	28.5	26.9	22.9	30.7	27.3	27.2	25.9	24.7	27.4	25.8
17	SO4 (mg/L)	7.7	11.6	9.0	7.7	8.8	6.4	8.0	6.8	7.0	6.3	10.9	7.7	7.0
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	2.0	1.2	1.4	2.1	1.2	1.9	1.0	1.1	1.2	1.6	2.4	1.2	1.0
2	COD (mg/L)	15.9	8.9	10.1	14.6	8.9	11.8	8.9	8.7	8.1	12.7	16.3	9.8	8.8
3	DO (mg/L)	6.3	7.1	7.3	8.5	6.7	9.1	6.3	8.9	8.2	8.5	5.6	6.6	7.1
4	DO_SAT% (%)	82	92	93	108	81	110	75	103	94	97	69	82	91
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	86	70	99	85	90	73	81	73	78	76	115	81	73
2	HAR_Total (mgCaCO3/L)	146	136	174	138	148	126	152	130	132	129	203	130	126
3	Na% (%)	26	25	26	25	21	23	24			21	17	21	24
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.9	0.8	1.0	0.8	0.6	0.7	0.8			0.6	0.6	0.6	0.7
	PESTICIDES													

Water Quality Summary for the period : 2020-21

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	31533	0.3	619.81
2	EC_GEN (µmho/cm)	13	474	322	371
3	pH_FLD (pH units)	12	7.7	6.9	7.2
4	pH_GEN (pH units)	13	8.5	7.8	8.2
5	SS (mg/L)	13	163	32	49
6	TDS (mg/L)	13	274	186	217
7	Temp (deg C)	13	29.0	22.0	25.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	13	4.1	0.0	0.6
2	ALK-TOT (mgCaCO3/L)	13	185	119	134
3	Ca (mg/L)	13	46	28	33
4	Cl (mg/L)	13	44.0	22.0	29.1
5	CO3 (mg/L)	13	4.9	0.0	0.8
6	F (mg/L)	13	0.47	0.11	0.25
7	HCO3 (mg/L)	13	226	143	162
8	K (mg/L)	11	4.6	1.9	2.7
9	Mg (mg/L)	13	21.1	11.7	14.5
10	Na (mg/L)	11	29.1	15.9	20.3
11	NH3-N (mg N/L)	13	0.59	0.00	0.08
12	NO2+NO3 (mg N/L)	13	2.66	0.26	1.35
13	NO2-N (mgN/L)	13	0.05	0.00	0.02
14	NO3-N (mgN/L)	13	2.61	0.26	1.34
15	P-Tot (mgP/L)	12	0.130	0.001	0.026
16	SiO2 (mg/L)	13	30.7	16.6	25.9
17	SO4 (mg/L)	13	11.6	6.3	8.1
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	13	2.4	1.0	1.5
2	COD (mg/L)	13	16.3	8.1	11
3	DO (mg/L)	13	9.1	5.6	7.4
4	DO_SAT% (%)	13	110	69	91
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	13	115	70	83
2	HAR_Total (mgCaCO3/L)	13	203	126	144
3	Na% (%)	11	26	17	23
4	RSC (-)	13	0.0	0.0	0
5	SAR (-)	11	1.0	0.6	0.7
	PESTICIDES				

Water Quality Seasonal Average for the period: 2016-2021

Station Name : Narmada at Garudeshwar (CW1NAL000434) Division : Tapi Division, Surat

Local River : Narmada Sub-Division : LNSD Bharuch

River Water

S.No	Parameters	Flood (June-Oct.)					Winter (Nov.-Feb)					Summer (Mar.-May)				
		2016	2017	2018	2019	2020	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2017	2018	2019	2020	2021
	PHYSICAL															
1	Q (cumec)	919.77	40.90	30.40	91.24	7308.19	31.14	32.99	18.65	430	83.87	233.99	23.03	17.86	210.52	208.03
2	EC_FLD (µmho/cm)	348					405					500				
3	EC_GEN (µmho/cm)	321	399	537	358	393	317	391	505	403	352	380	456	345	513	363
4	pH_FLD (pH units)	7.6	6.9	6.3	6.4	7.3	6.9	6.8	6.5	7.2	7.2	7.0	6.4	6.6	7.0	7.1
5	pH_GEN (pH units)	7.8	8.1	8.2	7.8	8.3	8.3	8.1	8.1	8.2	8.2	8.0	8.2	7.7	8.1	8.1
6	SS (mg/L)	122	127	43	38	65	100	135	53	37	38	110	32	40	36	41
7	TDS (mg/L)	204	263	332	216	232	205	260	307	234	205	247	287	209	299	211
8	Temp (deg C)	24.7	25.6	25.2	26.8	27.8	17.5	19.0	16.5	24.4	23.5	24.0	27.0	23.0	27.3	25.8
9	TS (mg/L)	326	390	313			307	395				248	319			
10	Turb (NTU)	3.3	1.4				1.0	1.3				1.0	1.0			
	CHEMICAL															
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.8	0.0	1.6	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	87	105	139	119	138	129	102	147	139	126	115	126	120	182	137
3	Ca (mg/L)	30	40	37	31	34	37	34	40	36	31	30	29	30	42	35
4	Cl (mg/L)	60.0	82.0	45.6	35.0	33.0	70.0	66.3	47.0	32.0	28.5	65.0	32.0	28.7	42.8	24.8
5	CO3 (mg/L)	0.0	0.0	1.0	0.0	2.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.12	0.14	0.29	0.30	0.21	0.13	0.15	0.21	0.35	0.25	0.13	0.20	0.30	0.36	0.29
7	HCO3 (mg/L)	106	128	168	145	165	158	125	175	169	154	140	154	147	222	167
8	K (mg/L)	4.2	3.8	2.6	2.5	3.2	3.7	4.6	2.6	2.1	2.7	4.2		2.3	2.2	2.2
9	Mg (mg/L)	6.4	8.1	16.9	12.2	14.9	16.4	11.6	14.0	14.3	14.0	10.9	15.8	12.5	21.5	14.5
10	Na (mg/L)	42.0	49.2	35.8	24.4	22.7	41.0	41.0	33.5	22.6	20.0	47.0		19.6	29.5	17.6
11	NH3-N (mg N/L)	0.18	0.10	0.15	0.05	0.15	0.12	0.14	0.17	0.11	0.07	0.13	0.16	0.06	0.21	0.00
12	NO2+NO3 (mg N/L)	0.20	0.21	0.78	1.18	1.30	0.17	0.22	0.90	2.17	1.43	0.18	0.31	0.52	1.41	1.34
13	NO2-N (mgN/L)	0.08	0.09	0.05	0.03	0.02	0.05	0.10	0.03	0.01	0.01	0.05	0.08	0.02	0.08	0.02
14	NO3-N (mgN/L)	0.12	0.12	0.73	1.15	1.28	0.11	0.12	0.87	2.15	1.42	0.13	0.23	0.51	1.33	1.32
15	o-PO4-P (mg P/L)			0.100									0.110			
16	P-Tot (mgP/L)	0.120	0.138	0.054	0.046	0.038	0.125	0.140	0.063	0.022	0.018	0.140	0.110	0.083	0.062	0.017
17	SiO2 (mg/L)	10.7	9.8	42.1	30.7	25.1	12.5	11.0	37.4	31.7	27.0	14.0	38.7	20.1	27.9	26.0
18	SO4 (mg/L)	9.3	10.0	17.1	9.3	9.0	12.0	10.0	11.4	7.6	7.1	12.0	9.1	5.9	8.9	8.0
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	1.3	1.6	1.5	1.9	1.6	1.1	1.1	1.6	1.4	1.3	1.0	0.9	1.9	1.5	1.5
2	COD (mg/L)	42.7	28.0	13.6	13.6	11.7	18.0	16.8	11.4	10.3	9.4	40.0		16.9	10.1	11.9
3	DO (mg/L)	7.1	6.3	4.9	6.8	7.1	7.4	7.1	6.9	7.3	8.1	8.1	6.0	6.7	7.8	6.9
4	DO_SAT% (%)	81	77	60	85	91	77	76	70	88	96	96	75	78	98	85
5	FCol-MPN (MPN/100mL)	633	600				500	525				1000				
6	Tcol-MPN (MPN/100mL)	1373	1340				1150	1225				1800				
	TRACE & TOXIC															
1	Al (mg/L)	0.08	0.11	0.05	0.05		0.08	0.10	0.09				0.03	0.05		
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	74	101	94	78	86	93	85	101	91	76	75	73	74	104	86
2	HAR_Total (mgCaCO3/L)	100	134	164	129	148	161	133	160	150	135	121	139	126	194	147
3	Na% (%)	46	43	28	29	24	36	39	29	24	23	45		25	25	21
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	1.8	1.9	1.1	0.9	0.8	1.5	1.6	1.1	0.8	0.7	1.9		0.8	0.9	0.6
	PESTICIDES															

2.8 Narmada at Mandleshwar

History Sheet

HISTORY SHEET

			Water Year	**:**	**2020-2021**
Site	**:**	**Narmada at Mandleshwar**	**Code**	**:**	CW1NAM000189
State	:	Madhya Pradesh	District		Khargone
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:		Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Narmada
Division	:	Narmada Div. Cwc Bhopal	Sub-Division	:	MNSD III CWC INDORE
Drainage Area	:	72809 Sq. Km.	Bank	:	Right
Latitude	:	22°10'18"	Longitude	:	75°39'39"
		Opening Date	Closing Date		
Gauge	:	16/12/1970			
Discharge	:	28/08/1971			
Sediment	:	14/04/1972			
Water Quality	:	18/06/1979			

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at Mandleshwar (CW1NAM000189) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : MNSD-III, Indore

River Water Analysis

S.No	Parameters	01/06/2020	01/07/2020	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL													
1	Q (cumec)	1500.41	1623.94	422.93	28650	359.35	359.94	543.33	594.32	646.86	504.41	558.75	569.0	1446
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	302	273	267	173	268	296	257	260	258	313	274	316	327
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_FLD (pH units)													
6	pH_GEN (pH units)	7.6	7.3	7.7	7.7	7.9	7.9	7.5	7.9	7.6	7.6	7.2	8.0	7.3
7	TDS (mg/L)	184	167	172	99	177	186	195	139	187	193	152	162	178
8	Temp (deg C)	29.0	27.0	28.0	26.0	26.0	26.0	24.0	21.0	21.0	24.0	25.0	25.0	29.0
9	Turb (NTU)	0.0	0.0	0.0	214.0	15.0	5.0	6.0	8.0	7.0	6.0	6.0	5.0	6.0
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	146	125	123	88	111	122	118	210	137	126	124	135	143
3	Ca (mg/L)	16	17	25	24	28	30	32	34	35	21	27	27	34
4	Cl (mg/L)	16.7	15.7	14.3	8.4	16.3	13.7	13.7	16.6	14.3	17.6	15.5	15.5	13.6
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)				0.23									
7	HCO3 (mg/L)	178	153	150	107	135	149	144	256	167	154	151	165	174
8	K (mg/L)	2.2	2.6	2.5	*	*	*	*	*	*	*	*	*	*
9	Mg (mg/L)	9.4	10.1	11.4	6.7	9.3	10.7	9.1	13.9	8.3	3.7	7.3	9.2	5.6
10	Na (mg/L)	12.7	16.6	14.7	*	*	*	*	*	*	*	*	*	*
11	NH3-N (mg N/L)		0.00											
12	NO2+NO3 (mg N/L)	0.45	0.31	0.55	1.20	0.20	0.55	0.30	0.60	0.54	0.50	0.43	0.51	0.49
13	NO2-N (mgN/L)	0.02	0.01	0.02	0.30	0.12	0.45	0.10	0.00	0.01	0.01	0.02	0.02	0.02
14	NO3-N (mgN/L)	0.43	0.30	0.53	0.90	0.08	0.10	0.20	0.59	0.53	0.49	0.41	0.49	0.47
15	o-PO4-P (mg P/L)	0.009	0.440	0.312	0.121	0.040	0.060	0.095	0.004	0.088	0.093	0.068	0.100	0.094
16	SiO2 (mg/L)	8.6	33.1		13.0	14.9	13.8	13.4	20.6	22.7	31.7	29.1	31.6	33.0
17	SO4 (mg/L)	6.4	11.7	47.0	6.7	6.6	9.6	8.0	6.0	25.5	8.3	8.4	7.2	5.5
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	0.8	3.7	2.6	1.0	0.6	1.2	1.6	1.2	0.8	0.7	0.7	1.0	1.9
2	COD (mg/L)	28.0	37.0											
3	DO (mg/L)		9.4	6.3	8.1	6.1	6.1	7.0	9.5	7.0	6.7	6.0	4.1	4.6
4	DO_SAT% (%)		117	80	100	75	76	83	107	79	79	72	50	60
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	39	42	62	60	69	75	80	84	87	52	66	68	86
2	HAR_Total (mgCaCO3/L)	78	84	110	88	108	120	118	142	122	67	97	107	109
3	Na% (%)	26	29	22										
4	RSC (-)	1.4	0.8	0.3	0.0	0.1	0.1	0.0	1.4	0.3	1.2	0.6	0.6	0.7
5	SAR (-)	0.6	0.8	0.6										

* Instrument is out of order.

Water Quality Summary for the period : 2020-21

Station Name: Narmada at Mandleshwar (CW1NAM000189 Division : Narmada Division, Bhopal

Local River: Narmada Sub-Division : MNSD-III, Indore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	28650	79.97	1106.33
2	EC_GEN (µmho/cm)	14	401	173	285
3	pH_FLD (pH units)	1	7.2	7.2	7.2
4	pH_GEN (pH units)	14	8.0	7.2	7.6
5	TDS (mg/L)	14	253	99	175
6	Temp (deg C)	14	29.0	21.0	25.7
7	Turb (NTU)	14	214.0	0.0	19.9
	CHEMICAL				
1	Alk-PHen (mgCaCO3/L)	14	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	14	210	88	133
3	Ca (mg/L)	14	35	17	27
4	Cl (mg/L)	14	29.7	8.4	15.6
5	CO3 (mg/L)	14	0.0	0.0	0
6	F (mg/L)	1	0.23	0.23	0.23
7	HCO3 (mg/L)	14	256	107	162
8	K (mg/L)	4	7.6	2.4	3.8
9	Mg (mg/L)	14	15.1	3.7	9.5
10	Na (mg/L)	4	21.7	12.9	16.5
11	NH3-N (mg N/L)	1	0.00	0.00	0
12	NO2+NO3 (mg N/L)	14	1.20	0.03	0.47
13	NO2-N (mgN/L)	14	0.45	0.00	0.08
14	NO3-N (mgN/L)	14	0.90	0.03	0.4
15	o-PO4-P (mg P/L)	14	0.597	0.004	0.152
16	SiO2 (mg/L)	13	33.1	8.0	21.3
17	SO4 (mg/L)	14	47.0	5.5	11.6
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	14	3.7	0.6	1.5
2	COD (mg/L)	3	39.0	29.0	35
3	DO (mg/L)	14	9.5	4.0	6.5
4	DO_SAT% (%)	14	117	50	79
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	14	87	42	68
2	HAR_Total (mgCaCO3/L)	14	142	67	107
3	Na% (%)	4	29	21	25
4	RSC (-)	14	1.4	0.0	0.5
5	SAR (-)	4	0.8	0.5	0.7
	PESTICIDES				

Water Quality Seasonal Average for the period : 2016-2021

Station Name : Narmada at Mandleshwar (CW1NAM000189) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : MNSD-III, Indore

River Water

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2016	2017	2018	2019	2020	2016-2017	2017-2018	2018-2019	2020-21	2020-2021	2017	2018	2019	2020	2021
	PHYSICAL															
1	Q (cumec)	1486.3	468.2	449.3	1915	7469	454.4	233.9	519.7	384.1	501.3	415.1	141.9	773.5	113.1	620.5
2	EC_FLD (µmho/cm)															
3	EC_GEN (µmho/cm)	231	357	361	284	281	261	334	242	294	268	239	313	276	282	308
4	pH_FLD (pH units)															
5	pH_GEN (pH units)	7.8	7.9	7.9	7.4	7.6	7.9	7.8	7.4	7.6	7.7	7.7	8.0	7.5	7.7	7.5
6	TDS (mg/L)	147	228	216	176	177	172	220	162	191	177	155	204	164	191	171
7	Temp (deg C)	24.8	26.8	28.0	26.2	27.5	21.5	19.5	22.8	22.8	23.0	21.3	23.7	23.7	24.5	25.8
8	Turb (NTU)	33.8	26.8	34.4	58.8	38.2	0.0	0.0	0.0	17.0	6.5	0.0	0.0	0.0	0.2	5.8
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	109	151	148	124	124	121	144	118	115	147	119	138	140	141	132
3	Ca (mg/L)	24	33	32	29	23	28	30	27	33	33	29	27	29	32	27
4	Cl (mg/L)	6.2	14.8	16.4	9.2	16.2	7.8	10.0	7.0	7.5	14.6	8.0	12.0	7.3	7.9	15.6
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0
6	F (mg/L)	0.26	0.32	0.40	0.09	0.23	0.18	0.32	0.22	0.11		0.30	0.27	0.11		
7	HCO3 (mg/L)	133	184	180	151	152	148	176	144	141	179	145	164	171	173	161
8	K (mg/L)	1.8	2.2	2.5	3.6	3.8	1.4	2.9	1.9	1.7		1.5	2.3	2.0	3.1	
9	Mg (mg/L)	8.7	14.0	14.0	9.8	10.9	9.5	14.0	10.4	9.8	10.5	10.4	13.1	11.2	9.9	6.4
10	Na (mg/L)	9.4	15.0	14.4	10.1	16.5	9.3	15.8	14.1	9.8		10.6	13.9	12.9	37.9	
11	NH3-N (mg N/L)				0.28	0.00				0.08					0.10	
12	NO2+NO3 (mg N/L)	1.52	1.46	1.55	0.91	0.45	0.45	2.98	0.38	0.28	0.50	0.30	1.51	0.72	0.30	0.48
13	NO2-N (mgN/L)	0.12	0.05	0.53	0.18	0.08	0.01	0.04	0.02	0.03	0.14	0.02	0.11	0.11	0.01	0.02
14	NO3-N (mgN/L)	1.40	1.41	1.02	0.73	0.38	0.43	2.94	0.35	0.26	0.35	0.28	1.40	0.61	0.29	0.47
15	o-PO4-P (mg P/L)	0.243	0.202	0.246	0.269	0.254	0.086	0.117	0.047	0.041	0.062	0.081	0.084	0.040	0.058	0.089
16	SiO2 (mg/L)	24.8	22.1	28.1	30.9	16.1	18.2	21.9	17.7	19.5	17.6	19.3	21.3	27.2	18.0	31.4
17	SO4 (mg/L)	16.9	16.0	14.9	13.5	14.1	9.3	22.6	8.9	24.9	12.3	7.2	17.0	7.3	6.5	7.3
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	1.0	0.9	1.0	1.1	1.9	0.9	1.1	0.8	2.2	1.2	1.2	1.4	1.2	1.5	1.1
2	COD (mg/L)	39.6	35.6	39.2	22.4	35.0	44.8	32.3	35.0	19.0		35.0	37.3	34.7	25.5	
3	DO (mg/L)	6.0	5.6	5.1	4.8	6.7	6.7	5.5	6.7	6.9	7.4	5.1	5.0	5.4	6.9	5.3
4	DO_SAT% (%)	73	71	65	60	84	75	60	78	80	86	57	59	63	83	65
	TRACE & TOXIC															
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	60	83	80	72	58	71	76	67	83	82	71	67	73	79	68
2	HAR_Total (mgCaCO3/L)	97	141	138	113	104	111	134	111	124	125	115	122	120	120	95
3	Na% (%)	18	18	18	15	25	15	20	21	15		17	20	19	37	
4	RSC (-)	0.3	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.1	0.4	0.1	0.3	0.4	0.4	0.8
5	SAR (-)	0.4	0.5	0.5	0.4	0.7	0.4	0.6	0.6	0.4		0.4	0.5	0.5	1.5	

2.9 Kundi at Kogaon

HISTORY SHEET

			Water Year	**:**	**2020-21**
Site	**:**	**Kundi at Kogaon**	**Code**	**:**	CW1NAM000442
State	:	Madhya Pradesh	District		Khargon
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:	Kundi	Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Kundi
Division	:	Narmada Div. Cwc Bhopal	Sub-Division	:	MNSD III CWC INDORE
Drainage Area	:	3919 Sq. Km.	Bank	:	Right
Latitude	:	22°06'06"	Longitude	:	75°41'02"
		Opening Date	Closing Date		
Gauge	:	03/02/1978			
Discharge	:	01/07/1978			
Sediment	:				
Water Quality	:	15/09/1986			

Water Quality Datasheet for the period : 2020-21

Station Name : Kundi at Kogaon CW1NAM000442) Division : Narmada Division, Bhopal

Local River : Kundi Sub-Division : MNSD-III, Indore

River Water Analysis

S.No	Parameters	03/06/2020	02/07/2020	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL													
1	Q (cumec)	24.54	9.89	32.03	122	52.88	13	14	17	19	13	4.6		0
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		Clear
3	EC_GEN (µmho/cm)	287	384	366	438	535	561	305	323	281	384	481		402
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		odour free
5	pH_FLD (pH units)													
6	pH_GEN (pH units)	8.1	7.5	8.0	7.9	8.0	8.1	7.6	7.8	7.6	7.5	7.5		7.7
7	TDS (mg/L)	185	237	229	241	347	346	189	171	205	228	257		218
8	Temp (deg C)	28.0	30.0	30.0	28.0	29.0	24.0	24.0	20.0	20.0	25.0	25.5		25.0
9	Turb (NTU)	0.0	0.0	0.0	44.0	7.0	4.0	6.0	6.0	7.0	6.0	5.0		9.0
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
2	ALK-TOT (mgCaCO3/L)	139	165	166	208	194	198	141	145	140	153	197		208
3	Ca (mg/L)	23	30	31	49	39	36	32	30	32	27	28		42
4	Cl (mg/L)	14.9	23.5	16.1	25.2	28.6	37.2	17.6	20.7	18.4	21.6	40.8		35.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
6	F (mg/L)	*	*	*	0.42	*	*	*	*	*	*	*		*
7	HCO3 (mg/L)	169	201	202	254	237	242	172	177	171	187	240		254
8	K (mg/L)	3.0	3.1	2.6	*	*	*	*	*	*	*	*		
9	Mg (mg/L)	13.9	18.2	18.3	19.0	26.7	33.2	12.4	12.1	11.8	6.6	15.1		14.4
10	Na (mg/L)	12.8	31.6	21.1	*	*	*	*	*	*	*	*		*
11	NH3-N (mg N/L)	*	0.00	*	*	*	*	*	*	*	*	*		*
12	NO2+NO3 (mg N/L)	0.20	2.05	2.01	3.35	1.72	1.00	0.52	1.90	1.00	1.36	1.65		1.29
13	NO2-N (mgN/L)	0.02	0.02	0.02	0.01	0.13	0.36	0.06	0.05	0.12	0.01	0.02		0.02
14	NO3-N (mgN/L)	0.18	2.03	2.00	3.35	1.59	0.64	0.45	1.85	0.88	1.35	1.63		1.27
15	o-PO4-P (mg P/L)	0.022	0.269	0.365	0.239	0.036	0.066	0.012	0.015	0.027	0.133	0.507		0.302
16	SiO2 (mg/L)	11.9	48.5		36.1	35.0	21.4	14.4	27.0	22.6	31.9	32.0		36.4
17	SO4 (mg/L)	7.6	17.4	58.7	17.7	19.6	20.6	21.3	10.6	17.3	11.5	12.0		7.8
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	1.6	3.1	1.2	1.4	1.4	1.0	1.6	1.2	0.6	1.2	1.5		1.0
2	COD (mg/L)	27.0	39.0											
3	DO (mg/L)	7.5	2.6	5.5	5.1	7.5	6.8	7.4	8.7	7.2	6.5	6.8		7.4
4	DO_SAT% (%)	96	34	72	65	97	80	87	96	79	79	83		89
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	58	76	77	122	97	91	80	76	79	68	69		105
2	HAR_Total (mgCaCO3/L)	116	152	153	201	209	229	131	126	129	96	132		165
3	Na% (%)	19	31	23										
4	RSC (-)	0.5	0.3	0.3	0.2	0.0	0.0	0.2	0.4	0.2	1.2	1.3		0.9
5	SAR (-)	0.5	1.1	0.7										
	Note - "*" Not analysed due to non working of instrument													

Sample not collected due to lockdown

Water Quality Summary for the period : 2020-21

Station Name : Kundi at Kogaon (CW1NAM000442) Division : Narmada Division, Bhopal

Local River : Kundi Sub-Division : MNSD-III, Indore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	280.35	0	25.98
2	EC_GEN (µmho/cm)	12	561	281	396
3	pH_FLD (pH units)	1	7.5	7.5	7.5
4	pH_GEN (pH units)	12	8.1	7.5	7.8
5	TDS (mg/L)	12	347	171	238
6	Temp (deg C)	12	30.0	20.0	25.7
7	Turb (NTU)	12	44.0	0.0	7.8
	CHEMICAL				
1	Alk-PHen (mgCaCO3/L)	12	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	12	208	139	171
3	Ca (mg/L)	12	49	23	33
4	Cl (mg/L)	12	40.8	14.9	24.9
5	CO3 (mg/L)	12	0.0	0.0	0
6	F (mg/L)	1	0.42	0.42	0.42
7	HCO3 (mg/L)	12	254	169	209
8	K (mg/L)	3	3.1	2.6	2.9
9	Mg (mg/L)	12	33.2	6.6	16.8
10	Na (mg/L)	3	31.6	12.8	21.8
11	NH3-N (mg N/L)	1	0.00	0.00	0
12	NO2+NO3 (mg N/L)	12	3.35	0.20	1.5
13	NO2-N (mgN/L)	12	0.36	0.01	0.07
14	NO3-N (mgN/L)	12	3.35	0.18	1.43
15	o-PO4-P (mg P/L)	12	0.507	0.012	0.166
16	SiO2 (mg/L)	11	48.5	11.9	28.8
17	SO4 (mg/L)	12	58.7	7.6	18.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	3.1	0.6	1.4
2	COD (mg/L)	2	39.0	27.0	33
3	DO (mg/L)	12	8.7	2.6	6.6
4	DO_SAT% (%)	12	97	34	80
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	122	58	83
2	HAR_Total (mgCaCO3/L)	12	229	96	153
3	Na% (%)	3	31	19	24
4	RSC (-)	12	1.3	0.0	0.4
5	SAR (-)	3	1.1	0.5	0.8
	PESTICIDES				

Water Quality Seasonal Average for the period : 2016-21

Station Name : Kundi at Kogaon (CW1NAM000442) Division : Narmada Division, Bhopal
Local River : Kundi Sub-Division : MNSD-III, Indore

River Water

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2016	2017	2018	2019	2020	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2017	2018	2019	2020	2021
	PHYSICAL															
1	Q (cumec)	119.26	26.64	33.65	80.97	34.81	13.88	9.56	-	17.71	15.75	R. Dry	R. Dry	12.53	24.97	8.8
2	EC_FLD (µmho/cm)													353		
3	EC_GEN (µmho/cm)	372	425	386	377	402	333	401	437	418	368			353	272	422
4	pH_FLD (pH units)													7.6		7.5
5	pH_GEN (pH units)	7.8	8.3	8.2	7.7	7.9	7.9	8.0	7.8	7.9	7.8			7.6	7.8	7.6
6	TDS (mg/L)	237	274	241	237	248	216	265	263	260	228			202	184	234
7	Temp (deg C)	29.2	29.4	28.8	29.1	29.0	21.6	21.5	25.0	23.3	22.0			26.0	27.0	25.2
8	Turb (NTU)	91.3	23.3	56.3	99.5	10.2	0.0	0.0	0.0	20.5	5.8				0.3	6.7
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	7.1	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	151	168	168	150	174	156	162	161	152	156			147	136	186
3	Ca (mg/L)	32	35	33	33	34	33	31	33	42	33			26	29	32
4	Cl (mg/L)	9.3	16.8	17.8	12.8	21.6	13.0	16.0	20.0	18.3	23.5			15.0	6.4	32.4
5	CO3 (mg/L)	0.0	8.5	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0
6	F (mg/L)	0.22	0.26	0.27	0.08	0.42	0.19	0.09	0.59	0.11				0.09		
7	HCO3 (mg/L)	184	187	192	183	213	191	198	197	186	191			179	166	227
8	K (mg/L)	2.2	1.4	2.1	2.9	2.9	1.3	1.8	2.0	1.5				2.0	2.1	
9	Mg (mg/L)	15.2	20.3	13.2	16.9	19.2	15.6	18.7	2.0	17.6	17.4			17.0	11.1	12.1
10	Na (mg/L)	13.2	16.5	16.2	13.7	21.8	12.9	17.4	20.9	16.1				23.7	15.1	
11	NH3-N (mg N/L)				0.17	0.00				0.14					0.13	
12	NO2+NO3 (mg N/L)	1.83	1.95	1.39	0.94	1.87	0.59	3.49	2.22	0.16	1.10			1.91	0.79	1.43
13	NO2-N (mgN/L)	0.07	0.06	0.06	0.32	0.04	0.01	0.04	0.02	0.02	0.15			0.03	0.52	0.01
14	NO3-N (mgN/L)	1.76	1.89	1.34	0.62	1.83	0.58	3.45	2.19	0.14	0.96			1.88	0.26	1.42
15	o-PO4-P (mg P/L)	0.238	0.246	0.288	0.300	0.186	0.118	0.100	0.069	0.049	0.030			0.016	0.062	0.314
16	SiO2 (mg/L)	27.9	20.8	27.4	37.8	32.9	18.9	19.5	23.1	26.2	21.4			44.2	17.9	33.4
17	SO4 (mg/L)	30.8	17.1	18.1	19.2	24.2	11.6	20.9	18.7	36.5	17.4			8.0	8.5	10.4
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	0.7	1.2	1.2	1.0	1.7	1.2	0.9	1.0	0.8	1.1			1.3	1.6	1.3
2	COD (mg/L)	40.7	36.0	37.5	25.4	33.0	48.3	46.5	28.0	19.0				25.0	21.0	
3	DO (mg/L)	6.0	5.5	5.6	5.5	5.6	6.5	6.0	5.9	6.4	7.5			5.1	7.3	6.9
4	DO_SAT% (%)	78	72	73	72	73	74	68	71	75	86			63	92	83
	TRACE & TOXIC															
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	79	87	82	83	86	82	77	82	106	81			64	73	81
2	HAR_Total (mgCaCO3/L)	143	172	137	153	166	147	155	91	179	154			135	120	131
3	Na% (%)	17	18	20	16	24	16	19	33	16				27	21	
4	RSC (-)	0.2	0.0	0.6	0.1	0.2	0.2	0.2	1.4	0.0	0.2			0.2	0.3	1.1
5	SAR (-)	0.5	0.6	0.6	0.5	0.8	0.5	0.6	1.0	0.5				0.9	0.6	
	PESTICIDES															

2.10 Narmada at Handia

History Sheet

HISTORY SHEET

			Water Year	**:**	**2020-21**
Site	**:**	**Narmada at Handia**	**Code**	**:**	CW1NAM000392
State	:	Madhya Pradesh	District		Harda
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:	-	Sub Tributary	:	-
Sub-Sub Tributary	:	-	Local River	:	Narmada
Division	:	Narmada Division, Bhopal	Sub-Division	:	MNSD II, Bhopal
Drainage Area	:	54027 Sq. Km.	Bank	:	Left
Latitude	:	22°29'30"	Longitude	:	76°59'38"
		Opening Date	Closing Date		
Gauge	:	09/02/1977			
Discharge	:	26/04/1977			
Sediment	:	11/12/1977			
Water Quality	:	01/08/1979			

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at Handia (CW1NAM000392) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : MNSD-II, Bhopal

River Water Analysis

S.No	Parameters	02/06/2020	02/07/2020	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL													
1	Q (cumec)	157	262.0	976	16800	672	1040	110	120	169	125	107		154
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Sample not collected due to lockdown	Clear
3	EC_GEN (µmho/cm)	302	272	233	208	339	334	342	331	295	372	291		244
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		odour free
5	pH_FLD (pH units)													
6	pH_GEN (pH units)	7.6	7.2	7.7	7.5	7.9	7.9	7.7	8.0	7.7	7.5	7.3		7.1
7	TDS (mg/L)	184	170	144	113	223	205	217	177	214	211	173		145
8	Temp (deg C)	27.0	30.0	29.0	27.0	29.0	26.0	20.0	20.0	22.0	25.0	25.0		27.0
9	Turb (NTU)	0.0	0.0	0.0	310.0	48.0	8.0	10.0	10.0	9.0	6.0	10.0		7.0
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
2	ALK-TOT (mgCaCO3/L)	146	134	107	112	148	145	175	152	144	138	131		120
3	Ca (mg/L)	16	16	29	29	36	35	41	36	36	22	23		30
4	Cl (mg/L)	16.7	15.7	10.7	12.6	26.5	13.7	13.7	16.6	16.3	17.6	17.5		21.4
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
6	F (mg/L)				0.51									
7	HCO3 (mg/L)	178	163	131	137	181	177	214	186	176	168	160		146
8	K (mg/L)	2.2	3.4	2.8	*	*	*	*	*	*	*	*		*
9	Mg (mg/L)	9.4	9.8	9.2	6.2	11.5	14.3	10.2	8.6	9.1	3.2	13.1		8.3
10	Na (mg/L)	12.7	16.8	13.3	*	*	*	*	*	*	*	*		*
11	NO2+NO3 (mg N/L)	0.45	0.79	1.25	0.84	1.71	0.39	0.73	2.06	1.16	0.79	0.28		0.39
12	NO2-N (mgN/L)	0.02	0.02	0.02	0.02	0.11	0.27	0.26	0.07	0.18	0.01	0.02		0.02
13	NO3-N (mgN/L)	0.43	0.77	1.23	0.81	1.61	0.12	0.47	1.99	0.98	0.78	0.26		0.37
14	o-PO4-P (mg P/L)	0.009	0.285	0.236	0.702	0.055	0.064	0.068	0.014	0.073	0.126	0.086		0.039
15	SiO2 (mg/L)	8.6	32.8		15.0	17.1	13.9	23.1	19.9	19.4	29.1	29.4		22.4
16	SO4 (mg/L)	6.4	11.1	26.8	6.8	7.3	9.0	19.4	10.6	16.1	8.0	7.8		5.2
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	0.8	0.6	0.8	0.8	1.2	3.3	1.6	1.6	1.2	1.2	0.7		1.7
2	COD (mg/L)	28.0	39.0									30.1		
3	DO (mg/L)	7.1	4.7	5.3	4.4	7.7	7.6	7.6	9.3	8.0	6.2	5.8		5.5
4	DO_SAT% (%)	89	62	68	56	100	93	83	103	92	75	70		69
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	39	41	72	71	89	87	103	90	90	55	58		75
2	HAR_Total (mgCaCO3/L)	78	82	111	97	136	147	146	126	128	68	112		110
3	Na% (%)	26	30	20										
4	RSC (-)	1.4	1.0	0.0	0.3	0.3	0.0	0.6	0.5	0.3	1.4	0.4		0.2
5	SAR (-)	0.6	0.8	0.6										
		Note - "*" Not analysed due to non working of instrument												

Water Quality Summary for the period : 2020-21

Station Name : Narmada at Handia (CW1NAM000392) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : MNSD-II, Bhopal

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	4000	69	888.1
2	EC_GEN (µmho/cm)	12	372	208	297
3	pH_FLD (pH units)	1	7.3	7.3	7.3
4	pH_GEN (pH units)	12	8.0	7.1	7.6
5	TDS (mg/L)	12	223	113	181
6	Temp (deg C)	12	30.0	20.0	25.6
7	Turb (NTU)	12	310.0	0.0	34.8
	CHEMICAL				
1	Alk-PHen (mgCaCO3/L)	12	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	12	175	107	138
3	Ca (mg/L)	12	41	16	29
4	Cl (mg/L)	12	26.5	10.7	16.6
5	CO3 (mg/L)	12	0.0	0.0	0
6	F (mg/L)	1	0.51	0.51	0.51
7	HCO3 (mg/L)	12	214	131	168
8	K (mg/L)	3	3.4	2.2	2.8
9	Mg (mg/L)	12	14.3	3.2	9.4
10	Na (mg/L)	3	16.8	12.7	14.3
11	NO2+NO3 (mg N/L)	12	2.06	0.28	0.9
12	NO2-N (mgN/L)	12	0.27	0.01	0.09
13	NO3-N (mgN/L)	12	1.99	0.12	0.82
14	o-PO4-P (mg P/L)	12	0.702	0.009	0.146
15	SiO2 (mg/L)	11	32.8	8.6	21
16	SO4 (mg/L)	12	26.8	5.2	11.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	3.3	0.6	1.3
2	COD (mg/L)	3	39.0	28.0	32.4
3	DO (mg/L)	12	9.3	4.4	6.6
4	DO_SAT% (%)	12	103	56	80
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	103	39	73
2	HAR_Total (mgCaCO3/L)	12	147	68	112
3	Na% (%)	3	30	20	25
4	RSC (-)	12	1.4	0.0	0.5
5	SAR (-)	3	0.8	0.6	0.7
	PESTICIDES				

Water Quality Seasonal Average for the period : 2015-2020

Station Name : Narmada at Handia (CW1NAM000392) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : MNSD-II, Bhopal

River Water

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2016	2017	2018	2019	2020	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2017	2018	2019	2020	2021
	PHYSICAL															
1	Q (cumec)	1243	401	877.5	2433	5530.2	336.13	123.65	229.8	376.43	359.75	155.67	29.5	80.13	158	128.67
2	EC_FLD (µmho/cm)															
3	EC_GEN (µmho/cm)	235	270	262	258	271	279	354	274	344	326	248	333	265	419	302
4	pH_FLD (pH units)															7.3
5	pH_GEN (pH units)	7.9	7.9	7.9	7.7	7.6	7.9	7.9	7.6	7.8	7.9	7.8	8.2	7.7	7.7	7.3
6	TDS (mg/L)	151	174	164	158	167	180	235	183	224	203	161	218	163	293	176
7	Temp (deg C)	25.6	23.9	28.0	23.7	28.4	18.8	16.4	19.3	21.0	22.0	27.0	26.3	22.0	24.8	25.7
8	Turb (NTU)	85.8	77.0	90.5	145.8	71.6	0.0	0.0	0.0	17.9	9.3	0.0	0.0	0.0	0.4	7.7
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	2.3	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	112	121	139	107	130	149	157	136	145	154	131	155	122	157	130
3	Ca (mg/L)	22	28	28	24	25	33	32	29	38	37	31	24	27	39	25
4	Cl (mg/L)	5.3	7.2	6.2	7.8	16.4	7.3	10.0	8.8	10.5	15.1	6.7	13.3	7.0	9.9	18.8
5	CO3 (mg/L)	2.8	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3	0.0	0.0	0.0
6	F (mg/L)	0.25	0.31	0.28	0.07	0.51	0.17	0.28	0.24	0.11		0.28	0.21	0.13		
7	HCO3 (mg/L)	131	144	170	131	158	181	192	166	177	188	160	175	148	192	158
8	K (mg/L)	1.7	1.4	1.6	2.8	2.8	1.3	1.9	1.5	1.4		1.2	1.6	1.7	2.1	
9	Mg (mg/L)	10.2	9.7	13.1	9.6	9.2	11.8	14.2	12.1	13.1	10.6	9.7	15.7	11.1	16.5	8.2
10	Na (mg/L)	8.5	10.4	7.0	9.8	14.3	11.6	15.6	16.8	13.0		10.8	16.4	11.9	34.5	
11	NH3-N (mg N/L)				0.07					0.10					0.13	
12	NO2+NO3 (mg N/L)	1.20	0.91	0.90	0.92	1.01	0.46	1.21	0.34	0.12	1.09	0.32	0.49	0.69	0.54	0.49
13	NO2-N (mgN/L)	0.13	0.04	0.04	0.31	0.04	0.01	0.04	0.02	0.03	0.20	0.01	0.03	0.04	0.06	0.02
14	NO3-N (mgN/L)	1.07	0.87	0.86	0.61	0.97	0.45	1.17	0.32	0.09	0.89	0.31	0.46	0.64	0.47	0.47
15	o-PO4-P (mg P/L)	0.298	0.195	0.214	0.237	0.257	0.088	0.126	0.035	0.050	0.055	0.071	0.089	0.046	0.039	0.084
16	SiO2 (mg/L)	25.5	21.5	23.0	34.9	18.4	18.5	21.3	18.4	20.6	19.1	19.2	19.2	30.7	22.3	26.9
17	SO4 (mg/L)	19.4	15.2	11.7	13.6	11.7	8.8	19.7	9.2	23.4	13.8	6.5	12.0	6.7	11.3	7.0
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	0.7	0.7	0.8	0.8	0.8	1.1	1.1	0.7	1.2	1.9	1.2	1.2	0.9	1.0	1.2
2	COD (mg/L)	38.0	38.8	38.7	23.0	33.5	41.5	37.3	31.3	22.0		37.0	29.0	27.0	25.5	30.1
3	DO (mg/L)	5.9	5.5	5.8	5.8	5.8	7.0	6.4	7.2	6.8	8.1	5.3	5.9	5.7	6.4	5.8
4	DO_SAT% (%)	72	65	74	68	75	75	65	78	76	93	67	73	65	77	71
	TRACE & TOXIC															
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	55	70	71	60	62	83	81	72	95	93	78	61	67	98	63
2	HAR_Total (mgCaCO3/L)	97	111	126	100	101	133	140	122	150	137	119	127	113	167	97
3	Na% (%)	16	17	11	17	25	16	19	22	16		16	22	18	29	
4	RSC (-)	0.3	0.2	0.7	0.2	0.6	0.3	0.4	0.3	0.2	0.4	0.3	0.6	0.2	0.4	0.7
5	SAR (-)	0.4	0.4	0.3	0.4	0.7	0.4	0.6	0.7	0.5		0.4	0.6	0.5	1.1	
	PESTICIDES															

2.11 Ganjal at Chhidgaon

History sheet

			Water Year	**:**	**2020-21**
Site	**:**	**Ganjal at Chhidgaon**	**Code**	**:**	CW1NAM000379
State	:	Madhya Pradesh	District		Harda
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:	Ganjal	Sub Tributary	:	-
Sub-Sub Tributary	:	-	Local River	:	Ganjal
Division	:	Narmada Division, Bhopal	Sub-Division	:	MNSD II, Bhopal
Drainage Area	:	1729 Sq. Km.	Bank	:	Left
Latitude	:	22°24'21"	Longitude	:	77°18'28"
		Opening Date	Closing Date		
Gauge	:	22/12/1976			
Discharge	:	22/12/1976			
Sediment	:				
Water Quality	:	16/09/1986			

Water Quality Datasheet for the period : 2020-21

Station Name : Ganjal at Chhidgaon (CW1NAM000379) Division : Narmada Division, Bhopal

Local River : Ganjal Sub-Division : MNSD-II, Bhopal

River Water Analysis

S.No	Parameters	02/06/2020	02/07/2020	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL													
1	Q (cumec)	0	6.83	111.94	329.01	11.99	5.8	2	0.2	0.20	0	0		
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
3	EC_GEN (µmho/cm)	330	353	181	294	424	461	532	512	518	664	599		
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		
5	pH_FLD (pH units)													
6	pH_GEN (pH units)	7.9	7.2	7.7	7.7	7.8	8.0	7.6	7.6	7.3	7.4	7.7		
7	TDS (mg/L)	202	280	115	153	279	289	264	266	358	398	341		
8	Temp (deg C)	28.0	30.0	27.0	27.0	26.5	24.0	21.5	19.0	17.0	24.0	23.0		
9	Turb (NTU)	0.0	0.0	0.0	25.0	10.0	6.0	5.0	6.0	7.0	5.0	6.0		
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	116	161	96	156	209	210	252	256	258	268	285		
3	Ca (mg/L)	23	22	29	35	44	43	49	43	54	33	40		
4	Cl (mg/L)	20.4	17.6	3.6	12.6	18.4	15.7	19.6	22.8	20.4	19.6	23.3		
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
6	F (mg/L)				0.36									
7	HCO3 (mg/L)	141	196	117	190	255	256	307	312	315	327	348		
8	K (mg/L)	2.4	3.3	2.8	*	*	*	*	*	*	*	*		
9	Mg (mg/L)	13.7	13.0	11.3	13.9	12.9	26.3	18.0	11.1	19.1	9.5	22.7		
10	Na (mg/L)	20.3	24.5	6.9	*	*	*	*	*	*	*	*		
11	NH3-N (mg N/L)													
12	NO2+NO3 (mg N/L)	0.26	1.08	1.22	1.39	1.73	0.42	1.22	2.45	3.04	2.75	1.31		
13	NO2-N (mgN/L)	0.01	0.01	0.02	0.01	0.07	0.20	0.13	0.02	0.18	0.02	0.02		
14	NO3-N (mgN/L)	0.25	1.07	1.20	1.39	1.66	0.22	1.09	2.44	2.86	2.73	1.29		
15	o-PO4-P (mg P/L)	0.014	2.115	0.329	0.167	0.025	0.065	0.058	0.027	0.506	0.656	0.632		
16	SiO2 (mg/L)	10.2	46.7		41.4	17.3	18.1	27.9	25.8	28.0	48.3	43.3		
17	SO4 (mg/L)	9.0	12.4	30.6	10.1	8.6	13.2	16.6	6.2	30.5	19.5	18.7		
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	2.0	0.6	1.2	0.2	0.4	1.6	1.8	1.6	0.6	0.9	1.9		
2	COD (mg/L)	38.0	35.0											
3	DO (mg/L)	7.3	5.3	4.4	6.5	6.3	8.2	8.2	9.3	7.6	7.5	7.9		
4	DO_SAT% (%)	93	70	56	81	77	97	92	101	79	89	92		
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	57	54	71	87	110	108	122	108	136	82	101		
2	HAR_Total (mgCaCO3/L)	114	108	118	145	163	217	197	154	216	121	195		
3	Na% (%)	27	32	11										
4	RSC (-)	0.0	1.1	0.0	0.2	0.9	0.0	1.1	2.0	0.9	3.0	1.8		
5	SAR (-)	0.8	1.0	0.3										
	Note - "*" Not analysed due to non working of instrument													

Sample not collected due to lockdown

Sample not collected due to lockdown

Water Quality Summary for the period : 2020-21

Station Name : Ganjal at Chhidgaon (CW1NAM000379) Division : Narmada Division, Bhopal

Local River : Ganjal Sub-Division : MNSD-II, Bhopal

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	2368.45	0	42.97
2	EC_GEN (µmho/cm)	11	664	181	443
3	pH_FLD (pH units)	1	7.7	7.7	7.7
4	pH_GEN (pH units)	11	8.0	7.2	7.6
5	TDS (mg/L)	11	398	115	268
6	Temp (deg C)	11	30.0	17.0	24.3
7	Turb (NTU)	11	25.0	0.0	6.4
	CHEMICAL				
1	Alk-PHen (mgCaCO3/L)	11	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	11	285	96	206
3	Ca (mg/L)	11	54	22	38
4	Cl (mg/L)	11	23.3	3.6	17.6
5	CO3 (mg/L)	11	0.0	0.0	0
6	F (mg/L)	1	0.36	0.36	0.36
7	HCO3 (mg/L)	11	348	117	251
8	K (mg/L)	3	3.3	2.4	2.8
9	Mg (mg/L)	11	26.3	9.5	15.6
10	Na (mg/L)	3	24.5	6.9	17.2
11	NH3-N (mg N/L)	1	0.00	0.00	0
12	NO2+NO3 (mg N/L)	11	3.04	0.26	1.53
13	NO2-N (mgN/L)	11	0.20	0.01	0.06
14	NO3-N (mgN/L)	11	2.86	0.22	1.47
15	o-PO4-P (mg P/L)	11	2.115	0.014	0.418
16	SiO2 (mg/L)	10	48.3	10.2	30.7
17	SO4 (mg/L)	11	30.6	6.2	16
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	11	2.0	0.2	1.2
2	COD (mg/L)	2	38.0	35.0	36.5
3	DO (mg/L)	11	9.3	4.4	7.1
4	DO_SAT% (%)	11	101	56	84
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	11	136	54	94
2	HAR_Total (mgCaCO3/L)	11	217	108	159
3	Na% (%)	3	32	11	24
4	RSC (-)	11	3.0	0.0	1
5	SAR (-)	3	1.0	0.3	0.7
	PESTICIDES				

Water Quality Seasonal Average for the period : 2016-2021

Station Name : Ganjal at Chhidgaon (CW1NAM000379) Division : Narmada Division, Bhopal

Local River : Ganjal Sub-Division : MNSD-II, Bhopal

River Water

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2016	2017	2018	2019	2020	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2017	2018	2019	2020	2021
	PHYSICAL															
1	Q (cumec)	100.67	22.73	18.50	296.2	92.34	0	0	0.000	1.75	2.05	0	0	0	0	0
2	EC_FLD (µmho/cm)													537		
3	EC_GEN (µmho/cm)	320	326	317	371	316	438	458	411	466	506	476	495	529	420	632
4	pH_FLD (pH units)													7.3		7.7
5	pH_GEN (pH units)	7.7	8.0	7.9	7.5	7.7	7.6	7.8	7.7	7.7	7.6	7.6	8.1	7.5	7.6	7.5
6	TDS (mg/L)	207	207	200	230	206	309	302	292	308	294	308	320	313	277	370
7	Temp (deg C)	29.9	29.5	27.3	27.1	27.7	20.6	19.6	16.5	18.8	20.4	26.0	24.5	23.2	24.0	23.5
8	Turb (NTU)	129.6	51.6	98.6	112.8	7.0	0.0	0.0	0.0	18.2	6.0	0.0	0.0	0.0	0.9	5.5
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	2.3	1.6	2.9	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	155	151	146	173	147	243	210	219	190	244	248	226	252	182	277
3	Ca (mg/L)	26	30	28	34	30	42	35	42	48	47	31	30	34	37	37
4	Cl (mg/L)	7.7	7.8	8.8	10.8	14.5	11.0	9.5	12.0	10.3	19.6	13.0	17.3	12.0	11.9	21.4
5	CO3 (mg/L)	2.8	1.9	3.4	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0
6	F (mg/L)	0.29	0.37	0.25	0.09	0.36	0.21	0.30	0.26	0.12		0.44	0.26	0.10		
7	HCO3 (mg/L)	183	180	171	211	180	296	252	268	232	298	302	269	308	222	338
8	K (mg/L)	1.7	1.1	2.0	3.1	2.8	1.1	1.6	1.3	1.0		1.3	1.5	1.5	1.9	
9	Mg (mg/L)	14.0	12.5	12.1	14.3	12.9	21.3	19.0	20.4	18.8	18.6	22.9	21.0	22.8	13.7	16.1
10	Na (mg/L)	25.4	15.5	13.2	19.1	17.2	25.1	24.3	40.0	22.4		35.4	33.2	39.9	31.8	
11	NH3-N (mg N/L)				0.09	0.00				0.15					0.15	
12	NO2+NO3 (mg N/L)	1.75	0.86	1.53	1.00	1.14	0.58	0.35	0.47	0.31	1.78	0.53	0.28	0.44	0.46	2.03
13	NO2-N (mgN/L)	0.10	0.07	0.30	0.29	0.02	0.02	0.04	0.02	0.03	0.13	0.03	0.03	0.03	0.06	0.02
14	NO3-N (mgN/L)	1.65	0.79	1.23	0.71	1.11	0.56	0.31	0.45	0.28	1.65	0.50	0.25	0.41	0.41	2.01
15	o-PO4-P (mg P/L)	0.224	0.176	0.194	0.215	0.530	0.114	0.092	0.076	0.063	0.164	0.162	0.067	0.050	0.037	0.644
16	SiO2 (mg/L)	28.7	23.9	34.1	44.6	28.9	18.4	19.7	18.4	26.6	24.9	21.0	18.4	33.6	21.7	45.8
17	SO4 (mg/L)	21.3	13.8	13.0	17.4	14.2	9.9	11.1	9.1	28.8	16.6	9.9	14.0	7.2	5.4	19.1
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	1.1	1.0	0.9	1.0	0.9	1.2	1.1	0.9	0.7	1.4	1.2	2.4	1.0	1.6	1.4
2	COD (mg/L)	29.0	23.6	30.6	23.4	36.5	30.0	34.3	37.5	15.8		35.3	37.3	26.7	17.0	
3	DO (mg/L)	5.6	5.4	5.6	4.9	5.9	6.4	5.8	7.6	7.1	8.3	4.3	6.4	5.1	7.9	7.7
4	DO_SAT% (%)	73	71	70	61	75	71	63	77	76	92	53	76	59	93	90
	TRACE & TOXIC															
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	66	76	71	85	76	106	87	104	120	119	78	75	86	91	91
2	HAR_Total (mgCaCO3/L)	125	128	121	144	130	195	166	189	198	196	173	162	181	148	158
3	Na% (%)	31	19	16	19	24	21	24	30	19		31	31	32	27	
4	RSC (-)	0.7	0.5	0.5	0.6	0.5	1.0	0.9	0.6	0.3	1.0	1.5	1.3	1.5	0.7	2.4
5	SAR (-)	1.0	0.6	0.5	0.7	0.7	0.8	0.8	1.2	0.7		1.2	1.1	1.3	1.0	
	PESTICIDES															

2.12 Narmada at Hoshangabad

History sheet

			Water Year	**:**	**2020-21**
Site	**:**	**Narmada at Hoshangabad**	**Code**	**:**	CW1NAM000278
State	:	Madhya Pradesh	District		Hoshangabad
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:		Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Narmada
Division	:	Narmada division Bhopal	Sub-Division	:	MNSD-1 CWC Hoshangabad
Drainage Area	:	44548 Sq. Km.	Bank	:	Left
Latitude	:	22°45'22"	Longitude	:	77°43'58"
		Opening Date	Closing Date		
Gauge	:	21/05/1972			
Discharge	:	16/09/1972			
Sediment	:	29/12/1972			
Water Quality	:	15/07/1979			

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at Hoshangabad (CW1NAM000278) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : MNSD-1, Hoshangabad

River Water Analysis

S.No	Parameters	02/06/2020	01/07/2020	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL													
1	Q (cumec)	284.3	250.2	440.0	15000	507.0	240.0	138	155.0	147.0	228.0	157.0	254.0	275.0
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Light Brown	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	241	255	222	163	304	328	331	297	253	302	457	253	328
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_FLD (pH units)													
6	pH_GEN (pH units)	7.8	7.2	7.7	7.1	7.6	8.0	7.6	7.8	7.6	7.6	7.2	7.0	7.7
7	TDS (mg/L)	160	158	141	90	201	214	340	155	183	183	263	135	179
8	Temp (deg C)	28.0	25.0	25.0	27.0	28.0	26.0	24.0	17.0	19.0	23.0	26.0	24.0	25.0
9	Turb (NTU)	0.0	0.0	0.0	379.0	30.0	8.0	8.0	6.0	7.0	7.0	7.0	9.0	8.0
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	131	137	107	80	107	160	171	145	137	134	147	100	111
3	Ca (mg/L)	22	13	27	23	39	39	43	22	34	25	27	29	28
4	Cl (mg/L)	11.2	15.7	7.1	10.5	10.2	13.7	13.7	16.6	18.4	13.7	15.5	15.5	13.6
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)				0.34									
7	HCO3 (mg/L)	160	167	131	97	130	195	209	177	167	163	179	122	136
8	K (mg/L)	2.0	2.7	2.7	*	*	*	*	*	*	*	*	*	*
9	Mg (mg/L)	13.2	7.9	28.0	4.5	7.1	12.4	9.6	7.9	7.9	2.5	10.2	6.1	8.6
10	Na (mg/L)	10.3	13.9	10.0	*	*	*	*	*	*	*	*	*	*
11	NH3-N (mg N/L)		0.00											
12	NO2+NO3 (mg N/L)	0.06	0.34	0.92	0.73	1.04	0.17	0.31	0.73	0.54	0.50	0.73	0.36	0.50
13	NO2-N (mgN/L)	0.03	0.01	0.02	0.02	0.29	0.07	0.06	0.00	0.06	0.08	0.02	0.02	0.02
14	NO3-N (mgN/L)	0.03	0.32	0.90	0.70	0.75	0.10	0.25	0.73	0.48	0.42	0.70	0.34	0.48
15	o-PO4-P (mg P/L)	0.011	1.049	5.582	0.163	0.037	0.055	0.035	0.019	0.037	0.086	0.499	0.057	0.097
16	SiO2 (mg/L)	8.8	32.2		11.3	16.5	13.7	17.2	16.7	21.0	33.4	30.3	28.7	33.2
17	SO4 (mg/L)	5.1	11.0	49.5	12.0	5.1	7.0	6.3	6.0	13.2	5.3	5.7	4.6	5.8
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	1.4	1.2	1.2	0.6	1.6	1.4	2.4	0.8	0.4	1.0	0.7	1.5	1.2
2	COD (mg/L)	24.0	34.0											
3	DO (mg/L)	6.7	6.3	6.1	3.8	5.9	7.8	8.4	8.1	8.0	7.2	7.0	4.5	3.9
4	DO_SAT% (%)	85	76	73	48	75	96	99	84	86	84	86	53	48
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	55	33	67	58	97	98	109	56	86	62	68	74	70
2	HAR_Total (mgCaCO3/L)	110	66	183	76	127	149	148	89	119	72	111	99	105
3	Na% (%)	17	31	11										
4	RSC (-)	0.4	1.4	0.0	0.1	0.0	0.2	0.5	1.1	0.4	1.2	0.7	0.0	0.1
5	SAR (-)	0.4	0.7	0.3										
	Note - "*" Not analysed due to non working of instrument													

Water Quality Summary for the period : 2020-21

Station Name : Narmada at Hoshangabad (CW1NAM000278) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division:MNSD-1, Hoshangabad

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	62	30100	45	152.3
2	EC_GEN (µmho/cm)	13	457	163	287
3	pH_FLD (pH units)	1	7.2	7.2	7.2
4	pH_GEN (pH units)	13	8.0	7.0	7.5
5	TDS (mg/L)	13	340	90	185
6	Temp (deg C)	13	28.0	17.0	24.4
7	Turb (NTU)	13	379.0	0.0	36.1
	CHEMICAL				
1	Alk-PHen (mgCaCO3/L)	13	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	13	171	80	128
3	Ca (mg/L)	13	43	13	29
4	Cl (mg/L)	13	18.4	7.1	13.5
5	CO3 (mg/L)	13	0.0	0.0	0
6	F (mg/L)	1	0.34	0.34	0.34
7	HCO3 (mg/L)	13	209	97	156
8	K (mg/L)	3	2.7	2.0	2.5
9	Mg (mg/L)	13	28.0	2.5	9.7
10	Na (mg/L)	3	13.9	10.0	11.4
11	NH3-N (mg N/L)	1	0.00	0.00	0
12	NO2+NO3 (mg N/L)	13	1.04	0.06	0.53
13	NO2-N (mgN/L)	13	0.29	0.00	0.05
14	NO3-N (mgN/L)	13	0.90	0.03	0.48
15	o-PO4-P (mg P/L)	13	5.582	0.011	0.594
16	SiO2 (mg/L)	12	33.4	8.8	21.9
17	SO4 (mg/L)	13	49.5	4.6	10.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	13	2.4	0.4	1.2
2	COD (mg/L)	2	34.0	24.0	29
3	DO (mg/L)	13	8.4	3.8	6.4
4	DO_SAT% (%)	13	99	48	76
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	13	109	33	72
2	HAR_Total (mgCaCO3/L)	13	183	66	112
3	Na% (%)	3	31	11	19
4	RSC (-)	13	1.4	0.0	0.5
5	SAR (-)	3	0.7	0.3	0.5
	PESTICIDES				

Water Quality Seasonal Average for the period : 2016-21

Station Name : Narmada at Hoshangabad (CW1NAM000278) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : MNSD-1, Hoshangabad

River Water

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2016	2017	2018	2019	2020	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2017	2018	2019	2020	2021
	PHYSICAL															
1	Q (cumec)	1014.2	333.48	526.9	1670	325.96	290.18	114.75	165.9	364.25	174.25	168.43	47.97	86.96	400.13	131
2	EC_FLD (µmho/cm)															
3	EC_GEN (µmho/cm)	174	259	242	204	237	286	326	249	296	302	243	332	272	219	335
4	pH_FLD (pH units)															7.2
5	pH_GEN (pH units)	7.6	8.0	7.8	7.5	7.5	7.9	8.0	7.6	7.8	7.7	7.9	7.9	7.8	7.6	7.4
6	TDS (mg/L)	113	168	154	126	150	185	215	165	201	223	157	216	161	149	190
7	Temp (deg C)	19.0	23.2	26.0	26.4	26.6	16.9	18.0	20.0	21.8	21.5	20.0	22.7	23.7	25.8	24.5
8	Turb (NTU)	82.6	130.0	92.6	130.8	81.8	0.0	0.0	0.0	17.6	7.3	0.0	0.0	0.0	0.5	7.8
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	95	127	112	90	112	147	154	129	149	153	126	156	125	124	123
3	Ca (mg/L)	20	30	27	22	25	33	31	29	34	35	32	29	29	28	27
4	Cl (mg/L)	5.8	6.2	6.2	7.0	10.9	7.5	7.8	6.3	9.0	15.6	6.3	11.7	7.0	8.2	14.6
5	CO3 (mg/L)	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0
6	F (mg/L)	0.29	0.28	0.21	0.08	0.34	0.20	0.27	0.14	0.10		0.15	0.23	0.09		
7	HCO3 (mg/L)	116	152	136	110	137	179	188	158	182	187	153	190	149	151	150
8	K (mg/L)	1.6	1.5	1.8	2.6	2.5	1.3	1.7	1.3	1.3		1.1	1.6	1.5	1.6	
9	Mg (mg/L)	7.5	8.5	9.1	7.6	12.1	12.0	14.2	10.8	12.3	9.4	8.7	16.0	11.9	9.7	6.8
10	Na (mg/L)	6.6	200.8	5.8	7.2	11.4	9.8	13.8	11.4	9.4		9.7	9.7	10.7	8.9	
11	NH3-N (mg N/L)				0.07	0.00				0.09					0.08	
12	NO2+NO3 (mg N/L)	1.22	0.77	0.84	0.84	0.62	0.37	1.11	0.28	0.15	0.44	0.25	0.50	0.55	0.10	0.52
13	NO2-N (mgN/L)	0.07	0.05	0.05	0.30	0.07	0.01	0.03	0.02	0.02	0.05	0.01	0.09	0.05	0.02	0.04
14	NO3-N (mgN/L)	1.15	0.72	0.79	0.53	0.54	0.36	1.08	0.27	0.13	0.39	0.24	0.42	0.50	0.08	0.48
15	o-PO4-P (mg P/L)	0.221	0.140	0.223	0.249	1.368	0.097	0.073	0.038	0.049	0.036	0.089	0.063	0.023	0.042	0.185
16	SiO2 (mg/L)	17.2	20.3	23.0	33.2	17.2	14.5	20.9	17.6	18.5	17.1	15.8	19.5	26.1	18.5	31.4
17	SO4 (mg/L)	14.6	14.9	10.9	11.0	16.5	8.7	20.7	8.5	20.2	8.1	5.6	13.6	7.7	5.3	5.3
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	0.9	1.1	0.8	0.9	1.2	1.1	0.9	0.9	0.8	1.3	0.8	1.3	1.0	1.1	1.1
2	COD (mg/L)	37.2	35.0	37.4	24.8	29.0	46.8	34.8	30.3	12.8		42.3	44.3	28.0	17.0	
3	DO (mg/L)	5.9	5.6	5.3	5.3	5.7	6.8	7.0	6.6	6.7	8.1	5.4	6.0	5.8	6.8	5.6
4	DO_SAT% (%)	64	65	65	66	72	70	74	73	76	91	59	70	68	84	68
	TRACE & TOXIC															
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	50	76	66	55	62	81	77	72	85	87	81	71	73	71	68
2	HAR_Total (mgCaCO3/L)	81	111	104	87	112	132	136	117	137	126	117	138	123	111	97
3	Na% (%)	15	31	11	15	19	14	18	17	13		15	13	16	14	
4	RSC (-)	0.3	0.3	0.2	0.1	0.4	0.3	0.4	0.3	0.6	0.6	0.2	0.4	0.1	0.3	0.5
5	SAR (-)	0.3	8.2	0.3	0.3	0.5	0.4	0.5	0.5	0.4		0.4	0.4	0.4	0.4	
	PESTICIDES															

2.13 Narmada at Sandia

History sheet

			Water Year	**:**	**2020-21**
Site	**:**	**Narmada at Sandia**	**Code**	**:**	CW1NAU000450
State	:	Madhya Pradesh	District		Hoshangabad
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:		Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Narmada
Division	:	Narmada Division, Bhopal	Sub-Division	:	MNSD 1,Hoshangabad
Drainage Area	:	33953.5 Sq. Km.	Bank	:	Left
Latitude	:	22°54'57"	Longitude	:	78°20'51"
		Opening Date	Closing Date		
Gauge	:	01/03/1978			
Discharge	:	18/04/1978			
Sediment	:	09/08/1978			
Water Quality	:	15/09/1979			

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at Sandia (CW1NAU000450) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : MNSD-1, Hoshangabad

River Water Analysis

S.No	Parameters	02/06/2020	01/07/2020	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL													
1	Q (cumec)	75.0	175.9	369.6	5930.0	607.1	200.1	149.0	100.0	109.6	75.0	65.0	144.0	150.0
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	574	247	222	161	329	319	321	282	247	308	275	254	315
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_FLD (pH units)													
6	pH_GEN (pH units)	7.6	7.2	7.7	7.4	7.7	8.1	7.5	8.0	7.6	7.4	7.0	8.0	7.2
7	TDS (mg/L)	362	153	141	89	219	205	216	152	173	187	156	140	162
8	Temp (deg C)	28.0	29.5	30.0	29.5	29.5	28.0	28.5	28.5	15.0	27.0	29.0	29.0	25.0
9	Turb (NTU)	0.0	0.0	0.0	362.0	33.0	9.0	7.0	6.0	7.0	187.0	7.0	6.0	8.0
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	243	118	104	84	148	148	160	130	133	134	127	97	108
3	Ca (mg/L)	36	14	28	25	36	38	49	31	31	28	28	23	27
4	Cl (mg/L)	16.7	17.6	7.1	8.4	14.3	11.7	15.7	16.6	14.3	13.7	15.5	11.7	13.6
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)				0.20									
7	HCO3 (mg/L)	296	144	127	103	181	181	195	158	162	163	155	118	132
8	K (mg/L)	2.2	2.4	2.7	*	*	*	*	*	*	*	*	*	*
9	Mg (mg/L)	21.8	8.4	10.6	5.1	11.7	13.5	6.6	11.9	9.8	6.3	7.5	10.8	10.0
10	Na (mg/L)	47.2	11.9	9.6	*	*	*	*	*	*	*	*	*	*
11	NH3-N (mg N/L)													
12	NO2+NO3 (mg N/L)	0.40	0.21	1.09	0.80	0.98	0.15	0.35	0.79	0.42	0.31	0.32	0.30	0.45
13	NO2-N (mgN/L)	0.05	0.01	0.02	0.04	0.03	0.07	0.10	0.05	0.08	0.02	0.02	0.02	0.02
14	NO3-N (mgN/L)	0.35	0.20	1.07	0.76	0.95	0.08	0.25	0.73	0.34	0.29	0.30	0.28	0.43
15	o-PO4-P (mg P/L)	0.005	1.280	0.322	0.296	0.042	0.060	0.199	0.012	0.150	0.087	0.069	0.061	0.088
16	SiO2 (mg/L)	11.7	26.3		14.7	14.7	18.8	23.0	21.5	20.7	34.8	28.7	28.8	31.5
17	SO4 (mg/L)	18.3	8.5	25.7	6.4	6.0	5.4	4.7	4.1	7.9	3.3	4.0	4.9	5.8
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	1.8	0.6	1.8	2.8	1.0	1.4	1.0	1.0	0.8	0.9	0.9	1.2	1.0
2	COD (mg/L)	26.0	39.0											
3	DO (mg/L)	5.5	6.1	7.1	5.7	7.1	7.6	7.4	8.5	8.0	5.1	5.8	3.8	4.3
4	DO_SAT% (%)	70	79	94	74	92	97	94	109	79	64	76	49	52
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	91	35	71	62	91	94	123	76	79	71	69	58	67
2	HAR_Total (mgCaCO3/L)	182	70	115	83	140	150	150	126	119	97	101	102	108
3	Na% (%)	36	26	15										
4	RSC (-)	1.2	1.0	0.0	0.0	0.2	0.0	0.2	0.1	0.3	0.7	0.5	0.0	0.0
5	SAR (-)	1.5	0.6	0.4										
	Note - "*" Not analysed due to non working of instrument													

Water Quality Summary for the period : 2020-21

Station Name : Narmada at Sandia (CW1NAU000450) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division:MNSD-1, Hoshangabad

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	22850	65	567.07
2	EC_GEN (µmho/cm)	13	574	161	296
3	pH_FLD (pH units)	1	7.0	7.0	7
4	pH_GEN (pH units)	13	8.1	7.0	7.6
5	TDS (mg/L)	13	362	89	181
6	Temp (deg C)	13	30.0	15.0	27.4
7	Turb (NTU)	13	362.0	0.0	48.6
	CHEMICAL				
1	Alk-PHen (mgCaCO3/L)	13	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	13	243	84	133
3	Ca (mg/L)	13	49	14	30
4	Cl (mg/L)	13	17.6	7.1	13.6
5	CO3 (mg/L)	13	0.0	0.0	0
6	F (mg/L)	1	0.20	0.20	0.2
7	HCO3 (mg/L)	13	296	103	163
8	K (mg/L)	3	2.7	2.2	2.4
9	Mg (mg/L)	13	21.8	5.1	10.3
10	Na (mg/L)	3	47.2	9.6	22.9
11	NH3-N (mg N/L)	1	0.00	0.00	0
12	NO2+NO3 (mg N/L)	13	1.09	0.15	0.5
13	NO2-N (mgN/L)	13	0.10	0.01	0.04
14	NO3-N (mgN/L)	13	1.07	0.08	0.46
15	o-PO4-P (mg P/L)	13	1.280	0.005	0.205
16	SiO2 (mg/L)	12	34.8	11.7	22.9
17	SO4 (mg/L)	13	25.7	3.3	8.1
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	13	2.8	0.6	1.2
2	COD (mg/L)	2	39.0	26.0	32.5
3	DO (mg/L)	13	8.5	3.8	6.3
4	DO_SAT% (%)	13	109	49	79
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	13	123	35	76
2	HAR_Total (mgCaCO3/L)	13	182	70	119
3	Na% (%)	3	36	15	26
4	RSC (-)	13	1.2	0.0	0.3
5	SAR (-)	3	1.5	0.4	0.8
	PESTICIDES				

Water Quality Seasonal Average for the period : 2016-2021

Station Name : Narmada at Sandia (CW1NAU000450) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : MNSD-1, Hoshangabad

River Water

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2016	2017	2018	2019	2020	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2017	2018	2019	2020	2021
	PHYSICAL															
1	Q (cumec)	980.38	186.8	646.1	866.8	1431.5	180.83	69.5	129.2	59.05	139.68	111.53	12	45.03	299.7	102.25
2	EC_FLD (µmho/cm)													269		
3	EC_GEN (µmho/cm)	193	248	220	214	307	258	287	239	388	292	231	305	255	297	288
4	pH_FLD (pH units)													7.8		7.0
5	pH_GEN (pH units)	7.6	7.8	7.8	7.5	7.5	7.8	7.8	7.6	7.9	7.8	7.7	7.7	7.8	7.6	7.4
6	TDS (mg/L)	125	160	139	134	193	167	191	161	264	187	150	197	151	207	161
7	Temp (deg C)	27.3	26.5	28.8	28.9	29.3	18.1	19.1	19.0	23.6	25.0	25.8	25.5	24.2	22.8	27.5
8	Turb (NTU)	145.8	124.4	98.0	122.8	79.0	0.0	0.0	0.0	24.5	7.3	0.0	0.0	0.0	0.4	52.0
	CHEMICAL															
1	Alk-Phen (mgCaCO3/L)	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	92	120	97	98	140	130	133	120	185	143	121	134	119	156	116
3	Ca (mg/L)	23	29	25	24	28	32	30	29	49	37	33	29	29	39	26
4	Cl (mg/L)	4.9	5.4	5.8	5.4	12.8	6.5	8.3	5.8	9.0	14.6	5.7	14.3	7.7	10.9	13.6
5	CO3 (mg/L)	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.35	0.33	0.27	0.07	0.20	0.19	0.29	0.23	0.11		0.19	0.21	0.06		
7	HCO3 (mg/L)	110	147	119	119	170	158	162	147	226	174	147	163	146	191	142
8	K (mg/L)	1.5	1.4	1.8	2.8	2.4	1.2	1.5	1.4	1.3		1.0	1.8	1.4	1.9	
9	Mg (mg/L)	7.3	8.5	7.9	14.1	11.5	9.7	12.8	11.3	14.8	10.4	7.7	13.0	11.6	11.5	8.6
10	Na (mg/L)	4.9	7.5	4.5	5.9	22.9	7.2	9.2	8.6	9.2		7.8	9.2	8.2	15.8	
11	NH3-N (mg N/L)				0.08	0.00				0.11					0.15	
12	NO2+NO3 (mg N/L)	1.85	0.71	1.36	0.75	0.70	0.38	0.73	0.53	0.19	0.43	0.22	0.34	0.35	0.11	0.34
13	NO2-N (mgN/L)	0.10	0.04	0.38	0.35	0.03	0.01	0.03	0.02	0.02	0.08	0.01	0.03	0.02	0.02	0.02
14	NO3-N (mgN/L)	1.75	0.67	0.98	0.40	0.67	0.37	0.70	0.52	0.17	0.35	0.21	0.31	0.33	0.09	0.32
15	o-PO4-P (mg P/L)	0.230	0.179	0.233	0.244	0.389	0.077	0.081	0.042	0.070	0.105	0.075	0.094	0.124	0.046	0.076
16	SiO2 (mg/L)	21.5	22.0	22.1	35.4	16.9	14.8	20.2	18.1	21.5	21.0	15.6	18.2	23.9	19.5	30.9
17	SO4 (mg/L)	12.6	16.1	11.9	9.2	13.0	9.2	22.5	8.3	19.9	5.5	5.1	16.8	7.2	5.8	4.5
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	0.9	1.0	0.7	0.6	1.6	1.2	1.0	0.8	0.8	1.1	1.0	1.0	1.0	1.1	1.0
2	COD (mg/L)	94.8	48.4	31.2	22.0	32.5	49.5	29.5	30.3	15.8		38.3	45.3	25.7	13.5	
3	DO (mg/L)	5.4	5.4	4.9	5.5	6.3	6.7	6.3	6.6	6.1	7.9	5.3	5.3	6.1	5.7	4.7
4	DO_SAT% (%)	69	67	63	71	82	71	68	71	72	95	65	64	72	66	60
	TRACE & TOXIC															
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	59	73	62	61	70	80	75	72	122	93	82	73	71	97	66
2	HAR_Total (mgCaCO3/L)	89	108	94	120	118	121	128	119	184	136	114	127	120	145	102
3	Na% (%)	11	13	9	10	26	11	14	13	10		13	13	13	19	
4	RSC (-)	0.1	0.2	0.1	0.1	0.5	0.2	0.1	0.1	0.3	0.1	0.2	0.2	0.0	0.3	0.3
5	SAR (-)	0.2	0.3	0.2	0.2	0.8	0.3	0.4	0.3	0.3		0.3	0.4	0.3	0.6	
	PESTICIDES															

2.14 Shakkar at Gadarwara

History sheet

			Water Year	**:**	**2020-21**
Site	**:**	**Shakkar at Gadarwara**	**Code**	**:**	CW1NAU000391
State	:	Madhya Pradesh	District		Narsinghpur
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:	Shakkar	Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Shakkar
Division	:	NARMADA DIVISION BHOPAL	Sub-Division	:	MNSD-1 HOSHANGABAD
Drainage Area	:	2270 Sq. Km.	Bank	:	Left
Latitude	:	22°55'26"	Longitude	:	78°47'30"
		Opening Date	Closing Date		
Gauge	:	01/02/1977			
Discharge	:	01/02/1977			
Sediment	:	15/06/1978			
Water Quality	:	16/08/1979			

Water Quality Datasheet for the period : 2020-21

Station Name : Shakkar at Gadarwara (CW1NAU000391) Division : Narmada Division, Bhopal

Local River : Shakkar Sub-Division : MNSD-1, Hoshangabad

River Water Analysis

S.No	Parameters	02/06/2020	01/07/2020	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL													Sample not collected due to lockdown
1	Q (cumec)	0.43	13.05	17.47	499.25	105.52	7	5	3	2.90	0.96	0.67	0.27	
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Light Brown	Clear	Clear	Light Brown	
3	EC_GEN (µmho/cm)	234	319	210	242	374	453	543	420	555	464	364	573	
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	
5	pH_FLD (pH units)													
6	pH_GEN (pH units)	7.9	7.3	7.6	7.5	7.7	7.8	7.4	7.6	7.2	7.6	7.0	7.9	
7	TDS (mg/L)	151	197	132	130	244	293	225	228	404	280	202	305	
8	Temp (deg C)	28.5	29.0	25.0	21.0	23.0	18.0	22.0	17.0	12.0	21.0	22.0	22.0	
9	Turb (NTU)	0.0	0.0	0.0	102.0	5.0	7.0	6.0	7.0	7.0	5.0	5.0	7.0	
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2	ALK-TOT (mgCaCO3/L)	123	169	96	120	164	221	263	229	266	203	185	274	
3	Ca (mg/L)	24	20	35	32	41	56	66	35	63	34	30	42	
4	Cl (mg/L)	16.7	15.7	1.8	10.5	14.3	15.7	21.5	14.5	36.7	21.6	23.3	54.4	
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6	F (mg/L)				0.33									
7	HCO3 (mg/L)	150	206	117	146	200	270	321	279	324	248	226	334	
8	K (mg/L)	1.9	2.9	2.0	*	*	*	*	*	*	*	*	*	
9	Mg (mg/L)	14.4	12.0	22.9	11.8	15.4	18.0	17.1	22.5	26.8	12.4	14.8	23.4	
10	Na (mg/L)	9.2	14.9	6.7	*	*	*	*	*	*	*	*	*	
11	NH3-N (mg N/L)		0.00											
12	NO2+NO3 (mg N/L)	0.01	0.80	1.21	1.74	1.55	0.61	2.75	1.36	2.98	0.54	0.07	2.21	
13	NO2-N (mgN/L)	0.01	0.01	0.02	0.02	0.14	0.42	2.01	0.08	0.01	0.02	0.02	0.02	
14	NO3-N (mgN/L)	0.01	0.79	1.20	1.72	1.41	0.19	0.74	1.28	2.97	0.53	0.05	2.19	
15	o-PO4-P (mg P/L)	0.009	1.275	0.117	0.199	0.027	0.055	0.243	0.027	0.577	0.551	0.132	0.549	
16	SiO2 (mg/L)	8.5	32.2		28.1	22.0	21.6	26.3	25.2	30.8	44.9	36.1	43.1	
17	SO4 (mg/L)	4.3	11.7	23.4	9.1	6.9	6.3	19.4	5.3	19.6	7.1	6.6	13.0	
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	1.2	0.2	1.6	1.0	0.8	0.8	3.1	1.0	3.4	1.4	1.4	0.9	
2	COD (mg/L)	28.0	46.0											
3	DO (mg/L)	7.1	5.1	5.5	5.3	6.5	6.8	7.0	8.7	4.4	7.5	9.6	2.1	
4	DO_SAT% (%)	91	66	66	59	75	71	79	90	41	84	109	23	
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	60	50	87	80	104	139	164	87	157	85	74	106	
2	HAR_Total (mgCaCO3/L)	120	100	183	129	168	214	235	181	269	137	136	203	
3	Na% (%)	14	24	7										
4	RSC (-)	0.1	1.4	0.0	0.0	0.0	0.2	0.6	1.0	0.0	1.3	1.0	1.4	
5	SAR (-)	0.4	0.7	0.2										
	Note - "*" Not analysed due to non working of instrument													

Water Quality Summary for the period : 2020-21

Station Name : Shakkar at Gadarwara (CW1NAU000391) Division : Narmada Division, Bhopal

Local River : Shakkar Sub-Division:MNSD-1, Hoshangabad

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	92	4985	0.000	44.35
2	EC_GEN (µmho/cm)	12	573	210	396
3	pH_FLD (pH units)	1	7.0	7.0	7
4	pH_GEN (pH units)	12	7.9	7.0	7.5
5	TDS (mg/L)	12	404	130	233
6	Temp (deg C)	12	29.0	12.0	21.7
7	Turb (NTU)	12	102.0	0.0	12.6
	CHEMICAL				
1	Alk-PHen (mgCaCO3/L)	12	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	12	274	96	193
3	Ca (mg/L)	12	66	20	40
4	Cl (mg/L)	12	54.4	1.8	20.5
5	CO3 (mg/L)	12	0.0	0.0	0
6	F (mg/L)	1	0.33	0.33	0.33
7	HCO3 (mg/L)	12	334	117	235
8	K (mg/L)	3	2.9	1.9	2.3
9	Mg (mg/L)	12	26.8	11.8	17.6
10	Na (mg/L)	3	14.9	6.7	10.3
11	NH3-N (mg N/L)	1	0.00	0.00	0
12	NO2+NO3 (mg N/L)	12	2.98	0.01	1.32
13	NO2-N (mgN/L)	12	2.01	0.01	0.23
14	NO3-N (mgN/L)	12	2.97	0.01	1.09
15	o-PO4-P (mg P/L)	12	1.275	0.009	0.313
16	SiO2 (mg/L)	11	44.9	8.5	29
17	SO4 (mg/L)	12	23.4	4.3	11
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	12	3.4	0.2	1.4
2	COD (mg/L)	2	46.0	28.0	37
3	DO (mg/L)	12	9.6	2.1	6.3
4	DO_SAT% (%)	12	109	23	71
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	12	164	50	99
2	HAR_Total (mgCaCO3/L)	12	269	100	173
3	Na% (%)	3	24	7	15
4	RSC (-)	12	1.4	0.0	0.6
5	SAR (-)	3	0.7	0.2	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period : 2016-21

Station Name : Shakkar at Gadarwara (CW1NAU000391) Division : Narmada Division, Bhopal

Local River : Shakkar Sub-Division : MNSD-1, Hoshangabad

River Water

S.No	Parameters	Flood Jun - Oct					Winter Nov - Feb					Summer Mar - May				
		2016	2017	2018	2019	2020	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2017	2018	2019	2020	2021
	PHYSICAL															
1	Q (cumec)	161.4	48.42	89.07	154.7	123.37	4.82	3.86	15.97	3.29	4.24	0.38	0	0	0.49	0.63
2	EC_GEN (µmho/cm)	228	285	297	207	276	420	529	508	464	493	545	843		328	467
3	pH_FLD (pH units)															
4	pH_GEN (pH units)	7.5	8.0	7.8	7.6	7.6	7.8	7.7	7.8	7.7	7.5	7.6	7.7		7.6	7.5
5	TDS (mg/L)	147	183	184	134	171	272	349	368	311	288	354	535		211	262
6	Temp (deg C)	24.0	23.8	21.4	23.0	25.3	19.8	21.0	20.0	22.8	17.3	21.8	21.0		24.0	21.7
7	Turb (NTU)	155.0	93.0	112.7	143.3	21.4	0.0	0.0	0.0	24.5	6.8	0.0	0.0		0.2	5.7
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
2	ALK-TOT (mgCaCO3/L)	103	127	119	91	134	204	234	244	180	245	250	293		138	221
3	Ca (mg/L)	26	31	31	26	30	44	49	41	48	55	46	59		31	35
4	Cl (mg/L)	4.8	7.0	9.0	9.0	11.8	9.0	19.8	42.7	16.3	22.1	27.0	86.0		7.9	33.1
5	CO3 (mg/L)	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
6	F (mg/L)	0.37	0.34	0.28	0.08	0.33	0.15	0.36	0.28	0.11		0.24	0.30			
7	HCO3 (mg/L)	126	151	150	112	164	249	285	297	220	299	305	358		168	269
8	K (mg/L)	1.8	1.2	2.5	3.1	2.3	1.0	3.6	7.1	1.2		2.6	2.4		3.7	
9	Mg (mg/L)	9.2	12.1	10.6	7.8	15.3	20.0	25.0	28.6	20.3	21.1	27.2	42.0		15.9	16.8
10	Na (mg/L)	6.0	7.3	7.5	4.6	10.3	11.2	20.0	33.7	12.0		29.6	12.4		20.9	
11	NH3-N (mg N/L)				0.09	0.00				0.15					0.14	
12	NO2+NO3 (mg N/L)	1.80	1.30	0.89	0.86	1.06	0.53	2.32	1.12	0.24	1.93	0.79	2.12		0.43	0.94
13	NO2-N (mgN/L)	0.19	0.08	0.07	0.05	0.04	0.02	0.06	0.02	0.03	0.63	0.04	0.08		0.04	0.02
14	NO3-N (mgN/L)	1.61	1.23	0.82	0.81	1.02	0.51	2.27	1.09	0.21	1.29	0.75	2.04		0.40	0.92
15	o-PO4-P (mg P/L)	0.345	0.260	0.333	0.284	0.325	0.092	0.175	0.081	0.077	0.226	0.146	0.134		0.096	0.411
16	P-Tot (mgP/L)			0.308												
17	SiO2 (mg/L)	25.1	22.4	27.7	27.8	22.7	17.3	21.2	19.7	26.4	25.9	19.2	21.7		17.4	41.4
18	SO4 (mg/L)	20.6	15.1	13.0	14.1	11.1	10.8	18.0	9.0	24.2	12.6	9.9	24.3		4.9	8.9
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	0.9	1.0	1.2	1.1	1.0	1.0	1.1	1.9	1.6	2.1	0.8	1.7		1.6	1.2
2	COD (mg/L)	41.5	48.0	33.8	28.0	37.0	36.8	34.3	29.7	15.5		40.0	21.0		16.5	
3	DO (mg/L)	4.9	5.2	4.8	4.2	5.9	6.6	4.6	6.2	7.0	6.7	4.3	4.8		7.5	6.4
4	DO_SAT% (%)	59	62	54	50	71	72	52	67	82	70	48	54		89	72
	TRACE & TOXIC															
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	64	78	78	66	76	109	122	101	119	137	114	148		78	89
2	HAR_Total (mgCaCO3/L)	103	128	122	98	140	193	226	220	203	225	227	324		144	159
3	Na% (%)	11	11	11	9	15	11	15	22	11		21	8		25	
4	RSC (-)	0.1	0.0	0.1	0.0	0.3	0.2	0.2	0.5	0.1	0.4	0.5	0.0		0.2	1.3
5	SAR (-)	0.3	0.3	0.3	0.2	0.4	0.4	0.6	1.0	0.4		0.8	0.3		0.8	
	PESTICIDES															

RIVER DRY

2.15 Narmada at Barmanghat

History Sheet

			Water Year	**:**	**2020-21**
Site	**:**	**Narmada at Barman**	**Code**	**:**	CW1NAU000188
State	:	Madhya Pradesh	District		Narsinghpur
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:		Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Narmada
Division	:	Narmada division Bhopal	Sub-Division	:	MNSD-1 CWC Hoshangabad
Drainage Area	:	26453 Sq. Km.	Bank	:	Right
Latitude	:	23°01'51"	Longitude	:	79°00'56"
		Opening Date	Closing Date		
Gauge	:	09/12/1970			
Discharge	:	20/11/1971			
Sediment	:	27/08/1972			
Water Quality	:	01/06/1979			

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at Barmanghat (CW1NAU000188) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : MNSD-1, Hoshangabad

River Water Analysis

S.No	Parameters	02/06/2020	01/07/2020	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL													
1	Q (cumec)	104.0	155	360.0	2420	283.0	101.0	87.3	110.0	106.0	102.0	52.5	109.0	117
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	235	234	220	202	329	304	282	240	232	280	244	227	245
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_FLD (pH units)													
6	pH_GEN (pH units)	7.8	7.2	7.6	7.4	7.6	7.9	7.5	7.7	7.4	7.4	7.6	7.1	7.0
7	TDS (mg/L)	170	143	140	109	213	197	343	134	164	178	138	125	138
8	Temp (deg C)	26.5	30.0	29.0	25.0	30.0	30.0	25.0	19.0	20.0	22.0	26.0	27.0	27.0
9	Turb (NTU)	0.0	0.0	0.0	324.0	96.0	10.0	6.0	6.0	9.0	7.0	7.0	6.0	7.0
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	123.0	118.0	100.0	96.0	152.0	137.0	141.0	111.0	114.0	122.0	111.0	93.0	81.0
3	Ca (mg/L)	31.0	15.0	29.0	25.0	35.0	35.0	36.0	27.0	30.0	28.0	23.0	27.0	22.0
4	Cl (mg/L)	14.9	15.7	17.9	10.5	12.2	13.7	19.6	16.6	16.3	17.6	13.6	19.4	21.4
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)				0.2									
7	HCO3 (mg/L)	150.0	144.0	122.0	117.0	186.0	167.0	172.0	135.0	139.0	149.0	136.0	113.0	99.0
8	K (mg/L)	1.9	2.5	2.8	*	*	*	*	*	*	*	*	*	*
9	Mg (mg/L)	18.5	9.1	5.5	9.0	12.1	11.6	6.8	14.9	3.5	5.2	11.4	9.9	5.2
10	Na (mg/L)	8.5	11.4	9.2	*	*	*	*	*	*	*	*	*	*
11	NO2+NO3 (mg N/L)	0.0	0.3	1.1	0.9	1.1	0.2	0.3	0.5	0.4	0.4	0.4	0.4	0.4
12	NO2-N (mgN/L)	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0
13	NO3-N (mgN/L)	0.0	0.3	1.1	0.9	1.1	0.1	0.3	0.5	0.3	0.4	0.4	0.3	0.4
14	o-PO4-P (mg P/L)	0.0	0.1	0.5	0.6	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0
15	SiO2 (mg/L)	7.0	33.4		21.6	17.9	16.0	21.3	19.0	25.9	29.7	22.2	22.2	22.5
16	SO4 (mg/L)	4.4	8.3	47.6	17.9	6.9	5.0	3.8	3.8	9.9	5.0	5.5	5.5	5.2
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	1.2	0.4	3.8	2.0	1.2	1.0	1.0	0.8	2.8	0.3	1.2	1.0	1.0
2	COD (mg/L)	34.0	34.0											
3	DO (mg/L)	6.7	6.1	8.1	5.5	6.5	7.2	7.8	8.3	7.8	7.0	7.2	4.5	4.8
4	DO_SAT% (%)	82.0	81.0	105.0	66.0	85.0	95.0	94.0	90.0	86.0	80.0	88.0	56.0	60.0
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	77.0	38.0	72.0	62.0	87.0	89.0	89.0	67.0	76.0	70.0	58.0	68.0	54.0
2	HAR_Total (mgCaCO3/L)	154.0	76.0	94.0	100.0	138.0	137.0	118.0	130.0	90.0	91.0	106.0	110.0	76.0
3	Na% (%)	11.0	24.0	17.0										
4	RSC (-)	0.0	0.9	0.1	0.0	0.3	0.0	0.5	0.0	0.5	0.6	0.1	0.0	0.1
5	SAR (-)	0.3	0.6	0.4										
	Note - "*" Not analysed due to non working of instrument													

Water Quality Summary for the period : 2020-21

Station Name:Narmada at Barmanghat (CW1NAU000188)Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division:MNSD-1, Hoshangabad

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	17020	38.0	391.84
2	EC_GEN (µmho/cm)	13	329	202	252
3	pH_FLD (pH units)	1	7.6	7.6	7.6
4	pH_GEN (pH units)	13	7.9	7.0	7.5
5	TDS (mg/L)	13	343	109	169
6	Temp (deg C)	13	30.0	19.0	25.9
7	Turb (NTU)	13	324.0	0.0	36.8
	CHEMICAL				
1	Alk-PHen (mgCaCO3/L)	13	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	13	152	81	115
3	Ca (mg/L)	13	36	15	28
4	Cl (mg/L)	13	21.4	10.5	16.1
5	CO3 (mg/L)	13	0.0	0.0	0
6	F (mg/L)	1	0.16	0.16	0.16
7	HCO3 (mg/L)	13	186	99	141
8	K (mg/L)	3	2.8	1.9	2.4
9	Mg (mg/L)	13	18.5	3.5	9.4
10	Na (mg/L)	3	11.4	8.5	9.7
11	NO2+NO3 (mg N/L)	13	1.14	0.03	0.49
12	NO2-N (mgN/L)	13	0.08	0.01	0.03
13	NO3-N (mgN/L)	13	1.12	0.01	0.46
14	o-PO4-P (mg P/L)	13	0.579	0.010	0.124
15	SiO2 (mg/L)	12	33.4	7.0	21.5
16	SO4 (mg/L)	13	47.6	3.8	9.9
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	13	3.8	0.3	1.4
2	COD (mg/L)	2	34.0	34.0	34
3	DO (mg/L)	13	8.3	4.5	6.7
4	DO_SAT% (%)	13	105	56	82
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	13	89	38	70
2	HAR_Total (mgCaCO3/L)	13	154	76	109
3	Na% (%)	3	24	11	17
4	RSC (-)	13	0.9	0.0	0.2
5	SAR (-)	3	0.6	0.3	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period : 2015-2020

Station Name : Narmada at Barmanghat (CW1NAU000188) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : MNSD-1, Hoshangabad

River Water

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2016	2017	2018	2019	2020	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2017	2018	2019	2020	2021
	PHYSICAL															
1	Q (cumec)	1052.84	112.24	177.9	677.5	664.44	164.75	48.73	84.75	151.3	101.06	98.47	35.4	39.03	57.50	91.65
2	EC_FLD (µmho/cm)													252		
3	EC_GEN (µmho/cm)	198	250	202	198	244	224	266	242	276	265	221	250	243	346	249
4	pH_FLD (pH units)													7.7		7.6
5	pH_GEN (pH units)	7.7	7.9	7.7	7.5	7.5	7.9	7.8	7.5	7.7	7.6	7.8	7.6	7.9	7.6	7.3
6	TDS (mg/L)	130	160	150	123	155	145	175	163	180	210	144	165	143	252	145
7	Temp (deg C)	28.2	28.6	28.8	27.6	28.1	21.5	20.3	19.9	23.0	23.5	25.0	25.7	25.0	25.5	25.5
8	Turb (NTU)	82.0	84.6	82.8	161.3	84.0	0.0	0.0	0.0	20.4	7.8	0.0	0.0	0.0	0.3	6.8
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	91	115	111	86	118	106	116	116	118	126	110	109	105	205	102
3	Ca (mg/L)	23	29	27	23	27	25	28	29	32	32	31	25	27	38	25
4	Cl (mg/L)	4.7	7.0	5.2	6.0	14.2	6.3	10.3	6.3	8.0	16.5	9.3	11.3	7.7	7.9	18.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0
6	F (mg/L)	0.32	0.29	0.30	0.09	0.16	0.15	0.29	0.18	0.10		0.20	0.20	0.12		
7	HCO3 (mg/L)	111	141	135	105	144	130	142	142	144	153	135	133	123	250	124
8	K (mg/L)	1.5	1.4	1.9	2.6	2.4	1.1	1.5	1.4	1.1		1.0	1.5	1.5	1.7	
9	Mg (mg/L)	7.6	9.1	9.6	7.1	10.8	10.4	12.4	10.9	14.2	9.2	7.8	11.3	11.0	17.9	7.9
10	Na (mg/L)	5.1	7.5	5.3	6.1	9.7	5.2	8.5	8.9	7.0		6.5	6.5	6.9	15.5	
11	NH3-N (mg N/L)				0.07					0.08					0.16	
12	NO2+NO3 (mg N/L)	1.05	0.68	1.30	0.80	0.69	0.26	0.42	0.41	0.25	0.36	0.18	0.16	0.48	0.47	0.38
13	NO2-N (mgN/L)	0.08	0.05	0.41	0.04	0.02	0.01	0.03	0.02	0.02	0.06	0.01	0.03	0.02	0.04	0.02
14	NO3-N (mgN/L)	0.98	0.63	0.89	0.75	0.67	0.25	0.39	0.39	0.23	0.29	0.17	0.12	0.46	0.43	0.36
15	o-PO4-P (mg P/L)	0.230	0.162	0.211	0.182	0.262	0.073	0.137	0.046	0.055	0.027	0.072	0.097	0.026	0.040	0.048
16	SiO2 (mg/L)	19.3	19.3	24.1	26.7	20.0	14.3	18.7	18.1	19.1	20.5	16.5	17.4	21.3	22.3	24.1
17	SO4 (mg/L)	14.5	13.2	11.9	11.1	17.0	9.6	11.2	8.5	18.1	5.6	6.0	10.2	7.0	7.5	5.3
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	0.9	0.5	0.8	0.8	1.7	1.2	1.1	1.0	1.2	1.4	1.0	1.2	0.9	1.0	0.9
2	COD (mg/L)	35.4	29.8	65.4	24.6	34.0	33.5	32.5	37.5	50.5		29.0	42.3	30.0	20.5	
3	DO (mg/L)	6.0	5.4	5.3	5.6	6.6	6.2	6.4	6.5	6.6	7.8	5.4	5.7	5.5	6.7	5.9
4	DO_SAT% (%)	76	69	69	71	84	70	71	71	77	91	65	69	66	81	71
	TRACE & TOXIC															
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	57	72	67	57	67	63	69	72	79	80	78	61	67	95	63
2	HAR_Total (mgCaCO3/L)	89	110	107	86	112	106	121	117	138	119	111	108	113	169	96
3	Na% (%)	11	13	10	13	17	10	13	14	10		11	11	12	17	
4	RSC (-)	0.1	0.1	0.1	0.0	0.3	0.1	0.0	0.1	0.0	0.2	0.1	0.1	0.0	0.7	0.2
5	SAR (-)	0.2	0.3	0.2	0.3	0.4	0.2	0.3	0.4	0.3		0.3	0.3	0.3	0.5	
	PESTICIDES															

2.16 Sher at Belkheri

History sheet

			Water Year	**:**	**2020-21**
Site	**:**	**Sher at Belkheri**	**Code**	**:**	CW1NAU000395
State	:	Madhya Pradesh	District		Narsinghpur
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:	Sher	Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Sher
Division	:	NARMADA DIVISION BHOPAL	Sub-Division	:	MNSD-1 HOSHANGABAD
Drainage Area	:	1508 Sq. Km.	Bank	:	Right
Latitude	:	22°55'40"	Longitude	:	79°20'23"
		Opening Date	Closing Date		
Gauge	:	16/03/1977			
Discharge	:	16/03/1977			
Sediment	:				
Water Quality	:	01/09/1986			

Water Quality Datasheet for the period : 2020-21

Station Name : Sher at Belkheri (CW1NAU000395) Division : Narmada Division, Bhopal

Local River : Sher Sub-Division : MNSD-1, Hoshangabad

River Water Analysis

S.No	Parameters	02/06/2020	01/07/2020	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL													
1	Q (cumec)	0.51	20.13	9.2	165.20	14.60	6.36	5.7	4.0	1.00	0.75	0.65		
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
3	EC_GEN (µmho/cm)	534.00	207.00	242.00	251.00	366.00	447.00	526.00	518.00	485.00	541.00	442.00		
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		
5	pH_FLD (pH units)													
6	pH_GEN (pH units)	7.90	6.90	7.50	7.60	7.80	7.80	7.40	7.50	7.30	7.40	7.10		
7	TDS (mg/L)	339.00	128.00	155.00	140.00	239.00	286.00	197.00	275.00	346.00	331.00	249.00		
8	Temp (deg C)	28.00	29.00	29.00	28.00	28.00	27.00	19.50	17.00	17.00	21.00	22.00		
9	Turb (NTU)	0.00	0.00	0.00	48.00	8.00	12.00	7.00	7.00	7.00	6.00	6.00		
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**Sample Not Collected Due to lockdown**	**Sample Not Collected Due to lockdown**
2	ALK-TOT (mgCaCO3/L)	193.00	94.00	119.00	125.00	164.00	221.00	267.00	293.00	270.00	241.00	239.00		
3	Ca (mg/L)	58.00	16.00	33.00	34.00	39.00	49.00	50.00	50.00	51.00	35.00	38.00		
4	Cl (mg/L)	42.70	15.70	17.90	10.50	12.20	11.70	11.70	10.40	14.30	19.60	19.40		
5	CO3 (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
6	F (mg/L)				0.29									
7	HCO3 (mg/L)	235.00	115.00	145.00	152.00	200.00	270.00	326.00	358.00	329.00	294.00	292.00		
8	K (mg/L)	2.80	2.10	1.50	*	*	*	*	*	*	*	*		
9	Mg (mg/L)	34.60	9.40	7.90	12.10	16.30	21.00	20.80	25.40	32.50	14.70	21.90		
10	Na (mg/L)	37.70	8.30	8.00	*	*	*	*	*	*	*	*		
11	NH3-N (mg N/L)													
12	NO2+NO3 (mg N/L)	0.66	1.13	0.96	1.31	0.93	0.19	0.57	1.02	0.94	0.81	0.45		
13	NO2-N (mgN/L)	0.51	0.02	0.05	0.01	0.25	0.08	0.06	0.03	0.08	0.02	0.02		
14	NO3-N (mgN/L)	0.16	1.11	0.91	1.30	0.68	0.11	0.51	0.98	0.86	0.79	0.43		
15	o-PO4-P (mg P/L)	0.02	0.08	0.31	0.70	0.02	0.06	0.03	0.03	0.54	0.56	0.48		
16	SiO2 (mg/L)	8.90	35.30		25.90	28.10	25.40	31.80	53.60	33.50	43.20	29.60		
17	SO4 (mg/L)	20.80	12.10	45.10	10.00	9.50	10.80	6.00	6.30	7.90	4.50	4.90		
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	2.40	0.80	1.70	1.40	0.40	2.70	2.10	1.80	0.60	0.70	1.50		
2	COD (mg/L)	33.00	27.00											
3	DO (mg/L)	5.10	5.50	4.00	4.40	6.30	9.00	8.60	8.50	7.80	8.40	6.80		
4	DO_SAT% (%)	65.00	71.00	51.00	57.00	80.00	113.00	93.00	88.00	81.00	94.00	78.00		
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	144.00	39.00	82.00	86.00	97.00	121.00	124.00	126.00	127.00	88.00	94.00		
2	HAR_Total (mgCaCO3/L)	288.00	78.00	115.00	136.00	164.00	209.00	211.00	232.00	262.00	149.00	185.00		
3	Na% (%)	22.00	18.00	13.00										
4	RSC (-)	0.00	0.30	0.10	0.00	0.00	0.30	1.20	1.30	0.20	1.80	1.10		
5	SAR (-)	1.00	0.40	0.30										
	Note - "*" Not analysed due to non working of instrument													

Water Quality Summary for the period : 2020-21

Station Name : Sher at Belkheri (CW1NAU000395) Division : Narmada Division, Bhopal

Local River : Sher Sub-Division:MNSD-1Hoshangabad

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	2400	0.46	27.28
2	EC_GEN (µmho/cm)	11	541	207	414
3	pH_FLD (pH units)	1	7.1	7.1	7.1
4	pH_GEN (pH units)	11	7.9	6.9	7.5
5	TDS (mg/L)	11	346	128	244
6	Temp (deg C)	11	29.0	17.0	24.1
7	Turb (NTU)	11	48.0	0.0	9.2
	CHEMICAL				
1	Alk-PHen (mgCaCO3/L)	11	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	11	293	94	202
3	Ca (mg/L)	11	58	16	41
4	Cl (mg/L)	11	42.7	10.4	16.9
5	CO3 (mg/L)	11	0.0	0.0	0
6	F (mg/L)	1	0.29	0.29	0.29
7	HCO3 (mg/L)	11	358	115	247
8	K (mg/L)	3	2.8	1.5	2.1
9	Mg (mg/L)	11	34.6	7.9	19.7
10	Na (mg/L)	3	37.7	8.0	18
11	NH3-N (mg N/L)	1	0.00	0.00	0
12	NO2+NO3 (mg N/L)	11	1.31	0.19	0.82
13	NO2-N (mgN/L)	11	0.51	0.01	0.1
14	NO3-N (mgN/L)	11	1.30	0.11	0.71
15	o-PO4-P (mg P/L)	11	0.701	0.017	0.256
16	SiO2 (mg/L)	10	53.6	8.9	31.5
17	SO4 (mg/L)	11	45.1	4.5	12.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	11	2.7	0.4	1.5
2	COD (mg/L)	2	33.0	27.0	30
3	DO (mg/L)	11	9.0	4.0	6.8
4	DO_SAT% (%)	11	113	51	79
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	11	144	39	103
2	HAR_Total (mgCaCO3/L)	11	288	78	185
3	Na% (%)	3	22	13	18
4	RSC (-)	11	1.8	0.0	0.6
5	SAR (-)	3	1.0	0.3	0.6
	PESTICIDES				

Water Quality Seasonal Average for the period : 2016-2021

Station Name : Sher at Belkheri (CW1NAU000395) Division : Narmada Division, Bhopal

Local River : Sher Sub-Division : MNSD-1, Hoshangabad

River Water

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2016	2017	2018	2019	2020	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2017	2018	2019	2020	2021
	PHYSICAL															
1	Q (cumec)	75.28	20.08	467.83	60.62	41.93	2.98	0	0	4.81	4.42	0.52	0	0	0	0.7
2	EC_FLD (µmho/cm)													537		
3	EC_GEN (µmho/cm)	296	287	340	369	320	521	474	512	497	494	451	504	525	399	492
4	pH_FLD (pH units)													7.3		7.1
5	pH_GEN (pH units)	7.6	7.8	7.8	7.5	7.5	7.8	7.8	7.3	7.7	7.5	7.7	8.0	7.4	7.2	7.2
6	TDS (mg/L)	191	181	220	232	200	339	311	335	350	276	290	327	313	285	290
7	Temp (deg C)	27.4	27.0	28.1	27.4	28.4	21.5	22.0	20.0	21.8	20.1	25.7	26.0	24.0	23.0	21.5
8	Turb (NTU)	96.2	62.4	67.6	116.0	11.2	0.0	0.0	0.0	126.6	8.3	0.0	0.0	0.0	0.0	6.0
	CHEMICAL															
1	ALK-TOT (mgCaCO3/L)	99	148	170	190	139	274	250	299	227	263	259	270	281	196	240
2	Ca (mg/L)	28	30	38	38	36	49	42	47	48	50	39	34	49	46	36
3	Cl (mg/L)	5.2	6.4	8.8	9.4	19.8	8.5	6.3	9.0	9.0	12.0	9.7	7.0	7.3	15.7	19.5
4	F (mg/L)	0.33	0.31	0.41	0.09	0.29	0.20	0.26	0.28	0.12		0.51	0.24	0.15		
5	HCO3 (mg/L)	121	180	207	231	169	335	305	365	277	321	316	330	342	239	293
6	K (mg/L)	1.1	0.8	2.1	2.4	2.1	0.8	1.1	3.5	0.7		0.9	1.3	1.1	10.2	
7	Mg (mg/L)	15.8	15.3	15.3	17.6	16.0	27.2	26.9	34.4	27.0	24.9	27.8	30.7	30.4	13.4	18.3
8	Na (mg/L)	7.4	8.5	9.6	10.9	18.0	14.5	15.5	26.7	12.8		17.5	19.4	20.8	25.6	
9	NH3-N (mg N/L)				0.08	0.00				0.13					0.30	
10	NO2+NO3 (mg N/L)	1.09	0.68	1.61	1.00	1.00	0.75	0.22	0.59	0.31	0.68	0.76	1.02	0.79	1.64	0.63
11	NO2-N (mgN/L)	0.13	0.05	0.25	0.40	0.17	0.05	0.03	0.03	0.03	0.06	0.05	0.06	0.02	0.18	0.02
12	NO3-N (mgN/L)	0.96	0.64	1.36	0.60	0.83	0.69	0.20	0.56	0.28	0.62	0.72	0.96	0.77	1.45	0.61
13	o-PO4-P (mg P/L)	0.262	0.165	0.241	0.171	0.226	0.204	0.075	0.118	0.094	0.162	0.213	0.073	0.021	1.007	0.520
14	SiO2 (mg/L)	23.0	22.3	27.0	41.2	24.5	22.4	20.2	19.5	27.0	36.1	27.3	19.3	38.2	18.3	36.4
15	SO4 (mg/L)	17.3	13.1	13.2	10.4	19.5	13.3	12.1	10.0	21.9	7.7	11.3	9.3	6.8	8.6	4.6
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	0.9	0.9	1.1	0.7	1.4	1.4	0.9	1.1	0.9	1.8	1.3	2.2	0.9	3.8	1.1
2	COD (mg/L)	41.2	41.6	36.0	20.6	30.0	40.0	46.3	36.3	17.8		35.7	40.7	20.0	28.0	
3	DO (mg/L)	5.1	5.4	5.1	4.9	5.0	7.6	6.8	6.8	6.6	8.5	5.3	5.7	5.3	4.4	7.6
4	DO_SAT% (%)	64	68	66	61	65	85	78	74	75	94	65	70	62	51	86
	TRACE & TOXIC															
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	71	74	95	94	90	122	106	118	120	125	98	85	123	116	91
2	HAR_Total (mgCaCO3/L)	136	138	158	168	156	236	218	262	233	228	214	213	249	171	167
3	Na% (%)	11	11	11	12	18	11	13	18	11		15	17	15	23	
4	RSC (-)	0.2	0.2	0.3	0.5	0.1	0.8	0.7	0.8	0.5	0.7	0.9	1.2	0.7	0.5	1.5
5	SAR (-)	0.3	0.3	0.3	0.4	0.6	0.4	0.5	0.7	0.4		0.5	0.6	0.6	0.9	
	PESTICIDES															

2.17 Hiran at Patan

History sheet

			Water Year	**:**	**2020-21**
Site	**:**	**Hiran at Patan**	**Code**	**:**	CW1NAU000530
State	:	Madhya Pradesh	District		Jabalpur
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:	Hiran	Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Hiran
Division	:	Narmada Division Bhopal	Sub-Division	:	UNSD Jabalpur
Drainage Area	:	3950 Sq. Km.	Bank	:	Left
Latitude	:	23°18'42"	Longitude	:	79°39'46"
		Opening Date	Closing Date		
Gauge	:	30/08/1979			
Discharge	:	30/08/1979			
Sediment	:				
Water Quality	:	01/09/1986			

Water Quality Datasheet for the period : 2020-21

Station Name : Hiran at Patan (CW1NAU000530) Division : Narmada Division, Bhopal

Local River : Hiran Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01/06/2020	01/07/2020	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL													
1	Q (cumec)	2.36	8.99	127.40	435.70	59.13	17.8	12.31	12.15	5.99	1.78	0		
2	Colour_Cod (-)	Clear	Clear	Clear	Dark Green	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
3	EC_GEN (µmho/cm)	278.00	278.00	228.00	209.00	409.00	512.00	536.00	411.00	410.00	637.00	515.00		
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		
5	pH_FLD (pH units)													
6	pH_GEN (pH units)	7.80	6.70	7.10	7.10	7.30	7.60	7.20	7.30	7.10	7.40	7.80		
7	TDS (mg/L)	182.00	171.00	144.00	117.00	264.00	317.00	344.00	216.00	296.00	376.00	293.00		
8	Temp (deg C)	28.00	29.50	29.00	28.00	27.50	23.00	20.00	17.50	16.50	22.00	23.50		
9	Turb (NTU)	0.00	0.00	0.00	291.00	32.00	7.00	10.00	9.00	14.00	13.00	14.00		
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**Due to lockdown Sample Not Collected**	**Due to lockdown Sample Not Collected**
2	ALK-TOT (mgCaCO3/L)	111.00	102.00	100.00	104.00	175.00	240.00	240.00	171.00	175.00	207.00	220.00		
3	Ca (mg/L)	18.00	13.00	31.00	29.00	44.00	58.00	69.00	43.00	47.00	48.00	46.00		
4	Cl (mg/L)	16.70	21.50	10.70	10.50	16.30	21.50	29.40	29.00	38.70	39.20	52.40		
5	CO3 (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
6	F (mg/L)				0.58									
7	HCO3 (mg/L)	136.00	124.00	122.00	127.00	214.00	293.00	293.00	209.00	213.00	252.00	268.00		
8	K (mg/L)	3.30	6.40	4.10	*	*	*	*	*	*	*	*		
9	Mg (mg/L)	10.60	7.90	5.30	8.70	14.10	18.90	9.40	10.30	13.40	11.00	9.10		
10	Na (mg/L)	15.20	21.50	10.60	*	*	*	*	*	*	*	*		
11	NH3-N (mg N/L)													
12	NO2+NO3 (mg N/L)	0.08	2.05	1.79	0.96	1.21	1.52	1.61	3.38	4.26	3.55	2.39		
13	NO2-N (mgN/L)	0.02	0.02	0.02	0.04	0.02	1.30	0.07	0.00	0.04	0.02	0.02		
14	NO3-N (mgN/L)	0.07	2.03	1.77	0.92	1.19	0.22	1.54	3.38	4.22	3.53	2.37		
15	o-PO4-P (mg P/L)	0.01	1.10	0.64	0.62	0.14	0.22	0.44	0.60	0.49	0.65	0.52		
16	SiO2 (mg/L)	6.00	8.10		26.40	13.90	15.50	22.00	19.50	23.90	54.70	37.50		
17	SO4 (mg/L)	5.00	11.20	57.40	11.10	17.60	12.50	21.00	12.10	12.90	12.10	9.90		
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	1.00	1.00	0.80	0.20	0.40	1.00	4.80	2.60	3.00	1.00	1.40		
2	COD (mg/L)	21.00	26.00									6.00		
3	DO (mg/L)	7.50	3.50	2.80	3.40	5.10	5.50	6.10	6.50	4.00	5.00	4.10		
4	DO_SAT% (%)	96.00	45.00	37.00	44.00	63.00	64.00	67.00	67.00	41.00	57.00	48.00		
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	44.00	33.00	77.00	71.00	111.00	145.00	173.00	107.00	118.00	120.00	115.00		
2	HAR_Total (mgCaCO3/L)	88.00	66.00	99.00	107.00	170.00	224.00	212.00	150.00	174.00	166.00	153.00		
3	Na% (%)	27.00	39.00	18.00										
4	RSC (-)	0.50	0.70	0.00	0.00	0.10	0.40	0.60	0.40	0.00	0.80	1.30		
5	SAR (-)	0.70	1.20	0.50										
	Note - "*" Not analysed due to non working of instrument													

Water Quality Summary for the period : 2020-21

Station Name : Hiran at Patan (CW1NAU000530) Division : Narmada Division, Bhopal

Local River : Hiran Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	986.2	0	42.13
2	EC_GEN (µmho/cm)	11	637.00	209.00	402.00
3	pH_FLD (pH units)	1	7.80	7.80	7.80
4	pH_GEN (pH units)	11	7.80	6.70	7.30
5	TDS (mg/L)	11	376.00	117.00	247.00
6	Temp (deg C)	11	29.50	16.50	24.00
7	Turb (NTU)	11	291.00	0.00	35.50
	CHEMICAL				
1	Alk-PHen (mgCaCO3/L)	11	0.00	0.00	0.00
2	ALK-TOT (mgCaCO3/L)	11	240.00	100.00	168.00
3	Ca (mg/L)	11	69.00	13.00	41.00
4	Cl (mg/L)	11	52.40	10.50	26.00
5	CO3 (mg/L)	11	0.00	0.00	0.00
6	F (mg/L)	1	0.58	0.58	0.58
7	HCO3 (mg/L)	11	293.00	122.00	205.00
8	K (mg/L)	3	6.40	3.30	4.60
9	Mg (mg/L)	11	18.90	5.30	10.80
10	Na (mg/L)	3	21.50	10.60	15.80
11	NH3-N (mg N/L)	1	0.00	0.00	0.00
12	NO2+NO3 (mg N/L)	11	4.26	0.08	2.07
13	NO2-N (mgN/L)	11	1.30	0.00	0.14
14	NO3-N (mgN/L)	11	4.22	0.07	1.93
15	o-PO4-P (mg P/L)	11	1.10	0.01	0.49
16	SiO2 (mg/L)	10	54.70	6.00	22.70
17	SO4 (mg/L)	11	57.40	5.00	16.60
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	11	4.80	0.20	1.60
2	COD (mg/L)	3	26.00	6.00	17.70
3	DO (mg/L)	11	7.50	2.80	4.90
4	DO_SAT% (%)	11	96.00	37.00	57.00
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	11	173.00	33.00	101.00
2	HAR_Total (mgCaCO3/L)	11	224.00	66.00	146.00
3	Na% (%)	3	39.00	18.00	28.00
4	RSC (-)	11	1.30	0.00	0.50
5	SAR (-)	3	1.20	0.50	0.80
	PESTICIDES				

Water Quality Seasonal Average for the period : 2016-2020

Station Name : Hiran at Patan (CW1NAU000530) Division : Narmada Division, Bhopal

Local River : Hiran Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2016	2017	2018	2019	2020	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2017	2018	2019	2020	2021
	PHYSICAL															
1	Q (cumec)	137.55	20.71	174.46	67.26	126.72	10.99	0	0	15.4	12.06	7.0	0	0	1.21	0
2	EC_FLD (µmho/cm)															
3	EC_GEN (µmho/cm)	269	254	390	351	280	483	480	498	519	467	314		557	389	576
4	pH_FLD (pH units)															
5	pH_GEN (pH units)	7.5	7.8	7.5	7.7	7.2	7.6	7.6	7.3	7.5	7.3	7.6		7.8	7.5	7.6
6	TDS (mg/L)	172	163	248	215	176	311	315	333	336	293	204		333	251	335
7	Temp (deg C)	29.4	29.8	26.9	28.5	28.4	21.1	26.0	19.9	20.1	19.3	24.0		24.7	25.0	22.8
8	Turb (NTU)	130.0	98.8	106.8	179.3	64.6	0.0	0.0	0.0	28.8	10.0	0.0		0.0	1.2	13.5
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	115	114	124	131	119	211	202	247	211	207	149		217	172	213
3	Ca (mg/L)	28	30	35	40	27	52	45	54	62	54	36		51	41	47
4	Cl (mg/L)	5.4	7.3	29.3	23.4	15.2	18.3	12.0	27.3	22.3	29.7	14.0		31.7	10.9	45.8
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
6	F (mg/L)	0.35	0.33	0.30	0.12	0.58	0.20	0.29	0.33	0.13		0.43		0.21		
7	HCO3 (mg/L)	140	140	151	160	145	258	246	301	258	252	182		265	210	260
8	K (mg/L)	2.8	2.3	8.2	6.3	4.6	4.1	3.4	8.4	4.7		3.2		11.8	7.1	
9	Mg (mg/L)	8.7	7.8	9.3	11.6	9.3	17.1	15.3	23.1	17.4	13.0	13.2		16.6	12.5	10.0
10	Na (mg/L)	14.1	9.0	7.4	21.9	15.8	15.5	12.3	33.0	17.6		13.8		33.2	25.2	
11	NH3-N (mg N/L)				0.09	0.00				0.12					0.17	
12	NO2+NO3 (mg N/L)	1.65	1.21	2.04	1.28	1.22	0.72	1.20	1.01	0.31	2.70	0.76		2.72	0.52	2.97
13	NO2-N (mgN/L)	0.28	0.06	0.15	0.57	0.02	0.04	0.05	0.03	0.03	0.35	0.04		0.77	0.05	0.02
14	NO3-N (mgN/L)	1.36	1.15	1.89	0.71	1.20	0.68	1.15	0.98	0.28	2.34	0.73		1.94	0.47	2.95
15	o-PO4-P (mg P/L)	0.346	0.246	0.475	0.261	0.502	0.247	0.222	0.304	0.092	0.438	0.192		0.818	0.071	0.586
16	SiO2 (mg/L)	18.4	20.9	24.7	23.4	13.6	15.9	18.7	19.5	22.6	20.2	20.2		30.4	17.7	46.1
17	SO4 (mg/L)	17.5	10.5	13.4	13.5	20.5	10.8	3.1	9.6	25.1	14.6	5.5		9.1	5.5	11.0
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	0.7	1.0	1.3	1.6	0.7	2.5	1.0	1.5	2.1	2.9	1.6		1.6	2.7	1.2
2	COD (mg/L)	40.0	35.5	28.5	29.8	23.5	38.3	38.0	46.0	24.5		46.0		35.7	9.5	6.0
3	DO (mg/L)	4.7	4.2	4.6	4.0	4.5	6.1	5.8	5.2	4.8	5.5	4.6		2.5	6.7	4.5
4	DO_SAT% (%)	62	55	57	51	57	67	71	57	52	60	54		29	81	52
	TRACE & TOXIC															
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	70	75	88	101	67	129	112	136	154	136	90		126	103	118
2	HAR_Total (mgCaCO3/L)	107	108	127	149	106	200	176	232	227	190	145		196	156	159
3	Na% (%)	23	16	11	22	28	14	13	22	14		17		26	24	
4	RSC (-)	0.2	0.1	0.2	0.3	0.3	0.3	0.5	0.6	0.1	0.4	0.1		0.5	0.3	1.1
5	SAR (-)	0.6	0.4	0.3	0.8	0.8	0.5	0.4	0.9	0.5		0.5		1.0	0.8	
	PESTICIDES															

2.18 Banjar at Bamni

History sheet

			Water Year	**:**	**2020-21**
Site	**:**	**Banjar at Bamni**	**Code**	**:**	CW1NAU000781
State	:	Madhya Pradesh	District		Mandla
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:	Banjar	Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Banjar
Division	:	Narmada Div. Bhopal	Sub-Division	:	UNSD Jabalpur
Drainage Area	:	1864 Sq. Km.	Bank	:	Left
Latitude	:	22°29'03"	Longitude	:	80°22'41"
		Opening Date	Closing Date		
Gauge	:	20/06/1999			
Discharge	:	30/11/1999			
Sediment	:	01/07/2002			
Water Quality	:	01/07/2002			

Water Quality Datasheet for the period : 2020-21

Station Name : Banjar at Bamni (CW1NAU000781) Division : Narmada Division, Bhopal

Local River : Banjar Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01/06/2020	01/07/2020	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL													
1	Q (cumec)	0	12.16	38.91	281.1	76.42	16.85	5.2	2.4	0.8	0.9	0		
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
3	EC_GEN (µmho/cm)	218	183	146	172	213	370	282	240	223	264	261		
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		
5	pH_GEN (pH units)	7.8	6.7	7.5	7.5	7.5	7.6	7.2	7.5	7.3	7.1	7.1		
6	TDS (mg/L)	148	114	93	81	140	233	179	133	159	162	145		
7	Temp (deg C)	31.0	28.5	26.0	25.0	24.0	22.5	19.0	15.0	17.5	20.0	20.5		
8	Turb (NTU)	0.0	0.0	0.0	2.8	16.0	6.0	7.0	8.0	8.0	7.0	6.0		
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	119	86	66	68	99	187	126	126	118	119	116		
3	Ca (mg/L)	23	12	17	18	21	49	27	28	26	23	15		
4	Cl (mg/L)	16.7	17.6	8.9	12.6	10.2	13.7	13.7	16.6	12.2	31.3	15.5		
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
6	F (mg/L)				0.77									
7	HCO3 (mg/L)	145	105	80	83	121	228	154	154	144	145	141		
8	K (mg/L)	1.7	5.8	2.6	*	*	*	*	*	*	*	*		
9	Mg (mg/L)	13.7	7.2	8.4	5.4	8.9	11.9	6.9	7.4	2.7	5.0	13.8		
10	Na (mg/L)	7.2	12.1	7.6	*	*	*	*	*	*	*	*		
11	NH3-N (mg N/L)		0.00											
12	NO2+NO3 (mg N/L)	0.02	0.86	0.83	0.84	0.42	0.84	0.50	0.51	0.50	0.33	0.29		
13	NO2-N (mgN/L)	0.01	0.02	0.02	0.07	0.04	0.76	0.29	0.15	0.37	0.01	0.02		
14	NO3-N (mgN/L)	0.02	0.85	0.81	0.77	0.38	0.08	0.21	0.36	0.13	0.31	0.27		
15	o-PO4-P (mg P/L)	0.001	0.398	0.449	0.530	0.016	0.076	0.028	0.032	0.043	0.057	0.060		
16	SiO2 (mg/L)	7.9	22.2		18.3	17.7	22.4	14.3	17.6	19.3	22.8	2.0		
17	SO4 (mg/L)	4.0	0.8	43.1	13.8	9.7	10.3	9.6	11.2	12.6	8.9	6.9		
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	0.8	1.8	1.2	1.2	0.8	1.6	1.6	1.0	0.8	0.5	0.3		
2	COD (mg/L)	32.0	30.0									87.0		
3	DO (mg/L)	6.5	5.9	5.9	4.0	5.3	7.2	7.6	7.9	7.2	7.0	7.7		
4	DO_SAT% (%)	87	75	72	49	62	82	82	78	75	77	85		
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	57	30	42	44	51	122	68	70	64	57	37		
2	HAR_Total (mgCaCO3/L)	114	60	77	67	89	172	97	101	75	78	95		
3	Na% (%)	12	28	17										
4	RSC (-)	0.1	0.5	0.0	0.0	0.2	0.3	0.6	0.5	0.9	0.8	0.4		
5	SAR (-)	0.3	0.7	0.4										
	Note - "*" Not analysed due to non working of instrument													

Due to lockdown Sample Not Collected

Due to lockdown Sample Not Collected

Water Quality Summary for the period : 2020-21

Station Name : Banjar at Bamni (CW1NAU000781) Division : Narmada Division, Bhopal

Local River : Banjar Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	20	2094.6	0.00	1.21
2	EC_GEN (µmho/cm)	11	370.00	146.00	234.00
3	pH_GEN (pH units)	11	7.80	6.70	7.30
4	TDS (mg/L)	11	233.00	81.00	144.00
5	Temp (deg C)	11	31.00	15.00	22.60
6	Turb (NTU)	11	16.00	0.00	5.50
	CHEMICAL				
1	Alk-PHen (mgCaCO3/L)	11	0.00	0.00	0.00
2	ALK-TOT (mgCaCO3/L)	11	187.00	66.00	112.00
3	Ca (mg/L)	11	49.00	12.00	23.00
4	Cl (mg/L)	11	31.30	8.90	15.40
5	CO3 (mg/L)	11	0.00	0.00	0.00
6	F (mg/L)	1	0.77	0.77	0.77
7	HCO3 (mg/L)	11	228.00	80.00	136.00
8	K (mg/L)	3	5.80	1.70	3.40
9	Mg (mg/L)	11	13.80	2.70	8.30
10	Na (mg/L)	3	12.10	7.20	8.90
11	NH3-N (mg N/L)	1	0.00	0.00	0.00
12	NO2+NO3 (mg N/L)	11	0.86	0.02	0.54
13	NO2-N (mgN/L)	11	0.76	0.01	0.16
14	NO3-N (mgN/L)	11	0.85	0.02	0.38
15	o-PO4-P (mg P/L)	11	0.53	0.00	0.15
16	SiO2 (mg/L)	10	22.80	2.00	16.50
17	SO4 (mg/L)	11	43.10	0.80	11.90
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	11	1.80	0.30	1.10
2	COD (mg/L)	3	87.00	30.00	49.70
3	DO (mg/L)	11	7.90	4.00	6.50
4	DO_SAT% (%)	11	87.00	49.00	75.00
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	11	122.00	30.00	59.00
2	HAR_Total (mgCaCO3/L)	11	172.00	60.00	93.00
3	Na% (%)	3	28.00	12.00	19.00
4	RSC (-)	11	0.90	0.00	0.40
5	SAR (-)	3	0.70	0.30	0.50
	PESTICIDES				

Water Quality Seasonal Average for the period : 2016-2021

Station Name : Banjar at Bamni (CW1NAU000781) Division : Narmada Division, Bhopal

Local River : Banjar Sub-Division : UNSD, Jabalpur

River Water

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2016	2017	2018	2019	2020	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2017	2018	2019	2020	2021
	PHYSICAL															
1	Q (cumec)	65.47	25.59	26.44	88.57	81.72	10.88	1.88	0	14.52	6.32	0.0	0.0	0.000	4.25	0.45
2	EC_GEN (µmho/cm)	127	131	192	158	186	220	276	sample not Collected due to manpower shortage	sample not Collected due to manpower shortage	279	268	315		246	263
3	pH_GEN (pH units)	7.3	7.9	7.6	7.6	7.4	7.5	7.6			7.4	7.6	7.9		7.4	7.1
4	TDS (mg/L)	80	85	130	101	115	143	182			176	174	205		185	154
5	Temp (deg C)	26.4	25.9	25.3	24.8	26.9	15.4	18.1			18.5	19.7	18.0		28.5	20.3
6	Turb (NTU)	138.5	113.3	140.8	127.0	3.8	0.0	0.0			7.3	0.0	0.0		0.0	6.5
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		0.0	0.0
2	ALK-TOT (mgCaCO3/L)	54	56	75	72	88	98	130			139	137	144		150	117
3	Ca (mg/L)	14	13	20	19	18	24	29			33	29	30		32	19
4	Cl (mg/L)	4.1	4.0	7.0	4.7	13.2	6.5	4.8			14.0	11.3	7.0		5.9	23.4
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		0.0	0.0
6	F (mg/L)	0.28	0.27	0.29	0.11	0.77	0.15	0.25				0.32	0.26			
7	HCO3 (mg/L)	66	69	91	88	107	120	158			170	168	176		183	143
8	K (mg/L)	3.1	1.6	2.8	3.0	3.4	1.5	1.7				2.1	2.1		2.1	
9	Mg (mg/L)	5.3	5.0	6.3	5.4	8.7	7.4	11.1			7.2	11.3	12.9		10.1	9.4
10	Na (mg/L)	4.2	4.5	6.1	4.7	8.9	7.1	8.2				13.3	9.3		11.3	
11	NH3-N (mg N/L)				0.04	0.00									0.07	
12	NO2+NO3 (mg N/L)	0.93	0.69	1.47	0.97	0.60	0.15	0.16			0.59	0.14	0.11		0.06	0.31
13	NO2-N (mgN/L)	0.13	0.04	0.48	0.09	0.03	0.01	0.03			0.39	0.01	0.02		0.01	0.02
14	NO3-N (mgN/L)	0.79	0.65	0.98	0.88	0.56	0.14	0.13			0.19	0.13	0.08		0.05	0.29
15	o-PO4-P (mg P/L)	0.344	0.261	0.274	0.249	0.279	0.070	0.068			0.045	0.051	0.052		0.026	0.058
16	SiO2 (mg/L)	17.9	18.9	24.2	18.4	16.5	15.0	17.0			18.4	17.0	15.9		18.7	12.4
17	SO4 (mg/L)	15.2	12.4	12.6	10.7	14.3	8.5	12.3			10.9	3.2	10.8		5.8	7.9
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	0.8	0.6	0.7	0.7	1.2	1.0	1.1			1.3	1.8	1.5		1.0	0.4
2	COD (mg/L)	36.0	47.5	41.8	25.7	31.0	39.8	30.8				36.0	33.0		19.0	87.0
3	DO (mg/L)	4.6	5.1	5.2	5.5	5.5	6.5	6.4			7.5	4.5	4.2		6.2	7.4
4	DO_SAT% (%)	58	63	63	66	69	66	67			79	47	44		79	81
	TRACE & TOXIC															
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	35	31	50	48	45	60	72			81	73	74		79	47
2	HAR_Total (mgCaCO3/L)	57	52	76	70	81	91	118			111	120	128		121	87
3	Na% (%)	13	15	14	12	19	14	13				19	14		17	
4	RSC (-)	0.0	0.1	0.1	0.0	0.2	0.2	0.2			0.6	0.4	0.3		0.6	0.6
5	SAR (-)	0.2	0.3	0.3	0.2	0.5	0.3	0.3				0.5	0.4		0.4	
	PESTICIDES															

2.19 Burhner at Mohgaon

History Sheet

			Water Year	**:**	**2020-21**
Site	**:**	**Burhner at Mohgaon**	**Code**	**:**	CW1NAU000390
State	:	Madhya Pradesh	District		Mandla
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:	Burhner	Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Burhner
Division	:	Narmada Div. Bhopal	Sub-Division	:	UNSD Jabalpur
Drainage Area	:	4090 Sq. Km.	Bank	:	Right
Latitude	:	22°45'57"	Longitude	:	80°37'24"
		Opening Date	Closing Date		
Gauge	:	13/01/1977			
Discharge	:	13/01/1977			
Sediment	:	27/08/1992			
Water Quality	:	16/09/1986			

Water Quality Datasheet for the period : 2020-21

Station Name : Burhner at Mohgaon (CW1NAU000390) Division : Narmada Division, Bhopal

Local River : Burhner Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01/06/2020	01/07/2020	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL													
1	Q (cumec)	0.89	20.69	93.85	345.1	72.8	43.8	23.58	10.64	5.93	4.86	1.4		
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
3	EC_GEN (µmho/cm)	279.00	182.00	164.00	163.00	240.00	233.00	234.00	229.00	231.00	274.00	254.00		
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		
5	pH_FLD (pH units)													
6	pH_GEN (pH units)	7.70	7.00	7.60	7.30	7.60	8.00	7.50	7.80	7.60	7.40	7.50		
7	TDS (mg/L)	188.00	113.00	105.00	91.00	155.00	147.00	171.00	129.00	167.00	165.00	140.00		
8	Temp (deg C)	29.50	27.00	27.00	27.50	28.50	23.00	20.50	18.00	17.50	24.00	25.00		
9	Turb (NTU)	0.00	0.00	0.00	113.00	7.00	5.00	6.00	5.00	7.00	6.00	6.00		
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**Due to lockdown Sample Not Collected**	**Due to lockdown Sample Not Collected**
2	ALK-TOT (mgCaCO3/L)	134.00	98.00	81.00	80.00	107.00	115.00	111.00	118.00	121.00	119.00	127.00		
3	Ca (mg/L)	23.00	18.00	22.00	20.00	25.00	29.00	31.00	27.00	31.00	24.00	22.00		
4	Cl (mg/L)	14.90	11.70	7.10	10.50	8.20	11.70	9.80	14.50	12.20	11.80	13.60		
5	CO3 (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
6	F (mg/L)				0.44									
7	HCO3 (mg/L)	164.00	120.00	99.00	97.00	130.00	140.00	135.00	144.00	148.00	145.00	155.00		
8	K (mg/L)	2.50	2.90	2.00	*	*	*	*	*	*	*	*		
9	Mg (mg/L)	13.70	11.00	7.10	7.00	101.00	9.50	6.00	2.60	3.40	2.40	9.50		
10	Na (mg/L)	13.60	8.60	5.80	*	*	*	*	*	*	*	*		
11	NH3-N (mg N/L)													
12	NO2+NO3 (mg N/L)	0.07	0.54	0.81	0.70	0.29	0.04	0.10	0.15	0.07	0.13	0.12		
13	NO2-N (mgN/L)	0.02	0.02	0.02	0.01	0.03	0.03	0.04	0.01	0.01	0.02	0.02		
14	NO3-N (mgN/L)	0.06	0.52	0.79	0.69	0.26	0.01	0.06	0.14	0.07	0.11	0.10		
15	o-PO4-P (mg P/L)	0.00	1.26	0.57	0.18	0.02	0.06	0.04	0.02	0.04	0.06	0.05		
16	SiO2 (mg/L)	7.80	27.30		25.90	17.40	15.30	27.20	23.30	20.90	31.90	29.00		
17	SO4 (mg/L)	3.70	9.90	36.30	12.60	4.90	9.40	4.70	7.20	5.80	3.30	4.30		
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	0.80	0.40	1.60	1.60	0.40	0.80	1.00	0.20	0.60	1.70	1.40		
2	COD (mg/L)	38.00	21.00											
3	DO (mg/L)	5.90	5.90	6.10	5.70	6.10	7.20	7.60	6.70	7.40	6.80	4.80		
4	DO_SAT% (%)	76.00	74.00	76.00	71.00	77.00	83.00	83.00	71.00	77.00	81.00	58.00		
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	57.00	46.00	54.00	51.00	64.00	72.00	77.00	66.00	79.00	60.00	55.00		
2	HAR_Total (mgCaCO3/L)	114.00	92.00	83.00	80.00	484.00	111.00	102.00	77.00	93.00	70.00	95.00		
3	Na% (%)	20.00	16.00	13.00										
4	RSC (-)	0.40	0.10	0.00	0.00	0.00	0.10	0.20	0.80	0.60	1.00	0.70		
5	SAR (-)	0.60	0.40	0.30										
	Note - "*" Not analysed due to non working of instrument													

Water Quality Summary for the period : 2020-21

Station Name : Burhner at Mohgaon (CW1NAU000390) Division : Narmada Division, Bhopal

Local River : Burhner Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	2234	0.1	96.93
2	EC_GEN (µmho/cm)	11	279.00	163.00	226.00
3	pH_FLD (pH units)	1	7.40	7.40	7.40
4	pH_GEN (pH units)	11	8.00	7.00	7.50
5	TDS (mg/L)	11	188.00	91.00	143.00
6	Temp (deg C)	11	29.50	17.50	24.30
7	Turb (NTU)	11	113.00	0.00	14.10
	CHEMICAL				
1	Alk-PHen (mgCaCO3/L)	11	0.00	0.00	0.00
2	ALK-TOT (mgCaCO3/L)	11	134.00	80.00	110.00
3	Ca (mg/L)	11	31.00	18.00	25.00
4	Cl (mg/L)	11	14.90	7.10	11.50
5	CO3 (mg/L)	11	0.00	0.00	0.00
6	F (mg/L)	1	0.44	0.44	0.44
7	HCO3 (mg/L)	11	164.00	97.00	134.00
8	K (mg/L)	3	2.90	2.00	2.50
9	Mg (mg/L)	11	101.00	2.40	15.70
10	Na (mg/L)	3	13.60	5.80	9.30
11	NH3-N (mg N/L)	1	0.00	0.00	0.00
12	NO2+NO3 (mg N/L)	11	0.81	0.04	0.27
13	NO2-N (mgN/L)	11	0.04	0.01	0.02
14	NO3-N (mgN/L)	11	0.79	0.01	0.25
15	o-PO4-P (mg P/L)	11	1.26	0.00	0.21
16	SiO2 (mg/L)	10	31.90	7.80	22.60
17	SO4 (mg/L)	11	36.30	3.30	9.30
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	11	1.70	0.20	1.00
2	COD (mg/L)	2	38.00	21.00	29.50
3	DO (mg/L)	11	7.60	4.80	6.40
4	DO_SAT% (%)	11	83.00	58.00	75.00
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	11	79.00	46.00	62.00
2	HAR_Total (mgCaCO3/L)	11	484.00	70.00	127.00
3	Na% (%)	3	20.00	13.00	16.00
4	RSC (-)	11	1.00	0.00	0.40
5	SAR (-)	3	0.60	0.30	0.40
	PESTICIDES				

Water Quality Seasonal Average for the period : 2016-2021

Station Name : Burhner at Mohgaon (CW1NAU000390) Division : Narmada Division, Bhopal

Local River : Burhner Sub-Division : UNSD, Jabalpur

River Water

S.No	Parameters	Flood (Jun – Oct)					Winter (Nov – Feb)					Summer (Mar – May)				
		2016	2017	2018	2019	2020	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2017	2018	2019	2020	2021
	PHYSICAL															
1	Q (cumec)	196.67	33.58	69.32	137.40	106.67	14.73	5.59	6.093	22.93	20.98	1.62	1.20	1.484	6.78	3.11
2	EC_FLD (µmho/cm)													280		
3	EC_GEN (µmho/cm)	176	205	216	205	206	214	256	237	223	232	253	286	264	227	264
4	pH_FLD (pH units)													7.6		7.4
5	pH_GEN (pH units)	7.6	7.9	7.7	7.4	7.4	7.8	7.7	7.4	7.7	7.7	7.8	7.9	7.6	7.4	7.4
6	TDS (mg/L)	114	135	134	130	130	138	169	158	151	154	164	187	157	158	153
7	Temp (deg C)	28.6	28.5	26.9	26.9	27.9	19.1	19.3	18.0	22.4	19.8	24.3	24.7	24.3	27.3	24.5
8	Turb (NTU)	168.4	76.6	104.0	91.5	24.0	0.0	0.0	0.0	20.4	5.8	0.0	0.0	0.0	5.0	6.0
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	1.4	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	82	101	100	93	100	123	129	130	104	116	141	140	125	134	123
3	Ca (mg/L)	17	23	23	20	22	29	30	27	29	29	30	27	24	28	23
4	Cl (mg/L)	6.1	6.2	6.8	6.6	10.5	5.3	4.8	11.4	5.5	12.1	7.3	13.7	7.7	8.4	12.7
5	CO3 (mg/L)	1.7	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.26	0.30	0.16	0.07	0.44	0.13	0.41	0.16	3.05		0.22	0.18	0.10		
7	HCO3 (mg/L)	96	121	122	113	122	150	157	158	127	142	172	171	153	163	150
8	K (mg/L)	1.8	1.3	2.2	2.8	2.5	0.8	1.1	1.0	0.9		1.6	2.0	1.9	2.3	
9	Mg (mg/L)	8.7	8.6	7.5	8.2	27.9	10.8	10.6	11.4	9.0	5.4	12.1	12.7	12.3	10.9	5.9
10	Na (mg/L)	5.3	6.8	6.9	7.5	9.3	5.5	6.5	7.0	5.5		10.6	11.5	10.9	9.8	
11	NH3-N (mg N/L)				0.06	0.00				0.07					0.09	
12	NO2+NO3 (mg N/L)	0.72	0.39	1.43	0.63	0.48	0.19	0.10	0.20	0.20	0.09	0.18	0.08	0.29	0.21	0.12
13	NO2-N (mgN/L)	0.08	0.04	0.42	0.05	0.02	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.05	0.03	0.02
14	NO3-N (mgN/L)	0.64	0.35	1.01	0.58	0.46	0.18	0.08	0.18	0.17	0.07	0.18	0.07	0.24	0.18	0.11
15	o-PO4-P (mg P/L)	0.300	0.200	0.217	0.073	0.407	0.079	0.070	0.045	0.042	0.038	0.048	0.235	0.015	0.042	0.057
16	SiO2 (mg/L)	21.6	17.2	28.1	24.8	19.6	15.5	16.3	18.2	22.9	21.7	17.7	15.9	23.2	20.4	30.5
17	SO4 (mg/L)	13.8	9.5	8.8	10.7	13.5	8.8	8.2	8.6	14.6	6.8	3.8	4.7	7.2	5.9	3.8
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	0.6	0.7	0.7	1.0	1.0	1.0	0.7	0.7	0.7	0.7	1.4	1.4	1.1	1.0	1.5
2	COD (mg/L)	27.8	22.4	42.6	27.2	29.5	25.3	31.0	30.5	16.5		38.0	40.7	30.7	13.0	
3	DO (mg/L)	5.3	5.1	5.0	5.1	5.9	6.4	6.2	6.3	6.4	7.2	4.5	5.0	4.9	5.8	5.8
4	DO_SAT% (%)	67	65	62	63	75	69	67	66	74	79	54	60	59	73	70
	TRACE & TOXIC															
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	43	58	58	50	54	72	74	68	72	73	74	67	61	69	58
2	HAR_Total (mgCaCO3/L)	80	94	90	84	171	117	118	115	109	96	124	120	112	114	82
3	Na% (%)	12	12	13	14	16	9	11	12	10		15	17	17	15	
4	RSC (-)	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.2	0.4	0.3	0.4	0.3	0.4	0.8
5	SAR (-)	0.3	0.3	0.3	0.3	0.4	0.2	0.3	0.3	0.2		0.4	0.5	0.4	0.4	
	PESTICIDES															

2.20 Narmada at Manot

History Sheet

			Water Year	**:**	**2020-21**
Site	**:**	**Narmada at Manot**	**Code**	**:**	CW1NAU000378
State	:	Madhya Pradesh	District		Mandla
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:		Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Narmada
Division	:	Narmada Division Bhopal	Sub-Division	:	UNSD Jabalpur
Drainage Area	:	4467 Sq. Km.	Bank	:	Right
Latitude	:	22°44'09"	Longitude	:	80°30'47"
		Opening Date	Closing Date		
Gauge	:	16/12/1976			
Discharge	:	16/12/1976			
Sediment	:	09/11/1979			
Water Quality	:	01/01/1980			

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at Manot (CW1NAU000378) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01/06/2020	01/07/2020	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL													
1	Q (cumec)	3.97	67.46	184.70	378.30	83.96	37.39	21.78	12.05	5.53	5.55	3.40		
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
3	EC_GEN (µmho/cm)	273.00	185.00	187.00	188.00	276.00	262.00	259.00	255.00	245.00	299.00	261.00		
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		
5	pH_FLD (pH units)													
6	pH_GEN (pH units)	7.90	7.10	7.60	7.30	6.30	7.80	7.50	7.80	7.70	7.40	7.80		
7	TDS (mg/L)	183.00	119.00	120.00	106.00	180.00	151.00	181.00	143.00	179.00	179.00	143.00		
8	Temp (deg C)	26.00	27.50	25.50	26.50	26.50	25.50	21.00	17.00	18.00	19.00	24.00		
9	Turb (NTU)	0.00	0.00	0.00	91.00	6.00	10.00	7.00	6.00	7.00	7.00	7.00		
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**Due to lockdown Sample Not Collected**	**Due to lockdown Sample Not Collected**
2	ALK-TOT (mgCaCO3/L)	127.00	66.00	89.00	92.00	125.00	122.00	134.00	134.00	137.00	134.00	127.00		
3	Ca (mg/L)	25.00	14.00	22.00	27.00	36.00	30.00	31.00	26.00	34.00	28.00	24.00		
4	Cl (mg/L)	16.70	11.70	10.70	8.40	8.20	9.80	9.80	12.40	18.40	13.70	13.60		
5	CO3 (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
6	F (mg/L)				0.20									
7	HCO3 (mg/L)	155.00	81.00	108.00	112.00	153.00	149.00	163.00	163.00	167.00	163.00	155.00		
8	K (mg/L)	1.80	2.50	1.50	*	*	*	*	*	*	*	*		
9	Mg (mg/L)	14.90	8.20	8.50	8.60	8.90	12.80	6.90	16.50	7.70	8.90	11.10		
10	Na (mg/L)	14.90	5.70	6.20	*	*	*	*	*	*	*	*		
11	NH3-N (mg N/L)		0.00											
12	NO2+NO3 (mg N/L)	0.07	0.90	0.86	0.81	0.16	0.05	0.13	0.20	0.12	0.16	0.19		
13	NO2-N (mgN/L)	0.06	0.02	0.03	0.01	0.04	0.04	0.05	0.00	0.03	0.02	0.02		
14	NO3-N (mgN/L)	0.01	0.88	0.83	0.80	0.12	0.01	0.08	0.20	0.09	0.14	0.17		
15	o-PO4-P (mg P/L)	0.01	1.43	0.61	0.11	0.01	0.04	0.02	0.01	0.02	0.07	0.06		
16	SiO2 (mg/L)	7.00	36.00		27.40	20.10	21.10	15.00	21.30	32.50	30.50	27.90		
17	SO4 (mg/L)	4.90	11.30	37.50	13.90	4.90	4.30	5.80	5.10	7.00	4.50	5.20		
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	0.80	1.00	1.00	1.00	0.40	1.40	1.10	0.80	0.40	1.40	2.00		
2	COD (mg/L)	28.00	52.00											
3	DO (mg/L)	7.30	5.50	5.90	5.70	6.30	7.80	8.00	7.90	7.80	6.20	4.60		
4	DO_SAT% (%)	90.00	69.00	71.00	70.00	77.00	94.00	89.00	82.00	82.00	66.00	55.00		
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	62.00	34.00	56.00	67.00	89.00	75.00	78.00	64.00	86.00	71.00	59.00		
2	HAR_Total (mgCaCO3/L)	124.00	68.00	91.00	102.00	127.00	128.00	107.00	133.00	118.00	108.00	106.00		
3	Na% (%)	21.00	15.00	13.00										
4	RSC (-)	0.10	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.40	0.50	0.40		
5	SAR (-)	0.6	0.3	0.3										
	Note - "*" Not analysed due to non working of instrument													

Water Quality Summary for the period : 2020-21

Station Name : Narmada at Manot (CW1NAU000378) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	92	1721.2	1.67	250.1
2	EC_GEN (µmho/cm)	11	299	185	245
3	pH_FLD (pH units)	1	7.8	7.8	7.8
4	pH_GEN (pH units)	11	7.9	6.3	7.5
5	TDS (mg/L)	11	183	106	153
6	Temp (deg C)	11	27.5	17.0	23.3
7	Turb (NTU)	11	91.0	0.0	12.8
	CHEMICAL				
1	Alk-PHen (mgCaCO3/L)	11	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	11	137	66	117
3	Ca (mg/L)	11	36	14	27
4	Cl (mg/L)	11	18.4	8.2	12.1
5	CO3 (mg/L)	11	0.0	0.0	0
6	F (mg/L)	1	0.20	0.20	0.2
7	HCO3 (mg/L)	11	167	81	143
8	K (mg/L)	3	2.5	1.5	1.9
9	Mg (mg/L)	11	16.5	6.9	10.3
10	Na (mg/L)	3	14.9	5.7	8.9
11	NH3-N (mg N/L)	1	0.00	0.00	0
12	NO2+NO3 (mg N/L)	11	0.90	0.05	0.33
13	NO2-N (mgN/L)	11	0.06	0.00	0.03
14	NO3-N (mgN/L)	11	0.88	0.01	0.3
15	o-PO4-P (mg P/L)	11	1.433	0.005	0.218
16	SiO2 (mg/L)	10	36.0	7.0	23.9
17	SO4 (mg/L)	11	37.5	4.3	9.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	11	2.0	0.4	1
2	COD (mg/L)	2	52.0	28.0	40
3	DO (mg/L)	11	8.0	4.6	6.6
4	DO_SAT% (%)	11	94	55	77
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	11	89	34	67
2	HAR_Total (mgCaCO3/L)	11	133	68	110
3	Na% (%)	3	21	13	16
4	RSC (-)	11	0.5	0.0	0.2
5	SAR (-)	3	0.6	0.3	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period : 2016-2021

Station Name : Narmada at Manot (CW1NAU000378) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2016	2017	2018	2019	2020	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2017	2018	2019	2020	2021
	PHYSICAL															
1	Q (cumec)	162.26	49.56	95.90	234.1	143.08	16.69	13.07	10.40	7.040	19.19	2.99	5.53	5.983	0.000	4.48
2	EC_FLD (µmho/cm)													301		
3	EC_GEN (µmho/cm)	207	236	222	213	222	277	262	264	258	255	260	285	289	253	280
4	pH_FLD (pH units)													7.6		7.8
5	pH_GEN (pH units)	7.7	7.8	7.6	7.3	7.2	7.7	7.8	7.4	7.7	7.7	7.9	7.9	7.5	7.5	7.6
6	TDS (mg/L)	134	147	139	130	142	181	174	175	173	164	169	186	174	175	161
7	Temp (deg C)	26.6	25.3	25.4	27.6	26.4	19.3	19.0	21.3	22.6	20.4	22.2	20.7	24.3	23.0	21.5
8	Turb (NTU)	121.0	77.2	105.6	105.5	19.4	0.0	0.0	0.0	18.2	7.5	0.0	0.0	0.0	0.3	7.0
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	114	112	101	100	100	143	135	142	122	132	148	143	145	139	130
3	Ca (mg/L)	22	25	26	21	25	32	28	29	31	30	32	26	28	29	26
4	Cl (mg/L)	5.4	5.6	6.6	7.2	11.1	6.3	4.3	6.0	4.8	12.6	6.3	8.7	7.0	8.4	13.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.26	0.27	0.17	0.07	0.20	0.16	0.40	0.18	0.10		0.19	0.18	0.07		
7	HCO3 (mg/L)	139	137	124	122	122	175	165	173	149	161	181	174	177	170	159
8	K (mg/L)	1.7	1.0	1.7	2.2	1.9	0.5	0.6	0.7	0.5		0.8	0.8	1.0	1.1	
9	Mg (mg/L)	11.5	9.6	8.9	10.9	9.8	12.9	13.5	16.3	10.5	11.0	11.8	14.3	14.5	13.6	10.0
10	Na (mg/L)	7.4	7.4	4.8	8.8	8.9	7.0	7.6	10.9	6.4		11.0	10.8	12.1	12.4	
11	NH3-N (mg N/L)				0.11	0.00				0.04					0.09	
12	NO2+NO3 (mg N/L)	1.05	0.49	1.16	0.97	0.56	0.17	0.27	0.21	0.21	0.12	0.15	0.14	0.43	0.18	0.17
13	NO2-N (mgN/L)	0.05	0.05	0.10	0.37	0.03	0.01	0.04	0.01	0.02	0.03	0.01	0.02	0.01	0.03	0.02
14	NO3-N (mgN/L)	1.00	0.44	1.05	0.60	0.53	0.16	0.24	0.20	0.19	0.09	0.14	0.12	0.42	0.16	0.15
15	o-PO4-P (mg P/L)	0.307	0.181	0.194	0.186	0.433	0.093	0.075	0.267	0.062	0.025	0.066	0.051	0.015	0.017	0.066
16	SiO2 (mg/L)	23.2	19.3	25.3	34.4	22.6	20.3	17.7	18.4	22.8	22.5	24.8	17.0	29.7	19.8	29.2
17	SO4 (mg/L)	16.0	10.1	11.1	8.3	14.5	10.3	7.9	8.3	14.2	5.5	6.1	4.1	7.5	6.7	4.8
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	1.0	0.6	0.9	1.1	0.8	0.9	0.9	2.7	0.8	0.9	1.3	1.0	0.8	1.6	1.7
2	COD (mg/L)	46.2	38.4	43.2	27.2	40.0	40.8	37.0	35.0	21.0		40.0	35.0	29.3	32.0	
3	DO (mg/L)	5.3	5.2	5.0	4.7	6.1	6.6	6.5	6.4	6.6	7.9	5.5	5.2	5.2	7.6	5.4
4	DO_SAT% (%)	66	64	61	58	75	72	69	72	76	87	63	58	62	89	61
	TRACE & TOXIC															
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	55	64	64	53	62	79	70	73	78	76	81	64	71	74	65
2	HAR_Total (mgCaCO3/L)	103	103	101	99	102	133	126	140	122	122	130	124	131	130	107
3	Na% (%)	13	13	9	14	16	10	12	14	10		15	16	17	17	
4	RSC (-)	0.2	0.2	0.1	0.1	0.0	0.2	0.2	0.2	0.1	0.2	0.4	0.4	0.3	0.2	0.5
5	SAR (-)	0.3	0.3	0.2	0.4	0.4	0.3	0.3	0.4	0.3		0.4	0.4	0.5	0.5	
	PESTICIDES															

2.21 Narmada at Dindori

History Sheet

			Water Year	**:**	**2020-21**
Site	**:**	**Narmada at Dindori**	**Code**	**:**	CW1NAU000672
State	:	Madhya Pradesh	District		Dindori
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:		Sub Tributary	:	
Sub-Sub Tributary	:		Local River	:	Narmada
Division	:	Narmada Division Bhopal	Sub-Division	:	UNSD Jabalpur
Drainage Area	:	2292 Sq. Km.	Bank	:	Left
Latitude	:	22°56'52"	Longitude	:	81°04'34"
		Opening Date	Closing Date		
Gauge	:	26/06/1988			
Discharge	:	01/08/1988			
Sediment	:				
Water Quality	:	15/03/1990			

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at Dindori (CW1NAU000672) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01/06/2020	01/07/2020	07/08/2020	01/09/2020	01/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL													
1	Q (cumec)	5.41	109.36	72.74	184.78	83.43	35.7	16.52	9.05	7.21	9.4	4.71	2.82	5.63
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
3	EC_GEN (µmho/cm)	306	298	212	211	289	267	297	281	242	317	259		
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		
5	pH_FLD (pH units)													
6	pH_GEN (pH units)	7.2	7.3	7.5	7.3	7.7	7.3	7.4	7.1	7.8	7.1	7.8		
7	TDS (mg/L)	210	209	139	118	171	163	187	163	177	199	145		
8	Temp (deg C)	24.0	27.5	26.0	26.0	25.0	23.0	13.0	11.0	11.0	12.0	12.5		
9	Turb (NTU)	0.0	0.0	0.0	229.0	38.0	6.0	7.0	5.0	8.0	7.0	8.0		
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	134	137	96	104	130	134	137	138	137	138	143		
3	Ca (mg/L)	26	19	27	29	34	33	37	34	29	31	27		
4	Cl (mg/L)	18.6	23.5	10.7	12.6	12.2	11.7	11.7	22.8	20.4	15.7	19.4		
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
6	F (mg/L)				0.41									
7	HCO3 (mg/L)	164	167	117	127	158	163	167	168	167	168	174		
8	K (mg/L)	2.8	1.8	1.7	*	*	*	*	*	*	*	*		
9	Mg (mg/L)	15.8	11.5	7.5	10.0	10.2	11.4	4.5	13.8	3.7	8.9	12.5		
10	Na (mg/L)	15.9	8.1	7.5	*	*	*	*	*	*	*	*		
11	NH3-N (mg N/L)													
12	NO2+NO3 (mg N/L)	0.47	0.81	1.11	0.77	1.09	0.08	0.61	0.16	0.08	0.15	0.14		
13	NO2-N (mgN/L)	0.01	0.03	0.02	0.01	0.68	0.06	0.51	0.01	0.02	0.01	0.02		
14	NO3-N (mgN/L)	0.46	0.79	1.09	0.76	0.41	0.02	0.10	0.15	0.06	0.14	0.13		
15	o-PO4-P (mg P/L)	0.122	0.278	0.254	0.273	0.034	0.044	0.047	0.015	0.043	0.090	0.056		
16	SiO2 (mg/L)	4.970	63.390		18.080	19.740	16.180	10.420	19.740	20.760	29.290	22.820		
17	SO4 (mg/L)	5.4	11.1	71.4	7.8	3.8	17.0	30.5	14.6	6.7	3.9	4.3		
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	1.6	1.4	2.6	0.4	0.4	1.0	1.6	1.0	1.6	2.4	1.0		
2	COD (mg/L)	46.0	27.0											
3	DO (mg/L)	2.8	5.5	4.0	5.9	6.3	7.4	7.2	5.1	8.0	6.8	6.2		
4	DO_SAT% (%)	34	69	50	72	76	86	68	46	73	63	57		
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	66	48	68	73	84	82	93	85	74	78	68		
2	HAR_Total (mgCaCO3/L)	132	96	100	114	126	130	112	142	89	115	120		
3	Na% (%)	20	15	14										
4	RSC (-)	0.1	0.8	0.0	0.0	0.1	0.1	0.5	0.0	1.0	0.5	0.5		
5	SAR (-)	0.6	0.4	0.3										
	Note - "*" Not analysed due to non working of instrument													

Due to lockdown Sample Not Collected

Due to lockdown Sample Not Collected

Water Quality Summary for the period : 2020-21

Station Name : Narmada at Dindori (CW1NAU000672) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	365	1002.23	1.46	61.87
2	EC_GEN (µmho/cm)	11	317	211	271
3	pH_FLD (pH units)	1	7.8	7.8	7.8
4	pH_GEN (pH units)	11	7.8	7.1	7.4
5	TDS (mg/L)	11	210	118	171
6	Temp (deg C)	11	27.5	11.0	19.2
7	Turb (NTU)	11	229.0	0.0	28
	CHEMICAL				
1	Alk-PHen (mgCaCO3/L)	11	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	11	143	96	130
3	Ca (mg/L)	11	37	19	30
4	Cl (mg/L)	11	23.5	10.7	16.3
5	CO3 (mg/L)	11	0.0	0.0	0
6	F (mg/L)	1	0.41	0.41	0.41
7	HCO3 (mg/L)	11	174	117	158
8	K (mg/L)	3	2.8	1.7	2.1
9	Mg (mg/L)	11	15.8	3.7	10
10	Na (mg/L)	3	15.9	7.5	10.5
11	NH3-N (mg N/L)	1	0.00	0.00	0
12	NO2+NO3 (mg N/L)	11	1.11	0.08	0.5
13	NO2-N (mgN/L)	11	0.68	0.01	0.12
14	NO3-N (mgN/L)	11	1.09	0.02	0.37
15	o-PO4-P (mg P/L)	11	0.278	0.015	0.114
16	SiO2 (mg/L)	10	80.3	6.3	28.6
17	SO4 (mg/L)	11	71.4	3.8	16
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	11	2.6	0.4	1.4
2	COD (mg/L)	2	46.0	27.0	36.5
3	DO (mg/L)	11	8.0	2.8	5.9
4	DO_SAT% (%)	11	86	34	63
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	11	93	48	74
2	HAR_Total (mgCaCO3/L)	11	142	89	116
3	Na% (%)	3	20	14	17
4	RSC (-)	11	1.0	0.0	0.3
5	SAR (-)	3	0.6	0.3	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period : 2016-2021

Station Name : Narmada at Dindori (CW1NAU000672) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2016	2017	2018	2019	2020	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2017	2018	2019	2020	2021
	PHYSICAL															
1	Q (cumec)	64.83	16.20	95.90	61.15	91.86	6.40	6.24	31.41	14.78	20.42	2.65	1.92	5.98	5.79	7.05
2	EC_FLD (µmho/cm)													329		
3	EC_GEN (µmho/cm)	225	267	268	233	263	300	322	303	274	272	288	322	316	314	288
4	pH_FLD (pH units)													7.1		7.8
5	pH_GEN (pH units)	7.5	7.6	7.4	7.3	7.4	7.4	7.7	7.3	7.6	7.4	7.5	7.6	7.3	7.2	7.5
6	TDS (mg/L)	147	175	170	154	169	197	214	201	186	173	192	210	192	215	172
7	Temp (deg C)	26.5	25.8	25.6	28.5	25.7	17.8	15.9	15.4	21.0	14.5	23.5	18.2	16.0	18.3	12.3
8	Turb (NTU)	162.6	91.2	122.2	95.8	53.4	0.0	0.0	0.0	16.4	6.5	0.0	0.0	0.0	0.8	7.5
	CHEMICAL															
1	ALK-TOT (mgCaCO3/L)	108	124	123	107	120	150	151	158	124	136	155	147	156	155	140
2	Ca (mg/L)	25	31	29	29	27	33	34	37	33	33	31	28	43	35	29
3	Cl (mg/L)	6.9	8.8	7.6	8.2	15.5	7.0	8.3	9.5	5.8	16.7	9.3	12.0	6.7	6.4	17.6
4	F (mg/L)	0.22	0.19	0.07	0.09	0.41	0.15	0.10	0.13	0.11		0.25	0.08	0.11		
5	HCO3 (mg/L)	132	152	151	131	147	183	184	192	152	166	189	180	190	189	171
6	K (mg/L)	2.0	1.4	1.7	2.2	2.1	0.8	1.1	1.2	0.8		1.3	1.9	1.7	2.5	
7	Mg (mg/L)	10.1	10.2	12.7	9.9	11.0	13.9	16.0	14.6	13.6	8.4	15.1	14.3	9.5	17.7	10.7
8	Na (mg/L)	6.0	8.9	8.2	7.8	10.5	7.7	9.4	9.8	7.4		13.6	13.1	14.6	15.3	
9	NH3-N (mg N/L)				0.06	0.00				0.06					0.13	
10	NO2+NO3 (mg N/L)	0.91	0.48	1.23	1.11	0.85	0.29	0.08	0.53	0.24	0.23	0.21	0.56	1.77	0.84	0.15
11	NO2-N (mgN/L)	0.04	0.03	0.19	0.37	0.15	0.06	0.02	0.02	0.02	0.15	0.02	0.01	0.74	0.59	0.02
12	NO3-N (mgN/L)	0.87	0.45	1.05	0.74	0.70	0.22	0.07	0.50	0.22	0.08	0.20	0.54	1.04	0.25	0.13
13	o-PO4-P (mg P/L)	0.232	0.151	0.175	0.199	0.192	0.105	0.074	0.118	0.055	0.037	0.082	0.139	0.156	0.064	0.073
14	SiO2 (mg/L)	24.8	19.4	28.4	30.2	33.6	18.2	17.3	19.3	23.6	21.3	18.5	16.5	30.3	19.2	33.0
15	SO4 (mg/L)	20.2	12.5	10.7	11.2	19.9	11.5	9.7	8.6	13.6	17.2	7.4	8.3	9.2	7.6	4.1
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	0.9	1.2	1.0	1.1	1.3	1.3	1.2	2.0	1.2	1.3	2.2	1.6	1.5	1.6	1.7
2	COD (mg/L)	38.4	60.8	36.8	27.6	36.5	50.5	44.3	42.5	23.5		46.3	38.3	19.0	8.0	
3	DO (mg/L)	4.3	4.7	4.4	4.5	4.9	5.7	5.4	5.1	5.9	6.9	4.2	4.3	3.9	3.3	6.5
4	DO_SAT% (%)	53	58	53	57	60	60	54	50	66	68	50	45	40	34	60
	TRACE & TOXIC															
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	63	78	72	72	68	83	84	93	84	83	78	71	108	86	73
2	HAR_Total (mgCaCO3/L)	105	121	125	113	114	141	151	154	140	118	141	131	147	160	117
3	Na% (%)	11	14	12	12	17	10	12	12	10		17	18	18	17	
4	RSC (-)	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.4	0.3	0.3	0.2	0.1	0.5
5	SAR (-)	0.3	0.4	0.3	0.3	0.4	0.3	0.3	0.4	0.3		0.5	0.5	0.5	0.5	
	PESTICIDES															

2.22 Narmada at Mandla

History Sheet

			Water Year	**:**	**2020-21**
Site	**:**	**Narmada at Mandla**	**Code**	**:**	CW1NAU000327
State	:	Madhya Pradesh	District		Mandla
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:	-	Sub Tributary	:	-
Sub-Sub Tributary	:	-	Local River	:	Narmada
Division	:	ND, CWC, BHOPAL	Sub-Division	:	UNSD, CWC, JABALPUR
Drainage Area	:	13000 Sq. Km.	Bank	:	Left
Latitude	:	22°35'57"	Longitude	:	80°21'50"
		Opening Date	Closing Date		
Gauge	:	19/05/1975			
Discharge	:	01/10/2020			
Sediment	:				
Water Quality	:	03/09/2019			

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at Mandla (CW1NAU000327) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01/06/2020	01/07/2020	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL													
1	Q (cumec)	Discharge on Site was reopened on 01.10.2020				225.6	121.5	69.68	28.93	15.02	18.47	11.79		
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
3	EC_GEN (µmho/cm)	304	180	185	172	241	256	253	275	255	288	279		
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		
5	pH_FLD (pH units)													
6	pH_GEN (pH units)	7.9	7.1	7.6	7.5	7.9	7.9	7.6	7.8	7.4	7.5	7.1		
7	TDS (mg/L)	195	110	116	94	161	171	182	156	185	536	158		
8	Temp (deg C)	29.0	28.5	28.0	25.0	27.0	26.0	20.0	16.0	18.5	22.0	26.0		
9	Turb (NTU)	0.0	0.0	0.0		15.0	5.0	6.0	6.0	7.0	6.0	6.0		
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Sample not collected due to lockdown	Sample not collected due to lockdown
2	ALK-TOT (mgCaCO3/L)	134	75	89	92	107	130	145	134	148	138	143		
3	Ca (mg/L)	21	12	21	28	28	31	35	30	37	26	30		
4	Cl (mg/L)	18.6	19.6	12.5	10.5	10.2	9.8	7.8	16.6	14.3	13.7	15.5		
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
6	HCO3 (mg/L)	164	91	108	112	130	158	177	163	181	168	174		
7	K (mg/L)	2.4	2.8	2.0	*	*	*	*	*	*	*	*		
8	Mg (mg/L)	12.7	7.2	9.2	4.8	9.8	10.2	5.4	15.7	7.9	7.2	10.9		
9	Na (mg/L)	12.9	7.2	7.1	*	*	*	*	*	*	*	*		
10	NH3-N (mg N/L)		0.00											
11	NO2+NO3 (mg N/L)	0.47	0.83	1.31	0.74	0.32	0.18	0.07	0.47	0.47	0.13	0.72		
12	NO2-N (mgN/L)	0.01	0.04	0.02	0.03	0.06	0.17	0.05	0.20	0.40	0.02	0.02		
13	NO3-N (mgN/L)	0.46	0.79	1.29	0.71	0.26	0.01	0.02	0.27	0.07	0.12	0.70		
14	o-PO4-P (mg P/L)	0.122	0.309	0.181	0.126	0.049	0.066	0.027	0.022	0.035	0.071	0.077		
15	SiO2 (mg/L)	6.3	31.2		28.9	19.3	13.4	25.7	19.8	22.9	41.8	31.3		
16	SO4 (mg/L)	5.4	11.5	30.2	8.4	4.0	7.0	7.4	4.1	9.3	3.9	4.6		
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	1.6	0.4	0.8	2.6	0.8	1.2	1.2	1.0	0.8	0.9	0.9		
2	COD (mg/L)	46.0	40.0											
3	DO (mg/L)	6.3	6.5	4.6		6.9	7.4	7.8	8.5	6.6	5.8	6.3		
4	DO_SAT% (%)	82	83	59		86	91	85	86	70	66	78		
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	53	30	54	70	69	79	87	75	92	65	75		
2	HAR_Total (mgCaCO3/L)	106	60	92	89	110	121	110	141	125	95	121		
3	Na% (%)	21	20	14										
4	RSC (-)	0.6	0.3	0.0	0.1	0.0	0.2	0.7	0.0	0.5	0.9	0.5		
5	SAR (-)	0.5	0.4	0.3										
	Note - "*" Not analysed due to non working of instrument													

Water Quality Summary for the period : 2020-21

Station Name : Narmada at Mandla (CW1NAU000327) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	243	776.6	3.31	62
2	EC_GEN (µmho/cm)	10	304	180	252
3	pH_FLD (pH units)	1	7.1	7.1	7.1
4	pH_GEN (pH units)	10	7.9	7.1	7.6
5	TDS (mg/L)	10	536	110	197
6	Temp (deg C)	10	29.0	16.0	24.1
7	Turb (NTU)	10	15.0	0.0	5.1
	CHEMICAL				
1	Alk-PHen (mgCaCO3/L)	10	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	10	148	75	124
3	Ca (mg/L)	10	37	12	27
4	Cl (mg/L)	10	19.6	7.8	13.9
5	CO3 (mg/L)	10	0.0	0.0	0
6	HCO3 (mg/L)	10	181	91	151
7	K (mg/L)	3	2.8	2.0	2.4
8	Mg (mg/L)	10	15.7	5.4	9.6
9	Na (mg/L)	3	12.9	7.1	9.1
10	NH3-N (mg N/L)	1	0.00	0.00	0
11	NO2+NO3 (mg N/L)	10	1.31	0.07	0.5
12	NO2-N (mgN/L)	10	0.40	0.01	0.1
13	NO3-N (mgN/L)	10	1.29	0.01	0.4
14	o-PO4-P (mg P/L)	10	0.309	0.022	0.096
15	SiO2 (mg/L)	9	41.8	6.3	23.5
16	SO4 (mg/L)	10	30.2	3.9	8.7
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	10	1.6	0.4	1
2	COD (mg/L)	2	46.0	40.0	43
3	DO (mg/L)	10	8.5	4.6	6.7
4	DO_SAT% (%)	10	91	59	79
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	10	92	30	68
2	HAR_Total (mgCaCO3/L)	10	141	60	108
3	Na% (%)	3	21	14	18
4	RSC (-)	10	0.9	0.0	0.4
5	SAR (-)	3	0.5	0.3	0.4
	PESTICIDES				

Water Quality Seasonal Average for the period : 2019-2021

Station Name : Narmada at Mandla (CW1NAU000327) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

S.No	Parameters	Flood		Winter		Summer	
		Jun - Oct		Nov - Feb		Mar - May	
		2019	2020	2019-2020	2020-2021	2020	2021
	PHYSICAL						
1	Q (cumec)	*Discharge was started on 01.10.2020	225.6	*	58.78	*	12.2
2	EC_GEN (µmho/cm)	171	228	250	260	294	284
3	pH_FLD (pH units)						7.1
4	pH_GEN (pH units)	7.4	7.6	7.7	7.7	7.5	7.3
5	TDS (mg/L)	109	146	162	174	202	347
6	Temp (deg C)	29.5	28.1	19.6	20.1	21.5	24.0
7	Turb (NTU)	124.5	3.8	16.8	6.0	0.8	6.0
	CHEMICAL						
1	ALK-TOT (mgCaCO3/L)	77	101	111	139	164	140
2	Ca (mg/L)	21	21	29	33	56	28
3	Cl (mg/L)	2.5	15.2	4.3	12.1	8.9	14.6
4	F (mg/L)	0.11		0.10			
5	HCO3 (mg/L)	94	123	136	170	201	171
6	K (mg/L)	1.7	2.4	0.9		2.3	
7	Mg (mg/L)	6.0	9.7	13.7	9.8	11.4	9.1
8	Na (mg/L)	3.8	9.1	6.4		11.4	
9	NH3-N (mg N/L)	0.07	0.00	0.08		0.11	
10	NO2+NO3 (mg N/L)	0.58	0.73	0.11	0.30	0.19	0.43
11	NO2-N (mgN/L)	0.06	0.03	0.02	0.20	0.07	0.02
12	NO3-N (mgN/L)	0.53	0.70	0.09	0.09	0.11	0.41
13	o-PO4-P (mg P/L)	0.134	0.165	0.056	0.038	0.070	0.074
14	SiO2 (mg/L)	33.1	18.9	22.8	20.5	20.9	36.5
15	SO4 (mg/L)	9.8	12.8	21.3	7.0	5.4	4.2
	BIOLOGICAL/BACTERIOLOGICAL						
1	BOD3-27 (mg/L)	0.7	0.9	0.8	1.1	1.6	0.9
2	COD (mg/L)	14.5	43.0	19.3		20.5	
3	DO (mg/L)	6.0	6.1	6.4	7.6	5.8	6.1
4	DO_SAT% (%)	79	78	70	83	65	72
	TRACE & TOXIC						
	CHEMICAL INDICES						
1	HAR_Ca (mgCaCO3/L)	52	51	72	83	141	70
2	HAR_Total (mgCaCO3/L)	77	92	129	124	188	108
3	Na% (%)	10	18	10		12	
4	RSC (-)	0.0	0.2	0.0	0.3	0.3	0.7
5	SAR (-)	0.2	0.4	0.2		0.4	
	PESTICIDES						

2.23 Gaur at Bhalwara

History Sheet

			Water Year	**:**	**2020-21**
Site	**:**	**Gaur at Bhalwara**	**Code**	**:**	CW1NAU001445
State	:	Madhya Pradesh	District		Jabalpur
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:	-	Sub Tributary	:	-
Sub-Sub Tributary	:	-	Local River	:	Gaur
Division	:	ND, CWC, BHOPAL	Sub-Division	:	UNSD, CWC, JABALPUR
Drainage Area	:	706 Sq. Km.	Bank	:	Left
Latitude	:	23°06'32"	Longitude	:	79°58'18"
		Opening Date	Closing Date		
Gauge	:	15/01/2019			
Discharge	:	01/06/2019			
Sediment	:				
Water Quality	:	03/06/2019			

Water Quality Datasheet for the period : 2020-21

Station Name : Gaur at Bhalwara (CW1NAU001445) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01/06/2020	01/07/2020	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL													
1	Q (cumec)	3.95	10.58	25.02	54.31	17.96	3.15	1.88	1.7	1.26	0	0		
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
3	EC_GEN (µmho/cm)	539	295	205	211	314	364	304	440	177	864	1000		
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		
5	pH_FLD (pH units)													
6	pH_GEN (pH units)	7.6	7.4	7.7	7.5	7.9	7.7	7.7	7.5	7.5	6.7	7.3		
7	TDS (mg/L)	342	220	136	115	205	234	213	238	127	536	740		
8	Temp (deg C)	28.0	28.0	30.0	24.0	23.5	23.0	22.0	23.0	18.0	27.0	21.0		
9	Turb (NTU)	0.0	0.0	0.0	39.0	6.0	5.0	7.0	31.0	7.0	19.0	46.0		
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Sample not collected due to lockdown	Sample not collected due to lockdown
2	ALK-TOT (mgCaCO3/L)	257	169	89	116	148	183	157	42	95	341	548		
3	Ca (mg/L)	50	28	22	28	29	44	49	32	26	56	103		
4	Cl (mg/L)	18.6	17.6	10.7	6.3	12.2	9.8	11.7	26.9	14.3	52.9	135.9		
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
6	F (mg/L)				0.23									
7	HCO3 (mg/L)	314	206	108	142	181	223	191	51	116	416	669		
8	K (mg/L)	1.6	3.0	1.9	*	*	*	*	*	*	*	*		
9	Mg (mg/L)	30.2	17.0	11.5	7.0	16.3	15.2	3.4	8.2	1.3	12.5	15.1		
10	Na (mg/L)	21.2	16.0	6.8	*	*	*	*	*	*	*	*		
11	NO2+NO3 (mg N/L)	0.27	0.57	0.38	0.82	0.42	0.18	0.27	0.86	0.35	7.15	5.76		
12	NO2-N (mgN/L)	0.01	0.03	0.02	0.02	0.03	0.15	0.15	0.00	0.17	1.95	3.06		
13	NO3-N (mgN/L)	0.26	0.53	0.36	0.81	0.39	0.04	0.12	0.86	0.18	5.20	2.70		
14	o-PO4-P (mg P/L)	0.011	0.231	0.348	0.294	0.039	0.067	0.037	0.036	0.040	0.911	1.373		
15	SiO2 (mg/L)	7.5	52.0		27.3	18.8	18.9	15.0	11.8	21.0	56.8	97.4		
16	SO4 (mg/L)	3.5	10.4	23.8	16.2	5.1	8.8	5.8	4.4	9.9	14.2	13.4		
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	1.2	1.0	0.6	0.6	0.6	1.0	2.8	0.4	0.6	1.2	2.4		
2	COD (mg/L)	32.0	42.0									49.0		
3	DO (mg/L)	6.5	5.3	5.7	5.3	6.3	7.0	9.9	8.1	7.6	3.8	4.8		
4	DO_SAT% (%)	83	67.74	75	62	74.14	81	113	95	80	47	54		
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	126	71	54	69	73	109	122	81	64	141	257		
2	HAR_Total (mgCaCO3/L)	252	142	102	98	141	173	136	115	69	193	320		
3	Na% (%)	15	19	13										
4	RSC (-)	0.1	0.6	0.0	0.4	0.2	0.2	0.4	0.0	0.5	3.0	4.6		
5	SAR (-)	0.6	0.6	0.3										
	Note - "*" Not analysed due to non working of instrument													

Water Quality Summary for the period : 2020-21

Station Name : Gaur at Bhalwara (CW1NAU001445) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	360	175.6	0.3	52.22
2	EC_GEN (µmho/cm)	11	1000	177	428
3	pH_FLD (pH units)	1	7.3	7.3	7.3
4	pH_GEN (pH units)	11	7.9	6.7	7.5
5	TDS (mg/L)	11	740	115	282
6	Temp (deg C)	9	30.0	18.0	24
7	Turb (NTU)	11	46.0	0.0	14.5
	CHEMICAL				
1	Alk-PHen (mgCaCO3/L)	11	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	11	548	42	195
3	Ca (mg/L)	11	103	22	42
4	Cl (mg/L)	11	135.9	6.3	28.8
5	CO3 (mg/L)	11	0.0	0.0	0
6	F (mg/L)	1	0.23	0.23	0.23
7	HCO3 (mg/L)	11	669	51	238
8	K (mg/L)	3	3.0	1.6	2.2
9	Mg (mg/L)	11	30.2	1.3	12.5
10	Na (mg/L)	3	21.2	6.8	14.6
11	NO2+NO3 (mg N/L)	11	7.15	0.18	1.55
12	NO2-N (mgN/L)	11	3.06	0.00	0.51
13	NO3-N (mgN/L)	11	5.20	0.04	1.04
14	o-PO4-P (mg P/L)	11	1.373	0.011	0.308
15	SiO2 (mg/L)	10	97.4	7.5	32.6
16	SO4 (mg/L)	11	23.8	3.5	10.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	11	2.8	0.4	1.1
2	COD (mg/L)	3	49.0	32.0	41
3	DO (mg/L)	11	9.9	3.8	6.4
4	DO_SAT% (%)	11	113	47	77
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	11	257	54	106
2	HAR_Total (mgCaCO3/L)	11	320	69	158
3	Na% (%)	3	19	13	16
4	RSC (-)	11	4.6	0.0	0.9
5	SAR (-)	3	0.6	0.3	0.5
	PESTICIDES				

Water Quality Seasonal Average for the period: 2019-2021

Station Name: Gaur at Bhalwara (CW1NAU001445) Division: Narmada Division, Bhopal

Local River: Narmada Sub-Division: UNSD, Jabalpur

River Water

S.No	Parameters	Flood		Winter		Summer	
		Jun - Oct		Nov - Feb		Mar - May	
		2019	2020	2019-2020	2020-2021	2020	2021
	PHYSICAL						
1	Q (cumec)	23.38	22.36	4.12	1.20	1.67	0
2	EC_GEN (µmho/cm)	293	313	320	321	645	932
3	pH_FLD (pH units)						7.3
4	pH_GEN (pH units)	7.4	7.6	7.4	7.6	7.6	7.0
5	TDS (mg/L)	182	204	203	203	431	638
6	Temp (deg C)	27.2	27.3	20.3	21.5	24.8	24.0
7	Turb (NTU)	100.8	9.0	24.9	12.5	0.2	32.5
	CHEMICAL						
1	ALK-TOT (mgCaCO3/L)	130	156	136	119	256	445
2	Ca (mg/L)	28	31	38	38	57	80
3	Cl (mg/L)	14.6	13.1	7.3	15.7	27.2	94.4
4	F (mg/L)	0.11	0.23	0.11			
5	HCO3 (mg/L)	159	190	167	145	313	543
6	K (mg/L)	3.3	2.2	1.1		3.3	
7	Mg (mg/L)	12.3	16.4	12.3	7.0	27.1	13.8
8	Na (mg/L)	11.0	14.6	8.1		19.9	
9	NH3-N (mg N/L)	0.16		0.10		0.15	
10	NO2+NO3 (mg N/L)	1.15	0.49	0.13	0.41	0.92	6.46
11	NO2-N (mgN/L)	0.38	0.02	0.03	0.12	0.08	2.51
12	NO3-N (mgN/L)	0.77	0.47	0.10	0.30	0.84	3.95
13	o-PO4-P (mg P/L)	0.256	0.185	0.041	0.045	0.088	1.142
14	SiO2 (mg/L)	32.9	26.4	19.8	16.7	25.7	77.1
15	SO4 (mg/L)	18.1	11.8	20.0	7.2	14.4	13.8
	BIOLOGICAL/BACTERIOLOGICAL						
1	BOD3-27 (mg/L)	1.8	0.8	1.1	1.2	2.6	1.8
2	COD (mg/L)	27.8	37.0	23.0		17.0	49.0
3	DO (mg/L)	4.3	5.8	6.2	8.1	7.2	4.3
4	DO_SAT% (%)	54	73	68	92	87	50
	TRACE & TOXIC						
	CHEMICAL INDICES						
1	HAR_Ca (mgCaCO3/L)	70	79	95	94	142	199
2	HAR_Total (mgCaCO3/L)	121	147	146	123	255	256
3	Na% (%)	16	16	11		14	
4	RSC (-)	0.3	0.2	0.1	0.3	0.3	3.8
5	SAR (-)	0.4	0.5	0.3		0.5	
	PESTICIDES						

2.24 Narmada at Gorakhpur

History Sheet

			Water Year	:	2020 - 2021
Site	:	Gorakhpur	**Code**	:	NDB-WQSS-202001
State	:	Madhya Pradesh	**District**		DINDORI
Basin	:	Narmada	**Independent River**	:	Narmada
Tributary	:	Narmada	**Sub Tributary**	:	Narmada
Sub-Sub Tributary	:	Narmada	**Local River**	:	Narmada
Division	:	Narmada Division (ND), Bhopal	**Sub-Division**	:	Upper Narmada Sub-Division, Jabalpur
Drainage Area	:	*	**Bank**	:	Left
Latitude	:	22°46'12.0''	**Longitude**	:	81°27'17.0''
Current Zero of Gauge (m)	:	732.000 M			
CATEGORY		**Opening Date**	**Closing Date**		
Gauge	:	15.01.2019			
Discharge	:	*			
Sediment	:	*			
Water Quality	:	**07/08/2020**			
Reduced Level		**Opening Date**	**Closing Date**		

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at Gorakhpur (NDB-WQSS-202001) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

PARAMETERS	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
CHEMICAL										Due to Lockdown Sample Not Collected	Due to Lockdown Sample Not Collected
BOD3-27(mg/L)	1.01	0.81	0.80	0.62	0.85	1.42	1.60	1.03	1.02		
Na(mg/L)	4.46	*	*	*	*	*	*	*	*		
SO4(mg/L)	20.20	8.85	8.39	7.86	3.81	8.13	8.75	4.15	5.51		
o-PO4-P(mg/L)	0.67	0.12	0.32	0.07	0.03	0.08	0.04	0.10	0.07		
NO2+NO3(mgN/L)	0.66	0.01	2.13	0.07	0.08	2.08	0.12	0.13	0.04		
Mg(mg/L)	5.60	10.48	9.78	10.31	14.16	12.05	14.03	6.62	14.90		
HCO3(mg/L)	94.00	127.00	121.00	177.00	181.00	186.00	171.00	182.00	179.00		
P-Tot(mgP/L)	0.67	0.12	0.32	0.07	0.03	0.08	0.04	0.10	0.07		
Ca(mg/L)	22.80	25.50	25.90	36.56	35.00	32.38	34.72	29.44	25.22		
NO3-N(mgN/L)	0.64	0.43	2.05	0.03	0.02	0.64	0.09	0.12	0.04		
NO2-N(mgN/L)	0.02	0.01	0.08	0.04	0.06	1.44	0.03	0.01	0.00		
DO(mg/L)	5.05	4.85	6.06	7.57	7.76	7.31	7.60	6.33	6.66		
K(mg/L)	2.22	*	*	*	*	*	*	*	*		
Cl(mg/L)	8.93	10.49	10.20	7.83	11.74	12.42	12.23	11.75	15.54		
CO3(mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
SiO3(mg/L)		30.06	19.51	16.69	26.20	25.85	24.05	48.03	30.67		
SiO2(mg/L)		23.73	15.40	13.18	20.68	20.41	18.99	37.92	24.21		
BIOLOGICAL/BACTEOROLOGICAL											
DO_SAT%(Percentage)											
PHYSICAL											
Colour_Cod(-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
EC_GEN(µS/cm)	148.00	207.00	224.00	274.00	288.00	290.00	248.00	314.00	275.00		
Odour_Code(-)	Odour free	odour free	Odour free	Odour free	Odour free	Odour free	Odour free	odour free	Odour free		
Turb(NTU)	0.00	292.00	421.00	7.00	6.00	5.00	8.00	6.00	6.00		
TDS(mg/L)	94.00	130.00	149.00	176.00	188.00	155.00	181.00	196.00	154.00		
pH_GEN(-)	7.35	7.42	7.42	7.89	7.60	7.69	7.69	7.62	7.07		
Temp(Degrees Celsius (ºC))								23.00	23.00		
Note - "*" Not analysed due to non working of instrument											

Water Quality Summary for the period : 2020-21

Station Name : Narmada at Gorakhpur (NDB-WQSS-202001) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
CHEMICAL							
P-Tot	8	0.67	0.03	0.17	0.50	0.05	0.09
Mg	9	14.90	5.60	10.88	Vg' .8.62	12.64	10.76
NO2+NO3	9	2.13	0.01	0.59	0.93	0.59	0.08
DO	9	7.76	4.85	6.58	5.32	7.56	6.49
K	1	2.22	2.22	2.22	2.22		
CO3	8	0.00	0.00	0.00	0.00	0.00	0.00
SO4	9	20.20	3.81	8.41	12.48	7.14	4.83
SiO3	7	48.03	3.67	23.43	19.51	23.20	25.85
BOD3-27	8	1.60	0.62	1.04	0.90	1.12	1.02
Ca	9	36.56	22.80	29.72	24.73	34.67	27.33
SiO2	7	48.03	16.69	27.29	19.51	23.20	39.35
HCO3	9	186.00	94.00	157.56	114.00	178.75	180.50
NO2-N	9	1.44	0.00	0.19	0.04	0.39	0.00
Cl	9	15.54	7.83	11.24	9.87	11.06	13.65
o-PO4-P	8	0.67	0.03	0.17	0.50	0.05	0.09
NO3-N	8	2.05	0.02	0.45	1.35	0.19	0.08
Na	1	4.46	4.46	4.46	4.46		
BIOLOGICAL/BACTEOROLOGICAL							
DO_SAT%	5	7.76	6.33	7.13		7.56	6.49
PHYSICAL							
EC_GEN	9	314.00	148.00	252.00	193.00	275.00	294.50
TDS	8	196.00	94.00	161.62	121.50	175.00	175.00
pH_GEN	8	7.89	7.07	7.54	7.39	7.72	7.35
Turb	9	421.00	0.00	83.44	237.67	6.50	6.00
Temp	2	23.00	23.00	23.00			23.00
CHEMICAL INDICES							

Water Quality Seasonal Average for the period : 2020-2021

Station Name : Narmada at Gorakhpur (NDB-WQSS-202001) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)							
CHEMICAL							
P-Tot	8	0.67	0.03	0.17	0.50	0.05	0.09
Mg	9	14.90	5.60	10.88	8.62	12.64	10.76
NO2+NO3	9	2.13	0.01	0.59	0.93	0.59	0.08
DO	9	7.76	4.85	6.58	5.32	7.56	6.49
K	1	2.22	2.22	2.22	2.22		
CO3	8	0.00	0.00	0.00	0.00	0.00	0.00
SO4	9	20.20	3.81	8.41	12.48	7.14	4.83
SiO3	7	48.03	3.67	23.43	19.51	23.20	25.85
BOD3-27	8	1.60	0.62	1.04	0.90	1.12	1.02
Ca	9	36.56	22.80	29.72	24.73	34.67	27.33
SiO2	7	48.03	16.69	27.29	19.51	23.20	39.35
HCO3	9	186.00	94.00	157.56	114.00	178.75	180.50
NO2-N	9	1.44	0.00	0.19	0.04	0.39	0.00
Cl	9	15.54	7.83	11.24	9.87	11.06	13.65
o-PO4-P	8	0.67	0.03	0.17	0.50	0.05	0.09
NO3-N	8	2.05	0.02	0.45	1.35	0.19	0.08
Na	1	4.46	4.46	4.46	4.46		
BIOLOGICAL/BACTEOROLOGICAL							
DO_SAT%	5	7.76	6.33	7.13		7.56	6.49
PHYSICAL							
EC_GEN	9	314.00	148.00	252.00	193.00	275.00	294.50
TDS	8	196.00	94.00	161.62	121.50	175.00	175.00
pH_GEN	8	7.89	7.07	7.54	7.39	7.72	7.35
Turb	9	421.00	0.00	83.44	237.67	6.50	6.00
Temp	2	23.00	23.00	23.00			23.00
CHEMICAL INDICES							

2.25 Narmada at U/S Dindori

HISTORY SHEET (WATER QUALITY)					
			Water Year	:	2020 - 2021
Site	:	U/S Dindori	**Code**	:	NDB-WQSS-202002
State	:	Madhya Pradesh	**District**		DINDORI
Basin	:	Narmada	**Independent River**	:	Narmada
Tributary	:	Narmada	**Sub Tributary**	:	Narmada
Sub-Sub Tributary	:	Narmada	**Local River**	:	Narmada
Division	:	Narmada Division (ND), Bhopal	**Sub-Division**	:	Upper Narmada Sub-Division, Jabalpur
Drainage Area	:	*	**Bank**	:	Left
Latitude	:	22°56'43.0''	**Longitude**	:	81°50'46.0''
Current Zero of Gauge (m)	:	*			
CATEGORY		**Opening Date**	**Closing Date**		
Gauge	:	*			
Discharge	:	*			
Sediment	:	*			
Water Quality	:	**07/08/2020**			
Reduced Level		**Opening Date**	**Closing Date**		

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at U/S Dindori (NDB-WQSS-202002) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

PARAMETERS	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	02/03/2021	05/04/2021	03/05/2021	22/05/2021
CHEMICAL										Due to Lockdown Sample Not Collected	Due to Lockdown Sample Not Collected
CO3(mg/L)	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
NO3-N(mgN/L)	0.19	0.40	0.32	0.01	0.10	0.25	0.07	0.08	0.05		
Cl(mg/L)	8.93	8.39	10.20	11.74	7.83	14.19	16.31	13.71	15.54		
DO(mg/L)	4.24	5.45	6.06	7.16	7.56	8.53	7.60	4.62	4.27		
K(mg/L)	1.61	*	*	*	*	*	*	*	*		
SO4(mg/L)	29.56	6.59	3.55	4.31	2.98	5.36	8.75	4.74	4.85		
Na(mg/L)	6.51	*	*	*	*	*	*	*	*		
Mg(mg/L)	9.46	10.01	11.36	12.00	14.81	11.69	8.66	2.21	6.99		
BOD3-27(mg/L)	0.81	0.20	0.40	0.82	1.80	0.82	1.60	4.62	0.85		
Ca(mg/L)	23.40	29.10	31.70	35.00	28.44	30.13	36.18	25.76	26.24		
HCO3(mg/L)	112.00	146.00	167.00	177.00	186.00	191.00	171.00	173.00	179.00		
P-Tot(mgP/L)	0.28	0.12	0.04	0.07	0.05	0.03	0.06	0.10	0.07		
o-PO4-P(mg/L)	0.28	0.12	0.04	0.07	0.05	0.03	0.06	0.10	0.07		
NO2+NO3(mgN/L)	0.21	0.01	0.34	0.05	0.15	0.27	0.13	0.09	0.05		
NO2-N(mgN/L)	0.02	0.01	0.02	0.04	0.05	0.02	0.06	0.01	0.00		
SiO3(mg/L)		30.16	22.19	16.46	26.30	25.51	23.89	42.79	31.03		
SiO2(mg/L)		23.81	17.52	12.99	20.76	20.14	18.86	33.78	24.50		
TRACE & TOXIC											
PESTICIDES											
BIOLOGICAL/BACTEOROLOGICAL											
DO_SAT%(Percentage)											
PHYSICAL											
pH_GEN(-)	7.21	7.70	7.84	8.11	7.64	7.91	7.81	7.43	7.13		
TDS(mg/L)	125.00	119.00	183.00	171.00	183.00	145.00	181.00	197.00	155.00		
Turb(NTU)	0.00	187.00	9.00	6.00	6.00	6.00	7.00	6.00	6.00		
EC_GEN(µS/cm)	197.00	217.00	278.00	272.00	281.00	273.00	247.00	319.00	277.00		
Odour_Code(-)	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free		
Colour_Cod(-)	Clear	Brown and Muddy	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
Temp(Degrees Celsius (ºC))		25.00	24.00	20.00	13.00	11.00	11.00	12.00	12.00		
Note - "*" Not analysed due to non working of instrument											

Water Quality Summary for the period : 2020-21

Station Name : Narmada at U/S Dindori (NDB-WQSS-202002) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)							
CHEMICAL							
P-Tot	9	0.28	0.03	0.09	0.15	0.05	0.09
NO2+NO3	9	0.34	0.01	0.14	0.19	0.15	0.07
Mg	9	14.81	2.21	9.69	10.28	11.79	4.60
DO	9	8.53	4.24	6.17	5.25	7.71	4.44
K	1	1.61	1.61	1.61	1.61		
CO3	9	0.00	0.00	0.00	0.00	0.00	0.00
SO4	9	29.56	2.98	7.85	13.23	5.35	4.80
SiO3	8	42.79	16.46	27.29	26.17	23.04	36.91
BOD3-27	9	4.62	0.20	1.32	0.47	1.26	2.73
Ca	9	36.18	23.40	29.55	28.07	32.44	26.00
SiO2	8	42.79	16.46	27.29	26.17	23.04	36.91
HCO3	9	191.00	112.00	166.89	141.67	181.25	176.00
NO2-N	9	0.06	0.00	0.03	0.02	0.04	0.00
Cl	9	16.31	7.83	11.87	9.17	12.52	14.62
o-PO4-P	9	0.28	0.03	0.09	0.15	0.05	0.09
NO3-N	9	0.40	0.01	0.16	0.30	0.11	0.06
Na	1	6.51	6.51	6.51	6.51		
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
DO_SAT%							
PHYSICAL							
EC_GEN	9	319.00	197.00	262.33	230.67	268.25	298.00
TDS	9	197.00	119.00	162.11	142.33	170.00	176.00
pH_GEN	9	8.11	7.13	7.64	7.58	7.87	7.28
Turb	9	187.00	0.00	25.89	65.33	6.25	6.00
Temp	8	25.00	11.00	16.00	24.50	13.75	12.00
CHEMICAL INDICES							

Water Quality Seasonal Average for the period : 2019-2021

Station Name : Narmada at U/S Dindori (NDB-WQSS-202002) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

	2020-2021	2021	2020
BIOLOGICAL/BACTEOROLOGICAL			
DO_SAT%	8.05	4.44	
CHEMICAL			
BOD3-27	1.26	2.73	0.47
CO3	0.00	0.00	0.00
Ca	32.44	26.00	28.07
Cl	12.52	14.62	9.17
DO	7.71	4.44	5.25
HCO3	181.25	176.00	141.67
K			1.61
Mg	11.79	4.60	10.28
NO2+NO3	0.15	0.07	0.19
NO2-N	0.04	0.00	0.02
NO3-N	0.11	0.06	0.30
Na			6.51
P-Tot	0.05	0.09	0.15
SO4	5.35	4.79	13.23
SiO2	23.04	36.91	26.17
SiO3	23.04	36.91	26.17
o-PO4-P	0.05	0.09	0.15
CHEMICAL INDICES			
PHYSICAL			
EC_GEN	268.25	301.50	232.35
TDS	170.00	179.50	143.20
Temp	13.75	12.00	24.50
Turb	6.25	6.00	68.60
pH_GEN	7.87	7.31	7.60

2.26 Narmada at D/S Dindori (Jogi Tikariya)

HISTORY SHEET (WATER QUALITY)					
			Water Year	:	2020 - 2021
Site	:	D/S Dindori (Jogitikariya)	**Code**	:	NDB-WQSS-202003
State	:	Madhya Pradesh	**District**		DINDORI
Basin	:	Narmada	**Independent River**	:	Narmada
Tributary	:	Narmada	**Sub Tributary**	:	Narmada
Sub-Sub Tributary	:	Narmada	**Local River**	:	Narmada
Division	:	Narmada Division(ND), Bhopal	**Sub-Division**	:	Upper Narmada Sub-Division, Jabalpur
Drainage Area	:	*	**Bank**	:	Left
Latitude	:	22°58'6.0''	**Longitude**	:	81°20'47.0''
Current Zero of Gauge (m)	:				
CATEGORY		**Opening Date**	**Closing Date**		
Gauge	:	*			
Discharge	:	*			
Sediment	:	*			
Water Quality	:	**07/08/2020**			
Reduced Level		**Opening Date**	**Closing Date**		

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at D/S Dindori (Jogitikariya) (NDB-WQSS-202003) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

PARAMETERS	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
CHEMICAL										Due to Lockdown Sample Not Collected	Due to Lockdown Sample Not Collected
Cl(mg/L)	8.93	23.07	12.24	9.79	9.79	12.42	10.20	13.71	15.54		
CO3(mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
DO(mg/L)	3.83	4.84	6.26	7.77	7.76	8.12	7.20	5.98	6.66		
K(mg/L)	1.61	*	*	*	*	*	*	*	*		
BOD3-27(mg/L)	1.41	4.84	0.40	1.43	1.04	0.81	0.80	1.02	0.85		
Na(mg/L)	6.53	*	*	*	*	*	*	*	*		
Mg(mg/L)	9.92	9.62	11.83	10.97	9.66	9.71	36.54	5.21	13.36		
Ca(mg/L)	21.70	26.60	30.40	32.34	37.50	28.33	36.54	28.41	24.58		
SO4(mg/L)	38.57	28.69	3.11	3.19	3.26	4.74	8.45	4.15	5.45		
P-Tot(mgP/L)	0.79	0.21	0.02	0.07	0.05	0.02	0.06	0.10	0.08		
NO2-N(mgN/L)	0.02	0.07	0.04	0.03	0.06	0.03	0.01	0.01	0.02		
HCO3(mg/L)	122.00	142.00	153.00	181.00	181.00	186.00	171.00	177.00	174.00		
o-PO4-P(mg/L)	0.79	0.21	0.02	0.07	0.05	0.02	0.06	0.10	0.08		
NO2+NO3(mgN/L)	0.26	2.37	0.31	0.04	0.14	0.23	0.08	0.18	0.10		
NO3-N(mgN/L)	0.24	2.30	0.27	0.01	0.08	0.20	0.07	0.17	0.08		
SiO3(mg/L)		31.54	20.33	19.20	20.56	19.04	33.99	47.44	31.75		
SiO2(mg/L)		24.90	16.05	15.16	16.23	15.03	26.83	37.45	25.07		
BIOLOGICAL/BACTEOROLOGICAL											
DO_SAT%(Percentage)											
PHYSICAL											
Turb(NTU)	0.00	140.00	13.00	6.00	6.00	6.00	8.00	5.00	6.00		
pH_GEN(-)	7.22	7.72	7.94	8.11	7.57	7.84	7.81	7.35	7.73		
Odour_Code(-)	Odour less	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free		
Colour_Cod(-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
EC_GEN(µS/cm)	179.00	216.00	272.00	258.00	286.00	268.00	249.00	318.00	280.00		
TDS(mg/L)	115.00	110.00	179.00	164.00	186.00	141.00	182.00	194.00	156.00		
Temp(Degrees Celsius (ºC))	25.00	25.00	25.00	19.00	13.00	11.00	11.10	12.00	12.50		

Note - "*" Not analysed due to non working of instrument

Water Quality Summary for the period : 2020-21

Station Name : Narmada at D/S Dindori (Jogitikariya) (NDB-WQSS-202003) Division:Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
CHEMICAL							
P-Tot	9	0.79	0.02	0.16	0.50	0.04	0.09
NO2+NO3	9	2.37	0.04	0.41	1.31	0.16	0.14
Mg	8	36.54	5.21	12.93	9.77	15.74	5.21
DO	9	8.12	3.83	6.49	4.34	7.42	6.32
K	1	1.61	1.61	1.61	1.61		
CO3	9	0.00	0.00	0.00	0.00	0.00	0.00
SO4	8	38.57	3.11	11.77	33.63	4.55	4.15
SiO3	8	47.44	19.04	27.98	31.54	22.62	39.60
BOD3-27	9	4.84	0.40	1.40	3.12	0.90	0.94
Ca	9	37.50	21.70	29.60	24.15	33.02	26.49
SiO2	8	47.44	19.04	27.98	31.54	22.62	39.60
HCO3	8	186.00	122.00	164.12	132.00	174.40	177.00
NO2-N	9	0.07	0.01	0.03	0.05	0.03	0.01
Cl	9	23.07	8.93	12.85	16.00	10.89	14.62
o-PO4-P	9	0.79	0.02	0.16	0.50	0.04	0.09
NO3-N	9	2.30	0.01	0.38	1.27	0.13	0.12
Na	1	6.53	6.53	6.53	6.53		
BIOLOGICAL/BACTEOROLOGICAL							
DO_SAT%							
PHYSICAL							
EC_GEN	9	318.00	179.00	258.44	197.50	266.60	299.00
TDS	9	194.00	110.00	158.56	112.50	170.40	175.00
pH_GEN	8	8.11	7.22	7.70	7.47	7.85	7.35
Turb	9	140.00	0.00	21.11	70.00	7.80	5.50
Temp	8	25.00	11.00	16.08	25.00	15.82	12.25
CHEMICAL INDICES							

Water Quality Seasonal Average for the period : 2019-2021

Station Name : Narmada at D/S Dindori (Jogitikariya) (NDB-WQSS-202003) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

	2020-2021	2021	2020
BIOLOGICAL/BACTEOROLOGICAL			
DO_SAT%			
CHEMICAL			
BOD3-27	0.90	0.94	3.12
CO3	0.00	0.00	0.00
Ca	33.02	26.71	24.15
Cl	10.89	14.52	16.00
DO	7.42	6.28	4.33
HCO3	174.40	177.00	132.00
K			1.61
Mg	15.74	5.21	9.77
NO2+NO3	0.16	0.14	1.31
NO2-N	0.03	0.01	0.05
NO3-N	0.13	0.13	1.27
Na			6.53
P-Tot	0.04	0.09	0.50
SO4	4.55	4.15	33.63
SiO2	22.62	40.47	31.54
SiO3	22.62	40.47	31.54
o-PO4-P	0.04	0.09	0.50
CHEMICAL INDICES			
PESTICIDES			
PHYSICAL			
EC_GEN	266.60	300.46	198.92
TDS	170.40	176.46	112.31
Temp	15.82	12.23	25.00
Turb	7.80	5.46	75.38
pH_GEN	7.85	7.35	7.49
TRACE & TOXIC			

2.27 Narmada at Malpur

HISTORY SHEET (WATER QUALITY)					
			Water Year	:	2020 - 2021
Site	:	Malpur	**Code**	:	NDB-WQSS-202004
State	:	Madhya Pradesh	**District**		DINDORI
Basin	:	Narmada	**Independent River**	:	Narmada
Tributary	:	Narmada	**Sub Tributary**	:	Narmada
Sub-Sub Tributary	:	Narmada	**Local River**	:	Narmada
Division	:	Narmada Division(ND), Bhopal	**Sub-Division**	:	Upper Narmada Sub-Division, Jabalpur
Drainage Area	:	*	**Bank**	:	Right
Latitude	:	23°30'23.0''	**Longitude**	:	80°50'16.0''
Current Zero of Gauge (m)	:	605.000 M			
CATEGORY		**Opening Date**	**Closing Date**		
Gauge	:	15.01.2019			
Discharge	:	*			
Sediment	:	*			
Water Quality	:	**07/08/2020**			
Reduced Level		**Opening Date**	**Closing Date**		

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at Malpur (NDB-WQSS-202004) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

PARAMETERS	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
CHEMICAL										Due to Lockdown Sample Not Collected	Due to Lockdown Sample Not Collected
Mg(mg/L)	6.98	7.34	11.83	12.47	6.94	14.39	12.50	1.85	13.44		
HCO3(mg/L)	75.00	132.00	158.00	163.00	181.00	186.00	171.00	173.00	169.00		
P-Tot(mgP/L)	0.68	0.16	0.02	0.07	0.02	0.07	0.03	0.10	0.08		
Ca(mg/L)	22.20	28.50	30.90	34.88	38.12	32.23	38.92	28.70	25.47		
SO4(mg/L)	31.93	10.29	3.11	4.08	3.53	5.36	8.45	4.45	4.56		
NO3-N(mgN/L)	0.73	0.34	0.20	0.01	0.07	0.00	0.07	0.20	0.04		
NO2-N(mgN/L)	0.02	0.02	0.02	0.03	0.05	1.50	0.02	0.01	0.02		
CO3(mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
NO2+NO3(mgN/L)	0.75	0.36	0.22	0.04	0.12	1.50	0.09	0.21	0.06		
o-PO4-P(mg/L)	0.68	0.16	0.02	0.07	0.02	0.07	0.03	0.10	0.08		
DO(mg/L)	6.46	3.03	7.27	7.16	5.31	6.50	7.20	6.50	7.18		
K(mg/L)	1.86	*	*	*	*	*	*	*	*		
Cl(mg/L)	7.14	10.49	10.20	11.74	13.70	12.42	14.27	11.75	17.48		
Na(mg/L)	5.81	*	*	*	*	*	*	*	*		
BOD3-27(mg/L)	0.81	1.01	0.80	1.23	3.20	1.63	2.00	2.05	0.86		
SiO2(mg/L)		23.73	13.74	8.35	23.05	16.99	32.87	35.12	25.81		
SiO3(mg/L)		30.06	17.40	10.58	29.20	21.52	41.63	44.49	32.69		
TRACE & TOXIC											
PESTICIDES											
BIOLOGICAL/BACTEOROLOGICAL											
DO_SAT%(Percentage)											
PHYSICAL											
EC_GEN(µS/cm)	163.00	200.00	264.00	260.00	285.00	294.00	250.00	318.00	282.00		
TDS(mg/L)	105.00	91.00	175.00	164.00	184.00	154.00	182.00	194.00	157.00		
Turb(NTU)	0.00	275.00	11.00	6.00	7.00	5.00	7.00	5.00	6.00		
pH_GEN(-)	7.46	6.93	8.08	8.10	7.48	7.68	7.80	7.35	7.41		
Colour_Cod(-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
Odour_Code(-)	Odour free	Odour free	Odour free	Clear	Odour free	Odour free	Odour free	Odour free	Odour free		
Temp(Degrees Celsius (ºC))		25.00	24.00	19.50	14.00	11.00	12.00	12.00	13.00		

Note - "*" Not analysed due to non working of instrument

Water Quality Summary for the period : 2020-21

Station Name : Narmada at Malpur (NDB-WQSS-202004) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)							
CHEMICAL							
P-Tot	9	0.68	0.02	0.14	0.29	0.05	0.09
NO2+NO3	9	1.50	0.04	0.37	0.44	0.44	0.14
Mg	9	14.39	1.85	9.75	8.72	11.57	7.64
DO	9	7.27	3.03	6.29	5.59	6.54	6.84
K	1	1.86	1.86	1.86	1.86		
CO3	9	0.00	0.00	0.00	0.00	0.00	0.00
SO4	9	31.93	3.11	8.42	15.11	5.36	4.51
SiO3	8	44.49	10.58	28.45	23.73	25.73	38.59
BOD3-27	9	3.20	0.80	1.51	0.87	2.01	1.45
Ca	9	38.92	22.20	31.10	27.20	36.04	27.08
SiO2	8	44.49	10.58	28.45	23.73	25.73	38.59
HCO3	9	186.00	75.00	156.44	121.67	175.25	171.00
NO2-N	9	1.50	0.01	0.19	0.02	0.40	0.01
Cl	9	17.48	7.14	12.13	9.28	13.03	14.61
o-PO4-P	9	0.68	0.02	0.14	0.29	0.05	0.09
NO3-N	9	0.73	0.00	0.18	0.42	0.04	0.12
Na	1	5.81	5.81	5.81	5.81		
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEORO LOGICAL							
DO_SAT%	4	7.20	6.50	6.85		6.85	6.84
PHYSICAL							
EC_GEN	9	318.00	163.00	257.33	209.00	272.25	300.00
TDS	9	194.00	91.00	156.22	123.67	171.00	175.50
pH_GEN	9	8.10	6.93	7.59	7.49	7.76	7.38
Turb	9	275.00	0.00	35.78	95.33	6.25	5.50
Temp	8	25.00	11.00	16.31	24.50	14.12	12.50
CHEMICAL INDICES							

Water Quality Seasonal Average for the period : 2019-2021

Station Name : Narmada at Malpur (NDB-WQSS-202004) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

	2020-2021	2021	2020
BIOLOGICAL/BACTEOROLOGICAL			
DO_SAT%			
CHEMICAL			
BOD3-27	2.01	1.45	0.87
CO3	0.00	0.00	0.00
Ca	36.04	27.08	27.20
Cl	13.03	14.62	9.28
DO	6.54	6.84	5.59
HCO3	175.25	171.00	121.67
K			1.86
Mg	11.58	7.65	8.72
NO2+NO3	0.44	0.13	0.44
NO2-N	0.40	0.02	0.02
NO3-N	0.04	0.12	0.42
Na			5.81
P-Tot	0.05	0.09	0.29
SO4	5.35	4.50	15.11
SiO2	25.73	38.59	23.73
SiO3	25.73	38.59	23.73
o-PO4-P	0.05	0.09	0.29
CHEMICAL INDICES			
PESTICIDES			
PHYSICAL			
EC_GEN	272.25	300.00	211.30
TDS	171.00	175.50	124.60
Temp	14.12	12.50	24.50
Turb	6.25	5.50	100.10
pH_GEN	7.77	7.38	7.49
TRACE & TOXIC			

2.28 Narmada at Mandla (Rangrejghat)

HISTORY SHEET (WATER QUALITY)					
			Water Year	:	2020 - 2021
Site	:	U/S Mandla Rangrejghat	Code	:	NDB-WQSS-202005
State	:	Madhya Pradesh	District		MANDLA
Basin	:	Narmada	Independent River	:	Narmada
Tributary	:	Narmada	Sub Tributary	:	Narmada
Sub-Sub Tributary	:	Narmada	Local River	:	Narmada
Division	:	Narmada Division (ND), Bhopal	Sub-Division	:	Upper Narmada Sub-Division, Jabalpur
Drainage Area	:	*	Bank	:	Right
Latitude	:	22°35'37.0''	Longitude	:	80°22'26.0''
Current Zero of Gauge (m)	:	*			
CATEGORY		Opening Date	Closing Date		
Gauge	:	*			
Discharge	:	*			
Sediment	:	*			
Water Quality	:	07/08/2020			
Reduced Level		Opening Date	Closing Date		

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Datasheet for the period : 2020-21

Station Name :Narmada at Mandla (Rangrejghat) (NDB-WQSS-202005) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

PARAMETERS	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021
CHEMICAL									
Cl(mg/L)	10.71	6.29	12.24	13.7	13	14.49	14.27	17.63	13.59
CO3(mg/L)	0	0	0	0	0	0	0	0	0
DO(mg/L)	5.05	6.26	6.46	6.95	5.31	8.32	7.2	6.84	6.66
K(mg/L)	1.89	*	*	*	*	*	*	*	*
Na(mg/L)	6.94	*	*	*	*	*	*	*	*
BOD3-27(mg/L)	0.81	1.21	0.4	1.64	3.2	1.62	0.4		0.68
P-Tot(mgP/L)	0.77	0.21	0.02	0.07	0.02	0.02	0.04		0.08
Mg(mg/L)	11.3	6.76	12.94	7.5	6.94	8.55	6.8	5.74	12.98
SO4(mg/L)	39.99	9.08	3.77	3.42	3.53	2.89	9.04	4.15	3.97
o-PO4-P(mg/L)	0.77	0.21	0.02	0.07	0.02	0.02	0.04		0.08
Ca(mg/L)	20.5	24.3	29	35.62	38.12	33.73	39.65	26.64	29.06
HCO3(mg/L)	108	107	158	154	181	181	181	168	174
NO2+NO3(mgN/L)	0.02	0.71	0.18	0.01	0.12	0.49	0.01	0.01	0.11
NO3-N(mgN/L)	0	0.7	0.15	0	0.07	0.26	0.08		0.09
NO2-N(mgN/L)	0.02	0.01	0.03	0.01	0.05	0.23	0.01	0.01	0.02
SiO3(mg/L)		24.22	21.74	15.02	29.2	36.1	39.57	37.03	33.19
SiO2(mg/L)		24.22	21.74	15.02	29.2	36.1	39.57	37.03	33.19
TRACE & TOXIC									
PESTICIDES									
BIOLOGICAL/BACTEOROLOGICAL									
DO_SAT%(Percentage)									
PHYSICAL									
Turb(NTU)	0	292	7	5	7	5	7	6	5
Temp(Degrees Celsius (ºC))	28	25	27.5	26	14	16	18.5	22	26
pH_GEN(-)	7.56	7.35	7.86	7.99	7.48	7.86	7.58	7.58	7.07
EC_GEN(µS/cm)	180	164	265	263	285	270	263	305	2922
TDS(mg/L)	114	69	170	149	184	141	189	187	161
Odour_Code(-)		Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free
Colour_Cod(-)		Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Note - "*" Not analysed due to non working of instrument

Water Quality Summary for the period : 2020-21

Station Name : Narmada at Mandla (Rangrejghat) (NDB-WQSS-202005) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)							
CHEMICAL							
P-Tot	8	0.77	0.02	0.15	0.33	0.04	0.08
Mg	9	12.98	5.74	8.83	10.33	7.45	9.36
NO2+NO3	9	0.71	0.01	0.18	0.3	0.16	0.06
DO	9	8.32	5.05	6.56	5.92	6.94	6.75
K	1	1.89	1.89	1.89	1.89		
CO3	9	0	0	0	0	0	0
SO4	9	39.99	2.89	8.87	17.61	4.72	4.06
SiO3	8	39.57	15.02	29.51	22.98	29.97	35.11
BOD3-27	8	3.2	0.4	1.25	0.81	1.72	0.68
Ca	9	39.65	20.5	30.74	24.6	36.78	27.85
SiO2	8	39.57	15.02	29.51	22.98	29.97	35.11
HCO3	9	181	107	156.89	124.33	174.25	171
NO2-N	9	0.23	0.01	0.04	0.02	0.08	0.01
Cl	9	17.63	6.29	12.88	9.75	13.87	15.61
o-PO4-P	8	0.77	0.02	0.15	0.33	0.04	0.08
NO3-N	8	0.7	0	0.17	0.28	0.1	0.09
Na	1	6.94	6.94	6.94	6.94		
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
DO_SAT%							
PHYSICAL							
EC_GEN	9	2922	164	546.33	203	270.25	1613.5
TDS	9	189	69	151.56	117.67	165.75	174
pH_GEN	9	7.99	7.07	7.59	7.59	7.73	7.32
Turb	9	292	0	37.11	99.67	6	5.5
Temp	9	28	14	22.56	26.83	18.62	24
CHEMICAL INDICES							

Water Quality Seasonal Average for the period : 2019-2021

Station Name : Narmada at Mandla (Rangrejghat) (NDB-WQSS-202005) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

	2020-2021	2021	2020
BIOLOGICAL/BACTEOROLOGICAL			
DO_SAT%			
CHEMICAL			
BOD3-27	1.71	0.68	0.81
CO3	0	0	0
Ca	36.78	28.04	24.6
Cl	13.87	15.3	9.75
DO	6.95	6.74	5.92
HCO3	174.25	171.46	124.33
K			1.89
Mg	7.45	9.92	10.33
NO2+NO3	0.16	0.07	0.3
NO2-N	0.08	0.02	0.02
NO3-N	0.1	0.09	0.28
Na			6.94
P-Tot	0.04	0.08	0.33
SO4	4.72	4.05	17.61
SiO2	29.97	34.81	22.98
SiO3	29.97	34.81	22.98
o-PO4-P	0.04	0.08	0.33
CHEMICAL INDICES			
PESTICIDES			
PHYSICAL			
EC_GEN	270.25	1613.5	205.42
TDS	165.75	174	118.05
Temp	18.62	24	26.71
Turb	6	5.5	110.16
pH_GEN	7.73	7.33	7.59

2.29 Narmada at Barginagar

HISTORY SHEET (WATER QUALITY)					
			Water Year	:	2020 - 2021
Site	:	Barginagar	**Code**	:	NDB-WQSS-202006
State	:	Madhya Pradesh	**District**		JABALPUR
Basin	:	Narmada	**Independent River**	:	Narmada
Tributary	:	Narmada	**Sub Tributary**	:	Narmada
Sub-Sub Tributary	:	Narmada	**Local River**	:	Narmada
Division	:	Narmada Division(ND), Bhopal	**Sub-Division**	:	Upper Narmada Sub-Division, Jabalpur
Drainage Area	:	*	**Bank**	:	NA (Resrviour)
Latitude	:	22°56'25.0''	**Longitude**	:	79°55'23.0''
Current Zero of Gauge (m)	:	*			
CATEGORY		**Opening Date**	**Closing Date**		
Gauge	:	*			
Discharge	:	*			
Sediment	:	*			
Water Quality	:	**07/08/2020**			
Reduced Level		**Opening Date**	**Closing Date**		

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at Barginagar (NDB-WQSS-202006) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01/06/2020	01/07/2020	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
	PHYSICAL												Sample not collected due to lockdown	Sample not collected due to lockdown
1	Q (cumec)													
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
3	EC_GEN (µmho/cm)	539	295	205	211	314	364	304	440	177	864	1000		
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		
5	pH_FLD (pH units)													
6	pH_GEN (pH units)	7.6	7.4	7.7	7.5	7.9	7.7	7.7	7.5	7.5	6.7	7.3		
7	TDS (mg/L)	342	220	136	115	205	234	213	238	127	536	740		
8	Temp (deg C)	28.0		30.0	24.0		23.0	22.0	23.0	18.0	27.0	21.0		
9	Turb (NTU)	0.0	0.0	0.0	39.0	6.0	5.0	7.0	31.0	7.0	19.0	46.0		
	CHEMICAL													
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	257	169	89	116	148	183	157	42	95	341	548		
3	Ca (mg/L)	50	28	22	28	29	44	49	32	26	56	103		
4	Cl (mg/L)	18.6	17.6	10.7	6.3	12.2	9.8	11.7	26.9	14.3	52.9	135.9		
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
6	F (mg/L)				0.23									
7	HCO3 (mg/L)	314	206	108	142	181	223	191	51	116	416	669		
8	K (mg/L)	1.6	3.0	1.9	*	*	*	*	*	*	*	*		
9	Mg (mg/L)	30.2	17.0	11.5	7.0	16.3	15.2	3.4	8.2	1.3	12.5	15.1		
10	Na (mg/L)	21.2	16.0	6.8	*	*	*	*	*	*	*	*		
11	NO2+NO3 (mg N/L)	0.27	0.57	0.38	0.82	0.42	0.18	0.27	0.86	0.35	7.15	5.76		
12	NO2-N (mgN/L)	0.01	0.03	0.02	0.02	0.03	0.15	0.15	0.00	0.17	1.95	3.06		
13	NO3-N (mgN/L)	0.26	0.53	0.36	0.81	0.39	0.04	0.12	0.86	0.18	5.20	2.70		
14	o-PO4-P (mg P/L)	0.011	0.231	0.348	0.294	0.039	0.067	0.037	0.036	0.040	0.911	1.373		
15	SiO2 (mg/L)	7.5	52.0		27.3	18.8	18.9	15.0	11.8	21.0	56.8	97.4		
16	SO4 (mg/L)	3.5	10.4	23.8	16.2	5.1	8.8	5.8	4.4	9.9	14.2	13.4		
	BIOLOGICAL/BACTERIOLOGICAL													
1	BOD3-27 (mg/L)	1.2	1.0	0.6	0.6	0.6	1.0	2.8	0.4	0.6	1.2	2.4		
2	COD (mg/L)	32.0	42.0									49.0		
3	DO (mg/L)	6.5	5.3	5.7	5.3	6.3	7.0	9.9	8.1	7.6	3.8	4.8		
4	DO_SAT% (%)	83		75	62		81	113	95	80	47	54		
	TRACE & TOXIC													
	CHEMICAL INDICES													
1	HAR_Ca (mgCaCO3/L)	126	71	54	69	73	109	122	81	64	141	257		
2	HAR_Total (mgCaCO3/L)	252	142	102	98	141	173	136	115	69	193	320		
3	Na% (%)	15	19	13										
4	RSC (-)	0.1	0.6	0.0	0.4	0.2	0.2	0.4	0.0	0.5	3.0	4.6		
5	SAR (-)	0.6	0.6	0.3										
	Note - "*" Not analysed due to non working of instrument													

Water Quality Summary for the period : 2020-21

Station Name : Narmada at Barginagar (NDB-WQSS-202006) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)							
CHEMICAL							
P-Tot	9	0.63	0.03	0.16	0.34	0.08	0.04
Mg	9	8.54	3.80	6.17	7.03	5.63	5.97
NO2+NO3	9	2.49	0.06	0.43	0.96	0.16	0.16
DO	9	8.32	4.84	6.88	5.85	7.40	7.35
K	1	1.84	1.84	1.84	1.84		
CO3	9	0.00	0.00	0.00	0.00	0.00	0.00
SO4	9	47.93	3.56	11.55	23.75	6.08	4.20
SiO3	8	35.35	10.85	21.67	17.91	18.50	31.75
BOD3-27	9	1.22	0.40	0.88	0.67	0.97	1.02
Ca	9	30.94	14.90	22.04	20.60	23.06	22.17
SiO2	8	35.35	10.85	21.67	17.91	18.50	31.75
HCO3	9	112.00	73.00	99.33	89.67	103.50	105.50
NO2-N	9	0.05	0.00	0.02	0.02	0.03	0.01
Cl	9	15.67	8.16	10.75	9.09	10.54	13.66
o-PO4-P	9	0.63	0.03	0.19	0.34	0.15	0.04
NO3-N	9	2.47	0.01	0.42	0.95	0.16	0.14
Na	1	4.26	4.26	4.26	4.26		
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
DO_SAT%	4	8.32	7.18	7.65		7.96	7.35
PHYSICAL							
EC_GEN	9	217.00	124.00	179.89	172.67	179.50	191.50
TDS	9	132.00	86.00	110.44	115.00	106.00	112.50
pH_GEN	9	8.08	7.34	7.63	7.68	7.63	7.57
Turb	9	90.00	0.00	15.44	33.67	6.50	6.00
Temp	8	27.00	13.00	20.62	26.33	14.67	21.00
CHEMICAL INDICES							

Water Quality Seasonal Average for the period : 2019-2021

Station Name : Narmada at Barginagar (NDB-WQSS-202006) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

	2020-2021	2021	2020
BIOLOGICAL/BACTEOROLOGICAL			
DO_SAT%	7.96	7.35	
CHEMICAL			
BOD3-27	0.97	1.03	0.67
CO3	0.00	0.00	0.00
Ca	23.05	22.17	20.60
Cl	10.54	13.66	9.09
DO	7.41	7.35	5.85
HCO3	103.50	105.50	89.67
K			1.84
Mg	5.63	5.97	7.03
NO2+NO3	0.16	0.16	0.96
NO2-N	0.03	0.01	0.02
NO3-N	0.16	0.14	0.95
Na			4.26
P-Tot	0.08	0.04	0.34
SO4	6.08	4.20	23.75
SiO2	18.50	31.75	17.91
SiO3	18.50	31.75	17.91
o-PO4-P	0.15	0.04	0.34
CHEMICAL INDICES			
PESTICIDES			
PHYSICAL			
EC_GEN	180.04	191.50	172.67
TDS	106.56	112.50	115.00
Temp	14.67	21.00	26.33
Turb	6.52	6.00	33.67
pH_GEN	7.61	7.57	7.68
TRACE & TOXIC			

2.30 Narmada at U/S Jabalpur

History Sheet

HISTORY SHEET (WATER QUALITY)					
			Water Year	:	2020 - 2021
Site	:	U/S Jabalpur	**Code**	:	NDB-WQSS-202007
State	:	Madhya Pradesh	**District**		JABALPUR
Basin	:	Narmada	**Independent River**	:	Narmada
Tributary	:	Narmada	**Sub Tributary**	:	Narmada
Sub-Sub Tributary	:	Narmada	**Local River**	:	Narmada
Division	:	Narmada Division(ND), Bhopal	**Sub-Division**	:	Upper Narmada Sub-Division, Jabalpur
Drainage Area	:	*	**Bank**	:	Right
Latitude	:	23°50'54.0''	**Longitude**	:	79°56'40.0''
Current Zero of Gauge (m)	:	*			
CATEGORY		**Opening Date**	**Closing Date**		
Gauge	:	*			
Discharge	:	*			
Sediment	:	*			
Water Quality	:	**07/08/2020**			
Reduced Level		**Opening Date**	**Closing Date**		

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at U/S Jabalpur (NDB-WQSS-202007) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

PARAMETERS	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	05/04/2021	05/04/2021
CHEMICAL											
BOD3-27(mg/L)	0.60	0.81	0.80	1.85	0.48	2.43	1.00	1.89	0.85		
Na(mg/L)	6.77	*	*	*	*	*	*	*	*		
SO4(mg/L)	44.44	17.36	5.09	6.09	2.98	5.05	9.92	4.15	4.56		
o-PO4-P(mg/L)	0.65	0.26	0.25	0.07	0.20	0.04	0.16	0.04	0.03		
NO2+NO3(mgN/L)	0.05	0.87	1.06	0.10	0.04	0.41	0.40	0.41	0.03		
Mg(mg/L)	13.04	7.71	11.73	8.44	8.62	5.13	3.40	4.15	8.99		
HCO3(mg/L)	117.00	103.00	209.00	116.00	130.00	144.00	125.00	121.00	113.00		
P-Tot(mgP/L)	0.65	0.26	0.25	0.07	0.20	0.04	0.16	0.04	0.03		
Ca(mg/L)	19.10	21.70	45.30	21.09	35.31	19.49	27.23	16.19	20.10		
NO3-N(mgN/L)	0.03	0.85	1.04	0.05	0.07	0.37	0.20	0.40	0.02		
CO3(mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
NO2-N(mgN/L)	0.02	0.02	0.02	0.05	0.04	0.04	0.20	0.01	0.01		
DO(mg/L)	5.85	6.06	5.86	6.75	7.97	9.13	8.20	7.87	8.20		
K(mg/L)	1.92	*	*	*	*	*	*	*	*		
Cl(mg/L)	12.80	44.05	18.36	11.74	9.79	12.42	12.23	17.60	13.59		
SiO2(mg/L)		18.03	9.46	8.83	16.97	17.58	15.99	22.52	22.34		
SiO3(mg/L)		22.84	11.98	11.19	21.49	22.27	20.26	28.53	28.30		
TRACE & TOXIC											
PESTICIDES											
BIOLOGICAL/BACTEOROLOGICAL											
DO_SAT%(Percentage)											
PHYSICAL											
EC_GEN(µS/cm)	187.00	162.00	404.00	192.00	197.00	180.00	176.00	218.00	1878.00		
Temp(Degrees Celsius (ºC))	25.00	26.00	26.00	24.00	22.00	20.00	20.00	24.00	23.00		
Turb(NTU)	0.00	203.00	43.00	20.00	6.00	7.00	7.00	6.00	6.00		
TDS(mg/L)	116.00	234.00	255.00	115.00	125.00	93.00	123.00	138.00	103.00		
pH_GEN(-)	7.50	7.30	7.59	7.69	7.36	7.61	7.30	7.27	7.82		
Odour_Code(-)		Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free		
Colour_Cod(-)		Clear	Clear	Clear	Clear	Clear	Brown and Muddy	Clear	Clear		
CHEMICAL INDICES											

Water Quality Summary for the period : 2020-21

Station Name :Narmada at U/S Jabalpur (NDB-WQSS-202007) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)							
CHEMICAL							
P-Tot	9	0.65	0.03	0.19	0.39	0.12	0.04
NO2+NO3	9	1.06	0.03	0.37	0.66	0.24	0.22
Mg	9	13.04	3.40	7.91	10.83	6.40	6.57
DO	9	9.13	5.85	7.32	5.92	8.01	8.03
K	1	1.92	1.92	1.92	1.92		
CO3	9	0.00	0.00	0.00	0.00	0.00	0.00
SO4	9	44.44	2.98	11.07	22.30	6.01	4.36
SiO3	8	28.53	11.19	20.86	17.41	18.80	28.42
BOD3-27	9	2.43	0.48	1.19	0.74	1.44	1.37
Ca	9	45.30	16.19	25.06	28.70	25.78	18.15
SiO2	8	28.53	11.19	20.86	17.41	18.80	28.42
HCO3	9	209.00	103.00	130.89	143.00	128.75	117.00
NO2-N	9	0.20	0.01	0.05	0.02	0.08	0.01
Cl	9	44.05	9.79	16.95	25.07	11.55	15.60
o-PO4-P	9	0.65	0.03	0.19	0.39	0.12	0.04
NO3-N	9	1.04	0.02	0.34	0.64	0.17	0.21
Na	1	6.77	6.77	6.77	6.77		
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
DO_SAT%	4	9.13	7.87	8.35		8.66	8.03
PHYSICAL							
EC_GEN	9	1878.00	162.00	399.33	251.00	186.25	1048.00
TDS	9	255.00	93.00	144.67	201.67	114.00	120.50
pH_GEN	9	7.82	7.27	7.49	7.46	7.49	7.55
Turb	9	203.00	0.00	33.11	82.00	10.00	6.00
Temp	8	26.00	20.00	23.50	25.67	21.33	23.50
CHEMICAL INDICES							

Water Quality Seasonal Average for the period : 2019-2021

Station Name : Narmada at U/S Jabalpur (NDB-WQSS-202007) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

	2020-2021	2021	2020
BIOLOGICAL/BACTEOROLOGICAL			
DO_SAT%	8.66	8.03	
CHEMICAL			
BOD3-27	1.44	1.37	0.74
CO3	0.00	0.00	0.00
Ca	25.78	18.15	28.70
Cl	11.54	15.60	25.07
DO	8.01	8.03	5.92
HCO3	128.75	117.00	143.00
K			1.92
Mg	6.40	6.57	10.83
NO2+NO3	0.24	0.22	0.66
NO2-N	0.08	0.01	0.02
NO3-N	0.17	0.21	0.64
Na			6.77
P-Tot	0.12	0.04	0.39
SO4	6.01	4.36	22.30
SiO2	18.80	28.42	17.41
SiO3	18.80	28.42	17.41
o-PO4-P	0.12	0.04	0.39
CHEMICAL INDICES			
PESTICIDES			
PHYSICAL			
EC_GEN	185.85	1048.00	257.74
TDS	113.59	120.50	210.68
Temp	21.33	23.50	25.74
Turb	10.15	6.00	90.63
pH_GEN	7.49	7.54	7.46
TRACE & TOXIC			

2.31 Narmada at D/S Jabalpur (Tilwaraghat)

History Sheet

HISTORY SHEET (WATER QUALITY)					
			Water Year	:	2020 - 2021
Site	:	D/S JABALPUR (Tilwaraghat)	**Code**	:	NDB-WQSS-202008
State	:	Madhya Pradesh	**District**		JABALPUR
Basin	:	Narmada	**Independent River**	:	Narmada
Tributary	:	Narmada	**Sub Tributary**	:	Narmada
Sub-Sub Tributary	:	Narmada	**Local River**	:	Narmada
Division	:	Narmada Division (ND), Bhopal	**Sub-Division**	:	Upper Narmada Sub-Division, Jabalpur
Drainage Area	:	*	**Bank**	:	Right
Latitude	:	23°60'31.0''	**Longitude**	:	79°52'25.0''
Current Zero of Gauge (m)	:	*			
CATEGORY		**Opening Date**	**Closing Date**		
Gauge	:	*			
Discharge	:	*			
Sediment	:	*			
Water Quality	:	**07/08/2020**			
Reduced Level		**Opening Date**	**Closing Date**		

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at D/S Jabalpur (NDB-WQSS-202008) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

PARAMETERS	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
CHEMICAL										Due to Lockdown Sample Not Collected	Due to Lockdown Sample Not Collected
NO2-N(mgN/L)	0.020	0.010	0.020	0.040	0.060	0.090	0.170	0.010	0.010		
HCO3(mg/L)	117.000	200.000	111.000	116.000	126.000	112.000	120.000	112.000	113.000		
NO3-N(mgN/L)	0.160	1.700	0.580	0.050	0.100	0.430	0.210	0.400	0.020		
Cl(mg/L)	10.710	10.490	14.280	11.740	11.740	14.490	20.390	11.800	13.590		
CO3(mg/L)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
DO(mg/L)	4.640	1.410	6.260	7.360	7.560	8.320	6.800	7.010	6.660		
K(mg/L)	2.160	*	*	*	*	*	*	*	*		
BOD3-27(mg/L)	0.600	0.810	0.800	1.430	1.420	2.030	0.800	1.370	1.020		
o-PO4-P(mg/L)	1.300	0.370	0.030	0.060	0.700	0.040	0.140	0.040	0.039		
Na(mg/L)	7.180	*	*	*	*	*	*	*	*		
NO2+NO3(mgN/L)	0.180	1.710	0.520	0.040	0.160	0.520	0.380	0.410	0.030		
Mg(mg/L)	10.930	17.730	7.400	7.590	10.500	6.390	12.720	5.920	5.300		
Ca(mg/L)	23.500	53.500	23.400	21.250	26.720	23.990	26.490	18.690	25.860		
SO4(mg/L)	46.510	22.350	7.070	5.200	4.650	4.740	8.750	3.860	4.260		
P-Tot(mgP/L)	1.300	0.370	0.030	0.060	0.700	0.040	0.140	0.040	0.040		
SiO3(mg/L)		23.460	10.420	12.250	14.430	16.560	16.240	22.840	28.660		
SiO2(mg/L)		18.521	8.226	9.671	11.392	13.074	12.821	18.032	22.626		
TRACE & TOXIC											
PESTICIDES											
BIOLOGICAL/BACTEOROLOGICAL											
DO_SAT%(Percentage)											
PHYSICAL											
TDS(mg/L)	121.000	131.000	136.000	115.000	134.000	92.000	132.000	136.000	104.000		
EC_GEN(µS/cm)	195.000	433.000	206.000	190.000	189.000	176.000	188.000	218.000	188.000		
pH_GEN(-)	7.280	7.100	7.380	7.640	7.310	7.560	7.150	7.450	7.450		
Odour_Code(-)	Oder Free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free		
Colour_Cod(-)	Brown and Muddy	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
Turb(NTU)	0.000	133.000	53.000	20.000	66.000	6.000	7.000	6.000	6.000		
Temp(Degrees Celsius (ºC))	26.000	27.000	27.000	24.000	22.000	20.000	19.000	24.000	20.000		

Note - "*" Not analysed due to non working of instrument

Water Quality Summary for the period : 2020-21

Station Name : Narmada at D/S Jabalpur (NDB-WQSS-202008) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)							
CHEMICAL							
P-Tot	9	1.30	0.03	0.30	0.57	0.23	0.04
NO2+NO3	9	1.71	0.03	0.44	0.80	0.27	0.22
Mg	9	17.73	5.30	9.39	12.02	9.30	5.61
DO	9	8.32	1.41	6.22	4.10	7.51	6.84
K	1	2.16	2.16	2.16	2.16		
CO3	9	0.00	0.00	0.00	0.00	0.00	0.00
SO4	9	46.51	3.86	11.93	25.31	5.84	4.06
SiO3	8	28.66	10.42	18.11	16.94	14.87	25.75
BOD3-27	8	2.03	0.60	1.16	0.74	1.42	1.37
Ca	9	53.50	18.69	27.04	33.47	24.61	22.28
SiO2	8	28.66	10.42	18.11	16.94	14.87	25.75
HCO3	9	200.00	111.00	125.22	142.67	118.50	112.50
NO2-N	9	0.17	0.01	0.05	0.02	0.09	0.01
Cl	9	20.39	10.49	13.25	11.83	14.59	12.69
o-PO4-P	8	1.30	0.03	0.33	0.57	0.23	0.04
NO3-N	9	1.70	0.02	0.41	0.81	0.20	0.21
Na	1	7.18	7.18	7.18	7.18		
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
DO_SAT%	4	8.32	6.66	7.20		7.56	6.84
PHYSICAL							
EC_GEN	9	433.00	176.00	220.33	278.00	185.75	203.00
TDS	9	136.00	92.00	122.33	129.33	118.25	120.00
pH_GEN	9	7.64	7.10	7.37	7.25	7.41	7.45
Turb	9	133.00	0.00	33.00	62.00	24.75	6.00
Temp	8	27.00	19.00	23.38	26.67	21.00	22.00
CHEMICAL INDICES							

Water Quality Seasonal Average for the period : 2019-2021

Station Name : Narmada at D/S Jabalpur (NDB-WQSS-202008) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

	2020-2021	2021	2020
BIOLOGICAL/BACTEOROLOGICAL			
DO_SAT%	7.56	6.84	
CHEMICAL			
BOD3-27	1.42	1.37	0.74
CO3	0.00	0.00	0.00
Ca	24.61	22.02	33.47
Cl	14.59	12.63	11.83
DO	7.51	6.85	4.10
HCO3	118.50	112.46	142.67
K			2.16
Mg	9.30	5.63	12.02
NO2+NO3	0.28	0.23	0.80
NO2-N	0.09	0.01	0.02
NO3-N	0.20	0.22	0.81
Na			7.18
P-Tot	0.24	0.04	0.57
SO4	5.83	4.05	25.31
SiO2	14.87	25.54	16.94
SiO3	14.87	25.54	16.94
o-PO4-P	0.24	0.04	0.57
CHEMICAL INDICES			
PESTICIDES			
PHYSICAL			
EC_GEN	185.63	203.00	278.00
TDS	117.67	120.00	129.33
Temp	21.00	22.00	26.67
Turb	23.22	6.00	62.00
pH_GEN	7.42	7.45	7.25
TRACE & TOXIC			

2.32 Hiran at D/S Patan

History Sheet

HISTORY SHEET (WATER QUALITY)					
			Water Year	:	2020 - 2021
Site	:	D/S Patan	**Code**	:	NDB-WQSS-202009
State	:	Madhya Pradesh	**District**		JABALPUR
Basin	:	Narmada	**Independent River**	:	Narmada
Tributary	:	Hiran	**Sub Tributary**	:	Hiran
Sub-Sub Tributary	:	Hiran	**Local River**	:	Hiran
Division	:	Narmada Division (ND), Bhopal	**Sub-Division**	:	Upper Narmada Sub-Division, Jabalpur
Drainage Area	:	*	**Bank**	:	Left
Latitude	:	23°60'8.0''	**Longitude**	:	79°20'20.0''
Current Zero of Gauge (m)	:	*			
CATEGORY		**Opening Date**	**Closing Date**		
Gauge	:	*			
Discharge	:	*			
Sediment	:	*			
Water Quality	:	**07/08/2020**			
Reduced Level		**Opening Date**	**Closing Date**		

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Datasheet for the period : 2020-21

Station Name : Hiran at D/S Patan (NDB-WQSS-202009) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

PARAMETERS	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
CHEMICAL										Due to Lockdown Sample Not Collected	Due to Lockdown Sample Not Collected
CO3(mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
NO3-N(mgN/L)	0.00	0.89	1.08	0.22	0.10	3.50	4.15	3.90	2.32		
Cl(mg/L)	17.86	12.58	16.32	21.53	35.23	22.77	26.51	52.90	66.00		
DO(mg/L)	6.66	5.05	5.45	5.11	4.91	7.11	6.00	5.00	4.27		
K(mg/L)	1.63	*	*	*	*	*	*	*	*		
SO4(mg/L)	67.00	14.63	6.63	11.65	13.53	11.52	14.91	12.10	11.06		
Na(mg/L)	7.03	*	*	*	*	*	*	*	*		
Mg(mg/L)	11.48	8.19	14.06	13.59	14.44	11.96	9.87	4.15	19.97		
BOD3-27(mg/L)	0.60	1.62	0.40	0.82	4.14	2.24	3.00	2.74	1.20		
Ca(mg/L)	22.50	34.00	43.80	57.03	64.21	46.03	51.89	47.10	37.12		
HCO3(mg/L)	117.00	132.00	213.00	288.00	321.00	209.00	236.00	276.00	254.00		
P-Tot(mgP/L)	1.51	0.23	0.23	0.22	0.72	0.77	0.50	0.65	0.52		
o-PO4-P(mg/L)	1.51	0.23	0.23	0.22	0.72	0.77	0.50	0.65	0.52		
NO2+NO3(mgN/L)	0.00	0.90	1.02	1.49	0.18	3.51	4.17	3.92	2.34		
NO2-N(mgN/L)	0.00	0.01	0.02	1.27	0.08	0.01	0.02	0.02	0.02		
SiO3(mg/L)		14.28	13.28	15.42	19.33	19.32	19.00	24.30	37.86		
SiO2(mg/L)		11.27	10.48	12.17	15.26	15.25	15.00	19.18	29.89		
TRACE & TOXIC											
PESTICIDES											
BIOLOGICAL/BACTEOROLOGICAL											
DO_SAT%(Percentage)											
PHYSICAL											
Colour_Cod(-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
Odour_Code(-)	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free		
pH_GEN(-)	7.72	7.41	7.52	7.45	7.21	7.35	7.06	7.49	7.66		
TDS(mg/L)	121.00	116.00	253.00	303.00	344.00	198.00	270.00	385.00	274.00		
Turb(NTU)	0.00	442.00	21.00	6.00	18.00	7.00	14.00	15.00	14.00		
EC_GEN(µS/cm)	194.00	242.00	395.00	502.00	342.00	380.00	415.00	622.00	274.00		
Temp(Degrees Celsius (ºC))		27.00	25.50	23.00	20.00	17.50	16.50	22.00	23.50		

Note - "*" Not analysed due to non working of instrument

Water Quality Summary for the period : 2020-21

Station Name : Hiran at D/S Patan (NDB-WQSS-202009) Division : Narmada Division, Bhopal
Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)							
CHEMICAL							
P-Tot	9	1.51	0.22	0.59	0.66	0.55	0.58
Mg	9	19.97	4.15	11.97	11.24	12.47	12.06
NO2+NO3	9	4.17	0.00	1.95	0.64	2.34	3.13
DO	9	7.11	4.27	5.51	5.72	5.78	4.64
K	1	1.63	1.63	1.63	1.63		
CO3	9	0.00	0.00	0.00	0.00	0.00	0.00
SO4	9	67.00	6.63	18.11	29.42	12.90	11.58
SiO3	8	37.86	13.28	20.35	13.78	18.27	31.08
BOD3-27	9	4.14	0.40	1.86	0.87	2.55	1.97
Ca	9	64.21	22.50	44.85	33.43	54.79	42.11
SiO2	8	37.86	13.28	20.35	13.78	18.28	31.08
HCO3	9	321.00	117.00	227.33	154.00	263.50	265.00
NO2-N	9	1.27	0.00	0.16	0.01	0.34	0.02
Cl	9	66.00	12.58	30.19	15.59	26.51	59.45
o-PO4-P	9	1.51	0.22	0.59	0.66	0.55	0.58
NO3-N	9	4.15	0.00	1.80	0.66	1.99	3.11
Na	1	7.03	7.03	7.03	7.03		
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
DO_SAT%	4	7.11	4.27	5.60		6.56	4.64
PHYSICAL							
EC_GEN	9	622.00	194.00	374.00	277.00	409.75	448.00
TDS	9	385.00	116.00	251.56	163.33	278.75	329.50
pH_GEN	9	7.72	7.06	7.43	7.55	7.27	7.57
Turb	9	442.00	0.00	59.67	154.33	11.25	14.50
Temp	8	27.00	16.50	21.88	26.25	19.25	22.75
CHEMICAL INDICES							

Water Quality Seasonal Average for the period : 2019-2021

Station Name : Hiran at D/S Patan (NDB-WQSS-202009) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

	2020-2021	2021	2020
BIOLOGICAL/BACTEOROLOGICAL			
DO_SAT%	6.56	4.64	
CHEMICAL			
BOD3-27	2.55	1.97	0.87
CO3	0.00	0.00	0.00
Ca	54.79	42.11	33.43
Cl	26.51	59.45	15.59
DO	5.78	4.63	5.72
HCO3	263.50	265.00	154.00
K			1.63
Mg	12.47	12.06	11.24
NO2+NO3	2.34	3.13	0.64
NO2-N	0.35	0.02	0.01
NO3-N	1.99	3.11	0.66
Na			7.03
P-Tot	0.55	0.58	0.66
SO4	12.90	11.58	29.42
SiO2	18.28	31.08	13.78
SiO3	18.27	31.08	13.78
o-PO4-P	0.55	0.58	0.66
CHEMICAL INDICES			
PESTICIDES			
PHYSICAL			
EC_GEN	409.75	419.00	281.15
TDS	278.75	320.25	165.45
Temp	19.25	22.88	26.25
Turb	11.25	14.42	162.05
pH_GEN	7.27	7.59	7.54
TRACE & TOXIC			

2.33 Sher at D/S Belkheri (Point of Sher before Conf. Narmada)

HISTORY SHEET (WATER QUALITY)					
			Water Year	:	2020 - 2021
Site	:	D/S Belkheri	**Code**	:	NDB-WQSS-202010
State	:	Madhya Pradesh	**District**		NARSIMHAPUR
Basin	:	Narmada	**Independent River**	:	Narmada
Tributary	:	Sher	**Sub Tributary**	:	-
Sub-Sub Tributary	:	-	**Local River**	:	Sher
Division	:	Narmada Division (ND), Bhopal	**Sub-Division**	:	Middle Narmada Sub-Division-I, Hosangabad
Drainage Area	:	*	**Bank**	:	Left
Latitude	:	23°00'48.0''	**Longitude**	:	79°50'33.0''
Current Zero of Gauge (m)	:	*			
CATEGORY		**Opening Date**	**Closing Date**		
Gauge	:	*			
Discharge	:	*			
Sediment	:	*			
Water Quality	:	**07/08/2020**			
Reduced Level		**Opening Date**	**Closing Date**		

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Datasheet for the period : 2020-21

Station Name : D/S Point of Sher before conf. Narmada (NDB-WQSS-202010) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

PARAMETERS	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
CHEMICAL										Due to Lockdown Sample Not Collected	Due to Lockdown Sample Not Collected
BOD3-27(mg/L)	0.61	0.61	1.00	2.10	1.28	0.61	0.60	1.71	3.24		
P-Tot(mgP/L)	0.90	0.23	0.03	0.06	0.41	0.03	0.55	0.56	0.51		
Mg(mg/L)	12.03	17.54	14.90	25.31	17.25	23.12	27.19	5.48	25.42		
SO4(mg/L)	34.78	12.02	0.03	8.09	5.48	7.52	8.16	3.86	6.04		
o-PO4-P(mg/L)	0.90	0.23	0.03	0.06	0.41	0.03	0.55	0.56	0.51		
Ca(mg/L)	25.50	23.00	41.90	45.62	70.78	43.93	68.34	41.51	43.14		
HCO3(mg/L)	136.00	161.00	199.00	256.00	335.00	349.00	320.00	290.00	315.00		
NO2+NO3(mgN/L)	0.90	1.31	0.70	0.15	0.44	1.25	1.06	0.82	0.05		
NO3-N(mgN/L)	0.90	1.36	0.65	0.09	0.44	1.20	0.95	0.80	0.03		
NO2-N(mgN/L)	0.00	0.01	0.05	0.06	0.00	0.05	0.11	0.02	0.02		
Cl(mg/L)	10.71	14.68	14.28	11.74	15.66	18.63	16.31	19.60	15.54		
CO3(mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
DO(mg/L)	5.45	6.06	6.26	7.57	8.58	5.89	8.00	10.40	10.08		
K(mg/L)	1.53	*	*	*	*	*	*	*	*		
Na(mg/L)	8.23	*	*	*	*	*	*	*	*		
SiO3(mg/L)		32.91	23.23	24.91	42.05	52.05	49.61	56.45	33.26		
SiO2(mg/L)		25.98	18.34	19.67	33.20	41.09	39.17	44.57	26.26		
TRACE & TOXIC											
PESTICIDES											
BIOLOGICAL/BACTEOROLOGICAL											
DO_SAT%(Percentage)											
PHYSICAL											
EC_GEN(µS/cm)	236.00	256.00	367.00	441.00	408.00	521.00	480.00	531.00	484.00		
TDS(mg/L)	148.00	87.00	238.00	277.00	345.00	268.00	335.00	332.00	267.00		
Turb(NTU)	0.00	41.00	6.00	6.00	7.00	6.00	6.00	6.00	6.00		
Temp(Degrees Celsius (ºC))	27.00	28.00	28.00	27.00	20.00	17.00	17.00	21.00	22.00		
pH_GEN(-)	7.61	7.76	7.89	7.76	7.40	7.54	7.32	7.46	7.66		
Odour_Code(-)	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free		
Colour_Cod(-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear and Dark Green	Clear	Clear		

Note - "*" Not analysed due to non working of instrument

Water Quality Summary for the period : 2020-21

Station Name : D/S Point of Sher before conf. Narmada (NDB-WQSS-202010) Division:Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)							
CHEMICAL							
P-Tot	9	0.90	0.03	0.36	0.39	0.26	0.53
NO2+NO3	9	1.31	0.05	0.74	0.97	0.73	0.44
Mg	9	27.19	5.48	18.69	14.82	23.22	15.45
DO	9	10.40	5.45	7.59	5.92	7.51	10.24
K	1	1.53	1.53	1.53	1.53		
CO3	9	0.00	0.00	0.00	0.00	0.00	0.00
SO4	9	34.78	0.03	9.55	15.61	7.31	4.95
SiO3	8	56.45	23.23	39.31	28.07	42.16	44.85
BOD3-27	9	3.24	0.60	1.31	0.74	1.15	2.47
Ca	9	70.78	23.00	44.86	30.13	57.17	42.32
SiO2	8	56.45	23.23	39.31	28.07	42.16	44.85
HCO3	9	349.00	136.00	262.33	165.33	315.00	302.50
NO2-N	9	0.11	0.00	0.04	0.02	0.05	0.02
Cl	9	19.60	10.71	15.24	13.22	15.58	17.57
o-PO4-P	9	0.90	0.03	0.36	0.39	0.26	0.53
NO3-N	9	1.36	0.03	0.71	0.97	0.67	0.41
Na	1	8.23	8.23	8.23	8.23		
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
DO_SAT%	4	10.40	5.89	8.59		6.94	10.24
PHYSICAL							
EC_GEN	9	531.00	236.00	413.78	286.33	462.50	507.50
TDS	9	345.00	87.00	255.22	157.67	306.25	299.50
pH_GEN	9	7.89	7.32	7.60	7.75	7.51	7.56
Turb	9	41.00	0.00	9.33	15.67	6.25	6.00
Temp	8	28.00	17.00	23.38	27.67	20.33	21.50
CHEMICAL INDICES							

Water Quality Seasonal Average for the period : 2019-2021

Station Name : D/S Point of Sher before conf. Narmada (NDB-WQSS-202010) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

	2020-2021	2021	2020
BIOLOGICAL/BACTEOROLOGICAL			
DO_SAT%	6.94	10.24	
CHEMICAL			
BOD3-27	1.15	2.47	0.74
CO3	0.00	0.00	0.00
Ca	57.17	42.33	30.13
Cl	15.58	17.57	13.22
DO	7.51	10.24	5.92
HCO3	315.00	302.50	165.33
K			1.53
Mg	23.22	15.45	14.82
NO2+NO3	0.73	0.44	0.97
NO2-N	0.05	0.02	0.02
NO3-N	0.67	0.42	0.97
Na			8.23
P-Tot	0.26	0.54	0.39
SO4	7.31	4.95	15.61
SiO2	42.16	44.85	28.07
SiO3	42.16	44.85	28.07
o-PO4-P	0.26	0.54	0.39
CHEMICAL INDICES			
PESTICIDES			
PHYSICAL			
EC_GEN	464.52	507.50	286.33
TDS	304.81	299.50	157.67
Temp	20.33	21.50	27.67
Turb	6.22	6.00	15.67
pH_GEN	7.51	7.56	7.75
TRACE & TOXIC			

2.34 Narmada at U/S Hoshangabad

HISTORY SHEET (WATER QUALITY)					
			Water Year	:	2020 - 2021
Site	:	U/S HOSHANGABAD	**Code**	:	NDB-WQSS-202011
State	:	Madhya Pradesh	**District**		HOSHANGABAD
Basin	:	Narmada	**Independent River**	:	Narmada
Tributary	:	Narmada	**Sub Tributary**	:	Narmada
Sub-Sub Tributary	:	Narmada	**Local River**	:	Narmada
Division	:	Narmada Division (ND), Bhopal	**Sub-Division**	:	Middle Narmada Sub-Division-I, Hosangabad
Drainage Area	:	*	**Bank**	:	Left
Latitude	:	22°46'26.0''	**Longitude**	:	77°45'31.0''
Current Zero of Gauge (m)	:	*			
CATEGORY		**Opening Date**	**Closing Date**		
Gauge	:	*			
Discharge	:	*			
Sediment	:	*			
Water Quality	:	**07/08/2020**			
Reduced Level		**Opening Date**	**Closing Date**		

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at U/S Hoshangabad (NDB-WQSS-202011) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

PARAMETERS	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
CHEMICAL											
Mg(mg/L)	9.73	2.47	19.46	11.53	14.91	9.71	4.49	5.39	15.82	8.30	5.07
HCO3(mg/L)	131.00	107.00	162.00	195.00	219.00	209.00	190.00	173.00	278.00	136.00	118.00
P-Tot(mgP/L)	1.42	0.32	0.05	0.07	0.30	0.02	0.28	0.10	0.50	0.07	0.05
Ca(mg/L)	25.40	19.00	34.10	37.81	31.40	32.83	45.86	18.84	29.95	26.21	28.83
SO4(mg/L)	40.46	17.25	4.43	6.97	6.31	6.28	11.39	5.62	6.33	5.74	4.60
NO3-N(mgN/L)	0.78	0.80	0.67	0.09	0.24	0.75	0.59	0.40	0.07	0.35	0.33
NO2-N(mgN/L)	0.02	0.05	0.05	0.05	0.07	0.19	0.15	0.02	0.01	0.02	0.02
CO3(mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NO2+NO3(mgN/L)	0.80	0.85	0.65	0.05	0.31	0.94	0.74	0.42	0.08	0.37	0.02
o-PO4-P(mg/L)	1.42	0.32	0.05	0.07	0.30	0.02	0.28	0.10	0.50	0.07	0.05
DO(mg/L)	6.26	5.05	7.27	7.36	7.97	7.92	7.80	8.72	8.37	3.76	4.27
K(mg/L)	2.75	*	*	*	*	*	*	*	*	*	*
Cl(mg/L)	8.93	8.39	14.28	13.70	15.66	12.42	18.35	15.70	25.25	13.59	17.48
Na(mg/L)	10.22	*	*	*	*	*	*	*	*	*	*
BOD3-27(mg/L)	0.61	0.81	1.41	0.61	1.83	0.82	0.80	1.88	0.68	1.20	1.19
SiO2(mg/L)		10.75	14.06	10.47	18.21	16.12	14.90	29.81	24.47	22.97	22.42
SiO3(mg/L)		13.62	17.81	13.26	23.06	20.42	18.87	37.76	31.00	29.10	28.40
TRACE & TOXIC											
PESTICIDES											
BIOLOGICAL/BACTEOROLOGICAL											
DO_SAT%(Percentage)											
PHYSICAL											
EC_GEN(µS/cm)	223.00	148.00	303.00	342.00	367.00	325.00	315.00	313.00	467.00	261.00	258.00
TDS(mg/L)	140.00	102.00	200.00	173.00	290.00	165.00	225.00	196.00	258.00	139.00	142.00
Turb(NTU)	0.00	421.00	22.00	10.00	7.00	6.00	7.00	7.00	7.00	10.00	7.00
pH_GEN(-)	7.67	7.33	7.91	7.96	7.64	7.76	7.69	7.59	7.19	7.78	7.72
Temp(Degrees Celsius (ºC))	25.00	27.00	28.00	26.00	26.00	17.00	19.00	23.00	26.00	24.00	24.00
Colour_Cod(-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Odour_Code(-)	Odour free	Odour free	Odour free	Odour free	Odour free	odour free	Odour free	Odour free	Odour free	Odour free	Odour free
Note - "*" Not analysed due to non working of instrument											

Water Quality Summary for the period : 2020-21

Station Name:Narmada at U/S Hoshangabad (NDB-WQSS-202011) Division: armada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)							
CHEMICAL							
P-Tot	11	1.42	0.02	0.29	0.60	0.17	0.18
Mg	11	19.46	2.47	9.72	10.55	10.16	8.65
NO2+NO3	11	0.94	0.02	0.48	0.77	0.51	0.22
DO	11	8.72	3.76	6.80	6.19	7.76	6.28
K	1	2.75	2.75	2.75	2.75		
CO3	11	0.00	0.00	0.00	0.00	0.00	0.00
SO4	11	40.46	4.43	10.49	20.71	7.74	5.57
SiO3	10	37.76	13.26	23.33	15.72	18.90	31.56
BOD3-27	11	1.88	0.61	1.08	0.94	1.01	1.24
Ca	11	45.86	18.84	30.02	26.17	36.98	25.96
SiO2	10	37.76	13.26	23.33	15.72	18.90	31.56
HCO3	10	278.00	107.00	170.90	133.33	201.33	176.25
NO2-N	11	0.19	0.01	0.06	0.04	0.12	0.02
Cl	11	25.25	8.39	14.89	10.53	15.03	18.00
o-PO4-P	11	1.42	0.02	0.29	0.60	0.17	0.18
NO3-N	11	0.80	0.07	0.46	0.75	0.42	0.29
Na	1	10.22	10.22	10.22	10.22		
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
DO_SAT%	6	8.72	3.76	6.81		7.86	6.28
PHYSICAL							
EC_GEN	11	467.00	148.00	302.00	224.67	337.25	324.75
TDS	11	290.00	102.00	184.55	147.33	213.25	183.75
pH_GEN	11	7.96	7.19	7.66	7.64	7.76	7.57
Turb	11	421.00	0.00	45.82	147.67	7.50	7.75
Temp	11	28.00	17.00	24.09	26.67	22.00	24.25
CHEMICAL INDICES							

Water Quality Seasonal Average for the period : 2019-2021

Station Name : Narmada at U/S Hoshangabad (NDB-WQSS-202011) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

	2020-2021	2021	2020
BIOLOGICAL/BACTEOROLOGICAL			
DO_SAT%	7.86	6.28	
CHEMICAL			
BOD3-27	1.02	1.24	0.94
CO3	0.00	0.00	0.00
Ca	37.05	25.96	26.17
Cl	15.08	18.01	10.53
DO	7.76	6.28	6.19
HCO3	201.33	176.25	133.33
K			2.75
Mg	10.17	8.65	10.55
NO2+NO3	0.50	0.22	0.77
NO2-N	0.11	0.02	0.04
NO3-N	0.41	0.29	0.75
Na			10.22
P-Tot	0.17	0.18	0.60
SO4	7.76	5.57	20.71
SiO2	18.88	31.57	15.71
SiO3	18.88	31.57	15.71
o-PO4-P	0.17	0.18	0.60
CHEMICAL INDICES			
PESTICIDES			
PHYSICAL			
EC_GEN	337.25	329.88	224.67
TDS	213.25	186.96	147.33
Temp	22.00	24.27	26.67
Turb	7.50	7.81	147.67
pH_GEN	7.76	7.56	7.64
TRACE & TOXIC			

2.35 Narmada at D/S Hoshangabad

HISTORY SHEET (WATER QUALITY)					
			Water Year	:	2020 - 2021
Site	:	D/S HOSHANGABAD	**Code**	:	NDB-WQSS-202012
State	:	Madhya Pradesh	**District**		SEHORE
Basin	:	Narmada	**Independent River**	:	Narmada
Tributary	:	Narmada	**Sub Tributary**	:	Narmada
Sub-Sub Tributary	:	Narmada	**Local River**	:	Narmada
Division	:	Narmada Division (ND), Bhopal	**Sub-Division**	:	Middle Narmada Sub-Division-I, Hosangabad
Drainage Area	:	*	**Bank**	:	Right
Latitude	:	22°45'27.0''	**Longitude**	:	77°41'17.0''
Current Zero of Gauge (m)	:	*			
CATEGORY		**Opening Date**	**Closing Date**		
Gauge	:	*			
Discharge	:	*			
Sediment	:	*			
Water Quality	:	**07/08/2020**			
Reduced Level		**Opening Date**	**Closing Date**		

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at D/S Hoshangabad (NDB-WQSS-202012) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

PARAMETERS	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
CHEMICAL											
NO2-N(mgN/L)	0.02	0.04	0.16	0.05	0.06	0.21	0.07	0.01	0.02	0.02	0.02
HCO3(mg/L)	117.00	993.00	162.00	205.00	200.00	200.00	158.00	168.00	174.00	127.00	15.54
NO3-N(mgN/L)	0.80	0.01	0.51	0.09	0.26	0.79	0.47	0.44	0.31	0.26	0.50
Cl(mg/L)	12.50	75.52	12.24	13.70	11.74	16.56	16.31	17.60	21.36	11.65	17.48
CO3(mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	127.00	0.00
DO(mg/L)	5.65	5.45	6.26	7.57	8.37	8.32	8.40	8.04	8.55	4.62	5.47
K(mg/L)	0.61	*	*	*	*	*	*	*	*	*	*
BOD3-27(mg/L)	0.60	0.40	0.80	1.03	8.37	0.81	1.60	1.71	1.37	0.69	0.85
o-PO4-P(mg/L)	1.32	0.24	0.09	0.10	0.33	0.02	0.20	0.09	0.09	0.05	0.10
Na(mg/L)	1.67	*	*	*	*	*	*	*	*	*	*
NO2+NO3(mgN/L)	0.82	0.05	0.67	0.14	0.32	1.00	0.54	0.45	0.33	0.28	0.52
Mg(mg/L)	10.10	6.95	13.59	12.09	10.03	8.91	4.82	5.48	8.22	7.34	4.72
Ca(mg/L)	25.40	18.10	31.10	34.37	40.00	29.38	43.12	17.22	31.36	25.63	31.16
SO4(mg/L)	57.17	10.14	11.25	6.31	6.87	23.55	9.33	5.62	6.04	4.58	6.32
P-Tot(mgP/L)	1.32	0.24	0.09	0.10	0.33	0.02	0.20	0.09	0.09	0.05	0.10
SiO3(mg/L)		14.90	17.17	10.14	23.70	22.41	20.09	35.40	35.34	28.59	34.20
SiO2(mg/L)		11.76	13.56	8.01	18.71	17.69	15.86	27.95	27.90	22.57	27.00
TRACE & TOXIC											
PESTICIDES											
BIOLOGICAL/BACTEOROLOGICAL											
DO_SAT%(Percentage)											
PHYSICAL											
TDS(mg/L)	124.00	94.00	205.00	181.00	221.00	160.00	181.00	185.00	170.00	148.00	197.00
EC_GEN(µS/cm)	199.00	194.00	310.00	339.00	341.00	309.00	254.00	298.00	310.00	253.00	349.00
pH_GEN(-)	7.70	7.01	7.72	8.00	7.65	7.73	7.66	7.77	7.30	7.11	7.86
Odour_Code(-)	Odour free	Odour free	Odour free	odour free	Odour free	odour free	Odour free	Odour free	Odour free	Odour free	Odour free
Colour_Cod(-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Turb(NTU)	0.00	393.00	30.00	6.00	7.00	5.00	99.00	11.00	7.00	10.00	8.00
Temp(Degrees Celsius (ºC))	25.00	27.00	28.00	26.00	24.00	17.00	19.00	23.00	26.00	30.00	24.00
Note - "*" Not analysed due to non working of instrument											

Water Quality Summary for the period : 2020-21

Station Name: Narmada at D/S Hoshangabad (NDB-WQSS-202012) Division:Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)							
CHEMICAL							
P-Tot	11	1.320	0.020	0.240	0.550	0.160	0.080
Mg	11	13.590	4.720	8.390	10.210	8.960	6.440
NO2+NO3	11	1.000	0.050	0.470	0.510	0.500	0.390
DO	11	8.550	4.620	6.970	5.790	8.160	6.670
K	1	0.610	0.610	0.610	0.610		
CO3	11	127.000	0.000	11.550	0.000	0.000	31.750
SO4	11	57.170	4.580	13.380	26.190	11.510	5.640
SiO3	10	35.400	10.140	24.190	16.030	19.080	33.380
BOD3-27	11	8.370	0.400	1.660	0.600	2.950	1.150
Ca	11	43.120	17.220	29.710	24.870	36.720	26.340
SiO2	10	35.400	10.140	24.190	16.030	19.080	33.380
HCO3	11	993.000	15.540	229.050	424.000	190.750	121.130
NO2-N	11	0.210	0.010	0.060	0.070	0.100	0.020
Cl	11	75.520	11.650	20.610	33.420	14.580	17.020
o-PO4-P	11	1.320	0.020	0.240	0.550	0.160	0.080
NO3-N	11	0.800	0.010	0.400	0.440	0.400	0.380
Na	1	1.670	1.670	1.670	1.670		
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
DO_SAT%	6	8.550	4.620	7.230		8.360	6.670
PHYSICAL							
EC_GEN	11	349.000	194.000	286.910	234.330	310.750	302.500
TDS	11	221.000	94.000	169.640	141.000	185.750	175.000
pH_GEN	11	8.000	7.010	7.590	7.480	7.760	7.510
Turb	11	393.000	0.000	52.360	141.000	29.250	9.000
Temp	11	30.000	17.000	24.450	26.670	21.500	25.750
CHEMICAL INDICES							

Water Quality Seasonal Average for the period : 2019-2021

Station Name Narmada at D/S Hoshangabad (NDB-WQSS-202012) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

	2020-2021	2021	2020
BIOLOGICAL/BACTEOROLOGICAL			
DO_SAT%	8.36	6.67	
CHEMICAL			
BOD3-27	2.95	1.15	0.60
CO3	0.00	31.75	0.00
Ca	36.72	26.34	24.87
Cl	14.58	17.02	33.42
DO	8.17	6.67	5.79
HCO3	190.75	121.14	424.00
K			0.61
Mg	8.96	6.44	10.21
NO2+NO3	0.50	0.40	0.51
NO2-N	0.10	0.02	0.07
NO3-N	0.40	0.38	0.44
Na			1.67
P-Tot	0.16	0.08	0.55
SO4	11.51	5.64	26.19
SiO2	19.09	33.38	16.03
SiO3	19.09	33.38	16.03
o-PO4-P	0.16	0.08	0.55
CHEMICAL INDICES			
PESTICIDES			
PHYSICAL			
EC_GEN	310.75	298.92	234.33
TDS	185.75	173.31	141.00
Temp	21.50	25.88	26.67
Turb	29.25	9.08	141.00
pH_GEN	7.76	7.48	7.48
TRACE & TOXIC			

2.36 Ganjal at Papan

HISTORY SHEET (WATER QUALITY)					
			Water Year	:	2020 - 2021
Site	:	PAPAN	**Code**	:	NDB-WQSS-202013
State	:	Madhya Pradesh	**District**		HARDA
Basin	:	Narmada	**Independent River**	:	Narmada
Tributary	:	Ganjal	**Sub Tributary**	:	-
Sub-Sub Tributary	:	-	**Local River**	:	Ganjal
Division	:	Narmada Division (ND), Bhopal	**Sub-Division**	:	Middle Narmada Sub-Division-II, Bhopal
Drainage Area	:	*	**Bank**	:	Left
Latitude	:	22°33'42.0''	**Longitude**	:	77°12'49.0''
Current Zero of Gauge (m)	:	*			
CATEGORY		**Opening Date**	**Closing Date**		
Gauge	:	*			
Discharge	:	*			
Sediment	:	*			
Water Quality	:	**07/08/2020**			
Reduced Level		**Opening Date**	**Closing Date**		

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Datasheet for the period : 2020-21

Station Name : Ganjal at Papan (NDB-WQSS-202013) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

PARAMETERS	07/08/2020 to 01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
CHEMICAL	Sample Not Collected due to unavailability of staff			Due to Lockdown Sample Not Collected	Due to Lockdown Sample Not Collected
NO2+NO3(mgN/L)		3.77	2.00		
DO(mg/L)		11.50	10.94		
o-PO4-P(mg/L)		0.66	0.52		
SiO2(mg/L)		21.71	29.66		
SiO3(mg/L)		27.50	37.57		
BOD3-27(mg/L)		2.23	4.96		
SO4(mg/L)		25.30	21.70		
Mg(mg/L)		7.51	20.97		
Ca(mg/L)		26.35	36.48		
HCO3(mg/L)		313.00	306.00		
P-Tot(mgP/L)		0.66	0.52		
NO2-N(mgN/L)		0.06	0.05		
NO3-N(mgN/L)		3.71	1.95		
Cl(mg/L)		25.50	21.36		
CO3(mg/L)		0.00	0.00		
TRACE & TOXIC					
PESTICIDES					
BIOLOGICAL/BACTEOROLOGICAL					
DO_SAT%(Percentage)					
PHYSICAL					
Turb(NTU)		6.00	6.00		
Odour_Code(-)		Odour free	Odour free		
Colour_Cod(-)		Clear	Clear		
EC_GEN(µS/cm)		663.00	520.00		
pH_GEN(-)		7.71	7.23		
TDS(mg/L)		405.00	294.00		
Temp(Degrees Celsius (ºC))		22.00	23.00		
CHEMICAL INDICES					

Water Quality Summary for the period : 2020-21

Station Name : Ganjal at Papan (NDB-WQSS-202013) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)							
CHEMICAL							
P-Tot	2	0.66	0.52	0.59			0.59
NO2+NO3	2	3.77	2.00	2.88			2.88
Mg	2	20.97	7.51	14.24			14.24
HCO3	2	313.00	306.00	309.50			309.50
DO	2	11.50	10.94	11.22			11.22
CO3	2	0.00	0.00	0.00			0.00
SO4	2	25.30	21.70	23.50			23.50
SiO3	2	37.57	27.50	32.53			32.53
NO2-N	2	0.06	0.05	0.05			0.05
BOD3-27	2	4.96	2.23	3.60			3.60
SiO2	2	37.57	27.50	32.53			32.53
Cl	2	25.50	21.36	23.43			23.43
Ca	2	36.48	26.35	31.42			31.42
NO3-N	2	3.71	1.95	2.83			2.83
o-PO4-P	2	0.66	0.52	0.59			0.59
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
DO_SAT%	2	11.50	10.94	11.22			11.22
PHYSICAL							
Turb	2	6.00	6.00	6.00			6.00
EC_GEN	2	663.00	520.00	591.50			591.50
TDS	2	405.00	294.00	349.50			349.50
pH_GEN	2	7.71	7.23	7.47			7.47
Temp	1	23.00	23.00	23.00			23.00
CHEMICAL INDICES							

Water Quality Seasonal Average for the period : 2019-2021

Station Name : Ganjal at Papan (NDB-WQSS-202013) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

	2021
BIOLOGICAL/BACTEOROLOGICAL	
DO_SAT%	11.22
CHEMICAL	
BOD3-27	3.60
CO3	0.00
Ca	31.41
Cl	23.43
DO	11.22
HCO3	309.50
Mg	14.24
NO2+NO3	2.88
NO2-N	0.05
NO3-N	2.83
P-Tot	0.59
SO4	23.50
SiO2	32.54
SiO3	32.54
o-PO4-P	0.59
CHEMICAL INDICES	
PESTICIDES	
PHYSICAL	
EC_GEN	586.00
TDS	345.23
Temp	23.00
Turb	6.00
pH_GEN	7.45
TRACE & TOXIC	

2.37 Narmada at Mortakka

HISTORY SHEET (WATER QUALITY)					
			Water Year	:	2020 - 2021
Site	:	MORTAKKA	**Code**	:	NDB-WQSS-202014
State	:	Madhya Pradesh	**District**		Khandwa
Basin	:	Narmada	**Independent River**	:	Narmada
Tributary	:	Narmada	**Sub Tributary**	:	Narmada
Sub-Sub Tributary	:	Narmada	**Local River**	:	Narmada
Division	:	Narmada Division (ND), Bhopal	**Sub-Division**	:	Middle Narmada Sub-Division-III, Indore
Drainage Area	:	67184 sq.km.	**Bank**	:	Left
Latitude	:	22°13'24.0''	**Longitude**	:	76°20'28.0''
Current Zero of Gauge (m)	:	153.000 M			
CATEGORY		**Opening Date**	**Closing Date**		
Gauge	:	23.08.1999			
Discharge	:	*			
Sediment	:	*			
Water Quality	:	**07/08/2020**			
Reduced Level		**Opening Date**	**Closing Date**		

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Datasheet for the period : 2020-21

Station Name : Narmada at Mortakka (NDB-WQSS-202014) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

PARAMETERS	07/08/2020	01/09/2020	05/10/2020	02/11/2020 to 05/04/2021	22/05/2021
CHEMICAL				Sample Not Collected Due to Unavailability Of Staff	
o-PO4-P(mg/L)	0.17	0.39	0.18		0.31
Na(mg/L)	19.86	*	*		*
NO2+NO3(mgN/L)	1.40	2.26	1.55		1.40
BOD3-27(mg/L)	1.01	2.02	1.21		2.05
Mg(mg/L)	16.44	8.77	8.57		11.27
SO4(mg/L)	57.05	11.67	10.59		8.89
P-Tot(mgP/L)	0.17	0.39	0.18		0.31
Ca(mg/L)	28.10	22.70	37.20		25.04
NO3-N(mgN/L)	1.38	2.19	1.52		1.38
NO2-N(mgN/L)	0.02	0.07	0.03		0.02
HCO3(mg/L)	178.00	112.00	232.00		221.00
DO(mg/L)	7.07	5.86	7.88		7.35
K(mg/L)	2.49	*	*		*
CO3(mg/L)	0.00	0.00	0.00		0.00
Cl(mg/L)	16.07	8.39	22.45		25.25
SiO2(mg/L)		12.81	18.81		28.85
SiO3(mg/L)		16.23	23.82		36.54
TRACE & TOXIC					
PESTICIDES					
BIOLOGICAL/BACTEOROLOGICAL					
DO_SAT%(Percentage)					
PHYSICAL					
Odour_Code(-)	Odour free	Odour free	Odour free		Odour free
Colour_Cod(-)	Clear	Clear	Clear		Clear and Dark Green
Temp(Degrees Celsius (ºC))	28.00	26.00	26.00		28.50
Turb(NTU)	0.00	817.00	45.00		226.00
TDS(mg/L)	196.00	100.00	299.00		226.00
pH_GEN(-)	7.43	7.40	7.87		7.84
EC_GEN(µS/cm)	314.00	173.00	464.00		448.00
Note - "*" Not analysed due to non working of instrument					

Water Quality Summary for the period : 2020-21

Station Name : Narmada at Mortakka (NDB-WQSS-202014) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)							
CHEMICAL							
P-Tot	4	0.39	0.17	0.26	0.25		0.31
NO2+NO3	4	2.26	1.40	1.65	1.74		1.40
Mg	4	16.44	8.57	11.26	11.26		11.27
DO	4	7.88	5.86	7.04	6.94		7.35
K	1	2.49	2.49	2.49	2.49		
CO3	4	0.00	0.00	0.00	0.00		0.00
SO4	4	57.05	8.89	22.05	26.44		8.89
SiO3	3	36.54	16.23	25.53	20.02		36.54
BOD3-27	4	2.05	1.01	1.57	1.41		2.05
Ca	4	37.20	22.70	28.26	29.33		25.04
SiO2	3	36.54	16.23	25.53	20.02		36.54
HCO3	4	232.00	112.00	185.75	174.00		221.00
NO2-N	4	0.07	0.02	0.04	0.04		0.02
Cl	4	25.25	8.39	18.04	15.64		25.25
NO3-N	4	2.19	1.38	1.62	1.70		1.38
Na	1	19.86	19.86	19.86	19.86		
o-PO4-P	4	0.39	0.17	0.26	0.25		0.31
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
DO_SAT%	1	7.35	7.35	7.35			7.35
PHYSICAL							
EC_GEN	4	464.00	173.00	349.75	317.00		448.00
TDS	4	299.00	100.00	205.25	198.33		226.00
pH_GEN	4	7.87	7.40	7.64	7.57		7.84
Turb	4	817.00	0.00	272.00	287.33		226.00
Temp	4	28.50	26.00	27.12	26.67		28.50
CHEMICAL INDICES							

Water Quality Seasonal Average for the period : 2019-2021

Station Name : Narmada at Mortakka (NDB-WQSS-202014) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

	2021	2020
BIOLOGICAL/BACTEOROLOGICAL		
DO_SAT%	7.35	
CHEMICAL		
BOD3-27	2.05	1.41
CO3	0.00	0.00
Ca	25.04	29.33
Cl	25.25	15.64
DO	7.35	6.94
HCO3	221.00	174.00
K		2.49
Mg	11.27	11.26
NO2+NO3	1.40	1.74
NO2-N	0.02	0.04
NO3-N	1.38	1.70
Na		19.86
P-Tot	0.31	0.25
SO4	8.89	26.44
SiO2	36.54	20.03
SiO3	36.54	20.03
o-PO4-P	0.31	0.25
CHEMICAL INDICES		
PESTICIDES		
PHYSICAL		
EC_GEN	448.00	317.00
TDS	226.00	198.33
Temp	28.50	26.67
Turb	226.00	287.33
pH_GEN	7.84	7.57
TRACE & TOXIC		

2.38 Narmada at U/S Mandleshwar

HISTORY SHEET (WATER QUALITY)					
			Water Year	:	2020 - 2021
Site	:	U/S MANDLESHWR	**Code**	:	NDB-WQSS-202015
State	:	Madhya Pradesh	**District**		Khargone
Basin	:	Narmada	**Independent River**	:	Narmada
Tributary	:	Narmada	**Sub Tributary**	:	Narmada
Sub-Sub Tributary	:	Narmada	**Local River**	:	Narmada
Division	:	Narmada Division (ND), Bhopal	**Sub-Division**	:	Middle Narmada Sub-Division-III, Indore
Drainage Area	:	*	**Bank**	:	Right
Latitude	:	22°90'35.0''	**Longitude**	:	75°40'48.0''
Current Zero of Gauge (m)	:	*			
CATEGORY		**Opening Date**	**Closing Date**		
Gauge	:	*			
Discharge	:	*			
Sediment	:	*			
Water Quality	:	**07/08/2020**			
Reduced Level		**Opening Date**	**Closing Date**		

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Datasheet for the period : 2020-21

Station Name :Narmada at U/S Mandleshwar (NDB-WQSS-202015) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

PARAMETERS	07/08/2020	01/09/2020	05/10/2020	02/11/2020	01/12/2020	01/01/2021	01/02/2021	01/03/2021	05/04/2021	03/05/2021	22/05/2021
CHEMICAL											
NO2+NO3(mgN/L)	0.62	1.99	1.68	0.34	0.35	1.13	0.64	0.56	0.36	0.42	0.42
DO(mg/L)	4.64	5.86	5.86	5.93	6.54	7.92	7.80	6.84	7.18	3.59	3.93
K(mg/L)	2.84	*	*	*	*	*	*	*	*	*	*
BOD3-27(mg/L)	0.81	1.01	0.80	1.64	0.97	0.61	1.20	1.03	1.20	0.51	0.68
Na(mg/L)	15.61	*	*	*	*	*	*	*	*	*	*
SO4(mg/L)	52.79	11.11	22.92	7.42	6.59	27.25	12.86	7.10	7.51	8.34	4.89
HCO3(mg/L)	150.00	112.00	163.00	149.00	167.00	177.00	167.00	173.00	151.00	169.00	160.00
P-Tot(mgP/L)	0.29	0.26	0.15	0.46	0.24	0.05	0.21	0.11	0.08	0.11	0.92
Mg(mg/L)	14.51	7.05	14.62	13.03	10.12	8.28	9.32	4.50	11.29	7.34	11.62
Ca(mg/L)	24.40	22.70	31.20	34.37	39.68	29.98	35.63	19.43	24.32	32.47	34.94
CO3(mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NO3-N(mgN/L)	0.60	1.99	1.66	0.09	0.20	0.73	0.63	0.55	0.34	0.41	0.40
NO2-N(mgN/L)	0.02	0.00	0.02	0.25	0.15	0.40	0.01	0.01	0.02	0.01	0.02
Cl(mg/L)	16.07	58.74	22.45	25.44	15.66	14.49	16.31	19.60	17.48	13.59	15.54
o-PO4-P(mg/L)	0.29	0.26	0.15	0.46	0.24	0.05	0.21	0.11	0.08	0.11	0.92
SiO3(mg/L)		19.56	16.69	12.48	17.37	18.63	21.43	27.57	28.88	33.14	28.92
SiO2(mg/L)		15.44	13.18	9.85	13.71	14.71	16.92	21.77	22.80	26.16	22.83
TRACE & TOXIC											
PESTICIDES											
BIOLOGICAL/BACTEOROLOGICAL											
DO_SAT%(Percentage)											
PHYSICAL											
Temp(Degrees Celsius (ºC))	28.00	27.00	26.00	26.00	24.00	20.50	21.00	24.00	25.00	25.00	29.40
Odour_Code(-)	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free
Turb(NTU)	0.00	621.00	26.00	6.00	6.00	7.00	9.00	6.00	6.00	6.00	9.00
Colour_Cod(-)	Brown and Muddy	Clear	Clear	Brown and Muddy	Clear	Clear	Clear	Clear	Clear	Clear	Clear
pH_GEN(-)	7.67	7.47	7.82	8.00	7.50	7.78	7.53	7.53	7.10	7.02	7.00
EC_GEN(µS/cm)	277.00	186.00	358.00	278.00	296.00	279.00	269.00	338.00	284.00	326.00	304.00
TDS(mg/L)	173.00	230.00	232.00	167.00	183.00	145.00	190.00	213.00	155.00	170.00	155.00
Note - "*" Not analysed due to non working of instrument											

Water Quality Summary for the period : 2020-21

Station Name : Narmada at U/S Mandleshwar (NDB-WQSS-202015) Division:Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)							
CHEMICAL							
P-Tot	11	0.92	0.05	0.26	0.23	0.24	0.31
NO2+NO3	11	1.99	0.34	0.77	1.43	0.61	0.44
Mg	11	14.62	4.50	10.15	12.06	10.19	8.69
DO	11	7.92	3.59	6.01	5.45	7.05	5.39
K	1	2.84	2.84	2.84	2.84		
CO3	11	0.00	0.00	0.00	0.00	0.00	0.00
SO4	11	52.79	4.89	15.34	28.94	13.53	6.96
SiO3	10	33.14	12.48	22.47	18.12	17.48	29.63
BOD3-27	11	1.64	0.51	0.95	0.87	1.11	0.86
Ca	11	39.68	19.43	29.92	26.10	34.92	27.79
SiO2	10	33.14	12.48	22.47	18.12	17.48	29.63
HCO3	11	177.00	112.00	158.00	141.67	165.00	163.25
NO2-N	11	0.40	0.00	0.08	0.01	0.20	0.01
Cl	11	58.74	13.59	21.40	32.42	17.98	16.55
o-PO4-P	11	0.92	0.05	0.26	0.23	0.24	0.31
NO3-N	11	1.99	0.09	0.69	1.42	0.41	0.43
Na	1	15.61	15.61	15.61	15.61		
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
DO_SAT%	6	7.92	3.59	6.21		7.86	5.39
PHYSICAL							
EC_GEN	11	358.00	186.00	290.45	273.67	280.50	313.00
TDS	11	232.00	145.00	183.00	211.67	171.25	173.25
pH_GEN	11	8.00	7.00	7.49	7.65	7.70	7.16
Turb	11	621.00	0.00	63.82	215.67	7.00	6.75
Temp	11	29.40	20.50	25.08	27.00	22.88	25.85
CHEMICAL INDICES							

Water Quality Seasonal Average for the period : 2019-2021

Station Name : Narmada at U/S Mandleshwar (NDB-WQSS-202015) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

	2020-2021	2021	2020
BIOLOGICAL/BACTEOROLOGICAL			
DO_SAT%	7.86	5.39	
CHEMICAL			
BOD3-27	1.11	0.85	0.87
CO3	0.00	0.00	0.00
Ca	34.92	27.79	26.10
Cl	17.97	16.55	32.42
DO	7.05	5.38	5.45
HCO3	165.00	163.25	141.67
K			2.84
Mg	10.19	8.69	12.06
NO2+NO3	0.61	0.44	1.43
NO2-N	0.20	0.01	0.01
NO3-N	0.41	0.42	1.42
Na			15.61
P-Tot	0.24	0.30	0.23
SO4	13.53	6.96	28.94
SiO2	17.48	29.63	18.12
SiO3	17.48	29.63	18.12
o-PO4-P	0.24	0.30	0.23
CHEMICAL INDICES			
PESTICIDES			
PHYSICAL			
EC_GEN	280.50	313.00	273.67
TDS	171.25	173.25	211.67
Temp	22.88	25.85	27.00
Turb	7.00	6.75	215.67
pH_GEN	7.70	7.16	7.65
TRACE & TOXIC			

2.39 Uri at Dhulsar

HISTORY SHEET (WATER QUALITY)					
			Water Year	:	2020 - 2021
Site	:	DHULSAR	**Code**	:	NDB-WQSS-202016
State	:	Madhya Pradesh	**District**		DHAR
Basin	:	Narmada	**Independent River**	:	Narmada
Tributary	:	Uri	**Sub Tributary**	:	Uri
Sub-Sub Tributary	:	Uri	**Local River**	:	Uri
Division	:	Narmada Division(ND), Bhopal	**Sub-Division**	:	Middle Narmada Sub-Division-III, Indore
Drainage Area	:	787 sq/km	**Bank**	:	Right
Latitude	:	22°12'28.0''	**Longitude**	:	74°52'9.0''
Current Zero of Gauge (m)	:	151.000 M			
CATEGORY		**Opening Date**	**Closing Date**		
Gauge	:	15.03.1999			
Discharge	:	15.03.1999			
Sediment	:	NA			
Water Quality	:	**07/08/2020**			
Reduced Level		**Opening Date**	**Closing Date**		

Water Quality Datasheet for the period: 2020-21

Station Name : Uri at Dhulsar (NDB-WQSS-202016) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Analysis

PARAMETERS	07/08/2020	01/09/2020	05/10/2020	02/11/2020 to 22/05/2021
CHEMICAL				Sample not collected due to Unavailability of Staff
Mg(mg/L)	17.08	22.78	22.44	
HCO3(mg/L)	164.00	205.00	242.00	
P-Tot(mgP/L)	0.49	0.28	0.03	
Ca(mg/L)	30.90	35.40	45.00	
SO4(mg/L)	113.57	26.93	29.53	
NO3-N(mgN/L)	0.42	3.90	0.93	
NO2-N(mgN/L)	0.02	0.04	0.13	
CO3(mg/L)	0.00	0.00	0.00	
NO2+NO3(mgN/L)	0.44	3.94	1.06	
o-PO4-P(mg/L)	0.49	0.28	0.03	
DO(mg/L)	3.03	7.68	6.06	
K(mg/L)	1.63	*	*	
Cl(mg/L)	30.36	27.27	48.98	
Na(mg/L)	29.28	*	*	
BOD3-27(mg/L)	2.63	1.41	0.40	
SiO3(mg/L)		45.79	33.58	
SiO2(mg/L)		36.15	26.51	
TRACE & TOXIC				
PESTICIDES				
BIOLOGICAL/BACTEOROLOGICAL				
PHYSICAL				
EC_GEN(µS/cm)	376.00	424.00	550.00	
TDS(mg/L)	236.00	227.00	356.00	
Turb(NTU)	0.00	128.00	6.00	
pH_GEN(-)	7.20	7.97	7.91	
Odour_Code(-)	Odour free	Odour free	Odour free	
Temp(Degrees Celsius (ºC))	33.00	29.00	28.00	
Colour_Cod(-)	Clear	Clear	Clear	
Note - "*" Not analysed due to non working of instrument				

Water Quality Summary for the period : 2020-21

Station Name : Uri at Dhulsar (NDB-WQSS-202016) Division : Narmada Division, Bhopal

Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water Summary

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)
Q (cumec)					
CHEMICAL					
NO2+NO3	3	3.94	0.44	1.81	1.81
Mg	3	22.78	17.08	20.77	20.77
DO	3	7.68	3.03	5.59	5.59
K	1	1.63	1.63	1.63	1.63
CO3	3	0.00	0.00	0.00	0.00
SO4	3	113.57	26.93	56.68	56.68
BOD3-27	3	2.63	0.40	1.48	1.48
P-Tot	3	0.49	0.03	0.27	0.27
SiO3	2	45.79	33.58	39.69	39.69
SiO2	2	45.79	33.58	39.69	39.69
NO2-N	3	0.13	0.02	0.06	0.06
HCO3	3	242.00	164.00	203.67	203.67
Cl	3	48.98	27.27	35.54	35.54
Ca	3	45.00	30.90	37.10	37.10
Na	1	29.28	29.28	29.28	29.28
o-PO4-P	3	0.49	0.03	0.27	0.27
NO3-N	3	3.90	0.42	1.75	1.75
TRACE & TOXIC					
PESTICIDES					
BIOLOGICAL/BACTEOROLOGICAL					
PHYSICAL					
EC_GEN	3	550.00	376.00	450.00	450.00
pH_GEN	3	7.97	7.20	7.69	7.69
Turb	3	128.00	0.00	44.67	44.67
TDS	3	356.00	227.00	273.00	273.00
Temp	3	33.00	28.00	30.00	30.00
CHEMICAL INDICES					

Water Quality Seasonal Average for the period: 2019-2021

Station Name : Uri at Dhulsar (NDB-WQSS-202016) Division : Narmada Division, Bhopal

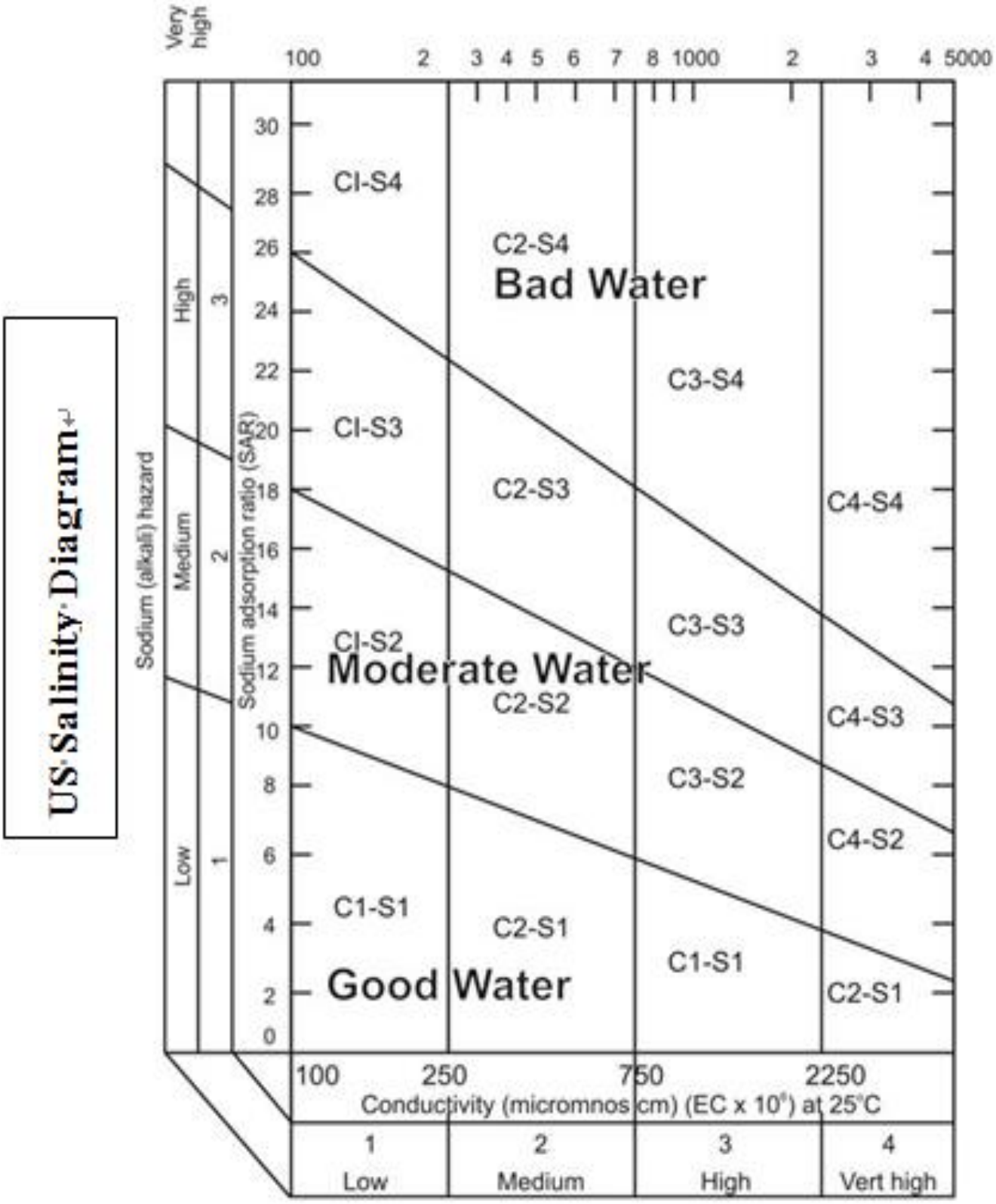
Local River : Narmada Sub-Division : UNSD, Jabalpur

River Water

	2020
BIOLOGICAL/BACTEOROLOGICAL	
CHEMICAL	
BOD3-27	1.48
CO3	0.00
Ca	37.10
Cl	35.54
DO	5.59
HCO3	203.67
K	1.63
Mg	20.77
NO2+NO3	1.81
NO2-N	0.06
NO3-N	1.75
Na	29.28
P-Tot	0.27
SO4	56.68
SiO2	39.68
SiO3	39.68
o-PO4-P	0.27
CHEMICAL INDICES	
PESTICIDES	
PHYSICAL	
EC_GEN	450.00
TDS	273.00
Temp	30.00
Turb	44.67
pH_GEN	7.69
TRACE & TOXIC	

Annexure 1 U. S. Salinity diagram

U. S. Salinity diagram for the classification of irrigation of water



Annexure 2 Tolerance Limits as prescribed by the Bureau of Indian Standards (2296:1992)

Characteristics	Designated best use				
	A	B	C	D	E
Dissolved Oxygen (DO)mg/l, min	6	5	4	4	-
Biochemical Oxygen demand (BOD)mg/l, max	2	3	3	-	-
Total coliform organisms MPN/100ml, max	50	500	5,000	-	-
pH value	6.5-8.5	6.5-8.5	6.0-9.0	6.5-8.5	6.0-8.5
Colour, Hazen units, max.	10	300	300	-	-
Odour	Un-objectionable			-	-
Taste	Tasteless	-	-	-	-
Total dissolved solids, mg/l, max.	500	-	1,500	-	2,100
Total hardness (as CaCO3), mg/l, max.	200	-	-	-	-
Calcium hardness (as CaCO3), mg/l, max.	200	-	-	-	-
Magnesium hardness (as CaCO3), mg/l, max.	200	-	-	-	-
Copper (as Cu), mg/l, max.	1.5	-	1.5	-	-
Iron (as Fe), mg/l, max.	0.3	-	0.5	-	-
Manganese (as Mn), mg/l, max.	0.5	-	-	-	-
Cholorides (as Cu), mg/l, max.	250	-	600	-	600
SulpHates (as SO4), mg/l, max.	400	-	400	-	1,000
Nitrates (as NO3), mg/l, max.	20	-	50	-	-
Fluorides (as F), mg/l, max.	1.5	1.5	1.5	-	-
PHenolic compounds (as C2H5OH), mg/l, max.	0.002	0.005	0.005	-	-
Mercury (as Hg), mg/l, max.	0.001	-	-	-	-
Cadmium (as Cd), mg/l, max.	0.01	-	0.01	-	-
Salenium (as Se), mg/l, max.	0.01	-	0.05	-	-
Arsenic (as As), mg/l, max.	0.05	0.2	0.2	-	-
Cyanide (as Pb), mg/l, max.	0.05	0.05	0.05	-	-
Lead (as Pb), mg/l, max.	0.1	-	0.1	-	-
Zinc (as Zn), mg/l, max.	15	-	15	-	-
Chromium (as Cr6+), mg/l, max.	0.05	-	0.05	-	-
Anionic detergents (as MBAS), mg/l, max.	0.2	1	1	-	-
Barium (as Ba), mg/l, max.	1	-	-	-	-
Free Ammonia (as N), mg/l, max	-	-	-	1.2	-
Electrical conductivity, micromhos/cm, max	-	-	-	-	2,250
Sodium absorption ratio, max	-	-	-	-	26
Boron, mg/l, max	-	-	-	-	2