Government of India

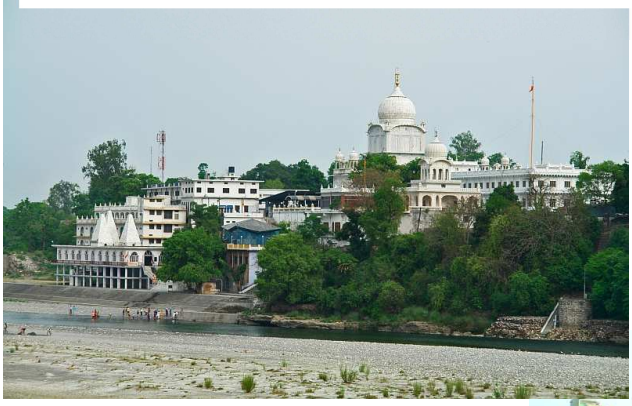
Ministry of Water Resource,

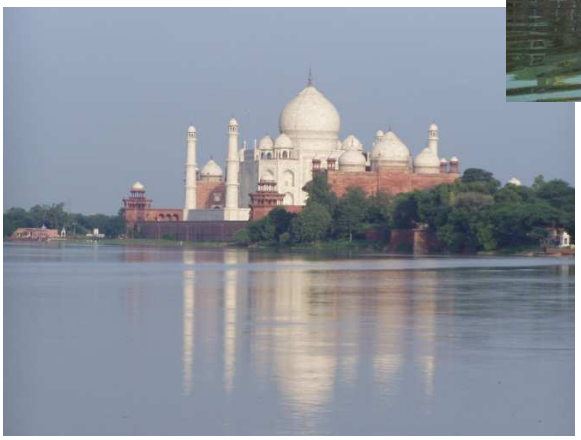
River Development and Ganga Rejuvenation

# WATER QUALITY YEAR BOOK

## YAMUNA BASIN

## 2016-17





**National River Water Quality Laboratory**

**Central Water Commission**

**New Delhi**

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# Government of India
# Ministry of Water Resources, RD & GR
# CENTRAL WATER COMMISSION

# WATER QUALITY YEAR BOOK
# Yamuna Basin
## 2016-2017


**Hydrological Observation Circle**

**National River Water Quality Laboratory**

**B-5 Kalindi Bhawan, Tara Crescent Road**
**Qutub Institutional Area,**
**New Delhi**

# PREFACE

**W**ater is essential for sustaining life and development. However, the variation in rainfall, rapid growth in population, increased urbanization, intensive use of fertilizers in agriculture, unplanned industrial growth, all have contributed in putting great stress on the availability of water both in terms of quantity and quality. Planning of water resources for the future development, thus, calls for careful monitoring of this precious resource both in qualitative and quantitative terms for various uses e.g. drinking, agricultural, recreational, industrial etc.

Lesser availability of fresh waters and entry of larger quantum of pollutants into the river systems in the recent past have put considerable strain on their self-assimilation capacity. The status of pollution and the effect of pollutants change with the seasonal flows. Evaluation of fitness of water for various uses, therefore, requires monitoring of water quality at various locations of the rivers.

Central Water Commission is maintaining a large network of Water Quality Monitoring stations maintained at the strategic points on all the important rivers in India. There are three categories of laboratories viz. Level I, Level II and Level III covering the water quality-monitoring network. Level I laboratories are established at the monitoring stations for highly time sensitive parameters such as dissolved oxygen, pH, electrical conductivity, total dissolved solids, colour, odour and temperature of water. Parameters, which can tolerate a time lag of 6-24 hours, are analyzed in Level II divisional laboratories. For this purpose, samples are transported under ice-cooled conditions to minimize physico-chemical and bio-chemical interaction between suspended and soluble matter. The level III laboratories are basically regional laboratories with more sophisticated equipment covering analysis parameters viz. toxic and trace element and pesticides, which can tolerate time lag, even if more than 24 hours, with chemical stabilization. The level III (Regional laboratory) have very sophisticated equipment supported by automation. At present there are 39 Level I, one Level II and one National level laboratory in Yamuna basin.

The present Water Quality Year Book 2016-2017 of Yamuna Basin is an outcome of sincere efforts made by the Dr Jakir Hussain, Research Officer & In charge of National River Water Quality Laboratory, New Delhi and Mrs. Anjali Chauhan Junior Computor, Upper Yamuna Division, New Delhi. I hope the present publication would be quite useful to various organizations.

**(Ajay Kumar)**
Superintending Engineer
Hydrological Observations Circle, CWC, Ghaziabad

# ACKNOWLEDGMENT

This publication is the outcome of the joint efforts put in by the staff at sites under the three divisions, who has collected the samples and followed the guidelines for collection, storage and transportation of samples. Thanks are due to the entire sub divisional officers who made the system smooth and guided the site staff. Thanks are also due to the laboratory staff in the divisions at Agra, Jaipur and at Delhi who analyzed the samples as per the prescribed methods

The water quality monitoring does not end with analysis of samples. There are always some anomalies in the results, which creep up inadvertently during analysis or calculations. Following the principles of chemistry, flow and local conditions, the variations in data, have to be substantiated, failing which, the source of errors have to be traced & errors are rectified by reconciliation. This is a demanding work before the final printout. I express my thanks to Mrs. Anjali Chauhan Upper Yamuna Division, New Delhi who made an enormous effort in giving the present shape of Water Quality Year Book 2016-2017.

Above all, I express my sincere thanks to Superintending Engineer, Hydrological Observation Circle, Ghaziabad for constructive guidance on different aspects of presentation of data.

**Dr. Jakir Hussain**
**Research Officer (In charge)**
**Quality & Technical Manager**
**National River Water Quality Laboratory**
**New Delhi**

# ABBREVIATIONS USED

| | |
|---|---|
| $^0C$ | Temperature in degree Celsius |
| BOD | Bio-Chemical Oxygen Demand |
| C/L | Central Line |
| $C_1 S^1$, $C_2 S_2$, $C_3 S_3$, $C_4S_4$ etc. | Classification as per U.S. Salinity Hazards |
| $Ca^{++}$ | Calcium ion |
| CD | Chambal Division |
| $CO_3^{--}$ | Carbonate ion |
| COD | Chemical Oxygen Demand |
| D/S | Down Stream |
| DO | Dissolved oxygen |
| EC | Electrical Conductance |
| $HCO_3^-$ | Bicarbonate ion |
| HOC | Hydrological Observation Circle |
| K | Temperature in Kelvin |
| $K^+$ | Potassium ion |
| Km | Kilometer |
| LYD | Lower Yamuna Division |
| meq/l | Milli Equivalent/litre. |
| $Mg^{++}$ | Magnesium ion |
| $Na^+$ | Sodium ion |
| pH | Negative logarithm of Hydrogen ion concentration |
| ppm | Part Per Million i.e mg/l |
| Q | Discharge in Cumecs |
| RSC | Residual Sodium Carbonate |
| SAR | Sodium Adsorption Ratio |
| SP | Sodium Percentage |
| TOC | Total Organic Carbon |
| U/S | Up Stream |
| UYD | Upper Yamuna Division |
| WQ | Water Quality |

# INDEX

# INTRODUCTION

For any nation to progress, it is imperative that its resources are optimally used with a goal on long-term utilization. Like other resources, the water resources also play a very vital role in the progress of a country. Proper planning should always precede the utilization and similarly, the monitoring of resources precedes the planning. India, in totality is blissfully endowed with large water resources of good potable surface water in the shape of large rivers and lakes. Inspite of their uneven distribution in time & space, these resources have greatly contributed to the development in India. Considerable tapping of river water resources has been done after the independence.

Central Water Commission, an apex organization under the Ministry of Water Resources has been working overtime in the monitoring and development of water resources. Many a great rivers have been tapped for hydel generation and increasing the irrigation potential.

At present, most of the good potential sites for storage of surface water have been utilized. With the increase in industries and population, environmental protection against pollution in natural water resources has become essential for optimum planning of water resources. The irony is that pollution increases when the quantity of available water decreases during lean summer seasons. The monitoring of surface water has become crucial during lean period also especially for assessment of the assimilation capacity of river.

In fact, Central Water Commission is monitoring the quality of surface flowing water for the last five decades. The data collected at different locations in the basin is brought out in the form of water quality yearbooks with facts and figures. In the federal democratic system of governance in India, the control of pollution of natural resources has been assigned to the Ministry of Environment and Forests which has set up Central and State Pollution Control Boards. On many occasions, the two organizations have worked in tandem with the exchange of data. More co-operations / between the two arms of the government is expected in future for better planning of water resources development and control of pollution therein.

## THE RIVER YAMUNA

### History & Mythology

The Yamuna and the Ganges are considered the most sacred rivers in India. Yamuna, according to the legends, was the daughter of Surya, the Sun God, and sister to Yama, the God of Death. Consequently, popular

belief is that those who take a dip in its holy waters are not tormented by fears of death. The river yamuna is intimately connected to Lord Krishna's pastimes. The Lord Krishna sanctified the River Yamuna from the beginning of His transcendental pastimes in the world. While His father Vasudeva was crossing the Yamuna with baby Lord Krishna for a safe place at Gokul on the other bank of the river from Mathura, the Lord fell down in the river, and by the dust of His lotus feet the river at once became sanctified.

**The Yamuna Basin - Basic features**

Yamunotri, which is north of Haridwar in the Himalayan Mountains, is the source of the Yamuna. The river Yamuna, a major tributary of river Ganges, originates from the Yamunotri glacier near Banderpoonch peaks ($38^o$ 59' N $78^o$ 27' E) in the Mussourie range of the lower Himalayas at an elevation of about 6387 meters above mean sea level in district Uttarkashi (Uttranchal).The track along the river bank is quite magnificient dominated by wide panorama of mountains. It is said that the temple of Yamunotri was built by Maharani Gularia of Jaipur in the last decade of the 19th century. In 1923, this was destroyed, with only the idols left, and was rebuild. It was once again damaged in 1982. A hot water pool at Yamunotri is used for the prepartion of "PRASAD". Normally, rice and potatos are cooked in cloth bags by dipping them in the hot water. In its first 170 km stretch, the tributaries Rishi Ganga Kunta, Hanuman Ganga, Tons and Giri join the main river.

The Tons, largest tributary of the Yamuna, has some magical spots in it's upper reaches. Forests of Alder and Blue pine lead to the famous Har-ki-Dun catchment area, source of another tributary, the Rupin**.** Har-ki-Dun is a spectacular valley high up, an amphitheatre ringed on three sides by spurs of the Great Himalaya. A wonderland with vast grassy alps that inspire a sense of solitude that only the high Himalaya can inspire. The Rupin makes a spectacular precipitous descent through a narrow valley.

Fortunately the valley of the Tons has been protected, by whatever fates, from the surrounding human depredations.In the upper reaches of the Tons river is situated the Gobind Pashu Vihar Sanctuary, a high altitude preserve and is approached from the Rupin valley near Natwar. This spectacular sanctuary, ringed by high peaks and hemmed in on three sides by ice fields and snow beds, this amphitheatre is the source of the Tons river and home to many high altitude bird species like snow cock, snow partridge and the Monal pheasant.

Another little known fact about the Yamuna is that it is the frontier of the Indian elephant. West of the Yamuna, there is no elephant in 900

Km of the western Himalaya or its foothills. The forests of the lower Yamuna offer ideal corridors for elephant movement and the principal forests to be found here are of Sal, Khair Sissoo trees and the Shivalik chir- pine forests.

Arising from the source, river Yamuna flows through a series of valleys for about 200 Kms, in lower Himalayas and emerges into Indo-Gangetic plains. In the upper reaches, the main valley is overlooked by numerous hanging valleys, carved by glaciers during the last ice ages. The gradient of the river is steep here and the entire geomorphology of the valley has been influenced by the passage of the river. In the upper stretch of 200 Km, it draws water from several major streams. The combined stream flows through the Shivalik range of hills of Himachal Pradesh and Uttaranchal states of India and enters into plains at Dak Pathar in Uttranchal where the river water is regulated through weir and diverted into canal for power generation. From Dak Pathar it flows through the famous Sikh religious place of Poanta Sahib. On the right side of the Yamuna basin is the Mussourie spur-along which, lies sprawled, the hill station of Mussourie. Flowing through Poanta Sahib it reaches Hathnikund/Tajewala in Yamuna Nagar district of Haryana state, where the river water is again diverted into Western Yamuna canal and Eastern Yamuna canal for irrigation. During dry season, no water is allowed to flow in the river downstream to Tajewala barrage and the river remains dry in some stretches between Tajewala & Delhi. The rivers regain water because of ground water accrual and contributions of feeding canal through Som nadi (seasonal stream) upstream of Kalanaur. It enters Delhi near Palla village after traversing a route of about 224 Km.

**Distinguished Independent Segments of River Yamuna**

| SEGMENT | | |
|---|---|---|
| Himalayan Segment | From origin to Tajewala Barrage | 172 kms |
| Upper Segment | Tajewala Barrage to Wazirabad Barrage | 224 kms |
| Delhi Segment | Wazirabad Barrage to Okhla Barrage | 22 kms |
| Eutriphicated Segment | Okhla Barrage to Chambal Confluence | 490 kms |
| Diluted Segment | Chambal Confluence to Ganga Confluence | 468 kms |

The river is again tapped at Wazirabad through a barrage for drinking water supply to Delhi. Generally, no water is allowed to flow beyond Wazirabad barrage in dry season, as the available water is not adequate to fulfill the demand of water supply of Delhi.

Whatever water flows in the downstream of Wazirabad barrage is the untreated or partially treated domestic and industrial wastewater

contributed through several drains along with the water transported by Haryana Irrigation Department from Western Yamuna Canal (WYC) to Agra Canal via Nazafgarh Drain and the Yamuna. After 22 Km downstream of Wazirabad barrage there is another barrage, Okhla barrage, through which Yamuna water is diverted into Agra Canal for irrigation. No water is allowed to flow through barrage during dry season. Whatever water flows in the river beyond Okhla barrage is contributed through domestic and industrial wastewater generated from East Delhi, Noida and Sahibabad and joins the river through Shahdara drain. The Yamuna after receiving water through other important tributaries joins the river *Ganga* and the underground *Saraswati* at Prayag (Allahabad) after traversing about 950 Km. Thus, Yamuna river cannot be designated as continuous river particularly in dry seasons (almost 9 months), but can be segmented in five distinguished independent segments due to characteristic hydrological and ecological conditions. The catchments of Yamuna river system cover parts of Uttar Pradesh, Uttranchal, Himachal Pradesh, Haryana, Rajasthan, Madhya Pradesh & Delhi states.

There are 12 water quality stations Poanta, Kalanour, Mawi, Delhi, Mathura, Mohana, Agra, Auraiya, Etawah, Hamirpur, Rajapur and Pratappur on river Yamuna.

**Tributaries of River Yamuna**

The tributaries of Yamuna account for 70.9% of the catchment area; the balance of 29.1% area directly drains into the Yamuna River or is occupied by simaller streams. Further, the catchment area of Yamuna amount to 40.2% of the area of Ganga Basin and 10.7% of the land area of India. The important tributaries of the Yamuna River are the Tons, the Chambal, The Hindon, The Sarda, The Betwa and the Ken. Other small tributaries of the Yamuna River include Rishiganga, the Uma, the Hanuman Ganga, the Giri, the Karan, the Sagar and the Rind. The main Yamuna and Tons are fed by glaciers, viz., the Bandar

Punch Glacier and its branches and originates from the Great Himalayan range. Many smaller stream in the Yamuna basin. A brief description of the important tributaries of the Yamuna River is given below.

The main tributaries of Yamuna along with location of major cities are depicted in **Fig. 1.** The first major city on its banks is Delhi followed by Mathura, Agra and Allahabad. Major projects on its tributaries are:

1. Gandhi Sagar in M. P. on Chambal.
2. Rana Pratap Sagar in Rajasthan on Chambal.
3. Mata Tila Dam in U. P. on Betwa.
4. Kota barrage in Rajasthan on Chambal.
5. Jawahar Sagar in Rajasthan on Chambal.

The Industrial town of Kota is first major settlement on the main Chambal River. Other prominent towns on the tributaries of Chambal and other minor rivers are :(a) Indore and Ujjain in Sipra basin. (b) Jaipur, Ajmer and Chittorgarh in Banas basin.

### Tons River

The Tons is the longest tributary of the Yamuna River and its flows through Garhwal, the western part of the Himalayan state of Uttaranchal. The river originates at an elevation of 3900m and joins the Yamuna below Kalsi near Dehradun, Uttarakhand. Its source lies in the 20,720 ft (6,315 meters) high Bandarpunch mountain, and is one of the most major perennial Indian Himalayan rivers. It is the biggest tributaries of the Yamuna. There is only one water quality station at Tuini on River Tons.

### Giri River

The river Giri is an important tributary of the Yamuna River. It is the main source of water in the South-Eastern Himachal Pradesh. The Giri is famous in the Jubbal, Rohru hills that rises from Kupar peak just above Jubbal town after flowing across the heart of Shimla hills and then flows down in the southeastern direction dividing the Sirmaur district into equal parts that are known as Cis-Giri and Trans-Giri region and joins Yamuna upstream of Paonta below Mokkampur. There is only one water quality station at Yashwant Nagar on River Giri.

### Hindon River

Hindon River is an important tributary of Yamuna River. In fact, this river is sandwitch between two major rivers: Ganga on the left and Yamuna on the right. Hindon originates from upper Shiwalik (Lower Himalayas). It lies between the latitude $28^0$04’ to $35^0$05’ N and longitudes $77^0$08’ to

$77^0$04'E. It is a purely rain fed river with catchment area of about 7,083sq. km. This river has a total run of about 400km. The width of Hindon River ranges from 20m to 160m. There is only one water quality station at Galeta on River Hindon.

**Betwa River**

The Betwa River is a tributary of Yamuna River. Its basin extends from longitude $77^0$ to $81^0$ and latitude $23^0$8' to $26^0$0'N. The Betwa River originates at an elevation of 470m in the Bhopla District in Madhya Pradesh. After traversing a distance of 590 km, the river joins the Yamuna River near Hamirpur at an elevation of 106,68m. The total catchment area of the Betwa River is 46,580 sq km of which 31,971 sq km (68.64%) lies in M.P. and 14,609 sq km (31.36%) lies in U.P. The basin is saucer shaped with sandstone hills around the perimeter. The river has 14 principle tributaries out of which 11 are completely in Madhya Pradesh and 3 lies partly in Madhya Pradesh and partly in Uttar Pradesh. The Halali and Dhasan River are the important tributaries of the Betwa River. There are three water quality stations at Rajghat, Mohana and Sahijana on River Betwa.

**Dhasan River**

The Dhasan River is a right bank tributary of the Betwa River. The river originates in Begumganj tehsil of Raisen district in Madhya Pradesh state in central India. The river forms the southeastern boundary of the Lalitpur District of Uttar Pradesh state. Total length of the river is 365 km, out of which 240 km lies in Madhya Pradesh, 54 km common boundary between Madhya Pradesh and Uttar Pradesh and 71 km in Uttar Pradesh. The river was known as the Dasharna in ancient period. There is only one water quality station at Garroli on River Dhasan.

**Ken River**

Ken is an inter-state river, flowing through the state of Madhya Pradesh and Uttar Pradesh. Its basin lies between north latitudes $23^0$20' and $25^0$20' and east longitude of $78^0$30' and $80^0$32'. The river originates near the village Ahirgawab in Jabalpur District of Madhya Pradesh at an altitude of 550m above near sea level and joins the Yamuna River, near Chilla village of U.P. at an elevation of about 95m. It forms the common boundary between Panna and Chattarpur district of M.P. and Banda district (U.P.). The river has a total length of 427km, out of which 292 km lies in M.P., 84 km in U.P. and 51km forms the common boundary. The total catchement area of the Ken river basin is 28,058 sq km, out of which 24,472 sq km lies in M.P. and the balance 3,386 sq km in Uttar Pradesh. The important tributaries of the Ken River are Sonar, Bearma, kopra,

Bewas, Urmil, Mirhasan, Kutni, Kali, Gurne, Patan, Siameri, Chandrawal, Banne, etc, among others. The longest tributary is Sonar which is 227 km in length and lies wholly in M.P. The catchment area of the Sonar River is 12,620 sq km. There are two water quality stations at Banda and Madla on River Ken.

**Sind River**

River Sind is one of the second largest right bank tributaries of Yamuna. It rises at a height of 543 m above sea level in Vidisha District of Madhya Pradesh. It flows generally in north- east direction for a distance of 415 km before joining Yamuna 20 km upstream of Auraiya. Important tributaries of Sind are Parwati and Kunwari on its left bank and Pahuj on the right bank. It is probably river Sindhu mentioned in epic Vishnu Purana. There are two water quality stations at Pachauli and Seondha on River Sind.

**River Chambal**

The Chambal River, called Charmanvati in ancient times, is the largest of the rivers flowing through Rajasthan state. This tributary of Yamuna is 960km long. The total area drained by the Chambal up to its confluence with the Yamuna is 143,219 sq km out of which 76,854 sq km lies in M.P. state, 65,264 sq km in Rajasthan state and 1,101 sq km in Uttar Pradesh. River Chambal, the biggest tributary of Yamuna rises in Vindhyan range near Mhow in Indore District of Madhya Pradesh at an elevation of 354 m at north latitude 22° 28' and east longitude 75° 40'. Chambal basin is bound on north by the ridge separating it from Luni and Yamuna basins, on the south by Vindhyan range and on the west by Aravali range, on east lies the ridge separating it from Kunwari and Sind rivers of Yamuna basin Chambal basin lies between north latitudes 22° 27' and 27° 20' and east longitudes 73° 20' and 79° 15'. Its total catchment area is 1,39,468 sq.km. It flows initially in north direction for a length of 320 km upto Madhya Pradesh, Rajasthan Border. In this reach Chamla, Siwan and Ratlam rivers join river Chambal from the left and Sipra and Chhoti Kalisindh from the right. The river then enters Rajasthan and after flowing for a distance of 38 km turns clockwise and takes a north easterly course. At 428 km from its origin, it receives its major tributary Kalisindh from the right near the village Laban and further 22 km below another tributary Mej from the left. The river continues to flow in north easterly direction for a further distance of 40 km when it is joined by another major right bank tributary Parwati near village Pali. Thus, the river flows in Madhya Pradesh for a length of 320 km. River Chambal then forms a common boundary between Madhya Pradesh and Rajasthan for a length of 251 km River Banas, a major left bank tributary joins Chambal in this reach near village Rameshwar. Thus, the river flows in Rajasthan for a length of 226 km The river then forms

common boundary between Madhya Pradesh and Uttar Pradesh for 117 km and continues in northeasterly direction upto village Pinhat. It then gradually turns right and flows in south -easterlydirection to enter in Uttar Pradesh, north west of village Chakar Nagar. After flowing for 46 km in Uttar Pradesh, the river outfalls into Yamuna southeast of village Sehon in Etawah District of Uttar Pradesh. Topographically, out of total area of 1,39,468 sq km of the basin, about 3083 sq km around the origin of the river can be classified as hilly and rest as plains. Three major dams and one barrage have been constructed on this river forming a series of hydraulic structures known as Chambal Project. Gundhi Sagar is the first dam located on the boundary of Madhya Pradesh and Rajasthan. Rana Pratap Sagar is second dam located in Rawat Bhata (Rajasthan) 48 km downstream of Gandhi Sagar Dam. Jawahar Sagar Dam is third, 22 km downstream of Rana Pratap Sagar Dam. Last one in the series is Kota Barrage near Kota city which is 48 km downstream of Rana Pratap Sagar Dam. There are three water quality stations at Tal, Dholpur, and Udi on River Chambal.

## Tributaries of Chambal River:

### Kali Sindh:

It's originated in the northern slopes of Vindhya Hills. Flowing in the M.P., it enters in the Rajasthan near Bindha village in Jhalwara District. After flowing 145 km in Rajasthan its joins Chambal River near Nonera village of Kota District. The catchment area of the Kalisindh River is 7944km$^2$. There is one water quality station at Barod on River Kali Sindh.

### Parwan River:

The Parwan River is the important tributaries of Kalisindh River. The Parwan originate in the Malwa Plateau and after flowing for about 186 km in M.P., its enter in Rajasthan near Kharibor village in Jhalwara District, its join Kali Sindh near Ramgarh village in Kota district. The catchment area of the Parwan River is 2892km$^2$. There are two water quality stations at Aklera and Sangod on River Parwan.

### Parwati River:

The Parwati River originates in the northern slopes of the Vindhyan hills in M.P. where it forms a boundary between MP and Rajasthan for about 18km, and then enters Rajasthan near Chatarpura village in Baran District. Therefore, it flows for about 83km in Rajasthan before again forming the boundary between MP and Rajasthan for a distance of about 58km up to Pali village in Kota District, where it joins the Chambal. The river catchment in Rajasthan is situated in Kota and Jhalawar District. Major tributaries of the Parwati River ara Lhasi, Berni, Bethli, Andheri,

Retri, Dubraj, Bilas and Kunu. There are two water quality stations at A.B. Road Xing and Khatoli on River Parwati.

**Banas River**

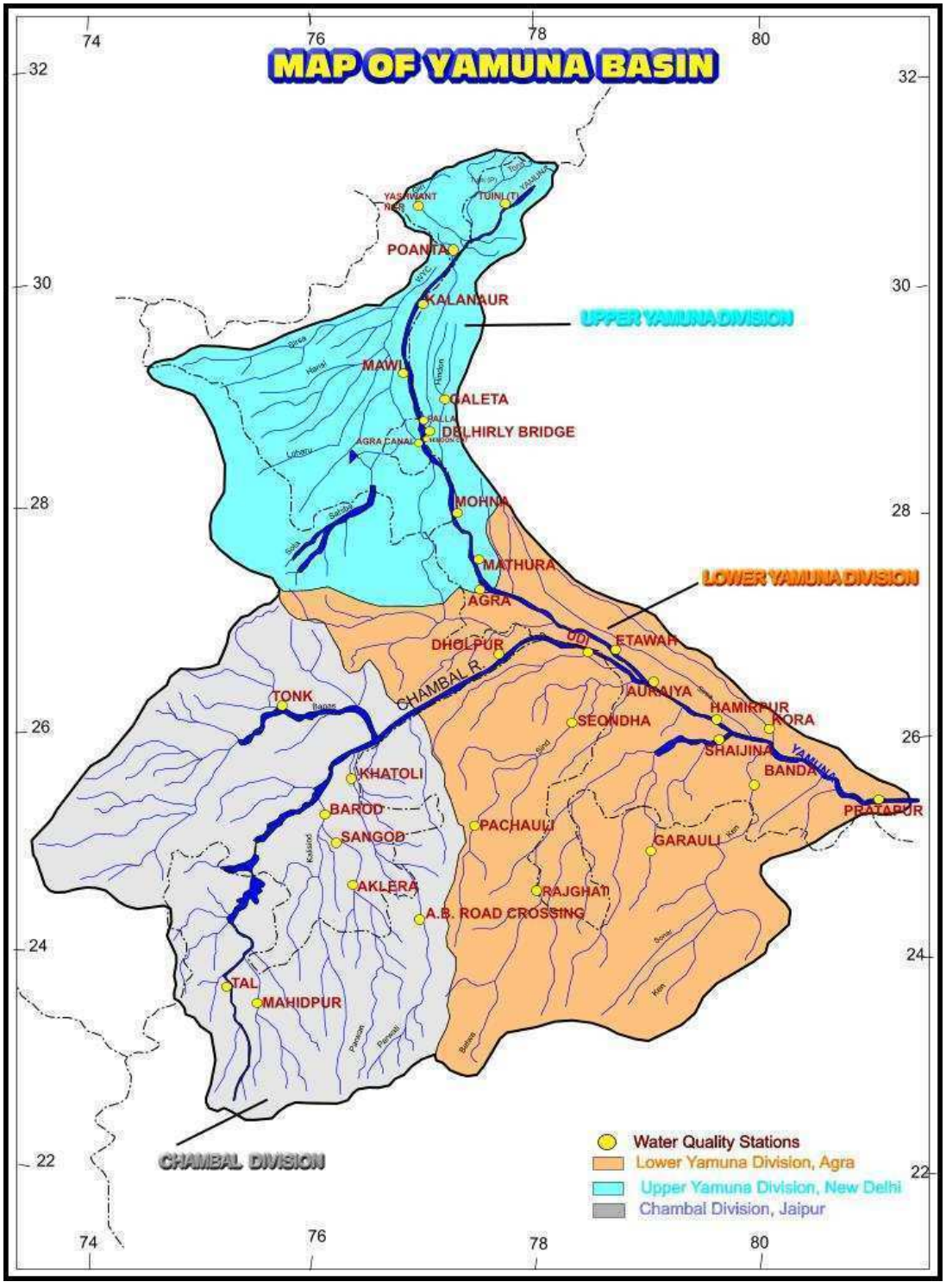
The Banas River originates in the Khamnor hills of the Aravali range (about 5km from Kumbhalgarh) and flows along its entire length through Rajasthan.Banas is a major tributary of the Chambal River, the two rivers meeting near village Rameshwar in Khandar Block in Sawai Madhopur District. The total length of the river about 512km and the catchment area is 45,833km$^2$. The main tributaries of the Banas River are Berach and Menali on the right bank and Kothari, Khari, Dai, Dheel, Sohadara, Morel and Kalisil on the left bank.

The Banas River itself has many big tributaries. The Berach River originates in the hills northeast of Udaipur city. It flows northeast for about 157 km in Udaipur, Chittorgarh and Bhilwara district before joining Banas near Bigod village in Mandalgarh Tehsil of Bhilwara District. The catchment area of the river is 7502km$^2$, which lies between 70$^0$25' and 75$^0$02' east longitudes and 24$^0$29' and 25$^0$14' north latitudes. The Berch flow in a hilly region up to Badgaon reservoir and then through plains. This river receives flow from Ayar, Wagli Wagon, Gambhiri and Orai Rivers. There are two water quality stations at Tonk and Baranwada on River Banas.

**Sipra River**

The Sipra River is also call Ksipra (Markandeya). It flows in the state of Madhya Pradesh. The river is famous for the sanctity associated with it. According to the legend, the river has originated from the blood of Lord Vishnu. In the time of Mughal King Akbar, it was believed that the river used to flow with milk. Probably this means that the region where it flowed was very prosperous. There is only one water quality station at Mahidpur and Ujjain on River Sipra.

## WATER QUALITY STATIONS IN YAMUNA BASIN



# WATER QUALITY MONITORING

Water is essential for stream sustaining life and development. Its consumption has increased considerably causing strain in its unlimited availability. The plan for sustainable future development calls for careful monitoring of this precious resource in respect of its quantity and quality for different uses like drinking, washing, agriculture and industrial purposes. Rapid increases in population, urbanization, introduction of sewage system, intensive use of fertilizers, pesticides etc., in agriculture and growth of industries having contaminated effluents have led to increased pollutants entering the river system. Rivers have in built capacity to cleanse themselves waters by dilution and natural purification. However, reduced availability of fresh waters and greater pollutants entering the river has put considerable strain on this capacity. Evaluation for fitness of water for various uses requires monitoring of water quality at various locations of the rivers to know the adequacy of effluent treatment and effect of pollutants with seasonal changes in flow. Past data in water quality is also useful for knowing the changes over the years and arriving at the necessity of legislation, for effluent treatment and disposal, if required.

The Central Water Commission is involved in the assessment of quantity and quality of water in the major rivers including Yamuna. It has a network of water quality monitoring stations on Yamuna and its tributaries. These water quality stations are equipped with the requisite equipment meant for testing and collection of water samples. Water samples are collected in the specially designed samplers, which are suspended, from boat/cable-way or from the nearby bridge. Current meters and echo sounders are used for measurement of velocity and depth respectively to determine discharge in the river.

Two levels of Chemical laboratories are provided in the Yamuna basin. Level-I laboratories are established at the monitoring stations for measurement of highly sensitive parameters such as pH, electrical conductivity, colour, odour, dissolved oxygen and temperature. Parameters, which can tolerate a time lag of 6-24 hours, are analyzed in level-II and level III laboratory at Agra and Delhi. For this purpose samples are transported under ice cooled conditions to minimize physico-chemical and bio-chemical interaction between suspended and soluble matter. Various physico chemical parameters measured in level-I and Level-II and Level III laboratories along with methodology and equipment are given in Table-I A & B.

## Table - I A : Laboratory Level-I

| S. No. | PARAMETER | PROCEDURE | EQUIPMENT |
|---|---|---|---|
| 1. | **Odour** | Smell | |
| 2. | **Colour** | Visual comparison | Colour disc |
| 3. | **Temperature** | Contact | Thermometer |
| 4. | **pH** | | pH meter |
| 5. | **Electrical Conductivity** | | Conductivity meter |
| 6 | **Dissolved Oxygen** | Titration (Winkler Method) | Glass apparatus |

## Table -I B: Level-II & Level III Laboratory

| S. No. | PARAMETER | PROCEDURE | EQUIPMENT |
|---|---|---|---|
| 1 | **pH*** | Electromotive force | pH Meter |
| 2 | **EC*** | Electromotive force | EC Meter |
| 3 | **Calcium** | Titration | Digital Burette |
| 4 | **Magnesium** | Titration | Digital Burette |
| 5 | **Potassium** | Flame emission | Flame photometer |
| 6 | **Sodium** | Flame emission | Flame photometer |
| 7 | **Ammonia** | Colour development | Spectrophotometer |
| 8 | **Boron** | Colour development | Spectrophotometer |
| 9 | **Carbonate** | Titration | Digital Burette |
| 10 | **Bi-carbonate** | Titration | Digital Burette |
| 11 | **Chloride** | Titration | Digital Burette |
| 12 | **Sulphate** | Turbidity | Nephelometer |
| 13 | **Nitrate** | Colour development | Spectrophotometer |
| 14 | **Nitrate** | Colour development | Spectrophotometer |
| 15 | **Silicate** | Colour development | Spectrophotometer |
| 16 | **Phosphate** | Colour development | Spectrophotometer |
| 17 | **Fluoride** | Colour development | Spectrophotometer |
| 18 | **Arsenic**** | Atomic Absorption | AAS |
| 19 | **Copper** ** | Atomic Absorption | AAS |
| 20 | **Cadmium**** | Atomic Absorption | AAS |
| 21 | **Chromium**** | Atomic Absorption | AAS |
| 22 | **Lead**** | Atomic Absorption | AAS |
| 23 | **Iron**** | Atomic Absorption | AAS |
| 24 | **Mercury**** | Atomic Absorption | AAS |
| 25 | **Zinc**** | Atomic Absorption | AAS |
| 26 | **B. O. D.** | Incubation | B. O. D. incubator |
| 27 | **Total Coliform** | MPN Method | - |
| 28 | **Fecal Coliform** | MPN Method | - |

* pH and EC are also observed at Level I laboratory

** Trace & Toxic metals analysed in NRWQL, New Delhi

If the water contains floating algae particles, these are also trapped in the D.O. bottle during sampling. Algae contain chlorophyll and are able to synthesize oxygen from carbon dioxide in the presence of light. The oxygen so produced is not released immediately as it takes a large number of molecules to form a big enough bubble to be detached from the body of green matter. All such oxygen molecules attached to algae cannot be considered as dissolved in water, but when chemicals are added, this oxygen also passes in solution and behaves as dissolved oxygen. The results of such samples remain abnormal and invite immediate attention of a keen observer and so, such results should be qualified by nature of sample also.

Chemical indices such as hardness, sodium percentage, sodium adsorption ratio and residual sodium carbonate are calculated on the strength of concerned ions. The river water is also classified for salinity hazard on the basis of internationally accepted norms. To maximize the knowledge on the health of river system, variable frequency and scope of monitoring of water quality have been adopted depending upon the extent of point/non point sources of pollution in the water. Under normal sampling, samples are collected once in ten days at 0.6 depths from water surface.

## METHODOLOGY OF SAMPLING

The river is a huge mass of flowing water under the gravity gradient. As its boundaries are static, there is considerable variation in velocity along the depth and across the width. Considering the homogeneity of flowing water quality with very minor variations along depth or cross section a representative sample should be the one, which is collected from the portion of river representing maximum flow. This could be taken as the point representing the reasonably high depth (need not be point of maximum depth) and possessing nearly the maximum velocity. However, all streams do not possess water containing nearly uniform water quality along its cross sections. This is due to the fact that the tributaries, which bring water of different quality, flow as twin streams separated by a thin imaginary layer for a considerable length especially in plains where turbulence is minimum. The waters of two streams completely mingle after travelling several kilometers (even up to 200 km.). All sampling points need not so much distance from each other due to various priorities. In such cases it would be advisable to collect 2-3 samples, each representing special quality or environment. The reaches such as those of city waterfronts are very sensitive. Confluence points storage or withdrawal points, fishery development zones etc, have temporal variation along the time of day or day of the months. A more exhaustive study may need daily sampling/hourly sampling/10 day sampling etc. Special sampling is required for longitudinal surveys, which are done three times a year to assess the pollution load and self-assimilation capacity of the stream.

In view of the above background, the water sample is collected for different purposes as described below:

1. For normal monitoring, a sample of 1 litre is collected at S.G line from that part of the channel, which represents maximum flow directly in the sampler bottle from the subsurface.
2. For DO-BOD estimation, the samples are collected in BOD bottles, which are kept in specially designed sampler, the stretch of which is shown here.
3. For special monitoring, the affected reaches. The samples are collected from the left, right and centre of the river to assess lateral migration of chemical /pollutants. Samples are collected from U/S and D/S part of the S.G line. D.O-BOD samples along normal samples are also collected at such location.
4. For longitudinal surveys, the samples are collected from the river in the affected reaches particularly, which have city drains inlets. The locations are selected before and after the joining of drains. The care is taken to ensure that there is reasonable mixing of wastewater with water such samples are analyzed for DO-BOD only.

# METHODOLOGY FOR MEASUREMENT OF VARIOUS PARAMETERS

For the analysis of the physico-chemical and biological parameters, Standard Methods for Examination of Water and Wastewater, (APHA) were used. The methods used in the examination are listed below in table 2.

**Table 2: Methodology for Measurement of Various Parameters**

| S. No. | Parameter | Analysis Techniques |
|---|---|---|
| 1 | **Temperature** | By 0-50°C Mercury Thermometer |
| 2 | **pH** | By Eutech pH meter (potentiometric) |
| 3 | **Electrical Conductivity** | By Eutech Conductivity meter |
| 4 | **Carbonate** | By Acid base titration using N/50 HCl Solution |
| 5 | **Bicarbonate** | By Acid base titration using N/50 HCl Solution |
| 6 | **Calcium** | By Complexometric titration |
| 7 | **Magnesium** | By Calculation Method |
| 8 | **Sodium** | By Flame photometer |
| 9 | **Potassium** | By Flame photometer |
| 10 | **Chloride** | By Argentometric Titration |
| 11 | **Sulphate** | By Nephelometry |
| 12 | **Nitrate (N)** | By Orion Ion Meter |
| 13 | **Nitrite (N)** | By UV Spectrophotometer (Varian CARY 100 Bio ) |
| 14 | **Ammonia (N)** | By UV Spectrophotometer (Varian CARY 100 Bio ) |
| 15 | **Fluoride** | By Orion Ion Meter |
| 16 | **Phosphate** | By UV Spectrophotometer (Varian CARY 100 Bio ) |
| 17 | **Silicate** | By UV Spectrophotometer (Varian CARY 100 Bio ) |
| 18 | **Boron** | By UV Spectrophotometer (Varian CARY 100 Bio ) |
| 19 | **Arsenic** | Atomic Absorption Spectrophotometer (AAS) |
| 20 | **Cadmium** | |
| 21 | **Copper** | |
| 22 | **Chromium** | |
| 23 | **Lead** | |
| 24 | **Mercury** | |
| 25 | **Zinc** | |
| 26 | **Nickel** | |
| 27 | **Iron** | |
| 28 | **Dissolved Oxygen** | BY Dissolved Oxygen Meter |
| 29 | **COD** | By COD Digester |
| 30 | **BOD** | By Dilution method by incubating at 20°C for 5 days |
| 31 | **Total Coliform** | MPN method |
| 32 | **Faecal Coliform** | |
| 33 | **E.Coli** | |

# QUALITY CRITERIA

***A***s it is a well-known fact that the sources of usable water on the earth are extremely limited, any kind of pollution in them will further reduce its availability. Polluted water cannot be utilized for drinking because of its inherent health risk. Water with high salt contents is not suitable for agriculture and most industries. The quality of water also interferes with the aesthetic and economic pursuits of water bodies by affecting marine and fresh water aquatic. However, the water, which is not suitable for irrigation, may be quite suitable for industrial cooling or fish growth. Every use of water requires a certain minimum quality of water with regards to the presence of dissolved and suspended materials of both chemical and biological nature. The desirable quality of water ensures no harm to the user.

The achievement for this minimum quality of water for diverse user has led to the formulation of water quality criteria, and water quality standards. *Water quality criteria can be considered as specific requirements on which a decision or judgment to support a particular use will be based.* The criteria for the various uses are developed based on the experimental data, and our current knowledge of the health, ecology and other issues and assessing its overall economical effect are not a set of fixed values but subject to modification as the scientific data get updated and more and more knowledge is gathered.

The term standard applies to any definite principle or measure established by an authority by limiting concentration of constituents in water to ensure the safe use of water and safeguard the environment.

## DRINKING WATER STANDARDS

In view of the direct consumption of water by human beings, the domestic water supply is considered to be most important use of water and drinking use has been given first priority on utilization of water resource in the National Water Policy. In India, agencies like the Bureau of Indian Standards (BIS) and Indian Council of Medical Research (ICMR) have formulated drinking water standards. The World Health Organization (WHO) has also laid down drinking water standards, which are considered international standards. Values of the parameters covered in this water quality year book and given in table 3 are according to BIS 10500, 2012 (with versions).

## Table 3. Indian Standard IS: 10500, 2012

| S. No. | Substance Characteristic | Acceptable Limit | Undesirable effect outside the desirable limit | Permissible limit** |
|---|---|---|---|---|
| **Essential Characteristics** | | | | |
| 1 | Colour, Hazen units, Max | 5 | Above 5, consumer acceptance decreases | 15 |
| 2. | Odour | Agreeable | - | Agreeable |
| 3. | Taste | Agreeable | - | Agreeable |
| 4. | Turbidity NTU, Max | 1 | Above 5, consumer acceptance decreases | 5 |
| 5. | pH Value | 6.5 - 8.5 | Beyond this range the water will effect the mucous membrane and/ or water supply system | No relaxation |
| 6. | Total Hardness (as $CaCO_3$) mg/l, Max. | 200 | Encrustations in water supply structure and adverse effect on domestic use | 600 |
| 7. | Iron (as Fe), mg/1, Max | 0.3 | Beyond this limit taste/appearance are affected, has adverse affect on domestic uses and water supply structures, and promotes iron bacteria | No relaxation |
| 8. | Chlorides (as Cl), mg/1, Max | 250 | Beyond this limit taste, corrosion and palatability are affected | 1000 |
| 9. | Residual free chlorine, mg/l, Minimum | 0.2 | - | 1.0 |
| **Desirable Characteristics** | | | | |
| 10. | Dissolved solids, mg/1, Max | 500 | Beyond this palatability decreases and may cause Gastro intestinal irritation | 2000 |
| 11. | Calcium (as Ca) mg/l, Max. | 75 | Encrustations in water supply structure and adverse effect on domestic use | 200 |
| 12. | Magnesium (as Mg) mg/1, Max | 30 | Encrustations in water supply structure and adverse effect on domestic use | 100 |
| 13. | Copper (as Cu), mg/1, Max | 0.05 | Astringent taste, discoloration and corrosion of pipes, fitting and utensils will be caused beyond this | 1.5 |
| 14. | Manganese (as Mn) mg/l, Max | 0.1 | Beyond this limit, taste/appearance are affected, has adverse effect on domestic use and water supply structure. | 0.3 |
| 15. | Sulphates (as $SO_4$), mg/1, Max | 200 | Beyond this causes Gastro intestinal irritation when magnesium or sodium are present | 400 |
| 16. | Nitrate (as $NO_3$) mg./l, Max. | 45 | Beyond this methaemoglobinemia takes place. | No relaxation |
| 17. | Fluorides (as F), mg/1, Max | 1 | Fluoride may be kept as low as possible. High fluoride may cause fluorosis | 1.5 |
| 18. | Ammonia (as total ammonia-N) mg/l | 0.5 | | No relaxation |
| 19. | Mercury (as Hg), mg/1, Max | 0.001 | Beyond this, the water becomes toxic | No relaxation |
| 20. | Cadmium (as Cd), mg/1, Max | 0.003 | Beyond this, the water becomes toxic | No relaxation |
| 21. | Selenium (as Se), mg/1, Max | 0.01 | Beyond this, the water becomes toxic | No relaxation |
| 22. | Total Arsenic (as As), mg/1, Max | 0.01 | Beyond this, the water becomes toxic | No relaxation |
| 23. | Cyanides (as CN), mg/1, Max | 0.05 | Beyond this, the water becomes toxic | No relaxation |
| 24. | Lead (as Pb), mg/1, Max | 0.01 | Beyond this, the water becomes toxic | No relaxation |
| 25. | Zinc (as Zn), mg/1, Max | 5 | Beyond this limit, it can cause astringent taste and an opalescence in water | 15 |
| 26. | Anionic detergents (as MBAS), mg/1, Max | 0.2 | Beyond this limit, it can cause a light froth in water | 1 |
| 27. | Total Chromium (as Cr), mg/1, Max | 0.05 | May be carcinogenic above this limit | No relaxation |
| 28. | Polynuclear aromatic hydrocarbons (as PAH), mg/1, Max | - | May be carcinogenic | - |
| 29. | Mineral oil, mg/1, Max | 0.01 | Beyond this limit, undesirable taste and odour after chlorination take place | 0.03 |
| 30. | Pesticides mg/1, Max | Absent | Toxic | 0.001 |
| 33. | Alkalinity mg/1, Max | 200 | Beyond this limit, taste becomes unpleasant | 600 |
| 34. | Aluminum (as Al) mg/1, Max | 0.03 | Cumulative effect is reported to cause dementia | 0.2 |
| 35. | Boron mg/1, Max | 0.5 | - | 1.0 |

**No sample should contain E. Coli in 100 ml.; No sample should contain more than 10 coliform organisms per 100 ml; and Coliform organisms should not be detectable in 100 ml of any two consecutive samples**

***Desirable limit , **In absence of alternate source**

## IRRIGATION STANDARDS

According to the solubility of various salts and distribution pattern of minerals in any area, the major cations in water are sodium, magnesium and calcium and the anions are bicarbonate, chloride and sulphate. Carbonates of calcium and magnesium have less solubility and lead to precipitation, thereby affecting the balance between the major cations. These components affect the soil properties and crop yield. Researchers have done different computations and some of these are discussed below. With regard to the quality of the water for irrigation, the major parameters of concern are salinity denoted by dissolved solids and conductivity, potentially toxic trace elements, and herbicides. The presence of sodium is also an important parameter, the excess quantities of which can deteriorate the soils. High value of sodium may also damage the sensitive crops because of sodium phytotoxicity. The sodium in waters can be denoted by sodium percentage and Sodium Absorption Ratio (SAR). The values of individual constituent are taken in milli equivalent/litre. Table 4 indicates the suitability of water with different constituent, for irrigation.

**Table 4 Guidelines for evaluation of irrigation water quality**

| Class of Water | Sodium % | Electrical conductance | SAR | RSC meq/1 |
|---|---|---|---|---|
| **Excellent** | <20 | <250 | <10 | 1.25 |
| **Good** | 20-40 | 250-750 | 10-18 | 1.25-2.0 |
| **Medium** | 40-60 | 750-2250 | 18-26 | 2.0-2.5 |
| **Bad** | 60-80 | 2250-4000 | >26 | 2.5-3.0 |
| **Very Bad** | >80 | >4000 | >26 | >3.0 |

### Classification on the basis of Electrical Conductance (EC)

Most of the salts dissociate in to cations and anions in water. The ions have mobility and provide electrical conductance in water. Electrical conductance is an indirect estimation of dissociated salts. The presence of ions and non-dissociated matter (generally quite small) affects the osmotic presence of water. The uptake of water by roots depends on the position difference in osmotic presence within the root and water surrounding it. If more soluble salts accumulate in the root zone, the plant experiences difficulty in extracting enough water from the salty water. This reduced water uptake by the plant can result in slow or stunted growth and early wilting, the symptoms similar under the condition of drought. Thus, electrical conductance of water can be gainfully used for predicting suitable of irrigation water for the hazards that it can cause to the crops.

Therefore, United State Salinity Laboratory, 1954 proposed a classification based on EC value whereby water is classified into four classes from low salinity hazard to very high salinity hazard to the crops.

## Classification on the basis of SAR

Sodium is an alkali metal, hence the higher concentration may cause alkali hazard. The alkali hazard involved in the use of water for irrigation is determined by the relative concentrations of sodium. Clay particles are silicates with humic substances showing matter good adsorption. The adsorption of divalent and trivalent ions encourages clay to form aggregates thereby increasing porosity of soil. When the rate of water infiltration into and through the soil is reduced to such an extent that root zone of the crop is not adequately supplied with water, the crop yield is reduced. If the proportion of sodium is high, the alkali hazard is high and conversely, if calcium and magnesium predominate, the hazard is low. Higher concentration of sodium as compared to calcium plus magnesium reduces the adsorption of polyvalent ions on clay, reducing porosity and causing permeability problem, which reduce water infiltration. Alkali hazard of the irrigation water expressed by computed SAR values.

## Classification based on the Residual Sodium Carbonate (RSC)

According to Eaton, 1950 development of alkali soil (saline and non saline) may be expected when irrigation water contain $CO_3$ + $HCO_3$ higher than Ca + Mg. To consider this fact he introduced the concept of RSC. In water containing high concentration of bicarbonates and carbonate, there is a tendency of calcium and to some extent of magnesium to precipitate as carbonate.

$$Ca(HCO_3)_2 \longrightarrow CaCO_3\downarrow + H_2O + CO_2\uparrow$$

The precipitation of calcium and magnesium carbonates increases SAR of the water reducing concentration of Ca and Mg ions. This action takes place more with surface of soil as $Ca(HCO_3)_2$ and $Mg(HCO_3)_2$ are stable only in solution. Even $NaHCO_3$ decomposed under arid conditions and sunlight to form sodium carbonate. This loss of carbon dioxide from water raises pH of soil and also dismembers aggregates to reduce permeability. The irrigation water may be classified into three classes (safe- <1.25; marginal – 1.25 to 2.50; and unsafe - >2.50) on the basis of RSC. RSC increase the soil pH causing unsuitability of environment for function of various soil organisms seriously affecting the productivity.

**Table 5 and 6 represent suitability of irrigation water according to SAR and EC**

## Table 5 - Suitability of Irrigation Water According to Electrical Conductance (Salinity Hazard)[5]

| S. No | Electrical conductance (µmho/cm) | | Category of Water | Suitability |
|---|---|---|---|---|
| | Grade | Range | | |
| 1 | **Low Salinity** | <250 | **Excellent** | It can be used for irrigation with most crops on most soils with little likelihood that soil salinity will develop. Some leaching is required, but this occurs under normal irrigation practices except in soil of extremely low permeability. |
| 2 | **Medium Salinity** | 250 to 750 | **Good** | It can be used if a moderate amount of leaching occurs. Plants with moderate salt tolerance can be grown in most cases without special practices for salinity control |
| 3 | **High Salinity** | 750 to 2250 | **Fair** | It cannot be used on soil with restricted drainage. Even with adequate drainage, special management for salinity control may be required and plants with good salt tolerance should be selected. |
| 4 | **Very High Salinity** | >2250 | **Poor** | It is not suitable for irrigation under ordinary conditions but may be used occasionally under very special circumstances. The soil must be permeable, drainage must be adequate, irrigation water must be applied in excess to provide considerable leaching, and high salt-tolerant crops should be selected. |

## Table 6 - Suitability of Irrigation Water According to Sodium Adsorption Ratio (Sodium Hazard)[5]

| S. No | Sodium Adsorption Ratio | | Category of Water | Suitability |
|---|---|---|---|---|
| | Grade | Range | | |
| 1 | **Low Sodacity** | <10 | **Excellent** | It can be used for irrigation on almost all soils with little danger of the development of harmful levels of exchangeable sodium. However, sodium- sensitive crops such as stone- fruit trees and avocado may accumulate injurious concentrations of sodium. |
| 2 | **Medium Sodacity** | 10 to 18 | **Good** | It will present an appreciable sodium hazard in fine-textured soils having high CES, especially under low leaching conditions, unless gypsum is present in soil. This water may be used on coarse-textured or organic soils with good permeability. |
| 3 | **High Sodacity** | 18 to 26 | **Fair** | It may produce harmful levels of exchangeable sodium in most soils and will require special soil management-good drainage, high leaching, and organic matter additions. Gypsiferous soils may not develop harmful levels of exchangeable sodium from such waters. Chemical amendments may be required for replacement of exchangeable sodium, except that use of amendments may not be feasible with waters of very high salinity. |
| 4 | **Very High Sodacity** | >26 | **Poor** | It is generally unsatisfactory for irrigation purposes except at low and perhaps medium salinity, where the solution of calcium from the soil or use of gypsum or other amendments may make the use of these waters feasible. |

# RIVER WATER QUALITY DATA
# OF
# UPPER YAMUNA DIVISION

# TUINI

## GENERAL PARTICULARS

| | | | |
|---|---|---|---|
| Site | : ***TUINI*** | Code | : **GYXOOM4** |
| State | : **Uttarakhand** | District | : **Dehradun** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Division | : **Upper Yamuna Division** | Sub-Division | : **SSD, New Delhi** |
| Tributary | : **Yamuna** | Sub Tributary | : **Tons** |
| Sub-Sub-Trib. | : **-** | Local River | : **Tons** |
| Drainage Area | : **3,362 Sq. Km.** | | |
| Latitude | : **30'56'23"N** | Longitude | : **77'51'24" E** |
| Zero of Gauge | : **880 (m.s.l.)** | Bank | : **RIGHT BANK** |

## DETAILS OF OPERATION (OPENING DATE)

| | |
|---|---|
| Gauge: | : **31.05.1976** |
| Discharge: | : **31.05.1976** |
| Sediment | : **-** |
| Water Quality | : **26.06.1976** |
| Wireless | : **20/05/1984** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : TUINI** **Division : UYD, New Delhi**

**Local River : TONS**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | | 01/08/16 | | 03/10/16 | | 01/12/16 | | 01/02/17 | | 04/04/17 | |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | | Cloudy | | Clear | | Clear | | Clear | | Clear | |
| 2 | Colour_Cod (-) | | Colourless | | Colourless | | Colourless | | Colourless | | Colourless | | Colourless | |
| 3 | Odour_Code (-) | | Odourless | | Odourless | | Odourless | | Odourless | | Odourless | | Odourless | |
| 4 | Temperature | °C | - | | - | | - | | - | | - | | - | |
| 5 | pH_GEN (pH units) | | 6.49 | | 7.32 | | 7.65 | | 7.51 | | 7.79 | | 7.55 | |
| 6 | EC_GEN (µmho/cm) | NTU | 98 | | 94 | | 105 | | 115 | | 105 | | 99 | |
| 7 | Total Dissolved Solids | mg/L | 44 | | 33 | | 43 | | 69 | | 68 | | 64 | |
| 8 | Turbiidity | | 25.1 | | 72.3 | | 42 | | 1.48 | | 0.59 | | 3.45 | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9.00 | Alk-Phen (as $CaCO_3$) | mg/l | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | |
| 10 | Alk-Tot (as $CaCO_3$) | | 17.50 | | 28.27 | | 30.10 | | 42.11 | | 53.68 | | 26.24 | |
| 11 | Boron | | * | | | | 0.11 | | 0.05 | | 0.15 | | 0.04 | |
| 12 | Calcium | | 8.71 | | 7.92 | | 10.53 | | 17.42 | | 15.84 | | 13.29 | |
| 13 | Chloride | | 5.62 | | 6.75 | | 9.94 | | 4.22 | | 14.92 | | 10.63 | |
| 14 | Carbonate | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | |
| 15 | Fluoride | | 0.19 | | 0.23 | | 0.22 | | 0.29 | | 0.22 | | 0.22 | |
| 16 | Bicarbonate | | 21.00 | | 33.92 | | 36.12 | | 50.53 | | 64.42 | | 31.49 | |
| 17 | Potassium | | 1.27 | | 1.87 | | 1.14 | | 1.68 | | 1.84 | | 1.15 | |
| 18 | Magnesium | | 5.04 | | 4.75 | | 2.78 | | 2.09 | | 5.15 | | 1.30 | |
| 19 | Sodium | | 3.85 | | 2.50 | | 4.97 | | 5.07 | | 5.00 | | 4.26 | |
| 20 | Ammonia as N | | 0.04 | | 0.05 | | 0.05 | | 0.03 | | 0.12 | | 0.09 | |
| 21 | $NO_2$+$NO_3$ as N | | 0.49 | | 0.61 | | 0.40 | | 0.51 | | 0.55 | | 1.52 | |
| 22 | Nitrite as N | | 0.01 | | 0.04 | | 0.05 | | 0.04 | | 0.03 | | 0.01 | |
| 23 | Nitrate as N | | 0.47 | | 0.56 | | 0.34 | | 0.47 | | 0.52 | | 1.51 | |
| 24 | Tot. Phosphate as P | | 0.06 | | 0.11 | | 0.11 | | 0.06 | | 0.02 | | 0.01 | |
| 25 | Silicate as $SiO_2$ | | - | | - | | - | | - | | - | | - | |
| 26 | Sulphate as $SO_4$ | | 13.00 | | 7.80 | | 5.12 | | 15.20 | | 3.28 | | 8.68 | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 1.62 | | 1.58 | | 1.36 | | 2.48 | | 1.66 | | 2.05 | |
| 28 | COD | | 18.00 | | 18.00 | | 9.00 | | 3.00 | | 3.00 | | 12.00 | |
| 29 | Dissolved Oxygen | | 4.98 | | 5.54 | | 5.89 | | 4.18 | | 4.75 | | 3.46 | |
| 30 | DO_SAT % | % | - | | - | | - | | - | | - | | - | |
| 31 | Tota Coliform | MPN/100 ml | 2200 | | 11000 | | 2600 | | 11000 | | 7000 | | 26000 | |
| 32 | Fecal Coliform | | 470 | | 1700 | | 1400 | | 1700 | | 2600 | | 13000 | |
| 33 | E. Coli | | - | | - | | - | | - | | - | | - | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | 0.740 | | 0.740 | | 0.930 | | 1.020 | | 2.710 | | 7.080 | |
| 35 | Cadmium | | 0.018 | | 0.016 | | 0.168 | | 0.038 | | 0.015 | | 0.069 | |
| 36 | Chromium | | 2.310 | | 0.430 | | 1.070 | | 0.270 | | 0.090 | | 2.000 | |
| 37 | Copper | | 1.530 | | 0.950 | | 4.100 | | 1.490 | | 1.890 | | 3.830 | |
| 38 | Iron | mg/l | 0.005 | | 0.022 | | 0.071 | | 0.066 | | 0.069 | | 0.157 | |
| 39 | Lead | µg/L | 0.010 | | 0.000 | | 0.930 | | 0.510 | | 0.260 | | 1.150 | |
| 40 | Nickel | | 5.620 | | 7.360 | | 9.680 | | 1.650 | | 3.980 | | 7.860 | |
| 41 | Zinc | mg/l | 0.003 | | 0.001 | | 0.005 | | 0.005 | | 0.004 | | 0.002 | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 22 | | 20 | | 26 | | 44 | R | 40 | | 33 | |
| 43 | Tot-Hardness | | 43 | | 40 | | 38 | | 52 | | 61 | | 39 | |
| 44 | Na% | % | 15.86 | | 11.46 | | 21.52 | | 16.85 | | 14.63 | | 18.76 | |
| 45 | RSC (-) | | -0.51 | | -0.24 | | -0.17 | | -0.22 | | -0.17 | | -0.26 | |
| 46 | SAR (-) | | 0.26 | | 0.17 | | 0.35 | | 0.30 | | 0.28 | | 0.30 | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

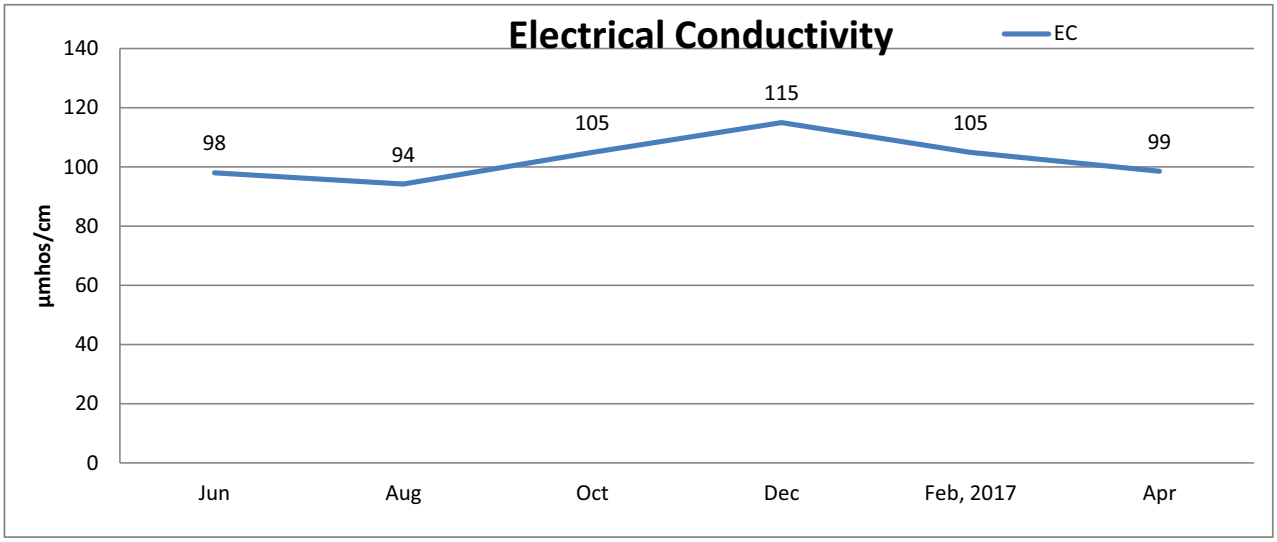
# RIVER WATER SUMMARY - 2016-2017

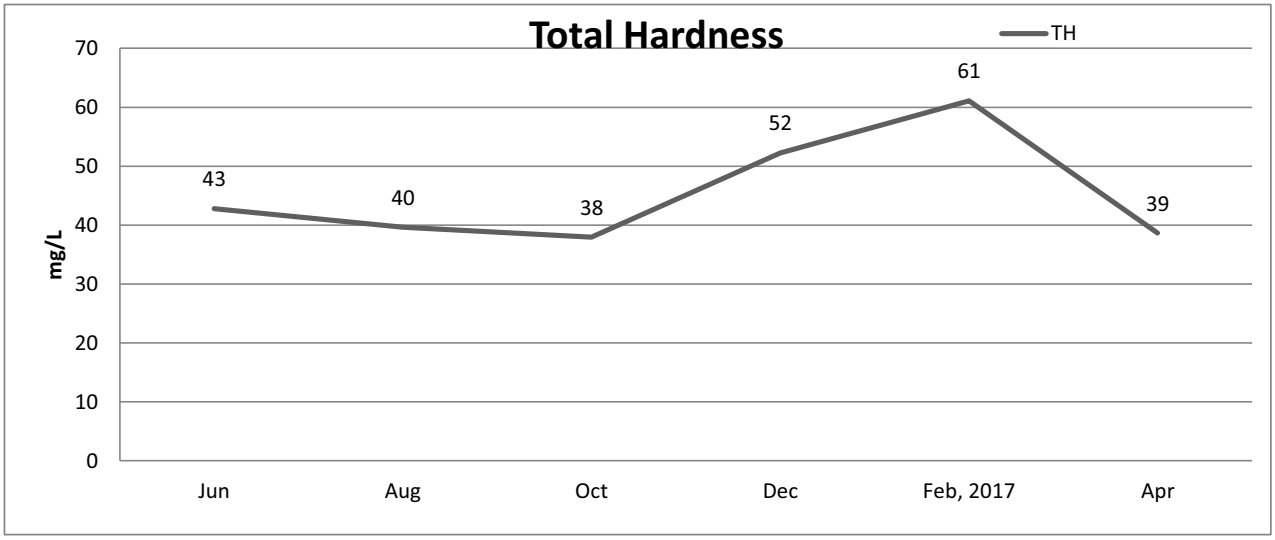
**Station Name : TUINI** **Division : UYD, New Delhi**

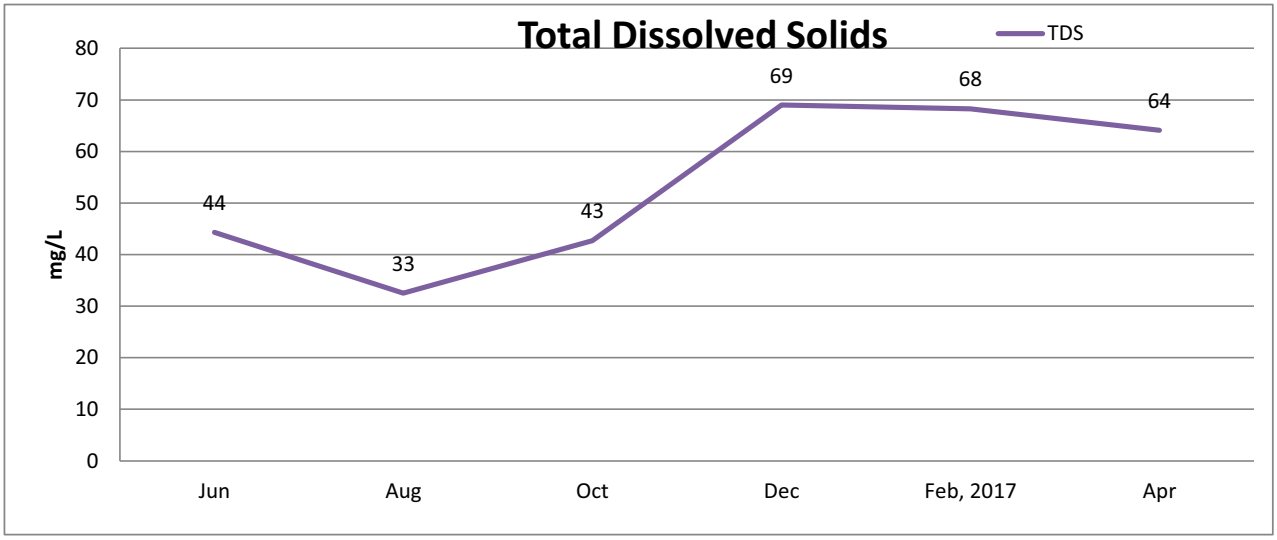
**Local River : TONS**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 6 | 7.79 | 6.49 | 7.39 | 7.35 | 7.55 | 7.55 |
| EC_GEN (µmho/cm) | 6 | 115 | 94 | 103 | 103 | 99 | 99 |
| Total Dissolved Solids | 6 | 69 | 33 | 53 | 51 | 64 | 64 |
| Turbiidity | 6 | 72.3 | 0.6 | 24.2 | 28.3 | 3.5 | 3.5 |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 6 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 6 | 53.68 | 17.50 | 33.0 | 34.33 | 26.24 | 26.24 |
| Boron | 4 | 0.15 | 0.04 | 0.1 | 0.10 | 0.04 | 0.04 |
| Calcium | 6 | 17.42 | 7.92 | 12.3 | 12.09 | 13.29 | 13.29 |
| Chloride | 6 | 14.92 | 4.22 | 8.7 | 8.29 | 10.63 | 10.63 |
| Carbonate | 6 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Fluoride | 6 | 0.29 | 0.19 | 0.2 | 0.23 | 0.22 | 0.22 |
| Bicarbonate | 6 | 64.42 | 21.00 | 39.6 | 41.20 | 31.49 | 31.49 |
| Potassium | 6 | 1.87 | 1.14 | 1.5 | 1.56 | 1.15 | 1.15 |
| Magnesium | 6 | 5.15 | 1.30 | 3.5 | 3.96 | 1.30 | 1.30 |
| Sodium | 6 | 5.07 | 2.50 | 4.3 | 4.28 | 4.26 | 4.26 |
| Ammonia as N | 6 | 0.12 | 0.03 | 0.1 | 0.06 | 0.09 | 0.09 |
| $NO_2$+$NO_3$ as N | 6 | 1.52 | 0.40 | 0.7 | 0.51 | 1.52 | 1.52 |
| Nitrite as N | 6 | 0.05 | 0.01 | 0.0 | 0.03 | 0.01 | 0.01 |
| Nitrate as N | 6 | 1.51 | 0.34 | 0.6 | 0.47 | 1.51 | 1.51 |
| Tot. Phosphate as P | 6 | 0.11 | 0.01 | 0.1 | 0.07 | 0.01 | 0.01 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 6 | 15.20 | 3.28 | 8.8 | 8.88 | 8.68 | 8.68 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 6 | 2.5 | 1.4 | 1.8 | 1.7 | 2.1 | 2.1 |
| COD | 6 | 18.0 | 3.0 | 10.5 | 10.2 | 12.0 | 12.0 |
| Dissolved Oxygen | 6 | 5.89 | 3.46 | 4.80 | 5.07 | 3.5 | 3.5 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 6 | 26000 | 2200 | 9967 | 6760 | 26000 | 26000 |
| Fecal Coliform | 6 | 13000 | 470 | 3478 | 1574 | 13000 | 13000 |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 6 | 7.08 | 0.74 | 2.20 | 1.23 | 7.08 | 7.08 |
| Cadmium | 6 | 0.17 | 0.02 | 0.05 | 0.05 | 0.07 | 0.07 |
| Chromium | 6 | 2.31 | 0.09 | 1.03 | 0.83 | 2.00 | 2.00 |
| Copper | 6 | 4.10 | 0.95 | 2.30 | 1.99 | 3.83 | 3.83 |
| Iron | 6 | 0.16 | 0.01 | 0.07 | 0.05 | 0.16 | 0.16 |
| Lead | 6 | 1.15 | 0.00 | 0.48 | 0.34 | 1.15 | 1.15 |
| Nickel | 6 | 9.68 | 1.65 | 6.03 | 5.66 | 7.86 | 7.86 |
| Zinc | 6 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 6 | 44 | 20 | 31 | 30 | 33 | 33 |
| Tot-Hardness | 6 | 61 | 38 | 45 | 47 | 39 | 39 |
| Na% | 6 | 22 | 11 | 17 | 16 | 19 | 19 |
| RSC (-) | 6 | -0.17 | -0.51 | -0.3 | -0.26 | -0.26 | -0.26 |
| SAR (-) | 6 | 0.35 | 0.17 | 0.3 | 0.27 | 0.30 | 0.30 |
| **PESTICIDES** | | | | | | | |

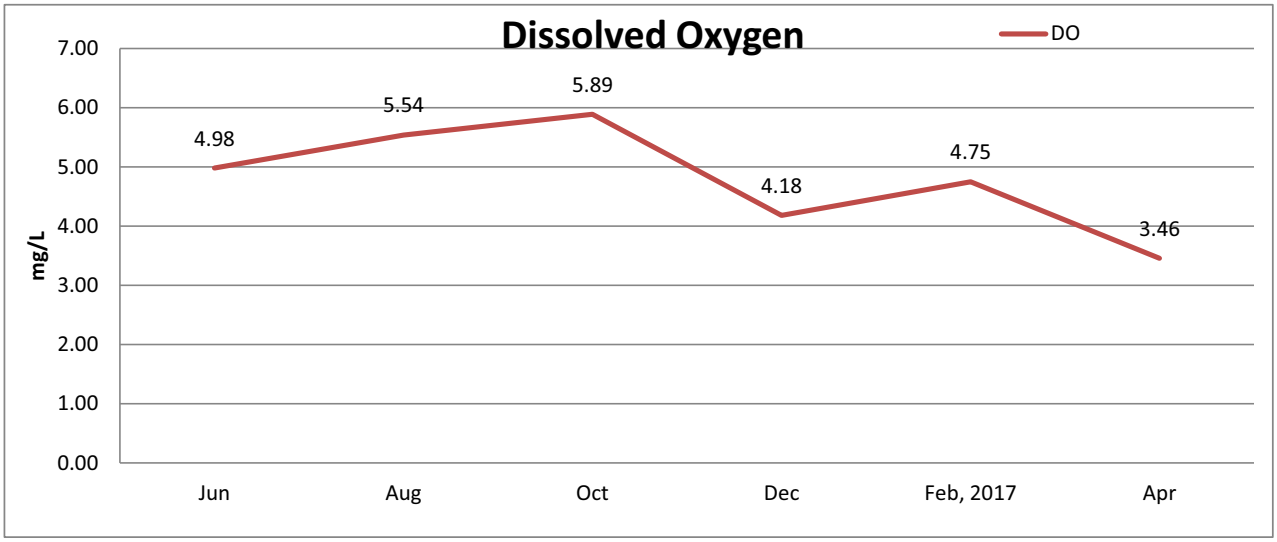
**Graphical Presentation of TUINI WQ Site**

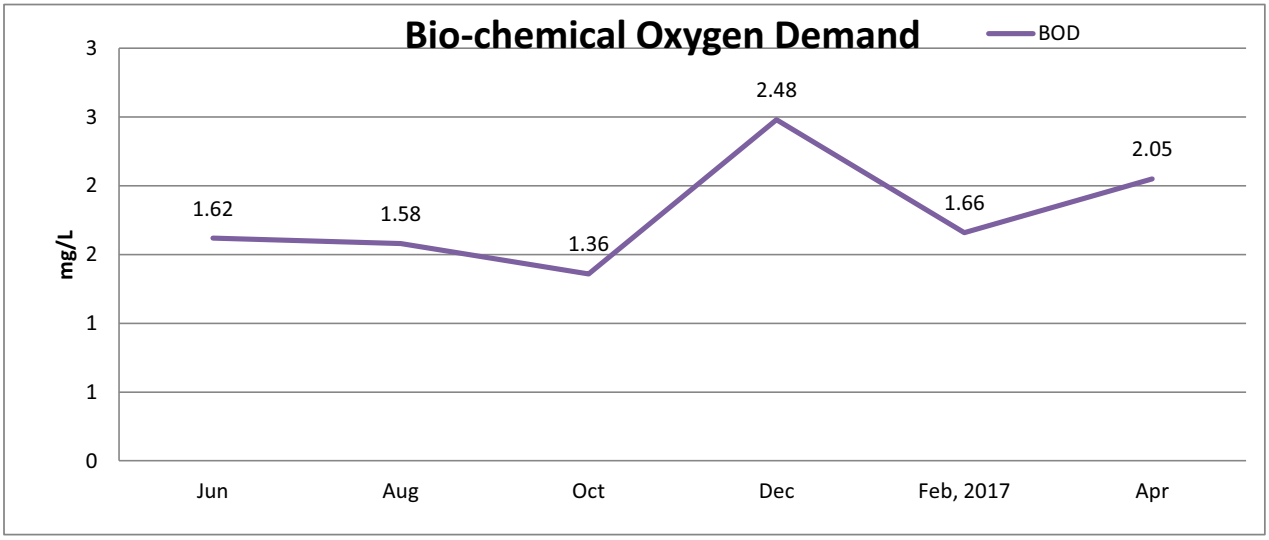


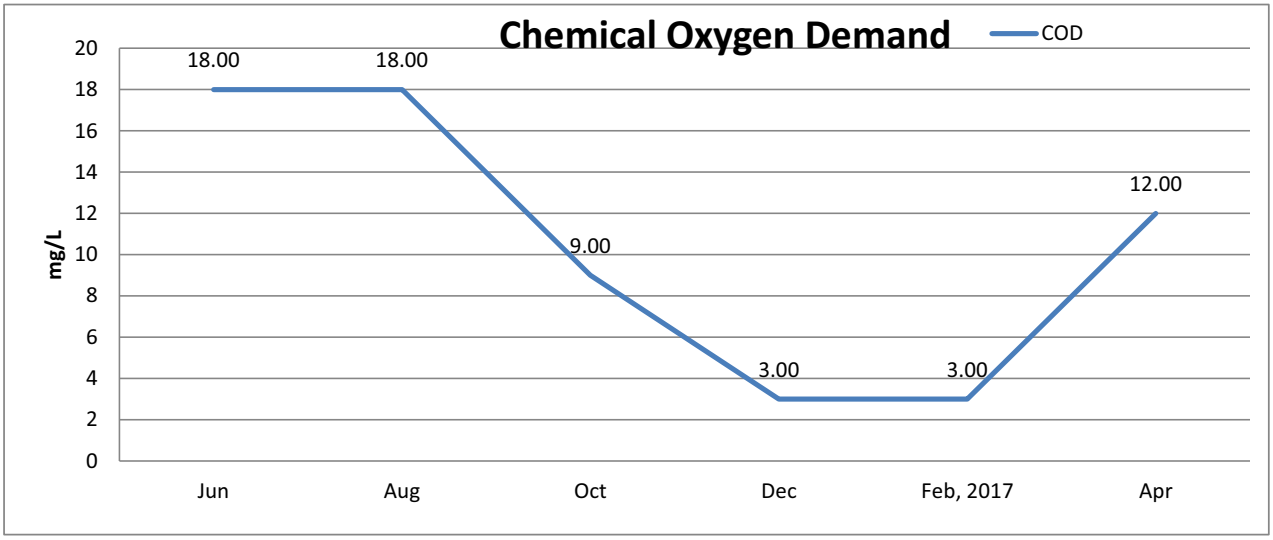



**Graphical Presentation of TUINI WQ Site**



# YASHWANT NAGAR

## General Particulars

| | | | |
|---|---|---|---|
| Site | : ***Y. Nagar*** | Code | : **GYW00P5** |
| State | : **Himachal Pradesh** | District | : **Sirmaur** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Division | : **U.Y. Div. New Delhi** | Sub-Division | : **YSD, New Delhi** |
| Tributary | : **Yamuna** | Sub Tributary | : **Giri** |
| Sub-Sub-Trib. | : **-** | Local River | : **Giri** |
| Drainage Area | : **1349 Sq. Km.** | | |
| Latitude | : **30°53'11"N** | Longitude | : **77°12'07" E** |
| Zero of Gauge | : **890 (m.s.l.)** | Bank | : **Right** |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **28/05/1976** |
| Discharge: | : **28/05/1976** |
| Sediment | : **-** |
| Water Quality | : **28/05/1978** |
| Wireless | : **20/05/1984** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : YASHWANT NAGAR** **Division : UYD, New Delhi**

**Local River : GIRI**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | | 01/08/16 | | 03/10/16 | | 01/12/16 | | 01/02/17 | | 05/04/17 | |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | | Cloudy | | Clear | | Clear | | Clear | | Clear | |
| 2 | Colour_Cod (-) | | Colourless | | Colourless | | Colourless | | Colourless | | Colourless | | Colourless | |
| 3 | Odour_Code (-) | | Odourless | | Odourless | | Odourless | | Odourless | | Odourless | | Odourless | |
| 4 | Temperature | °C | - | | - | - | - | - | - | - | - | - | - | - |
| 5 | pH_GEN (pH units) | | 8.38 | | 7.7 | | 8.97 | | 8.03 | | 7.22 | | 8.2 | |
| 6 | EC_GEN (µmho/cm) | NTU | 315 | | 168 | | 226 | | 307 | | 312 | | 300 | |
| 7 | Total Dissolved Solids | mg/L | 189 | | 101 | | 135 | | 184 | | 203 | | 195 | |
| 8 | Turbiidity | | 2.4 | | 150.5 | | 0.39 | | 0.28 | | 0.4 | | 1.85 | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9.00 | Alk-Phen (as $CaCO_3$) | mg/l | 6.00 | | 0.00 | | 22.50 | | 0.00 | | 0.00 | | 0.00 | |
| 10 | Alk-Tot (as $CaCO_3$) | | 96.39 | | 39.87 | | 81.62 | | 75.80 | | 93.53 | | 77.07 | |
| 11 | Boron | | 0.63 | | | | 0.01 | | 0.07 | | 0.14 | | 0.03 | |
| 12 | Calcium | | 26.29 | | 19.17 | | 25.63 | | 18.40 | | 37.62 | | 24.02 | |
| 13 | Chloride | | 14.50 | | 8.56 | | 17.40 | | 9.04 | | 47.07 | | 20.13 | |
| 14 | Carbonate | | 7.20 | | 0.00 | | 27.00 | | 0.00 | | 0.00 | | 0.00 | |
| 15 | Fluoride | | 0.18 | | 0.17 | | 0.17 | | 0.15 | | 0.12 | | 0.14 | |
| 16 | Bicarbonate | | 101.26 | | 47.84 | | 43.94 | | 90.96 | | 112.24 | | 92.48 | |
| 17 | Potassium | | 1.78 | | 2.20 | | 1.28 | | 1.59 | | 1.67 | | 1.32 | |
| 18 | Magnesium | | 18.63 | | 5.98 | | 14.52 | | 23.40 | | 12.54 | | 8.98 | |
| 19 | Sodium | | 10.31 | | 7.27 | | 0.09 | | 6.49 | | 3.82 | | 23.92 | |
| 20 | Ammonia as N | | 0.04 | | 0.02 | | 0.05 | | 0.02 | | 0.52 | | 0.03 | |
| 21 | $NO_2$+$NO_3$ as N | | 0.45 | | 1.91 | | 0.34 | | 1.75 | | 1.95 | | 5.69 | |
| 22 | Nitrite as N | | 0.03 | | 0.11 | | 0.02 | | 0.02 | | 0.11 | | 0.06 | |
| 23 | Nitrate as N | | 0.41 | | 1.80 | | 0.31 | | 1.74 | | 1.83 | | 5.63 | |
| 24 | Tot. Phosphate as P | | 0.06 | | 0.15 | | 0.14 | | 0.11 | | 0.15 | | 0.10 | |
| 25 | Silicate as $SiO_2$ | | - | | - | | - | | - | | - | | - | |
| 26 | Sulphate as $SO_4$ | | 54.00 | | 24.00 | | 8.20 | | 45.20 | | 5.51 | | 32.32 | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 1.75 | | 1.98 | | 2.74 | | 4.39 | | 1.91 | | 4.21 | |
| 28 | COD | | 11.00 | | 18.00 | | 3.00 | | 18.00 | | 4.00 | | 10.00 | |
| 29 | Dissolved Oxygen | | 5.68 | | 5.41 | | 4.78 | | 4.64 | | 5.26 | | 3.45 | |
| 30 | DO_SAT % | % | - | | - | | - | | - | | - | | - | |
| 31 | Tota Coliform | MPN/100 ml | 11000 | | 2600 | | 14000 | | 13000 | | 3300 | | 17000 | |
| 32 | Fecal Coliform | | 3200 | | 920 | | 2600 | | 2100 | | 1700 | | 7800 | |
| 33 | E. Coli | | - | | - | | - | | - | | - | | - | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | 0.420 | | 0.620 | | 2.710 | | 1.560 | | 0.510 | | 3.140 | |
| 35 | Cadmium | | 0.016 | | 0.027 | | 0.031 | | 0.019 | | 0.017 | | 0.078 | |
| 36 | Chromium | | 1.600 | | 0.070 | | 1.190 | | 0.050 | | 0.090 | | 1.020 | |
| 37 | Copper | | 1.140 | | 6.320 | | 1.320 | | 1.150 | | 1.430 | | 2.850 | |
| 38 | Iron | mg/l | 0.001 | | 0.018 | | 0.055 | | 0.062 | | 0.059 | | 0.162 | |
| 39 | Lead | µg/L | 0.390 | | 0.280 | | 0.190 | | 0.570 | | 0.460 | | 1.050 | |
| 40 | Nickel | | 4.580 | | 1.490 | | 2.560 | | 1.140 | | 2.780 | | 8.910 | |
| 41 | Zinc | mg/l | 0.003 | | 0.001 | | 0.004 | | 0.003 | | 0.004 | | 0.005 | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 66 | | 48 | | 64 | | 46 | | 94 | | 60 | |
| 43 | Tot-Hardness | | 143 | | 73 | | 125 | | 144 | | 146 | | 97 | |
| 44 | Na% | % | 13.34 | | 17.28 | | 0.15 | | 8.84 | | 5.30 | | 34.40 | |
| 45 | RSC (-) | | -0.97 | | -0.67 | | -0.87 | | -1.38 | | -1.09 | | -0.43 | |
| 46 | SAR (-) | | 0.37 | | 0.37 | | 0.00 | | 0.24 | | 0.14 | | 1.05 | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

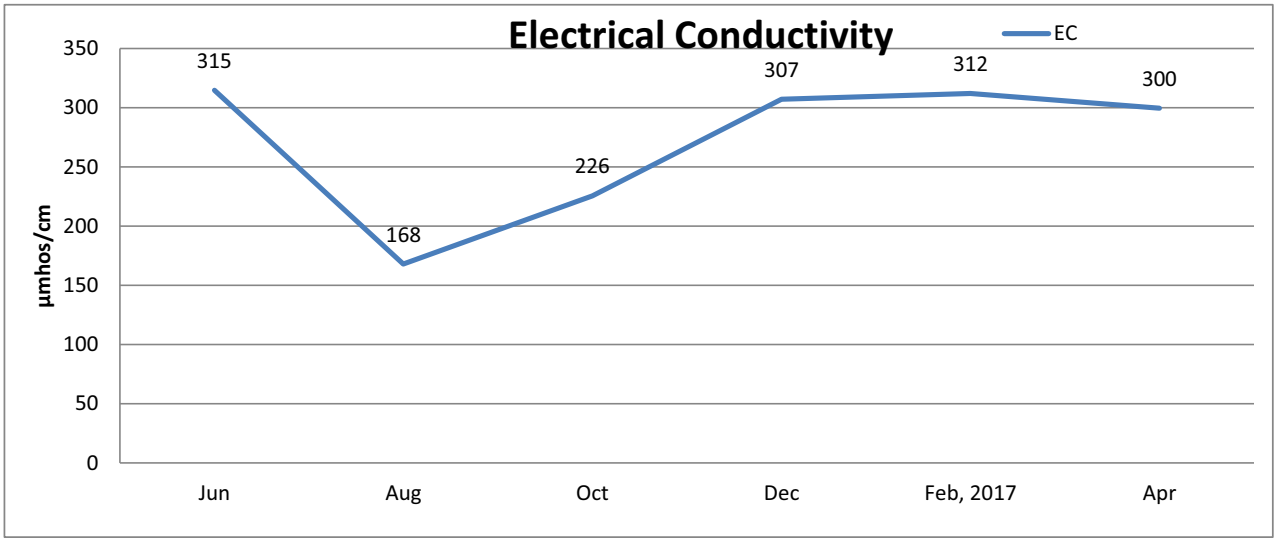
# RIVER WATER SUMMARY - 2016-2017

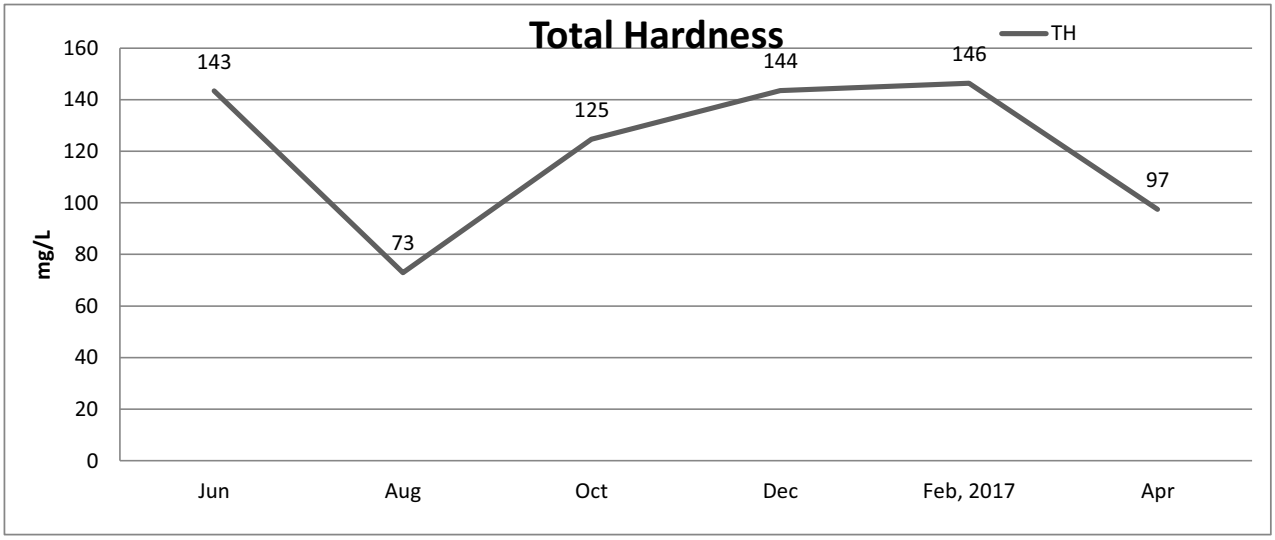
**Station Name : YASHWANT NAGAR** **Division : UYD, New Delhi**

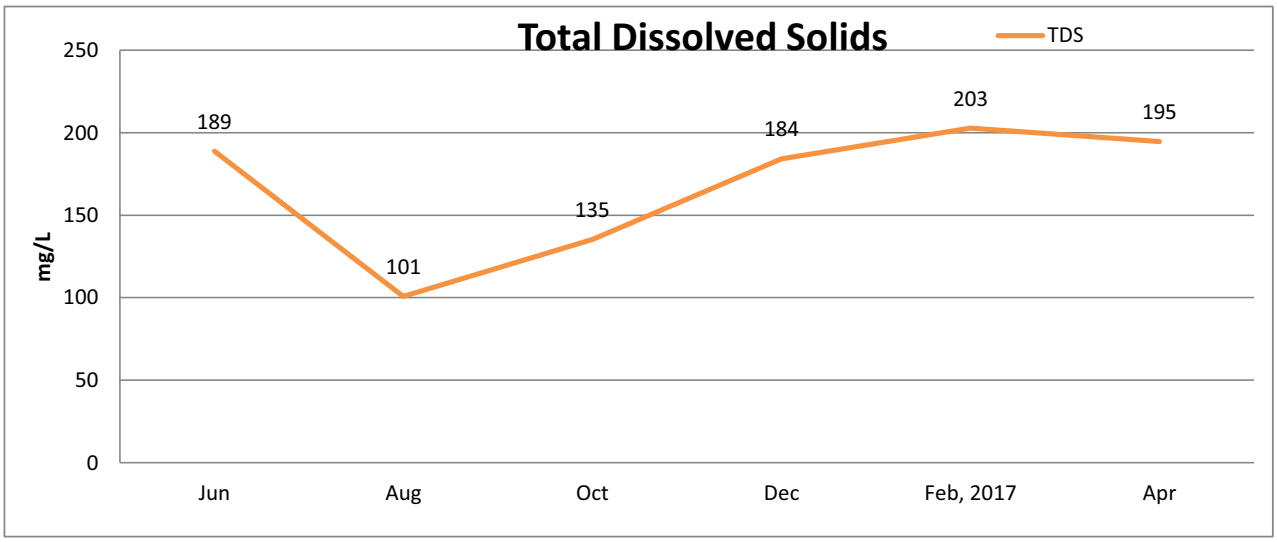
**Local River : GIRI**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 6 | 8.97 | 7.22 | 8.08 | 8.06 | 8.20 | 8.20 |
| EC_GEN (µmho/cm) | 6 | 315 | 168 | 271 | 265 | 300 | 300 |
| Total Dissolved Solids | 6 | 203 | 101 | 168 | 162 | 195 | 195 |
| Turbiidity | 6 | 150.5 | 0.3 | 26.0 | 30.8 | 1.9 | 1.9 |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 6 | 22.50 | 0.00 | 4.8 | 5.70 | 0.00 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 6 | 96.39 | 39.87 | 77.4 | 77.44 | 77.07 | 77.07 |
| Boron | 5 | 0.63 | 0.01 | 0.2 | 0.21 | 0.03 | 0.03 |
| Calcium | 6 | 37.62 | 18.40 | 25.2 | 25.42 | 24.02 | 24.02 |
| Chloride | 6 | 47.07 | 8.56 | 19.4 | 19.31 | 20.13 | 20.13 |
| Carbonate | 6 | 27.00 | 0.00 | 5.7 | 6.84 | 0.00 | 0.00 |
| Fluoride | 6 | 0.18 | 0.12 | 0.2 | 0.15 | 0.14 | 0.14 |
| Bicarbonate | 6 | 112.24 | 43.94 | 81.5 | 79.25 | 92.48 | 92.48 |
| Potassium | 6 | 2.20 | 1.28 | 1.6 | 1.70 | 1.32 | 1.32 |
| Magnesium | 6 | 23.40 | 5.98 | 14.0 | 15.02 | 8.98 | 8.98 |
| Sodium | 6 | 23.92 | 0.09 | 8.7 | 5.60 | 23.92 | 23.92 |
| Ammonia as N | 6 | 0.52 | 0.02 | 0.1 | 0.13 | 0.03 | 0.03 |
| $NO_2$+$NO_3$ as N | 6 | 5.69 | 0.34 | 2.0 | 1.28 | 5.69 | 5.69 |
| Nitrite as N | 6 | 0.11 | 0.02 | 0.1 | 0.06 | 0.06 | 0.06 |
| Nitrate as N | 6 | 5.63 | 0.31 | 2.0 | 1.22 | 5.63 | 5.63 |
| Tot. Phosphate as P | 6 | 0.15 | 0.06 | 0.1 | 0.12 | 0.10 | 0.10 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 6 | 54.00 | 5.51 | 28.2 | 27.38 | 32.32 | 32.32 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 6 | 4.4 | 1.8 | 2.8 | 2.6 | 4.2 | 4.2 |
| COD | 6 | 18.0 | 3.0 | 10.7 | 10.8 | 10.0 | 10.0 |
| Dissolved Oxygen | 6 | 5.68 | 3.45 | 4.87 | 5.15 | 3.5 | 3.5 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 6 | 17000 | 2600 | 10150 | 8780 | 17000 | 17000 |
| Fecal Coliform | 6 | 7800 | 920 | 3053 | 2104 | 7800 | 7800 |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 6 | 3.14 | 0.42 | 1.49 | 1.16 | 3.14 | 3.14 |
| Cadmium | 6 | 0.08 | 0.02 | 0.03 | 0.02 | 0.08 | 0.08 |
| Chromium | 6 | 1.60 | 0.05 | 0.67 | 0.60 | 1.02 | 1.02 |
| Copper | 6 | 6.32 | 1.14 | 2.37 | 2.27 | 2.85 | 2.85 |
| Iron | 6 | 0.16 | 0.00 | 0.06 | 0.04 | 0.16 | 0.16 |
| Lead | 6 | 1.05 | 0.19 | 0.49 | 0.38 | 1.05 | 1.05 |
| Nickel | 6 | 8.91 | 1.14 | 3.58 | 2.51 | 8.91 | 8.91 |
| Zinc | 6 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 6 | 94 | 46 | 63 | 64 | 60 | 60 |
| Tot-Hardness | 6 | 146 | 73 | 121 | 126 | 97 | 97 |
| Na% | 6 | 34 | 0 | 13 | 9 | 34 | 34 |
| RSC (-) | 6 | -0.43 | -1.38 | -0.9 | -1.00 | -0.43 | -0.43 |
| SAR (-) | 6 | 1.05 | 0.00 | 0.4 | 0.22 | 1.05 | 1.05 |
| **PESTICIDES** | | | | | | | |

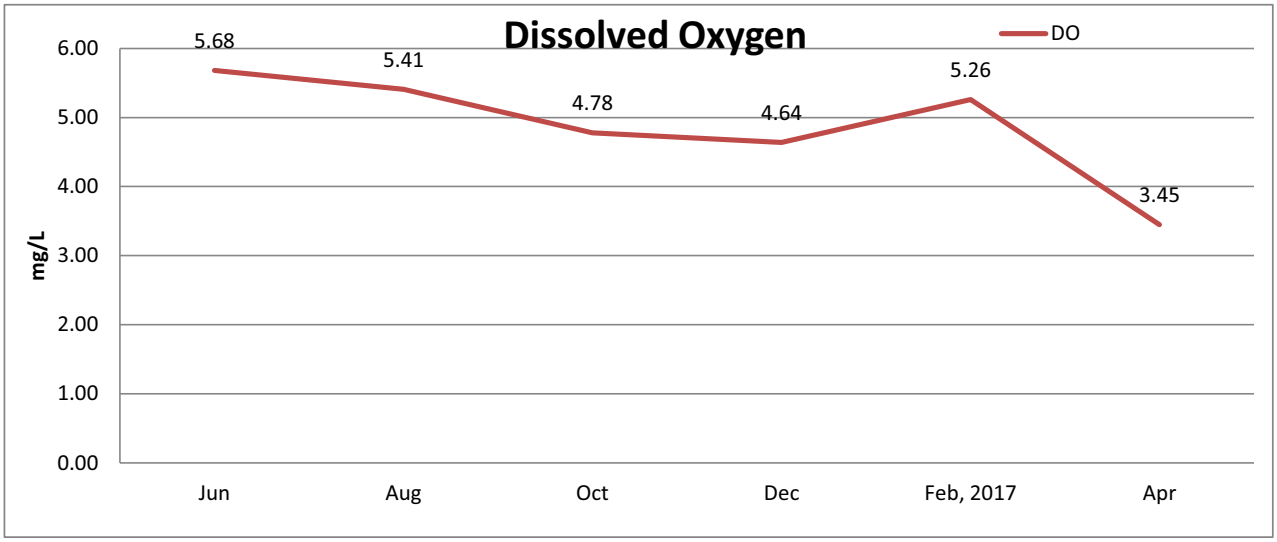
**Graphical Presentation of YASWANT NAGAR WQ Site**

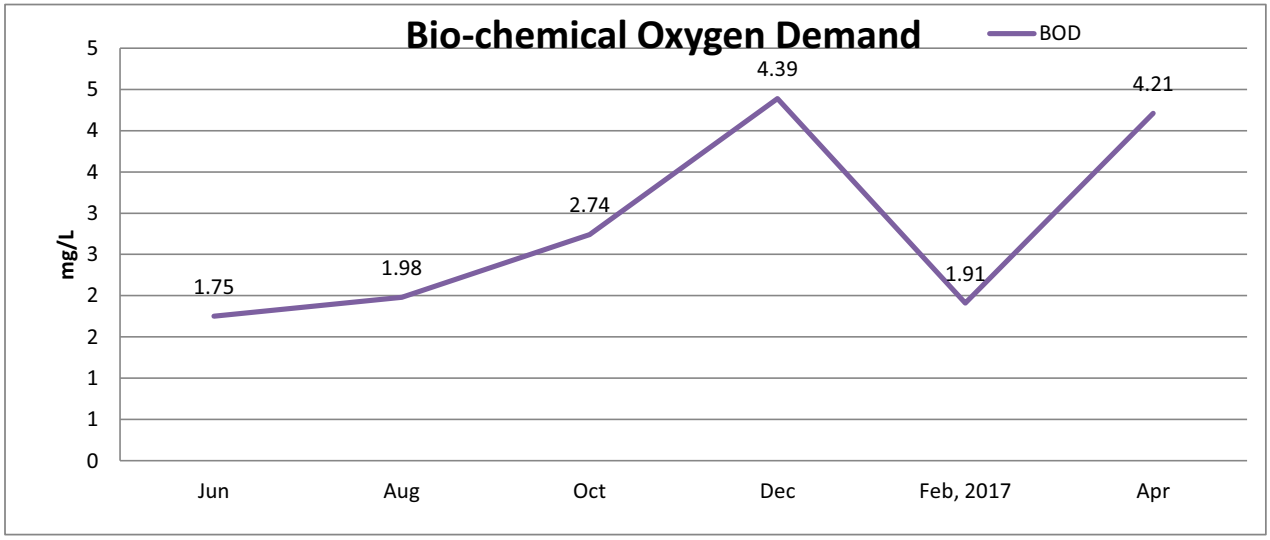


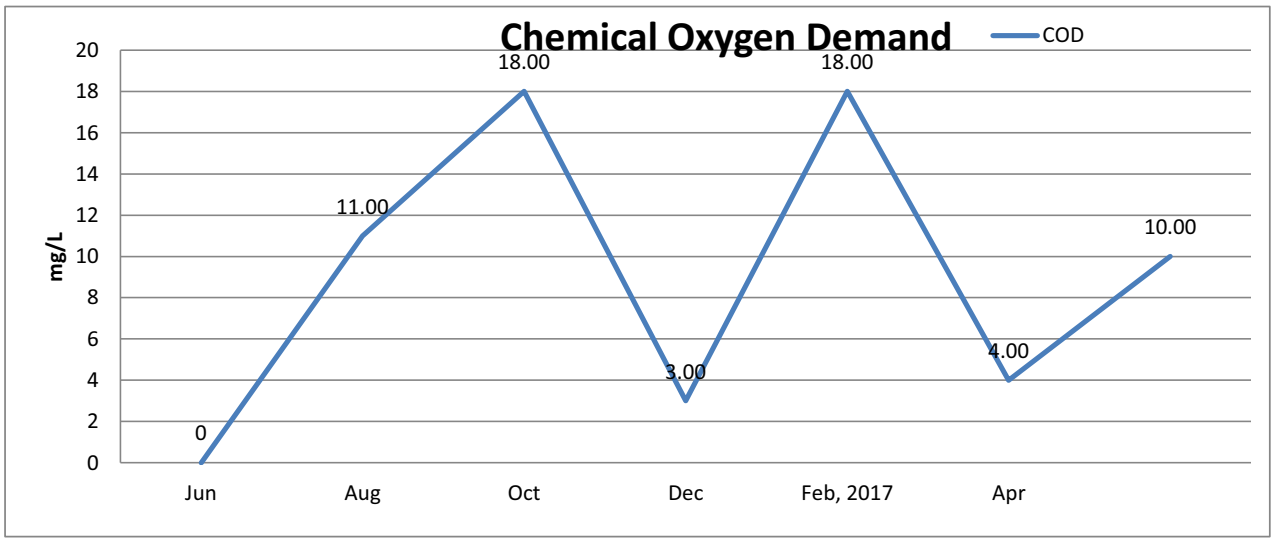



**Graphical Presentation of YASWANT NAGAR WQ Site**



# POANTA

## General Particulars

| | | | |
|---|---|---|---|
| Site | :***Poanta*** | Code | : **GY000Y5** |
| State | : **Himachal Pradesh** | District | : **Sirmaur** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Division | : **U.Y.D. New Delhi** | Sub-Division | : **UYCR, Dehradun** |
| Tributary | : **Yamuna** | Sub Tributary | : **-** |
| Sub-Sub-Trib. | : **-** | Local River | : **Yamuna** |
| Drainage Area | : **10769 Sq Km.** | | |
| Latitude | : **30°25'50"N** | Longitude | : **77°37'02"E** |
| Zero of Gauge | : **372 (M.S.L.)** | Bank | : **Left** |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **16/10/1978** |
| Discharge: | : **11/11/1978** |
| Sediment | : **-** |
| Water Quality | : **31/05/1978** |
| Wireless | : **22/04/1978** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : POANTA** **Division : UYD, New Delhi**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | | 01/08/16 | | 03/10/16 | | 01/12/16 | | 01/02/17 | | 04/04/17 | |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | | Cloudy | | Clear | | Clear | | Clear | | Clear | |
| 2 | Colour_Cod (-) | | Colourless | | Colourless | | Colourless | | Colourless | | Colourless | | Colourless | |
| 3 | Odour_Code (-) | | Odourless | | Odourless | | Odourless | | Odourless | | Odourless | | Odourless | |
| 4 | Temperature | °C | - | | - | | - | | - | | - | | - | |
| 5 | pH_GEN (pH units) | | 7.99 | | 8.04 | | 8.12 | | 8.13 | | 8.1 | | 7.82 | |
| 6 | EC_GEN (µmho/cm) | NTU | 251 | | 190 | | 267 | | 376 | | 429 | | 332 | |
| 7 | Total Dissolved Solids | mg/L | 150 | | 119 | | 160 | | 226 | | 279 | | 216 | |
| 8 | Turbiidity | | 35.2 | | 22.5 | | 4.86 | | 8.39 | | 6.59 | | 4.99 | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9.00 | Alk-Phen (as $CaCO_3$) | mg/l | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | |
| 10 | Alk-Tot (as $CaCO_3$) | | 50.86 | | 45.81 | | 86.62 | | 113.72 | | 167.75 | | 117.43 | |
| 11 | Boron | | | | | | 0.22 | | 0.10 | | 0.19 | | 0.05 | |
| 12 | Calcium | | 24.08 | | 17.56 | | 23.07 | | 34.15 | | 42.18 | | 35.67 | |
| 13 | Chloride | | 18.11 | | 8.65 | | 13.85 | | 40.74 | | 24.00 | | 17.25 | |
| 14 | Carbonate | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | |
| 15 | Fluoride | | 0.19 | | 0.21 | | 0.22 | | 0.20 | | 0.18 | | 0.18 | |
| 16 | Bicarbonate | | 61.03 | | 54.97 | | 103.94 | | 136.46 | | 201.30 | | 140.91 | |
| 17 | Potassium | | 1.53 | | 3.17 | | 1.41 | | 1.89 | | 1.76 | | 1.20 | |
| 18 | Magnesium | | 12.58 | | 6.50 | | 12.22 | | 22.64 | | 26.71 | | 13.54 | |
| 19 | Sodium | | 5.48 | | 4.76 | | 5.01 | | 7.08 | | 1.94 | | 6.29 | |
| 20 | Ammonia as N | | 0.04 | | 0.03 | | 0.01 | | 0.01 | | 0.04 | | 0.07 | |
| 21 | $NO_2$+$NO_3$ as N | | 0.74 | | 1.21 | | 1.08 | | 1.34 | | 1.69 | | 4.35 | |
| 22 | Nitrite as N | | 0.01 | | 0.26 | | 0.02 | | 0.05 | | 0.02 | | 0.02 | |
| 23 | Nitrate as N | | 0.73 | | 0.95 | | 1.05 | | 1.29 | | 1.66 | | 4.33 | |
| 24 | Tot. Phosphate as P | | 0.03 | | 0.56 | | 0.02 | | 0.04 | | 0.06 | | 0.01 | |
| 25 | Silicate as $SiO_2$ | | - | | - | | - | | - | | - | | - | |
| 26 | Sulphate as $SO_4$ | | 36.40 | | 32.00 | | 17.20 | | 10.40 | | 4.30 | | 26.13 | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 1.32 | | 2.77 | | 2.68 | | 2.92 | | 1.59 | | 2.40 | |
| 28 | COD | | 4.00 | | 14.00 | | 15.00 | | 13.00 | | 4.00 | | 9.00 | |
| 29 | Dissolved Oxygen | | 5.17 | | 4.99 | | 5.21 | | 5.28 | | 4.89 | | 4.48 | |
| 30 | DO_SAT % | % | - | | - | | - | | - | | - | | - | |
| 31 | Tota Coliform | MPN/100 ml | 1400 | | 3900 | | 2600 | | 14000 | | 4900 | | 39000 | |
| 32 | Fecal Coliform | | 340 | | 1400 | | 680 | | 1400 | | 3900 | | 21000 | |
| 33 | E. Coli | | - | | - | | - | | - | | - | | - | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | 0.540 | | 0.460 | | 1.240 | | 3.350 | | 0.150 | | 2.940 | |
| 35 | Cadmium | | 0.014 | | 0.024 | | 0.042 | | 0.043 | | 0.016 | | 0.043 | |
| 36 | Chromium | | 1.400 | | 0.430 | | 0.210 | | 1.250 | | 0.060 | | 0.720 | |
| 37 | Copper | | 0.510 | | 1.020 | | 1.250 | | 5.020 | | 1.660 | | 3.650 | |
| 38 | Iron | mg/l | 0.013 | | 0.016 | | 0.055 | | 0.100 | | 0.074 | | 0.140 | |
| 39 | Lead | µg/L | 0.610 | | 0.210 | | 0.410 | | 1.070 | | 0.380 | | 1.020 | |
| 40 | Nickel | | 5.700 | | 2.370 | | 3.450 | | 4.560 | | 4.350 | | 5.760 | |
| 41 | Zinc | mg/l | 0.002 | | 0.000 | | 0.001 | | 0.007 | | 0.004 | | 0.005 | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 60 | | 44 | | 58 | | 85 | | 105 | | 89 | |
| 43 | Tot-Hardness | | 113 | | 71 | | 109 | | 180 | | 217 | | 146 | |
| 44 | Na% | % | 9.42 | | 12.11 | | 8.98 | | 7.79 | | 1.89 | | 8.50 | |
| 45 | RSC (-) | | -1.25 | | -0.52 | | -0.47 | | -1.36 | | -1.03 | | -0.60 | |
| 46 | SAR (-) | | 0.22 | | 0.25 | | 0.21 | | 0.23 | | 0.06 | | 0.23 | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

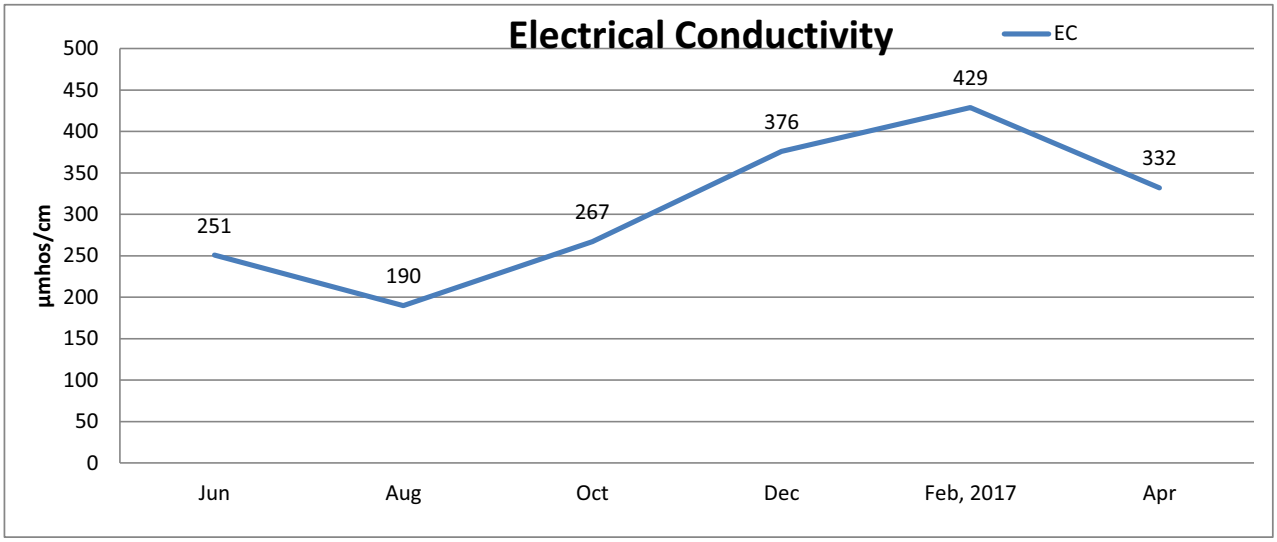
# RIVER WATER SUMMARY - 2016-2017

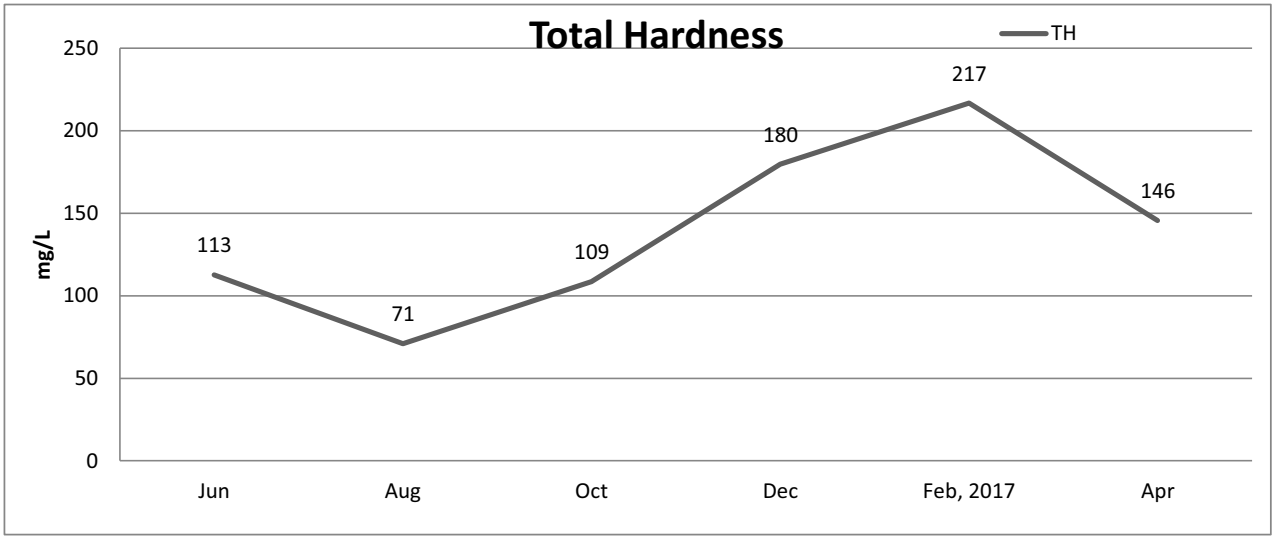
**Station Name : POANTA** **Division : UYD, New Delhi**

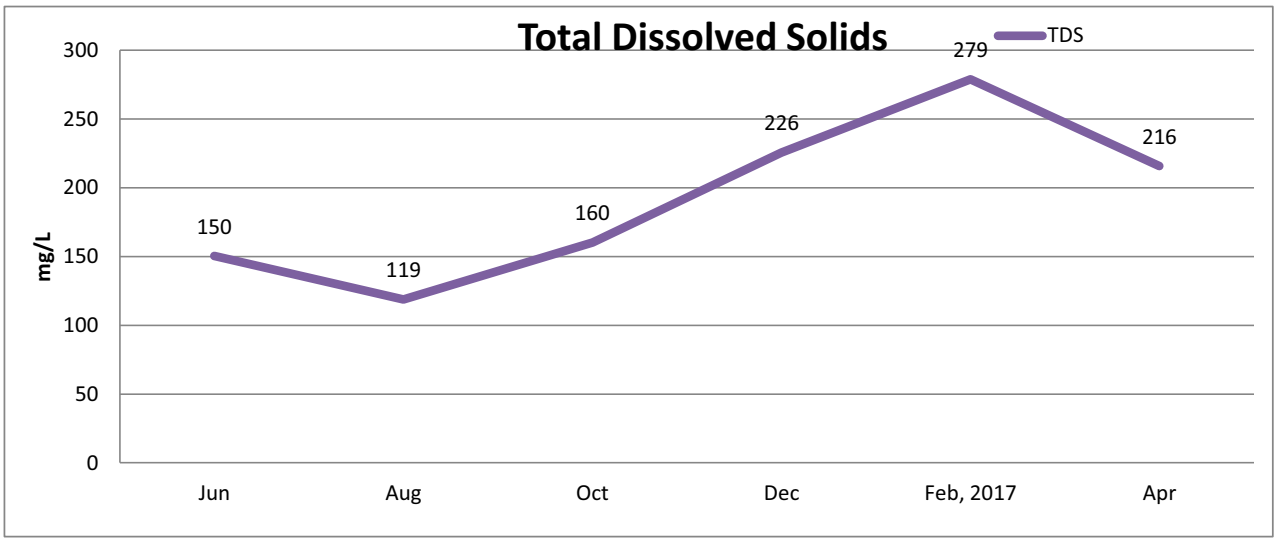
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 6 | 8.13 | 7.82 | 8.03 | 8.08 | 7.82 | 7.82 |
| EC_GEN (µmho/cm) | 6 | 429 | 190 | 307 | 303 | 332 | 332 |
| Total Dissolved Solids | 6 | 279 | 119 | 192 | 187 | 216 | 216 |
| Turbiidity | 6 | 35.2 | 4.9 | 13.8 | 15.5 | 5.0 | 5.0 |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 6 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 6 | 167.75 | 45.81 | 97.0 | 92.95 | 117.43 | 117.43 |
| Boron | 4 | 0.22 | 0.05 | 0.1 | 0.17 | 0.05 | 0.05 |
| Calcium | 6 | 42.18 | 17.56 | 29.5 | 28.21 | 35.67 | 35.67 |
| Chloride | 6 | 40.74 | 8.65 | 20.4 | 21.07 | 17.25 | 17.25 |
| Carbonate | 6 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Fluoride | 6 | 0.22 | 0.18 | 0.2 | 0.20 | 0.18 | 0.18 |
| Bicarbonate | 6 | 201.30 | 54.97 | 116.4 | 111.54 | 140.91 | 140.91 |
| Potassium | 6 | 3.17 | 1.20 | 1.8 | 1.95 | 1.20 | 1.20 |
| Magnesium | 6 | 26.71 | 6.50 | 15.7 | 16.13 | 13.54 | 13.54 |
| Sodium | 6 | 7.08 | 1.94 | 5.1 | 4.85 | 6.29 | 6.29 |
| Ammonia as N | 6 | 0.07 | 0.01 | 0.0 | 0.02 | 0.07 | 0.07 |
| $NO_2$+$NO_3$ as N | 6 | 4.35 | 0.74 | 1.7 | 1.21 | 4.35 | 4.35 |
| Nitrite as N | 6 | 0.26 | 0.01 | 0.1 | 0.07 | 0.02 | 0.02 |
| Nitrate as N | 6 | 4.33 | 0.73 | 1.7 | 1.14 | 4.33 | 4.33 |
| Tot. Phosphate as P | 6 | 0.56 | 0.01 | 0.1 | 0.14 | 0.01 | 0.01 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 6 | 36.40 | 4.30 | 21.1 | 20.06 | 26.13 | 26.13 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 6 | 2.9 | 1.3 | 2.3 | 2.3 | 2.4 | 2.4 |
| COD | 6 | 15.0 | 4.0 | 9.8 | 10.0 | 9.0 | 9.0 |
| Dissolved Oxygen | 6 | 5.28 | 4.48 | 5.00 | 5.11 | 4.5 | 4.5 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 6 | 39000 | 1400 | 10967 | 5360 | 39000 | 39000 |
| Fecal Coliform | 6 | 21000 | 340 | 4787 | 1544 | 21000 | 21000 |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 6 | 3.35 | 0.15 | 1.45 | 1.15 | 2.94 | 2.94 |
| Cadmium | 6 | 0.04 | 0.01 | 0.03 | 0.03 | 0.04 | 0.04 |
| Chromium | 6 | 1.40 | 0.06 | 0.68 | 0.67 | 0.72 | 0.72 |
| Copper | 6 | 5.02 | 0.51 | 2.19 | 1.89 | 3.65 | 3.65 |
| Iron | 6 | 0.14 | 0.01 | 0.07 | 0.05 | 0.14 | 0.14 |
| Lead | 6 | 1.07 | 0.21 | 0.62 | 0.54 | 1.02 | 1.02 |
| Nickel | 6 | 5.76 | 2.37 | 4.37 | 4.09 | 5.76 | 5.76 |
| Zinc | 6 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 6 | 105 | 44 | 74 | 71 | 89 | 89 |
| Tot-Hardness | 6 | 217 | 71 | 139 | 138 | 146 | 146 |
| Na% | 6 | 12 | 2 | 8 | 8 | 9 | 9 |
| RSC (-) | 6 | -0.47 | -1.36 | -0.9 | -0.93 | -0.60 | -0.60 |
| SAR (-) | 6 | 0.25 | 0.06 | 0.2 | 0.19 | 0.23 | 0.23 |
| **PESTICIDES** | | | | | | | |

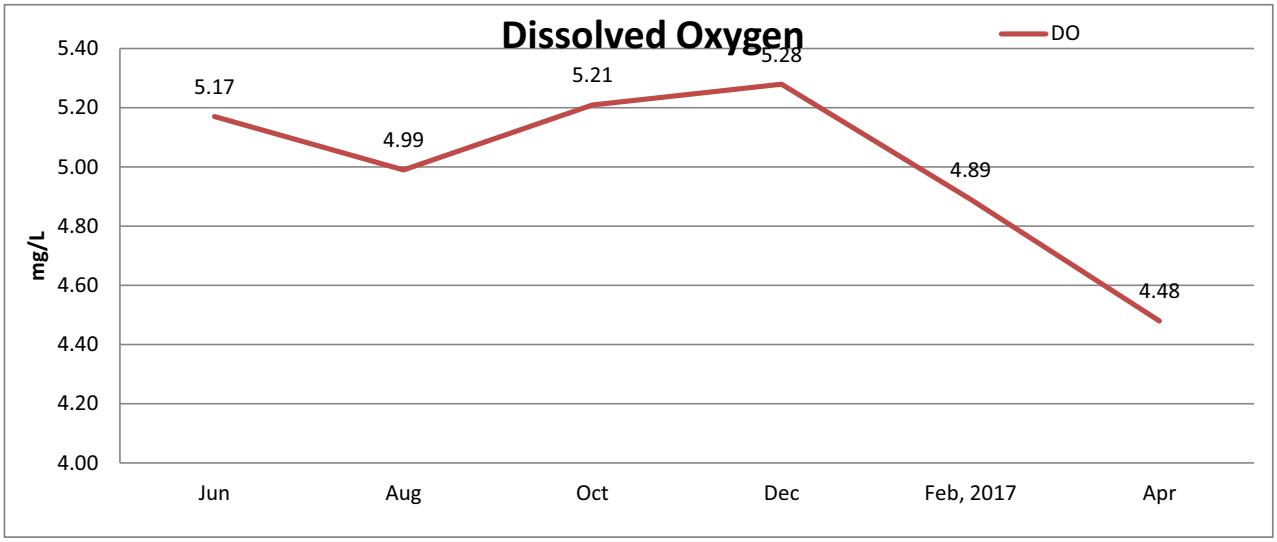
**Graphical Presentation of POANTA WQ Site**

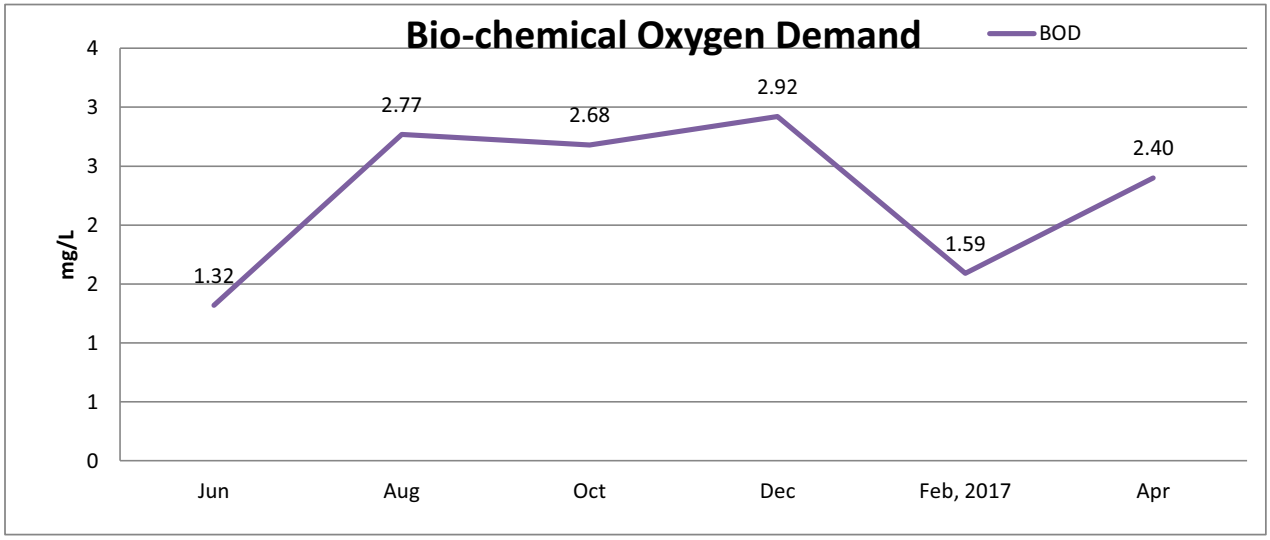


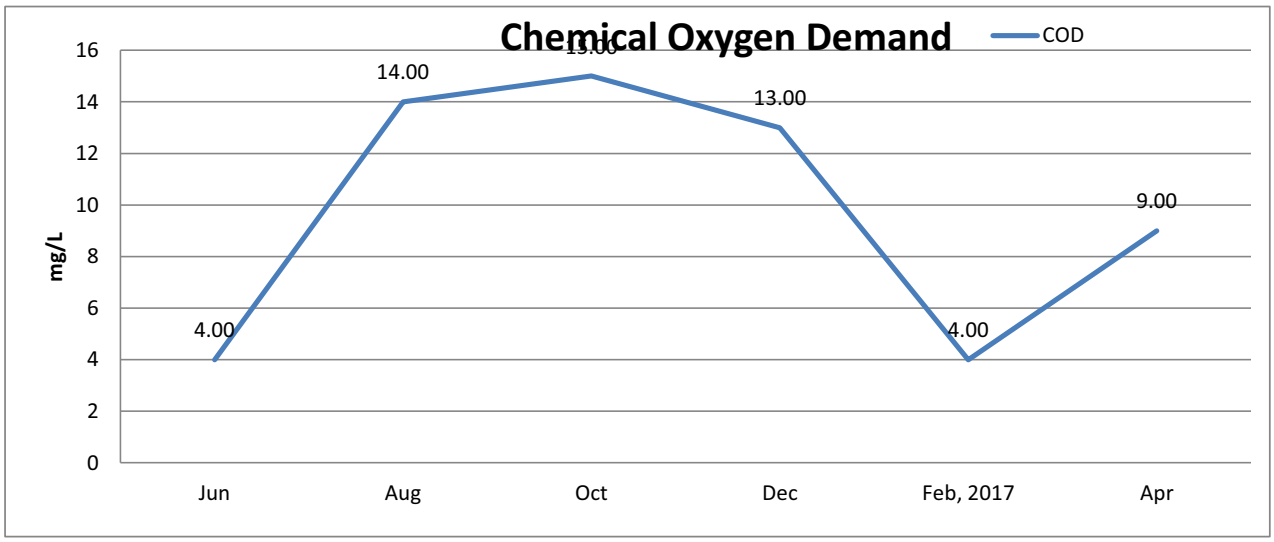



**Graphical Presentation of POANTA WQ Site**



# KALANAUR

## General Particulars

| | | | |
|---|---|---|---|
| Site | :***Kalanaur*** | Code | : **GY000X8** |
| State | : **Uttar Pradesh** | District | : **Saharanpur** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Division | : **U.Y.D. New Delhi** | Sub-Division | : **YSD, New Delhi** |
| Tributary | : **Yamuna** | Sub Tributary | : **-** |
| Sub-Sub-Trib. | : **-** | Local River | : **Yamuna** |
| Drainage Area | : **12639 Sq. Km.** | | |
| Latitude | : **30°04'05"N** | Longitude | : **77°21'52"E** |
| Zero of Gauge | : **260 (m.s.l.)** | Bank | : **Right** |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **28/10/1975** |
| Discharge: | : **28/10/1975** |
| Sediment | : **-** |
| Water Quality | : **11/11/1978** |
| Wireless | : **19/09/1976** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : KALANOUR** **Division : UYD, New Delhi**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | | 01/08/16 | | 03/10/16 | | 01/12/16 | | 01/02/17 | | 05/04/17 | |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | | Cloudy | | Clear | | Clear | | Clear | | Clear | |
| 2 | Colour_Cod (-) | | Colourless | | Colourless | | Colourless | | Colourless | | Colourless | | Colourless | |
| 3 | Odour_Code (-) | | Odourless | | Odourless | | Odourless | | Odourless | | Odourless | | Odourless | |
| 4 | Temperature | °C | - | | - | | - | | - | | - | | - | |
| 5 | pH_GEN (pH units) | | 8.08 | | 7.78 | | 8.35 | | 8.36 | | 8.2 | | 7.8 | |
| 6 | EC_GEN (µmho/cm) | NTU | 238 | | 246 | | 417 | | 429 | | 506 | | 535 | |
| 7 | Total Dissolved Solids | mg/L | 143 | | 129 | | 250 | | 257 | | 329 | | 348 | |
| 8 | Turbiidity | | 4.1 | | 496 | | 12.78 | | 6.53 | | 9.61 | | 5.45 | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9.00 | Alk-Phen (as $CaCO_3$) | mg/l | 0.00 | | 0.00 | | 0.00 | | 3.99 | | 0.00 | | 0.00 | |
| 10 | Alk-Tot (as $CaCO_3$) | | 56.56 | | 107.24 | | 119.06 | | 182.35 | | 207.43 | | 204.96 | |
| 11 | Boron | | 0.09 | | | | 0.04 | | 0.11 | | 0.25 | | 0.11 | |
| 12 | Calcium | | 17.74 | | 30.41 | | 35.03 | | 55.94 | | 71.44 | | 60.42 | |
| 13 | Chloride | | 26.27 | | 8.17 | | 14.56 | | 25.72 | | 50.77 | | 21.09 | |
| 14 | Carbonate | | 0.00 | | 0.00 | | 0.00 | | 4.79 | | 0.00 | | 0.00 | |
| 15 | Fluoride | | 0.22 | | 0.22 | | 0.20 | | 0.19 | | 0.18 | | 0.18 | |
| 16 | Bicarbonate | | 67.87 | | 128.69 | | 142.88 | | 209.24 | | 248.92 | | 245.95 | |
| 17 | Potassium | | 24.17 | | 3.40 | | 3.64 | | 3.51 | | 4.17 | | 3.86 | |
| 18 | Magnesium | | 7.28 | | 9.12 | | 12.81 | | 23.85 | | 17.13 | | 12.27 | |
| 19 | Sodium | | 7.93 | | 5.59 | | 1.89 | | 2.17 | | 9.93 | | 24.59 | |
| 20 | Ammonia as N | | 0.06 | | 0.01 | | 0.03 | | 0.02 | | 0.06 | | 0.12 | |
| 21 | $NO_2$+$NO_3$ as N | | 0.39 | | 1.48 | | 0.39 | | 1.55 | | 1.90 | | 3.63 | |
| 22 | Nitrite as N | | 0.04 | | 0.62 | | 0.06 | | 0.04 | | 0.27 | | 0.06 | |
| 23 | Nitrate as N | | 0.36 | | 0.86 | | 0.33 | | 1.51 | | 1.63 | | 3.57 | |
| 24 | Tot. Phosphate as P | | 0.29 | | 0.16 | | 0.14 | | 0.64 | | 0.17 | | 0.09 | |
| 25 | Silicate as $SiO_2$ | | - | | - | | - | | - | | - | | - | |
| 26 | Sulphate as $SO_4$ | | 30.40 | | 6.60 | | 22.80 | | 41.20 | | 9.34 | | 23.60 | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 2.03 | | 1.23 | | 1.22 | | 1.88 | | 1.53 | | 2.42 | |
| 28 | COD | | 8.00 | | 14.00 | | 3.00 | | 7.00 | | 4.00 | | 8.00 | |
| 29 | Dissolved Oxygen | | 4.89 | | 5.24 | | 6.12 | | 6.14 | | 4.87 | | 5.24 | |
| 30 | DO_SAT % | % | - | | - | | - | | - | | - | | - | |
| 31 | Tota Coliform | MPN/100 ml | 4700 | | 3900 | | 3300 | | 4700 | | 4900 | | 21000 | |
| 32 | Fecal Coliform | | 2100 | | 680 | | 1400 | | 1400 | | 2200 | | 11000 | |
| 33 | E. Coli | | - | | - | | - | | - | | - | | - | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | 3.000 | | 0.520 | | 2.230 | | 1.010 | | 0.900 | | 7.370 | |
| 35 | Cadmium | | 0.045 | | 0.025 | | 0.031 | | 0.020 | | 0.015 | | 0.056 | |
| 36 | Chromium | | 1.690 | | 0.760 | | 0.930 | | 0.970 | | 0.050 | | 0.880 | |
| 37 | Copper | | 2.170 | | 5.000 | | 0.010 | | 0.090 | | 0.770 | | 4.330 | |
| 38 | Iron | mg/l | 0.011 | | 0.021 | | 0.056 | | 0.063 | | 0.064 | | 0.155 | |
| 39 | Lead | µg/L | 0.040 | | 0.300 | | 0.510 | | 1.580 | | 0.410 | | 1.070 | |
| 40 | Nickel | | 5.570 | | 2.010 | | 7.890 | | 6.620 | | 4.000 | | 8.460 | |
| 41 | Zinc | mg/l | 0.001 | | 0.000 | | 0.016 | | 0.006 | | 0.002 | | 0.003 | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 44 | | 76 | | 88 | | 140 | | 179 | | 151 | |
| 43 | Tot-Hardness | | 75 | | 114 | | 141 | | 239 | | 250 | | 202 | |
| 44 | Na% | % | 14.03 | | 9.31 | | 2.74 | | 1.90 | | 7.80 | | 20.52 | |
| 45 | RSC (-) | | -0.38 | | -0.17 | | -0.48 | | -1.19 | | -0.92 | | -0.01 | |
| 46 | SAR (-) | | 0.40 | | 0.23 | | 0.07 | | 0.06 | | 0.27 | | 0.75 | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

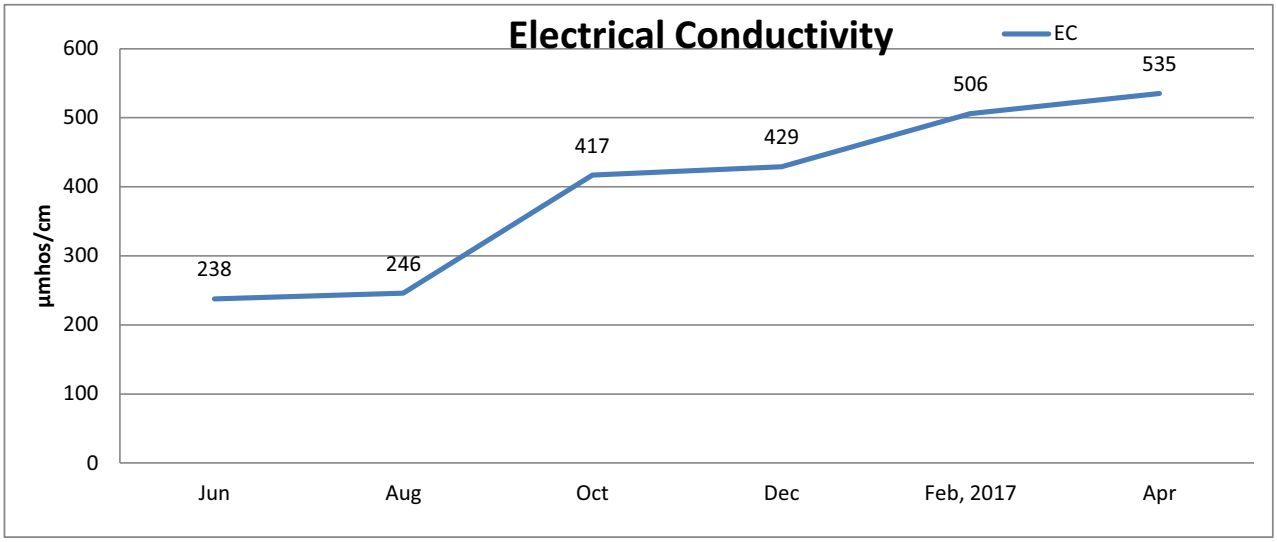
# RIVER WATER SUMMARY - 2016-2017

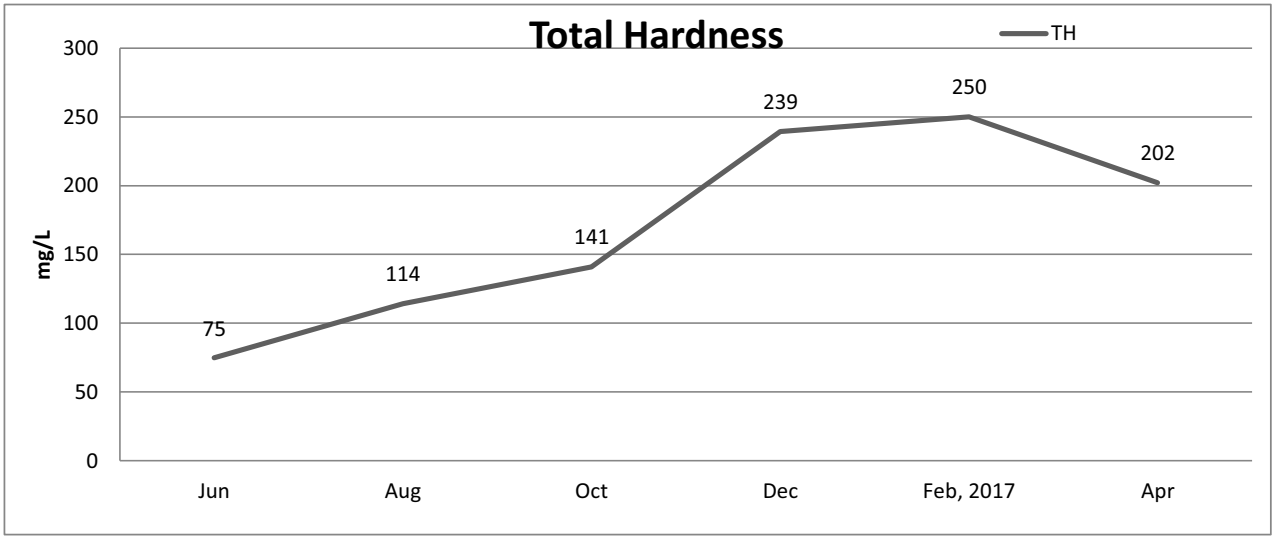
**Station Name : KALANOUR** **Division : UYD, New Delhi**

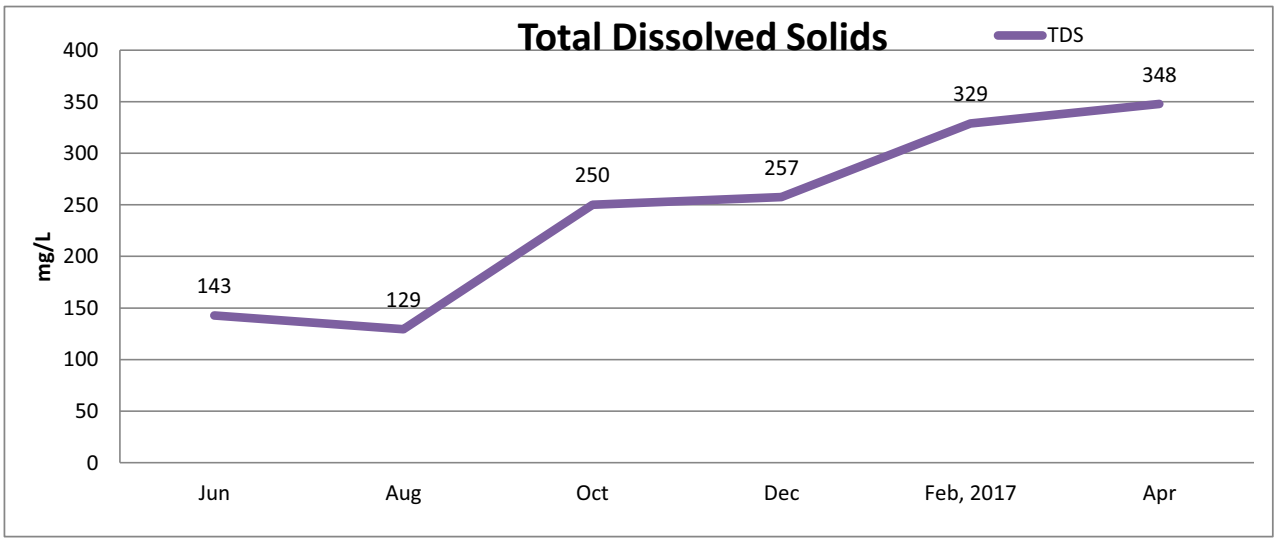
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 6 | 8.36 | 7.78 | 8.10 | 8.15 | 7.80 | 7.80 |
| EC_GEN (µmho/cm) | 6 | 535 | 238 | 395 | 367 | 535 | 535 |
| Total Dissolved Solids | 6 | 348 | 129 | 243 | 222 | 348 | 348 |
| Turbiidity | 6 | 496.0 | 4.1 | 89.1 | 105.8 | 5.5 | 5.5 |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 6 | 3.99 | 0.00 | 0.7 | 0.80 | 0.00 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 6 | 207.43 | 56.56 | 146.3 | 134.53 | 204.96 | 204.96 |
| Boron | 5 | 0.25 | 0.04 | 0.1 | 0.12 | 0.11 | 0.11 |
| Calcium | 6 | 71.44 | 17.74 | 45.2 | 42.11 | 60.42 | 60.42 |
| Chloride | 6 | 50.77 | 8.17 | 24.4 | 25.10 | 21.09 | 21.09 |
| Carbonate | 6 | 4.79 | 0.00 | 0.8 | 0.96 | 0.00 | 0.00 |
| Fluoride | 6 | 0.22 | 0.18 | 0.2 | 0.20 | 0.18 | 0.18 |
| Bicarbonate | 6 | 248.92 | 67.87 | 173.9 | 159.52 | 245.95 | 245.95 |
| Potassium | 6 | 24.17 | 3.40 | 7.1 | 7.78 | 3.86 | 3.86 |
| Magnesium | 6 | 23.85 | 7.28 | 13.7 | 14.04 | 12.27 | 12.27 |
| Sodium | 6 | 24.59 | 1.89 | 8.7 | 5.50 | 24.59 | 24.59 |
| Ammonia as N | 6 | 0.12 | 0.01 | 0.1 | 0.04 | 0.12 | 0.12 |
| $NO_2$+$NO_3$ as N | 6 | 3.63 | 0.39 | 1.6 | 1.14 | 3.63 | 3.63 |
| Nitrite as N | 6 | 0.62 | 0.04 | 0.2 | 0.21 | 0.06 | 0.06 |
| Nitrate as N | 6 | 3.57 | 0.33 | 1.4 | 0.94 | 3.57 | 3.57 |
| Tot. Phosphate as P | 6 | 0.64 | 0.09 | 0.2 | 0.28 | 0.09 | 0.09 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 6 | 41.20 | 6.60 | 22.3 | 22.07 | 23.60 | 23.60 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 6 | 2.4 | 1.2 | 1.7 | 1.6 | 2.4 | 2.4 |
| COD | 6 | 14.0 | 3.0 | 7.3 | 7.2 | 8.0 | 8.0 |
| Dissolved Oxygen | 6 | 6.14 | 4.87 | 5.42 | 5.45 | 5.2 | 5.2 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 6 | 21000 | 3300 | 7083 | 4300 | 21000 | 21000 |
| Fecal Coliform | 6 | 11000 | 680 | 3130 | 1556 | 11000 | 11000 |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 6 | 7.37 | 0.52 | 2.51 | 1.53 | 7.37 | 7.37 |
| Cadmium | 6 | 0.06 | 0.02 | 0.03 | 0.03 | 0.06 | 0.06 |
| Chromium | 6 | 1.69 | 0.05 | 0.88 | 0.88 | 0.88 | 0.88 |
| Copper | 6 | 5.00 | 0.01 | 2.06 | 1.61 | 4.33 | 4.33 |
| Iron | 6 | 0.16 | 0.01 | 0.06 | 0.04 | 0.16 | 0.16 |
| Lead | 6 | 1.58 | 0.04 | 0.65 | 0.57 | 1.07 | 1.07 |
| Nickel | 6 | 8.46 | 2.01 | 5.76 | 5.22 | 8.46 | 8.46 |
| Zinc | 6 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 6 | 179 | 44 | 113 | 105 | 151 | 151 |
| Tot-Hardness | 6 | 250 | 75 | 170 | 164 | 202 | 202 |
| Na% | 6 | 21 | 2 | 9 | 7 | 21 | 21 |
| RSC (-) | 6 | -0.01 | -1.19 | -0.5 | -0.63 | -0.01 | -0.01 |
| SAR (-) | 6 | 0.75 | 0.06 | 0.3 | 0.21 | 0.75 | 0.75 |
| **PESTICIDES** | | | | | | | |

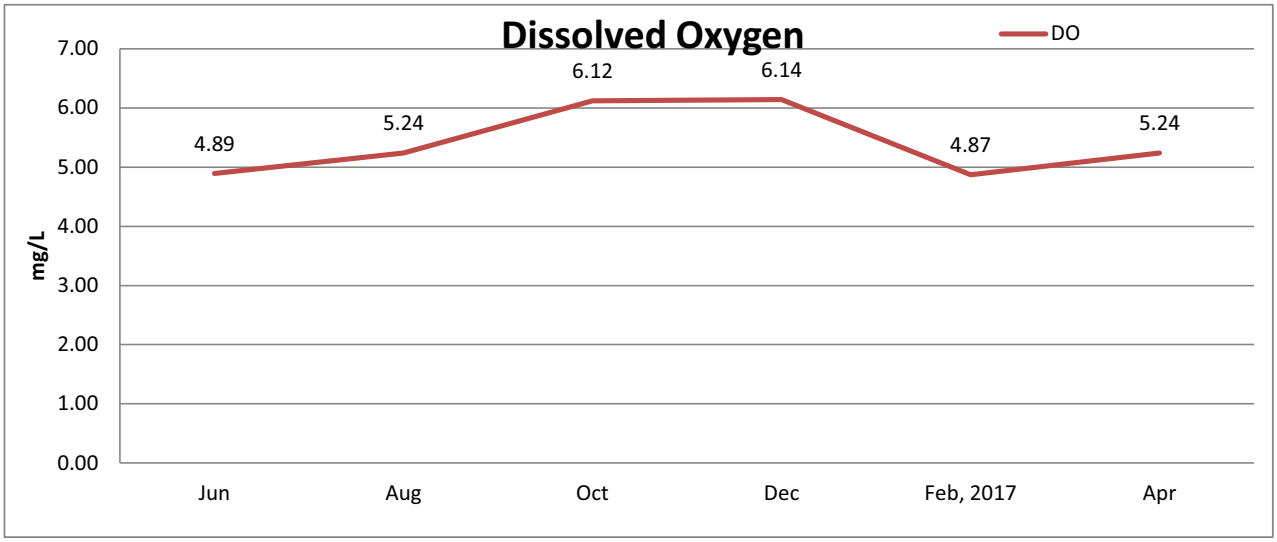
**Graphical Presentation of KALANOUR WQ Site**

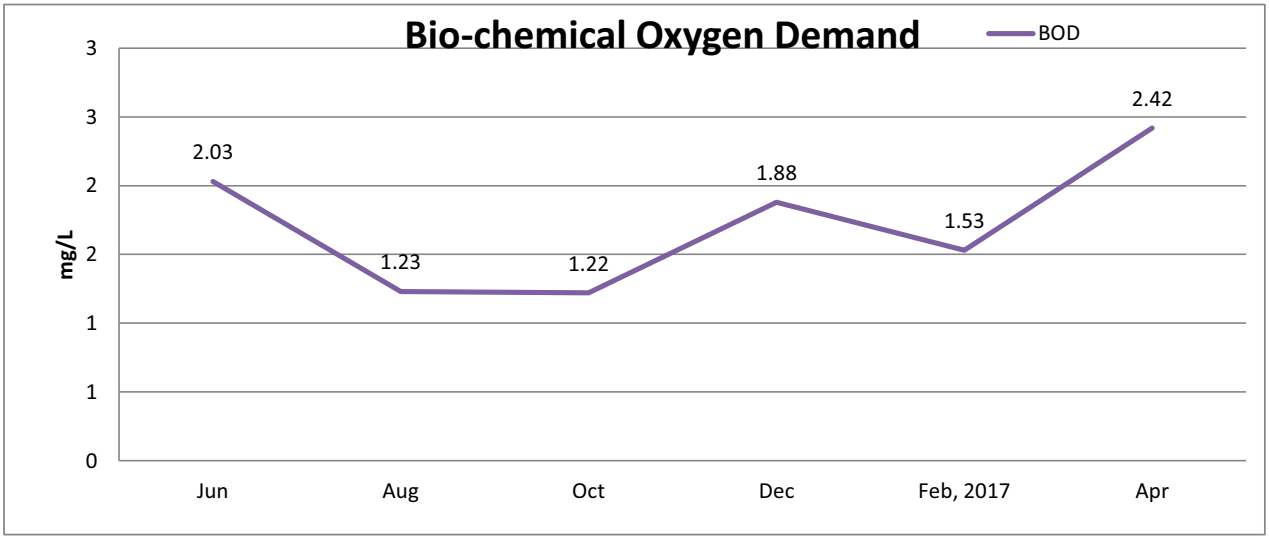


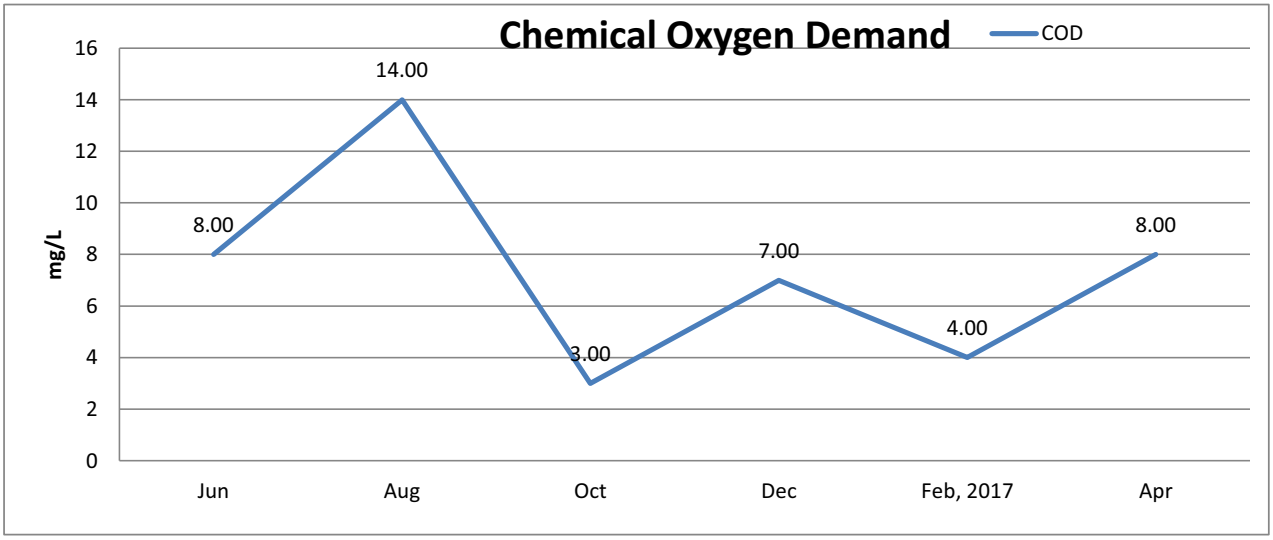



**Graphical Presentation of KALANOUR WQ Site**



# MAWI

## GENERAL PARTICULARS

| | | | |
|---|---|---|---|
| Site | :***Mawi*** | Code | : **GY000V8** |
| State | : **Uttar Pradesh** | District | : **Muzaffarnagar** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Division | : **U.Y.D. New Delhi** | Sub-Division | : **YSD, New Delhi** |
| Tributary | : **Yamuna** | Sub Tributary | : **-** |
| Sub-Sub-Trib. | : **-** | Local River | : **Yamuna** |
| Drainage Area | : **15622 Sq. Km.** | | |
| Latitude | : **29°23'07" N** | Longitude | : **77°09'54" E** |
| Zero of Gauge | : **225 (m.s.l.)** | Bank | : **Left** |

## DETAILS OF OPERATION (OPENING DATE)

| | |
|---|---|
| Gauge: | : **21/02/1975** |
| Discharge: | : **21/02/1975** |
| Sediment | : **12/12/1988** |
| Water Quality | : **12/12/1988** |
| Wireless | : **18/09/1976** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : MAWI** **Division : UYD, New Delhi**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 04/07/16 | 01/08/16 | 01/09/16 | 03/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 05/04/17 | |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | |
| 2 | Colour_Cod (-) | | Colourless | | | | | | | | | | | |
| 3 | Odour_Code (-) | | Odourless | | | | | | | | | | | |
| 4 | Temperature | °C | - | - | - | - | - | - | - | - | - | - | - | |
| 5 | pH_GEN (pH units) | | 8.11 | 7.43 | 7.91 | 8.48 | 8.17 | 7.83 | 8.07 | 8.2 | 8.2 | 8.23 | 8.42 | |
| 6 | EC_GEN (µmho/cm) | NTU | 287 | 259 | 231 | 254 | 309 | 340 | 380 | 447 | 534 | 622 | 637 | |
| 7 | Total Dissolved Solids | mg/L | 172 | 137 | 114 | 122 | 186 | 204 | 228 | 290 | 347 | 404 | 414 | |
| 8 | Turbiidity | | 12.5 | 245.4 | 625 | 53 | 5.85 | 5.44 | 8.29 | 3.18 | 1.44 | 1.72 | 18.8 | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9.00 | Alk-Phen (as $CaCO_3$) | mg/l | 0.00 | 0.00 | 0.00 | 7.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 9.98 | |
| 10 | Alk-Tot (as $CaCO_3$) | | 46.18 | 62.30 | 58.53 | 79.96 | 107.70 | 128.47 | 126.87 | 196.01 | 186.05 | 201.93 | 181.48 | |
| 11 | Boron | | | 0.10 | | 0.01 | 0.22 | 0.06 | 0.13 | 0.08 | 0.16 | 0.13 | 0.12 | |
| 12 | Calcium | | 25.66 | 27.56 | 29.78 | 30.41 | 21.93 | 29.90 | 25.03 | 51.08 | 67.26 | 45.94 | 53.87 | |
| 13 | Chloride | | 26.98 | 23.43 | 12.43 | 26.27 | 15.62 | 18.46 | 3.80 | 30.21 | 48.92 | 32.38 | 54.63 | |
| 14 | Carbonate | | 0.00 | 0.00 | 0.00 | 9.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 11.97 | |
| 15 | Fluoride | | 0.34 | 0.34 | 0.23 | 0.21 | 0.24 | 0.28 | 0.28 | 0.29 | 0.28 | 0.34 | 0.48 | |
| 16 | Bicarbonate | | 55.42 | 74.77 | 70.24 | 77.93 | 129.24 | 154.16 | 152.24 | 235.22 | 223.26 | 242.32 | 193.83 | |
| 17 | Potassium | | 10.00 | 4.97 | 3.63 | 4.03 | 4.16 | 4.65 | 5.03 | 11.03 | 8.00 | 14.79 | 11.77 | |
| 18 | Magnesium | | 17.01 | 6.97 | 6.65 | 9.12 | 20.59 | 22.39 | 9.15 | 25.81 | 21.89 | 34.87 | 24.46 | |
| 19 | Sodium | | 5.21 | 7.35 | 4.46 | 6.15 | 5.05 | 0.56 | 23.94 | 13.12 | 9.33 | 16.46 | 34.46 | |
| 20 | Ammonia as N | | 0.67 | 0.07 | 0.04 | 0.01 | 0.38 | 0.02 | 0.02 | 1.52 | 0.75 | 0.09 | 0.39 | |
| 21 | $NO_2$+$NO_3$ as N | | 1.96 | 1.61 | 1.05 | 0.94 | 0.73 | 2.45 | 2.69 | 2.74 | 2.94 | 15.26 | 4.19 | |
| 22 | Nitrite as N | | 1.13 | 0.42 | 0.11 | 0.13 | 0.02 | 0.46 | 0.61 | 0.51 | 0.95 | 2.26 | 1.02 | |
| 23 | Nitrate as N | | 0.83 | 1.20 | 0.94 | 0.81 | 0.71 | 2.00 | 2.08 | 2.23 | 1.99 | 13.00 | 3.17 | |
| 24 | Tot. Phosphate as P | | 0.59 | 0.62 | 0.44 | 0.00 | 0.02 | 0.39 | 0.17 | 0.52 | 0.55 | 0.62 | 0.44 | |
| 25 | Silicate as $SiO_2$ | | - | - | - | - | - | - | - | - | - | - | - | |
| 26 | Sulphate as $SO_4$ | | 28.20 | 22.60 | 35.00 | 14.20 | 24.40 | 22.40 | 30.80 | 38.30 | 13.45 | 38.33 | 40.27 | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 6.50 | 8.29 | 5.04 | 2.79 | 11.58 | 8.79 | 2.91 | 6.78 | 3.04 | 2.95 | 4.79 | |
| 28 | COD | | 23.00 | 13.00 | 15.00 | 16.00 | 14.00 | 18.00 | 14.00 | 15.00 | 10.00 | 19.00 | 11.00 | |
| 29 | Dissolved Oxygen | | 3.18 | 4.24 | 4.67 | 4.56 | 5.05 | 4.98 | 4.98 | 4.18 | 3.02 | 4.48 | 4.14 | |
| 30 | DO_SAT % | % | - | - | - | - | - | - | - | - | - | - | - | |
| 31 | Tota Coliform | MPN/100 ml | 94000 | 110000 | 22000 | 11000 | 7000 | 4600 | 17000 | 21000 | 14000 | 9400 | 22000 | |
| 32 | Fecal Coliform | | 39000 | 22000 | 2600 | 2200 | 2600 | 1400 | 1300 | 11000 | 4000 | 3200 | 20000 | |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | 0.810 | 0.350 | 0.990 | 0.870 | 4.450 | 1.390 | 0.990 | 0.650 | 0.520 | 0.230 | 1.710 | |
| 35 | Cadmium | | 0.017 | 0.038 | 0.033 | 0.006 | 0.098 | 0.047 | 0.045 | 0.018 | 0.010 | 0.037 | 0.058 | |
| 36 | Chromium | | 7.290 | 0.490 | 0.940 | 3.270 | 2.580 | 2.800 | 2.010 | 0.020 | 1.440 | 3.330 | 0.090 | |
| 37 | Copper | | 2.680 | 1.410 | 1.270 | 0.570 | 6.690 | 4.710 | 0.070 | 1.170 | 2.740 | 6.250 | 5.210 | |
| 38 | Iron | mg/l | 0.013 | 0.017 | 0.025 | 0.049 | 0.289 | 0.055 | 0.081 | 0.058 | 0.058 | 0.102 | 0.144 | |
| 39 | Lead | µg/L | 0.030 | 0.000 | 0.230 | 0.280 | 0.310 | 0.040 | 2.010 | 0.420 | 0.310 | 1.410 | 0.960 | |
| 40 | Nickel | | 3.400 | 1.380 | 8.800 | 1.460 | 3.070 | 3.220 | 11.830 | 1.600 | 3.090 | 0.700 | 1.270 | |
| 41 | Zinc | mg/l | 0.001 | 0.003 | 0.002 | 0.001 | 0.050 | 0.007 | 0.019 | 0.001 | 0.007 | 0.002 | 0.006 | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 64 | 69 | 74 | 76 | 55 | 75 | 63 | 128 | 168 | 115 | 135 | |
| 43 | Tot-Hardness | | 135 | 98 | 102 | 114 | 141 | 168 | 101 | 235 | 259 | 260 | 237 | |
| 44 | Na% | % | 7.12 | 13.28 | 8.32 | 10.08 | 7.00 | 0.69 | 32.69 | 10.26 | 7.00 | 11.36 | 22.94 | |
| 45 | RSC (-) | | -1.79 | -0.73 | -0.89 | -0.70 | -0.69 | -0.83 | 0.48 | -0.85 | -1.53 | -1.23 | -1.16 | |
| 46 | SAR (-) | | 0.19 | 0.32 | 0.19 | 0.25 | 0.19 | 0.02 | 1.04 | 0.37 | 0.25 | 0.44 | 0.97 | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

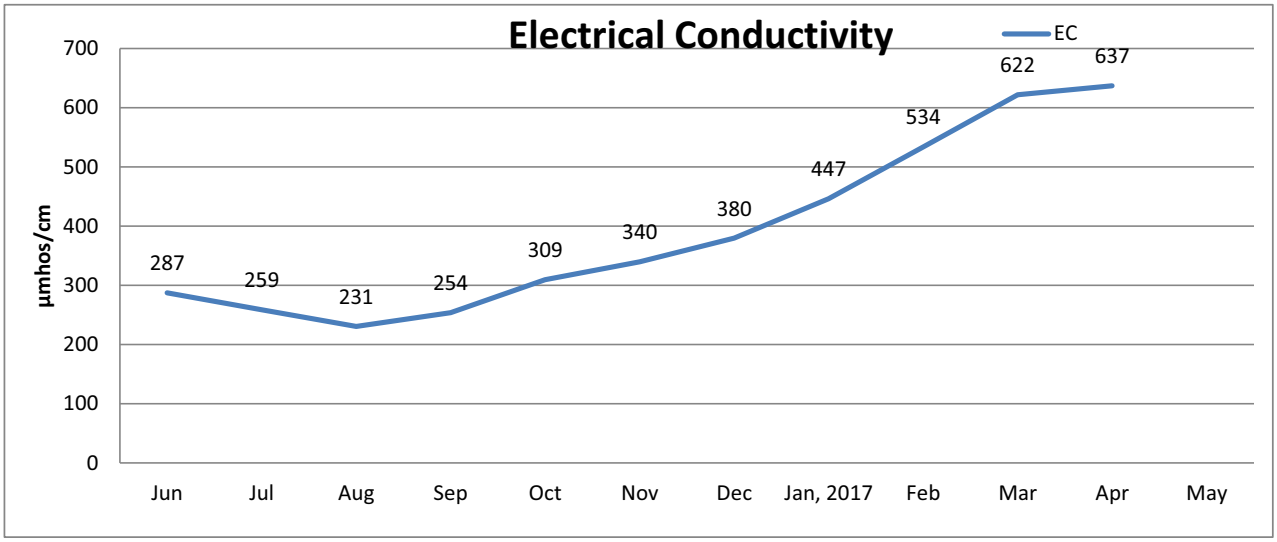
# RIVER WATER SUMMARY - 2016-2017

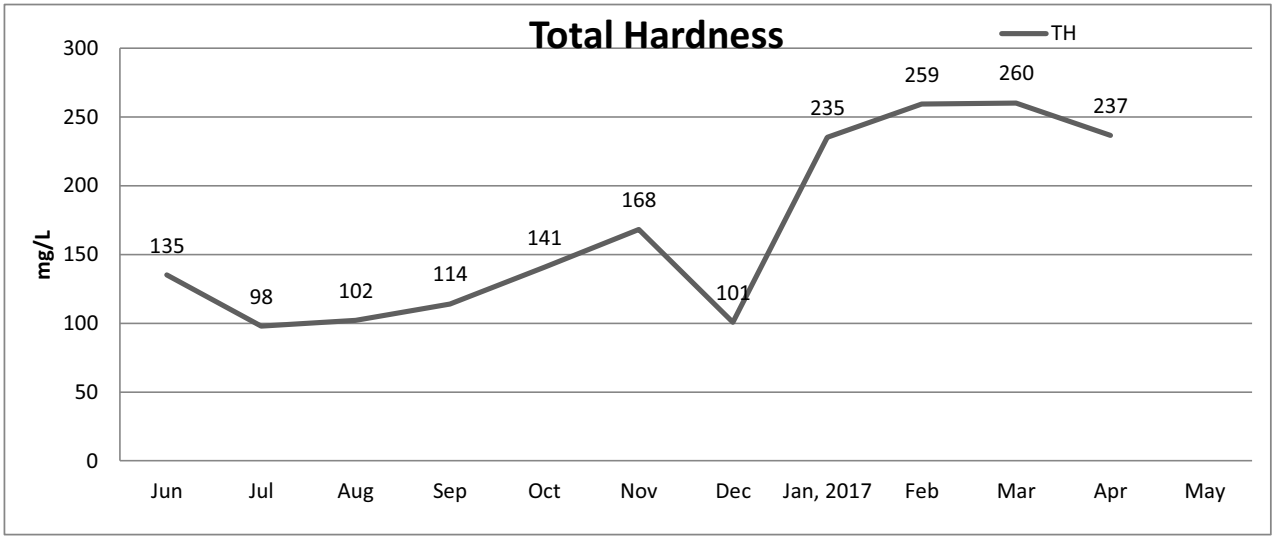
**Station Name : MAWI** **Division : UYD, New Delhi**

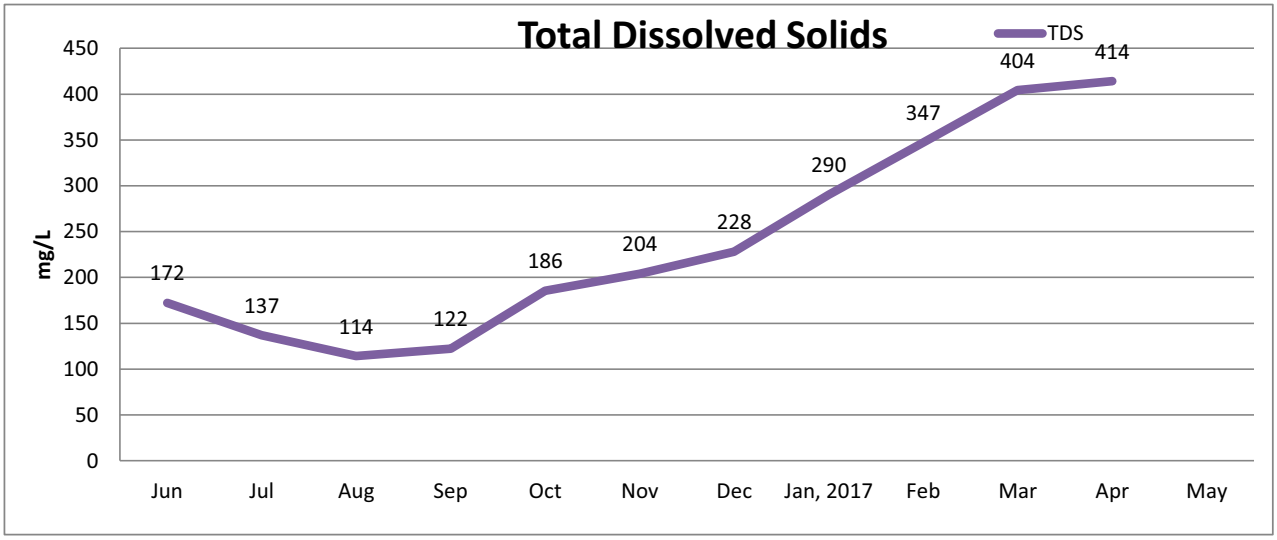
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 11 | 8.48 | 7.43 | 8.10 | 8.04 | 8.42 | 8.42 |
| EC_GEN (µmho/cm) | 11 | 637 | 231 | 391 | 268 | 425 | 630 |
| Total Dissolved Solids | 11 | 414 | 114 | 238 | 146 | 267 | 409 |
| Turbiidity | 11 | 625.0 | 1.4 | 89.1 | 188.4 | 4.6 | 10.3 |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 11 | 9.98 | 0.00 | 1.6 | 1.50 | 0.00 | 4.99 |
| Alk-Tot (as $CaCO_3$) | 11 | 201.93 | 46.18 | 125.0 | 70.93 | 159.35 | 191.70 |
| Boron | 9 | 0.22 | 0.01 | 0.1 | 0.11 | 0.11 | 0.13 |
| Calcium | 11 | 67.26 | 21.93 | 37.1 | 27.07 | 43.32 | 49.90 |
| Chloride | 11 | 54.63 | 3.80 | 26.6 | 20.95 | 25.35 | 43.51 |
| Carbonate | 11 | 11.97 | 0.00 | 1.9 | 1.80 | 0.00 | 5.99 |
| Fluoride | 11 | 0.48 | 0.21 | 0.3 | 0.27 | 0.28 | 0.41 |
| Bicarbonate | 11 | 242.32 | 55.42 | 146.2 | 81.52 | 191.22 | 218.07 |
| Potassium | 11 | 14.79 | 3.63 | 7.5 | 5.36 | 7.18 | 13.28 |
| Magnesium | 11 | 34.87 | 6.65 | 18.1 | 12.07 | 19.81 | 29.67 |
| Sodium | 11 | 34.46 | 0.56 | 11.5 | 5.64 | 11.74 | 25.46 |
| Ammonia as N | 11 | 1.52 | 0.01 | 0.4 | 0.23 | 0.58 | 0.24 |
| $NO_2$+$NO_3$ as N | 11 | 15.26 | 0.73 | 3.3 | 1.26 | 2.71 | 9.72 |
| Nitrite as N | 11 | 2.26 | 0.02 | 0.7 | 0.36 | 0.63 | 1.64 |
| Nitrate as N | 11 | 13.00 | 0.71 | 2.6 | 0.90 | 2.07 | 8.09 |
| Tot. Phosphate as P | 11 | 0.62 | 0.00 | 0.4 | 0.33 | 0.41 | 0.53 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 11 | 40.27 | 13.45 | 28.0 | 24.88 | 26.24 | 39.30 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 11 | 11.6 | 2.8 | 5.8 | 6.8 | 5.4 | 3.9 |
| COD | 11 | 23.0 | 10.0 | 15.3 | 16.2 | 14.3 | 15.0 |
| Dissolved Oxygen | 11 | 5.05 | 3.02 | 4.32 | 4.34 | 4.3 | 4.3 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 11 | 110000 | 4600 | 30182 | 48800 | 14150 | 15700 |
| Fecal Coliform | 11 | 39000 | 1300 | 9936 | 13680 | 4425 | 11600 |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 11 | 4.45 | 0.23 | 1.18 | 1.49 | 0.89 | 0.97 |
| Cadmium | 11 | 0.10 | 0.01 | 0.04 | 0.04 | 0.03 | 0.05 |
| Chromium | 11 | 7.29 | 0.02 | 2.21 | 2.91 | 1.57 | 1.71 |
| Copper | 11 | 6.69 | 0.07 | 2.98 | 2.52 | 2.17 | 5.73 |
| Iron | 11 | 0.29 | 0.01 | 0.08 | 0.07 | 0.14 | 0.14 |
| Lead | 11 | 2.01 | 0.00 | 0.55 | 0.17 | 0.70 | 1.19 |
| Nickel | 11 | 11.83 | 0.70 | 3.62 | 3.62 | 4.94 | 0.99 |
| Zinc | 11 | 0.05 | 0.00 | 0.01 | 0.01 | 0.01 | 0.00 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 11 | 168 | 55 | 93 | 68 | 108 | 125 |
| Tot-Hardness | 11 | 260 | 98 | 168 | 118 | 191 | 248 |
| Na% | 11 | 33 | 1 | 12 | 9 | 13 | 17 |
| RSC (-) | 11 | 0.48 | -1.79 | -0.9 | -0.96 | -0.68 | -1.19 |
| SAR (-) | 11 | 1.04 | 0.02 | 0.4 | 0.23 | 0.42 | 0.71 |
| **PESTICIDES** | | | | | | | |

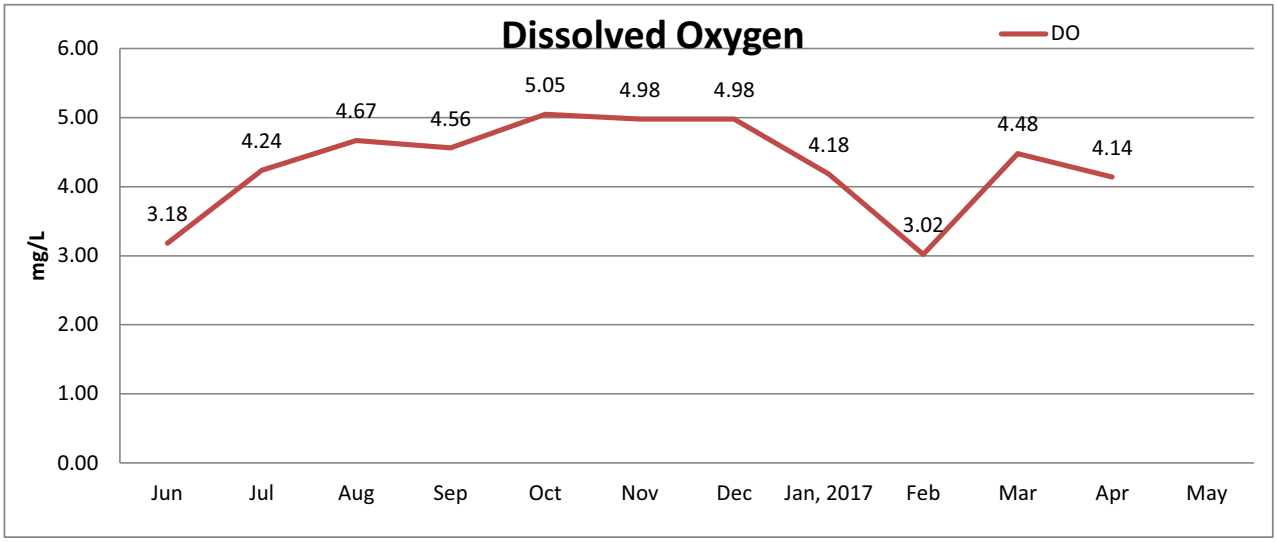
**Graphical Presentation of MAWI WQ Site**

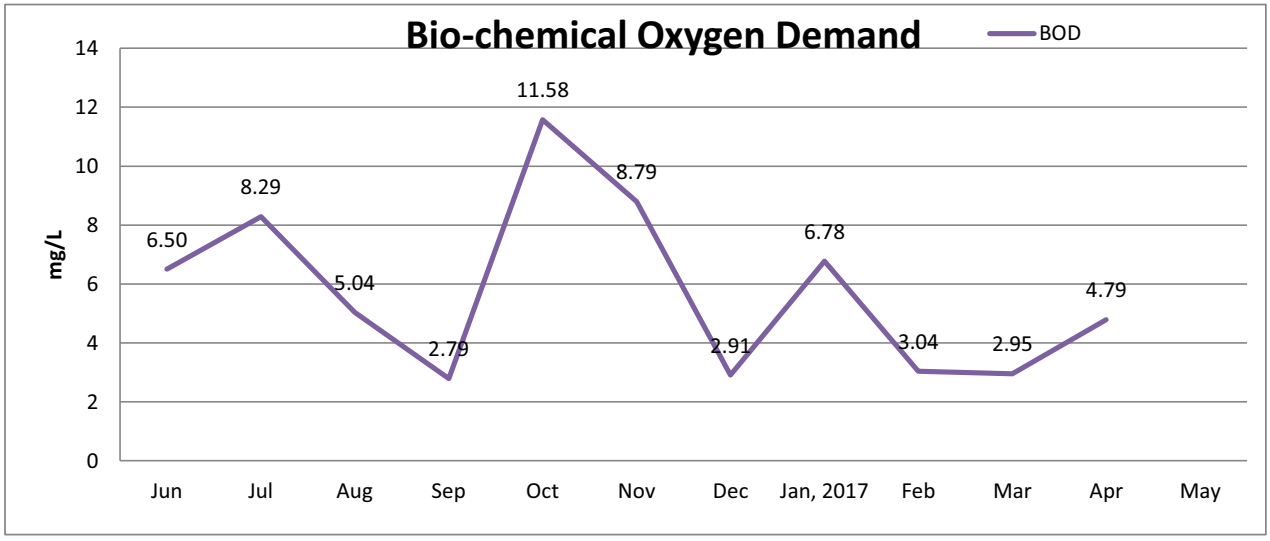


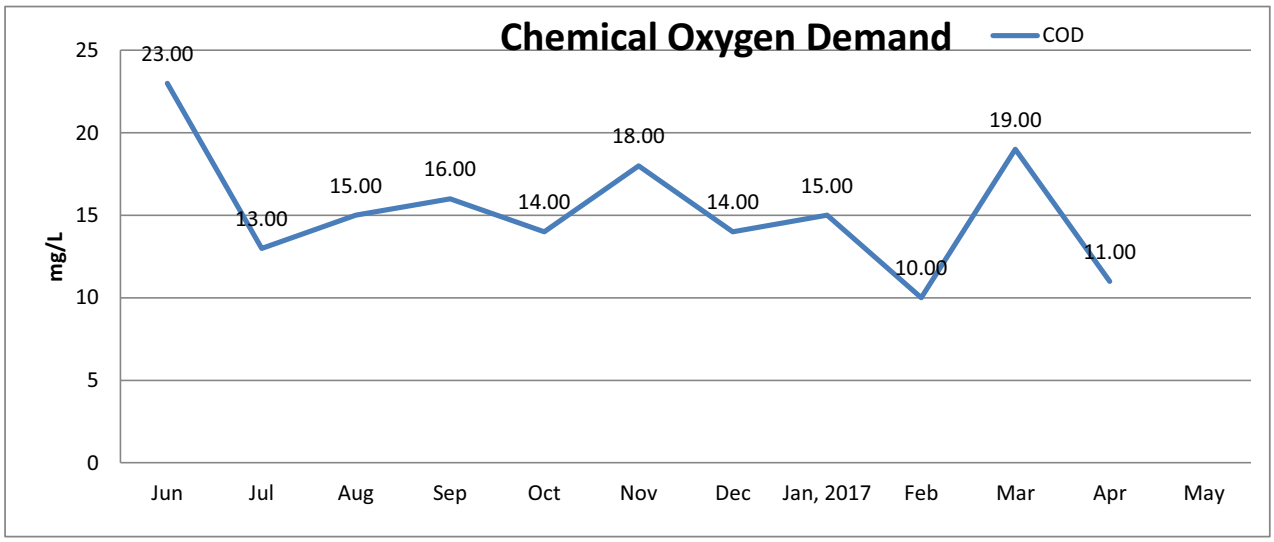



## Graphical Presentation of MAWI WQ Site



# PALLA

## General Particulars

| | | | |
|---|---|---|---|
| Site | :***PALLA*** | Code | : **GY000P1** |
| State | : **Delhi** | District | : **Delhi** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Division | : **U.Y.D. New Delhi** | Sub-Division | : **-** |
| Tributary | : **Yamuna** | Sub Tributary | : **-** |
| Sub-Sub-Trib. | : **-** | Local River | : **Yamuna** |
| Drainage Area | : **17324 Sq Km.** | | |
| Latitude | : **28°49'46"N** | Longitude | : **77°13'27"E** |
| Zero of Gauge | : **206 (M.S.L.)** | Bank | : **Right** |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **01/05/1991** |
| Discharge: | : **01/05/1991** |
| Sediment | : **-** |
| Water Quality | : **01/12/2007** |
| Wireless | : **-** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : PALLA** **Division : UYD, New Delhi**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 03/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 03/04/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Clear | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | Colourless | | | | | | | | | | | |
| 3 | Odour_Code (-) | | Odourless | | | | | | | | | | | |
| 4 | Temperature | °C | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | pH_GEN (pH units) | | 8.02 | 7.8 | 7.76 | 8.02 | 8.63 | 7.72 | 7.44 | 8.2 | 8.27 | 8.32 | 7.95 | 7.81 |
| 6 | EC_GEN (µmho/cm) | NTU | 402 | 588 | 255 | 279 | 617 | 482 | 632 | 1536 | 598 | 1436 | 457 | 420 |
| 7 | Total Dissolved Solids | mg/L | 241 | 353 | 153 | 167 | 370 | 271 | 379 | 998 | 389 | 933 | 297 | 273 |
| 8 | Turbiidity | | 39.5 | 49.9 | 422.5 | 280 | 15.48 | 27.4 | 8.82 | 4.41 | 6.43 | 4.03 | 4.54 | 2.46 |
| CHEMICAL | | | | | | | | | | | | | | |
| 9.00 | Alk-Phen (as $CaCO_3$) | mg/l | 0.00 | 0.00 | 0.00 | 0.00 | 21.96 | 0.00 | 0.00 | 0.00 | 0.00 | 12.60 | 0.00 | 0.00 |
| 10 | Alk-Tot (as $CaCO_3$) | | 77.67 | 77.67 | 103.21 | 76.64 | 129.54 | 136.15 | 164.58 | 149.65 | 137.87 | 170.80 | 106.75 | 67.10 |
| 11 | Boron | | 0.04 | 0.02 | | 0.27 | 0.09 | 0.38 | 0.12 | 0.23 | 0.24 | 0.24 | 0.20 | 0.10 |
| 12 | Calcium | | 19.80 | 40.05 | 23.76 | 17.58 | 31.47 | 32.04 | 31.21 | 47.12 | 41.80 | 61.67 | 42.42 | 31.20 |
| 13 | Chloride | | 48.87 | 91.24 | 23.19 | 28.40 | 77.04 | 51.83 | 60.52 | 206.81 | 99.68 | 256.45 | 59.43 | 66.46 |
| 14 | Carbonate | | 0.00 | 0.00 | 0.00 | 0.00 | 26.35 | 0.00 | 0.00 | 0.00 | 0.00 | 15.12 | 0.00 | 0.00 |
| 15 | Fluoride | | 0.26 | 0.38 | 0.28 | 0.23 | 0.29 | 0.27 | 0.32 | 0.40 | 0.27 | 0.35 | 0.25 | 0.24 |
| 16 | Bicarbonate | | 93.21 | 93.21 | 123.85 | 91.97 | 102.74 | 163.38 | 197.49 | 179.58 | 165.44 | 174.72 | 128.10 | 80.52 |
| 17 | Potassium | | 2.31 | 3.92 | 4.48 | 4.35 | 6.31 | 4.66 | 6.63 | 7.93 | 7.07 | 28.00 | 2.44 | 6.70 |
| 18 | Magnesium | | 24.52 | 11.59 | 11.50 | 13.69 | 16.57 | 19.05 | 22.24 | 37.94 | 16.71 | 28.58 | 12.67 | 13.05 |
| 19 | Sodium | | 34.04 | 66.82 | 15.01 | 19.94 | 63.08 | 33.71 | 47.38 | 202.55 | 52.88 | 183.35 | 31.77 | 36.80 |
| 20 | Ammonia as N | | 0.03 | 0.06 | 0.01 | 0.01 | 1.11 | 0.02 | 0.01 | 7.80 | 0.14 | 0.08 | 0.10 | 0.02 |
| 21 | $NO_2$+$NO_3$ as N | | 1.00 | 2.80 | 0.65 | 1.19 | 2.82 | 2.27 | 3.43 | 9.91 | 3.81 | 18.13 | 3.32 | 4.81 |
| 22 | Nitrite as N | | 0.01 | 1.41 | 0.22 | 0.04 | 0.16 | 0.01 | 0.50 | 0.89 | 1.95 | 2.43 | 0.07 | 0.04 |
| 23 | Nitrate as N | | 0.99 | 1.39 | 0.43 | 1.15 | 2.66 | 2.26 | 2.94 | 9.03 | 1.86 | 15.70 | 3.25 | 4.77 |
| 24 | Tot. Phosphate as P | | 0.10 | 0.34 | 0.03 | 0.00 | 0.38 | 0.52 | 0.41 | 0.80 | 0.51 | 1.24 | 0.00 | 0.05 |
| 25 | Silicate as $SiO_2$ | | - | - | - | - | - | - | - | - | - | - | - | - |
| 26 | Sulphate as $SO_4$ | | 78.40 | 75.00 | 24.80 | 19.40 | 44.20 | 24.60 | 9.00 | 272.90 | 26.91 | 181.67 | 47.73 | 41.87 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 15.38 | 14.88 | 2.96 | 2.93 | 7.63 | 8.30 | 5.86 | 8.39 | 5.46 | 4.30 | 6.69 | 2.04 |
| 28 | COD | | 26.00 | 28.00 | 9.00 | 8.00 | 17.00 | 15.00 | 19.00 | 21.00 | 20.00 | 15.00 | 12.00 | 17.00 |
| 29 | Dissolved Oxygen | | 1.12 | 1.98 | 5.16 | 4.69 | 3.26 | 2.10 | 2.45 | 3.82 | 3.45 | 3.64 | 2.98 | 4.64 |
| 30 | DO_SAT % | % | - | - | - | - | - | - | - | - | - | - | - | - |
| 31 | Tota Coliform | MPN/100 ml | 49000 | 46000 | 49000 | 26000 | 46000 | 70000 | 33000 | 33000 | 46000 | 110000 | 70000 | 49000 |
| 32 | Fecal Coliform | | 22000 | 17000 | 14000 | 11000 | 1700 | 17000 | 14000 | 21000 | 26000 | 39000 | 33000 | 26000 |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | 0.230 | 1.930 | 0.440 | 0.600 | 0.680 | 7.410 | 1.630 | 3.170 | 0.440 | 0.630 | 0.400 | 4.960 |
| 35 | Cadmium | | 0.004 | 0.022 | 0.026 | 0.090 | 0.016 | 0.044 | 0.018 | 0.016 | 0.008 | 0.123 | 0.000 | 0.099 |
| 36 | Chromium | | 4.580 | 6.950 | 0.210 | 2.620 | 0.190 | 0.710 | 0.460 | 4.670 | 1.260 | 0.750 | 0.340 | 8.240 |
| 37 | Copper | | 1.030 | 4.620 | 1.620 | 1.070 | 1.010 | 2.920 | 1.390 | 8.800 | 3.080 | 10.840 | 12.960 | 0.030 |
| 38 | Iron | mg/l | 0.015 | 0.013 | 0.027 | 0.052 | 0.058 | 0.055 | 0.057 | 0.165 | 0.073 | 0.131 | 0.144 | 0.170 |
| 39 | Lead | µg/L | 0.500 | 0.040 | 0.040 | 0.480 | 0.130 | 0.950 | 0.700 | 0.690 | 0.800 | 3.240 | 1.490 | 1.130 |
| 40 | Nickel | | 3.140 | 2.410 | 3.600 | 0.820 | 1.380 | 22.860 | 3.890 | 3.380 | 3.610 | 3.090 | 7.030 | 1.530 |
| 41 | Zinc | mg/l | 0.002 | 0.004 | 0.000 | 0.003 | 0.004 | 0.001 | 0.001 | 0.020 | 0.007 | 0.003 | 0.002 | 0.006 |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 50 | 100 | 59 | 44 | 79 | 80 | 78 | 118 | 105 | 154 | 106 | 78 |
| 43 | Tot-Hardness | | 152 | 148 | 107 | 101 | 148 | 160 | 171 | 276 | 174 | 273 | 159 | 132 |
| 44 | Na% | % | 32.37 | 48.63 | 22.40 | 28.92 | 46.81 | 30.69 | 36.50 | 60.62 | 38.56 | 56.32 | 29.90 | 36.21 |
| 45 | RSC (-) | | -1.51 | -1.44 | -0.12 | -0.51 | -0.39 | -0.51 | -0.18 | -2.57 | -0.77 | -2.10 | -1.08 | -1.33 |
| 46 | SAR (-) | | 1.20 | 2.38 | 0.63 | 0.86 | 2.26 | 1.16 | 1.58 | 5.30 | 1.74 | 4.82 | 1.10 | 1.39 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

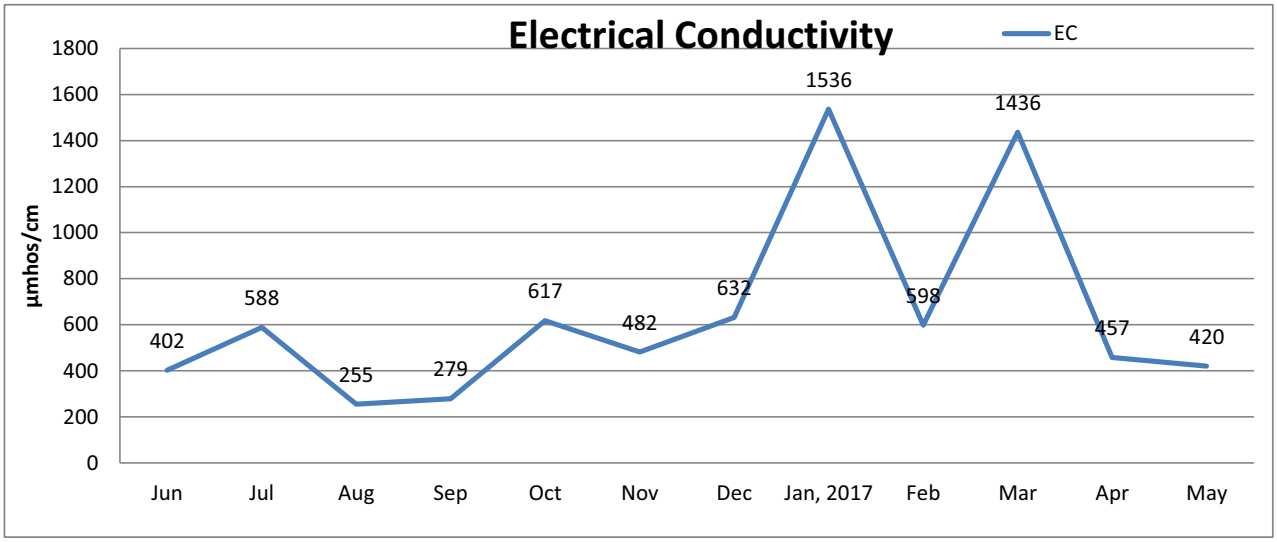
# RIVER WATER SUMMARY - 2016-2017

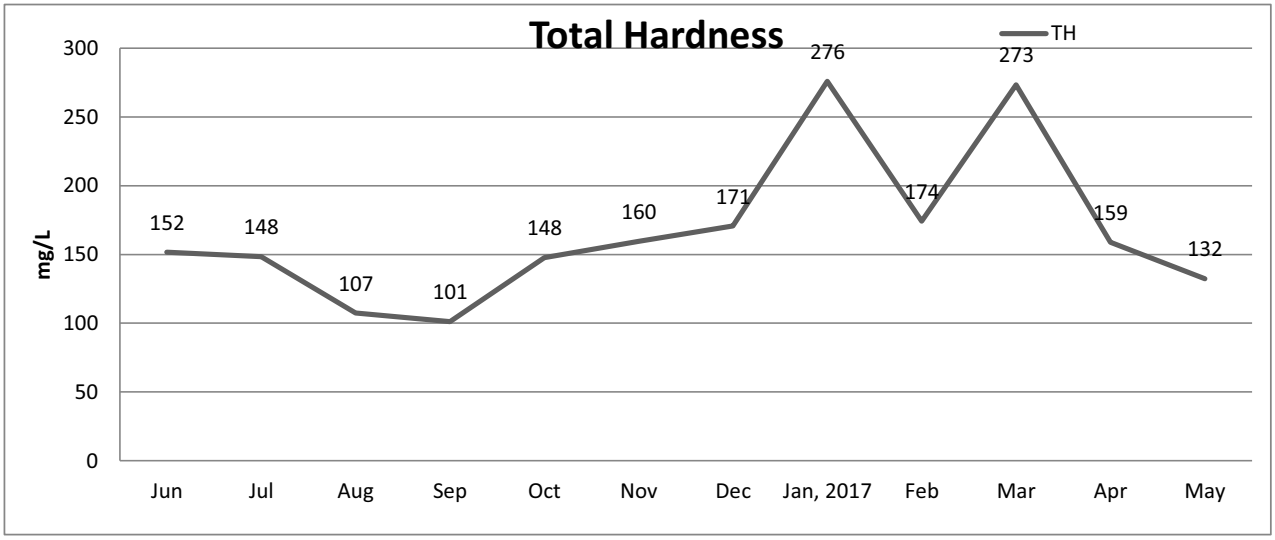
**Station Name : PALLA** **Division : UYD, New Delhi**

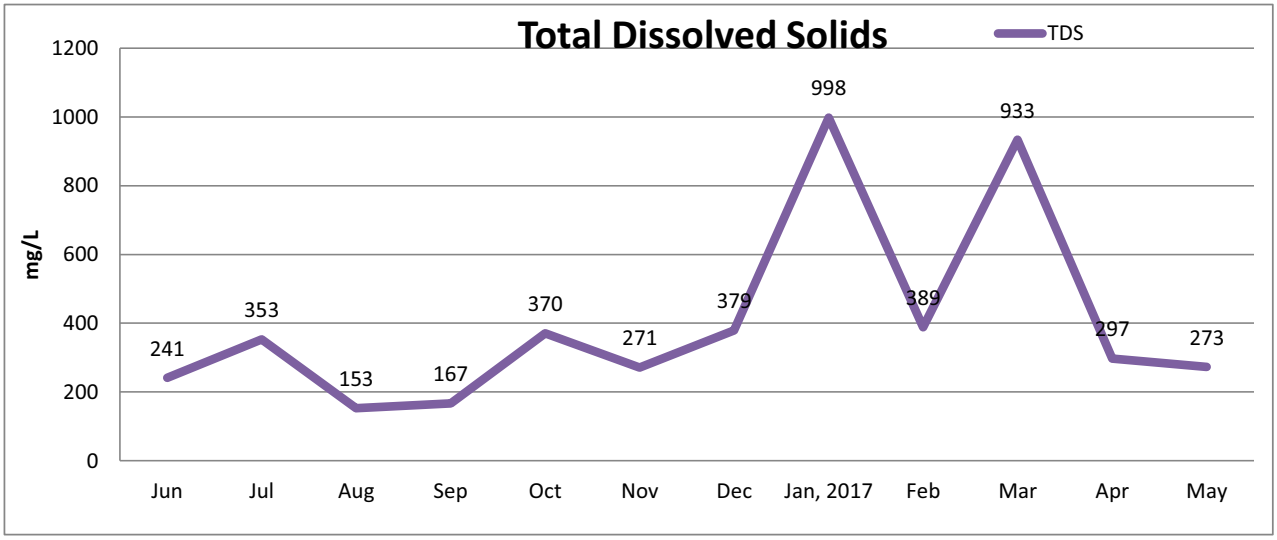
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 12 | 8.63 | 7.44 | 8.00 | 7.98 | 7.95 | 7.88 |
| EC_GEN (µmho/cm) | 12 | 1536 | 255 | 642 | 428 | 812 | 771 |
| Total Dissolved Solids | 12 | 998 | 153 | 402 | 257 | 509 | 501 |
| Turbiidity | 12 | 422.5 | 2.5 | 72.1 | 161.5 | 11.8 | 3.7 |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 21.96 | 0.00 | 2.9 | 4.39 | 0.00 | 4.20 |
| Alk-Tot (as $CaCO_3$) | 12 | 170.80 | 67.10 | 116.5 | 92.95 | 147.06 | 114.88 |
| Boron | 11 | 0.38 | 0.02 | 0.2 | 0.10 | 0.24 | 0.18 |
| Calcium | 12 | 61.67 | 17.58 | 35.0 | 26.53 | 38.04 | 45.09 |
| Chloride | 12 | 256.45 | 23.19 | 89.2 | 53.75 | 104.71 | 127.45 |
| Carbonate | 12 | 26.35 | 0.00 | 3.5 | 5.27 | 0.00 | 5.04 |
| Fluoride | 12 | 0.40 | 0.23 | 0.3 | 0.29 | 0.31 | 0.28 |
| Bicarbonate | 12 | 197.49 | 80.52 | 132.9 | 101.00 | 176.48 | 127.78 |
| Potassium | 12 | 28.00 | 2.31 | 7.1 | 4.27 | 6.57 | 12.38 |
| Magnesium | 12 | 37.94 | 11.50 | 19.0 | 15.57 | 23.98 | 18.10 |
| Sodium | 12 | 202.55 | 15.01 | 65.6 | 39.78 | 84.13 | 83.97 |
| Ammonia as N | 12 | 7.80 | 0.01 | 0.8 | 0.24 | 1.99 | 0.07 |
| $NO_2$+$NO_3$ as N | 12 | 18.13 | 0.65 | 4.5 | 1.69 | 4.86 | 8.75 |
| Nitrite as N | 12 | 2.43 | 0.01 | 0.6 | 0.37 | 0.84 | 0.85 |
| Nitrate as N | 12 | 15.70 | 0.43 | 3.9 | 1.32 | 4.02 | 7.91 |
| Tot. Phosphate as P | 12 | 1.24 | 0.00 | 0.4 | 0.17 | 0.56 | 0.43 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 272.90 | 9.00 | 70.5 | 48.36 | 83.35 | 90.42 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 15.4 | 2.0 | 7.1 | 8.8 | 7.0 | 4.3 |
| COD | 12 | 28.0 | 8.0 | 17.3 | 17.6 | 18.8 | 14.7 |
| Dissolved Oxygen | 12 | 5.16 | 1.12 | 3.27 | 3.24 | 3.0 | 3.8 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 12 | 110000 | 26000 | 52250 | 43200 | 45500 | 76333 |
| Fecal Coliform | 12 | 39000 | 1700 | 20142 | 13140 | 19500 | 32667 |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 12 | 7.41 | 0.23 | 1.88 | 0.78 | 3.16 | 2.00 |
| Cadmium | 12 | 0.12 | 0.00 | 0.04 | 0.03 | 0.02 | 0.07 |
| Chromium | 12 | 8.24 | 0.19 | 2.58 | 2.91 | 1.78 | 3.11 |
| Copper | 12 | 12.96 | 0.03 | 4.11 | 1.87 | 4.05 | 7.94 |
| Iron | 12 | 0.17 | 0.01 | 0.08 | 0.06 | 0.14 | 0.16 |
| Lead | 12 | 3.24 | 0.04 | 0.85 | 0.24 | 0.79 | 1.95 |
| Nickel | 12 | 22.86 | 0.82 | 4.73 | 2.27 | 8.44 | 3.88 |
| Zinc | 12 | 0.02 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 154 | 44 | 88 | 66 | 95 | 113 |
| Tot-Hardness | 12 | 276 | 101 | 167 | 131 | 195 | 188 |
| Na% | 12 | 61 | 22 | 39 | 36 | 42 | 41 |
| RSC (-) | 12 | -0.12 | -2.57 | -1.0 | -0.79 | -1.01 | -1.50 |
| SAR (-) | 12 | 5.30 | 0.63 | 2.0 | 1.47 | 2.45 | 2.44 |
| **PESTICIDES** | | | | | | | |

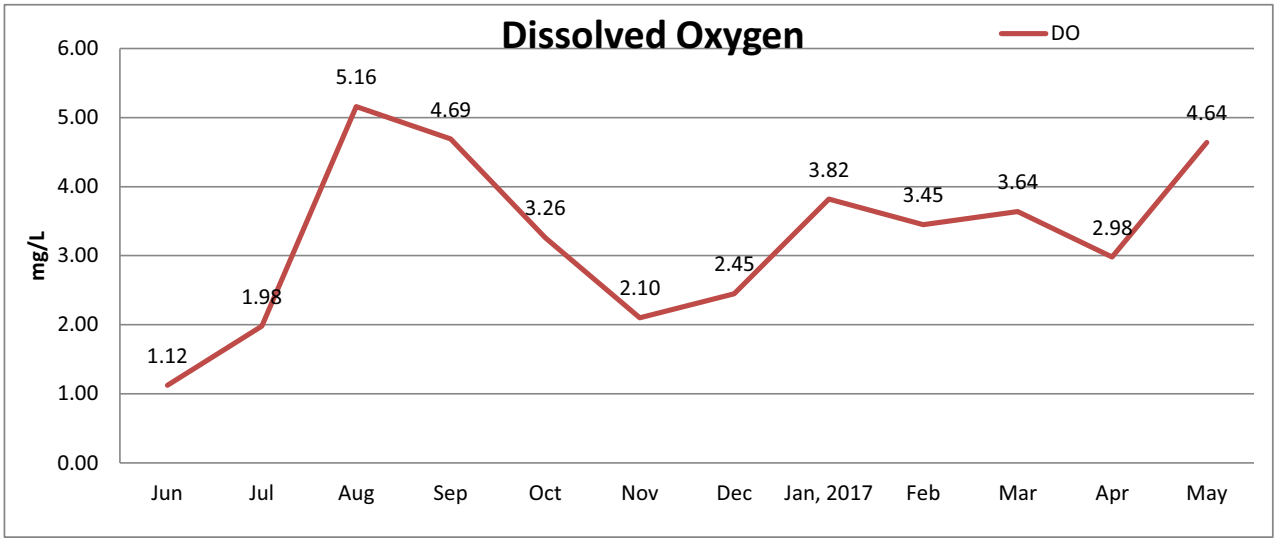
**Graphical Presentation of PALLA WQ Site**

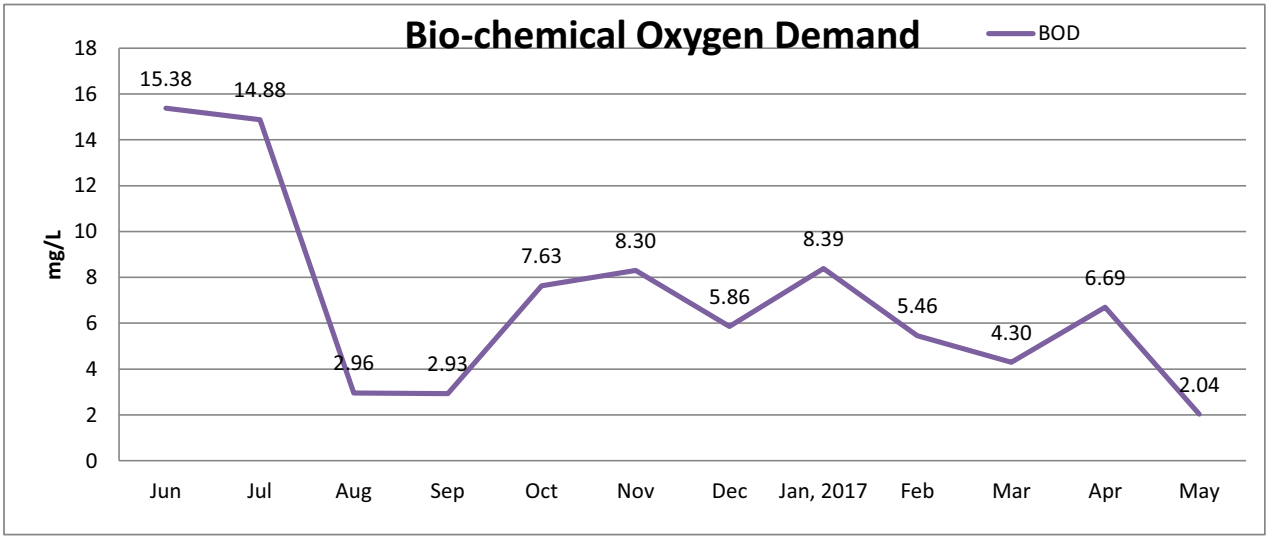


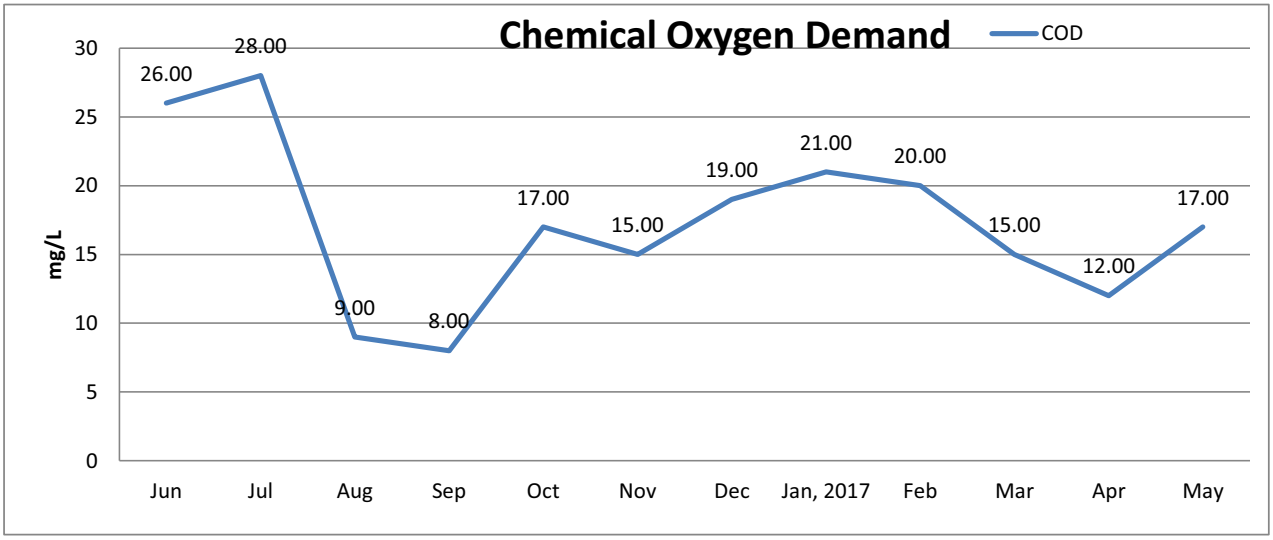



**Graphical Presentation of PALLA WQ Site**



# DELHI (Railway Bridge)

## General Particulars

| | | | |
|---|---|---|---|
| Site | :***Delhi (R.B)*** | Code | : **GY000U1** |
| State | : **Delhi** | District | : **Delhi** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Division | : **U.Y.D. New Delhi** | Sub-Division | : **Sahibi SD, New Delhi** |
| Tributary | : **Yamuna** | Sub Tributary | : **-** |
| Sub-Sub-Trib. | : **-** | Local River | : **Yamuna** |
| Drainage Area | : **18552 Sq. Km.** | | |
| Latitude | : **28°39'33"N** | Longitude | : **77°14'42"E** |
| Zero of Gauge | : **197 (m.s.l.)** | Bank | : **Right** |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **01/01/1963** |
| Discharge: | : **01/01/1963** |
| Sediment | : **23/03/1963** |
| Water Quality | : **01/05/1976** |
| Wireless | : **22/04/1978** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : DELHI 1ST 10 DAYS** **Division : UYD, New Delhi**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 03/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 03/04/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | L. Black | | | | | | | | | | | |
| 3 | Odour_Code (-) | | Rotten Egg | | | | | | | | | | | |
| 4 | Temperature | °C | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | pH_GEN (pH units) | | 7.46 | 7.45 | 7.39 | 7.76 | 7.62 | 7.59 | 7.37 | 7.69 | 7.5 | 7.38 | 7.46 | 7.7 |
| 6 | EC_GEN (µmho/cm) | NTU | 1803 | 1738 | 546 | 715 | 1453 | 1571 | 1633 | 1906 | 1501 | 1999 | 1867 | 1790 |
| 7 | Total Dissolved Solids | mg/L | 1082 | 1043 | 328 | 429 | 872 | 943 | 980 | 1239 | 976 | 1299 | 1214 | 1164 |
| 8 | Turbiidity | | 34.9 | 26.8 | 206 | 92.8 | 32.7 | 26.4 | 46.5 | 64.5 | 66.6 | 45 | 56.8 | 60.6 |
| CHEMICAL | | | | | | | | | | | | | | |
| 9.00 | Alk-Phen (as $CaCO_3$) | mg/l | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | Alk-Tot (as $CaCO_3$) | | 277.75 | 280.61 | 107.58 | 116.39 | 148.09 | 191.42 | 254.21 | 178.93 | 276.53 | 282.89 | 296.01 | 475.87 |
| 11 | Boron | | 0.46 | 0.32 | | 0.15 | 0.20 | 0.35 | 0.28 | 0.36 | 0.35 | 0.37 | 0.31 | 0.49 |
| 12 | Calcium | | 52.59 | 68.43 | 30.41 | 39.80 | 55.82 | 62.94 | 63.59 | 60.82 | 75.24 | 77.26 | 68.43 | 86.24 |
| 13 | Chloride | | 292.88 | 292.88 | 55.14 | 98.51 | 260.93 | 221.88 | 222.47 | 358.44 | 254.75 | 294.79 | 333.56 | 329.49 |
| 14 | Carbonate | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | Fluoride | | 0.76 | 0.90 | 0.33 | 0.36 | 0.52 | 0.58 | 0.55 | 0.63 | 0.50 | 0.70 | 0.73 | 0.95 |
| 16 | Bicarbonate | | 333.30 | 336.74 | 129.09 | 139.67 | 177.71 | 229.70 | 305.05 | 214.72 | 331.84 | 339.47 | 355.21 | 571.04 |
| 17 | Potassium | | 18.65 | 16.00 | 8.45 | 10.28 | 16.50 | 16.68 | 16.80 | 21.70 | 18.85 | 23.00 | 22.93 | 22.93 |
| 18 | Magnesium | | 49.23 | 41.72 | 19.20 | 18.82 | 38.45 | 34.60 | 37.36 | 54.62 | 59.96 | 41.97 | 46.74 | 61.15 |
| 19 | Sodium | | 225.05 | 224.55 | 51.46 | 81.77 | 176.13 | 196.53 | 181.93 | 233.23 | 178.88 | 232.60 | 241.53 | 291.93 |
| 20 | Ammonia as N | | 21.00 | 24.00 | 4.41 | 0.02 | 14.10 | 0.02 | 4.33 | 47.20 | 28.70 | 28.30 | 29.70 | 0.03 |
| 21 | $NO_2$+$NO_3$ as N | | 2.59 | 1.01 | 1.18 | 9.27 | 13.43 | 33.40 | 2.97 | 39.08 | 3.56 | 2.25 | 2.30 | 4.38 |
| 22 | Nitrite as N | | 0.41 | 0.10 | 0.16 | 2.52 | 0.11 | 0.21 | 0.13 | 0.14 | 0.02 | 0.02 | 0.17 | 0.07 |
| 23 | Nitrate as N | | 2.17 | 0.91 | 1.01 | 6.75 | 13.32 | 33.20 | 2.85 | 38.94 | 3.53 | 2.23 | 2.13 | 4.31 |
| 24 | Tot. Phosphate as P | | 6.60 | 5.75 | 0.98 | 0.07 | 4.61 | 6.86 | 3.82 | 10.16 | 6.55 | 9.33 | 11.30 | 8.77 |
| 25 | Silicate as $SiO_2$ | | - | - | - | - | - | - | - | - | - | - | - | - |
| 26 | Sulphate as $SO_4$ | | 140.20 | 156.40 | 65.20 | 87.00 | 134.60 | 123.40 | 141.20 | 157.55 | 128.39 | 193.33 | 125.73 | 119.73 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 58.35 | 39.10 | 11.63 | 24.47 | 23.89 | 27.27 | 51.14 | 54.84 | 60.11 | 59.70 | 59.31 | 64.14 |
| 28 | COD | | 72.00 | 99.00 | 26.00 | 38.00 | 25.00 | 45.00 | 97.00 | 106.00 | 98.00 | 79.00 | 86.00 | 86.00 |
| 29 | Dissolved Oxygen | | 0.00 | 0.12 | 1.52 | 0.12 | 0.35 | 0.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | DO_SAT % | % | - | - | - | - | - | - | - | - | - | - | - | - |
| 31 | Tota Coliform | MPN/100 ml | 3500000 | 9200000 | 220000 | 280000 | 2200000 | 2800000 | 2200000 | 2800000 | 9200000 | 2800000 | 16000000 | 92000000 |
| 32 | Fecal Coliform | | 390000 | 260000 | 26000 | 21000 | 260000 | 390000 | 210000 | 320000 | 390000 | 470000 | 470000 | 4700000 |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | 1.210 | 2.330 | 0.280 | 1.650 | 0.460 | 1.590 | 1.300 | 0.130 | 1.360 | 0.470 | 2.450 | 3.510 |
| 35 | Cadmium | | 0.065 | 0.008 | 0.005 | 0.008 | 0.004 | 0.034 | 0.040 | 0.019 | 0.017 | 0.111 | 0.064 | 0.014 |
| 36 | Chromium | | 7.090 | 14.110 | 4.730 | 3.550 | 0.350 | 0.110 | 0.480 | 1.390 | 2.460 | 7.770 | 4.360 | 1.360 |
| 37 | Copper | | 4.650 | 3.290 | 2.720 | 3.120 | 1.430 | 1.310 | 1.410 | 5.710 | 5.130 | 12.240 | 0.370 | 7.590 |
| 38 | Iron | mg/l | 0.014 | 0.008 | 0.018 | 0.063 | 0.052 | 0.064 | 0.066 | 0.130 | 0.082 | 0.125 | 0.148 | 0.153 |
| 39 | Lead | µg/L | 5.520 | 0.210 | 0.110 | 0.470 | 0.850 | 0.980 | 1.180 | 0.880 | 1.040 | 1.560 | 1.230 | 1.280 |
| 40 | Nickel | | 63.750 | 5.100 | 2.520 | 3.820 | 3.240 | 4.680 | 1.640 | 31.050 | 7.480 | 3.930 | 3.280 | 26.900 |
| 41 | Zinc | mg/l | 0.003 | 0.002 | 0.001 | 0.002 | 0.004 | 0.001 | 0.002 | 0.010 | 0.009 | 0.004 | 0.006 | 0.006 |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 131 | 171 | 76 | 100 | 140 | 157 | 159 | 152 | 188 | 193 | 171 | 216 |
| 43 | Tot-Hardness | | 337 | 345 | 156 | 178 | 300 | 302 | 315 | 380 | 438 | 368 | 366 | 471 |
| 44 | Na% | % | 57.57 | 57.19 | 40.14 | 48.19 | 54.40 | 56.95 | 54.05 | 55.44 | 45.70 | 55.99 | 57.05 | 55.94 |
| 45 | RSC (-) | | -1.27 | -1.38 | -1.00 | -1.27 | -3.08 | -2.27 | -1.29 | -4.07 | -3.32 | -1.80 | -1.49 | -0.05 |
| 46 | SAR (-) | | 5.33 | 5.26 | 1.79 | 2.67 | 4.42 | 4.92 | 4.46 | 5.20 | 3.72 | 5.27 | 5.49 | 5.85 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

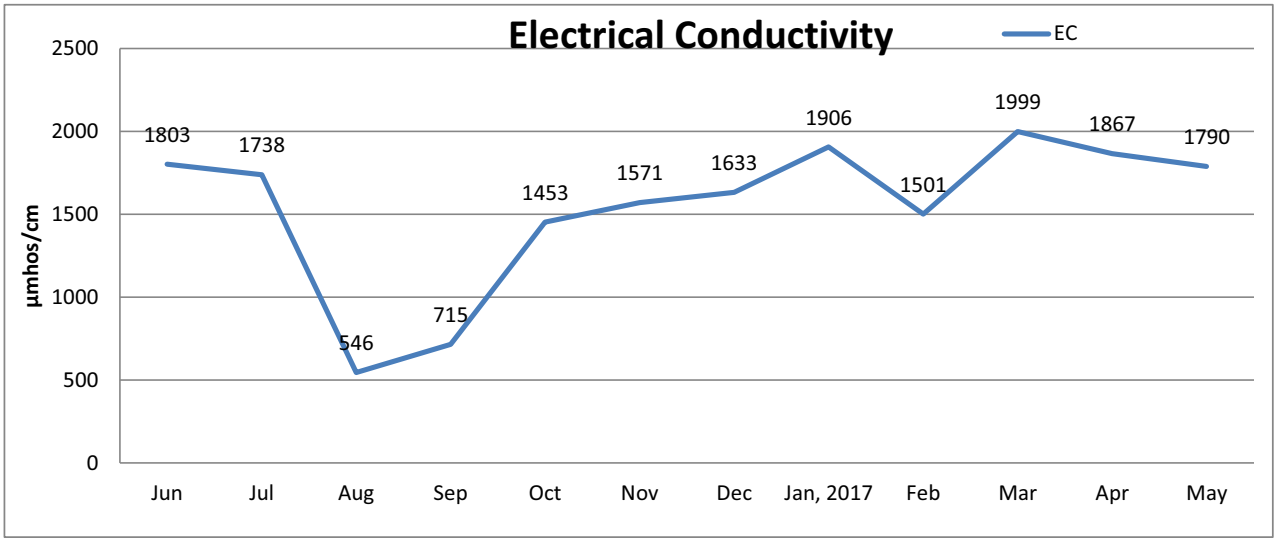
# RIVER WATER SUMMARY - 2016-2017

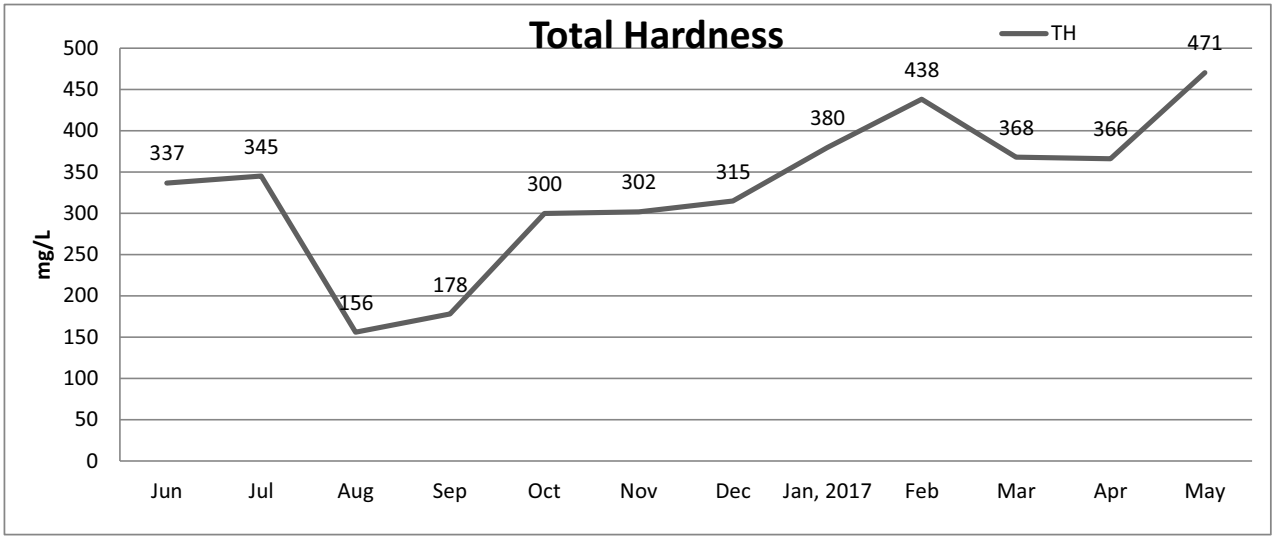
**Station Name : DELHI 1ST 10 DAYS** **Division : UYD, New Delhi**

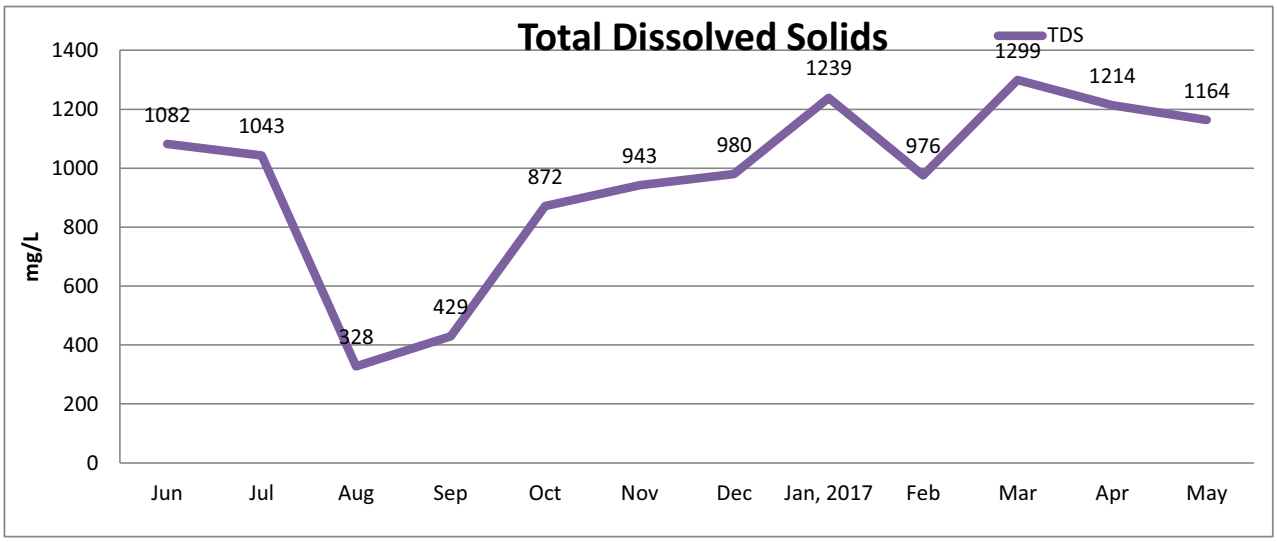
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 12 | 7.76 | 7.37 | 7.53 | 7.54 | 7.46 | 7.58 |
| EC_GEN (µmho/cm) | 12 | 1999 | 546 | 1544 | 1251 | 1653 | 1885 |
| Total Dissolved Solids | 12 | 1299 | 328 | 964 | 751 | 1034 | 1225 |
| Turbiidity | 12 | 206.0 | 26.4 | 63.3 | 78.6 | 51.0 | 54.1 |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 12 | 475.87 | 107.58 | 240.5 | 186.08 | 225.27 | 351.59 |
| Boron | 11 | 0.49 | 0.15 | 0.3 | 0.29 | 0.33 | 0.39 |
| Calcium | 12 | 86.24 | 30.41 | 61.8 | 49.41 | 65.65 | 77.31 |
| Chloride | 12 | 358.44 | 55.14 | 251.3 | 200.07 | 264.38 | 319.28 |
| Carbonate | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Fluoride | 12 | 0.95 | 0.33 | 0.6 | 0.57 | 0.57 | 0.79 |
| Bicarbonate | 12 | 571.04 | 129.09 | 288.6 | 223.30 | 270.33 | 421.91 |
| Potassium | 12 | 23.00 | 8.45 | 17.7 | 13.98 | 18.51 | 22.95 |
| Magnesium | 12 | 61.15 | 18.82 | 42.0 | 33.48 | 46.64 | 49.95 |
| Sodium | 12 | 291.93 | 51.46 | 193.0 | 151.79 | 197.64 | 255.35 |
| Ammonia as N | 12 | 47.20 | 0.02 | 16.8 | 12.71 | 20.06 | 19.34 |
| $NO_2$+$NO_3$ as N | 12 | 39.08 | 1.01 | 9.6 | 5.50 | 19.75 | 2.98 |
| Nitrite as N | 12 | 2.52 | 0.02 | 0.3 | 0.66 | 0.12 | 0.09 |
| Nitrate as N | 12 | 38.94 | 0.91 | 9.3 | 4.84 | 19.63 | 2.89 |
| Tot. Phosphate as P | 12 | 11.30 | 0.07 | 6.2 | 3.60 | 6.85 | 9.80 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 193.33 | 65.20 | 131.1 | 116.68 | 137.64 | 146.27 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 64.1 | 11.6 | 44.5 | 31.5 | 48.3 | 61.1 |
| COD | 12 | 106.0 | 25.0 | 71.4 | 52.0 | 86.5 | 83.7 |
| Dissolved Oxygen | 12 | 1.52 | 0.00 | 0.25 | 0.42 | 0.2 | 0.0 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 12 | 92000000 | 220000 | 11933333 | 3080000 | 4250000 | 36933333 |
| Fecal Coliform | 12 | 4700000 | 21000 | 658917 | 191400 | 327500 | 1880000 |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 12 | 3.51 | 0.13 | 1.40 | 1.19 | 1.10 | 2.14 |
| Cadmium | 12 | 0.11 | 0.00 | 0.03 | 0.02 | 0.03 | 0.06 |
| Chromium | 12 | 14.11 | 0.11 | 3.98 | 5.97 | 1.11 | 4.50 |
| Copper | 12 | 12.24 | 0.37 | 4.08 | 3.04 | 3.39 | 6.73 |
| Iron | 12 | 0.15 | 0.01 | 0.08 | 0.06 | 0.15 | 0.15 |
| Lead | 12 | 5.52 | 0.11 | 1.28 | 1.43 | 1.02 | 1.36 |
| Nickel | 12 | 63.75 | 1.64 | 13.12 | 15.69 | 11.21 | 11.37 |
| Zinc | 12 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 216 | 76 | 154 | 124 | 164 | 193 |
| Tot-Hardness | 12 | 471 | 156 | 330 | 263 | 359 | 402 |
| Na% | 12 | 58 | 40 | 53 | 51 | 53 | 56 |
| RSC (-) | 12 | -0.05 | -4.07 | -1.9 | -1.60 | -2.74 | -1.11 |
| SAR (-) | 12 | 5.85 | 1.79 | 4.5 | 3.89 | 4.58 | 5.54 |
| **PESTICIDES** | | | | | | | |

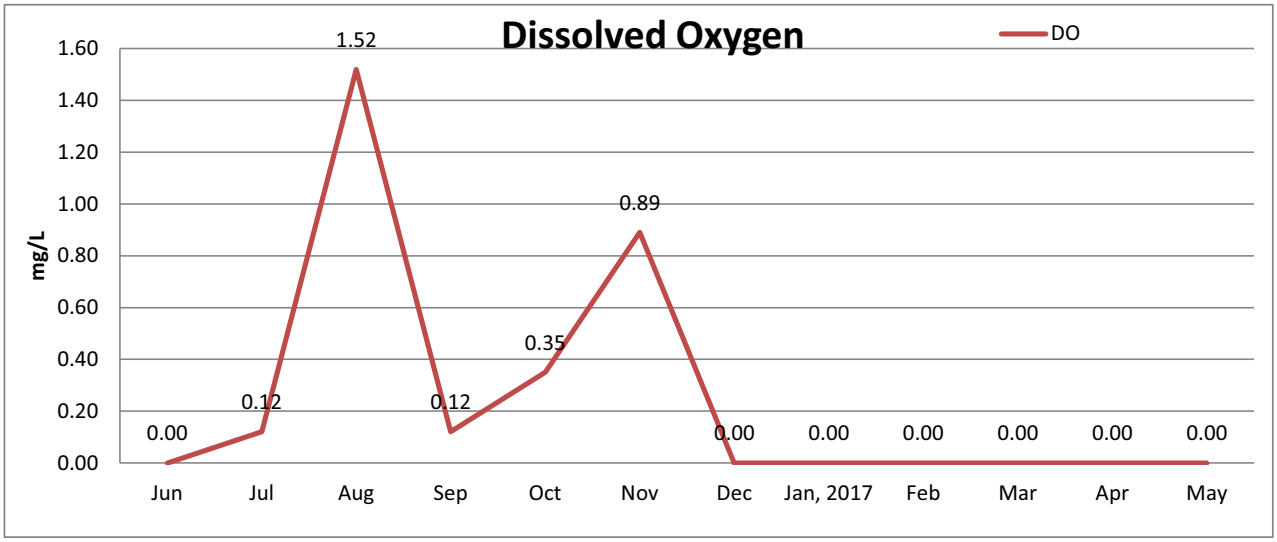
**Graphical Presentation of DELHI 1st 10 Days WQ Site**

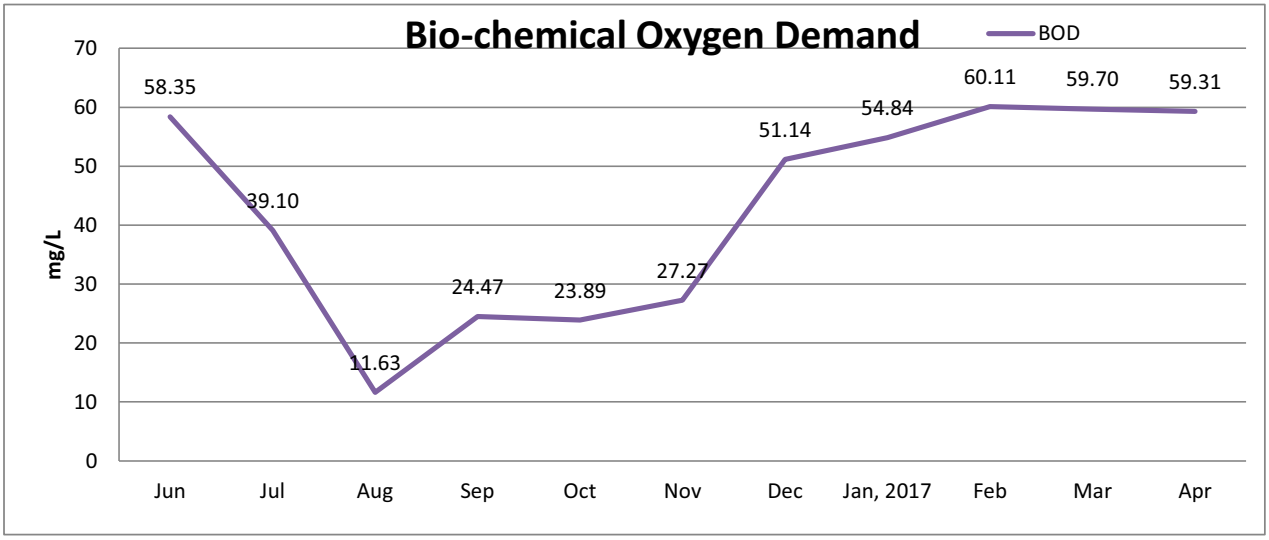


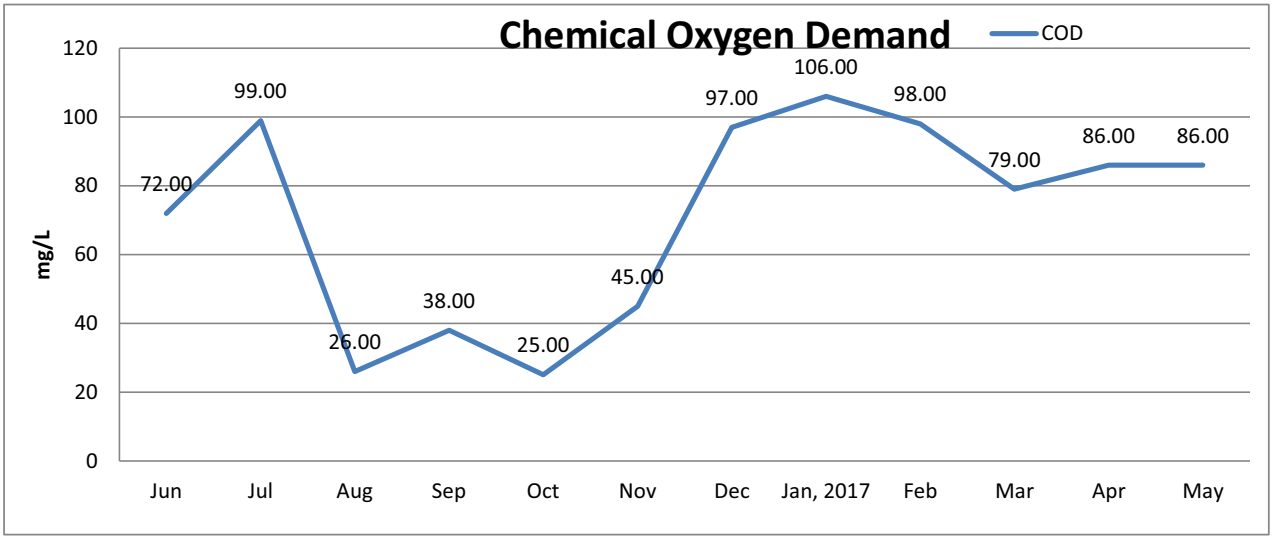



## Graphical Presentation of DELHI 1st 10 Days WQ Site



# Water Quality Datasheet for the Period : 2016-2017

**Station Name : DELHI 2nd 10 DAYS** **Division : UYD, New Delhi**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 13/06/16 | 11/07/16 | 11/08/16 | 12/09/16 | 13/10/16 | 01/11/16 | 13/12/16 | 11.01.2017 | 13/02/17 | 14/03/17 | 11/04/17 | 11/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | Colourless | L.Brown | | | | | | | | | | |
| 3 | Odour_Code (-) | | Rotten Egg | | | | | | | | | | | |
| 4 | Temperature | °C | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | pH_GEN (pH units) | | 7.49 | 7.43 | 7.55 | 7.47 | 7.66 | 7.42 | 7.96 | 7.53 | 7.94 | 7.29 | 7.58 | 7.7 |
| 6 | EC_GEN (µmho/cm) | NTU | 1839 | 1418 | 567 | 1260 | 1379 | 1406 | 1779 | 2005 | 1287 | 2046 | 1954 | 1890 |
| 7 | Total Dissolved Solids | mg/L | 1103 | 911 | 280 | 756 | 827 | 844 | 1067 | 1303 | 837 | 1330 | 1270 | 1229 |
| 8 | Turbiidity | | 25.6 | 34.9 | 423 | 66.8 | 33.5 | 22.2 | 37.8 | 76.1 | 8.73 | 44.6 | 53.4 | 30.6 |
| CHEMICAL | | | | | | | | | | | | | | |
| 9.00 | Alk-Phen (as $CaCO_3$) | mg/l | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | Alk-Tot (as $CaCO_3$) | | 333.69 | 299.27 | 121.88 | 220.70 | 174.58 | 151.52 | 352.34 | 368.37 | 198.56 | 288.23 | 289.65 | 380.23 |
| 11 | Boron | | 0.04 | 0.06 | | 0.21 | 0.33 | 0.41 | 0.31 | 0.35 | 0.29 | 0.37 | 0.27 | 0.36 |
| 12 | Calcium | | 65.26 | 67.64 | 25.34 | 52.89 | 50.12 | 58.38 | 103.67 | 81.32 | 38.98 | 93.91 | 87.30 | 86.00 |
| 13 | Chloride | | 228.73 | 189.81 | 61.95 | 206.26 | 208.74 | 213.00 | 170.12 | 296.39 | 245.52 | 404.52 | 383.40 | 313.82 |
| 14 | Carbonate | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | Fluoride | | 0.81 | 0.60 | 0.37 | 0.45 | 0.53 | 0.48 | 0.60 | 0.72 | 0.43 | 0.71 | 0.74 | 0.92 |
| 16 | Bicarbonate | | 400.42 | 359.13 | 146.25 | 264.84 | 209.50 | 181.83 | 422.80 | 442.05 | 238.27 | 345.87 | 347.58 | 456.28 |
| 17 | Potassium | | 17.80 | 33.30 | 8.07 | 16.20 | 13.55 | 11.55 | 20.10 | 22.63 | 21.10 | 23.73 | 22.15 | 22.23 |
| 18 | Magnesium | | 47.52 | 30.41 | 22.33 | 23.84 | 26.14 | 34.18 | 35.98 | 56.09 | 41.97 | 53.29 | 40.74 | 56.00 |
| 19 | Sodium | | 224.10 | 165.05 | 49.94 | 166.65 | 185.50 | 162.88 | 197.03 | 243.58 | 147.10 | 257.95 | 257.23 | 278.50 |
| 20 | Ammonia as N | | 22.50 | 12.50 | 1.81 | 9.36 | 0.02 | 0.02 | 0.22 | 31.20 | 22.40 | 32.30 | 26.40 | 28.80 |
| 21 | $NO_2$+$NO_3$ as N | | 15.66 | 0.62 | 0.80 | 1.57 | 23.12 | 4.43 | 8.34 | 3.85 | 12.13 | 2.23 | 2.95 | 2.59 |
| 22 | Nitrite as N | | 13.65 | 0.01 | 0.13 | 0.11 | 0.08 | 0.03 | 0.06 | 0.09 | 0.13 | 0.08 | 0.22 | 0.11 |
| 23 | Nitrate as N | | 2.01 | 0.61 | 0.67 | 1.46 | 23.04 | 4.40 | 8.29 | 3.76 | 12.00 | 2.15 | 2.73 | 2.48 |
| 24 | Tot. Phosphate as P | | 7.61 | 9.39 | 1.02 | 0.08 | 2.05 | 5.55 | 5.47 | 4.87 | 0.13 | 4.79 | 3.64 | 8.97 |
| 25 | Silicate as $SiO_2$ | | - | - | - | - | - | - | - | - | - | - | - | - |
| 26 | Sulphate as $SO_4$ | | 145.80 | 106.40 | 47.60 | 117.60 | 127.80 | 143.40 | 189.00 | 150.40 | 65.60 | 154.67 | 124.00 | 122.13 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 48.25 | 37.99 | 14.48 | 22.09 | 34.75 | 32.52 | 56.22 | 63.17 | 28.51 | 65.24 | 65.24 | 62.25 |
| 28 | COD | | 73.00 | 67.00 | 24.00 | 41.00 | 56.00 | 32.00 | 101.00 | 112.00 | 69.00 | 80.00 | 54.00 | 80.00 |
| 29 | Dissolved Oxygen | | 0.00 | 0.00 | 1.09 | 0.45 | 0.15 | 0.10 | 0.00 | 0.00 | 0.98 | 0.00 | 0.00 | 0.00 |
| 30 | DO_SAT % | % | - | - | - | - | - | - | - | - | - | - | - | - |
| 31 | Tota Coliform | MPN/100 ml | 16000000 | 2800000 | 110000 | 220000 | 3500000 | 1400000 | | 5400000 | 140000 | 16000000 | 3300000 | 14000000 |
| 32 | Fecal Coliform | | 330000 | 260000 | 21000 | 2200 | 330000 | 210000 | | 220000 | 32000 | 400000 | 1700000 | 3900000 |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | 1.250 | 2.720 | 3.580 | 0.130 | 3.170 | 0.950 | 1.750 | 0.470 | 1.330 | 0.560 | 2.180 | 5.690 |
| 35 | Cadmium | | 0.117 | 0.033 | 0.048 | 0.019 | 0.063 | 0.039 | 0.048 | 0.044 | 0.015 | 0.115 | 0.178 | 0.092 |
| 36 | Chromium | | 10.080 | 1.460 | 3.440 | 3.070 | 1.960 | 0.390 | 1.460 | 2.120 | 0.990 | 7.590 | 0.470 | 21.400 |
| 37 | Copper | | 4.580 | 1.090 | 2.510 | 4.160 | 2.610 | 3.890 | 4.870 | 5.900 | 6.300 | 1.460 | 0.000 | 3.060 |
| 38 | Iron | mg/l | 0.012 | 0.009 | 0.027 | 0.050 | 0.066 | 0.145 | 0.276 | 0.065 | 0.165 | 0.118 | 0.153 | 0.190 |
| 39 | Lead | µg/L | 5.120 | 0.110 | 0.280 | 0.770 | 1.530 | 0.850 | 0.670 | 1.400 | 0.680 | 1.250 | 1.410 | 1.170 |
| 40 | Nickel | | 57.350 | 2.580 | 11.540 | 21.570 | 48.500 | 2.840 | 5.290 | 8.990 | 7.670 | 5.110 | 0.950 | 36.540 |
| 41 | Zinc | mg/l | 0.000 | 0.004 | 0.001 | 0.001 | 0.006 | 0.013 | 0.013 | 0.004 | 0.009 | 0.006 | 0.006 | 0.005 |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 163 | 169 | 63 | 132 | 125 | 146 | 259 | 203 | 97 | 235 | 218 | 215 |
| 43 | Tot-Hardness | | 361 | 296 | 156 | 232 | 234 | 288 | 409 | 437 | 272 | 457 | 388 | 449 |
| 44 | Na% | % | 55.92 | 51.46 | 39.43 | 58.94 | 61.58 | 53.87 | 49.62 | 53.19 | 51.65 | 53.51 | 57.32 | 55.94 |
| 45 | RSC (-) | | -0.66 | -0.03 | -0.73 | -0.29 | -1.25 | -2.79 | -1.25 | -1.49 | -1.54 | -3.47 | -2.06 | -1.49 |
| 46 | SAR (-) | | 5.13 | 4.17 | 1.74 | 4.76 | 5.27 | 4.17 | 4.24 | 5.07 | 3.88 | 5.25 | 5.68 | 5.72 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

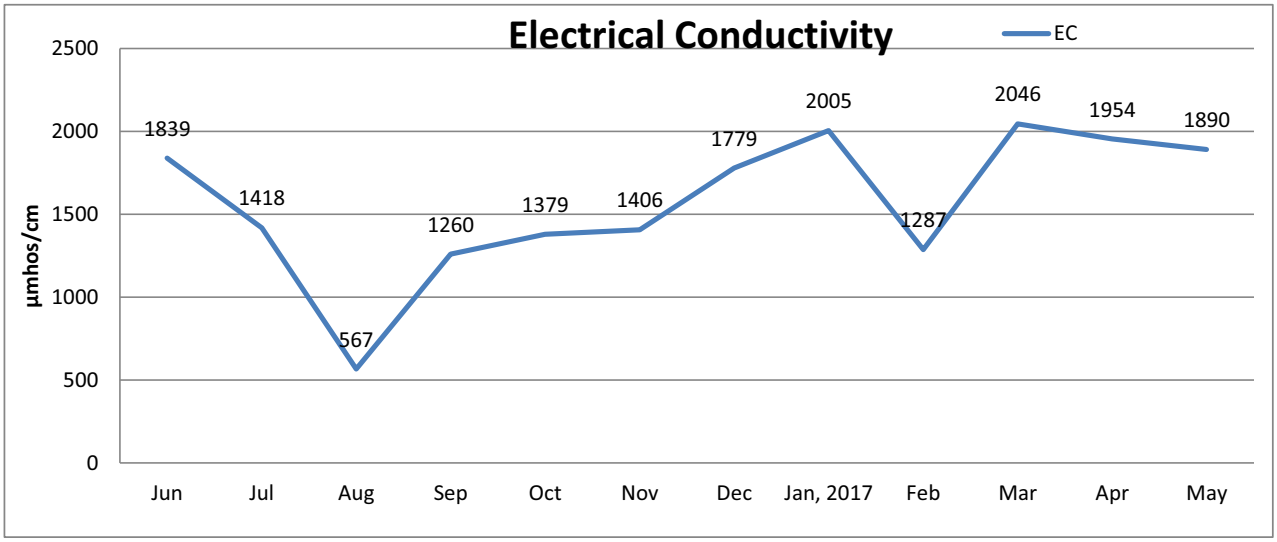
# RIVER WATER SUMMARY - 2016-2017

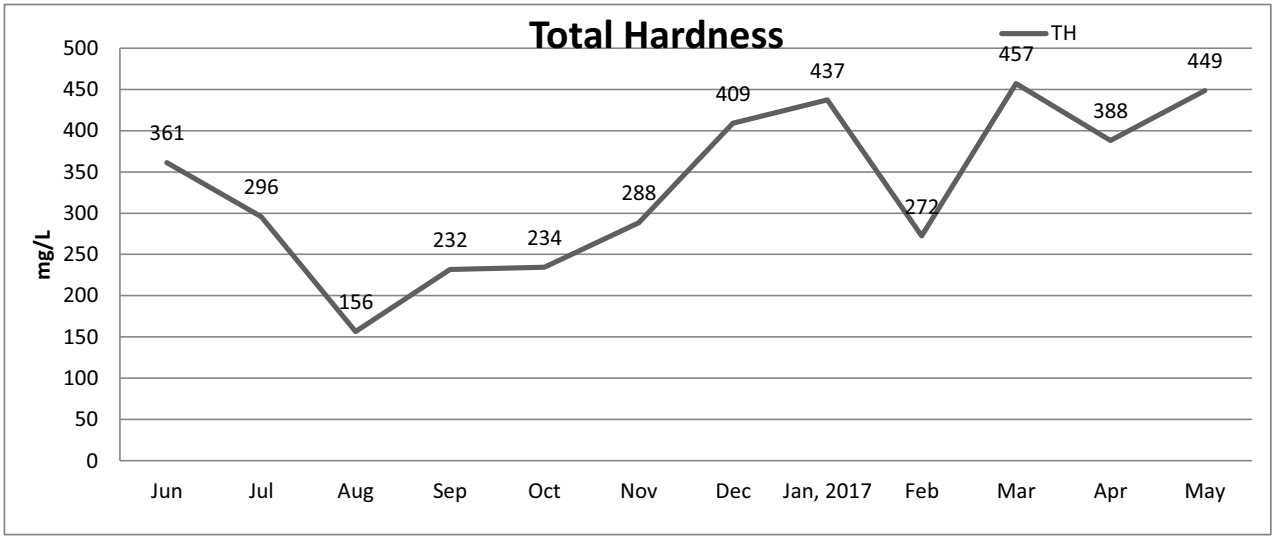
**Station Name : DELHI 2nd 10 DAYS** **Division : UYD, New Delhi**

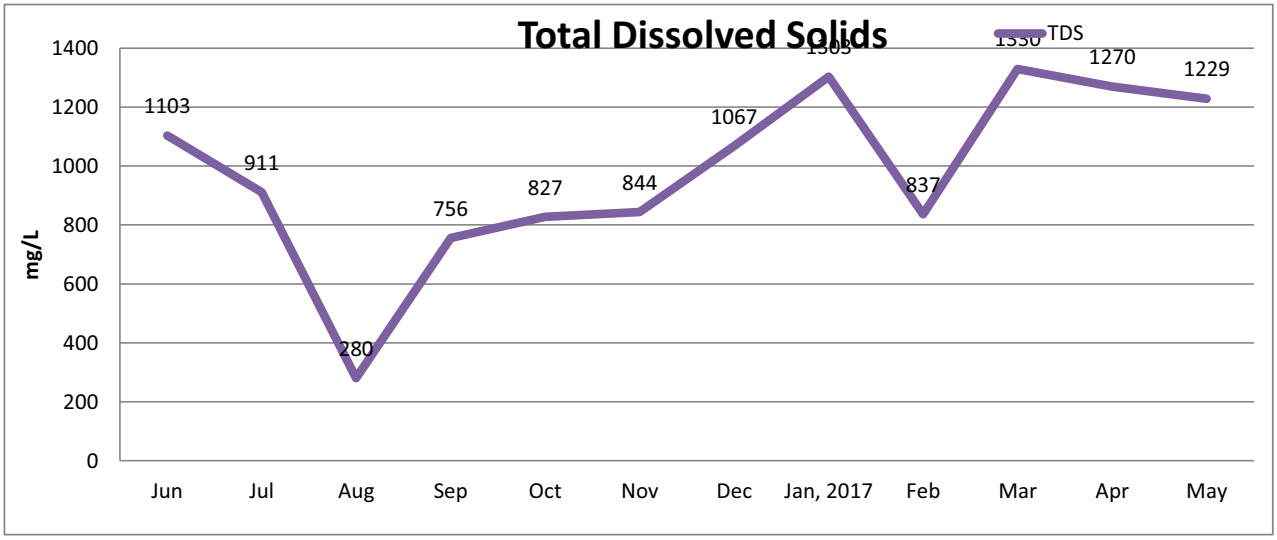
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 12 | 7.96 | 7.29 | 7.59 | 7.61 | 7.58 | 7.64 |
| EC_GEN (µmho/cm) | 12 | 2046 | 567 | 1569 | 1293 | 1619 | 1963 |
| Total Dissolved Solids | 12 | 1330 | 280 | 980 | 776 | 1013 | 1276 |
| Turbiidity | 12 | 423.0 | 8.7 | 71.4 | 116.8 | 36.2 | 42.9 |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 12 | 380.23 | 121.88 | 264.9 | 230.02 | 267.70 | 319.37 |
| Boron | 11 | 0.41 | 0.04 | 0.3 | 0.16 | 0.34 | 0.33 |
| Calcium | 12 | 103.67 | 25.34 | 67.6 | 52.25 | 70.59 | 89.07 |
| Chloride | 12 | 404.52 | 61.95 | 243.5 | 179.10 | 231.26 | 367.25 |
| Carbonate | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Fluoride | 12 | 0.92 | 0.37 | 0.6 | 0.55 | 0.56 | 0.79 |
| Bicarbonate | 12 | 456.28 | 146.25 | 317.9 | 276.03 | 321.24 | 383.24 |
| Potassium | 12 | 33.30 | 8.07 | 19.4 | 17.78 | 18.84 | 22.70 |
| Magnesium | 12 | 56.09 | 22.33 | 39.0 | 30.05 | 42.05 | 50.01 |
| Sodium | 12 | 278.50 | 49.94 | 194.6 | 158.25 | 187.64 | 264.56 |
| Ammonia as N | 12 | 32.30 | 0.02 | 15.6 | 9.24 | 13.46 | 29.17 |
| $NO_2$+$NO_3$ as N | 12 | 23.12 | 0.62 | 6.5 | 8.35 | 7.19 | 2.59 |
| Nitrite as N | 12 | 13.65 | 0.01 | 1.2 | 2.80 | 0.08 | 0.14 |
| Nitrate as N | 12 | 23.04 | 0.61 | 5.3 | 5.56 | 7.11 | 2.45 |
| Tot. Phosphate as P | 12 | 9.39 | 0.08 | 4.5 | 4.03 | 4.01 | 5.80 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 189.00 | 47.60 | 124.5 | 109.04 | 137.10 | 133.60 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 65.2 | 14.5 | 44.2 | 31.5 | 45.1 | 64.2 |
| COD | 12 | 112.0 | 24.0 | 65.8 | 52.2 | 78.5 | 71.3 |
| Dissolved Oxygen | 12 | 1.09 | 0.00 | 0.23 | 0.34 | 0.3 | 0.0 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 11 | 16000000 | 110000 | 5715455 | 4526000 | 2313333 | 11100000 |
| Fecal Coliform | 11 | 3900000 | 2200 | 673200 | 188640 | 154000 | 2000000 |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 12 | 5.69 | 0.13 | 1.98 | 2.17 | 1.13 | 2.81 |
| Cadmium | 12 | 0.18 | 0.02 | 0.07 | 0.06 | 0.04 | 0.13 |
| Chromium | 12 | 21.40 | 0.39 | 4.54 | 4.00 | 1.24 | 9.82 |
| Copper | 12 | 6.30 | 0.00 | 3.37 | 2.99 | 5.24 | 1.51 |
| Iron | 12 | 0.28 | 0.01 | 0.11 | 0.09 | 0.15 | 0.17 |
| Lead | 12 | 5.12 | 0.11 | 1.27 | 1.56 | 0.90 | 1.28 |
| Nickel | 12 | 57.35 | 0.95 | 17.41 | 28.31 | 6.20 | 14.20 |
| Zinc | 12 | 0.01 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 259 | 63 | 169 | 131 | 176 | 223 |
| Tot-Hardness | 12 | 457 | 156 | 332 | 256 | 352 | 431 |
| Na% | 12 | 62 | 39 | 54 | 53 | 52 | 56 |
| RSC (-) | 12 | -0.03 | -3.47 | -1.4 | -0.59 | -1.77 | -2.34 |
| SAR (-) | 12 | 5.72 | 1.74 | 4.6 | 4.21 | 4.34 | 5.55 |
| **PESTICIDES** | | | | | | | |

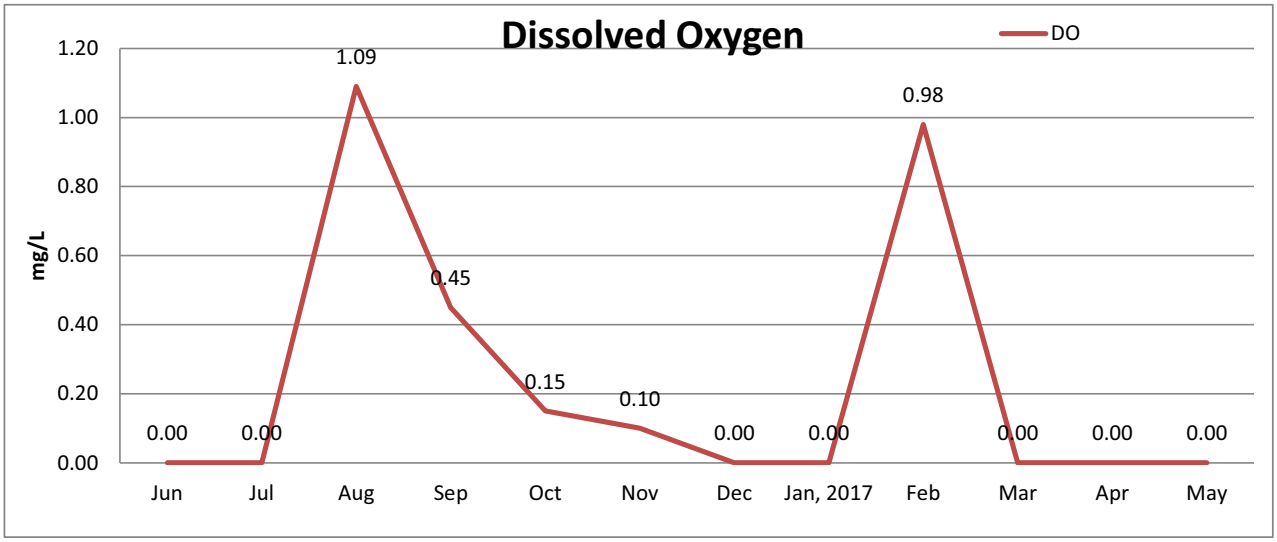
**Graphical Presentation of DELHI 2nd 10 Days WQ Site**

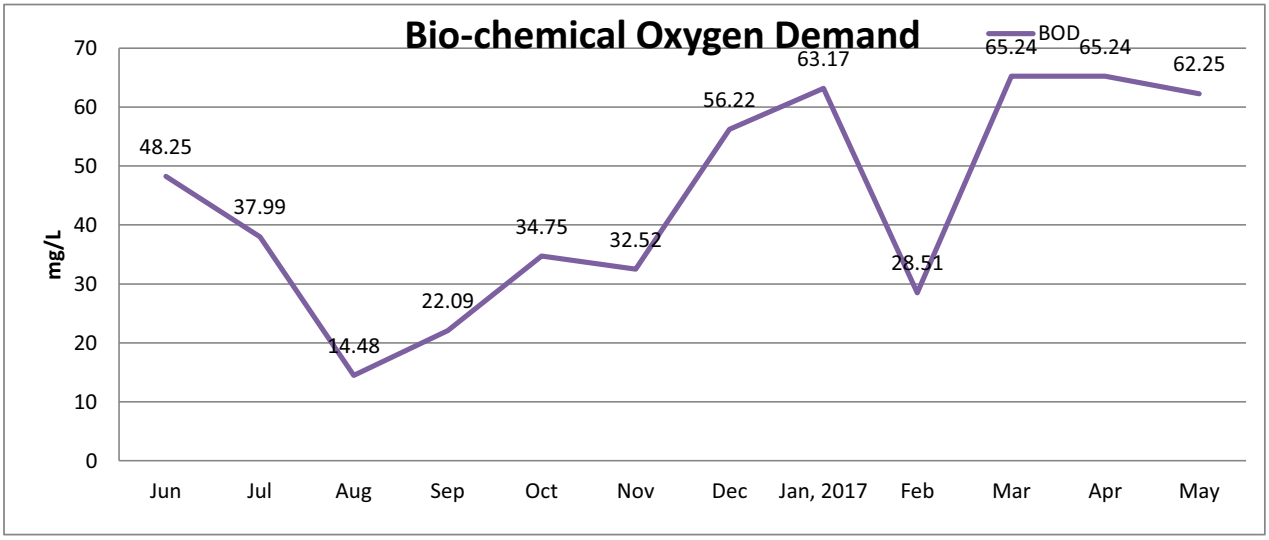


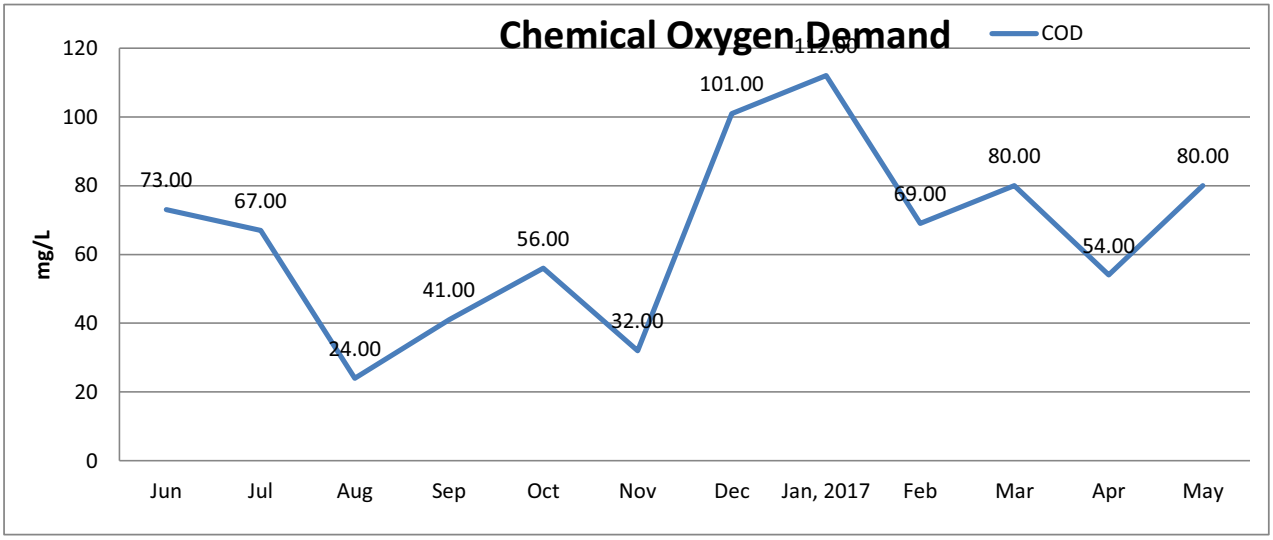



## Graphical Presentation of DELHI 1nd 10 Days WQ Site



# Water Quality Datasheet for the Period : 2016-2017

**Station Name : DELHI 3rd 10 DAYS** **Division : UYD, New Delhi**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 21/06/16 | 21/07/16 | 22/08/16 | 21/09/16 | 21/10/16 | 01/11/16 | 21/12/16 | 23.01.2017 | 21/02/17 | 21/03/17 | 21/04/17 | 22/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Cloudy | Cloudy | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | Colourless | | L.Brown | | L.Black | | | | | | | |
| 3 | Odour_Code (-) | | Rotten Egg | | | | | | | | | | | |
| 4 | Temperature | °C | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | pH_GEN (pH units) | | 7.48 | 7.38 | 7.46 | 7.55 | 7.56 | 7.25 | | 7.54 | 7.78 | 8.08 | 7.72 | 7.53 |
| 6 | EC_GEN (µmho/cm) | NTU | 1760 | 536 | 675 | 1228 | 1517 | 1556 | | 1886 | 1246 | 1167 | 2178 | 1800 |
| 7 | Total Dissolved Solids | mg/L | 1056 | 321 | 405 | 737 | 910 | 934 | | 1226 | 810 | 759 | 1416 | 1170 |
| 8 | Turbiidity | | 34.4 | 201.8 | 240 | 45 | 36.1 | 29.1 | 13.83 | 92 | 12.35 | 9.85 | 9.64 | 45.8 |
| CHEMICAL | | | | | | | | | | | | | | |
| 9.00 | Alk-Phen (as $CaCO_3$) | mg/l | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | Alk-Tot (as $CaCO_3$) | | 317.19 | 128.10 | 120.05 | 150.79 | 173.85 | 225.23 | | 236.68 | 169.49 | 204.73 | 415.98 | 357.87 |
| 11 | Boron | | 0.08 | 0.06 | 0.24 | 0.21 | 0.32 | 0.40 | 0.41 | 0.31 | 0.32 | 0.23 | 0.25 | 0.37 |
| 12 | Calcium | | 45.30 | 23.76 | 23.76 | 50.12 | 62.94 | 62.94 | | 45.60 | 51.50 | 58.87 | 100.62 | 81.00 |
| 13 | Chloride | | 289.45 | 68.16 | 98.51 | 193.12 | 237.38 | 202.46 | | 266.18 | 202.64 | 205.33 | 335.48 | 295.36 |
| 14 | Carbonate | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | Fluoride | | 0.73 | 0.37 | 0.48 | 0.45 | 0.61 | 0.53 | | 0.63 | 0.41 | 0.47 | 0.55 | 0.96 |
| 16 | Bicarbonate | | 380.62 | 153.72 | 144.06 | 180.95 | 208.62 | 270.28 | | 284.02 | 203.39 | 245.67 | 499.18 | 429.44 |
| 17 | Potassium | | 23.25 | 7.80 | 8.85 | 13.43 | 14.85 | 18.10 | | 22.45 | 24.88 | 18.85 | 19.15 | 21.50 |
| 18 | Magnesium | | 54.36 | 22.05 | 29.56 | 25.63 | 34.01 | 32.38 | | 31.33 | 33.20 | 29.27 | 49.11 | 52.00 |
| 19 | Sodium | | 223.65 | 50.81 | 71.83 | 144.33 | 192.00 | 181.43 | | 226.93 | 137.95 | 128.73 | 280.55 | 246.25 |
| 20 | Ammonia as N | | 19.30 | 3.84 | 3.18 | 9.88 | 0.02 | 0.01 | | 26.40 | 17.80 | 12.90 | 13.10 | 26.70 |
| 21 | $NO_2$+$NO_3$ as N | | 1.38 | 1.07 | 1.13 | 9.13 | 28.61 | 32.78 | 0.15 | 4.08 | 88.63 | 2.25 | 23.97 | 2.62 |
| 22 | Nitrite as N | | 0.12 | 0.16 | 0.13 | 0.37 | 0.16 | 0.03 | 0.15 | 0.16 | 0.13 | 0.03 | 0.92 | 0.11 |
| 23 | Nitrate as N | | 1.26 | 0.91 | 1.00 | 8.76 | 28.46 | 32.75 | | 3.92 | 88.50 | 2.22 | 23.05 | 2.51 |
| 24 | Tot. Phosphate as P | | 7.74 | 5.61 | 1.05 | 0.08 | 3.51 | 4.41 | 3.42 | 3.52 | 2.71 | 1.53 | 2.59 | 4.17 |
| 25 | Silicate as $SiO_2$ | | - | - | - | - | - | - | - | - | - | - | - | - |
| 26 | Sulphate as $SO_4$ | | 88.60 | 47.80 | 75.00 | 110.20 | 135.00 | 113.80 | 75.00 | 136.10 | 64.80 | 73.33 | 106.93 | 164.14 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 39.23 | 16.35 | 19.36 | 21.43 | 31.37 | 31.23 | | 58.65 | 26.24 | 23.54 | 22.80 | 58.21 |
| 28 | COD | | 95.00 | 40.00 | 48.00 | 42.00 | 46.00 | 45.00 | | 102.00 | 54.00 | 114.00 | 120.00 | 77.00 |
| 29 | Dissolved Oxygen | | 0.00 | 1.84 | 0.30 | 0.35 | 0.18 | 0.10 | | 0.00 | 0.68 | 0.31 | 0.46 | 0.00 |
| 30 | DO_SAT % | % | - | - | - | - | - | - | - | - | - | - | - | - |
| 31 | Tota Coliform | MPN/100 ml | 2800000 | 1400000 | 220000 | 700000 | 1400000 | 700000 | | 2800000 | 220000 | 220000 | 140000 | 11000000 |
| 32 | Fecal Coliform | | 170000 | 210000 | 26000 | 170000 | 260000 | 220000 | | 320000 | 38000 | 33000 | 34000 | 3300000 |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | 2.960 | 0.590 | 3.980 | 0.090 | 2.180 | 3.610 | 1.530 | 0.100 | 1.780 | 0.480 | 4.590 | 7.090 |
| 35 | Cadmium | | 0.589 | 0.009 | 0.024 | 0.003 | 0.080 | 0.111 | 0.042 | 0.001 | 0.126 | 0.067 | 0.056 | 0.208 |
| 36 | Chromium | | 7.170 | 0.150 | 0.830 | 2.270 | 2.340 | 0.600 | 3.260 | 3.000 | 0.110 | 0.410 | 0.320 | 0.540 |
| 37 | Copper | | 9.280 | 4.300 | 1.710 | 2.830 | 4.630 | 3.150 | 6.420 | 6.580 | 64.820 | 11.340 | 13.690 | 57.520 |
| 38 | Iron | mg/l | 0.007 | 0.013 | 0.031 | 0.060 | 0.062 | 0.067 | 0.179 | 0.098 | 0.954 | 0.145 | 0.160 | 0.153 |
| 39 | Lead | µg/L | 0.010 | 0.040 | 0.060 | 0.850 | 1.390 | 0.980 | 1.260 | 1.490 | 1.820 | 1.060 | 1.210 | 1.700 |
| 40 | Nickel | | 3.000 | 7.370 | 2.240 | 20.720 | 46.590 | 37.680 | 13.840 | 73.540 | 117.220 | 9.440 | 10.650 | 11.460 |
| 41 | Zinc | mg/l | 0.003 | 0.005 | 0.002 | 0.003 | 0.006 | 0.004 | 0.018 | 0.006 | 0.006 | 0.017 | 0.009 | 0.004 |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 113 | 59 | 59 | 125 | 157 | 157 | | 114 | 129 | 147 | 252 | 203 |
| 43 | Tot-Hardness | | 340 | 151 | 183 | 232 | 299 | 292 | | 245 | 267 | 269 | 456 | 419 |
| 44 | Na% | % | 56.81 | 40.65 | 44.61 | 55.72 | 56.75 | 55.56 | | 64.35 | 50.08 | 48.83 | 55.92 | 54.51 |
| 45 | RSC (-) | | -0.56 | -0.51 | -1.29 | -1.68 | -2.56 | -1.41 | | -0.23 | -2.01 | -1.36 | -0.94 | -1.34 |
| 46 | SAR (-) | | 5.28 | 1.80 | 2.31 | 4.12 | 4.83 | 4.61 | | 6.31 | 3.67 | 3.41 | 5.71 | 5.23 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

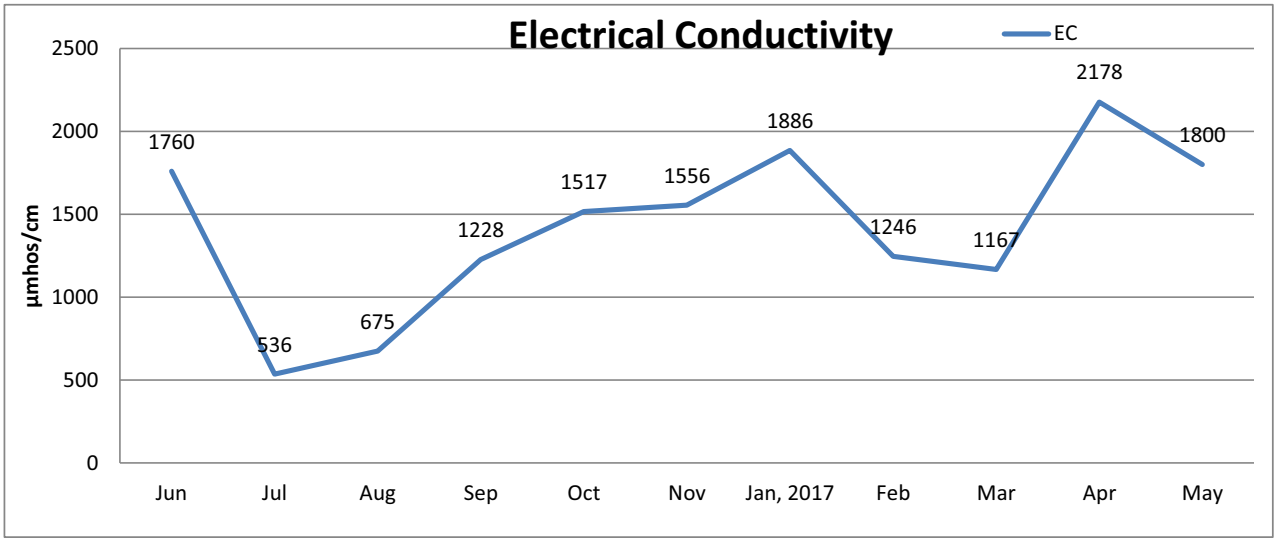
# RIVER WATER SUMMARY - 2016-2017

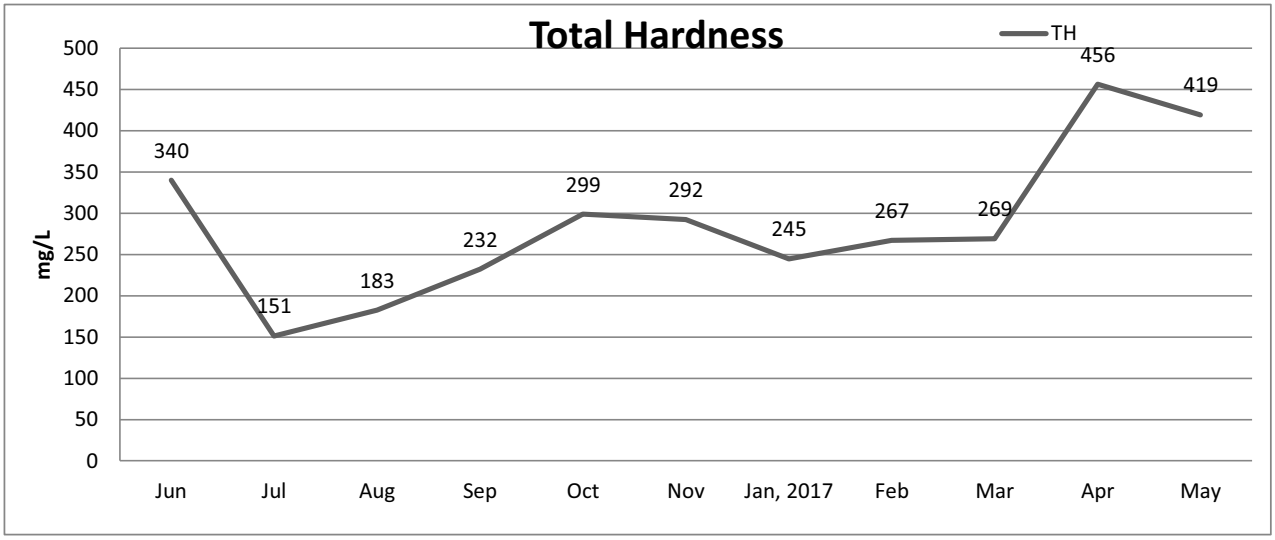
**Station Name : DELHI 3rd 10 DAYS** **Division : UYD, New Delhi**

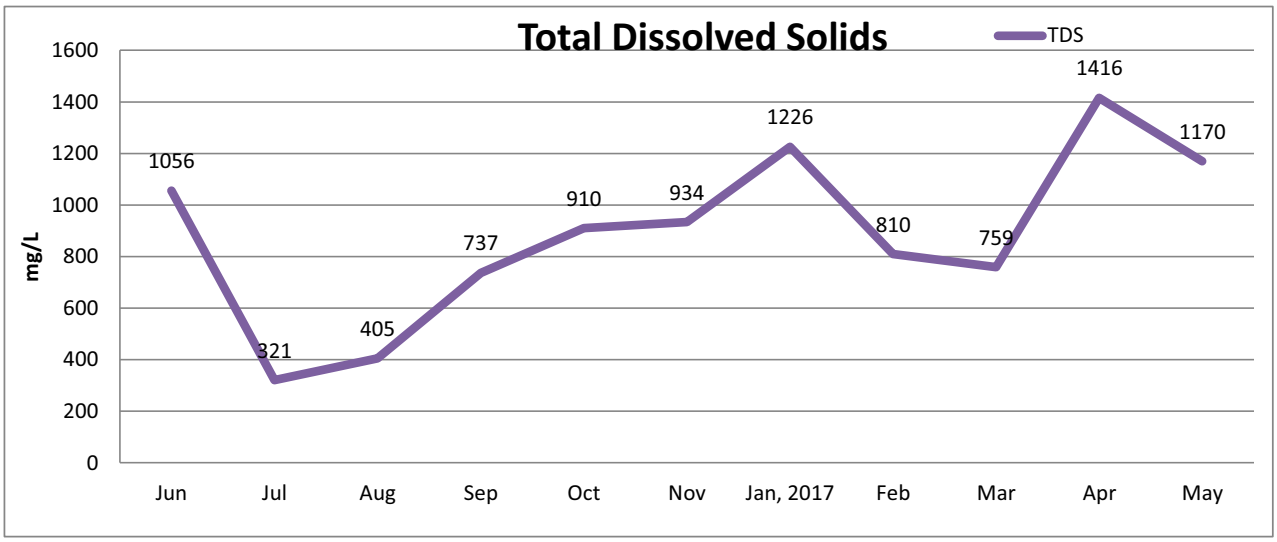
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 11 | 8.08 | 7.25 | 7.58 | 7.50 | 7.72 | 7.63 |
| EC_GEN (µmho/cm) | 11 | 2178 | 536 | 1413 | 1143 | 1563 | 1715 |
| Total Dissolved Solids | 11 | 1416 | 321 | 886 | 686 | 990 | 1115 |
| Turbiidity | 12 | 240.0 | 9.6 | 64.2 | 111.5 | 36.8 | 21.8 |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 11 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 11 | 415.98 | 120.05 | 227.3 | 178.00 | 210.47 | 326.19 |
| Boron | 12 | 0.41 | 0.06 | 0.3 | 0.18 | 0.36 | 0.28 |
| Calcium | 11 | 100.62 | 23.76 | 55.1 | 41.18 | 53.35 | 80.16 |
| Chloride | 11 | 335.48 | 68.16 | 217.6 | 177.32 | 223.76 | 278.72 |
| Carbonate | 11 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Fluoride | 11 | 0.96 | 0.37 | 0.6 | 0.53 | 0.52 | 0.66 |
| Bicarbonate | 11 | 499.18 | 144.06 | 272.7 | 213.59 | 252.56 | 391.43 |
| Potassium | 11 | 24.88 | 7.80 | 17.6 | 13.64 | 21.81 | 19.83 |
| Magnesium | 11 | 54.36 | 22.05 | 35.7 | 33.12 | 32.30 | 43.46 |
| Sodium | 11 | 280.55 | 50.81 | 171.3 | 136.52 | 182.10 | 218.51 |
| Ammonia as N | 11 | 26.70 | 0.01 | 12.1 | 7.24 | 14.74 | 17.57 |
| $NO_2$+$NO_3$ as N | 12 | 88.63 | 0.15 | 16.3 | 8.27 | 31.41 | 9.61 |
| Nitrite as N | 12 | 0.92 | 0.03 | 0.2 | 0.19 | 0.12 | 0.35 |
| Nitrate as N | 11 | 88.50 | 0.91 | 17.6 | 8.08 | 41.72 | 9.26 |
| Tot. Phosphate as P | 12 | 7.74 | 0.08 | 3.4 | 3.60 | 3.52 | 2.77 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 164.14 | 47.80 | 99.2 | 91.32 | 97.43 | 114.80 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 11 | 58.7 | 16.4 | 31.7 | 25.5 | 38.7 | 34.9 |
| COD | 11 | 120.0 | 40.0 | 71.2 | 54.2 | 67.0 | 103.7 |
| Dissolved Oxygen | 11 | 1.84 | 0.00 | 0.38 | 0.53 | 0.3 | 0.3 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 11 | 11000000 | 140000 | 1963636 | 1304000 | 1240000 | 3786667 |
| Fecal Coliform | 11 | 3300000 | 26000 | 434636 | 167200 | 192667 | 1122333 |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 12 | 7.09 | 0.09 | 2.42 | 1.96 | 1.76 | 4.05 |
| Cadmium | 12 | 0.59 | 0.00 | 0.11 | 0.14 | 0.07 | 0.11 |
| Chromium | 12 | 7.17 | 0.11 | 1.75 | 2.55 | 1.74 | 0.42 |
| Copper | 12 | 64.82 | 1.71 | 15.52 | 4.55 | 20.24 | 27.52 |
| Iron | 12 | 0.95 | 0.01 | 0.16 | 0.16 | 0.16 | 0.16 |
| Lead | 12 | 1.82 | 0.01 | 0.99 | 0.47 | 1.39 | 1.32 |
| Nickel | 12 | 117.22 | 2.24 | 29.48 | 15.98 | 60.57 | 10.52 |
| Zinc | 12 | 0.02 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 11 | 252 | 59 | 138 | 103 | 133 | 200 |
| Tot-Hardness | 11 | 456 | 151 | 287 | 241 | 268 | 382 |
| Na% | 11 | 64 | 41 | 53 | 51 | 57 | 53 |
| RSC (-) | 11 | -0.23 | -2.56 | -1.3 | -1.32 | -1.22 | -1.21 |
| SAR (-) | 11 | 6.31 | 1.80 | 4.3 | 3.67 | 4.86 | 4.78 |
| **PESTICIDES** | | | | | | | |

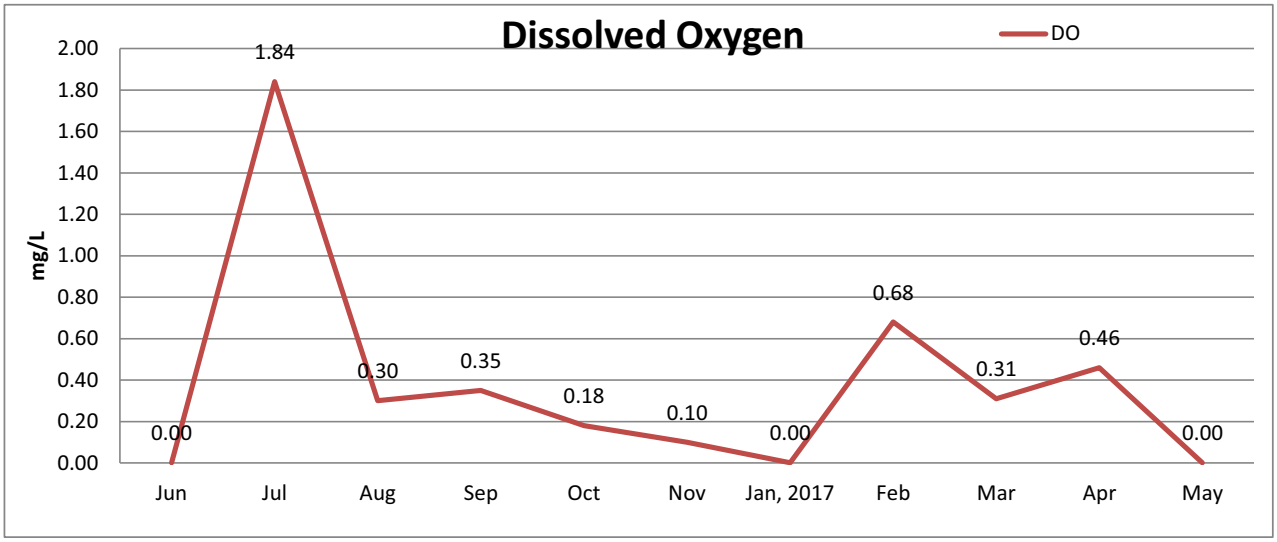
**Graphical Presentation of DELHI 3rd 10 Days WQ Site**

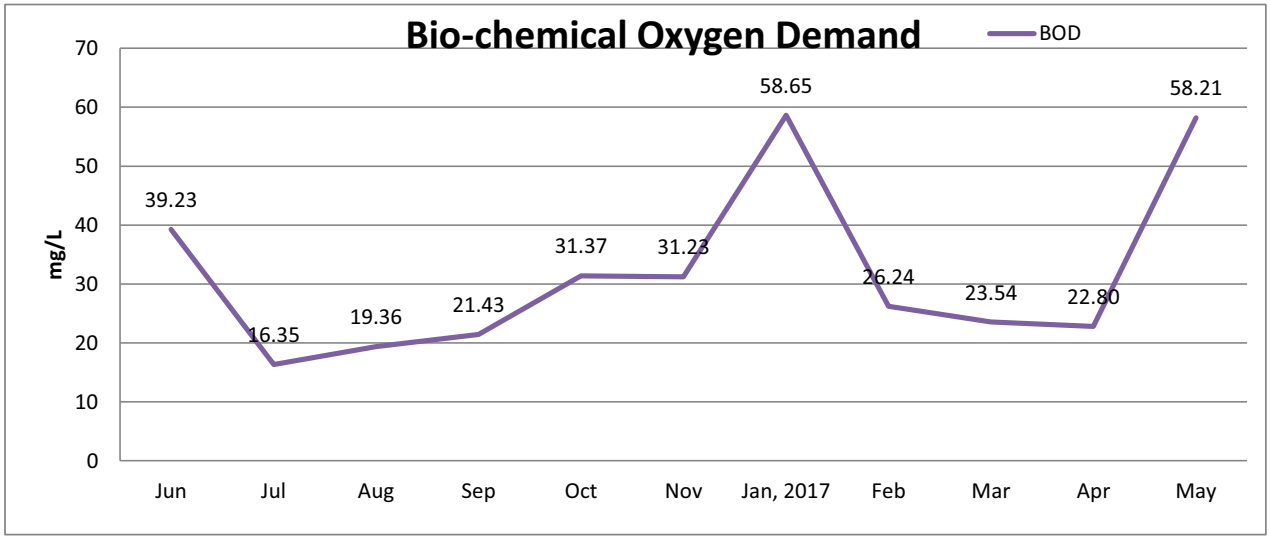


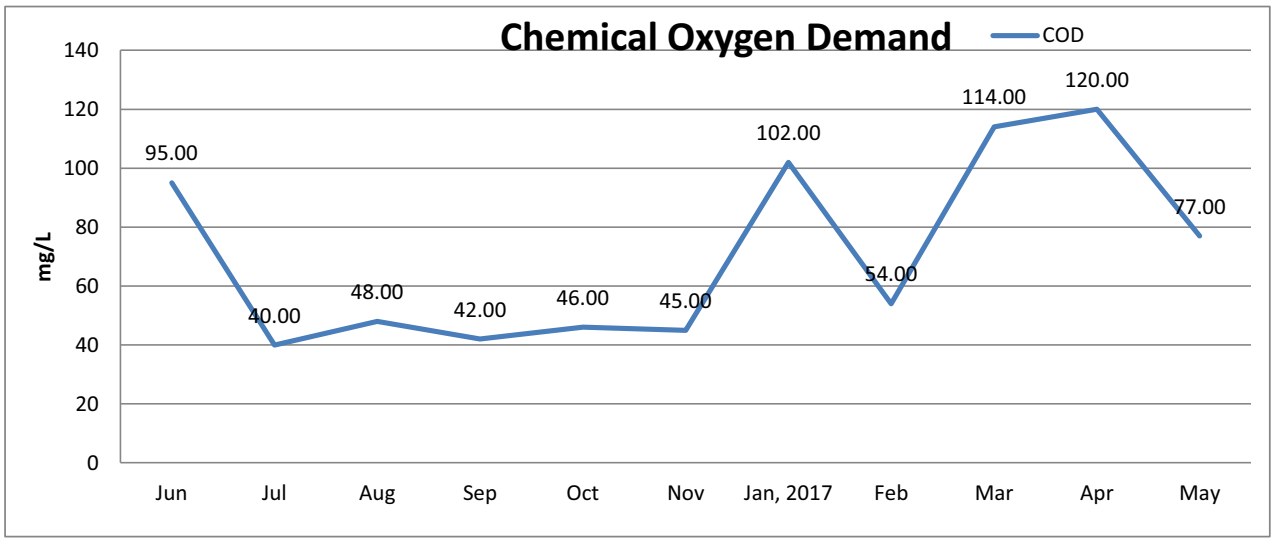



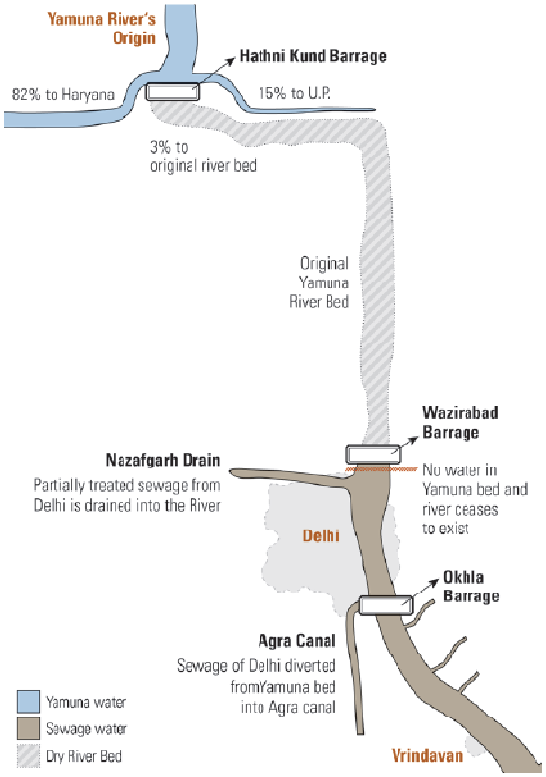
**Graphical Presentation of DELHI 3rd 10 Days WQ Site**



# AGRA CANNAL


Yamuna River's Origin
Hathni Kund Barrage
82% to Haryana
15% to U.P.
3% to original river bed
Original Yamuna River Bed
Wazirabad Barrage
No water in Yamuna bed and river ceases to exist
Nazafgarh Drain
Partially treated sewage from Delhi is drained into the River
Delhi
Okhla Barrage
Agra Canal
Sewage of Delhi diverted fromYamuna bed into Agra canal
Yamuna water
Sewage water
Dry River Bed
Vrindavan

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : AGRA CANAL** **Division : UYD, New Delhi**

**Local River : -**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 03/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 03/04/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | Colourless | | | | | | | | | | | |
| 3 | Odour_Code (-) | | Odourless | | | | | | | | | | | |
| 4 | Temperature | °C | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | pH_GEN (pH units) | | 7.50 | 7.55 | 7.36 | 7.72 | 7.63 | 7.42 | 7.85 | 7.70 | 7.52 | 7.60 | 7.68 | 7.19 |
| 6 | EC_GEN (µmho/cm) | NTU | 1423 | 1095 | 444 | 578 | 1213 | 1488 | 1365 | 1135 | 1665 | 1672 | 1390 | 1080 |
| 7 | Total Dissolved Solids | mg/L | 854 | 657 | 267 | 347 | 728 | 953 | 819 | 738 | 1082 | 1087 | 904 | 702 |
| 8 | Turbiidity | | 18.9 | 52.6 | 216 | 116 | 33.3 | 18.81 | 54 | 47.1 | 40.2 | 33 | 75.1 | 20 |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | Alk-Tot (as $CaCO_3$) | | 183.81 | 161.69 | 105.21 | 102.85 | 173.06 | 214.11 | 236.44 | 164.70 | 292.80 | 310.64 | 298.90 | 206.32 |
| 11 | Boron | | 0.12 | 0.14 | | 0.18 | 0.14 | 0.34 | 0.24 | 0.26 | 0.37 | 0.35 | 0.18 | 0.23 |
| 12 | Calcium | | 47.20 | 48.15 | 26.14 | 27.58 | 58.67 | 61.52 | 53.29 | 54.60 | 71.44 | 68.90 | 60.42 | 54.88 |
| 13 | Chloride | | 232.53 | 165.08 | 51.36 | 80.11 | 146.02 | 249.21 | 198.92 | 154.32 | 278.75 | 240.26 | 208.95 | 146.44 |
| 14 | Carbonate | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | Fluoride | | 0.65 | 0.59 | 0.32 | 0.30 | 0.43 | 0.63 | 0.48 | 0.42 | 0.54 | 0.55 | 0.59 | 0.54 |
| 16 | Bicarbonate | | 220.58 | 194.02 | 126.25 | 123.42 | 207.68 | 256.93 | 283.72 | 197.64 | 351.36 | 372.77 | 358.68 | 247.58 |
| 17 | Potassium | | 15.95 | 14.18 | 7.54 | 8.67 | 14.85 | 16.53 | 15.83 | 22.50 | 19.83 | 20.30 | 19.05 | 16.90 |
| 18 | Magnesium | | 41.44 | 26.90 | 15.97 | 14.92 | 19.73 | 41.01 | 37.09 | 24.02 | 55.63 | 44.47 | 38.88 | 35.28 |
| 19 | Sodium | | 169.50 | 121.95 | 39.50 | 65.54 | 133.35 | 176.18 | 149.53 | 109.60 | 209.25 | 183.45 | 161.50 | 132.90 |
| 20 | Ammonia as N | | 15.20 | 14.60 | 2.55 | 0.01 | 11.50 | 0.38 | 0.02 | 26.10 | 33.30 | 25.70 | 19.30 | 0.02 |
| 21 | $NO_2$+$NO_3$ as N | | 13.39 | 0.99 | 1.23 | 7.24 | 20.47 | 3.91 | 3.03 | 12.89 | 3.84 | 2.04 | 2.09 | 69.16 |
| 22 | Nitrite as N | | 11.96 | 0.11 | 0.34 | 2.54 | 0.08 | 0.12 | 0.10 | 0.11 | 0.02 | 0.01 | 0.09 | 4.06 |
| 23 | Nitrate as N | | 1.43 | 0.89 | 0.89 | 4.70 | 20.39 | 3.79 | 2.94 | 12.78 | 3.83 | 2.03 | 2.00 | 65.10 |
| 24 | Tot. Phosphate as P | | 5.29 | 0.51 | 0.60 | 0.03 | 3.17 | 7.04 | 3.17 | 4.85 | 8.69 | 7.62 | 12.21 | 5.14 |
| 25 | Silicate as $SiO_2$ | | - | - | - | - | - | - | - | - | - | - | - | - |
| 26 | Sulphate as $SO_4$ | | 117.20 | 90.00 | 38.00 | 53.40 | 120.00 | 114.80 | 131.20 | 95.95 | 150.52 | 109.67 | 90.00 | 88.40 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 23.49 | 30.13 | 9.85 | 14.40 | 21.01 | 24.99 | 40.30 | 27.71 | 54.15 | 56.13 | 35.43 | 45.49 |
| 28 | COD | | 28.00 | 68.00 | 27.00 | 16.00 | 23.00 | 36.00 | 85.00 | 52.00 | 85.00 | 70.00 | 52.00 | 53.00 |
| 29 | Dissolved Oxygen | | 0.18 | 0.18 | 2.77 | 1.04 | 0.27 | 0.35 | 0.00 | 1.98 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | DO_SAT % | % | - | - | - | - | - | - | - | - | - | - | - | - |
| 31 | Tota Coliform | MPN/100 ml | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | Fecal Coliform | | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | 3.210 | 9.650 | 2.430 | 1.560 | 0.320 | 1.150 | 2.700 | 0.310 | 0.350 | 0.760 | 0.660 | 1.820 |
| 35 | Cadmium | | 0.372 | 0.020 | 0.005 | 0.020 | 0.004 | 0.027 | 0.014 | 0.011 | 0.049 | 0.007 | 0.045 | 0.081 |
| 36 | Chromium | | 18.280 | 18.320 | 8.410 | 3.160 | 0.260 | 1.100 | 0.150 | 0.210 | 5.050 | 29.660 | 1.250 | 5.610 |
| 37 | Copper | | 3.030 | 4.640 | 3.480 | 1.940 | 0.170 | 6.300 | 0.790 | 1.220 | 7.630 | 23.900 | 57.110 | 5.650 |
| 38 | Iron | mg/l | 0.010 | 0.007 | 0.015 | 0.061 | 0.053 | 0.060 | 0.059 | 0.068 | 0.084 | 0.144 | 0.156 | 0.179 |
| 39 | Lead | µg/L | 1.410 | 0.010 | 0.100 | 0.690 | 0.090 | 0.020 | 0.360 | 0.430 | 1.620 | 1.270 | 1.370 | 1.030 |
| 40 | Nickel | | 11.150 | 87.000 | 1.820 | 2.440 | 0.400 | 2.940 | 1.610 | 3.570 | 62.940 | 3.640 | 3.310 | 25.180 |
| 41 | Zinc | mg/l | 0.003 | 0.003 | 0.000 | 0.004 | 0.001 | 0.015 | 0.005 | 0.005 | 0.015 | 0.006 | 0.006 | 0.004 |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 118 | 120 | 65 | 69 | 147 | 154 | 133 | 137 | 179 | 172 | 151 | 137 |
| 43 | Tot-Hardness | | 291 | 233 | 132 | 131 | 229 | 325 | 288 | 237 | 411 | 358 | 313 | 284 |
| 44 | Na% | % | 54.22 | 51.40 | 37.76 | 50.04 | 53.90 | 52.55 | 51.34 | 47.30 | 51.07 | 50.97 | 50.99 | 48.57 |
| 45 | RSC (-) | | -2.20 | -1.47 | -0.57 | -0.60 | -1.17 | -2.28 | -1.10 | -1.49 | -2.45 | -1.04 | -0.38 | -1.63 |
| 46 | SAR (-) | | 4.32 | 3.48 | 1.50 | 2.49 | 3.83 | 4.25 | 3.83 | 3.10 | 4.49 | 4.22 | 3.97 | 3.43 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

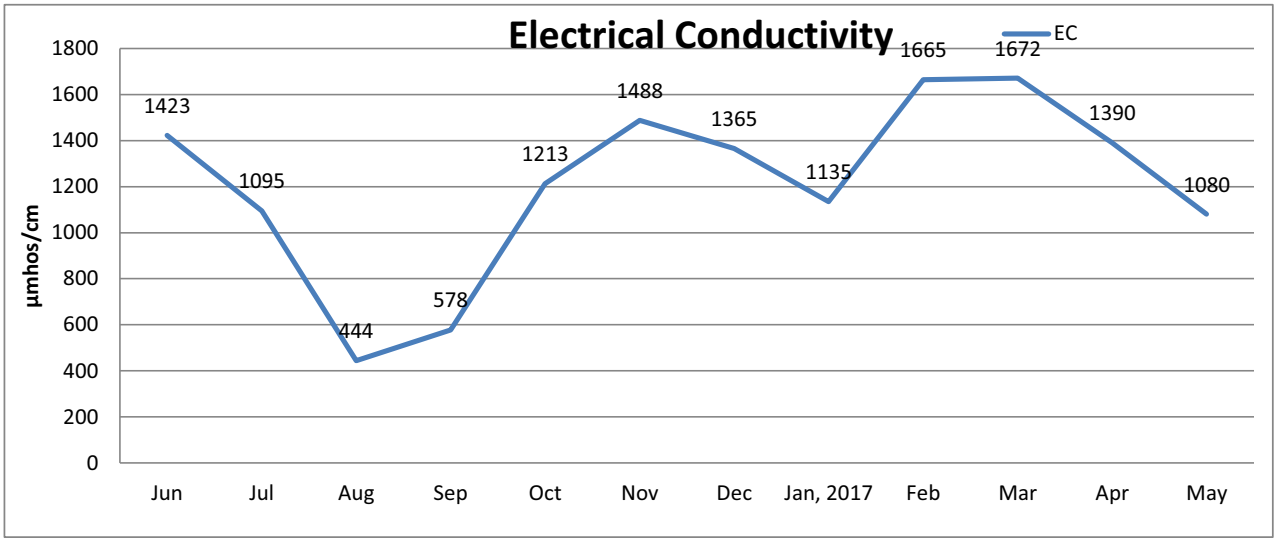
# RIVER WATER SUMMARY - 2016-2017

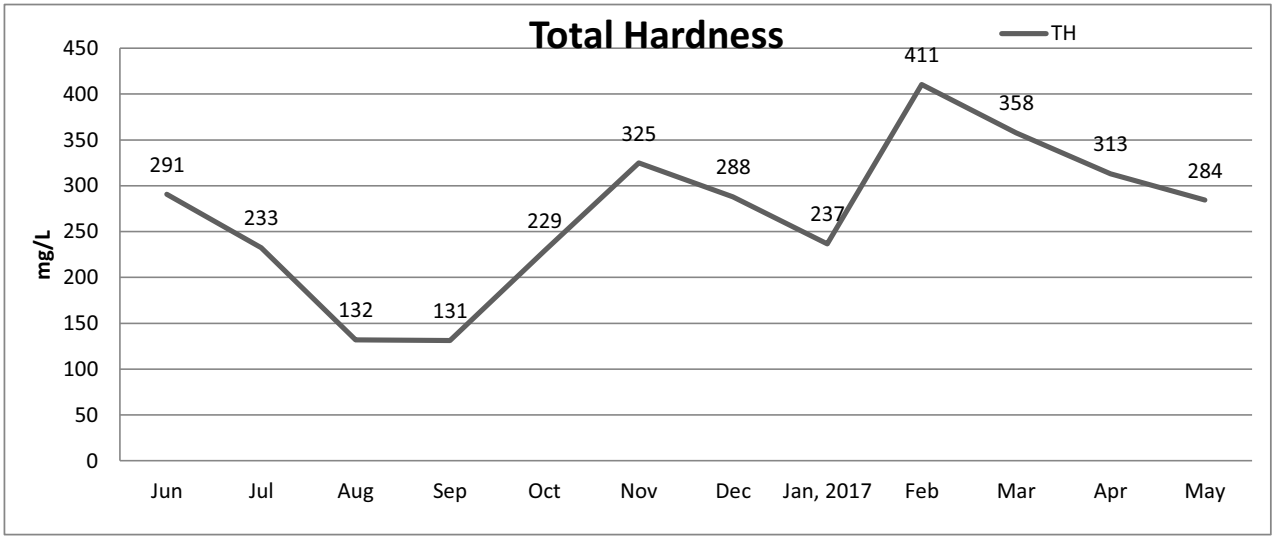
**Station Name :** AGRA CANAL **Division : UYD, New Delhi**

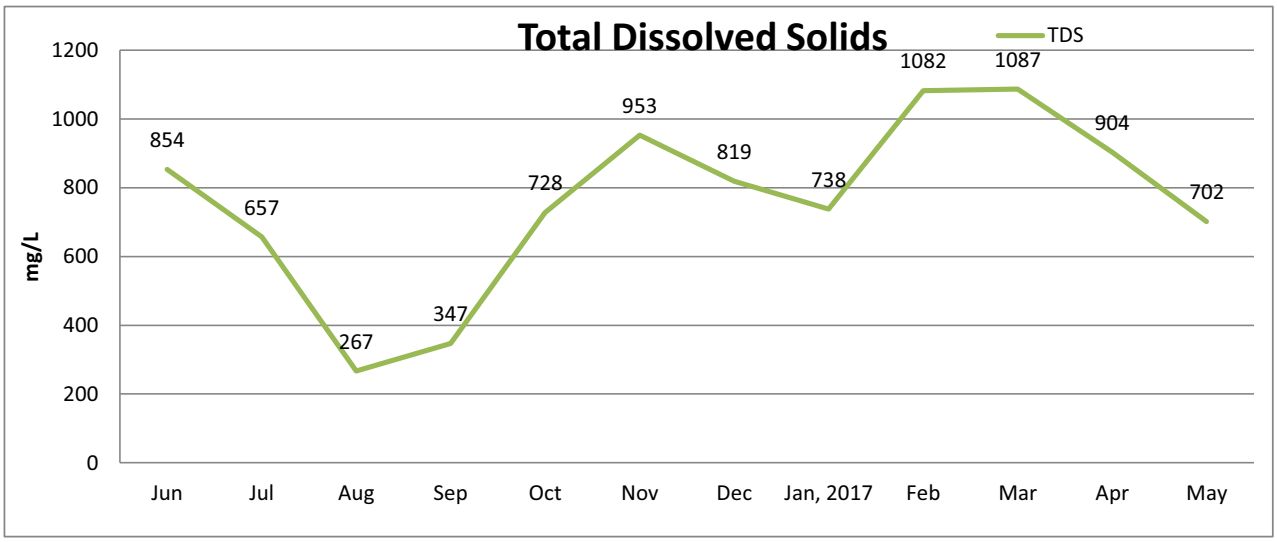
**Local River : -**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 12 | 7.85 | 7.19 | 7.56 | 7.58 | 7.68 | 7.44 |
| EC_GEN (µmho/cm) | 12 | 1672 | 444 | 1212 | 951 | 1413 | 1381 |
| Total Dissolved Solids | 12 | 1087 | 267 | 761 | 570 | 898 | 897 |
| Turbiidity | 12 | 216.0 | 18.8 | 60.4 | 87.4 | 40.0 | 42.7 |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 12 | 310.64 | 102.85 | 204.2 | 145.32 | 227.01 | 271.95 |
| Boron | 11 | 0.37 | 0.12 | 0.2 | 0.14 | 0.30 | 0.26 |
| Calcium | 12 | 71.44 | 26.14 | 52.7 | 41.55 | 60.21 | 61.40 |
| Chloride | 12 | 278.75 | 51.36 | 179.3 | 135.02 | 220.30 | 198.55 |
| Carbonate | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Fluoride | 12 | 0.65 | 0.30 | 0.5 | 0.46 | 0.52 | 0.56 |
| Bicarbonate | 12 | 372.77 | 123.42 | 245.1 | 174.39 | 272.41 | 326.34 |
| Potassium | 12 | 22.50 | 7.54 | 16.0 | 12.24 | 18.67 | 18.75 |
| Magnesium | 12 | 55.63 | 14.92 | 32.9 | 23.79 | 39.44 | 39.54 |
| Sodium | 12 | 209.25 | 39.50 | 137.7 | 105.97 | 161.14 | 159.28 |
| Ammonia as N | 12 | 33.30 | 0.01 | 12.4 | 8.77 | 14.95 | 15.01 |
| $NO_2$+$NO_3$ as N | 12 | 69.16 | 0.99 | 11.7 | 8.67 | 5.92 | 24.43 |
| Nitrite as N | 12 | 11.96 | 0.01 | 1.6 | 3.01 | 0.09 | 1.39 |
| Nitrate as N | 12 | 65.10 | 0.89 | 10.1 | 5.66 | 5.84 | 23.04 |
| Tot. Phosphate as P | 12 | 12.21 | 0.03 | 4.9 | 1.92 | 5.94 | 8.33 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 150.52 | 38.00 | 99.9 | 83.72 | 123.12 | 96.02 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 56.1 | 9.9 | 31.9 | 19.8 | 36.8 | 45.7 |
| COD | 12 | 85.0 | 16.0 | 49.6 | 32.4 | 64.5 | 58.3 |
| Dissolved Oxygen | 12 | 2.77 | 0.00 | 0.56 | 0.89 | 0.6 | 0.0 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | - | - | - | - | - | - | - |
| Fecal Coliform | - | - | - | - | - | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 12 | 9.65 | 0.31 | 2.08 | 3.43 | 1.13 | 1.08 |
| Cadmium | 12 | 0.37 | 0.00 | 0.05 | 0.08 | 0.03 | 0.04 |
| Chromium | 12 | 29.66 | 0.15 | 7.62 | 9.69 | 1.63 | 12.17 |
| Copper | 12 | 57.11 | 0.17 | 9.66 | 2.65 | 3.99 | 28.89 |
| Iron | 12 | 0.18 | 0.01 | 0.07 | 0.05 | 0.16 | 0.17 |
| Lead | 12 | 1.62 | 0.01 | 0.70 | 0.46 | 0.61 | 1.22 |
| Nickel | 12 | 87.00 | 0.40 | 17.17 | 20.56 | 17.77 | 10.71 |
| Zinc | 12 | 0.02 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 179 | 65 | 132 | 104 | 151 | 154 |
| Tot-Hardness | 12 | 411 | 131 | 269 | 203 | 315 | 318 |
| Na% | 12 | 54 | 38 | 50 | 49 | 51 | 50 |
| RSC (-) | 12 | -0.38 | -2.45 | -1.4 | -1.20 | -1.83 | -1.02 |
| SAR (-) | 12 | 4.49 | 1.50 | 3.6 | 3.12 | 3.92 | 3.87 |
| **PESTICIDES** | | | | | | | |

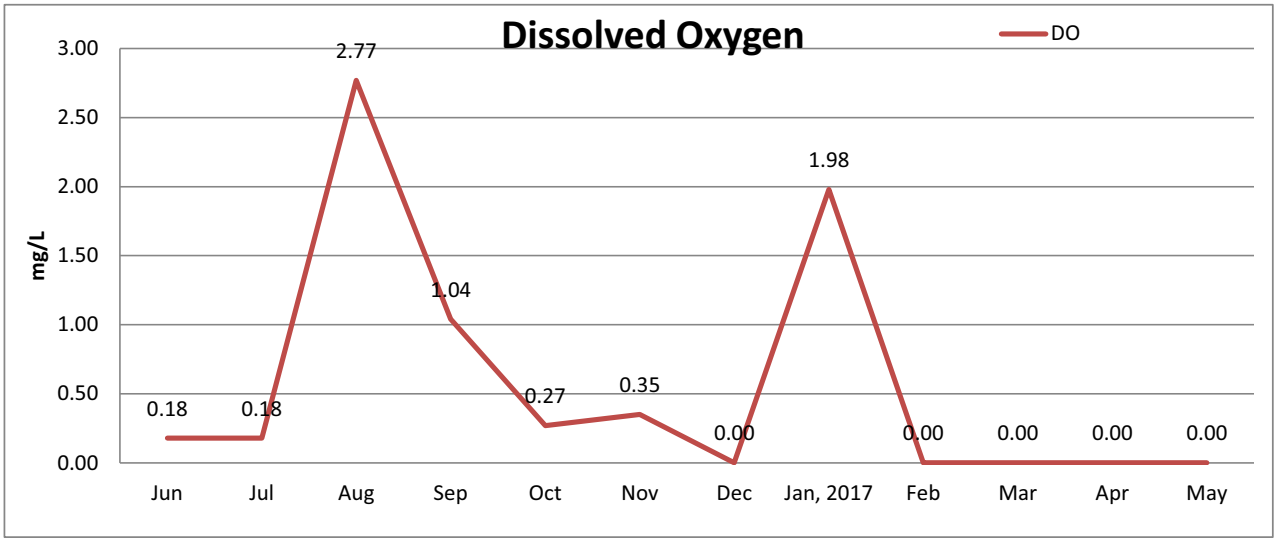
**Graphical Presentation of AGRA CANAL WQ Site**

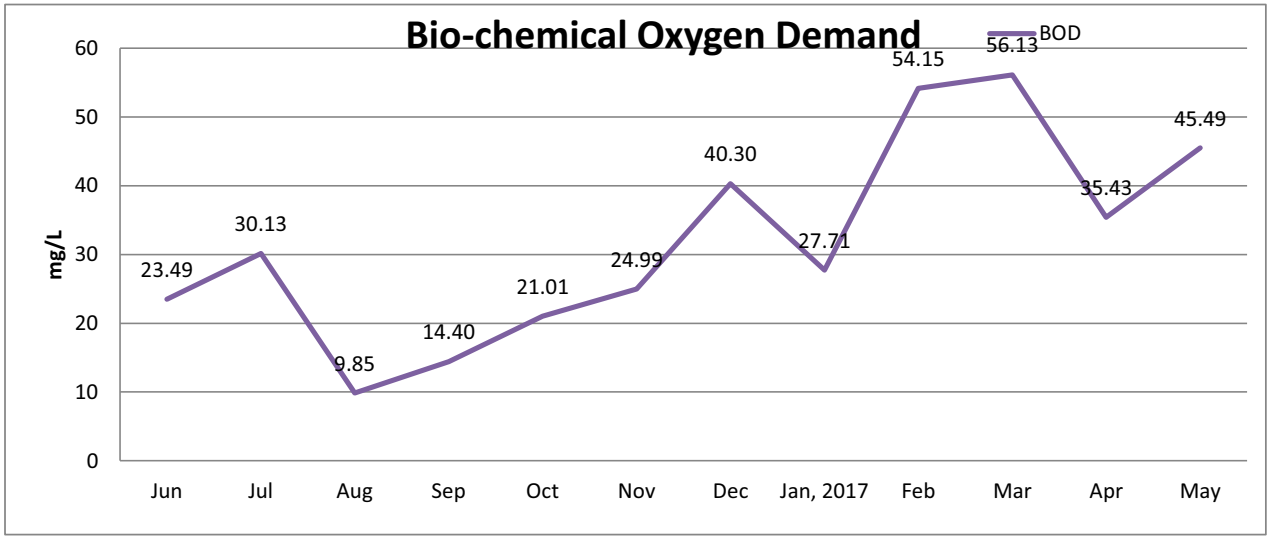


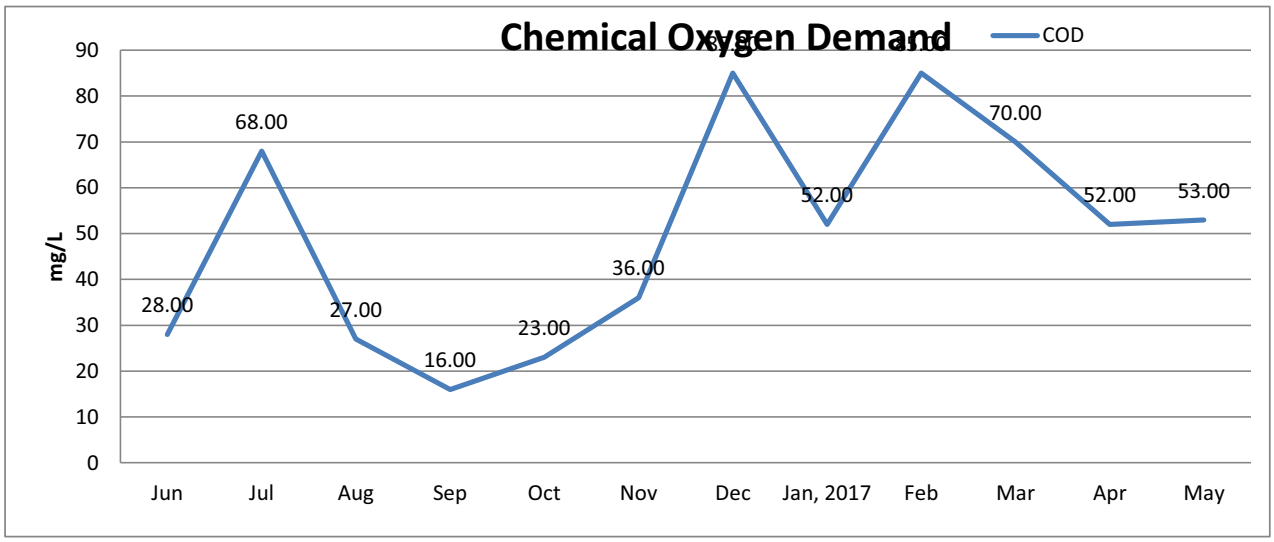



**Graphical Presentation of AGRA CANAL WQ Site**



# HINDON CUT

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : HINDON CUT** **Division : UYD, New Delhi**

**Local River : HINDON**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 04/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 03/04/17 | 02/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | L. Black | | | | | Colourles | L. Black | | | | | |
| 3 | Odour_Code (-) | | Rotten Egg | | | | | | | | | | | |
| 4 | Temperature | °C | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | pH_GEN (pH units) | | 7.3 | 7.26 | 7.38 | 7.72 | 7.63 | 7.47 | 7.95 | 7.68 | 7.49 | 7.61 | 7.48 | 7.7 |
| 6 | EC_GEN (µmho/cm) | NTU | 377 | 291 | 313 | 658 | 431 | 741 | 1044 | 413 | 400 | 445 | 482 | 630 |
| 7 | Total Dissolved Solids | mg/L | 226 | 157 | 188 | 395 | 258 | 385 | 626 | 268 | 260 | 289 | 313 | 410 |
| 8 | Turbiidity | | 17.5 | 133.6 | 222.5 | 31.7 | 9.63 | 7.41 | 39.1 | 24.1 | 24.7 | 39.1 | 13.34 | 10.2 |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | Alk-Tot (as $CaCO_3$) | | 104.73 | 74.66 | 121.51 | 98.82 | 108.57 | 211.24 | 282.80 | 135.42 | 137.25 | 124.45 | 154.97 | 167.75 |
| 11 | Boron | | 0.00 | 0.00 | | 0.20 | 0.03 | 0.35 | 0.27 | 0.17 | 0.21 | 0.15 | 0.13 | 0.26 |
| 12 | Calcium | | 19.80 | 27.40 | 24.08 | 45.84 | 30.19 | 50.12 | 75.72 | 34.20 | 57.00 | 33.08 | 33.49 | 60.76 |
| 13 | Chloride | | 31.06 | 23.43 | 29.41 | 68.16 | 40.47 | 71.71 | 94.35 | 62.87 | 99.68 | 48.56 | 44.09 | 75.37 |
| 14 | Carbonate | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | Fluoride | | 0.32 | 0.33 | 0.30 | 0.22 | 0.25 | 0.28 | 0.41 | 0.27 | 0.25 | 0.26 | 0.31 | 0.31 |
| 16 | Bicarbonate | | 125.67 | 89.60 | 145.81 | 118.58 | 130.28 | 253.49 | 339.36 | 162.50 | 164.70 | 149.34 | 185.96 | 201.30 |
| 17 | Potassium | | 12.66 | 10.09 | 13.62 | 14.18 | 12.71 | 11.27 | 10.78 | 13.17 | 13.10 | 13.31 | 15.58 | 9.76 |
| 18 | Magnesium | | 18.82 | 9.98 | 12.74 | 16.35 | 10.88 | 33.83 | 37.12 | 19.64 | 18.70 | 13.24 | 19.22 | 15.29 |
| 19 | Sodium | | 28.33 | 11.02 | 18.57 | 56.61 | 29.73 | 48.47 | 96.63 | 28.26 | 23.54 | 28.54 | 28.23 | 34.82 |
| 20 | Ammonia as N | | 1.48 | 0.05 | 3.10 | 0.01 | 1.49 | 0.02 | 0.01 | 4.90 | 5.67 | 0.13 | 2.30 | 0.02 |
| 21 | $NO_2$+$NO_3$ as N | | 3.76 | 1.94 | 0.68 | 4.98 | 2.90 | 9.72 | 1.91 | 0.75 | 0.37 | 6.46 | 2.23 | 19.96 |
| 22 | Nitrite as N | | 3.20 | 0.17 | 0.30 | 2.02 | 0.28 | 5.79 | 0.14 | 0.04 | 0.06 | 3.57 | 0.16 | 0.26 |
| 23 | Nitrate as N | | 0.56 | 1.77 | 0.38 | 2.96 | 2.62 | 3.93 | 1.77 | 0.71 | 0.30 | 2.89 | 2.07 | 19.70 |
| 24 | Tot. Phosphate as P | | 0.83 | 0.29 | 0.72 | 0.06 | 0.84 | 1.43 | 2.01 | 1.09 | 0.92 | 0.87 | 1.11 | 1.05 |
| 25 | Silicate as $SiO_2$ | | - | - | - | - | - | - | - | - | - | - | - | - |
| 26 | Sulphate as $SO_4$ | | 38.80 | 27.80 | 17.00 | 87.60 | 40.40 | 33.80 | 118.60 | 39.85 | 25.12 | 24.33 | 26.80 | 27.01 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 42.33 | 31.22 | 6.13 | 10.30 | 25.05 | 23.69 | 44.89 | 45.62 | 26.50 | 22.57 | 40.91 | 39.92 |
| 28 | COD | | 49.00 | 62.00 | 18.00 | 29.00 | 44.00 | 35.00 | 95.00 | 98.00 | 55.00 | 46.00 | 85.00 | 51.00 |
| 29 | Dissolved Oxygen | | 0.00 | 0.21 | 2.61 | 1.21 | 0.15 | 0.72 | 0.00 | 0.00 | 1.12 | 0.45 | 0.00 | 0.00 |
| 30 | DO_SAT % | % | - | - | - | - | - | - | - | - | - | - | - | - |
| 31 | Tota Coliform | MPN/100 ml | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | Fecal Coliform | | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | 2.040 | 0.010 | 2.420 | 6.770 | 0.890 | 1.000 | 1.000 | 0.070 | 1.040 | 0.200 | 2.390 | 2.900 |
| 35 | Cadmium | | 0.032 | 0.005 | 0.003 | 0.005 | 0.009 | 0.028 | 0.022 | 0.025 | 0.025 | 0.136 | 0.007 | 0.075 |
| 36 | Chromium | | 5.130 | 5.200 | 1.430 | 2.710 | 0.220 | 1.170 | 0.170 | 1.430 | 1.940 | 1.070 | 0.300 | 29.750 |
| 37 | Copper | | 3.980 | 3.960 | 1.430 | 2.180 | 2.980 | 5.420 | 1.400 | 1.950 | 3.650 | 9.190 | 7.410 | 4.660 |
| 38 | Iron | mg/l | 0.039 | 0.009 | 0.092 | 0.061 | 0.058 | 0.061 | 0.066 | 0.060 | 0.175 | 0.268 | 0.214 | 0.163 |
| 39 | Lead | µg/L | 0.330 | 0.060 | 0.430 | 0.970 | 0.470 | 0.660 | 0.690 | 0.470 | 0.780 | 1.130 | 1.060 | 1.010 |
| 40 | Nickel | | 2.680 | 5.620 | 3.600 | 4.540 | 0.990 | 2.620 | 1.670 | 0.120 | 2.000 | 41.590 | 13.180 | 2.070 |
| 41 | Zinc | mg/l | 0.001 | 0.004 | 0.002 | 0.004 | 0.002 | 0.009 | 0.006 | 0.002 | 0.015 | 0.006 | 0.007 | 0.009 |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 50 | 69 | 60 | 115 | 75 | 125 | 189 | 86 | 143 | 83 | 84 | 152 |
| 43 | Tot-Hardness | | 128 | 110 | 113 | 183 | 121 | 266 | 344 | 167 | 220 | 138 | 164 | 216 |
| 44 | Na% | % | 29.94 | 16.30 | 23.60 | 37.99 | 32.04 | 27.29 | 36.99 | 25.01 | 17.75 | 28.59 | 25.03 | 24.92 |
| 45 | RSC (-) | | -0.50 | -0.73 | 0.13 | -1.71 | -0.28 | -1.17 | -1.32 | -0.68 | -1.71 | -0.31 | -0.23 | -1.01 |
| 46 | SAR (-) | | 1.09 | 0.46 | 0.76 | 1.82 | 1.18 | 1.29 | 2.27 | 0.95 | 0.69 | 1.06 | 0.96 | 1.03 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

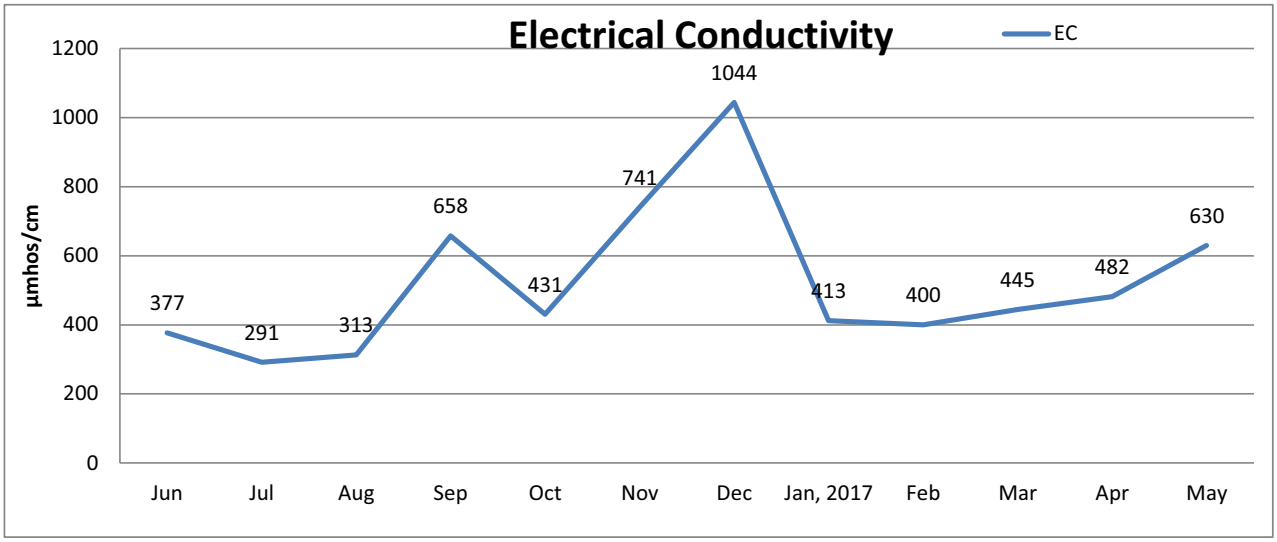
# RIVER WATER SUMMARY - 2016-2017

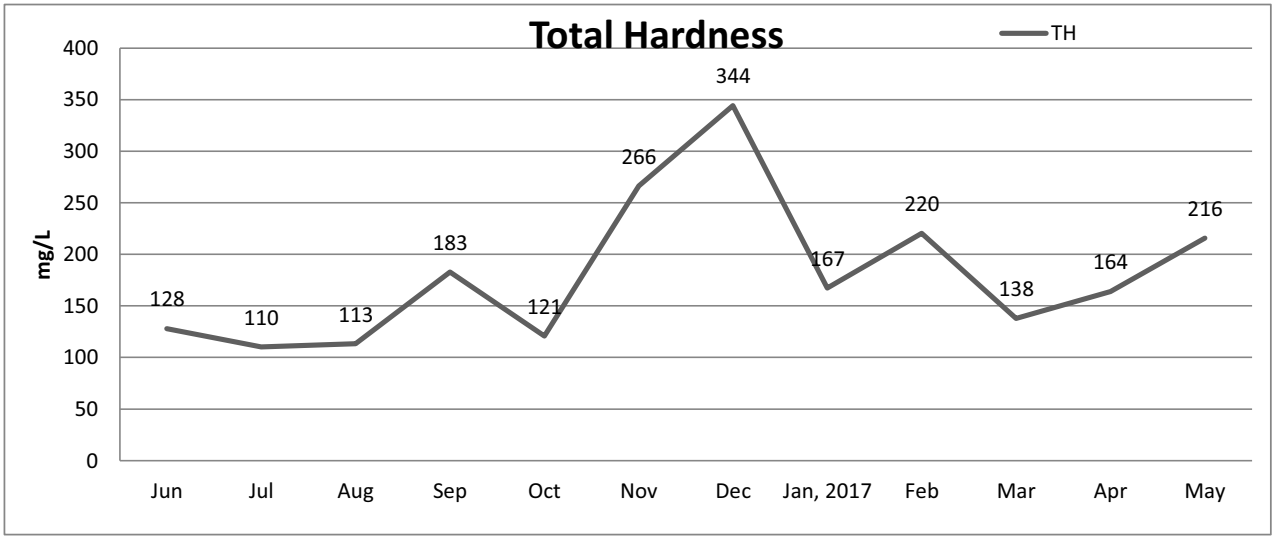
**Station Name : HINDON CUT** **Division : UYD, New Delhi**

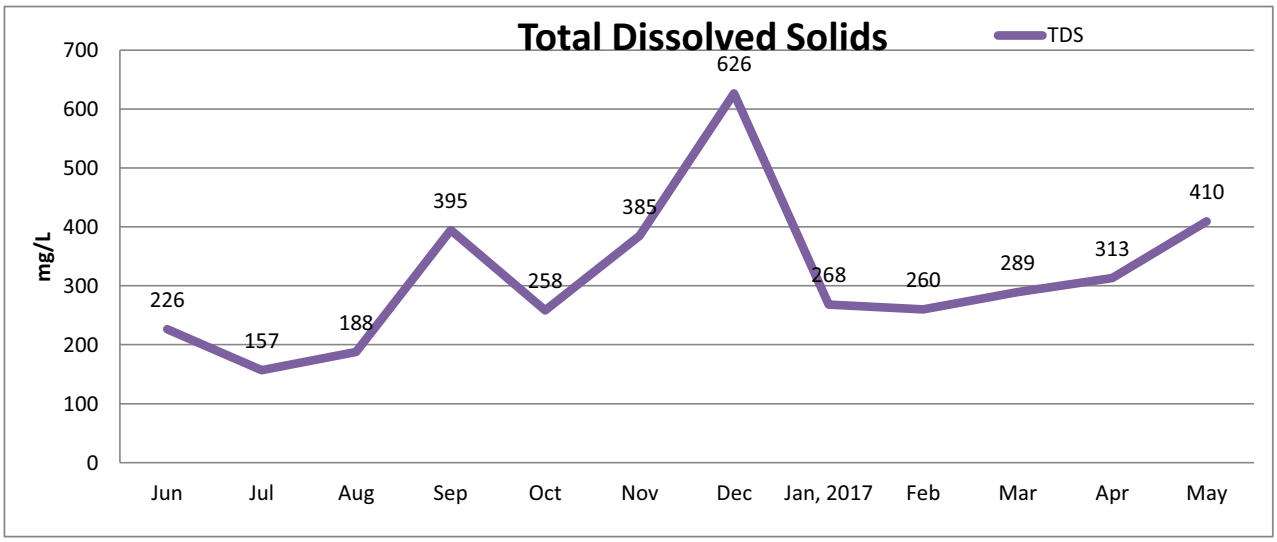
**Local River : HINDON**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 12 | 7.95 | 7.26 | 7.56 | 7.54 | 7.48 | 7.59 |
| EC_GEN (µmho/cm) | 12 | 1044 | 291 | 519 | 414 | 649 | 519 |
| Total Dissolved Solids | 12 | 626 | 157 | 315 | 245 | 385 | 337 |
| Turbiidity | 12 | 222.5 | 7.4 | 47.7 | 83.0 | 23.8 | 20.9 |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 12 | 282.80 | 74.66 | 143.5 | 101.66 | 191.68 | 149.06 |
| Boron | 11 | 0.35 | 0.00 | 0.2 | 0.06 | 0.25 | 0.18 |
| Calcium | 12 | 75.72 | 19.80 | 41.0 | 29.46 | 54.26 | 42.44 |
| Chloride | 12 | 99.68 | 23.43 | 57.4 | 38.51 | 82.15 | 56.01 |
| Carbonate | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Fluoride | 12 | 0.41 | 0.22 | 0.3 | 0.28 | 0.30 | 0.30 |
| Bicarbonate | 12 | 339.36 | 89.60 | 172.2 | 121.99 | 230.01 | 178.87 |
| Potassium | 12 | 15.58 | 9.76 | 12.5 | 12.65 | 12.08 | 12.88 |
| Magnesium | 12 | 37.12 | 9.98 | 18.8 | 13.75 | 27.32 | 15.92 |
| Sodium | 12 | 96.63 | 11.02 | 36.1 | 28.85 | 49.22 | 30.53 |
| Ammonia as N | 12 | 5.67 | 0.01 | 1.6 | 1.23 | 2.65 | 0.82 |
| $NO_2$+$NO_3$ as N | 12 | 19.96 | 0.37 | 4.6 | 2.85 | 3.19 | 9.55 |
| Nitrite as N | 12 | 5.79 | 0.04 | 1.3 | 1.19 | 1.51 | 1.33 |
| Nitrate as N | 12 | 19.70 | 0.30 | 3.3 | 1.66 | 1.68 | 8.22 |
| Tot. Phosphate as P | 12 | 2.01 | 0.06 | 0.9 | 0.55 | 1.36 | 1.01 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 118.60 | 17.00 | 42.3 | 42.32 | 54.34 | 26.05 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 45.6 | 6.1 | 29.9 | 23.0 | 35.2 | 34.5 |
| COD | 12 | 98.0 | 18.0 | 55.6 | 40.4 | 70.8 | 60.7 |
| Dissolved Oxygen | 12 | 2.61 | 0.00 | 0.54 | 0.84 | 0.5 | 0.2 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | - | - | - | - | - | - | - |
| Fecal Coliform | - | - | - | - | - | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 12 | 6.77 | 0.01 | 1.73 | 2.43 | 0.78 | 1.83 |
| Cadmium | 12 | 0.14 | 0.00 | 0.03 | 0.01 | 0.03 | 0.07 |
| Chromium | 12 | 29.75 | 0.17 | 4.21 | 2.94 | 1.18 | 10.37 |
| Copper | 12 | 9.19 | 1.40 | 4.02 | 2.91 | 3.11 | 7.09 |
| Iron | 12 | 0.27 | 0.01 | 0.11 | 0.07 | 0.21 | 0.19 |
| Lead | 12 | 1.13 | 0.06 | 0.67 | 0.45 | 0.65 | 1.07 |
| Nickel | 12 | 41.59 | 0.12 | 6.72 | 3.49 | 1.60 | 18.95 |
| Zinc | 12 | 0.01 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 189 | 50 | 102 | 74 | 136 | 106 |
| Tot-Hardness | 12 | 344 | 110 | 181 | 131 | 250 | 172 |
| Na% | 12 | 38 | 16 | 27 | 28 | 27 | 26 |
| RSC (-) | 12 | 0.13 | -1.71 | -0.8 | -0.62 | -1.22 | -0.52 |
| SAR (-) | 12 | 2.27 | 0.46 | 1.1 | 1.06 | 1.30 | 1.02 |
| **PESTICIDES** | | | | | | | |

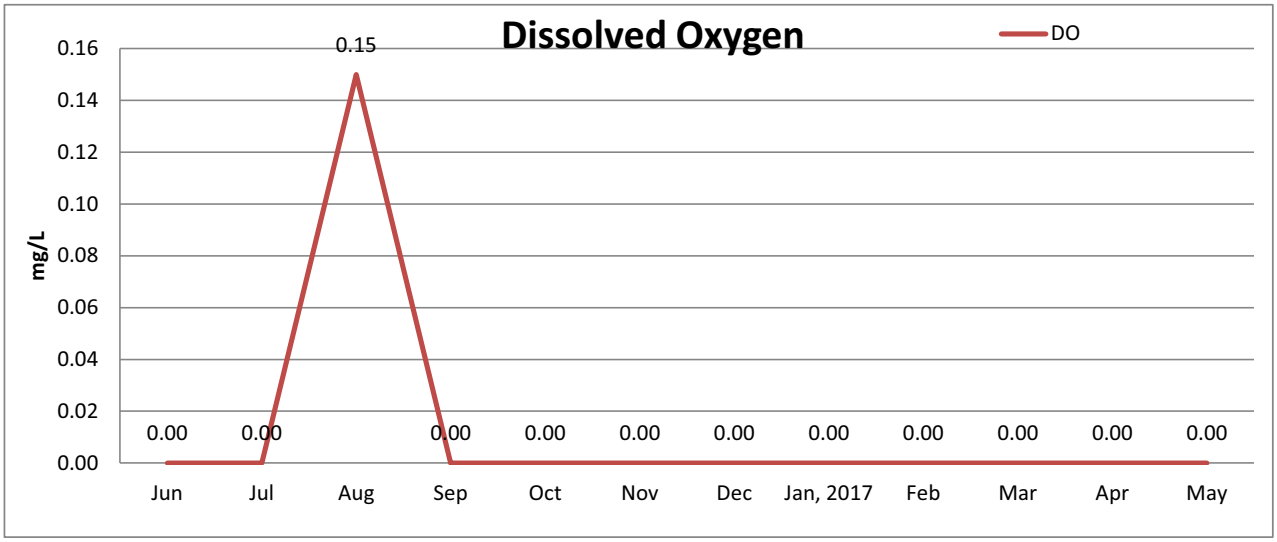
**Graphical Presentation of GALETA WQ Site**

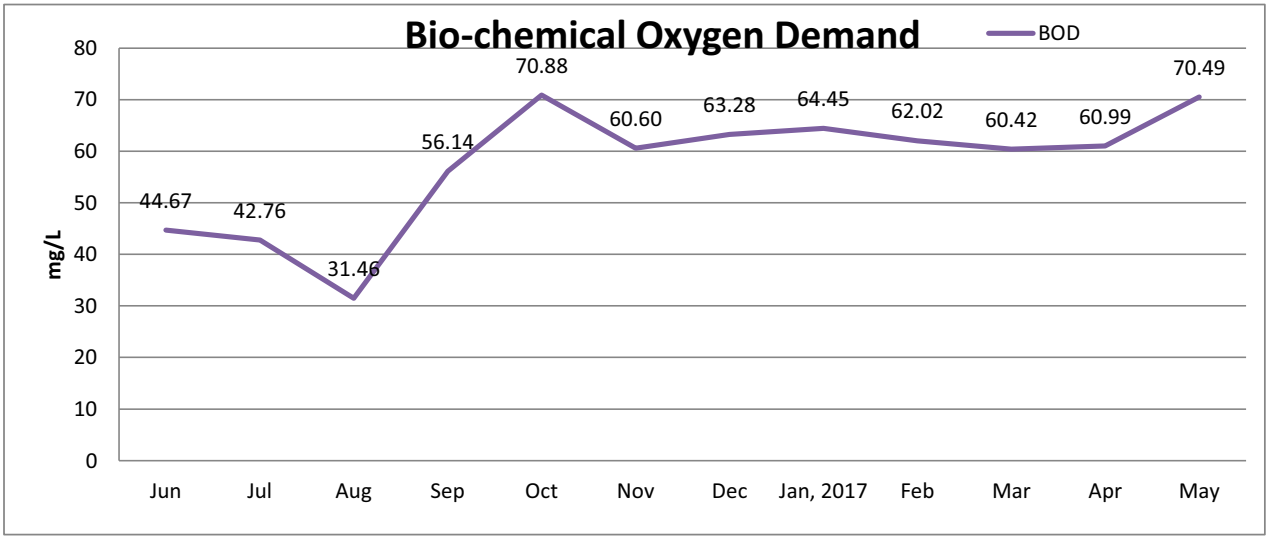


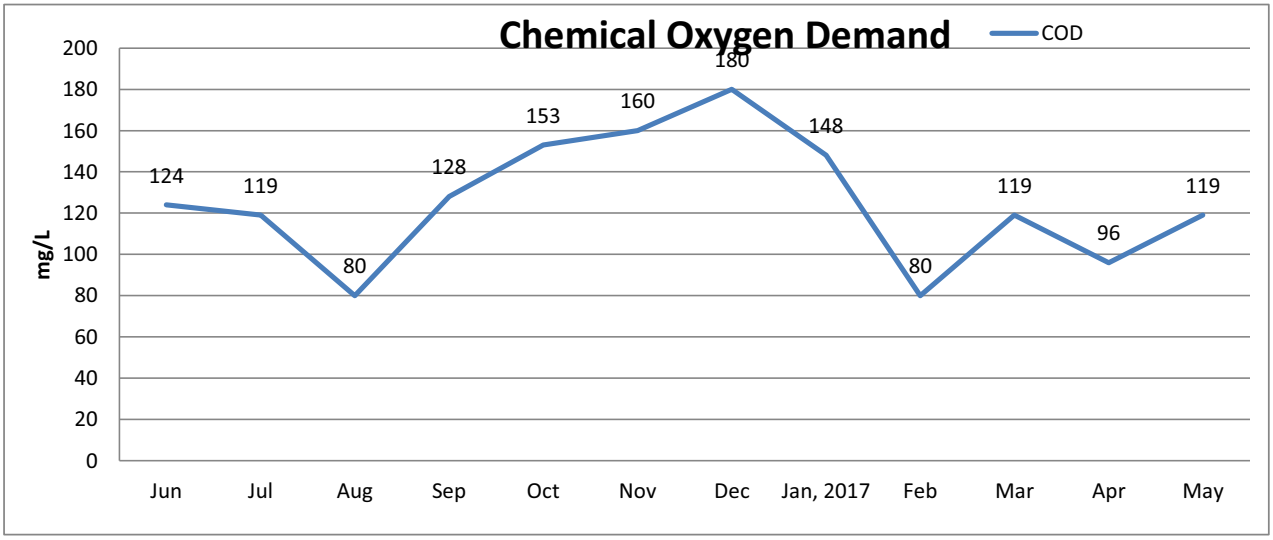



**Graphical Presentation of GALETA WQ Site**



# MOHANA

## General Particulars

| | | | |
|---|---|---|---|
| Site | :***Mohana*** | Code | : **GY000T1** |
| State | : **Haryana** | District | : **Faridabad** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Yamuna** |
| Division | : **U.Y.D. New Delhi** | Sub-Division | : **LYSD, New Delhi** |
| Tributary | : **Yamuna** | Sub Tributary | : **-** |
| Sub-Sub-Trib. | : **-** | Local River | : **Yamuna** |
| Drainage Area | : **27670 Sq. Km.** | | |
| Latitude | : **28°14'58"N** | Longitude | : **77°28'12"E** |
| Zero of Gauge | : **185 (m.s.l.)** | Bank | : **Right** |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **11/01/1983** |
| Discharge: | : **11/01/1983** |
| Sediment | : **11/01/1983** |
| Water Quality | : **11/01/1983** |
| Wireless | : **20/09/1981** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : MOHANA** **Division : UYD, New Delhi**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 03/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 03/04/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | L. Black | Colourless | | | L.Brown | L. Black | | | | | | |
| 3 | Odour_Code (-) | | Rotten Egg | Odourless | | | | Rotten Egg | | | | | | |
| 4 | Temperature | °C | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | pH_GEN (pH units) | | 7.79 | 7.83 | 6.39 | 7.3 | 7.2 | 7.39 | 7.92 | 7.87 | 7.52 | 7.8 | 8.06 | 7.3 |
| 6 | EC_GEN (µmho/cm) | NTU | 1740 | 1725 | 536 | 550 | 1352 | 2213 | 2002 | 1994 | 880 | 1861 | 1527 | 1510 |
| 7 | Total Dissolved Solids | mg/L | 1044 | 1035 | 322 | 312 | 811 | 1448 | 1201 | 1296 | 572 | 1210 | 993 | 982 |
| 8 | Turbiidity | | 20 | 28 | 127.4 | 127 | 51.8 | 31.8 | 40.5 | 219 | 63.31 | 71.4 | 33.2 | 13.95 |
| CHEMICAL | | | | | | | | | | | | | | |
| 9.00 | Alk-Phen (as $CaCO_3$) | mg/l | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | Alk-Tot (as $CaCO_3$) | | 295.83 | 365.17 | 108.87 | 136.15 | 166.82 | 325.01 | 383.24 | 233.02 | 192.15 | 404.97 | 319.57 | 341.42 |
| 11 | Boron | | 0.18 | 0.09 | | 0.16 | 0.16 | | 0.32 | 0.32 | 0.25 | 0.33 | 0.22 | 0.28 |
| 12 | Calcium | | 49.42 | 64.47 | 24.08 | 17.42 | 69.49 | 78.60 | 85.67 | 64.60 | 53.96 | 76.91 | 68.97 | 43.90 |
| 13 | Chloride | | 235.43 | 289.33 | 65.68 | 78.81 | 253.83 | 373.11 | 319.35 | 406.62 | 122.44 | 310.13 | 247.29 | 212.74 |
| 14 | Carbonate | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | Fluoride | | 0.53 | 0.64 | 0.32 | 0.34 | 0.39 | 0.61 | 0.58 | 0.52 | 0.36 | 0.48 | 0.58 | 0.53 |
| 16 | Bicarbonate | | 355.00 | 438.21 | 130.65 | 163.38 | 200.18 | 390.01 | 459.89 | 279.62 | 230.58 | 485.96 | 383.48 | 409.70 |
| 17 | Potassium | | 20.45 | 19.55 | 8.61 | 8.54 | 21.88 | 24.35 | 25.83 | 26.28 | 16.97 | 24.30 | 23.85 | 18.90 |
| 18 | Magnesium | | 41.63 | 43.05 | 21.29 | 26.23 | 33.24 | 34.52 | 41.51 | 44.69 | 26.45 | 42.18 | 38.88 | 55.98 |
| 19 | Sodium | | 223.55 | 232.65 | 47.86 | 53.89 | 159.65 | 306.80 | 241.18 | 249.03 | 77.15 | 228.73 | 187.45 | 195.18 |
| 20 | Ammonia as N | | 18.30 | 22.20 | 1.98 | 1.12 | 14.00 | 16.40 | 5.83 | 54.50 | 9.53 | 25.60 | 22.60 | 0.03 |
| 21 | $NO_2$+$NO_3$ as N | | 28.22 | 1.71 | 0.45 | 0.38 | 18.55 | 5.61 | 4.26 | 29.56 | 1.86 | 2.16 | 2.13 | 93.40 |
| 22 | Nitrite as N | | 21.33 | 0.27 | 0.09 | 0.07 | 0.14 | 0.10 | 0.01 | 0.08 | 0.12 | 0.06 | 0.07 | 0.40 |
| 23 | Nitrate as N | | 6.89 | 1.45 | 0.36 | 0.31 | 18.41 | 5.51 | 4.25 | 29.49 | 1.74 | 2.10 | 2.06 | 93.00 |
| 24 | Tot. Phosphate as P | | 7.39 | 0.39 | 0.18 | 0.04 | 6.02 | 8.67 | 5.55 | 13.21 | 4.00 | 9.37 | 8.28 | 7.67 |
| 25 | Silicate as $SiO_2$ | | - | - | - | - | - | - | - | - | - | - | - | - |
| 26 | Sulphate as $SO_4$ | | 81.40 | 88.20 | 72.80 | 42.00 | 79.80 | 128.80 | 75.20 | 118.80 | 43.96 | 70.33 | 46.66 | 43.71 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 20.54 | 17.44 | 20.00 | 23.45 | 11.20 | 10.64 | 27.85 | 25.34 | 26.76 | 25.46 | 21.91 | 24.23 |
| 28 | COD | | 58.00 | 58.00 | 27.00 | 41.00 | 47.00 | 42.00 | 48.00 | 45.00 | 45.50 | 81.00 | 58.00 | 52.00 |
| 29 | Dissolved Oxygen | | 0.15 | 0.89 | 0.24 | 0.15 | 2.45 | 1.48 | 0.24 | 1.68 | 1.15 | 0.00 | 0.42 | 0.24 |
| 30 | DO_SAT % | % | - | - | - | - | - | - | - | - | - | - | - | - |
| 31 | Tota Coliform | MPN/100 ml | 220000 | 70000 | 39000 | 22000 | 280000 | 140000 | 130000 | 140000 | 140000 | 170000 | 220000 | 1400000 |
| 32 | Fecal Coliform | | 39000 | 21000 | 9200 | 14000 | 32000 | 26000 | 17000 | 26000 | 33000 | 40000 | 47000 | 390000 |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | 3.970 | 2.650 | 1.250 | 0.910 | 0.440 | 3.020 | 1.930 | 4.180 | 1.720 | 1.120 | 1.990 | 3.890 |
| 35 | Cadmium | | 0.086 | 0.050 | 0.024 | 0.250 | 0.009 | 0.060 | 0.045 | 0.018 | 0.057 | 0.161 | 0.142 | 0.084 |
| 36 | Chromium | | 12.780 | 8.080 | 2.740 | 5.000 | 2.260 | 2.100 | 0.020 | 16.820 | 1.930 | 0.150 | 7.570 | 0.890 |
| 37 | Copper | | 5.960 | 1.860 | 3.640 | 4.400 | 1.630 | 5.680 | 1.230 | 6.530 | 9.900 | 31.350 | 0.700 | 4.330 |
| 38 | Iron | mg/l | 0.012 | 0.015 | 0.030 | 0.138 | 0.054 | 0.074 | 0.059 | 0.496 | 0.168 | 0.156 | 0.158 | 0.163 |
| 39 | Lead | µg/L | 3.880 | 0.040 | 0.280 | 0.790 | 0.990 | 3.270 | 0.310 | 5.830 | 0.920 | 1.420 | 1.710 | 1.310 |
| 40 | Nickel | | 15.870 | 23.890 | 2.870 | 4.940 | 5.670 | 17.050 | 2.360 | 12.250 | 75.180 | 216.500 | 5.780 | 4.660 |
| 41 | Zinc | mg/l | 0.003 | 0.005 | 0.006 | 0.012 | 0.002 | 0.008 | 0.006 | 0.072 | 0.013 | 0.015 | 0.005 | 0.005 |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 124 | 161 | 60 | 44 | 174 | 197 | 214 | 162 | 135 | 192 | 172 | 110 |
| 43 | Tot-Hardness | | 297 | 341 | 149 | 153 | 312 | 340 | 387 | 348 | 245 | 368 | 335 | 343 |
| 44 | Na% | % | 60.06 | 58.04 | 39.41 | 41.70 | 50.50 | 64.22 | 55.51 | 58.67 | 38.59 | 55.47 | 52.75 | 53.60 |
| 45 | RSC (-) | | -0.12 | 0.37 | -0.84 | -0.38 | -2.96 | -0.41 | -0.20 | -2.37 | -1.12 | 0.61 | -0.40 | -0.14 |
| 46 | SAR (-) | | 5.64 | 5.48 | 1.71 | 1.90 | 3.93 | 7.23 | 5.33 | 5.81 | 2.14 | 5.18 | 4.46 | 4.58 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

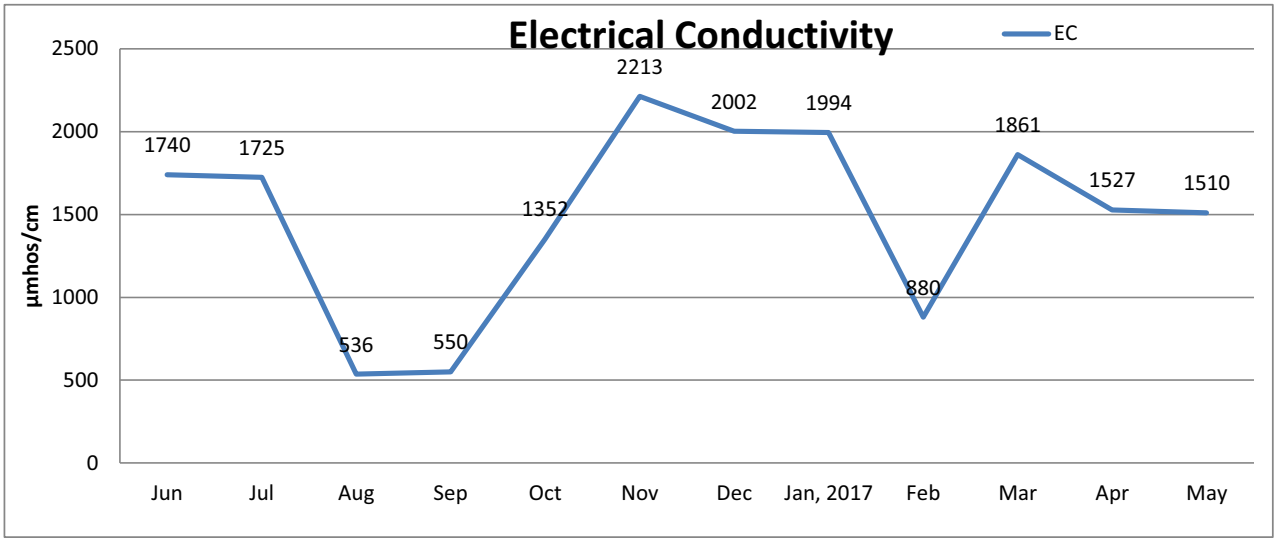
# RIVER WATER SUMMARY - 2016-2017

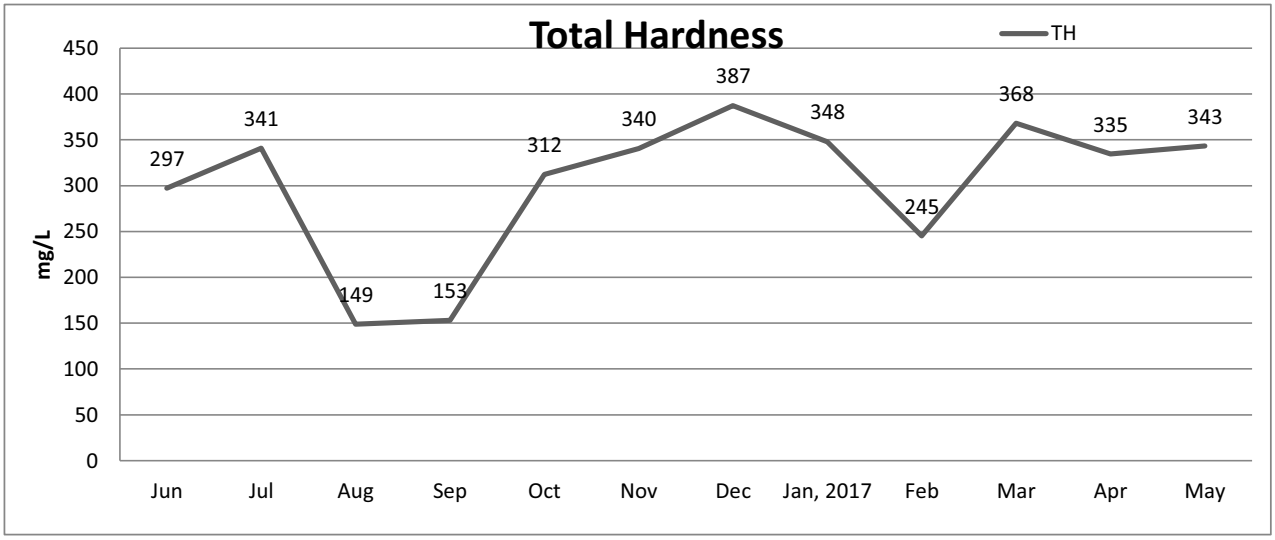
**Station Name : MOHANA** **Division : UYD, New Delhi**

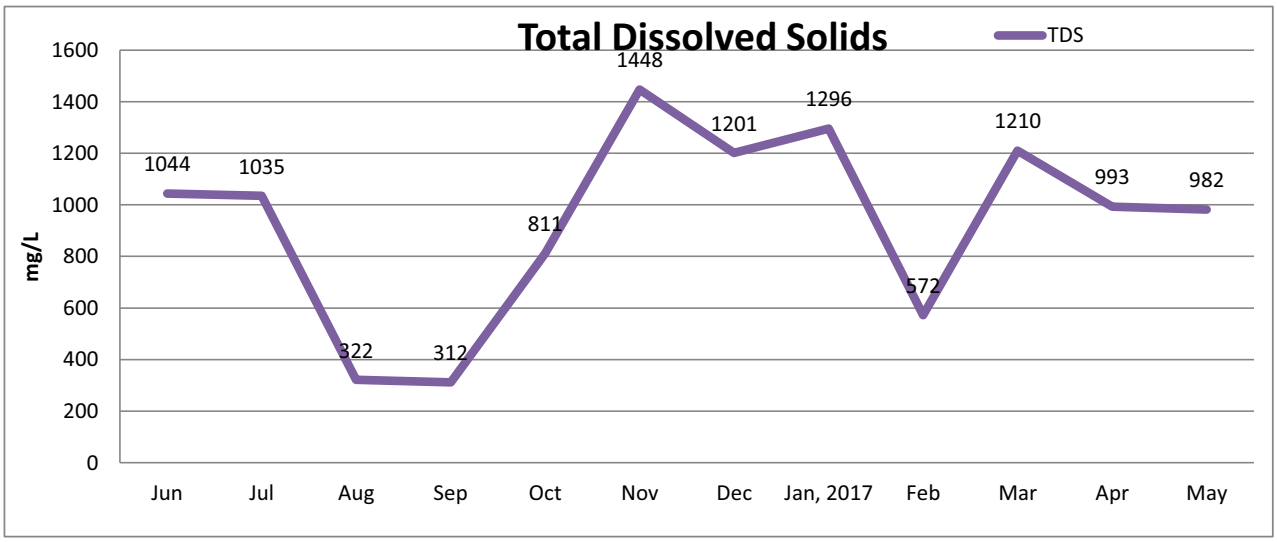
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 12 | 8.06 | 6.39 | 7.53 | 7.47 | 8.06 | 7.68 |
| EC_GEN (µmho/cm) | 12 | 2213 | 536 | 1491 | 1181 | 1772 | 1633 |
| Total Dissolved Solids | 12 | 1448 | 312 | 935 | 705 | 1129 | 1061 |
| Turbiidity | 12 | 219.0 | 14.0 | 68.9 | 70.8 | 88.7 | 39.5 |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 12 | 404.97 | 108.87 | 272.7 | 214.57 | 283.36 | 355.32 |
| Boron | 10 | 0.33 | 0.09 | 0.2 | 0.15 | 0.30 | 0.28 |
| Calcium | 12 | 85.67 | 17.42 | 58.1 | 44.98 | 70.71 | 63.26 |
| Chloride | 12 | 406.62 | 65.68 | 242.9 | 184.61 | 305.38 | 256.72 |
| Carbonate | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Fluoride | 12 | 0.64 | 0.32 | 0.5 | 0.44 | 0.52 | 0.53 |
| Bicarbonate | 12 | 485.96 | 130.65 | 327.2 | 257.48 | 340.03 | 426.38 |
| Potassium | 12 | 26.28 | 8.54 | 20.0 | 15.81 | 23.36 | 22.35 |
| Magnesium | 12 | 55.98 | 21.29 | 37.5 | 33.09 | 36.79 | 45.68 |
| Sodium | 12 | 306.80 | 47.86 | 183.6 | 143.52 | 218.54 | 203.78 |
| Ammonia as N | 12 | 54.50 | 0.03 | 16.0 | 11.52 | 21.57 | 16.08 |
| $NO_2$+$NO_3$ as N | 12 | 93.40 | 0.38 | 15.7 | 9.86 | 10.32 | 32.56 |
| Nitrite as N | 12 | 21.33 | 0.01 | 1.9 | 4.38 | 0.08 | 0.18 |
| Nitrate as N | 12 | 93.00 | 0.31 | 13.8 | 5.48 | 10.24 | 32.39 |
| Tot. Phosphate as P | 12 | 13.21 | 0.04 | 5.9 | 2.80 | 7.86 | 8.44 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 128.80 | 42.00 | 74.3 | 72.84 | 91.69 | 53.57 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 27.9 | 10.6 | 21.2 | 18.5 | 22.6 | 23.9 |
| COD | 12 | 81.0 | 27.0 | 50.2 | 46.2 | 45.1 | 63.7 |
| Dissolved Oxygen | 12 | 2.45 | 0.00 | 0.76 | 0.78 | 1.1 | 0.2 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 12 | 1400000 | 22000 | 247583 | 126200 | 137500 | 596667 |
| Fecal Coliform | 12 | 390000 | 9200 | 57850 | 23040 | 25500 | 159000 |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 12 | 4.18 | 0.44 | 2.26 | 1.84 | 2.71 | 2.33 |
| Cadmium | 12 | 0.25 | 0.01 | 0.08 | 0.08 | 0.05 | 0.13 |
| Chromium | 12 | 16.82 | 0.02 | 5.03 | 6.17 | 5.22 | 2.87 |
| Copper | 12 | 31.35 | 0.70 | 6.43 | 3.50 | 5.84 | 12.13 |
| Iron | 12 | 0.50 | 0.01 | 0.13 | 0.12 | 0.16 | 0.16 |
| Lead | 12 | 5.83 | 0.04 | 1.73 | 1.20 | 2.58 | 1.48 |
| Nickel | 12 | 216.50 | 2.36 | 32.25 | 10.65 | 26.71 | 75.65 |
| Zinc | 12 | 0.07 | 0.00 | 0.01 | 0.01 | 0.02 | 0.01 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 214 | 44 | 145 | 112 | 177 | 158 |
| Tot-Hardness | 12 | 387 | 149 | 302 | 250 | 330 | 349 |
| Na% | 12 | 64 | 39 | 52 | 50 | 54 | 54 |
| RSC (-) | 12 | 0.61 | -2.96 | -0.7 | -0.79 | -1.03 | 0.02 |
| SAR (-) | 12 | 7.23 | 1.71 | 4.4 | 3.73 | 5.13 | 4.74 |
| **PESTICIDES** | | | | | | | |

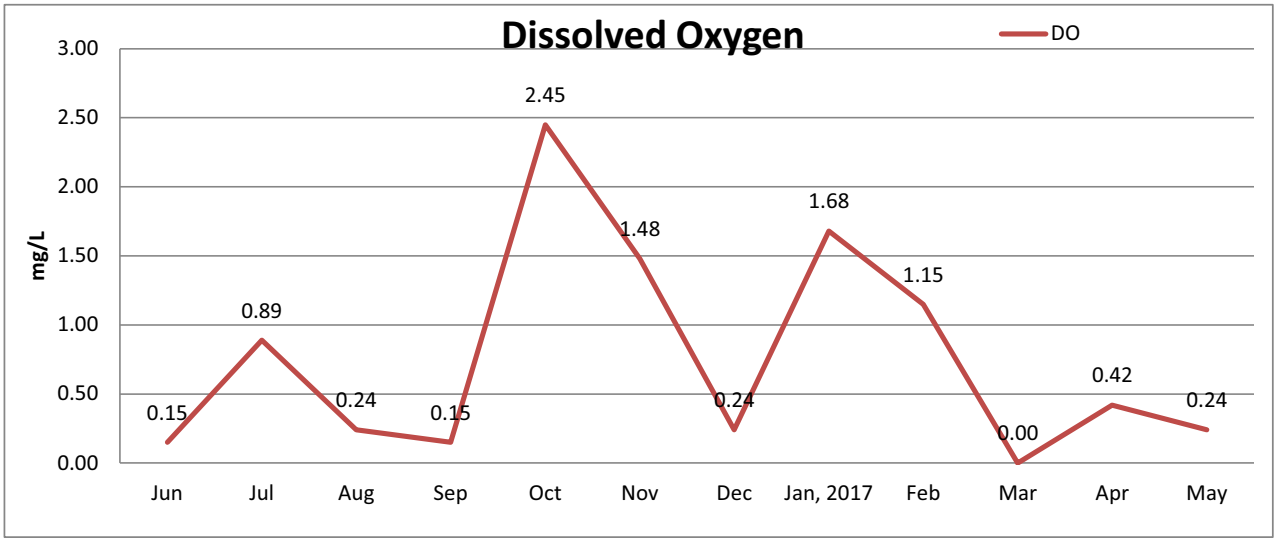
**Graphical Presentation of MOHANA WQ Site**

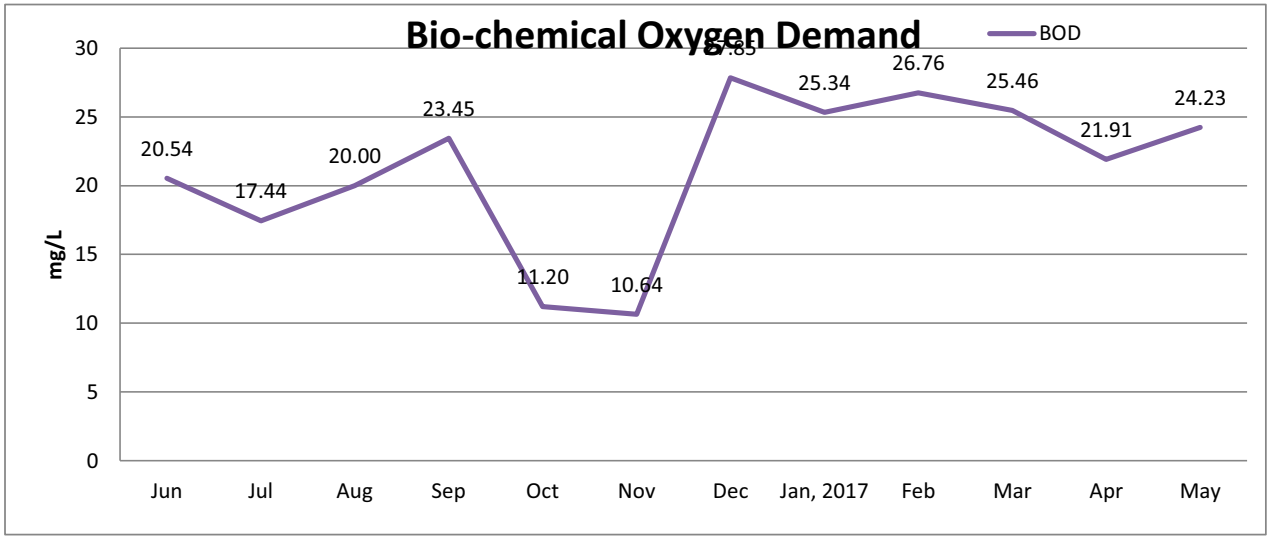


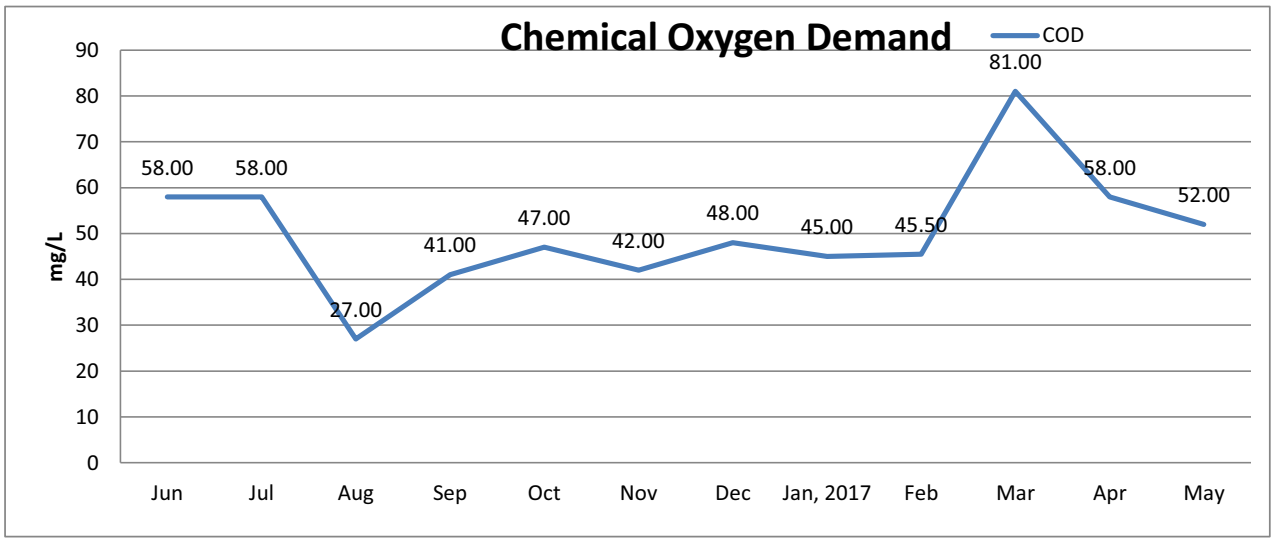



**Graphical Presentation of MOHANA WQ Site**



# MATHURA

## GENERAL PARTICULARS

| | | | |
|---|---|---|---|
| Site | :***Mathura*** | Code | : **GYW00P5** |
| State | : **Himachal Pradesh** | District | : **Sirmaur** |
| Division | : **Upper Yamuna Division** | Sub-Division | : **SSD, New Delhi** |
| River Basin | : **Yamuna** | Tributary | : **Giri** |
| Sub Tributary | : **-** | Drainage Area | : **1349 Sq. Km.** |
| Latitude | : **30°53'11"N** | Longitude | : **77°12'24" E** |
| Zero of Gauge | : **-** | Bank | : **-** |

## DETAILS OF OPERATION (OPENING DATE)

| | |
|---|---|
| Gauge: | : **28/05/1976** |
| Discharge: | : **28/05/1976** |
| Sediment | : **-** |
| Water Quality | : |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : MATHURA 1st 10 Days** **Division : UYD, New Delhi**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 03/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 04/04/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | Colourless | | | | | | | | | | | |
| 3 | Odour_Code (-) | | Odourless | | | | | | | | | | | |
| 4 | Temperature | °C | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | pH_GEN (pH units) | | 7.94 | 8.14 | 7.58 | 7.77 | 8.41 | 7.15 | 7.79 | 8.12 | 7.78 | 7.8 | 8.05 | 7.52 |
| 6 | EC_GEN (µmho/cm) | NTU | 1691 | 1912 | 648 | 875 | 1166 | 1635 | 1689 | 1678 | 1874 | 2094 | 1959 | 1490 |
| 7 | Total Dissolved Solids | mg/L | 1015 | 1147 | 389 | 525 | 700 | 981 | 1013 | 1091 | 1218 | 1361 | 1273 | 969 |
| 8 | Turbiidity | | 13.8 | 11.8 | 105.5 | 65.2 | 12.53 | 2.42 | 7.02 | 11.14 | 11.68 | 12.4 | 13.33 | 6.44 |
| CHEMICAL | | | | | | | | | | | | | | |
| 9.00 | Alk-Phen (as $CaCO_3$) | mg/l | 0.00 | 0.00 | 0.00 | 0.00 | 16.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | Alk-Tot (as $CaCO_3$) | | 285.48 | 289.63 | 128.44 | 158.48 | 199.47 | 234.97 | 304.43 | 200.08 | 294.87 | 379.44 | 366.63 | 182.65 |
| 11 | Boron | | 0.18 | 0.31 | | 0.13 | 0.10 | 0.22 | 0.22 | 0.30 | 0.39 | 0.33 | 0.26 | 0.13 |
| 12 | Calcium | | 65.26 | 73.32 | 31.52 | 33.26 | 50.22 | 62.94 | 68.01 | 58.98 | 79.80 | 73.78 | 72.44 | 43.51 |
| 13 | Chloride | | 303.53 | 315.24 | 117.15 | 129.81 | 164.01 | 238.56 | 258.86 | 320.07 | 366.43 | 310.13 | 326.85 | 241.82 |
| 14 | Carbonate | | 0.00 | 0.00 | 0.00 | 0.00 | 19.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | Fluoride | | 0.55 | 0.69 | 0.35 | 0.35 | 0.39 | 0.54 | 0.52 | 0.47 | 0.49 | 0.56 | 0.61 | 0.56 |
| 16 | Bicarbonate | | 342.58 | 347.56 | 154.13 | 190.17 | 199.62 | 281.97 | 365.32 | 240.10 | 353.84 | 455.33 | 439.95 | 219.18 |
| 17 | Potassium | | 20.95 | 22.80 | 10.05 | 12.02 | 16.13 | 19.75 | 21.23 | 22.33 | 28.10 | 28.08 | 29.13 | 19.20 |
| 18 | Magnesium | | 48.19 | 37.62 | 19.01 | 19.10 | 25.64 | 42.72 | 45.31 | 45.87 | 49.70 | 54.91 | 50.01 | 51.51 |
| 19 | Sodium | | 228.45 | 271.45 | 64.63 | 104.78 | 146.58 | 183.98 | 210.20 | 207.35 | 247.75 | 262.85 | 243.45 | 184.28 |
| 20 | Ammonia as N | | 5.53 | 4.05 | 4.21 | 0.03 | 8.16 | 0.02 | 0.37 | 43.40 | 25.40 | 23.50 | 17.70 | 0.02 |
| 21 | $NO_2$+$NO_3$ as N | | 18.54 | 15.76 | 1.65 | 7.79 | 21.67 | 32.79 | 21.12 | 7.55 | 5.23 | 5.46 | 2.97 | 86.16 |
| 22 | Nitrite as N | | 14.70 | 14.69 | 1.03 | 0.04 | 2.41 | 0.27 | 0.57 | 0.08 | 0.10 | 3.14 | 0.86 | 13.16 |
| 23 | Nitrate as N | | 3.84 | 1.07 | 0.62 | 7.75 | 19.26 | 32.52 | 20.55 | 7.47 | 5.13 | 2.32 | 2.11 | 73.00 |
| 24 | Tot. Phosphate as P | | 5.66 | 9.95 | 0.66 | 0.10 | 4.11 | 7.47 | 5.50 | 8.93 | 9.90 | 10.67 | 5.66 | 5.74 |
| 25 | Silicate as $SiO_2$ | | - | - | - | - | - | - | - | - | - | - | - | - |
| 26 | Sulphate as $SO_4$ | | 90.60 | 119.60 | 63.00 | 56.40 | 97.20 | 93.80 | 98.60 | 90.15 | 179.18 | 82.17 | 104.50 | 106.27 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 34.90 | 21.76 | 13.60 | 23.41 | 22.90 | 21.49 | 16.94 | 24.19 | 26.59 | 23.68 | 22.38 | 21.84 |
| 28 | COD | | 60.00 | 119.00 | 34.00 | 30.00 | 30.00 | 39.00 | 35.00 | 48.00 | 50.00 | 53.00 | 48.00 | 38.00 |
| 29 | Dissolved Oxygen | | 0.28 | 0.87 | 1.57 | 1.38 | 0.58 | 0.34 | 1.05 | 2.01 | 1.32 | 0.24 | 0.24 | 1.04 |
| 30 | DO_SAT % | % | - | - | - | - | - | - | - | - | - | - | - | - |
| 31 | Tota Coliform | MPN/100 ml | 130000 | 350000 | 32000 | 130000 | 170000 | 70000 | 220000 | 140000 | 170000 | 140000 | 170000 | 700000 |
| 32 | Fecal Coliform | | 27000 | 32000 | 14000 | 13000 | 21000 | 22000 | 21000 | 22000 | 33000 | 39000 | 40000 | 210000 |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | 6.510 | 0.480 | 3.880 | 6.540 | 0.050 | 1.460 | 1.330 | 2.340 | 0.480 | 0.650 | 7.530 | 6.120 |
| 35 | Cadmium | | 0.094 | 0.134 | 0.004 | 0.006 | 0.010 | 0.030 | 0.020 | 0.053 | 0.028 | 0.108 | 0.110 | 0.106 |
| 36 | Chromium | | 8.580 | 1.410 | 1.560 | 2.700 | 0.220 | 1.270 | 0.720 | 3.640 | 2.750 | 8.570 | 0.820 | 7.720 |
| 37 | Copper | | 3.770 | 6.080 | 3.290 | 2.620 | 1.320 | 5.070 | 1.000 | 10.290 | 6.740 | 24.980 | 32.420 | 0.060 |
| 38 | Iron | mg/l | 0.008 | 0.018 | 0.015 | 0.053 | 0.065 | 0.061 | 0.060 | 0.242 | 0.176 | 0.116 | 0.156 | 0.153 |
| 39 | Lead | µg/L | 7.600 | 0.090 | 0.070 | 0.790 | 0.410 | 1.050 | 0.350 | 0.830 | 0.950 | 1.750 | 1.700 | 1.380 |
| 40 | Nickel | | 44.350 | 7.010 | 1.520 | 6.820 | 2.410 | 40.630 | 2.380 | 10.440 | 51.380 | 5.460 | 101.860 | 7.530 |
| 41 | Zinc | mg/l | 0.000 | 0.003 | 0.001 | 0.005 | 0.006 | 0.003 | 0.005 | 0.013 | 0.020 | 0.003 | 0.006 | 0.005 |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 163 | 183 | 79 | 83 | 126 | 157 | 170 | 147 | 200 | 184 | 181 | 109 |
| 43 | Tot-Hardness | | 364 | 340 | 158 | 163 | 232 | 335 | 359 | 339 | 407 | 413 | 390 | 324 |
| 44 | Na% | % | 55.96 | 61.51 | 45.12 | 56.11 | 55.74 | 52.58 | 54.21 | 55.11 | 54.89 | 55.98 | 55.36 | 53.51 |
| 45 | RSC (-) | | -1.66 | -1.10 | -0.63 | -0.14 | -0.71 | -2.08 | -1.19 | -2.84 | -2.33 | -0.80 | -0.58 | -2.87 |
| 46 | SAR (-) | | 5.21 | 6.40 | 2.24 | 3.57 | 4.18 | 4.37 | 4.82 | 4.90 | 5.34 | 5.62 | 5.36 | 4.46 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

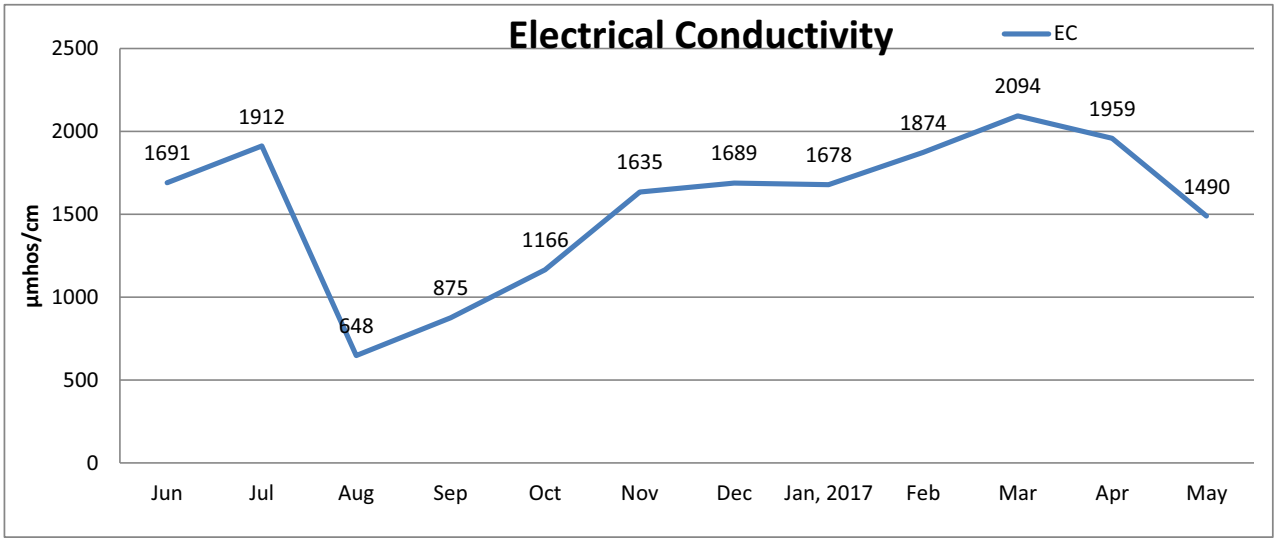
# RIVER WATER SUMMARY - 2016-2017

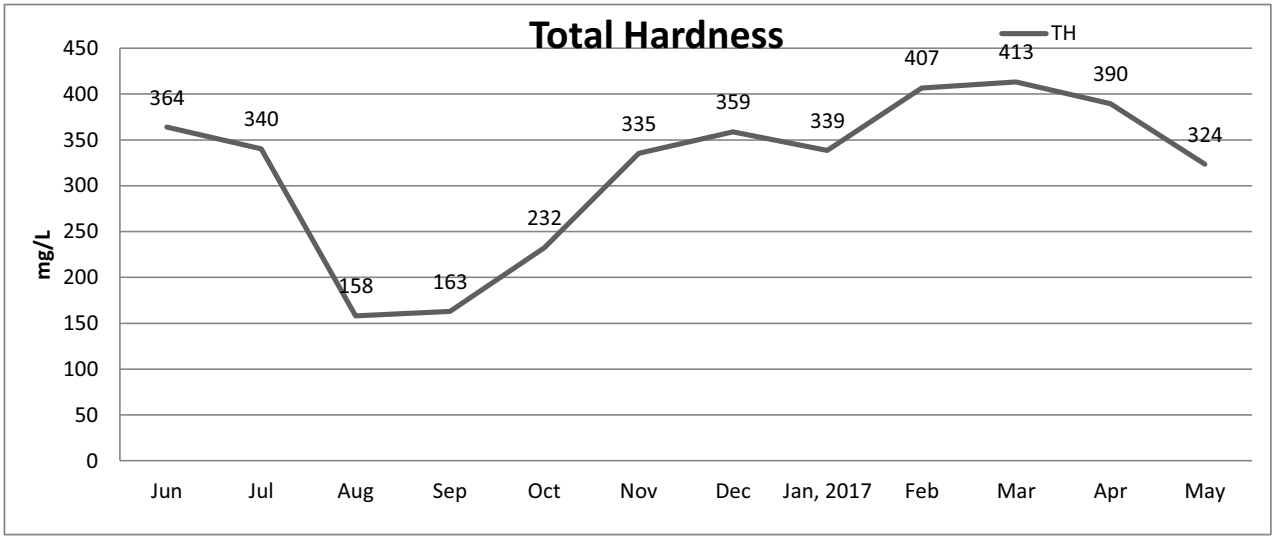
**Station Name : MATHURA 1st 10 Days** **Division : UYD, New Delhi**

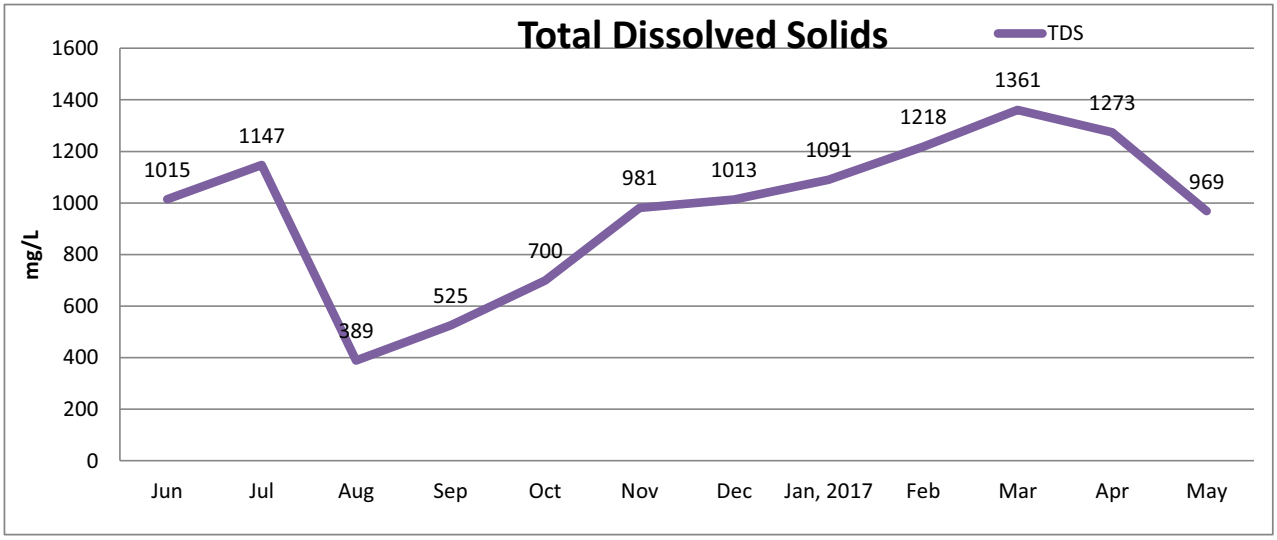
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 12 | 8.41 | 7.15 | 7.84 | 7.85 | 8.05 | 7.79 |
| EC_GEN (µmho/cm) | 12 | 2094 | 648 | 1559 | 1258 | 1719 | 1848 |
| Total Dissolved Solids | 12 | 1361 | 389 | 973 | 755 | 1076 | 1201 |
| Turbiidity | 12 | 105.5 | 2.4 | 22.8 | 41.8 | 8.1 | 10.7 |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 16.56 | 0.00 | 1.4 | 3.31 | 0.00 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 12 | 379.44 | 128.44 | 252.0 | 212.30 | 258.59 | 309.57 |
| Boron | 11 | 0.39 | 0.10 | 0.2 | 0.18 | 0.28 | 0.24 |
| Calcium | 12 | 79.80 | 31.52 | 59.4 | 50.72 | 67.43 | 63.24 |
| Chloride | 12 | 366.43 | 117.15 | 257.7 | 205.95 | 295.98 | 292.93 |
| Carbonate | 12 | 19.87 | 0.00 | 1.7 | 3.97 | 0.00 | 0.00 |
| Fluoride | 12 | 0.69 | 0.35 | 0.5 | 0.47 | 0.51 | 0.58 |
| Bicarbonate | 12 | 455.33 | 154.13 | 299.1 | 246.81 | 310.30 | 371.49 |
| Potassium | 12 | 29.13 | 10.05 | 20.8 | 16.39 | 22.85 | 25.47 |
| Magnesium | 12 | 54.91 | 19.01 | 40.8 | 29.91 | 45.90 | 52.15 |
| Sodium | 12 | 271.45 | 64.63 | 196.3 | 163.18 | 212.32 | 230.19 |
| Ammonia as N | 12 | 43.40 | 0.02 | 11.0 | 4.40 | 17.30 | 13.74 |
| $NO_2$+$NO_3$ as N | 12 | 86.16 | 1.65 | 18.9 | 13.08 | 16.67 | 31.53 |
| Nitrite as N | 12 | 14.70 | 0.04 | 4.3 | 6.57 | 0.25 | 5.72 |
| Nitrate as N | 12 | 73.00 | 0.62 | 14.6 | 6.51 | 16.42 | 25.81 |
| Tot. Phosphate as P | 12 | 10.67 | 0.10 | 6.2 | 4.10 | 7.95 | 7.35 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 179.18 | 56.40 | 98.5 | 85.36 | 115.43 | 97.64 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 34.9 | 13.6 | 22.8 | 23.3 | 22.3 | 22.6 |
| COD | 12 | 119.0 | 30.0 | 48.7 | 54.6 | 43.0 | 46.3 |
| Dissolved Oxygen | 12 | 2.01 | 0.24 | 0.91 | 0.94 | 1.2 | 0.5 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 12 | 700000 | 32000 | 201833 | 162400 | 150000 | 336667 |
| Fecal Coliform | 12 | 210000 | 13000 | 41167 | 21400 | 24500 | 96333 |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 12 | 7.53 | 0.05 | 3.11 | 3.49 | 1.40 | 4.77 |
| Cadmium | 12 | 0.13 | 0.00 | 0.06 | 0.05 | 0.03 | 0.11 |
| Chromium | 12 | 8.58 | 0.22 | 3.33 | 2.89 | 2.10 | 5.70 |
| Copper | 12 | 32.42 | 0.06 | 8.14 | 3.42 | 5.78 | 19.15 |
| Iron | 12 | 0.24 | 0.01 | 0.09 | 0.08 | 0.16 | 0.15 |
| Lead | 12 | 7.60 | 0.07 | 1.41 | 1.79 | 0.80 | 1.61 |
| Nickel | 12 | 101.86 | 1.52 | 23.48 | 12.42 | 26.21 | 38.28 |
| Zinc | 12 | 0.02 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 200 | 79 | 149 | 127 | 169 | 158 |
| Tot-Hardness | 12 | 413 | 158 | 319 | 252 | 360 | 376 |
| Na% | 12 | 62 | 45 | 55 | 55 | 54 | 55 |
| RSC (-) | 12 | -0.14 | -2.87 | -1.4 | -0.85 | -2.11 | -1.42 |
| SAR (-) | 12 | 6.40 | 2.24 | 4.7 | 4.32 | 4.86 | 5.15 |
| **PESTICIDES** | | | | | | | |

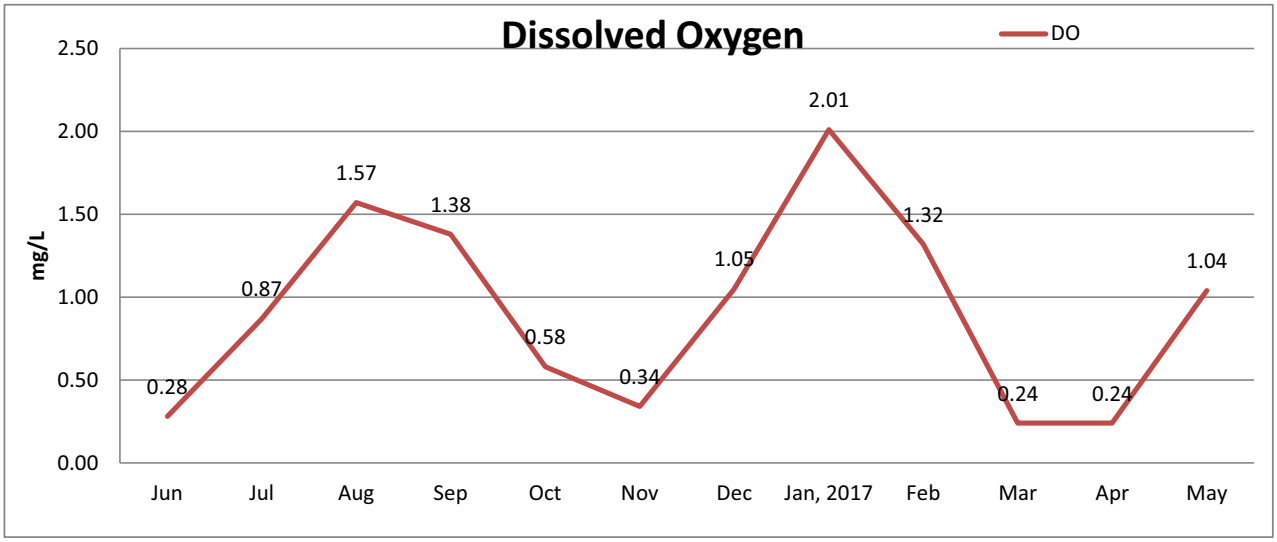
**Graphical Presentation of MATHURA 1st 10 Days WQ Site**

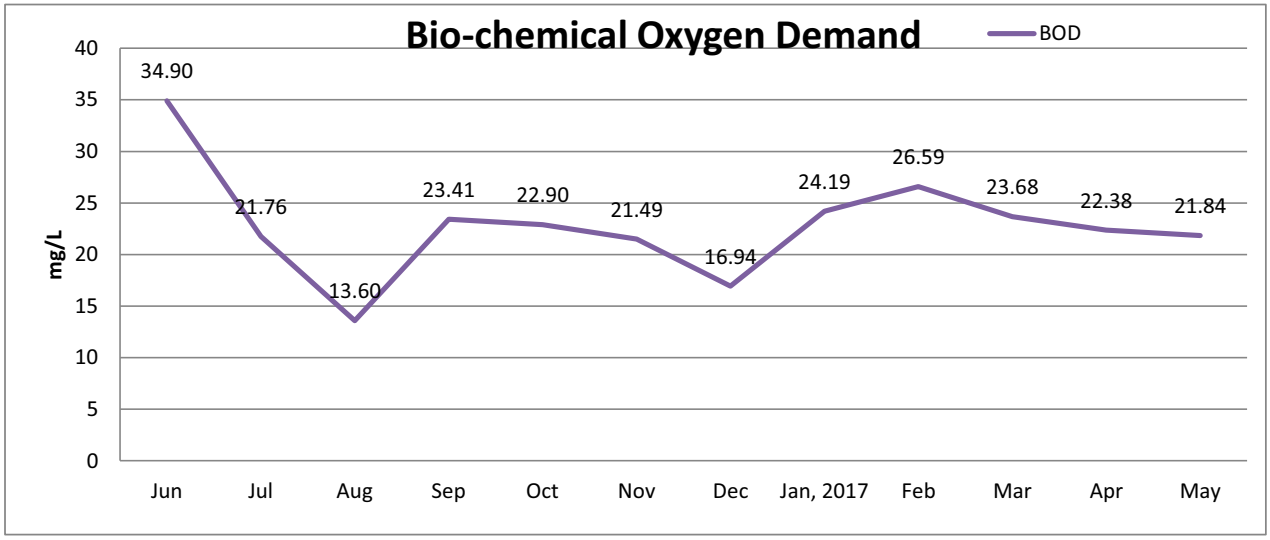


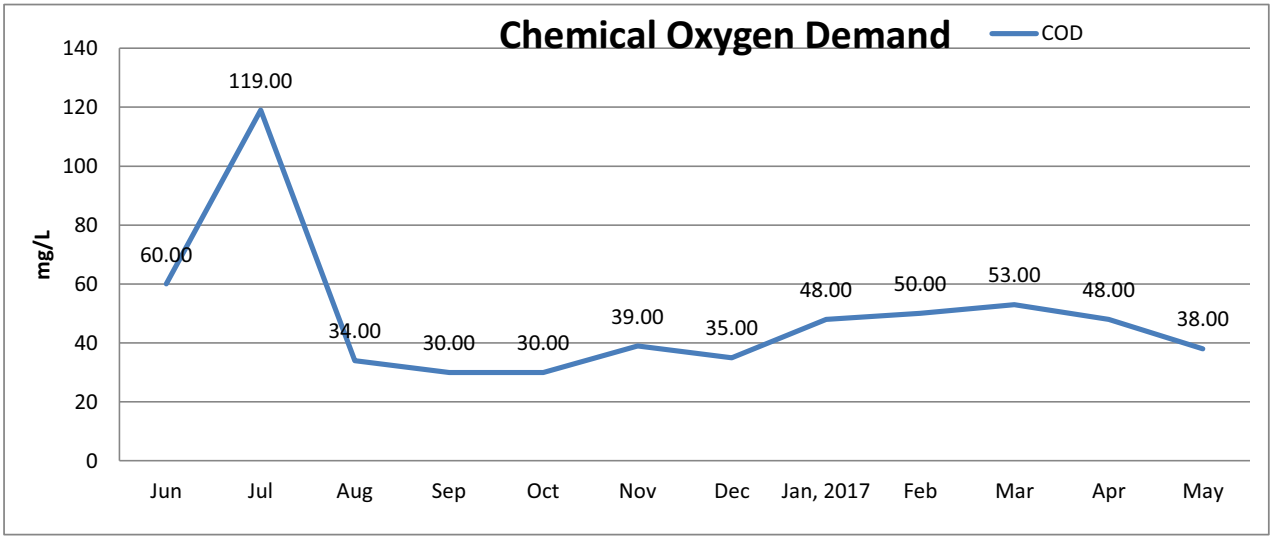



## Graphical Presentation of MATHURA 1st 10 Days WQ Site



# Water Quality Datasheet for the Period : 2016-2017

**Station Name : MATHURA 2nd 10 Days** **Division : UYD, New Delhi**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 13/06/16 | 11/07/16 | 11/08/16 | 12/09/16 | 13/10/16 | 01/11/16 | 13/12/16 | 11.01.2017 | 13/02/17 | 15/03/17 | 11/04/17 | 11/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | Colourless | | | | | | | | | | | |
| 3 | Odour_Code (-) | | Odourless | | | | | | | | | | | |
| 4 | Temperature | °C | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | pH_GEN (pH units) | | 8.18 | 7.82 | 7.64 | 7.54 | 7.67 | 7.81 | 8.2 | 7.98 | 7.6 | 7.57 | 8.06 | 7.72 |
| 6 | EC_GEN (µmho/cm) | NTU | 1803 | 1434 | 697 | 1014 | 1360 | 1708 | 1629 | 1596 | 1716 | 1296 | 1887 | 1570 |
| 7 | Total Dissolved Solids | mg/L | 1022 | 860 | 400 | 608 | 816 | 1025 | 977 | 1037 | 1115 | 842 | 1227 | 1021 |
| 8 | Turbiidity | | 11.4 | 10.2 | 86 | 35.5 | 8.82 | 10.44 | 13.83 | 12.79 | 41.5 | 6.09 | 18.33 | 8.28 |
| CHEMICAL | | | | | | | | | | | | | | |
| 9.00 | Alk-Phen (as $CaCO_3$) | mg/l | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | Alk-Tot (as $CaCO_3$) | | 366.21 | 189.08 | 113.46 | 184.83 | 199.84 | 288.41 | 343.06 | 315.95 | 172.94 | 245.53 | 256.48 | 313.13 |
| 11 | Boron | | 0.07 | 0.08 | | 0.18 | 0.25 | 0.76 | 0.27 | 0.23 | 0.35 | 0.27 | 0.25 | 0.29 |
| 12 | Calcium | | 65.74 | 57.64 | 35.94 | 35.88 | 50.12 | 62.94 | 99.54 | 67.18 | 68.90 | 62.24 | 81.48 | 65.00 |
| 13 | Chloride | | 280.09 | 297.03 | 95.61 | 150.88 | 186.55 | 242.11 | 200.15 | 259.65 | 326.74 | 208.74 | 373.82 | 332.28 |
| 14 | Carbonate | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | Fluoride | | 0.57 | 0.61 | 0.40 | 0.37 | 0.48 | 0.53 | 0.48 | 0.47 | 0.61 | 0.50 | 0.62 | 0.57 |
| 16 | Bicarbonate | | 439.45 | 226.90 | 136.15 | 221.80 | 239.80 | 346.09 | 411.68 | 379.14 | 207.52 | 294.63 | 307.78 | 375.76 |
| 17 | Potassium | | 19.45 | 43.20 | 10.74 | 13.80 | 18.25 | 21.93 | 21.63 | 21.35 | 20.53 | 20.60 | 25.13 | 20.50 |
| 18 | Magnesium | | 50.56 | 20.03 | 19.96 | 24.09 | 31.95 | 42.38 | 29.66 | 48.70 | 43.43 | 21.71 | 41.90 | 49.00 |
| 19 | Sodium | | 231.55 | 206.80 | 73.32 | 129.60 | 171.83 | 198.90 | 181.08 | 193.48 | 209.00 | 162.65 | 242.50 | 227.08 |
| 20 | Ammonia as N | | 5.90 | 13.50 | 0.02 | 2.53 | 0.02 | 0.02 | 0.15 | 25.10 | 29.60 | 9.07 | 20.90 | 2.97 |
| 21 | $NO_2$+$NO_3$ as N | | 2.51 | 1.42 | 3.53 | 4.16 | 29.61 | 23.78 | 2.62 | 20.44 | 200.19 | 2.65 | 2.98 | 70.02 |
| 22 | Nitrite as N | | 0.12 | 0.81 | 2.64 | 2.40 | 4.54 | 0.29 | 0.05 | 0.10 | 0.19 | 0.22 | 0.65 | 5.22 |
| 23 | Nitrate as N | | 2.39 | 0.62 | 0.88 | 1.76 | 25.07 | 23.49 | 2.57 | 20.35 | 200.00 | 2.43 | 2.33 | 64.80 |
| 24 | Tot. Phosphate as P | | 7.35 | 4.67 | 0.52 | 0.12 | 4.06 | 9.08 | 3.96 | 3.63 | 0.19 | 2.52 | 3.20 | 6.04 |
| 25 | Silicate as $SiO_2$ | | - | - | - | - | - | - | - | - | - | - | - | - |
| 26 | Sulphate as $SO_4$ | | 106.40 | 105.80 | 84.00 | 97.20 | 98.80 | 80.20 | 126.00 | 83.25 | 98.40 | 80.33 | 86.13 | 108.40 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 24.47 | 19.99 | 17.23 | 19.51 | 24.57 | 21.57 | 25.37 | 23.81 | 62.33 | 28.24 | 24.30 | 26.59 |
| 28 | COD | | 83.00 | 79.00 | 32.00 | 28.00 | 48.00 | 37.00 | 63.00 | 54.00 | 78.00 | 35.00 | 55.00 | 42.00 |
| 29 | Dissolved Oxygen | | 0.12 | 1.15 | 1.45 | 1.84 | 0.45 | 0.12 | 1.56 | 1.38 | 0.00 | 0.25 | 0.24 | 1.05 |
| 30 | DO_SAT % | % | - | - | - | - | - | - | - | - | - | - | - | - |
| 31 | Tota Coliform | MPN/100 ml | 140000 | 350000 | 70000 | 70000 | 920000 | 46000 | | 110000 | 9200000 | 110000 | 280000 | 330000 |
| 32 | Fecal Coliform | | 21000 | 17000 | 14000 | 17000 | 22000 | 17000 | | 21000 | 470000 | 39000 | 47000 | 170000 |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | 9.170 | 9.510 | 0.820 | 0.190 | 2.160 | 0.910 | 0.920 | 1.780 | 7.280 | 0.910 | 2.700 | 1.210 |
| 35 | Cadmium | | 0.092 | 0.000 | 0.065 | 0.006 | 0.157 | 0.130 | 0.061 | 0.015 | 0.026 | 0.172 | 0.188 | 0.178 |
| 36 | Chromium | | 5.520 | 1.390 | 5.710 | 2.220 | 0.780 | 1.930 | 3.010 | 1.330 | 3.180 | 2.250 | 4.220 | 0.440 |
| 37 | Copper | | 0.050 | 2.130 | 1.970 | 1.900 | 1.830 | 14.910 | 7.380 | 5.170 | 4.470 | 7.110 | 12.870 | 0.950 |
| 38 | Iron | mg/l | 0.014 | 0.012 | 0.022 | 0.044 | 0.059 | 0.396 | 0.082 | 0.077 | 0.219 | 0.108 | 0.154 | 0.183 |
| 39 | Lead | µg/L | 0.010 | 0.070 | 0.310 | 0.630 | 0.640 | 1.360 | 1.800 | 1.000 | 1.390 | 1.510 | 0.990 | 1.830 |
| 40 | Nickel | | 57.740 | 4.580 | 0.450 | 2.800 | 13.850 | 8.300 | 17.610 | 13.920 | 5.200 | 1.440 | 64.880 | 30.030 |
| 41 | Zinc | mg/l | 0.003 | 0.006 | 0.000 | 0.008 | 0.004 | 0.042 | 0.012 | 0.005 | 0.011 | 0.008 | 0.005 | 0.009 |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 164 | 144 | 90 | 90 | 125 | 157 | 249 | 168 | 172 | 156 | 204 | 163 |
| 43 | Tot-Hardness | | 375 | 228 | 173 | 190 | 259 | 334 | 373 | 371 | 353 | 246 | 378 | 367 |
| 44 | Na% | % | 55.72 | 61.37 | 46.05 | 57.55 | 56.99 | 54.43 | 49.59 | 51.36 | 54.49 | 56.48 | 56.22 | 55.68 |
| 45 | RSC (-) | | -0.30 | -0.83 | -1.23 | -0.17 | -1.24 | -1.00 | -0.70 | -1.20 | -3.66 | -0.09 | -2.52 | -1.17 |
| 46 | SAR (-) | | 5.20 | 5.96 | 2.42 | 4.09 | 4.65 | 4.73 | 4.08 | 4.37 | 4.83 | 4.51 | 5.42 | 5.16 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

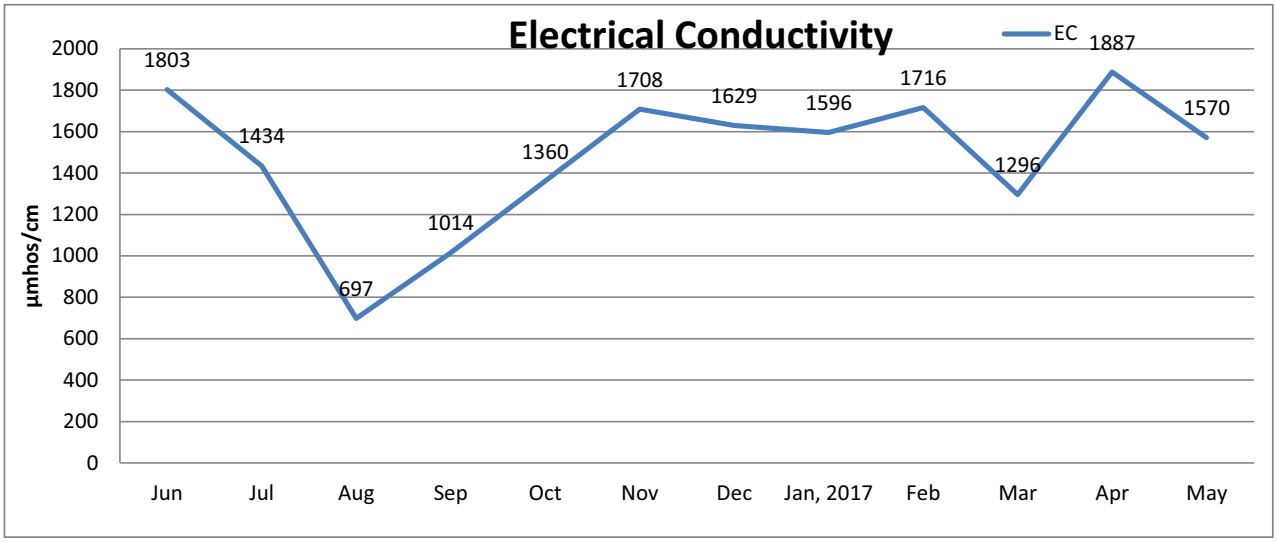
# RIVER WATER SUMMARY - 2016-2017

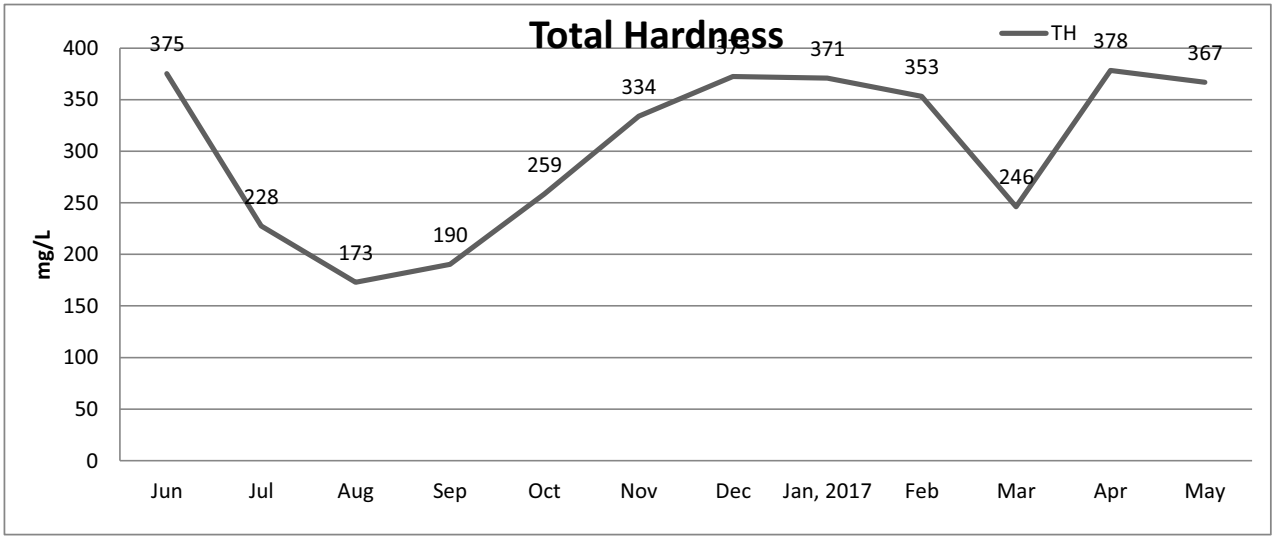
**Station Name : MATHURA 2nd 10 Days** **Division : UYD, New Delhi**

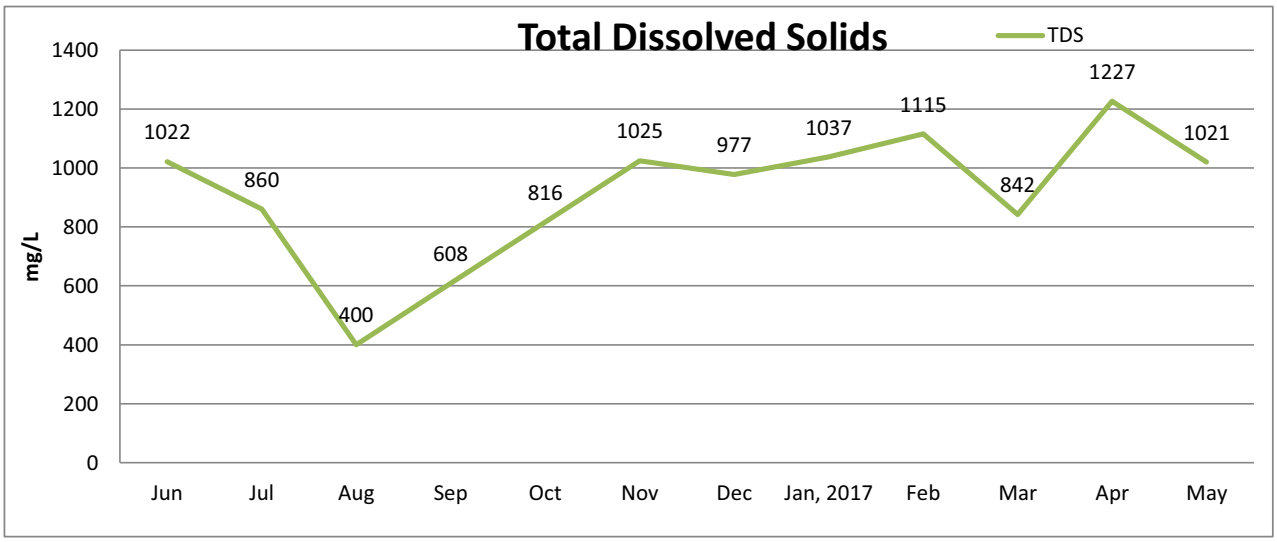
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 12 | 8.20 | 7.54 | 7.82 | 7.83 | 8.06 | 7.89 |
| EC_GEN (µmho/cm) | 12 | 1887 | 697 | 1476 | 1262 | 1662 | 1584 |
| Total Dissolved Solids | 12 | 1227 | 400 | 913 | 741 | 1039 | 1030 |
| Turbiidity | 12 | 86.0 | 6.1 | 21.9 | 30.4 | 19.6 | 10.9 |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 12 | 366.21 | 113.46 | 249.1 | 210.68 | 280.09 | 271.71 |
| Boron | 11 | 0.76 | 0.07 | 0.3 | 0.15 | 0.40 | 0.27 |
| Calcium | 12 | 99.54 | 35.88 | 62.7 | 49.06 | 74.64 | 69.57 |
| Chloride | 12 | 373.82 | 95.61 | 246.1 | 202.03 | 257.16 | 304.95 |
| Carbonate | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Fluoride | 12 | 0.62 | 0.37 | 0.5 | 0.49 | 0.52 | 0.56 |
| Bicarbonate | 12 | 439.45 | 136.15 | 298.9 | 252.82 | 336.11 | 326.06 |
| Potassium | 12 | 43.20 | 10.74 | 21.4 | 21.09 | 21.36 | 22.08 |
| Magnesium | 12 | 50.56 | 19.96 | 35.3 | 29.32 | 41.04 | 37.54 |
| Sodium | 12 | 242.50 | 73.32 | 185.6 | 162.62 | 195.61 | 210.74 |
| Ammonia as N | 12 | 29.60 | 0.02 | 9.1 | 4.40 | 13.72 | 10.98 |
| $NO_2$+$NO_3$ as N | 12 | 200.19 | 1.42 | 30.3 | 8.25 | 61.76 | 25.21 |
| Nitrite as N | 12 | 5.22 | 0.05 | 1.4 | 2.10 | 0.16 | 2.03 |
| Nitrate as N | 12 | 200.00 | 0.62 | 28.9 | 6.14 | 61.60 | 23.19 |
| Tot. Phosphate as P | 12 | 9.08 | 0.12 | 3.8 | 3.34 | 4.21 | 3.92 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 126.00 | 80.20 | 96.2 | 98.44 | 96.96 | 91.62 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 62.3 | 17.2 | 26.5 | 21.2 | 33.3 | 26.4 |
| COD | 12 | 83.0 | 28.0 | 52.8 | 54.0 | 58.0 | 44.0 |
| Dissolved Oxygen | 12 | 1.84 | 0.00 | 0.80 | 1.00 | 0.8 | 0.5 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 11 | 9200000 | 46000 | 1056909 | 310000 | 3118667 | 240000 |
| Fecal Coliform | 11 | 470000 | 14000 | 77727 | 18200 | 169333 | 85333 |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 12 | 9.51 | 0.19 | 3.13 | 4.37 | 2.72 | 1.61 |
| Cadmium | 12 | 0.19 | 0.00 | 0.09 | 0.06 | 0.06 | 0.18 |
| Chromium | 12 | 5.71 | 0.44 | 2.67 | 3.12 | 2.36 | 2.30 |
| Copper | 12 | 14.91 | 0.05 | 5.06 | 1.58 | 7.98 | 6.98 |
| Iron | 12 | 0.40 | 0.01 | 0.11 | 0.10 | 0.15 | 0.17 |
| Lead | 12 | 1.83 | 0.01 | 0.96 | 0.33 | 1.39 | 1.44 |
| Nickel | 12 | 64.88 | 0.45 | 18.40 | 15.88 | 11.26 | 32.12 |
| Zinc | 12 | 0.04 | 0.00 | 0.01 | 0.00 | 0.02 | 0.01 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 249 | 90 | 157 | 123 | 187 | 174 |
| Tot-Hardness | 12 | 378 | 173 | 304 | 245 | 358 | 330 |
| Na% | 12 | 61 | 46 | 55 | 56 | 52 | 56 |
| RSC (-) | 12 | -0.09 | -3.66 | -1.2 | -0.75 | -1.64 | -1.26 |
| SAR (-) | 12 | 5.96 | 2.42 | 4.6 | 4.46 | 4.50 | 5.03 |
| **PESTICIDES** | | | | | | | |

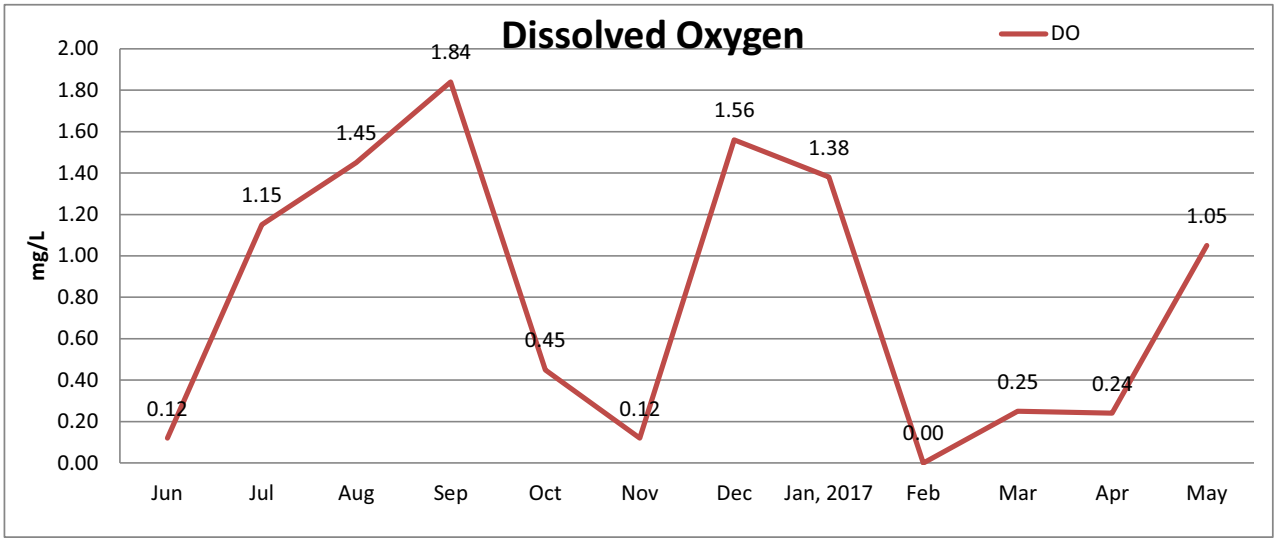
**Graphical Presentation of MATHURA 2nd 10 Days WQ Site**

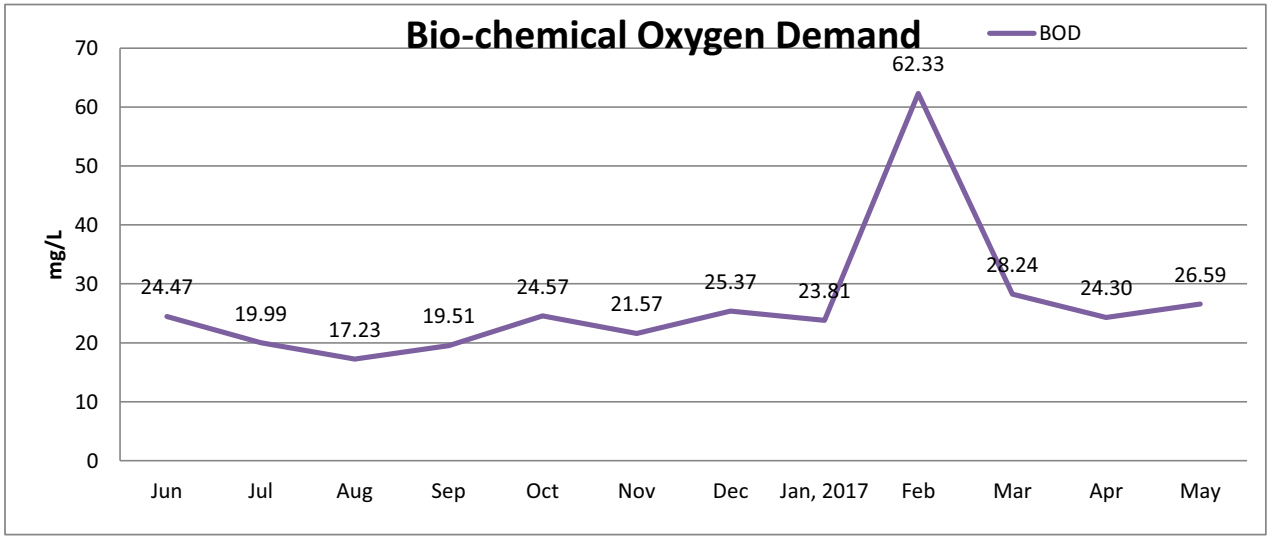


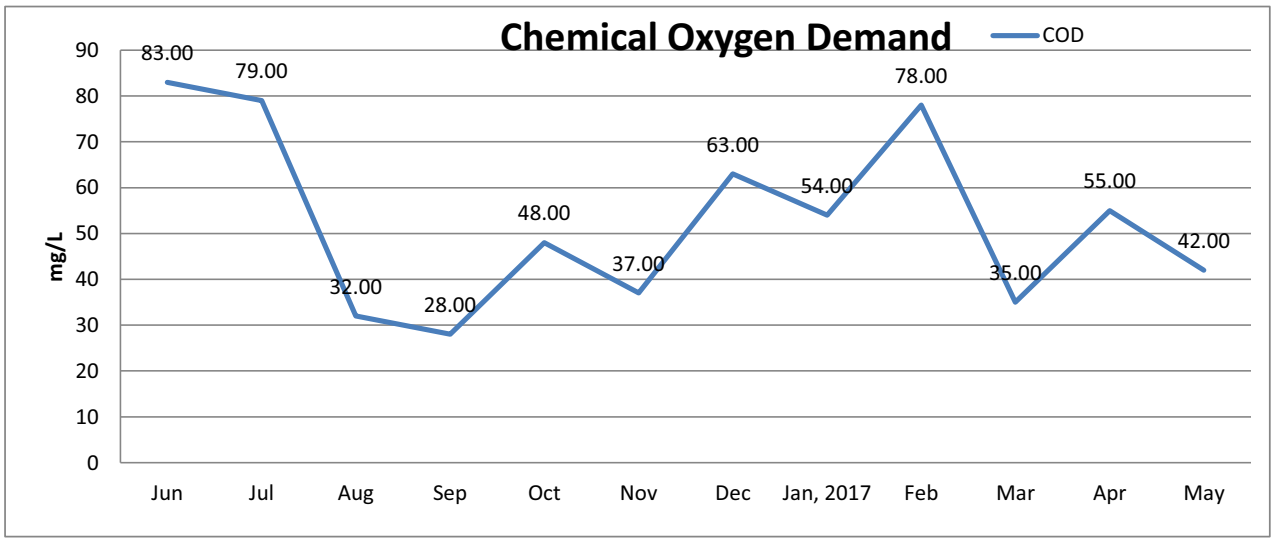



## Graphical Presentation of MATHURA 2nd 10 Days WQ Site



# Water Quality Datasheet for the Period : 2016-2017

**Station Name : MATHURA 3rd 10 Days** **Division : UYD, New Delhi**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 21/06/16 | 21/07/16 | 22/08/16 | 21/09/16 | 21/10/16 | 01/11/16 | 21/12/16 | 23.01.2017 | 21/02/17 | 21/03/17 | 21/04/17 | 22/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | | | Clear | | | | | | | |
| 2 | Colour_Cod (-) | | Colourless | | | | | | | | | | | |
| 3 | Odour_Code (-) | | Odourless | | | | | | | | | | | |
| 4 | Temperature | °C | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | pH_GEN (pH units) | | 7.98 | 7.54 | 7.76 | 8.21 | 7.77 | 7.62 | | 8.02 | 7.41 | 7.43 | 7.65 | 8.07 |
| 6 | EC_GEN (µmho/cm) | NTU | 1233 | 990 | 670 | 1159 | 1592 | 1462 | | 1522 | 2018 | 1997 | 2155 | 1560 |
| 7 | Total Dissolved Solids | mg/L | 740 | 594 | 360 | 815 | 955 | 877 | | 989 | 1312 | 1298 | 1401 | 1014 |
| 8 | Turbiidity | | 13.5 | 117.2 | 319 | | 11.29 | 6.94 | 37.8 | 9.06 | 70.4 | 38.6 | 19.2 | 7.22 |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | Alk-Tot (as $CaCO_3$) | | 215.13 | 188.12 | 124.81 | 123.71 | 210.82 | 225.82 | | 317.68 | 239.15 | 298.90 | 336.04 | 324.32 |
| 11 | Boron | | 0.04 | 0.08 | | | 0.25 | 0.30 | 0.28 | 0.26 | 0.38 | 0.33 | 0.40 | 0.29 |
| 12 | Calcium | | 64.15 | 50.69 | 34.85 | 32.89 | 58.67 | 61.52 | | 42.18 | 73.08 | 106.29 | 93.12 | 81.00 |
| 13 | Chloride | | 177.85 | 102.24 | 79.88 | 156.91 | 238.56 | 171.11 | | 213.11 | 359.87 | 364.66 | 380.91 | 323.05 |
| 14 | Carbonate | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | Fluoride | | 0.52 | 0.44 | 0.37 | 0.44 | 0.54 | 0.46 | | 0.46 | 0.69 | 0.72 | 0.86 | 0.57 |
| 16 | Bicarbonate | | 258.15 | 225.75 | 149.77 | 148.45 | 252.98 | 270.99 | | 381.22 | 286.99 | 358.68 | 403.25 | 389.18 |
| 17 | Potassium | | 11.85 | 14.60 | 9.57 | 16.50 | 19.20 | 17.35 | | 29.98 | 25.85 | 23.18 | 22.18 | 18.60 |
| 18 | Magnesium | | 30.60 | 19.58 | 22.62 | 10.50 | 38.45 | 35.88 | | 24.04 | 45.10 | 41.28 | 41.22 | 45.00 |
| 19 | Sodium | | 169.20 | 113.05 | 63.48 | 161.48 | 196.18 | 171.58 | | 196.08 | 274.05 | 232.83 | 264.98 | 215.00 |
| 20 | Ammonia as N | | 4.85 | 9.50 | 1.55 | 3.79 | 0.02 | 0.01 | | 17.80 | 35.90 | 22.70 | 27.90 | 12.10 |
| 21 | $NO_2$+$NO_3$ as N | | 4.38 | 1.69 | 3.70 | 21.63 | 30.97 | 26.80 | 0.48 | 3.96 | 98.94 | 3.88 | 26.56 | 9.71 |
| 22 | Nitrite as N | | 3.06 | 1.04 | 2.68 | 3.59 | 2.97 | 0.38 | 0.48 | 0.09 | 0.14 | 1.20 | 0.30 | 5.24 |
| 23 | Nitrate as N | | 1.31 | 0.66 | 1.02 | 18.04 | 28.00 | 26.42 | | 3.87 | 98.80 | 2.68 | 26.26 | 4.47 |
| 24 | Tot. Phosphate as P | | 5.21 | 8.93 | 0.54 | 0.11 | 2.86 | 9.00 | 4.76 | 2.59 | 4.91 | 4.07 | 5.39 | 2.86 |
| 25 | Silicate as $SiO_2$ | | - | - | - | - | - | - | - | - | - | - | - | - |
| 26 | Sulphate as $SO_4$ | | 130.60 | 84.00 | 70.60 | 115.20 | 124.40 | 99.00 | 141.20 | 84.50 | 83.00 | 160.33 | 126.13 | 105.17 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 19.78 | 9.57 | 17.72 | 19.22 | 20.88 | 17.59 | | 22.41 | 65.83 | 61.12 | 63.40 | 24.01 |
| 28 | COD | | 45.00 | 95.00 | 25.00 | 36.00 | 25.00 | 28.00 | | 59.00 | 81.00 | 238.00 | 94.00 | 49.00 |
| 29 | Dissolved Oxygen | | 0.24 | 1.98 | 1.36 | 1.56 | 1.02 | 0.18 | | 1.78 | 0.00 | 0.00 | 0.00 | 1.03 |
| 30 | DO_SAT % | % | - | - | - | - | - | - | - | - | - | - | - | - |
| 31 | Tota Coliform | MPN/100 ml | 70000 | 70000 | 49000 | 94000 | 280000 | 33000 | | 170000 | 5400000 | 5400000 | 4600000 | 940000 |
| 32 | Fecal Coliform | | 17000 | 26000 | 17000 | 21000 | 21000 | 11000 | | 26000 | 390000 | 470000 | 2600000 | 320000 |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | 4.120 | 6.970 | 4.640 | 0.630 | 1.090 | 0.890 | 2.630 | 3.270 | 0.040 | 0.050 | 0.860 | 5.710 |
| 35 | Cadmium | | 0.008 | 0.006 | 0.016 | 0.006 | 0.282 | 0.036 | 0.463 | 0.036 | 0.083 | 0.071 | 0.077 | 0.105 |
| 36 | Chromium | | 6.660 | 1.650 | 10.770 | 2.400 | 1.360 | 0.090 | 2.800 | 2.410 | 0.580 | 0.340 | 0.600 | 0.390 |
| 37 | Copper | | 12.620 | 2.280 | 2.510 | 3.790 | 6.040 | 2.280 | 5.320 | 6.820 | 13.200 | 25.500 | 5.670 | 18.680 |
| 38 | Iron | mg/l | 0.008 | 0.019 | 0.025 | 0.051 | 0.072 | 0.057 | 0.065 | 0.085 | 0.127 | 0.162 | 0.165 | 0.166 |
| 39 | Lead | µg/L | 0.010 | 0.520 | 0.270 | 0.840 | 1.730 | 0.490 | 0.580 | 1.240 | 1.220 | 1.230 | 1.130 | 1.420 |
| 40 | Nickel | | 51.420 | 4.080 | 12.030 | 19.330 | 86.710 | 3.590 | 3.340 | 71.270 | 212.820 | 20.710 | 79.970 | 80.040 |
| 41 | Zinc | mg/l | 0.004 | 0.004 | 0.000 | 0.002 | 0.011 | 0.006 | 0.005 | 0.012 | 0.002 | 0.010 | 0.006 | 0.009 |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 160 | 127 | 87 | 82 | 147 | 154 | | 105 | 183 | 266 | 233 | 203 |
| 43 | Tot-Hardness | | 288 | 208 | 181 | 126 | 307 | 303 | | 206 | 371 | 438 | 405 | 390 |
| 44 | Na% | % | 54.82 | 51.98 | 41.61 | 70.46 | 56.27 | 53.40 | | 63.59 | 59.60 | 51.99 | 57.09 | 53.04 |
| 45 | RSC (-) | | -1.53 | -0.47 | -1.17 | -0.09 | -1.99 | -1.62 | | 2.14 | -2.71 | -2.87 | -1.48 | -1.42 |
| 46 | SAR (-) | | 4.34 | 3.41 | 2.05 | 6.25 | 4.87 | 4.28 | | 5.95 | 6.19 | 4.84 | 5.73 | 4.73 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

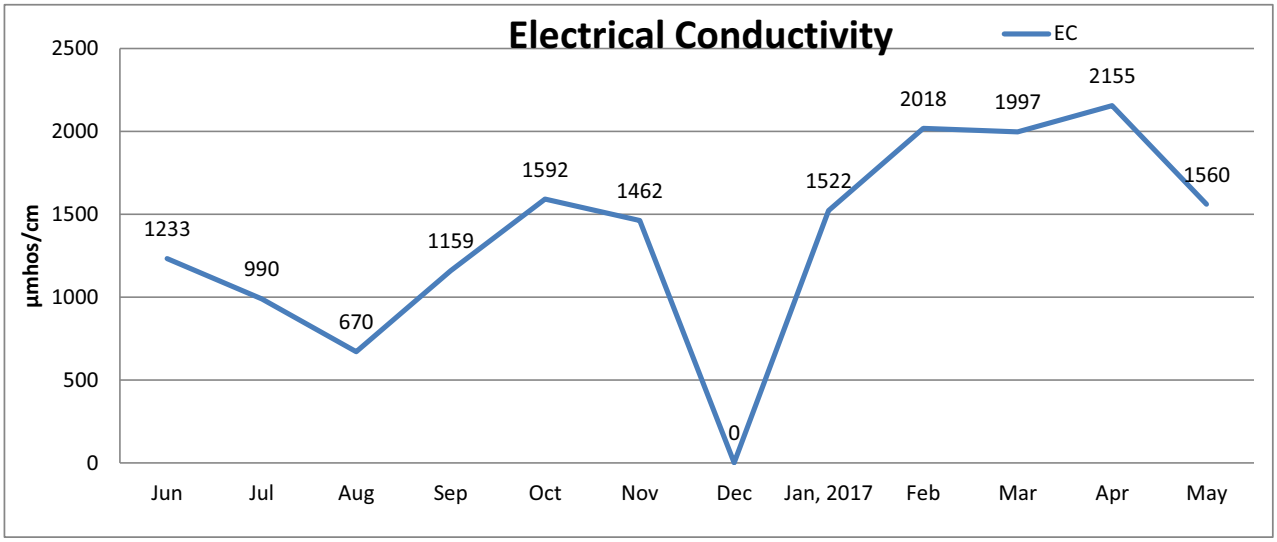
# RIVER WATER SUMMARY - 2016-2017

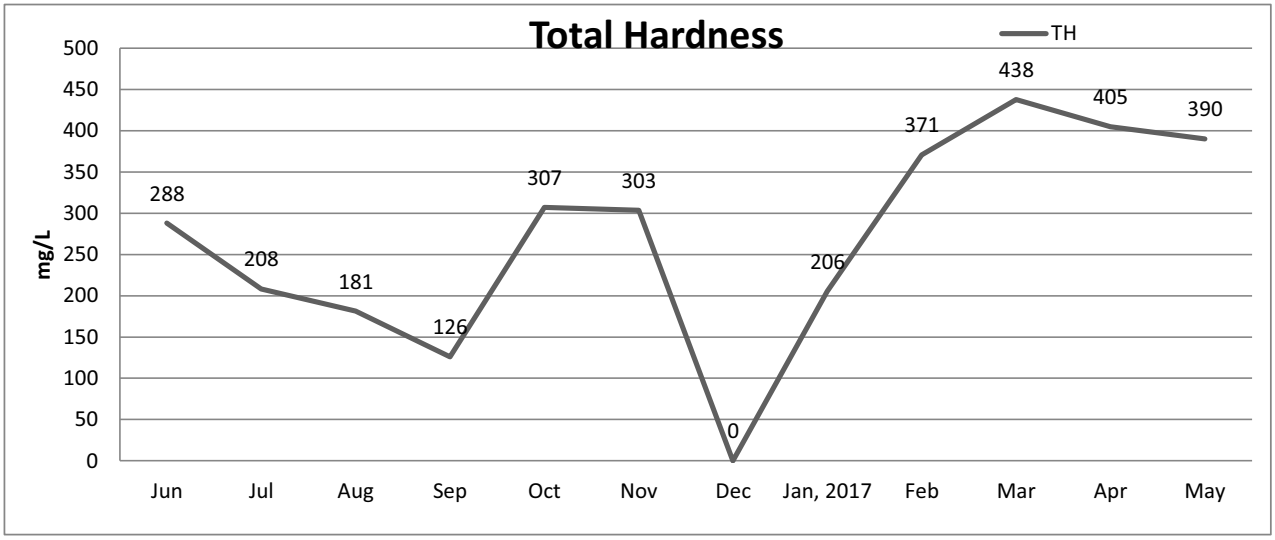
**Station Name : MATHURA 3rd 10 Days** **Division : UYD, New Delhi**

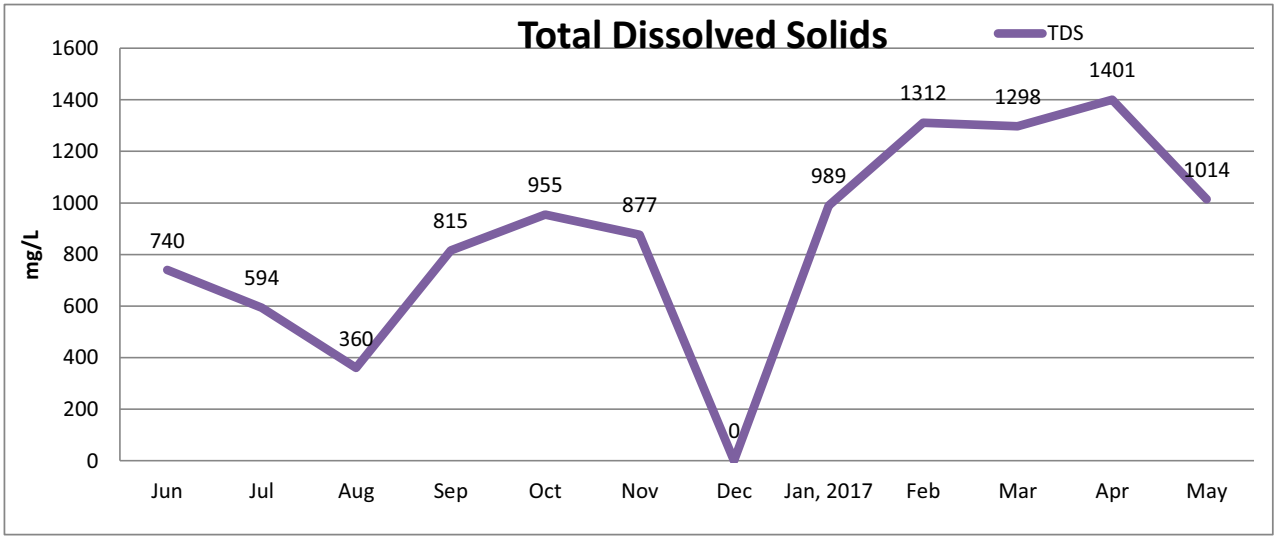
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 11 | 8.21 | 7.41 | 7.77 | 7.79 | 7.65 | 7.86 |
| EC_GEN (µmho/cm) | 11 | 2155 | 670 | 1487 | 1129 | 1667 | 1904 |
| Total Dissolved Solids | 11 | 1401 | 360 | 941 | 693 | 1059 | 1238 |
| Turbiidity | 11 | 319.0 | 6.9 | 59.1 | 115.2 | 31.1 | 21.7 |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 11 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 11 | 336.04 | 123.71 | 236.8 | 172.52 | 260.89 | 319.75 |
| Boron | 10 | 0.40 | 0.04 | 0.3 | 0.12 | 0.31 | 0.34 |
| Calcium | 11 | 106.29 | 32.89 | 63.5 | 48.25 | 58.93 | 93.47 |
| Chloride | 11 | 380.91 | 79.88 | 233.5 | 151.09 | 248.03 | 356.21 |
| Carbonate | 11 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Fluoride | 11 | 0.86 | 0.37 | 0.6 | 0.46 | 0.53 | 0.72 |
| Bicarbonate | 11 | 403.25 | 148.45 | 284.1 | 207.02 | 313.06 | 383.70 |
| Potassium | 11 | 29.98 | 9.57 | 19.0 | 14.34 | 24.39 | 21.32 |
| Magnesium | 11 | 45.10 | 10.50 | 32.2 | 24.35 | 35.01 | 42.50 |
| Sodium | 11 | 274.05 | 63.48 | 187.1 | 140.68 | 213.90 | 237.60 |
| Ammonia as N | 11 | 35.90 | 0.01 | 12.4 | 3.94 | 17.90 | 20.90 |
| $NO_2$+$NO_3$ as N | 12 | 98.94 | 0.48 | 19.4 | 12.48 | 32.54 | 13.39 |
| Nitrite as N | 12 | 5.24 | 0.09 | 1.8 | 2.67 | 0.27 | 2.25 |
| Nitrate as N | 11 | 98.80 | 0.66 | 19.2 | 9.81 | 43.03 | 11.14 |
| Tot. Phosphate as P | 12 | 9.00 | 0.11 | 4.3 | 3.53 | 5.32 | 4.11 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 160.33 | 70.60 | 110.3 | 104.96 | 101.93 | 130.54 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 11 | 65.8 | 9.6 | 31.0 | 17.4 | 35.3 | 49.5 |
| COD | 11 | 238.0 | 25.0 | 70.5 | 45.2 | 56.0 | 127.0 |
| Dissolved Oxygen | 11 | 1.98 | 0.00 | 0.83 | 1.23 | 0.7 | 0.3 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 11 | 5400000 | 33000 | 1555091 | 112600 | 1867667 | 3646667 |
| Fecal Coliform | 11 | 2600000 | 11000 | 356273 | 20400 | 142333 | 1130000 |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 12 | 6.97 | 0.04 | 2.58 | 3.49 | 1.71 | 2.21 |
| Cadmium | 12 | 0.46 | 0.01 | 0.10 | 0.06 | 0.15 | 0.08 |
| Chromium | 12 | 10.77 | 0.09 | 2.50 | 4.57 | 1.47 | 0.44 |
| Copper | 12 | 25.50 | 2.28 | 8.73 | 5.45 | 6.91 | 16.62 |
| Iron | 12 | 0.17 | 0.01 | 0.08 | 0.06 | 0.17 | 0.17 |
| Lead | 12 | 1.73 | 0.01 | 0.89 | 0.67 | 0.88 | 1.26 |
| Nickel | 12 | 212.82 | 3.34 | 53.78 | 34.71 | 72.76 | 60.24 |
| Zinc | 12 | 0.01 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 11 | 266 | 82 | 159 | 121 | 147 | 234 |
| Tot-Hardness | 11 | 438 | 126 | 293 | 222 | 293 | 411 |
| Na% | 11 | 70 | 42 | 56 | 55 | 59 | 54 |
| RSC (-) | 11 | 2.14 | -2.87 | -1.2 | -1.05 | -0.73 | -1.92 |
| SAR (-) | 11 | 6.25 | 2.05 | 4.8 | 4.18 | 5.47 | 5.10 |
| **PESTICIDES** | | | | | | | |

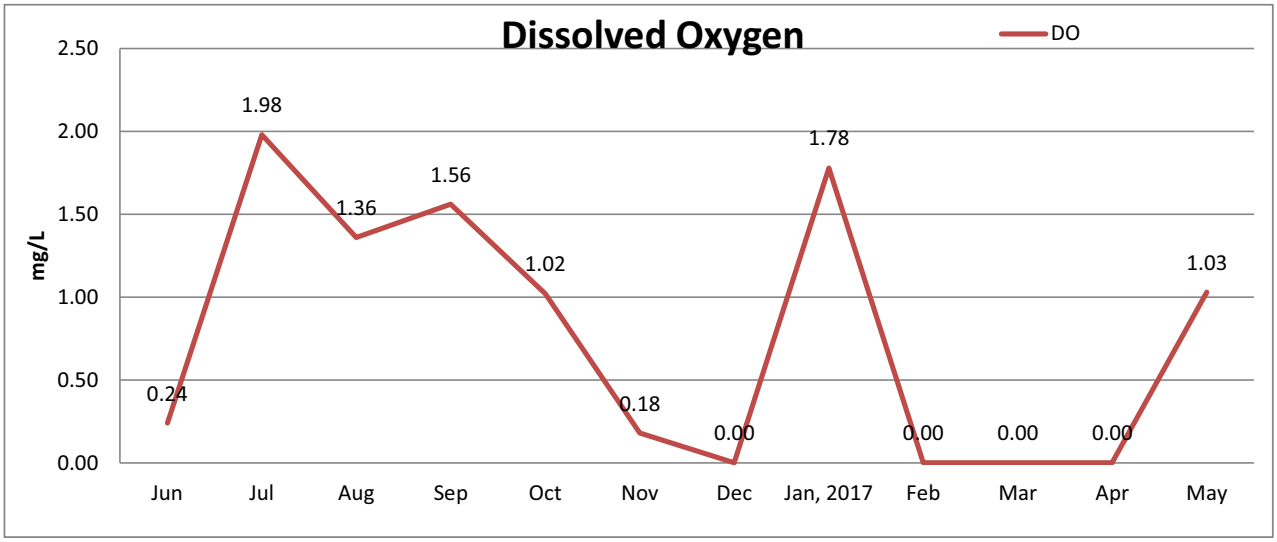
## Graphical Presentation of MATHURA 3rd 10 Days WQ Site

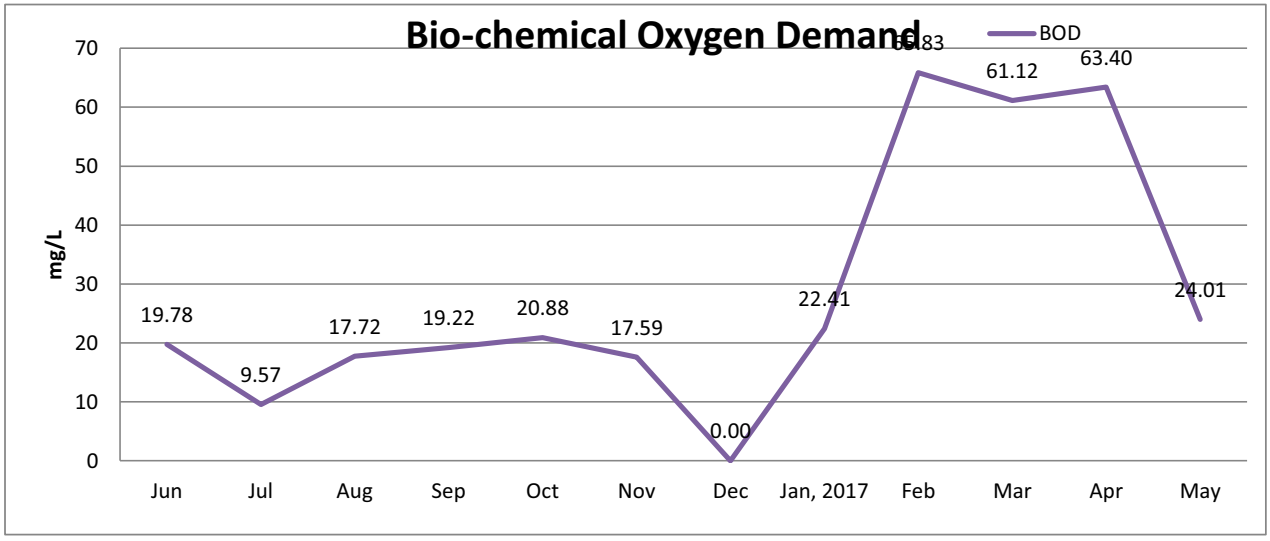


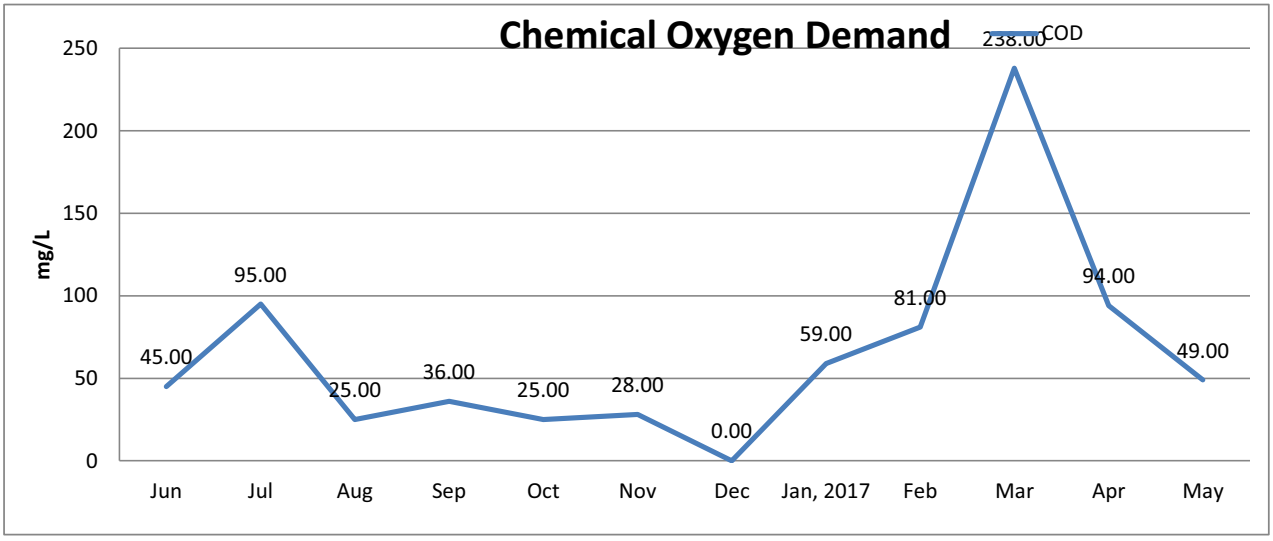



## Graphical Presentation of MATHURA 3rd 10 Days WQ Site



# GALETA

## General Particulars

| | | | |
|---|---|---|---|
| Site | : ***Galeta*** | Code | : **GYS00N3** |
| State | : **Uttar Pradesh** | District | : **Meerut** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Division | : **U.Y.D. New Delhi** | Sub-Division | : **L.Y.SD, New Delhi** |
| Tributary | : **Yamuna** | Sub Tributary | : **Hindan** |
| Sub-Sub-Trib. | : **-** | Local River | : **Hindan** |
| Drainage Area | : **4841 Sq. Km.** | | |
| Latitude | : **29°04'32"N** | Longitude | : **77°28'12"E** |
| Zero of Gauge | : **209 (m.s.l.)** | Bank | : **Right** |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **23/10/1970** |
| Discharge: | : **23/10/1970** |
| Sediment | : **-** |
| Water Quality | : **01/12/1976** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : GALETA** **Division : UYD, New Delhi**

**Local River : HINDON**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 04/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 03/04/17 | 02/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | | | Clear | | | | | | | |
| 2 | Colour_Cod (-) | | L. Black | | | | | | | | | | | |
| 3 | Odour_Code (-) | | Rotten Egg | | | | | | | | | | | |
| 4 | Temperature | °C | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | pH_GEN (pH units) | | 7.95 | 7.65 | 7.67 | 7.98 | 7.83 | 7.68 | 7.54 | 7.64 | 7.42 | 7.62 | 8.09 | 7.94 |
| 6 | EC_GEN (µmho/cm) | NTU | 2059 | 1295 | 840 | 1171 | 1123 | 1750 | 1617 | 1452 | 768 | 1191 | 1909 | 1420 |
| 7 | Total Dissolved Solids | mg/L | 1235 | 777 | 468 | 703 | 674 | 1050 | 970 | 944 | 499 | 774 | 1241 | 923 |
| 8 | Turbiidity | | 42 | 43.2 | 72.5 | 116 | 117 | 114 | 91.8 | 111 | 87.6 | 128 | 193 | 83.6 |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | Alk-Tot (as $CaCO_3$) | | 674.21 | 373.76 | 325.01 | 334.25 | 342.81 | 497.62 | 622.77 | 534.77 | 178.97 | 133.44 | 658.14 | 503.25 |
| 11 | Boron | | 0.22 | 0.26 | | 0.07 | 0.67 | BDL | 0.46 | 0.29 | 0.33 | 0.42 | 0.48 | 0.44 |
| 12 | Calcium | | 96.94 | 66.69 | 45.62 | 53.24 | 78.54 | 101.39 | 82.14 | 89.38 | 47.50 | 51.50 | 109.93 | 87.62 |
| 13 | Chloride | | 199.16 | 136.34 | 52.54 | 143.01 | 82.36 | 238.56 | 111.51 | 95.53 | 115.38 | 260.20 | 181.16 | 129.22 |
| 14 | Carbonate | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | Fluoride | | 0.57 | 0.60 | 0.35 | 0.43 | 0.36 | 0.44 | 0.43 | 0.35 | 0.31 | 0.40 | 0.55 | 0.47 |
| 16 | Bicarbonate | | 809.05 | 448.51 | 390.01 | 401.09 | 411.37 | 597.15 | 747.32 | 641.72 | 214.76 | 160.13 | 789.77 | 603.90 |
| 17 | Potassium | | 122.05 | 66.74 | 34.40 | 67.10 | 19.05 | 67.98 | 67.70 | 68.50 | 15.01 | 38.35 | 43.40 | 43.00 |
| 18 | Magnesium | | 67.67 | 36.02 | 27.85 | 25.62 | 41.52 | 51.52 | 47.16 | 42.32 | 25.60 | 40.72 | 55.47 | 52.21 |
| 19 | Sodium | | 163.90 | 103.46 | 59.80 | 129.75 | 93.98 | 160.78 | 171.58 | 118.18 | 50.32 | 105.93 | 161.80 | 125.48 |
| 20 | Ammonia as N | | 19.80 | 17.00 | 6.12 | 6.74 | 7.82 | 15.50 | 8.60 | 21.70 | 9.53 | 11.50 | 37.70 | 0.02 |
| 21 | $NO_2$+$NO_3$ as N | | 6.14 | 1.04 | 0.54 | 0.96 | 16.42 | 3.58 | 2.92 | 6.37 | 0.50 | 2.14 | 3.51 | 43.46 |
| 22 | Nitrite as N | | 0.85 | 0.17 | 0.19 | 0.25 | 0.21 | 0.46 | 0.83 | 0.40 | 0.05 | 0.12 | 0.66 | 0.06 |
| 23 | Nitrate as N | | 5.28 | 0.87 | 0.35 | 0.71 | 16.21 | 3.12 | 2.09 | 5.96 | 0.45 | 2.02 | 2.85 | 43.40 |
| 24 | Tot. Phosphate as P | | 8.93 | 7.02 | 6.39 | 0.32 | 4.56 | 6.63 | 2.69 | 0.24 | 0.59 | 3.48 | 4.32 | 3.95 |
| 25 | Silicate as $SiO_2$ | | - | - | - | - | - | - | - | - | - | - | - | - |
| 26 | Sulphate as $SO_4$ | | 15.60 | 57.20 | 9.60 | 14.40 | 50.92 | 4.80 | 75.00 | 53.35 | 35.19 | 48.00 | 2.11 | 42.40 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 44.67 | 42.76 | 31.46 | 56.14 | 70.88 | 60.60 | 63.28 | 64.45 | 62.02 | 60.42 | 60.99 | 70.49 |
| 28 | COD | | 124.00 | 119.00 | 80.00 | 128.00 | 153.00 | 160.00 | 180.00 | 148.00 | 80.00 | 119.00 | 96.00 | 119.00 |
| 29 | Dissolved Oxygen | | 0.00 | 0.00 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | DO_SAT % | % | - | - | - | - | - | - | - | - | - | - | - | - |
| 31 | Tota Coliform | MPN/100 ml | 700000 | 16000000 | 110000 | 700000 | 2200000 | 2200000 | 2800000 | 2800000 | 9200000 | 16000000 | 9200000 | 160000000 |
| 32 | Fecal Coliform | | 260000 | 320000 | 2600 | 170000 | 330000 | 220000 | 220000 | 270000 | 320000 | 470000 | 400000 | 4700000 |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | 3.720 | 2.620 | 0.510 | 2.070 | 0.930 | 1.030 | 1.760 | 0.490 | 0.750 | 0.350 | 2.030 | 7.080 |
| 35 | Cadmium | | 0.064 | 0.013 | 0.064 | 0.100 | 0.160 | 0.033 | 0.023 | 0.034 | 0.048 | 0.174 | 0.311 | 1.058 |
| 36 | Chromium | | 38.630 | 28.430 | 5.390 | 15.750 | 6.130 | 0.270 | 0.360 | 0.710 | 3.280 | 6.070 | 4.500 | 38.760 |
| 37 | Copper | | 13.920 | 0.120 | 2.070 | 15.100 | 12.650 | 1.290 | 2.430 | 4.750 | 5.860 | 32.790 | 0.240 | 19.220 |
| 38 | Iron | mg/l | 0.338 | 0.211 | 0.132 | 0.488 | 0.985 | 0.065 | 0.060 | 0.101 | 0.378 | 0.257 | 0.811 | 0.157 |
| 39 | Lead | µg/L | 6.420 | 0.060 | 0.280 | 1.790 | 0.310 | 0.080 | 1.270 | 3.110 | 0.590 | 1.130 | 7.490 | 0.860 |
| 40 | Nickel | | 13.830 | 4.360 | 12.000 | 32.850 | 16.080 | 3.400 | 3.800 | 26.750 | 1.490 | 694.520 | 21.980 | 5.500 |
| 41 | Zinc | mg/l | 0.047 | 0.061 | 0.032 | 0.058 | 0.209 | 0.007 | 0.011 | 0.005 | 0.036 | 0.041 | 0.156 | 0.019 |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 242 | 167 | 114 | 133 | 196 | 253 | 205 | 223 | 119 | 129 | 275 | 219 |
| 43 | Tot-Hardness | | 525 | 317 | 230 | 240 | 369 | 468 | 402 | 400 | 226 | 299 | 506 | 437 |
| 44 | Na% | % | 34.36 | 35.86 | 32.16 | 46.40 | 34.16 | 38.63 | 43.29 | 34.51 | 30.90 | 39.85 | 38.51 | 35.68 |
| 45 | RSC (-) | | 2.78 | 1.02 | 1.79 | 1.78 | -0.64 | 0.43 | 4.21 | 2.52 | -0.99 | -3.34 | 2.83 | 1.17 |
| 46 | SAR (-) | | 3.11 | 2.53 | 1.71 | 3.64 | 2.13 | 3.23 | 3.72 | 2.57 | 1.46 | 2.67 | 3.13 | 2.61 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

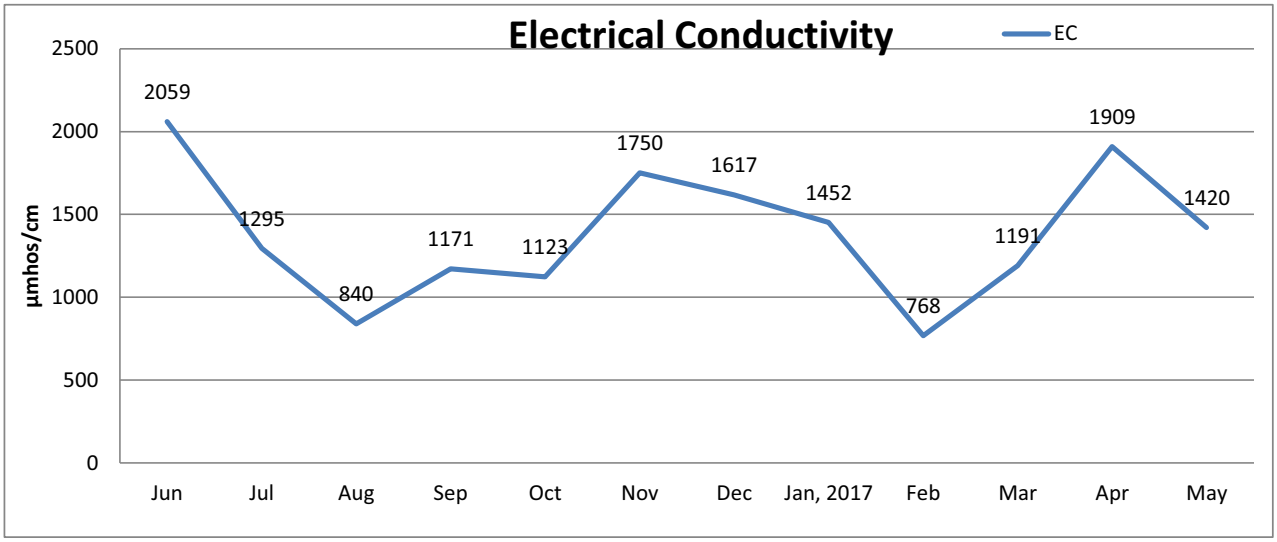
# RIVER WATER SUMMARY - 2016-2017

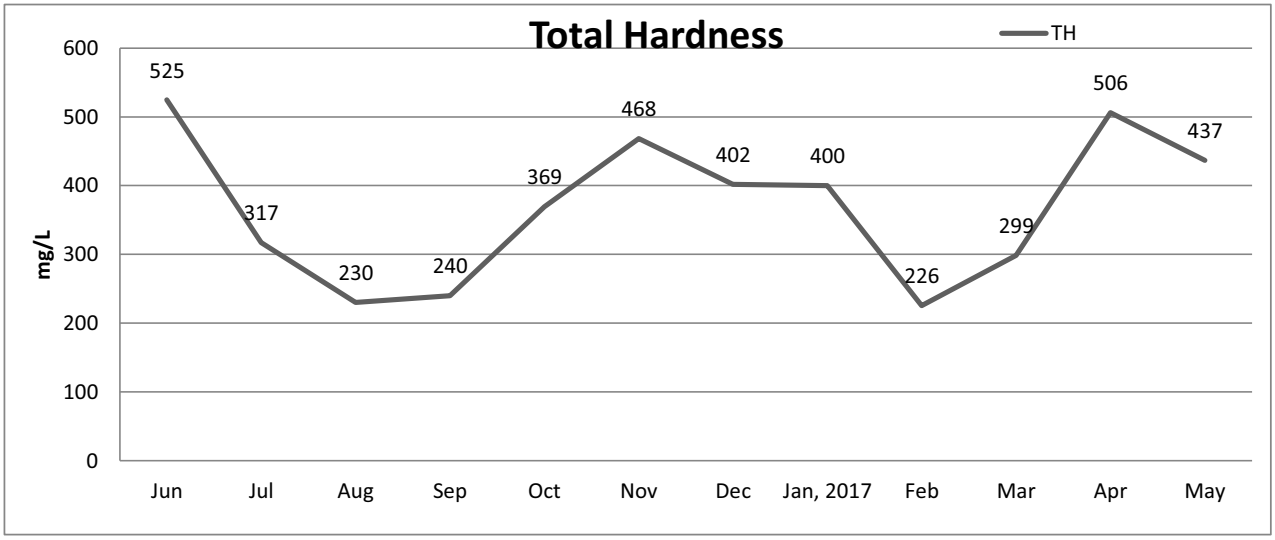
**Station Name : GALETA** **Division : UYD, New Delhi**

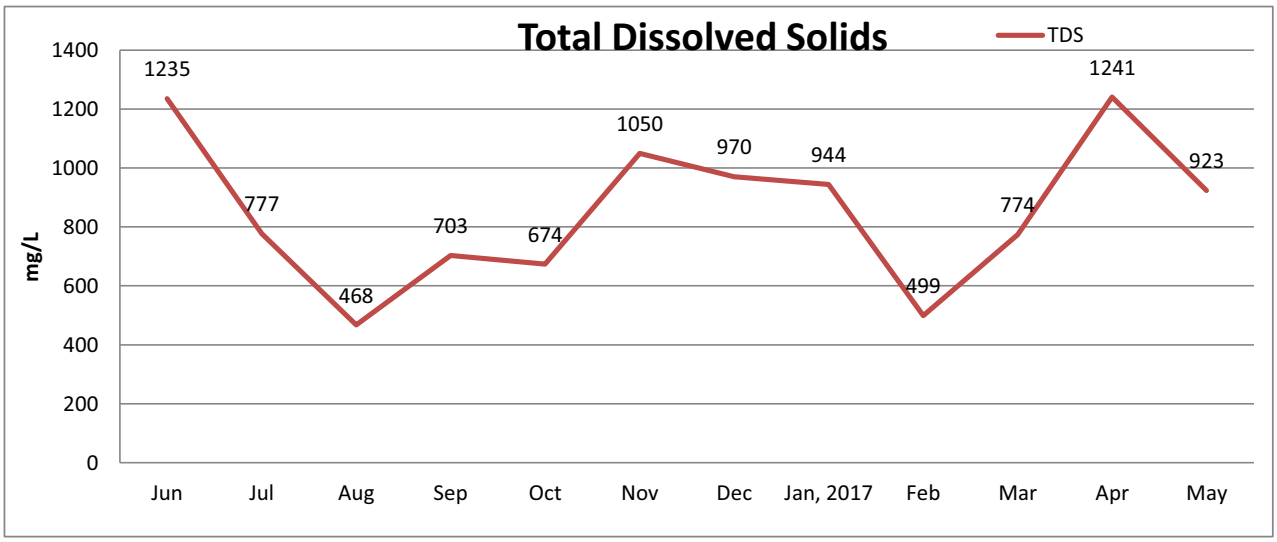
**Local River : HINDON**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 12 | 8.09 | 7.42 | 7.75 | 7.71 | 8.09 | 8.02 |
| EC_GEN (µmho/cm) | 12 | 2059 | 768 | 1383 | 1298 | 1397 | 1507 |
| Total Dissolved Solids | 12 | 1241 | 468 | 855 | 771 | 866 | 979 |
| Turbiidity | 12 | 193.0 | 42.0 | 100.0 | 78.1 | 101.1 | 134.9 |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 12 | 674.21 | 133.44 | 431.6 | 410.01 | 458.53 | 431.61 |
| Boron | 10 | 0.67 | 0.07 | 0.4 | 0.31 | 0.36 | 0.45 |
| Calcium | 12 | 109.93 | 45.62 | 75.9 | 68.20 | 80.10 | 83.02 |
| Chloride | 12 | 260.20 | 52.54 | 145.4 | 122.68 | 140.24 | 190.19 |
| Carbonate | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| Fluoride | 12 | 0.60 | 0.31 | 0.4 | 0.46 | 0.38 | 0.47 |
| Bicarbonate | 12 | 809.05 | 160.13 | 517.9 | 492.01 | 550.24 | 517.93 |
| Potassium | 12 | 122.05 | 15.01 | 54.4 | 61.87 | 54.80 | 41.58 |
| Magnesium | 12 | 67.67 | 25.60 | 42.8 | 39.73 | 41.65 | 49.47 |
| Sodium | 12 | 171.58 | 50.32 | 120.4 | 110.18 | 125.21 | 131.07 |
| Ammonia as N | 12 | 37.70 | 0.02 | 13.5 | 11.50 | 13.83 | 16.41 |
| $NO_2$+$NO_3$ as N | 12 | 43.46 | 0.50 | 7.3 | 5.02 | 3.34 | 16.37 |
| Nitrite as N | 12 | 0.85 | 0.05 | 0.4 | 0.33 | 0.44 | 0.28 |
| Nitrate as N | 12 | 43.40 | 0.35 | 6.9 | 4.69 | 2.90 | 16.09 |
| Tot. Phosphate as P | 12 | 8.93 | 0.24 | 4.1 | 5.44 | 2.54 | 3.92 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 75.00 | 2.11 | 34.0 | 29.54 | 42.08 | 30.84 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 70.9 | 31.5 | 57.3 | 49.2 | 62.6 | 64.0 |
| COD | 12 | 180.0 | 80.0 | 125.5 | 120.8 | 142.0 | 111.3 |
| Dissolved Oxygen | 12 | 0.15 | 0.00 | 0.01 | 0.03 | 0.0 | 0.0 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 12 | 160000000 | 110000 | 18492500 | 3942000 | 4250000 | 61733333 |
| Fecal Coliform | 12 | 4700000 | 2600 | 640217 | 216520 | 257500 | 1856667 |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 12 | 7.08 | 0.35 | 1.95 | 1.97 | 1.01 | 3.15 |
| Cadmium | 12 | 1.06 | 0.01 | 0.17 | 0.08 | 0.03 | 0.51 |
| Chromium | 12 | 38.76 | 0.27 | 12.36 | 18.87 | 1.16 | 16.44 |
| Copper | 12 | 32.79 | 0.12 | 9.20 | 8.77 | 3.58 | 17.42 |
| Iron | 12 | 0.99 | 0.06 | 0.33 | 0.31 | 0.81 | 0.48 |
| Lead | 12 | 7.49 | 0.06 | 1.95 | 1.77 | 1.26 | 3.16 |
| Nickel | 12 | 694.52 | 1.49 | 69.71 | 15.82 | 8.86 | 240.67 |
| Zinc | 12 | 0.21 | 0.01 | 0.06 | 0.08 | 0.01 | 0.07 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 275 | 114 | 190 | 171 | 200 | 208 |
| Tot-Hardness | 12 | 525 | 226 | 368 | 336 | 374 | 414 |
| Na% | 12 | 46 | 31 | 37 | 37 | 37 | 38 |
| RSC (-) | 12 | 4.21 | -3.34 | 1.1 | 1.34 | 1.54 | 0.22 |
| SAR (-) | 12 | 3.72 | 1.46 | 2.7 | 2.62 | 2.74 | 2.80 |
| **PESTICIDES** | | | | | | | |

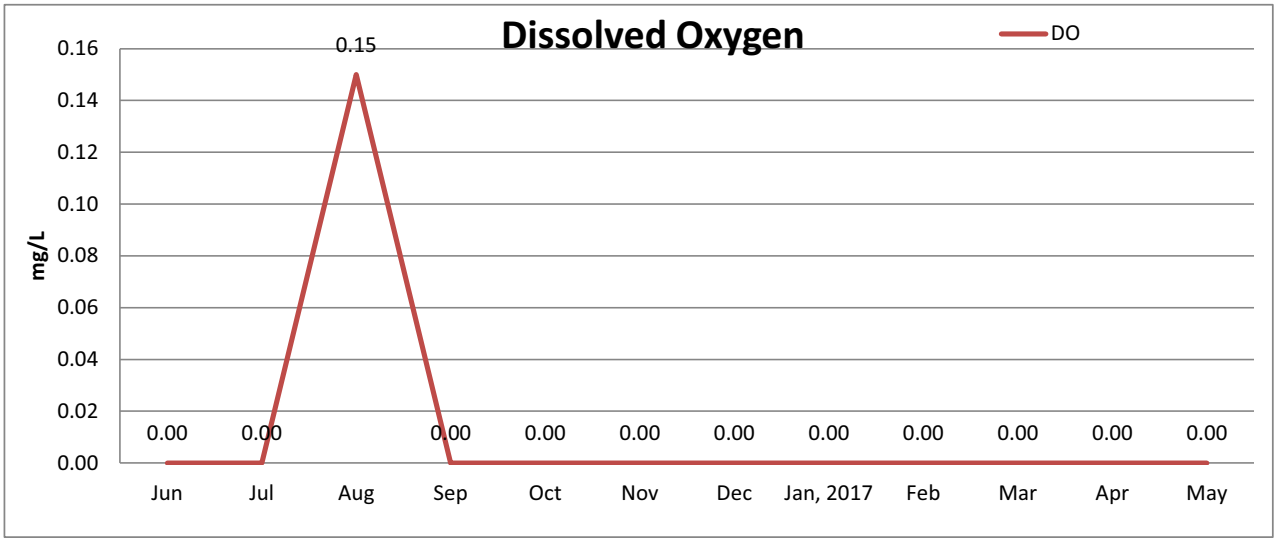
**Graphical Presentation of GALETA WQ Site**

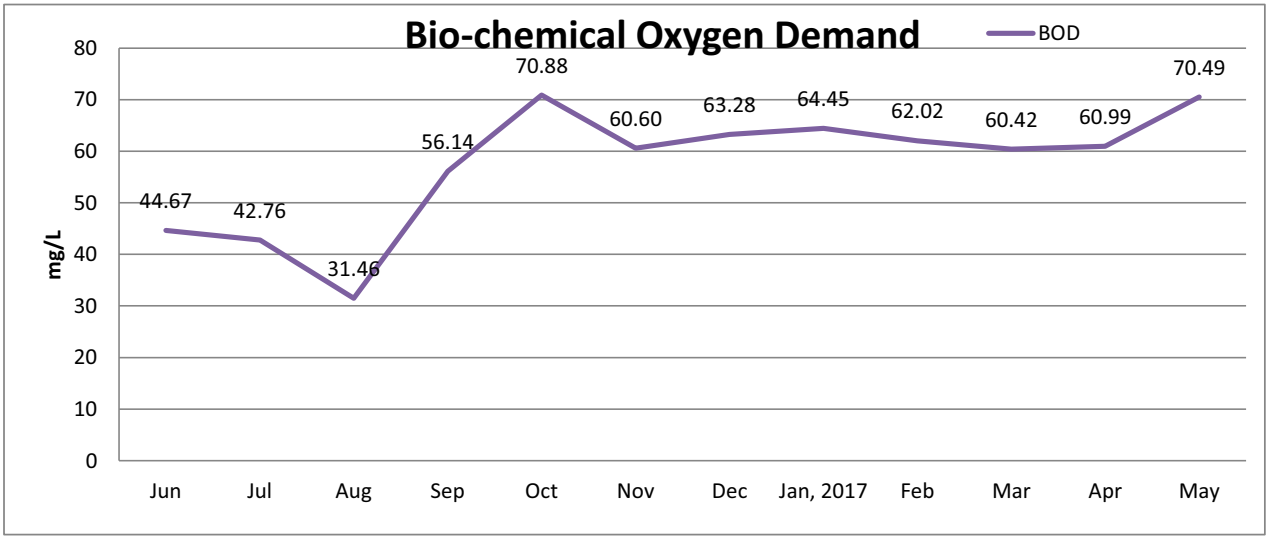


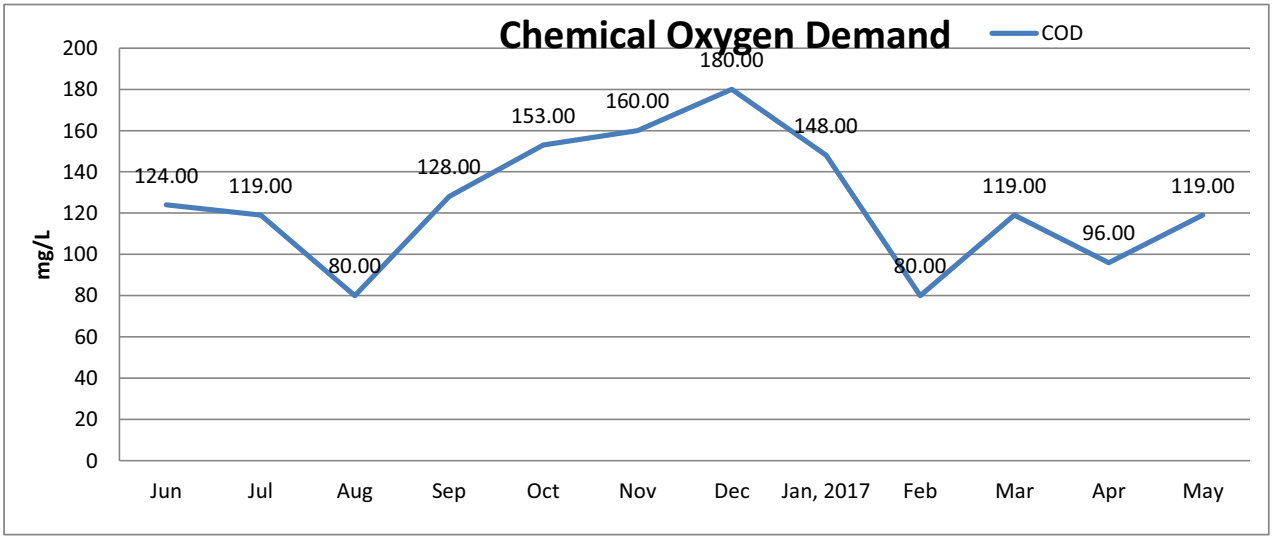



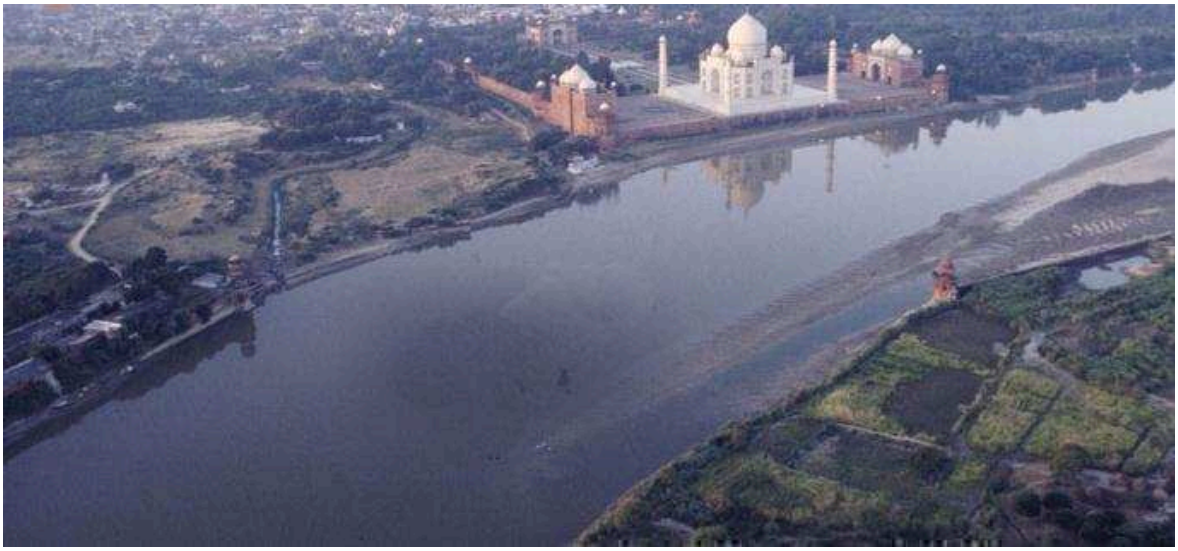
**Graphical Presentation of GALETA WQ Site**



# RIVER WATER QUALITY DATA
# OF
# LOWER YAMUNA DIVISION



# AGRA

## General Particulars

| | | | |
|---|---|---|---|
| Site | :***AGRA (Poiyaghat***) | Code | **: GY000N7** |
| State | **: Uttar Pradesh** | District | **: Agra** |
| Division | **: L.Y. D., Agra** | Sub-Division | **: LY SD-II Agra** |
| River Basin | **: Ganga-Brahm-Meghna** | Independent River | **: Ganga** |
| Tributary | **: Yamuna** | Sub Tributary | **: -** |
| Drainage Area | **: 49052 Sq. Km.** | Bank | **: Right** |
| Latitude | **: 27°16'00"N** | Longitude | **: 78°02'00" E** |
| Zero of Gauge | **: 146.000(m.s.l)** | | |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **09/01/1976** |
| Discharge: | : **09/01/1976** |
| Sediment | : **13/08/1976** |
| Water Quality | : **01/10/1976** |
| Wireless | : **04/06/1978** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : AGRA** **Division : LYD, Agra**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 02/06/16 | 01/07/16 | 02/08/16 | 02/09/16 | 01/10/16 | 02/11/16 | 02/12/16 | 03/01/17 | 01/02/17 | 02/03/17 | 02/04/17 | 02/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | 75h | 85h | Brown | 85H | 85H | 90H | 9H | Light Brown | | Clear | Clear | Clear |
| 3 | Odour_Code (-) | | Odour free | | | | | | | | | | | |
| 4 | Temperature | °C | 33 | 33 | 31.5 | 32.5 | 31 | 23 | 20 | 16 | 18 | 22 | 27 | 29 |
| 5 | pH_GEN (pH units) | | 9.80 | 8.60 | 6.80 | 7.20 | 9.40 | 8.60 | 8.50 | 8.60 | 8.50 | 7.70 | 8.00 | 8.50 |
| 6 | EC_GEN (µmho/cm) | NTU | 1809 | 2020 | 613 | 793 | 1384 | 1650 | 1590 | 1766 | 1796 | 2040 | 1743 | 1438 |
| 7 | Total Dissolved Solids | mg/L | 1176 | 1313 | 398 | 515 | 900 | 1073 | 1034 | 1148 | 1167 | 1326 | 1133 | 935 |
| 8 | Turbiidity | | - | - | - | - | - | - | - | - | - | - | - | - |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 28.25 | 40.25 | 0.00 | 0.00 | 24.25 | 32.25 | 18.25 | 29.75 | 20.25 | 0.00 | 0.00 | 32.75 |
| 10 | Alk-Tot (as $CaCO_3$) | | 167.33 | 326.33 | 60.83 | 134.17 | 222.67 | 250.33 | 312.33 | 317.83 | 298.00 | 370.83 | 320.00 | 246.33 |
| 11 | Boron | | 0.48 | 0.65 | 0.11 | 0.18 | 0.40 | 0.47 | 0.39 | 0.40 | 0.38 | 0.36 | 0.24 | 0.40 |
| 12 | Calcium | | 32.00 | 24.00 | 45.00 | 35.00 | 22.00 | 51.00 | 51.00 | 66.00 | 69.00 | 64.00 | 61.00 | 64.00 |
| 13 | Chloride | | 359.30 | 386.60 | 80.20 | 116.80 | 231.80 | 264.50 | 257.00 | 289.30 | 320.20 | 358.60 | 285.80 | 247.30 |
| 14 | Carbonate | | 33.90 | 48.30 | 0.00 | 0.00 | 29.10 | 38.70 | 21.90 | 35.70 | 24.30 | 0.00 | 0.00 | 39.30 |
| 15 | Fluoride | | 0.91 | 0.48 | 0.61 | 0.15 | 0.46 | 0.78 | 0.59 | 0.51 | 0.29 | 0.36 | 1.01 | 0.86 |
| 16 | Bicarbonate | | 133.00 | 295.00 | 73.00 | 161.00 | 209.00 | 223.00 | 331.00 | 310.00 | 309.00 | 445.00 | 384.00 | 217.00 |
| 17 | Potassium | | 27.40 | 26.60 | 9.00 | 9.40 | 17.20 | 20.30 | 14.50 | 5.50 | 5.50 | 27.40 | 21.10 | 20.10 |
| 18 | Magnesium | | 58.30 | 81.60 | 13.60 | 28.20 | 62.20 | 53.50 | 53.50 | 47.60 | 49.60 | 61.20 | 49.60 | 40.80 |
| 19 | Sodium | | 279.00 | 278.10 | 56.10 | 81.40 | 170.70 | 194.80 | 275.10 | 221.00 | 222.40 | 255.30 | 184.70 | 192.40 |
| 20 | Ammonia as N | | 0.01 | 0.41 | 3.09 | 2.71 | 1.97 | 7.46 | 5.74 | 9.70 | 11.63 | 16.24 | 9.87 | 4.86 |
| 21 | $NO_2$+$NO_3$ as N | | 1.75 | 2.18 | 1.82 | 1.49 | 2.19 | 1.10 | 2.57 | 0.85 | 0.47 | 0.62 | 1.40 | 2.54 |
| 22 | Nitrite as N | | 0.07 | 0.58 | 1.55 | 1.39 | 0.69 | 0.57 | 0.61 | 0.63 | 0.04 | 0.33 | 0.73 | 0.94 |
| 23 | Nitrate as N | | 1.68 | 1.60 | 0.27 | 0.10 | 1.50 | 0.53 | 1.96 | 0.22 | 0.43 | 0.29 | 0.67 | 1.60 |
| 24 | Tot. Phosphate as P | | 1.26 | 1.38 | 0.42 | 0.24 | 0.86 | 1.44 | 1.72 | 2.80 | 1.02 | 2.68 | 1.62 | 1.56 |
| 25 | Silicate as $SiO_2$ | | - | - | - | - | - | - | - | - | - | - | - | - |
| 26 | Sulphate as $SO_4$ | | 143.00 | 182.90 | 60.60 | 84.00 | 139.90 | 129.90 | 135.90 | 103.90 | 107.90 | 111.90 | 97.90 | 91.90 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 33.00 | 24.00 | 21.00 | 30.00 | 45.00 | 24.00 | 16.50 | 27.00 | 75.00 | 21.00 | 24.00 | 24.50 |
| 28 | COD | | 165.60 | 128.80 | 14.40 | 20.60 | 66.00 | 33.00 | 27.00 | 35.40 | 64.50 | 45.80 | 33.30 | 60.30 |
| 29 | Dissolved Oxygen | | 3.40 | 3.10 | 3.20 | 1.40 | 1.44 | 2.60 | 1.10 | 2.10 | 1.80 | 2.00 | 2.20 | 1.70 |
| 30 | DO_SAT % | % | 131 | 113 | 43 | 19 | 194 | 54 | 45 | 42 | 51 | 23 | 28 | 87 |
| 31 | Tota Coliform | MPN/100 ml | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | Fecal Coliform | | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 8.160 | | | | 1.380 | | | | 1.870 | |
| 35 | Cadmium | | | | 0.089 | | | | 0.035 | | | | 0.232 | |
| 36 | Chromium | | | | 17.240 | | | | 1.410 | | | | 2.710 | |
| 37 | Copper | | | | 3.480 | | | | 3.520 | | | | 12.330 | |
| 38 | Iron | mg/l | | | 0.384 | | | | 0.087 | | | | 0.205 | |
| 39 | Lead | µg/L | | | 0.560 | | | | 1.650 | | | | 0.420 | |
| 40 | Nickel | | | | 3.050 | | | | 5.720 | | | | 30.720 | |
| 41 | Zinc | mg/l | | | 0.011 | | | | 0.015 | | | | 0.013 | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 80 | 60 | 112 | 88 | 56 | 128 | 128 | 164 | 172 | 160 | 152 | 160 |
| 43 | Tot-Hardness | | 323 | 400 | 169 | 205 | 315 | 351 | 351 | 362 | 379 | 415 | 359 | 330 |
| 44 | Na% | % | 63 | 58 | 41 | 45 | 53 | 53 | 62 | 57 | 56 | 55 | 51 | 54 |
| 45 | RSC (-) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 0.00 |
| 46 | SAR (-) | | 6.80 | 6.10 | 1.90 | 2.50 | 4.20 | 4.50 | 6.40 | 5.10 | 5.00 | 5.50 | 4.30 | 4.60 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

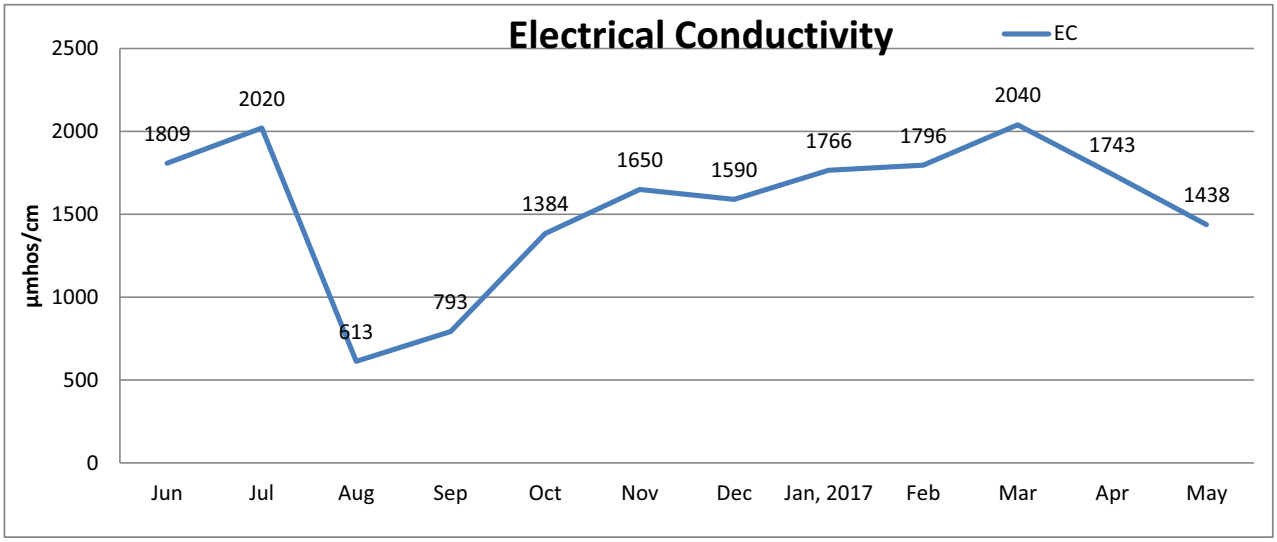
# RIVER WATER SUMMARY - 2016-2017

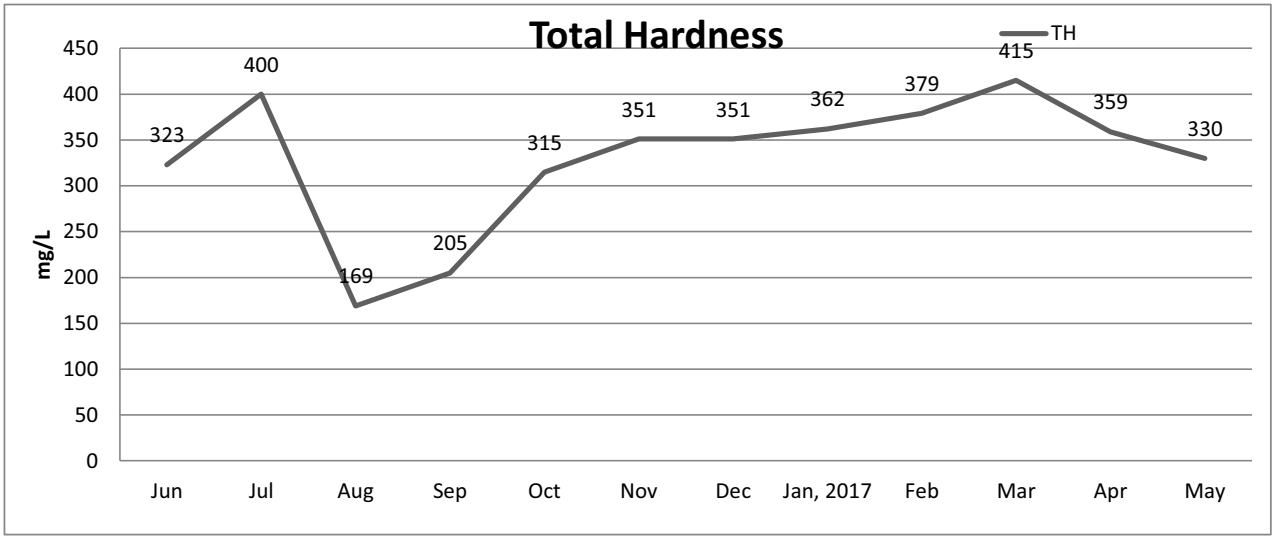
**Station Name : AGRA** **Division : LYD, Agra**

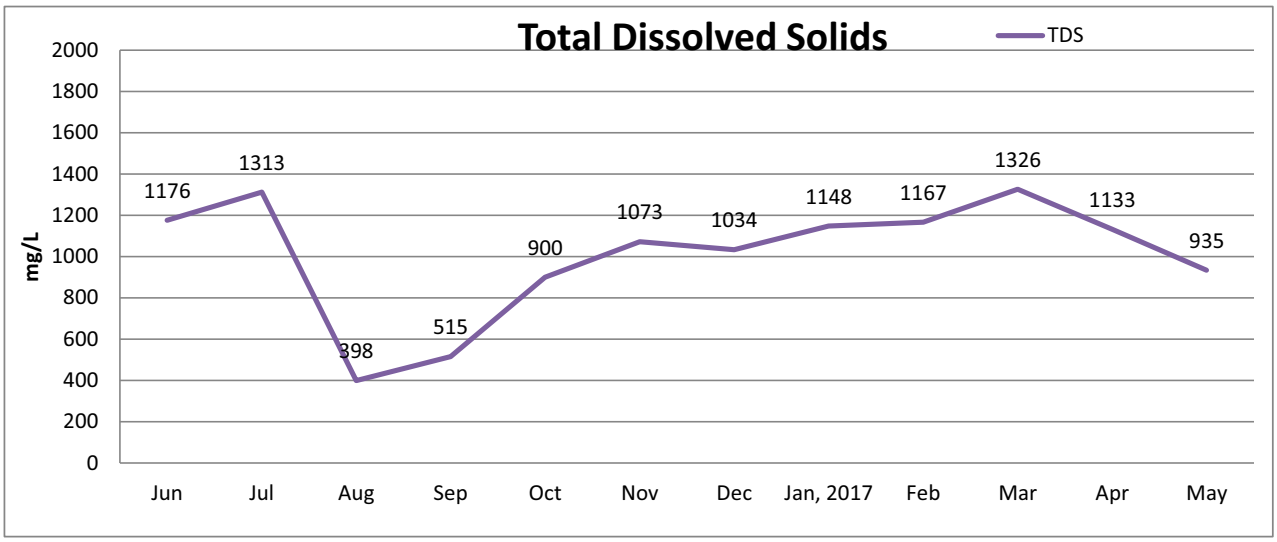
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | - | - | - | - | - | - | - |
| EC_GEN (µmho/cm) | 12 | 2040 | 613 | 1554 | 1324 | 1701 | 1740 |
| Total Dissolved Solids | 12 | 1326 | 398 | 1010 | 860 | 1105 | 1131 |
| Turbiidity | - | - | - | - | - | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 40.25 | 0.00 | 18.8 | 18.55 | 25.13 | 10.92 |
| Alk-Tot (as $CaCO_3$) | 12 | 370.83 | 60.83 | 252.3 | 182.27 | 294.63 | 312.39 |
| Boron | 12 | 0.65 | 0.11 | 0.4 | 0.36 | 0.41 | 0.33 |
| Calcium | 12 | 69.00 | 22.00 | 48.7 | 31.60 | 59.25 | 63.00 |
| Chloride | 12 | 386.60 | 80.20 | 266.5 | 234.94 | 282.75 | 297.23 |
| Carbonate | 12 | 48.30 | 0.00 | 22.6 | 22.26 | 30.15 | 13.10 |
| Fluoride | 12 | 1.01 | 0.15 | 0.6 | 0.52 | 0.54 | 0.74 |
| Bicarbonate | 12 | 445.00 | 73.00 | 257.5 | 174.20 | 293.25 | 348.67 |
| Potassium | 12 | 27.40 | 5.50 | 17.0 | 17.92 | 11.45 | 22.87 |
| Magnesium | 12 | 81.60 | 13.60 | 50.0 | 48.78 | 51.05 | 50.53 |
| Sodium | 12 | 279.00 | 56.10 | 200.9 | 173.06 | 228.33 | 210.80 |
| Ammonia as N | 12 | 16.24 | 0.01 | 6.1 | 1.64 | 8.63 | 10.32 |
| $NO_2$+$NO_3$ as N | 12 | 2.57 | 0.47 | 1.6 | 1.89 | 1.25 | 1.52 |
| Nitrite as N | 12 | 1.55 | 0.04 | 0.7 | 0.86 | 0.46 | 0.67 |
| Nitrate as N | 12 | 1.96 | 0.10 | 0.9 | 1.03 | 0.79 | 0.85 |
| Tot. Phosphate as P | 12 | 2.80 | 0.24 | 1.4 | 0.83 | 1.75 | 1.95 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 182.90 | 60.60 | 115.8 | 122.08 | 119.40 | 100.57 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 75.0 | 16.5 | 30.4 | 30.6 | 35.6 | 23.2 |
| COD | 12 | 165.6 | 14.4 | 57.9 | 79.1 | 40.0 | 46.5 |
| Dissolved Oxygen | 12 | 3.40 | 1.10 | 2.17 | 2.51 | 1.9 | 2.0 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | - | - | - | - | - | - | - |
| Fecal Coliform | - | - | - | - | - | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 3 | 8.16 | 1.38 | 3.80 | 8.16 | 1.4 | 1.9 |
| Cadmium | 3 | 0.23 | 0.04 | 0.12 | 0.09 | 0.0 | 0.2 |
| Chromium | 3 | 17.24 | 1.41 | 7.12 | 17.24 | 1.4 | 2.7 |
| Copper | 3 | 12.33 | 3.48 | 6.44 | 3.48 | 3.5 | 12.3 |
| Iron | 3 | 0.38 | 0.09 | 0.23 | 0.38 | 0.1 | 0.2 |
| Lead | 3 | 1.65 | 0.42 | 0.88 | 0.56 | 1.7 | 0.4 |
| Nickel | 3 | 30.72 | 3.05 | 13.16 | 3.05 | 5.7 | 30.7 |
| Zinc | 3 | 0.02 | 0.01 | 0.01 | 0.01 | 0.0 | 0.0 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 172 | 56 | 122 | 79 | 148 | 157 |
| Tot-Hardness | 12 | 415 | 169 | 330 | 282 | 361 | 368 |
| Na% | 12 | 63 | 41 | 54 | 52 | 57 | 53 |
| RSC (-) | 12 | 0.50 | 0.00 | 0.0 | 0.00 | 0.00 | 0.17 |
| SAR (-) | 12 | 6.80 | 1.90 | 4.7 | 4.30 | 5.25 | 4.80 |
| **PESTICIDES** | | | | | | | |

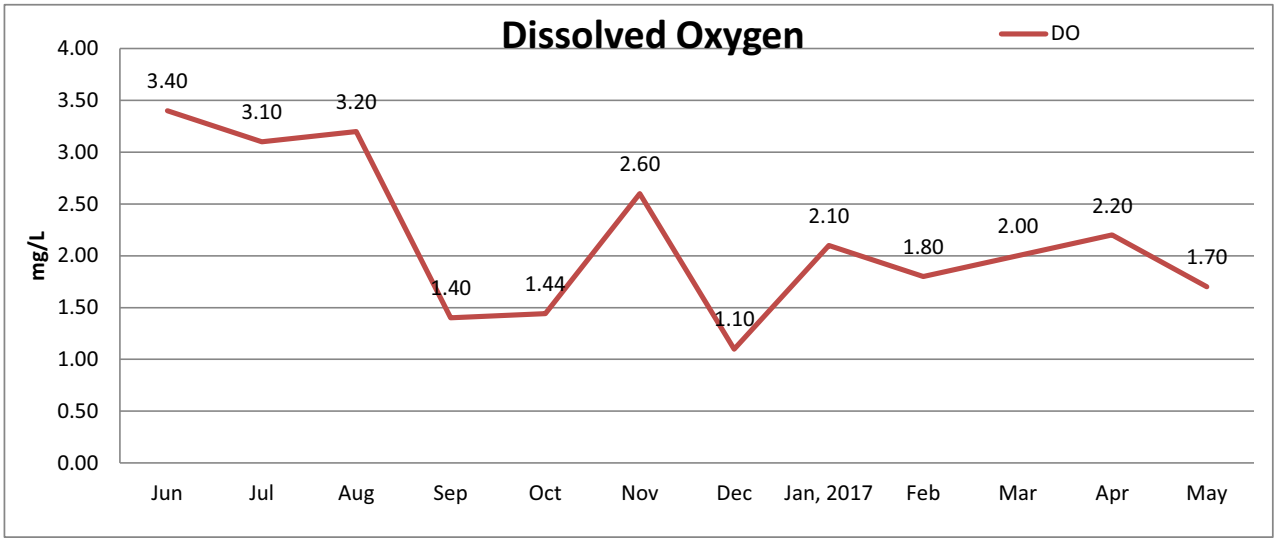
**Graphical Presentation of AGRA WQ Site**

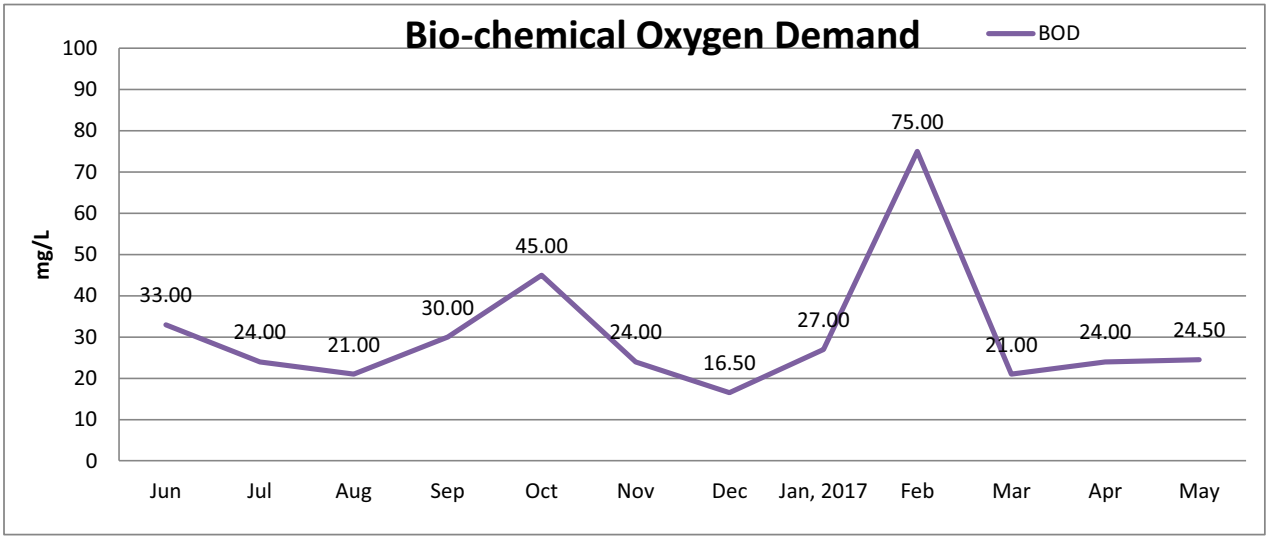


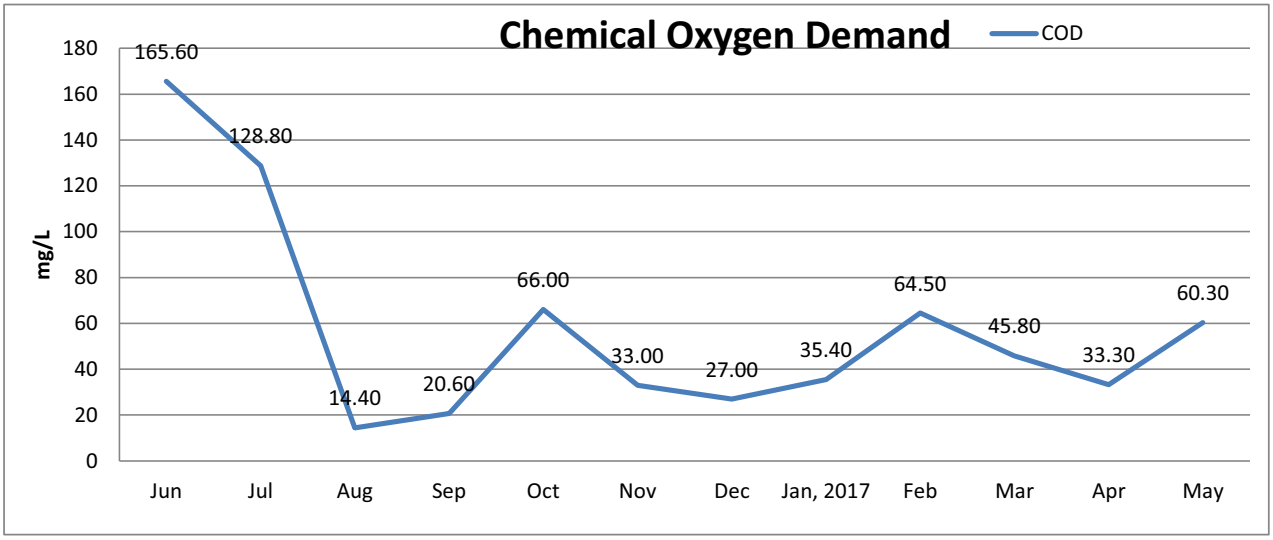



**Graphical Presentation of AGRA WQ Site**



# ETAWAH

## General Particulars

| | | | |
|---|---|---|---|
| Site | :***ETAWAH*** | Code | : **GY000J7** |
| State | : **Uttar Pradesh** | District | : **Etawah** |
| Division | : **L.Y. D., Agra** | Sub-Division | : **LY SD-II Agra** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **-** |
| Sub-Sub-Trib. | : **-** | Local River | : **Yamuna** |
| Drainage Area | : **98715 Sq. Km.** | Bank | : **Right** |
| Latitude | : **26°45'00"N** | Longitude | : **78°59'00" E** |
| Zero of Gauge | : **114.000(m.s.l)** | | |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **01/05/1959** |
| Discharge: | : **01/05/1959** |
| Sediment | : **11/09/1961** |
| Water Quality | : **01/01/1972** |
| Wireless | : **28/10/1977** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : ETAWAH** **Division : LYD, Agra**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 01/10/16 | 01/11/16 | 01/12/16 | 01/02/17 | 01/04/17 | 02/01/17 | 01/03/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | 50h | Clear | Clear | Clear | Clear | Clear | Clear | Clear | L.Green | Clear | Clear | Clear |
| 3 | Odour_Code (-) | | odour free | | | | | | | | | | | |
| 4 | Temperature | °C | 25.5 | 26 | 27.5 | 28 | 30 | 21 | 19 | 13.5 | 25 | 15 | 19.5 | 27.5 |
| 5 | pH_GEN (pH units) | | 10.20 | 8.80 | 7.10 | 7.30 | 8.60 | 8.10 | 8.90 | 7.60 | 8.30 | 8.60 | 7.60 | 9.00 |
| 6 | EC_GEN (µmho/cm) | NTU | 1949 | 1611 | 714 | 690 | 1500 | 1615 | 1492 | 1055 | 1440 | 1475 | 1410 | 1764 |
| 7 | Total Dissolved Solids | mg/L | 1267 | 1047 | 464 | 449 | 975 | 1050 | 970 | 686 | 936 | 959 | 917 | 1147 |
| 8 | Turbiidity | | - | - | - | - | - | - | - | - | - | - | - | - |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 16 | 20.25 | 0 | 0 | 22.25 | 0 | 26.25 | 0 | 9.25 | 34.25 | 0 | 26 |
| 10 | Alk-Tot (as $CaCO_3$) | | 261.17 | 192.17 | 64.17 | 106.67 | 256.17 | 160.83 | 238.33 | 130.83 | 252.67 | 217.67 | 172.50 | 249.50 |
| 11 | Boron | | 0.42 | 0.32 | 0.22 | 0.11 | 0.43 | 0.44 | 0.04 | 0.18 | 0.24 | 0.14 | 0.30 | 0.86 |
| 12 | Calcium | | 30.00 | 19.00 | 46.00 | 45.00 | 13.00 | 59.00 | 61.00 | 56.00 | 62.00 | 66.00 | 66.00 | 40.00 |
| 13 | Chloride | | 400.40 | 13.10 | 103.70 | 99.80 | 253.10 | 268.40 | 257.00 | 166.90 | 247.40 | 235.70 | 231.80 | 301.00 |
| 14 | Carbonate | | 19.20 | 24.30 | 0.00 | 0.00 | 26.70 | 0.00 | 31.50 | 0.00 | 11.10 | 41.10 | 0.00 | 31.20 |
| 15 | Fluoride | | 1.12 | 0.36 | 0.65 | 0.08 | 0.36 | 0.53 | 0.34 | 0.42 | 0.51 | 0.38 | 0.19 | 0.82 |
| 16 | Bicarbonate | | 275.00 | 182.00 | 77.00 | 128.00 | 254.00 | 193.00 | 223.00 | 157.00 | 281.00 | 179.00 | 207.00 | 237.00 |
| 17 | Potassium | | 29.70 | 26.20 | 10.90 | 8.20 | 20.30 | 20.30 | 11.70 | 12.50 | 18.00 | 5.90 | 21.50 | 16.50 |
| 18 | Magnesium | | 55.40 | 43.70 | 17.50 | 16.50 | 68.00 | 50.50 | 48.60 | 24.30 | 38.90 | 36.90 | 48.60 | 47.60 |
| 19 | Sodium | | 331.40 | 241.30 | 73.60 | 68.80 | 189.80 | 192.10 | 240.10 | 124.20 | 153.20 | 186.30 | 177.30 | 266.30 |
| 20 | Ammonia as N | | 0.08 | 0.42 | 1.54 | 0.15 | 0.38 | 2.49 | 0.37 | 3.89 | 0.60 | 0.56 | 1.92 | 0.22 |
| 21 | $NO_2$+$NO_3$ as N | | 0.10 | 0.01 | 1.46 | 0.59 | 1.92 | 4.70 | 4.96 | 2.42 | 3.21 | 6.78 | 4.80 | 0.91 |
| 22 | Nitrite as N | | 0.00 | 0.01 | 1.46 | 0.04 | 0.36 | 2.84 | 1.57 | 0.12 | 0.35 | 2.25 | 0.79 | 0.15 |
| 23 | Nitrate as N | | 0.10 | 0.00 | 0.00 | 0.55 | 1.56 | 1.86 | 3.39 | 2.30 | 2.86 | 4.53 | 4.01 | 0.76 |
| 24 | Tot. Phosphate as P | | 0.75 | 0.32 | 0.21 | 0.27 | 0.65 | 0.58 | 1.07 | 1.28 | 1.36 | 1.82 | 1.24 | 0.44 |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | 163.30 | 169.90 | 74.00 | 69.90 | 139.90 | 157.90 | 125.90 | 93.60 | 108.00 | 86.90 | 89.90 | 187.90 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 19.50 | 21.00 | 45.00 | 12.00 | 13.00 | 43.00 | 31.00 | 74.00 | 24.00 | 51.00 | 51.00 | 21.30 |
| 28 | COD | | 47.40 | 110.40 | 35.10 | 26.80 | 37.10 | 47.40 | 39.50 | 43.70 | 39.50 | 52.00 | 56.20 | 74.90 |
| 29 | Dissolved Oxygen | | 3.50 | 2.30 | 2.10 | 3.80 | 2.50 | 2.58 | 3.50 | 3.80 | 2.85 | 3.21 | 3.11 | 2.11 |
| 30 | DO_SAT % | % | 79 | 78 | 52 | 87 | 99 | 67 | 92 | 84 | 61 | 77 | 86 | 85 |
| 31 | Tota Coliform | MPN/100 ml | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | Fecal Coliform | | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 1.090 | | | | 6.460 | | | | 6.290 | |
| 35 | Cadmium | | | | 0.079 | | | | 0.196 | | | | 0.253 | |
| 36 | Chromium | | | | 19.110 | | | | 1.650 | | | | 1.080 | |
| 37 | Copper | | | | 1.900 | | | | 4.080 | | | | 13.090 | |
| 38 | Iron | mg/l | | | 0.114 | | | | 0.069 | | | | 0.239 | |
| 39 | Lead | µg/L | | | 0.490 | | | | 1.370 | | | | 0.520 | |
| 40 | Nickel | | | | 3.190 | | | | 7.270 | | | | 7.550 | |
| 41 | Zinc | mg/l | | | 0.008 | | | | 0.016 | | | | 0.025 | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 76 | 48 | 116 | 112 | 32 | 148 | 152 | 140 | 156 | 164 | 164 | 100 |
| 43 | Tot-Hardness | | 307 | 230 | 189 | 181 | 316 | 359 | 355 | 241 | 318 | 318 | 367 | 298 |
| 44 | Na% | % | 68 | 67 | 44 | 44 | 55 | 52 | 59 | 51 | 50 | 56 | 50 | 65 |
| 45 | RSC (-) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46 | SAR (-) | | 8.30 | 7.00 | 2.30 | 2.20 | 4.70 | 4.40 | 5.60 | 3.50 | 3.80 | 4.60 | 4.00 | 6.70 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

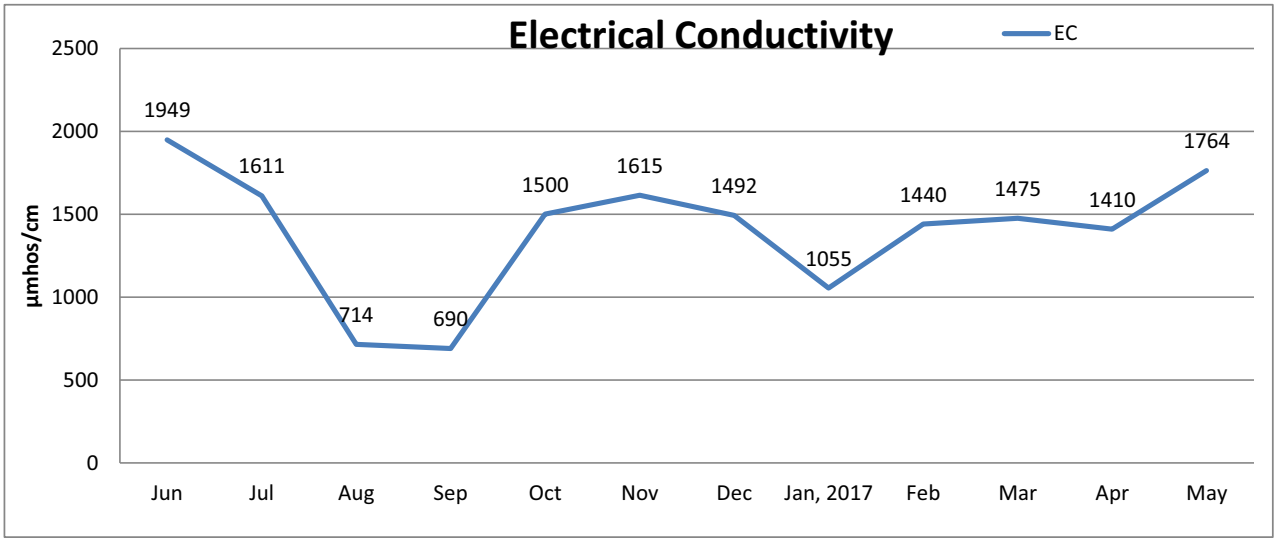
# RIVER WATER SUMMARY - 2016-2017

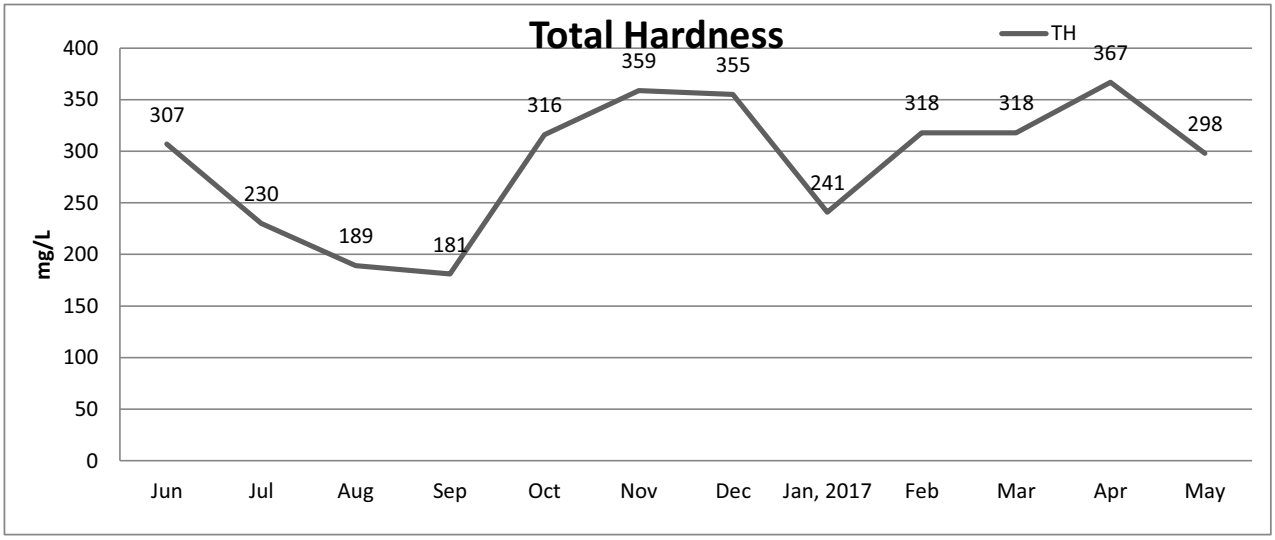
**Station Name : ETAWAH** **Division : LYD, Agra**

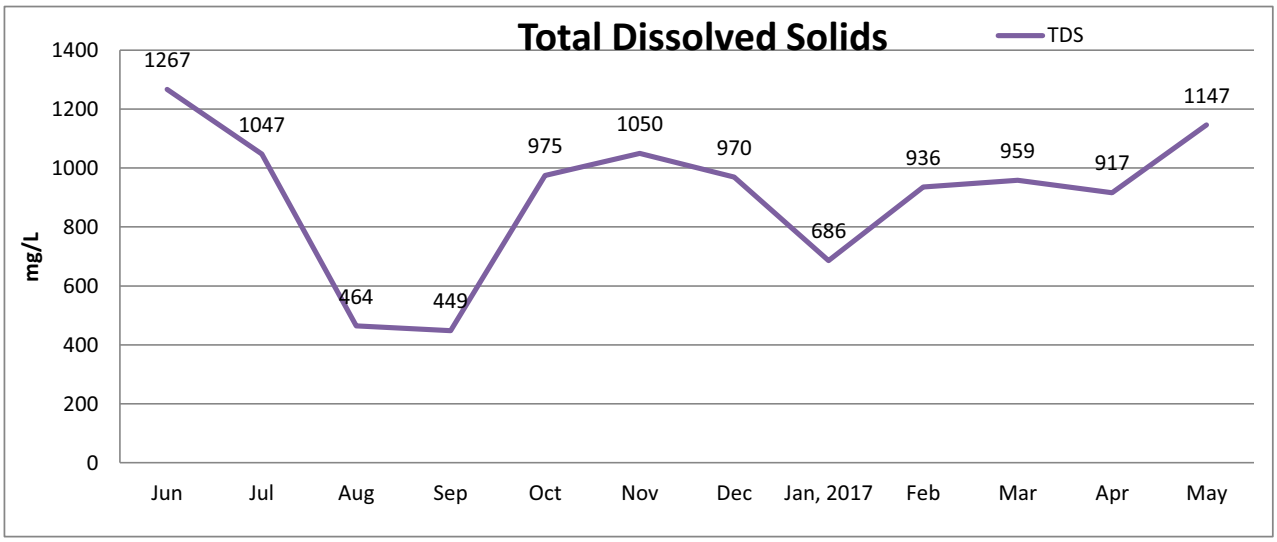
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | 12 | 30 | 14 | 23 | 27 | 20 | 21 |
| pH_GEN (pH units) | - | - | - | - | - | - | - |
| EC_GEN (µmho/cm) | 12 | 1949 | 690 | 1393 | 1293 | 1401 | 1550 |
| Total Dissolved Solids | | | | | | | |
| Turbiidity | - | - | - | - | - | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 34.25 | 0.00 | 12.9 | 11.70 | 8.88 | 20.08 |
| Alk-Tot (as $CaCO_3$) | 12 | 261.17 | 64.17 | 191.9 | 176.07 | 195.67 | 213.22 |
| Boron | 12 | 0.86 | 0.04 | 0.3 | 0.30 | 0.23 | 0.43 |
| Calcium | 12 | 66.00 | 13.00 | 46.9 | 30.60 | 59.50 | 57.33 |
| Chloride | 12 | 400.40 | 13.10 | 214.9 | 174.02 | 234.93 | 256.17 |
| Carbonate | 12 | 41.10 | 0.00 | 15.4 | 14.04 | 10.65 | 24.10 |
| Fluoride | 12 | 1.12 | 0.08 | 0.5 | 0.51 | 0.45 | 0.46 |
| Bicarbonate | 12 | 281.00 | 77.00 | 199.4 | 183.20 | 213.50 | 207.67 |
| Potassium | 12 | 29.70 | 5.90 | 16.8 | 19.06 | 15.63 | 14.63 |
| Magnesium | 12 | 68.00 | 16.50 | 41.4 | 40.22 | 40.58 | 44.37 |
| Sodium | 12 | 331.40 | 68.80 | 187.0 | 180.98 | 177.40 | 209.97 |
| Ammonia as N | 12 | 3.89 | 0.08 | 1.1 | 0.51 | 1.84 | 0.90 |
| $NO_2$+$NO_3$ as N | 12 | 6.78 | 0.01 | 2.7 | 0.82 | 3.82 | 4.16 |
| Nitrite as N | 12 | 2.84 | 0.00 | 0.8 | 0.37 | 1.22 | 1.06 |
| Nitrate as N | 12 | 4.53 | 0.00 | 1.8 | 0.44 | 2.60 | 3.10 |
| Tot. Phosphate as P | 12 | 1.82 | 0.21 | 0.8 | 0.44 | 1.07 | 1.17 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 187.90 | 69.90 | 122.3 | 123.40 | 121.35 | 121.57 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 74.0 | 12.0 | 33.8 | 22.1 | 43.0 | 41.1 |
| COD | 12 | 110.4 | 26.8 | 50.8 | 51.4 | 42.5 | 61.0 |
| Dissolved Oxygen | 12 | 3.80 | 2.10 | 2.95 | 2.84 | 3.2 | 2.8 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | - | - | - | - | - | - | - |
| Fecal Coliform | - | - | - | - | - | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 3 | 6.46 | 1.09 | 4.61 | 1.09 | 6.5 | 6.3 |
| Cadmium | 3 | 0.25 | 0.08 | 0.18 | 0.08 | 0.2 | 0.3 |
| Chromium | 3 | 19.11 | 1.08 | 7.28 | 19.11 | 1.7 | 1.1 |
| Copper | 3 | 13.09 | 1.90 | 6.36 | 1.90 | 4.1 | 13.1 |
| Iron | 3 | 0.24 | 0.07 | 0.14 | 0.11 | 0.1 | 0.2 |
| Lead | 3 | 1.37 | 0.49 | 0.79 | 0.49 | 1.4 | 0.5 |
| Nickel | 3 | 7.55 | 3.19 | 6.00 | 3.19 | 7.3 | 7.6 |
| Zinc | 3 | 0.03 | 0.01 | 0.02 | 0.01 | 0.0 | 0.0 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 164 | 32 | 117 | 77 | 149 | 143 |
| Tot-Hardness | 12 | 367 | 181 | 290 | 245 | 318 | 328 |
| Na% | 12 | 68 | 44 | 55 | 56 | 53 | 57 |
| RSC (-) | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| SAR (-) | 12 | 8.30 | 2.20 | 4.8 | 4.90 | 4.33 | 5.10 |
| **PESTICIDES** | | | | | | | |

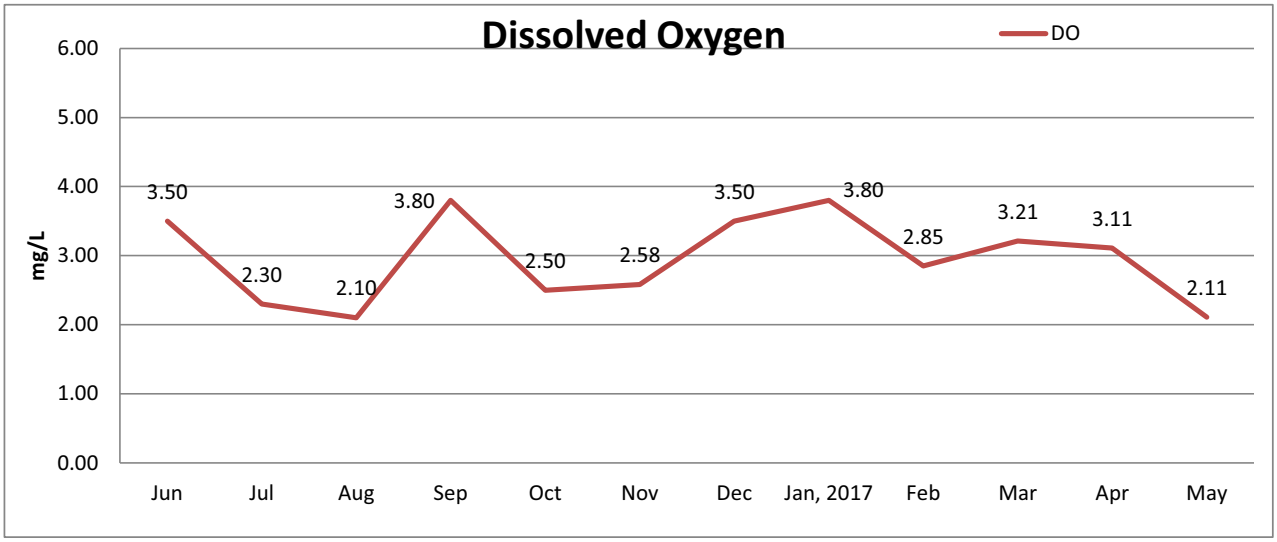
**Graphical Presentation of ETAWAH WQ Site**

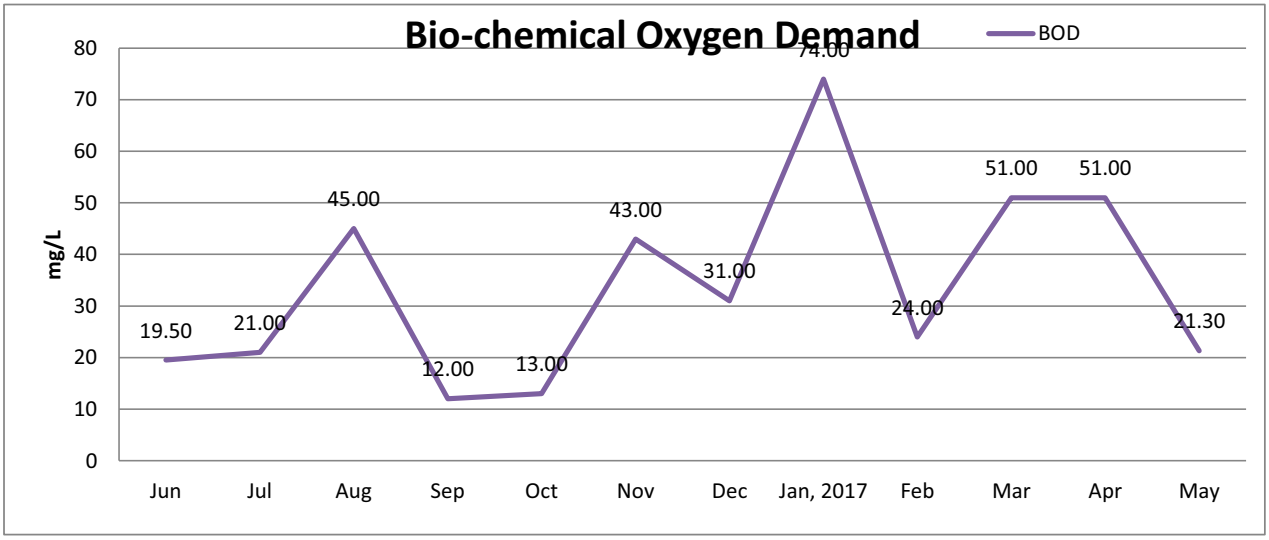


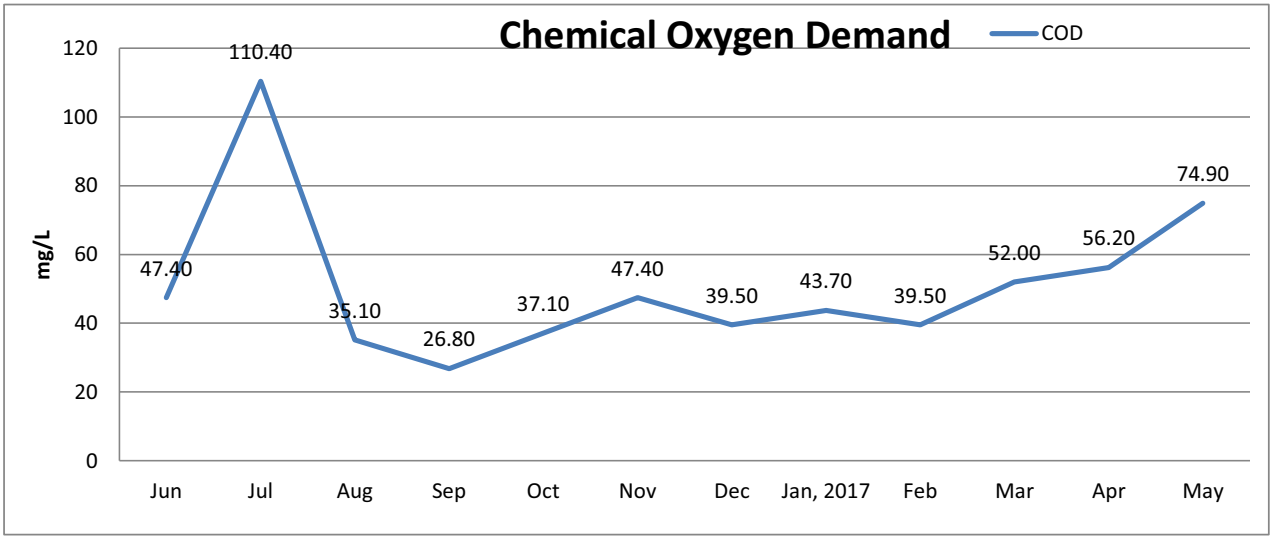



**Graphical Presentation of ETAWAH WQ Site**



# AURAIYA

## General Particulars

| | | | |
|---|---|---|---|
| Site | : ***AURAIYA*** | Code | : **GY000H3** |
| State | : **Uttar Pradesh** | District | : **Auraiya** |
| Division | : **L.Y. D., Agra** | Sub-Division | : **L.Y.SD III, Hamirpur** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **-** |
| Sub-Sub-Trib. | : **-** | Local River | : **Yamuna** |
| Drainage Area | : **261331 Sq. Km.** | Bank | : **Left** |
| Latitude | : **26°26'00"N** | Longitude | : **79°25'00" E** |
| Zero of Gauge | : **99.000(m.s.l)** | | |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **21/02/1976** |
| Discharge: | : **21/02/1976** |
| Sediment | : **20/05/1979** |
| Water Quality | : **01/01/1981** |
| Wireless | : **28/10/1977** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : Auariya** **Division : LYD, Agra**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 01/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 01/04/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | Clear | Light Brown | | Brown | | | | | Light Brown | | | |
| 3 | Odour_Code (-) | | odour free | | | | | | | | | | | |
| 4 | Temperature | °C | 27 | 26 | 25 | 26 | 25 | 24 | 23 | 22 | 20 | 23 | 24 | 25 |
| 5 | pH_GEN (pH units) | | 9.80 | 7.90 | 6.80 | 7.40 | 8.40 | 8.50 | 8.60 | 8.50 | 7.50 | 7.40 | 8.30 | 9.10 |
| 6 | EC_GEN (µmho/cm) | NTU | 1081 | 798 | 312 | 348 | 549 | 815 | 675 | 814 | 693 | 701 | 776 | 1125 |
| 7 | Total Dissolved Solids | mg/L | 703 | 519 | 203 | 226 | 357 | 530 | 439 | 529 | 450 | 456 | 504 | 731 |
| 8 | Turbiidity | | - | - | - | - | - | - | - | - | - | - | - | - |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 36.25 | 0 | 0 | 0 | 20.25 | 23.75 | 16 | 18.25 | 0 | 0 | 11.75 | 33.5 |
| 10 | Alk-Tot (as $CaCO_3$) | | 220.00 | 130.83 | 54.17 | 93.33 | 138.83 | 162.50 | 178.67 | 194.83 | 132.50 | 135.83 | 197.67 | 230.33 |
| 11 | Boron | | 0.40 | 0.12 | 0.11 | 0.25 | 0.25 | 0.25 | 0.26 | 0.23 | 0.26 | 0.20 | 0.10 | 0.32 |
| 12 | Calcium | | 18.00 | 18.00 | 34.00 | 30.00 | 11.00 | 43.00 | 35.00 | 40.00 | 43.00 | 45.00 | 42.00 | 27.00 |
| 13 | Chloride | | 162.20 | 107.60 | 27.30 | 27.00 | 59.30 | 109.30 | 74.90 | 86.30 | 74.90 | 72.80 | 90.20 | 182.10 |
| 14 | Carbonate | | 43.50 | 0.00 | 0.00 | 0.00 | 24.30 | 28.50 | 19.20 | 21.90 | 0.00 | 0.00 | 14.10 | 40.20 |
| 15 | Fluoride | | 0.70 | 0.38 | 0.46 | 0.21 | 0.21 | 0.25 | 0.30 | 0.25 | 0.40 | 0.29 | 0.44 | 1.05 |
| 16 | Bicarbonate | | 177.00 | 157.00 | 65.00 | 112.00 | 118.00 | 138.00 | 176.00 | 190.00 | 159.00 | 163.00 | 209.00 | 196.00 |
| 17 | Potassium | | 14.10 | 10.60 | 4.70 | 3.50 | 5.10 | 8.60 | 3.50 | 1.20 | 5.10 | 7.00 | 7.40 | 15.80 |
| 18 | Magnesium | | 43.70 | 33.00 | 8.70 | 12.60 | 37.90 | 24.30 | 29.20 | 29.20 | 24.30 | 20.40 | 26.20 | 40.80 |
| 19 | Sodium | | 171.80 | 95.20 | 22.80 | 23.70 | 49.20 | 87.90 | 72.70 | 86.30 | 67.40 | 75.20 | 88.30 | 168.20 |
| 20 | Ammonia as N | | 0.01 | 0.37 | 0.00 | 0.17 | 0.08 | 0.07 | 0.14 | 0.37 | 0.88 | 0.25 | 0.10 | 0.14 |
| 21 | $NO_2$+$NO_3$ as N | | 0.03 | 0.34 | 1.08 | 0.77 | 1.05 | 1.97 | 1.48 | 1.55 | 1.41 | 1.75 | 1.04 | 0.73 |
| 22 | Nitrite as N | | 0.00 | 0.07 | 0.06 | 0.01 | 0.04 | 0.18 | 0.18 | 0.33 | 0.06 | 0.39 | 0.06 | 0.11 |
| 23 | Nitrate as N | | 0.03 | 0.27 | 1.02 | 0.76 | 1.01 | 1.79 | 1.30 | 1.22 | 1.35 | 1.36 | 0.98 | 0.62 |
| 24 | Tot. Phosphate as P | | 0.24 | 0.22 | 0.00 | 0.06 | 0.07 | 0.32 | 0.18 | 0.32 | 0.40 | 0.30 | 0.44 | 0.24 |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | 99.90 | 115.70 | 26.00 | 28.80 | 63.00 | 73.90 | 55.00 | 58.90 | 69.00 | 69.00 | 80.00 | 87.90 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 2.10 | 2.30 | 1.15 | 1.25 | 2.19 | 2.11 | 2.15 | 3.15 | 3.45 | 3.47 | 4.10 | 3.11 |
| 28 | COD | | 45.40 | 14.40 | 18.60 | 2.10 | 61.90 | 18.60 | 22.90 | 18.70 | 16.60 | 43.70 | 14.60 | 41.60 |
| 29 | Dissolved Oxygen | | 4.52 | 4.69 | 5.10 | 4.12 | 5.14 | 4.16 | 4.71 | 4.02 | 4.06 | 4.22 | 3.99 | 3.85 |
| 30 | DO_SAT % | % | 88 | 88 | 87 | 86 | 86 | 96 | 93 | 92 | 90 | 97 | 97 | 98 |
| 31 | Tota Coliform | MPN/100 ml | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | Fecal Coliform | | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 5.440 | | | | 4.770 | | | | 5.560 | |
| 35 | Cadmium | | | | 0.101 | | | | 0.133 | | | | 0.270 | |
| 36 | Chromium | | | | 2.96 | | | | 2.160 | | | | 10.760 | |
| 37 | Copper | | | | 3.330 | | | | 2.790 | | | | 7.730 | |
| 38 | Iron | mg/l | | | 0.072 | | | | 0.104 | | | | 0.752 | |
| 39 | Lead | µg/L | | | 0.120 | | | | 0.660 | | | | 0.870 | |
| 40 | Nickel | | | | 2.830 | | | | 3.280 | | | | 6.580 | |
| 41 | Zinc | mg/l | | | 0.042 | | | | 0.012 | | | | 0.006 | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 44 | 44 | 84 | 76 | 28 | 108 | 88 | 100 | 108 | 112 | 104 | 68 |
| 43 | Tot-Hardness | | 226 | 182 | 120 | 129 | 186 | 209 | 210 | 222 | 209 | 197 | 213 | 238 |
| 44 | Na% | % | 61 | 52 | 28 | 28 | 36 | 47 | 43 | 46 | 41 | 44 | 46 | 59 |
| 45 | RSC (-) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46 | SAR (-) | | 5.00 | 3.10 | 0.90 | 0.90 | 1.60 | 2.70 | 2.20 | 2.50 | 2.00 | 2.30 | 2.60 | 4.80 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

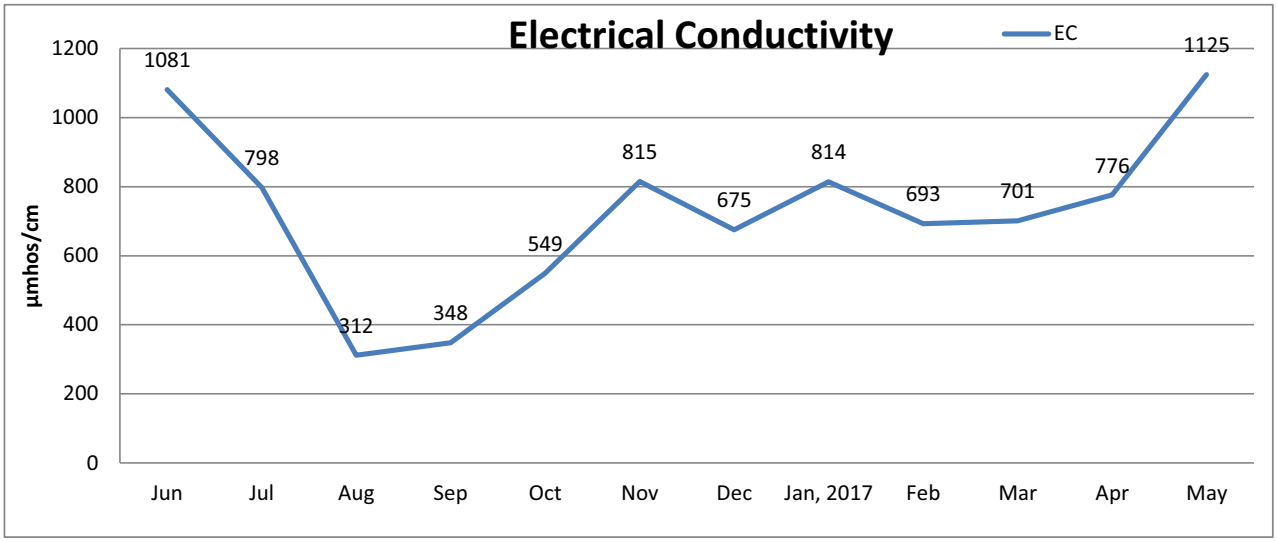
# RIVER WATER SUMMARY - 2016-2017

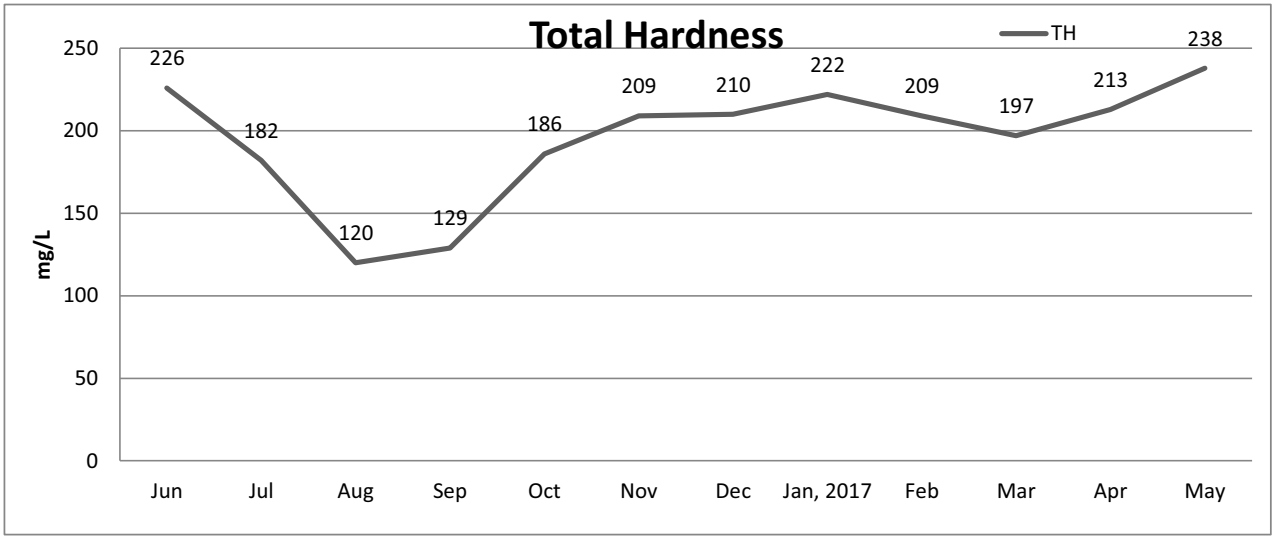
**Station Name : Auariya** **Division : LYD, Agra**

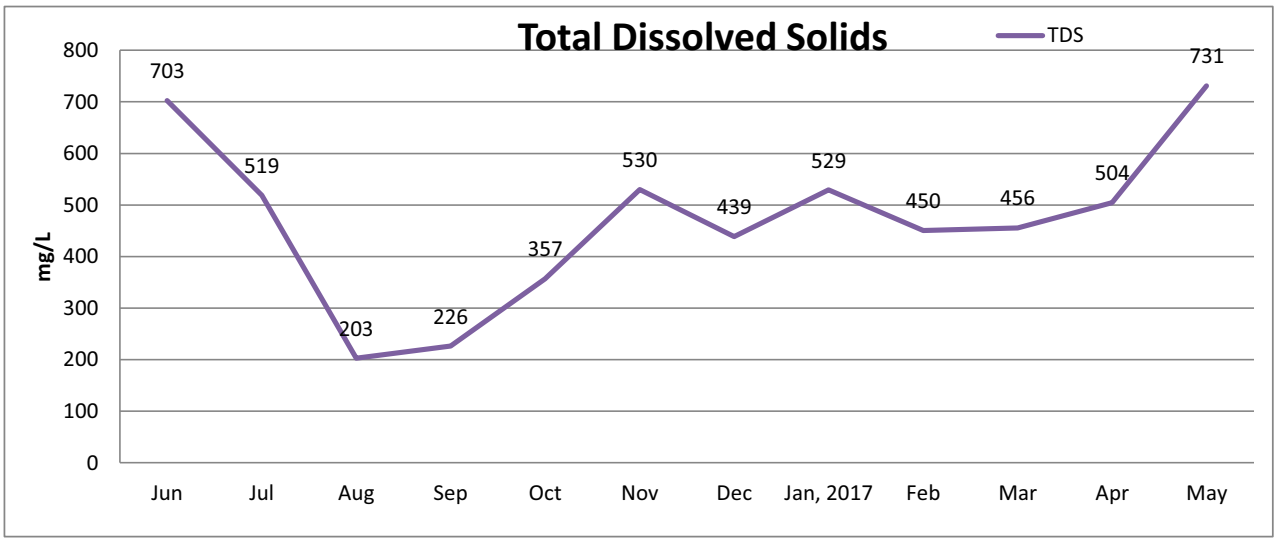
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| **Weather** | | | | | | | |
| **Colour_Cod (-)** | - | - | - | - | - | - | - |
| **Odour_Code (-)** | - | - | - | - | - | - | - |
| **Temperature** | | | | | | | |
| **pH_GEN (pH units)** | - | - | - | - | - | - | - |
| **EC_GEN (µmho/cm)** | 12 | 1125 | 312 | 724 | 618 | 749 | 867 |
| **Total Dissolved Solids** | | | | | | | |
| **Turbiidity** | - | - | - | - | - | - | - |
| **CHEMICAL** | | | | | | | |
| **Alk-Phen (as $CaCO_3$)** | 12 | 36.25 | 0.00 | 13.3 | 11.30 | 14.50 | 15.08 |
| **Alk-Tot (as $CaCO_3$)** | 12 | 230.33 | 54.17 | 155.8 | 127.43 | 167.13 | 187.94 |
| **Boron** | 12 | 0.40 | 0.10 | 0.2 | 0.23 | 0.25 | 0.21 |
| **Calcium** | 12 | 45.00 | 11.00 | 32.2 | 22.20 | 40.25 | 38.00 |
| **Chloride** | 12 | 182.10 | 27.00 | 89.5 | 76.68 | 86.35 | 115.03 |
| **Carbonate** | 12 | 43.50 | 0.00 | 16.0 | 13.56 | 17.40 | 18.10 |
| **Fluoride** | 12 | 1.05 | 0.21 | 0.4 | 0.39 | 0.30 | 0.59 |
| **Bicarbonate** | 12 | 209.00 | 65.00 | 155.0 | 125.80 | 165.75 | 189.33 |
| **Potassium** | 12 | 15.80 | 1.20 | 7.2 | 7.60 | 4.60 | 10.07 |
| **Magnesium** | 12 | 43.70 | 8.70 | 27.5 | 27.18 | 26.75 | 29.13 |
| **Sodium** | 12 | 171.80 | 22.80 | 84.1 | 72.54 | 78.58 | 110.57 |
| **Ammonia as N** | 12 | 0.88 | 0.00 | 0.2 | 0.13 | 0.37 | 0.16 |
| **$NO_2$+$NO_3$ as N** | 12 | 1.97 | 0.03 | 1.1 | 0.65 | 1.60 | 1.17 |
| **Nitrite as N** | 12 | 0.39 | 0.00 | 0.1 | 0.04 | 0.19 | 0.19 |
| **Nitrate as N** | 12 | 1.79 | 0.03 | 1.0 | 0.62 | 1.42 | 0.99 |
| **Tot. Phosphate as P** | 12 | 0.44 | 0.00 | 0.2 | 0.12 | 0.31 | 0.33 |
| **Silicate as $SiO_2$** | - | - | - | - | - | - | - |
| **Sulphate as $SO_4$** | 12 | 115.70 | 26.00 | 68.9 | 66.68 | 64.20 | 78.97 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| **BOD5-20°C** | 12 | 4.1 | 1.2 | 2.5 | 1.8 | 2.7 | 3.6 |
| **COD** | 12 | 61.9 | 2.1 | 26.6 | 28.5 | 19.2 | 33.3 |
| **Dissolved Oxygen** | 12 | 5.14 | 3.85 | 4.38 | 4.71 | 4.2 | 4.0 |
| **DO_SAT %** | - | - | - | - | - | - | - |
| **Tota Coliform** | - | - | - | - | - | - | - |
| **Fecal Coliform** | - | - | - | - | - | - | - |
| **E. Coli** | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| **Arsenic** | 3 | 5.56 | 4.77 | 5.26 | 5.44 | 4.8 | 5.6 |
| **Cadmium** | 3 | 0.27 | 0.10 | 0.17 | 0.10 | 0.1 | 0.3 |
| **Chromium** | 3 | 10.76 | 2.16 | 5.29 | 2.96 | 2.2 | 10.8 |
| **Copper** | 3 | 7.73 | 2.79 | 4.62 | 3.33 | 2.8 | 7.7 |
| **Iron** | 3 | 0.75 | 0.07 | 0.31 | 0.07 | 0.1 | 0.8 |
| **Lead** | 3 | 0.87 | 0.12 | 0.55 | 0.12 | 0.7 | 0.9 |
| **Nickel** | 3 | 6.58 | 2.83 | 4.23 | 2.83 | 3.3 | 6.6 |
| **Zinc** | 3 | 0.04 | 0.01 | 0.02 | 0.04 | 0.0 | 0.0 |
| **CHEMICAL INDICES** | | | | | | | |
| **Ca-Hardness** | 12 | 112 | 28 | 80 | 55 | 101 | 95 |
| **Tot-Hardness** | 12 | 238 | 120 | 195 | 169 | 213 | 216 |
| **Na%** | 12 | 61 | 28 | 44 | 41 | 44 | 50 |
| **RSC (-)** | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| **SAR (-)** | 12 | 5.00 | 0.90 | 2.6 | 2.30 | 2.35 | 3.23 |
| **PESTICIDES** | | | | | | | |

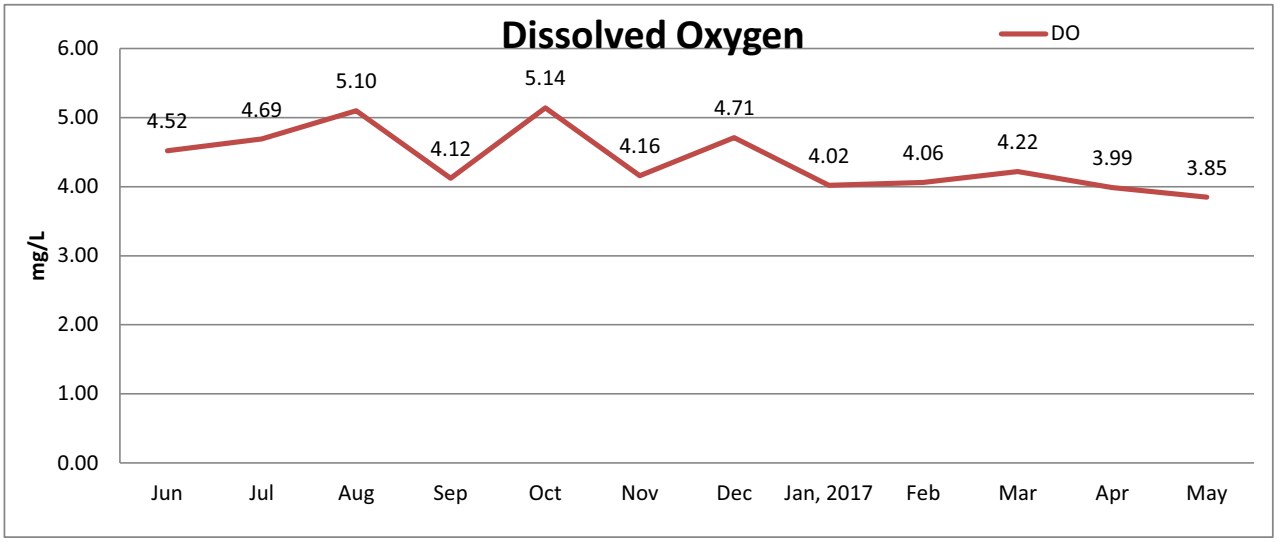
**Graphical Presentation of AUARIYA WQ Site**

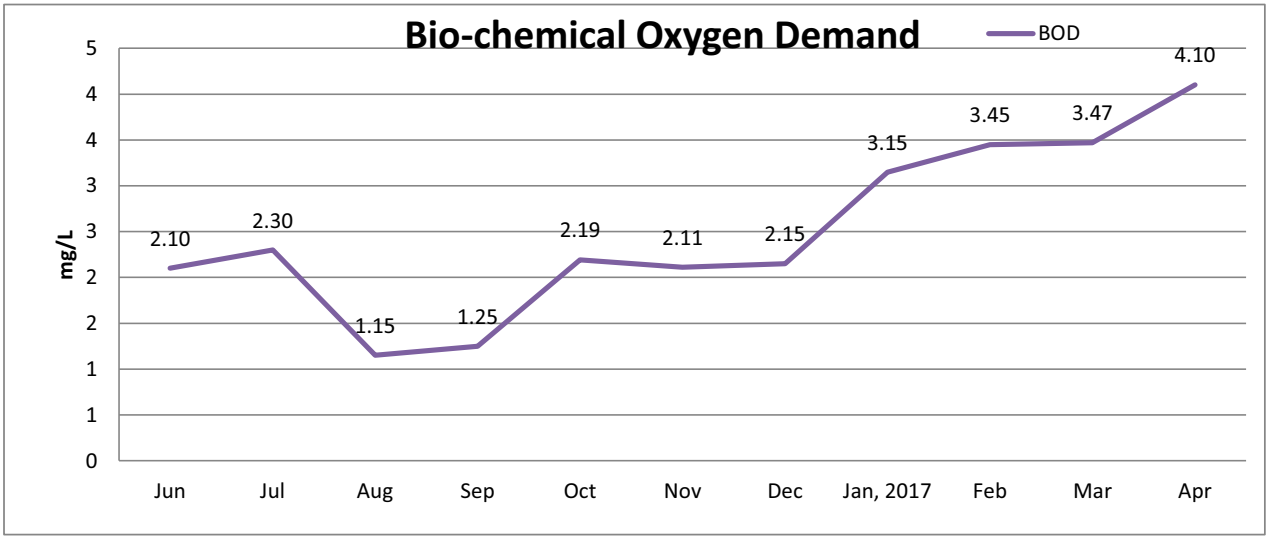


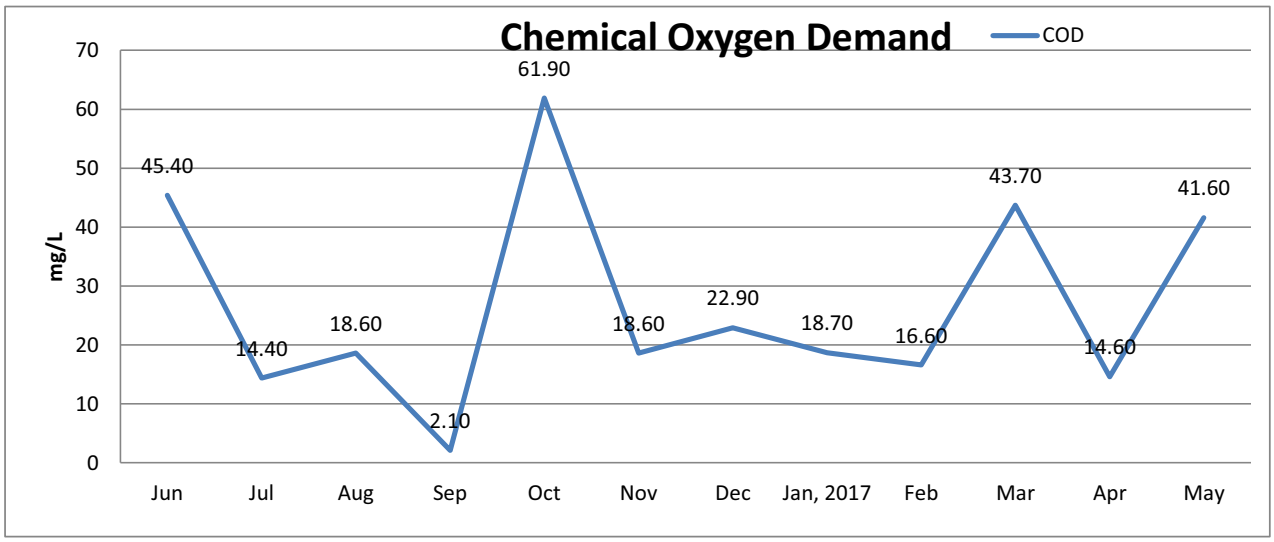



**Graphical Presentation of AUARIYA WQ Site**



# HAMIRPUR

## General Particulars

| | | | |
|---|---|---|---|
| Site | : ***HAMIRPUR*** | Code | : **GY000E9** |
| State | : **Uttar Pradesh** | District | : **Hamirpur** |
| Division | : **L.Y. D., Agra** | Sub-Division | : **L.Y.SD III, Hamirpur** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **-** |
| Sub-Sub-Trib. | : **-** | Local River | : **Yamuna** |
| Drainage Area | : **276789 Sq. Km.** | Bank | : **Left** |
| Latitude | : **22°52'00"N** | Longitude | : **80°09'00" E** |
| Zero of Gauge | : **88.000(m.s.l)** | | |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **01/04/1959** |
| Discharge: | : **01/04/1959** |
| Sediment | : **-** |
| Water Quality | : **01/04/1981** |
| Wireless | : **16/03/1978** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : Hamirpur** **Division : LYD, Agra**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 01/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 01/04/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | |
| 2 | Colour_Cod (-) | | Clear | Light Brown | | | Clear | Clear | Clear | Clear | Clear | Clear | Clear | |
| 3 | Odour_Code (-) | | odour free | | | | | | | | | | | |
| 4 | Temperature | °C | 30 | 28 | 27 | 27 | 27 | 26 | 22 | 15 | 15 | 23.5 | 25.5 | |
| 5 | pH_GEN (pH units) | | 9.80 | 7.50 | 6.90 | 7.30 | 8.30 | 8.70 | 8.60 | 8.60 | 7.50 | 7.40 | 8.90 | |
| 6 | EC_GEN (µmho/cm) | NTU | 1072 | 555 | 290 | 330 | 535 | 720 | 739 | 717 | 679 | 818 | 459 | |
| 7 | Total Dissolved Solids | mg/L | 697 | 361 | 189 | 215 | 348 | 468 | 480 | 466 | 441 | 532 | 298 | |
| 8 | Turbiidity | | - | - | - | - | - | - | - | - | - | - | - | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 48.25 | 0 | 0 | 0 | 17 | 23.25 | 16 | 18.5 | 0 | 0 | 18.5 | |
| 10 | Alk-Tot (as $CaCO_3$) | | 207.33 | 90.00 | 34.17 | 98.33 | 132.33 | 162.33 | 194.50 | 221.17 | 145.00 | 151.67 | 213.67 | |
| 11 | Boron | | 0.36 | 0.11 | 0.22 | 0.25 | 0.25 | 0.25 | 0.33 | 0.25 | 0.18 | 0.24 | 0.11 | |
| 12 | Calcium | | 16.00 | 26.00 | 26.00 | 27.00 | 6.00 | 37.00 | 51.00 | 50.00 | 43.00 | 53.00 | 46.00 | |
| 13 | Chloride | | 154.40 | 70.30 | 29.50 | 24.90 | 59.30 | 86.30 | 84.50 | 95.90 | 72.80 | 94.10 | 105.40 | |
| 14 | Carbonate | | 57.90 | 0.00 | 0.00 | 0.00 | 20.40 | 27.90 | 19.20 | 22.20 | 0.00 | 0.00 | 22.20 | |
| 15 | Fluoride | | 1.24 | 0.29 | 0.49 | 0.30 | 0.10 | 0.10 | 0.27 | 0.29 | 0.30 | 0.30 | 0.48 | |
| 16 | Bicarbonate | | 133.00 | 108.00 | 41.00 | 118.00 | 118.00 | 139.00 | 195.00 | 221.00 | 174.00 | 182.00 | 212.00 | |
| 17 | Potassium | | 14.10 | 7.80 | 4.30 | 3.10 | 5.10 | 7.40 | 4.70 | 1.20 | 4.30 | 8.60 | 9.00 | |
| 18 | Magnesium | | 42.80 | 15.60 | 8.70 | 14.60 | 28.20 | 24.30 | 23.30 | 29.20 | 22.40 | 23.30 | 25.30 | |
| 19 | Sodium | | 179.60 | 65.60 | 22.50 | 20.90 | 49.50 | 80.30 | 78.20 | 93.80 | 65.30 | 89.90 | 100.70 | |
| 20 | Ammonia as N | | 0.07 | 0.14 | 0.00 | 0.08 | 0.08 | 0.03 | 0.15 | 0.28 | 0.25 | 0.06 | 0.18 | |
| 21 | $NO_2$+$NO_3$ as N | | 0.00 | 0.84 | 0.95 | 0.55 | 0.65 | 1.29 | 2.09 | 1.07 | 1.43 | 2.44 | 1.14 | |
| 22 | Nitrite as N | | 0.00 | 0.28 | 0.04 | 0.00 | 0.03 | 0.08 | 0.14 | 0.17 | 0.06 | 2.22 | 0.06 | |
| 23 | Nitrate as N | | 0.00 | 0.56 | 0.91 | 0.55 | 0.62 | 1.21 | 1.95 | 0.90 | 1.37 | 0.22 | 1.08 | |
| 24 | Tot. Phosphate as P | | 0.14 | 0.24 | 0.05 | 0.05 | 0.08 | 0.22 | 0.36 | 0.43 | 0.32 | 0.50 | 0.48 | |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | 111.90 | 81.90 | 21.00 | 17.00 | 61.00 | 50.00 | 55.00 | 63.00 | 70.70 | 67.00 | 92.90 | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 1.20 | 1.60 | 1.40 | 1.23 | 1.78 | 1.80 | 1.06 | 1.40 | 1.42 | 1.40 | 1.25 | |
| 28 | COD | | 22.70 | 14.40 | 12.40 | 2.10 | 18.60 | 14.40 | 29.10 | 25.00 | 20.80 | 25.00 | 22.90 | |
| 29 | Dissolved Oxygen | | 6.50 | 6.80 | 7.80 | 6.80 | 7.00 | 6.00 | 6.00 | 6.70 | 8.00 | 8.50 | 8.50 | |
| 30 | DO_SAT % | % | 86 | 87 | 98 | 85 | 88 | 74 | 69 | 66 | 79 | 99 | 103 | |
| 31 | Tota Coliform | MPN/100 ml | - | - | - | - | - | - | - | - | - | - | - | |
| 32 | Fecal Coliform | | - | - | - | - | - | - | - | - | - | - | - | |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 4.000 | | | | 8.410 | | | | 7.560 | |
| 35 | Cadmium | | | | 0.109 | | | | 0.035 | | | | 0.077 | |
| 36 | Chromium | | | | 15.460 | | | | 1.190 | | | | 0.770 | |
| 37 | Copper | | | | 3.690 | | | | 1.710 | | | | 8.980 | |
| 38 | Iron | mg/l | | | 0.084 | | | | 0.050 | | | | 0.253 | |
| 39 | Lead | µg/L | | | 0.070 | | | | 0.690 | | | | 1.540 | |
| 40 | Nickel | | | | 2.880 | | | | 2.710 | | | | 12.580 | |
| 41 | Zinc | mg/l | | | 0.009 | | | | 0.007 | | | | 0.010 | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 40 | 64 | 64 | 68 | 16 | 92 | 128 | 124 | 108 | 132 | 116 | |
| 43 | Tot-Hardness | | 218 | 129 | 100 | 129 | 133 | 193 | 225 | 246 | 201 | 229 | 221 | |
| 44 | Na% | % | 63 | 51 | 32 | 26 | 44 | 46 | 43 | 45 | 41 | 45 | 49 | |
| 45 | RSC (-) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 46 | SAR (-) | | 5.30 | 2.50 | 1.00 | 0.80 | 1.90 | 2.50 | 2.30 | 2.60 | 2.00 | 2.60 | 3.00 | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

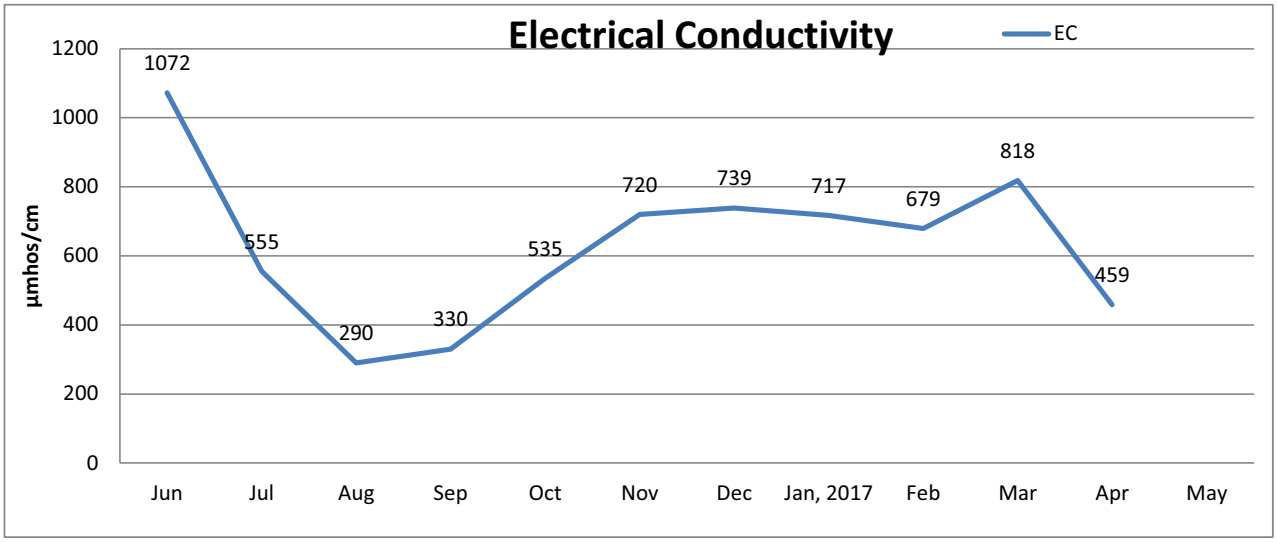
# RIVER WATER SUMMARY - 2016-2017

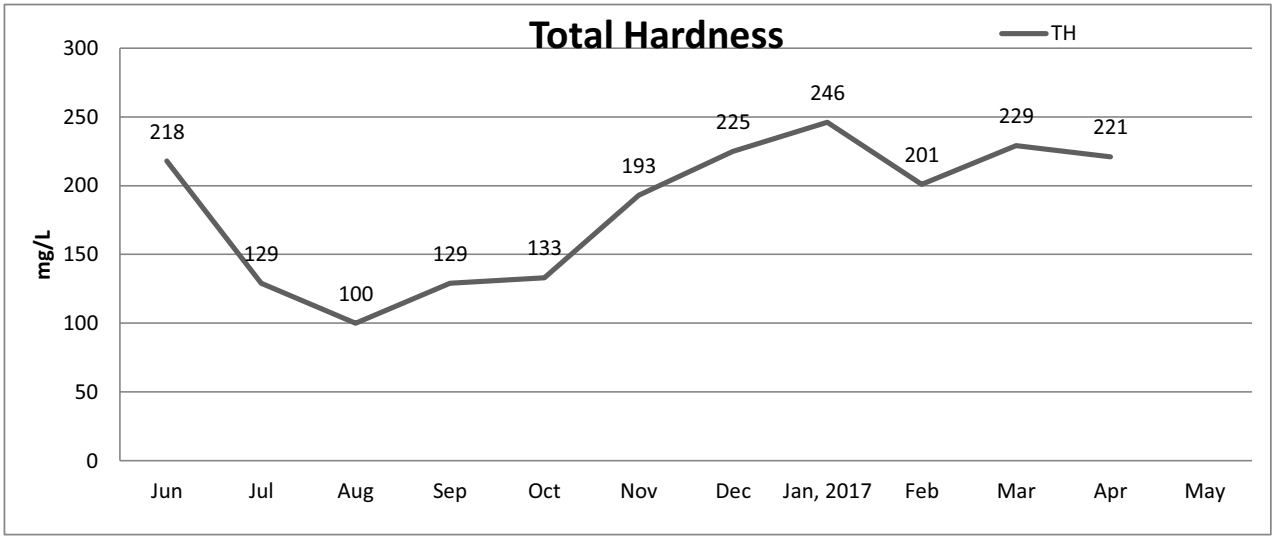
**Station Name : Hamirpur** **Division : LYD, Agra**

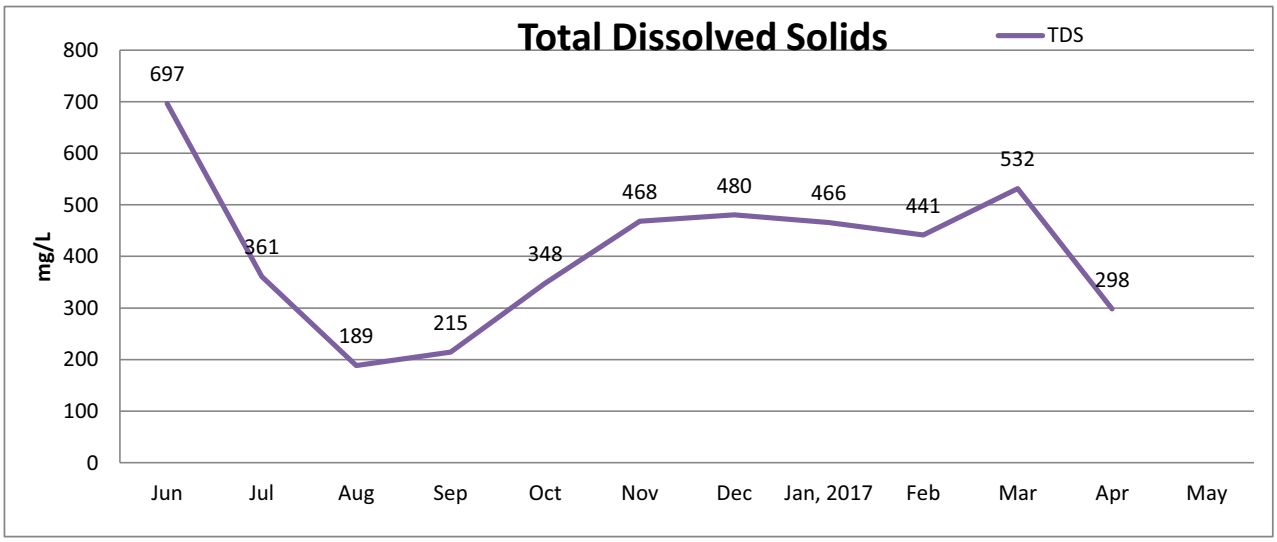
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | 11 | 30 | 15 | 24 | 28 | 20 | 25 |
| pH_GEN (pH units) | - | - | - | - | - | - | - |
| EC_GEN (µmho/cm) | 11 | 1072 | 290 | 629 | 556 | 714 | 639 |
| Total Dissolved Solids | | | | | | | |
| Turbiidity | - | - | - | - | - | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 11 | 48.25 | 0.00 | 12.9 | 13.05 | 14.44 | 9.25 |
| Alk-Tot (as $CaCO_3$) | 11 | 221.17 | 34.17 | 150.0 | 112.43 | 180.75 | 182.67 |
| Boron | 11 | 0.36 | 0.11 | 0.2 | 0.24 | 0.25 | 0.18 |
| Calcium | 11 | 53.00 | 6.00 | 34.6 | 20.20 | 45.25 | 49.50 |
| Chloride | 11 | 154.40 | 24.90 | 79.8 | 67.68 | 84.88 | 99.75 |
| Carbonate | 11 | 57.90 | 0.00 | 15.4 | 15.66 | 17.33 | 11.10 |
| Fluoride | 11 | 1.24 | 0.10 | 0.4 | 0.48 | 0.24 | 0.39 |
| Bicarbonate | 11 | 221.00 | 41.00 | 149.2 | 103.60 | 182.25 | 197.00 |
| Potassium | 11 | 14.10 | 1.20 | 6.3 | 6.88 | 4.40 | 8.80 |
| Magnesium | 11 | 42.80 | 8.70 | 23.4 | 21.98 | 24.80 | 24.30 |
| Sodium | 11 | 179.60 | 20.90 | 76.9 | 67.62 | 79.40 | 95.30 |
| Ammonia as N | 11 | 0.28 | 0.00 | 0.1 | 0.07 | 0.18 | 0.12 |
| $NO_2$+$NO_3$ as N | 11 | 2.44 | 0.00 | 1.1 | 0.60 | 1.47 | 1.79 |
| Nitrite as N | 11 | 2.22 | 0.00 | 0.3 | 0.07 | 0.11 | 1.14 |
| Nitrate as N | 11 | 1.95 | 0.00 | 0.9 | 0.53 | 1.36 | 0.65 |
| Tot. Phosphate as P | 11 | 0.50 | 0.05 | 0.3 | 0.11 | 0.33 | 0.49 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 11 | 111.90 | 17.00 | 62.9 | 58.56 | 59.68 | 79.95 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 11 | 1.8 | 1.1 | 1.4 | 1.4 | 1.4 | 1.3 |
| COD | 11 | 29.1 | 2.1 | 18.9 | 14.0 | 22.3 | 24.0 |
| Dissolved Oxygen | 11 | 8.50 | 6.00 | 7.15 | 6.98 | 6.7 | 8.5 |
| DO_SAT % | 11 | 103.00 | 66.00 | 84.91 | 88.80 | 72.0 | 101.0 |
| Tota Coliform | - | - | - | - | - | - | - |
| Fecal Coliform | - | - | - | - | - | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 3 | 8.41 | 4.00 | 6.66 | 4.00 | 8.4 | 7.6 |
| Cadmium | 3 | 0.11 | 0.04 | 0.07 | 0.11 | 0.0 | 0.1 |
| Chromium | 3 | 15.46 | 0.77 | 5.81 | 15.46 | 1.2 | 0.8 |
| Copper | 3 | 8.98 | 1.71 | 4.79 | 3.69 | 1.7 | 9.0 |
| Iron | 3 | 0.25 | 0.05 | 0.13 | 0.08 | 0.1 | 0.3 |
| Lead | 3 | 1.54 | 0.07 | 0.77 | 0.07 | 0.7 | 1.5 |
| Nickel | 3 | 12.58 | 2.71 | 6.06 | 2.88 | 2.7 | 12.6 |
| Zinc | 3 | 0.01 | 0.01 | 0.01 | 0.01 | 0.0 | 0.0 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 11 | 132 | 16 | 87 | 50 | 113 | 124 |
| Tot-Hardness | 11 | 246 | 100 | 184 | 142 | 216 | 225 |
| Na% | 11 | 63 | 26 | 44 | 43 | 44 | 47 |
| RSC (-) | 11 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| SAR (-) | 11 | 5.30 | 0.80 | 2.4 | 2.30 | 2.35 | 2.80 |
| **PESTICIDES** | | | | | | | |

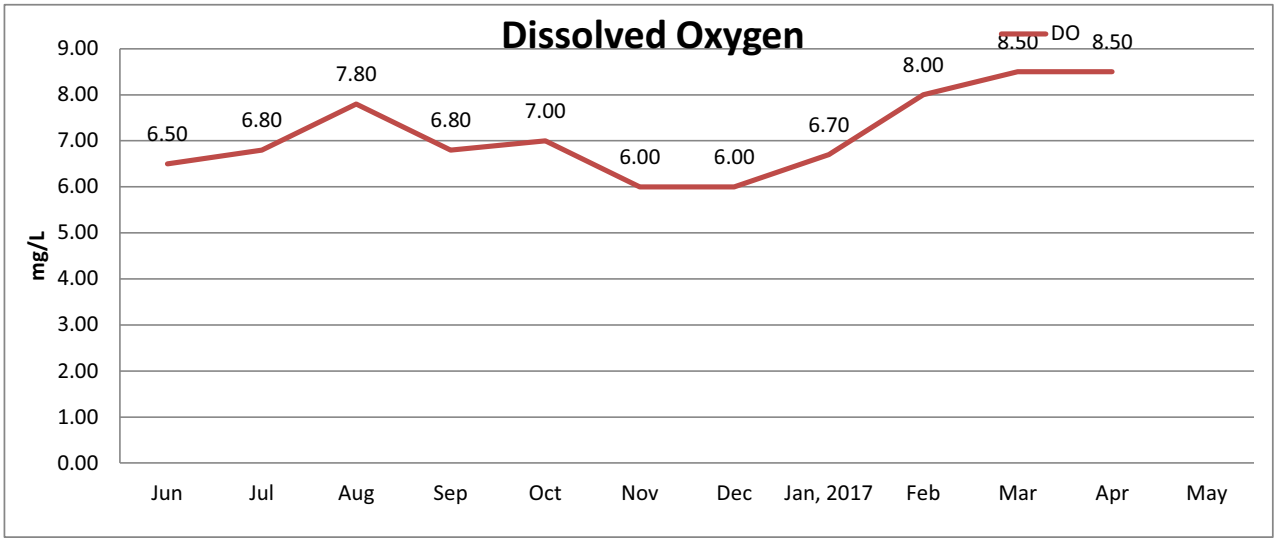
**Graphical Presentation of HAMIRPUR WQ Site**

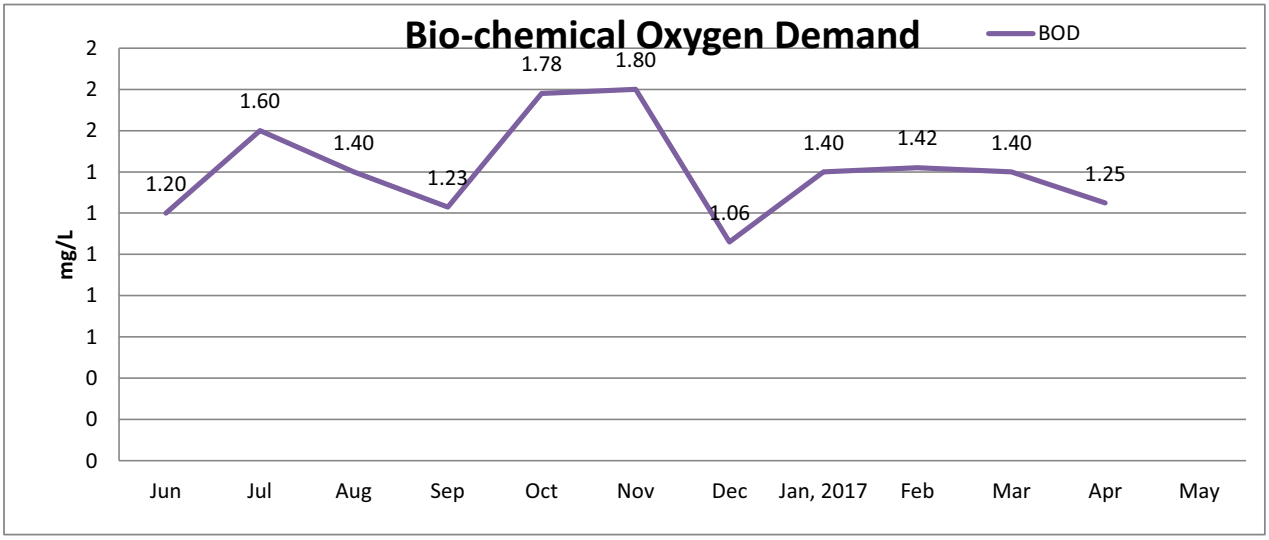


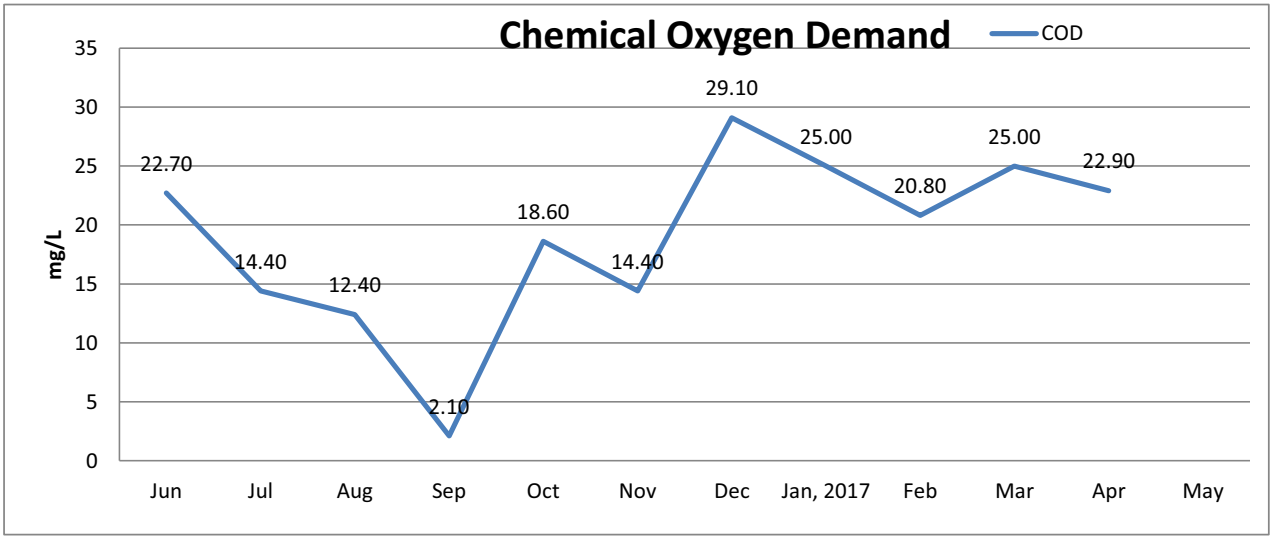



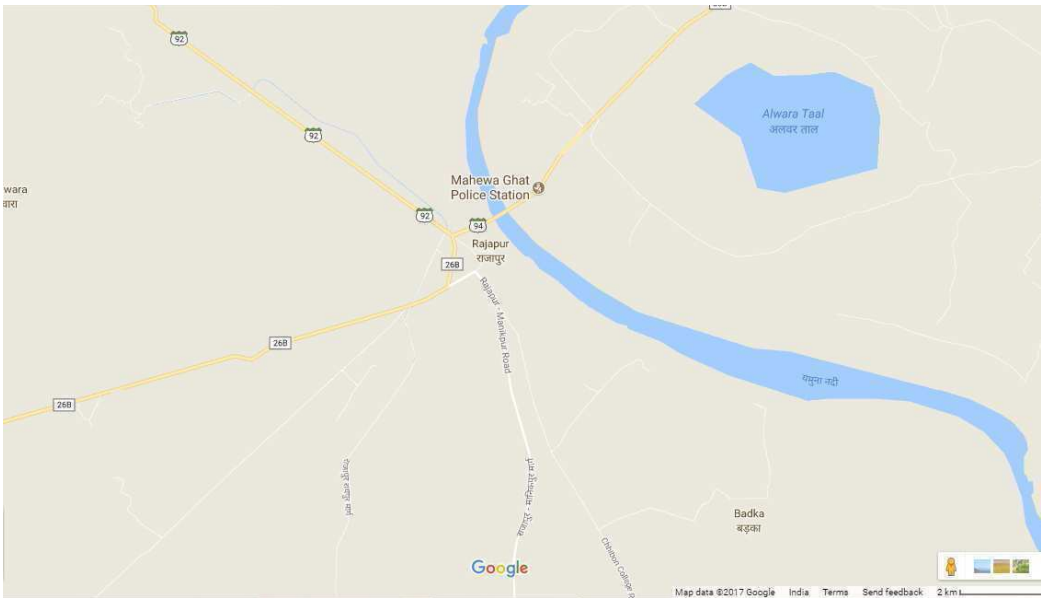
**Graphical Presentation of HAMIRPUR WQ Site**



# RAJAPUR




## General Particulars

| | | | |
|---|---|---|---|
| Site | : **Rajapur** | Code | : **GYOOOB7** |
| State | : **Uttar Pradesh** | District | : **Chitrakoot** |
| Division | : **L.Y. D., Agra** | Sub-Division | : **-** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **Yamuna** |
| Sub-Sub-Trib. | : **-** | Local River | : **Yamuna** |
| Drainage Area | : **364552 Sq. Km.** | Bank | : **Left** |
| Latitude | : **25°23'23"N** | Longitude | : **81°09'15" E** |
| Zero of Gauge | : **-** | | |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : Rajapur** **Division : LYD, Agra**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 01/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 01/04/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | Clear | Light Brow | Brown | Brown | Clear | L.Brown | L.Green | | | L.Brown | | |
| 3 | Odour_Code (-) | | odour free | | | | | | | | | | | |
| 4 | Temperature | °C | 26.5 | 26.5 | 29.5 | 28 | 28.5 | 27.5 | 26.5 | 13 | 19.5 | 24 | 26 | 25.5 |
| 5 | pH_GEN (pH units) | | 9.60 | 7.70 | 7.00 | 7.40 | 8.20 | 8.80 | 8.60 | 8.60 | 7.70 | 8.20 | 8.70 | 8.90 |
| 6 | EC_GEN (µmho/cm) | NTU | 934 | 879 | 488 | 270 | 373 | 780 | 722 | 708 | 652 | 813 | 379 | 744 |
| 7 | Total Dissolved Solids | mg/L | 607 | 571 | 317 | 176 | 242 | 507 | 469 | 460 | 424 | 528 | 246 | 484 |
| 8 | Turbiidity | | - | - | - | - | - | - | - | - | - | - | - | - |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 40.25 | 0 | 0 | 0 | 0 | 20.5 | 21 | 16.5 | 0 | 0 | 30.25 | 31.5 |
| 10 | Alk-Tot (as $CaCO_3$) | | 199.67 | 163.33 | 129.17 | 80.83 | 94.17 | 126.00 | 204.50 | 224.67 | 116.67 | 144.17 | 174.67 | 221.33 |
| 11 | Boron | | 0.32 | 0.01 | 0.18 | 0.18 | 0.22 | 0.00 | 0.28 | 0.19 | 0.32 | 0.22 | 0.12 | 0.05 |
| 12 | Calcium | | 19.00 | 10.00 | 16.00 | 26.00 | 6.00 | 26.00 | 32.00 | 35.00 | 38.00 | 53.00 | 30.00 | 30.00 |
| 13 | Chloride | | 125.00 | 117.20 | 41.20 | 17.40 | 27.00 | 49.70 | 78.50 | 68.90 | 63.20 | 95.90 | 90.20 | 78.60 |
| 14 | Carbonate | | 48.30 | 0.00 | 0.00 | 0.00 | 0.00 | 24.60 | 25.20 | 19.80 | 0.00 | 0.00 | 36.30 | 37.80 |
| 15 | Fluoride | | 0.70 | 0.32 | 0.49 | 0.39 | 0.10 | 0.30 | 0.34 | 0.15 | 0.11 | 0.15 | 0.49 | 0.91 |
| 16 | Bicarbonate | | 143.00 | 196.00 | 155.00 | 97.00 | 113.00 | 102.00 | 195.00 | 230.00 | 140.00 | 173.00 | 137.00 | 190.00 |
| 17 | Potassium | | 12.50 | 9.40 | 3.50 | 2.70 | 3.50 | 5.10 | 3.50 | 1.60 | 3.50 | 7.40 | 7.40 | 6.50 |
| 18 | Magnesium | | 34.00 | 39.90 | 41.80 | 11.70 | 34.00 | 19.40 | 36.90 | 35.00 | 28.20 | 22.40 | 23.30 | 31.10 |
| 19 | Sodium | | 160.50 | 114.50 | 24.20 | 15.40 | 25.10 | 49.70 | 74.10 | 70.20 | 61.60 | 92.50 | 89.70 | 83.70 |
| 20 | Ammonia as N | | 0.00 | 0.00 | 0.00 | 0.15 | 0.06 | 0.03 | 0.11 | 0.93 | 0.04 | 0.10 | 0.18 | 0.27 |
| 21 | $NO_2$+$NO_3$ as N | | 0.00 | 0.00 | 2.41 | 0.61 | 0.44 | 0.18 | 1.16 | 0.67 | 0.72 | 1.61 | 0.32 | 0.01 |
| 22 | Nitrite as N | | 0.00 | 0.00 | 0.22 | 0.01 | 0.01 | 0.03 | 0.03 | 0.01 | 0.01 | 0.15 | 0.04 | 0.01 |
| 23 | Nitrate as N | | 0.00 | 0.00 | 2.19 | 0.60 | 0.43 | 0.15 | 1.13 | 0.66 | 0.71 | 1.46 | 0.28 | 0.00 |
| 24 | Tot. Phosphate as P | | 0.05 | 0.05 | 0.02 | 0.03 | 0.05 | 0.04 | 0.22 | 0.31 | 0.16 | 0.32 | 0.16 | 0.24 |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | 95.50 | 106.90 | 12.00 | 7.00 | 35.00 | 39.00 | 51.00 | 43.00 | 52.80 | 69.00 | 57.00 | 78.00 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 4.60 | 2.40 | 12.00 | 2.60 | 1.60 | 2.20 | 1.90 | 3.00 | 1.40 | 2.60 | 5.00 | 2.40 |
| 28 | COD | | 10.30 | 24.70 | 12.40 | 14.40 | 10.90 | 23.00 | 12.50 | 8.30 | 10.40 | 14.60 | 29.10 | 16.60 |
| 29 | Dissolved Oxygen | | 5.10 | 5.41 | 4.62 | 4.87 | 4.15 | 4.11 | 4.56 | 4.78 | 4.89 | 5.10 | 5.01 | 5.46 |
| 30 | DO_SAT % | % | 135 | | | 78 | 182 | 180 | 176 | 116 | 148 | 163 | 173 | 171 |
| 31 | Tota Coliform | MPN/100 ml | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | Fecal Coliform | | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 5.880 | | | | 5.370 | | | | 1.090 | |
| 35 | Cadmium | | | | 0.062 | | | | 0.052 | | | | 0.062 | |
| 36 | Chromium | | | | 7.770 | | | | 0.720 | | | | 0.180 | |
| 37 | Copper | | | | 2.180 | | | | 2.090 | | | | 7.860 | |
| 38 | Iron | mg/l | | | 0.086 | | | | 0.072 | | | | 0.168 | |
| 39 | Lead | µg/L | | | 0.160 | | | | 0.630 | | | | 1.170 | |
| 40 | Nickel | | | | 2.740 | | | | 3.650 | | | | 10.810 | |
| 41 | Zinc | mg/l | | | 0.008 | | | | 0.006 | | | | 0.004 | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 48 | 24 | 40 | 64 | 16 | 64 | 80 | 88 | 96 | 132 | 76 | 76 |
| 43 | Tot-Hardness | | 190 | 190 | 214 | 113 | 158 | 145 | 234 | 234 | 213 | 225 | 173 | 206 |
| 44 | Na% | % | 63 | 55 | 20 | 23 | 25 | 42 | 41 | 39 | 38 | 46 | 52 | 46 |
| 45 | RSC (-) | | 0.20 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 |
| 46 | SAR (-) | | 5.10 | 3.60 | 0.70 | 0.60 | 0.90 | 1.80 | 2.10 | 2.00 | 1.80 | 2.70 | 3.00 | 2.60 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

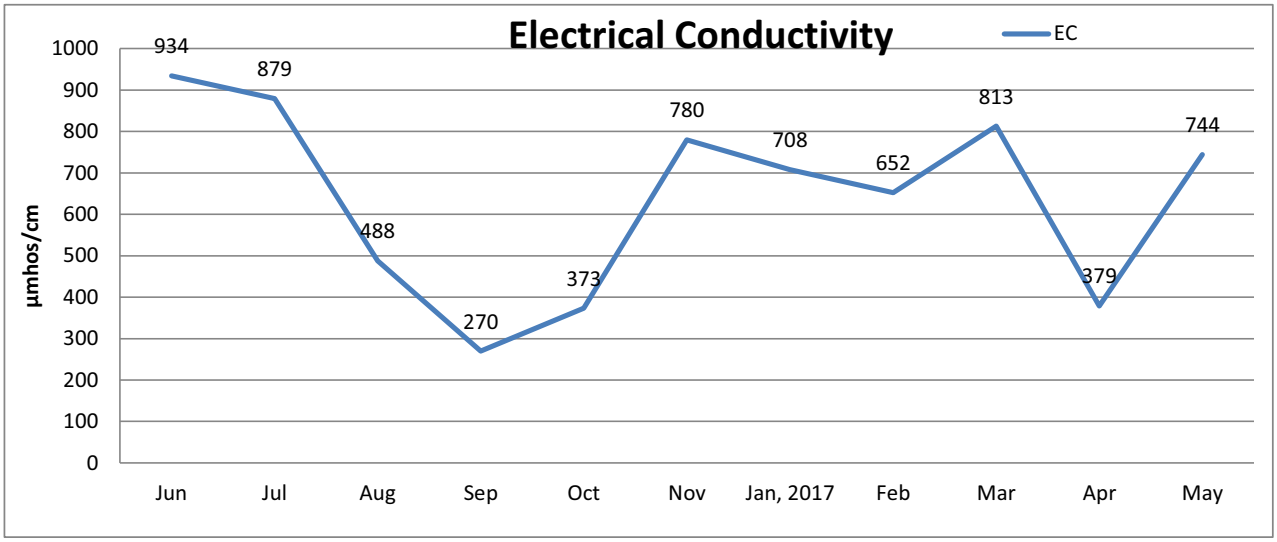
# RIVER WATER SUMMARY - 2016-2017

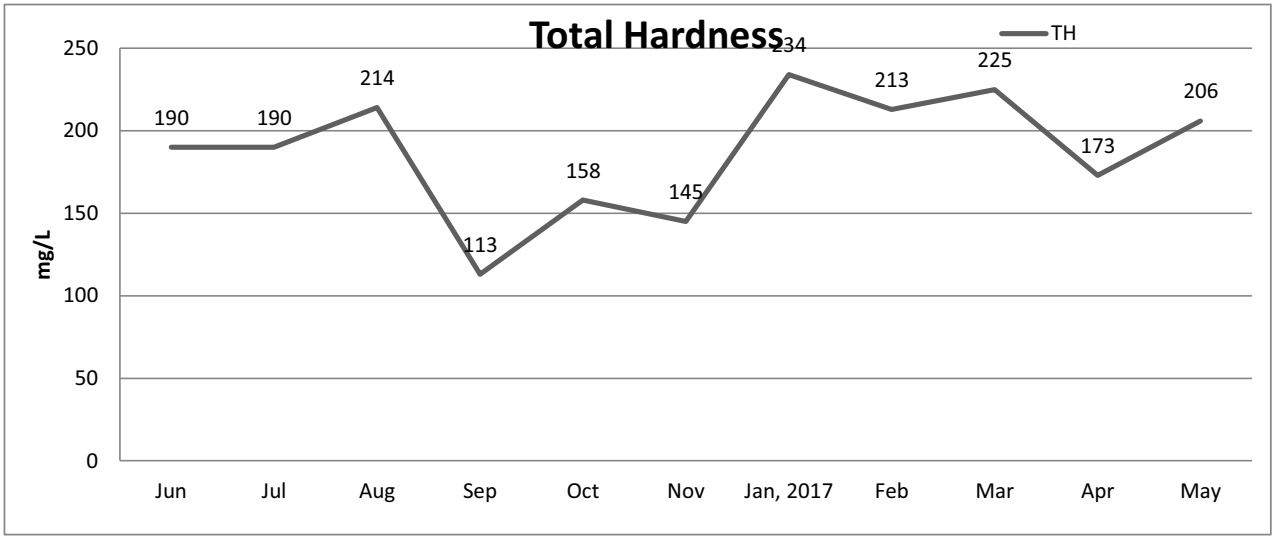
**Station Name : Rajapur** **Division : LYD, Agra**

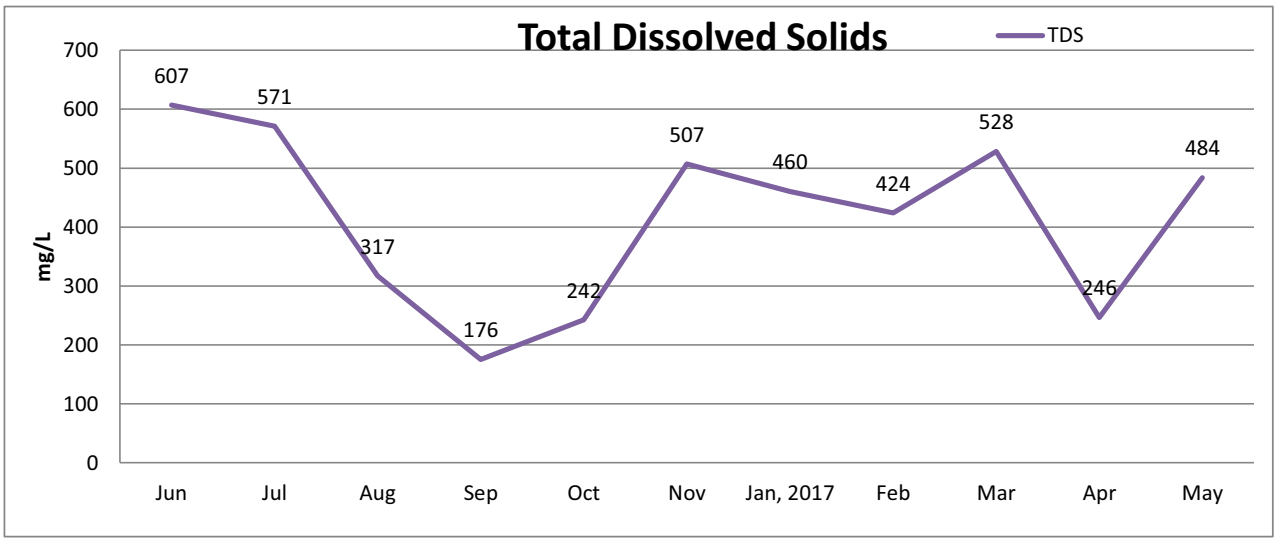
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | 12 | 30 | 13 | 25 | 28 | 22 | 25 |
| pH_GEN (pH units) | - | - | - | - | - | - | - |
| EC_GEN (µmho/cm) | 12 | 934 | 270 | 645 | 589 | 716 | 645 |
| Total Dissolved Solids | | | | | | | |
| Turbiidity | - | - | - | - | - | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 40.25 | 0.00 | 13.3 | 8.05 | 14.50 | 20.58 |
| Alk-Tot (as $CaCO_3$) | 12 | 224.67 | 80.83 | 156.6 | 133.43 | 167.96 | 180.06 |
| Boron | 12 | 0.32 | 0.00 | 0.2 | 0.18 | 0.20 | 0.13 |
| Calcium | 12 | 53.00 | 6.00 | 26.8 | 15.40 | 32.75 | 37.67 |
| Chloride | 12 | 125.00 | 17.40 | 71.1 | 65.56 | 65.08 | 88.23 |
| Carbonate | 12 | 48.30 | 0.00 | 16.0 | 9.66 | 17.40 | 24.70 |
| Fluoride | 12 | 0.91 | 0.10 | 0.4 | 0.40 | 0.23 | 0.52 |
| Bicarbonate | 12 | 230.00 | 97.00 | 155.9 | 140.80 | 166.75 | 166.67 |
| Potassium | 12 | 12.50 | 1.60 | 5.6 | 6.32 | 3.43 | 7.10 |
| Magnesium | 12 | 41.80 | 11.70 | 29.8 | 32.28 | 29.88 | 25.60 |
| Sodium | 12 | 160.50 | 15.40 | 71.8 | 67.94 | 63.90 | 88.63 |
| Ammonia as N | 12 | 0.93 | 0.00 | 0.2 | 0.04 | 0.28 | 0.18 |
| $NO_2$+$NO_3$ as N | 12 | 2.41 | 0.00 | 0.7 | 0.69 | 0.68 | 0.65 |
| Nitrite as N | 12 | 0.22 | 0.00 | 0.0 | 0.05 | 0.02 | 0.07 |
| Nitrate as N | 12 | 2.19 | 0.00 | 0.6 | 0.64 | 0.66 | 0.58 |
| Tot. Phosphate as P | 12 | 0.32 | 0.02 | 0.1 | 0.04 | 0.18 | 0.24 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 106.90 | 7.00 | 53.9 | 51.28 | 46.45 | 68.00 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 12.0 | 1.4 | 3.5 | 4.6 | 2.1 | 3.3 |
| COD | 12 | 29.1 | 8.3 | 15.6 | 14.5 | 13.6 | 20.1 |
| Dissolved Oxygen | 12 | 5.46 | 4.11 | 4.84 | 4.83 | 4.6 | 5.2 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | - | - | - | - | - | - | - |
| Fecal Coliform | - | - | - | - | - | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 3 | 5.88 | 1.09 | 4.11 | 5.88 | 5.4 | 1.1 |
| Cadmium | 3 | 0.06 | 0.05 | 0.06 | 0.06 | 0.1 | 0.1 |
| Chromium | 3 | 7.77 | 0.18 | 2.89 | 7.77 | 0.7 | 0.2 |
| Copper | 3 | 7.86 | 2.09 | 4.04 | 2.18 | 2.1 | 7.9 |
| Iron | 3 | 0.17 | 0.07 | 0.11 | 0.09 | 0.1 | 0.2 |
| Lead | 3 | 1.17 | 0.16 | 0.65 | 0.16 | 0.6 | 1.2 |
| Nickel | 3 | 10.81 | 2.74 | 5.73 | 2.74 | 3.7 | 10.8 |
| Zinc | 3 | 0.01 | 0.00 | 0.01 | 0.01 | 0.0 | 0.0 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 132 | 16 | 67 | 38 | 82 | 95 |
| Tot-Hardness | 12 | 234 | 113 | 191 | 173 | 207 | 201 |
| Na% | 12 | 63 | 20 | 41 | 37 | 40 | 48 |
| RSC (-) | 12 | 0.30 | 0.00 | 0.1 | 0.10 | 0.00 | 0.10 |
| SAR (-) | 12 | 5.10 | 0.60 | 2.2 | 2.18 | 1.93 | 2.77 |
| **PESTICIDES** | | | | | | | |

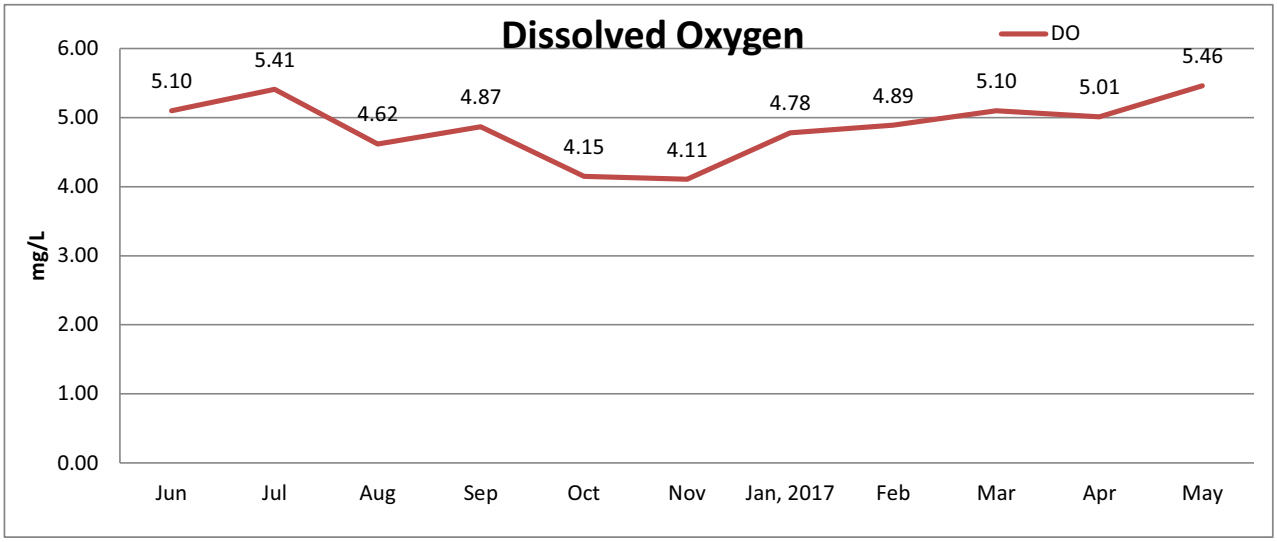
**Graphical Presentation of RAJAPUR WQ Site**

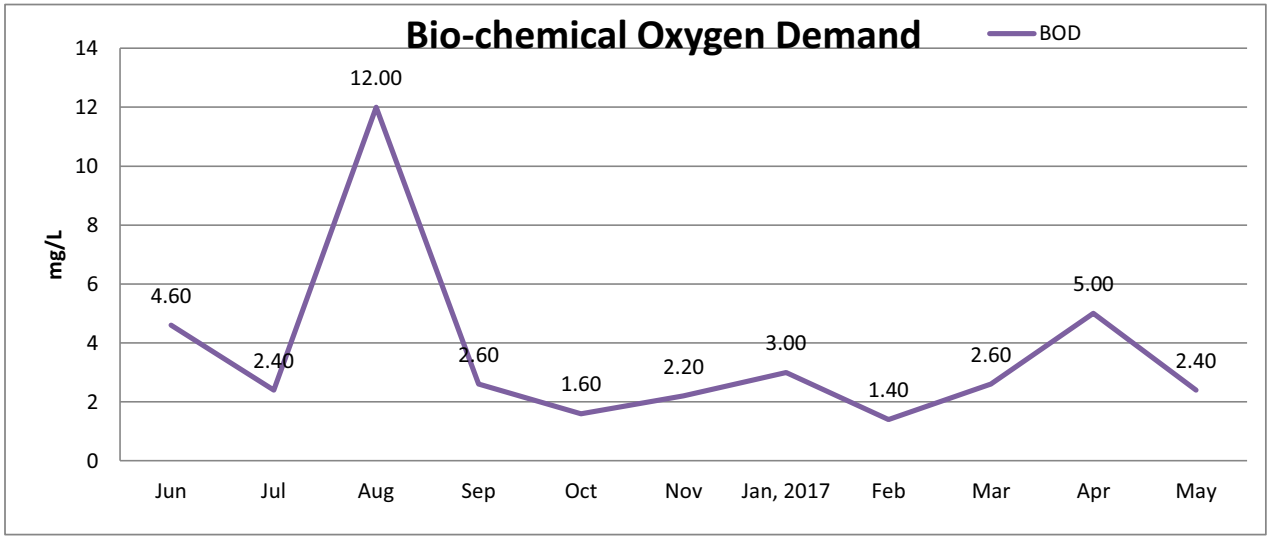


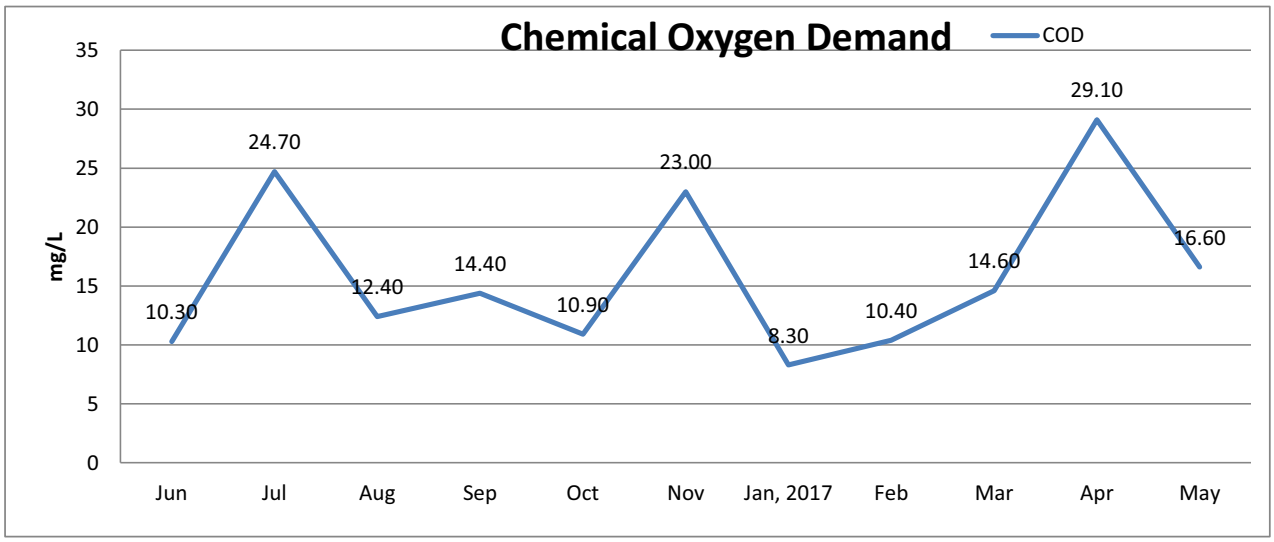



**Graphical Presentation of RAJAPUR WQ Site**



# PRATAPPUR

## General Particulars

| | | | |
|---|---|---|---|
| Site | : **PRATAPPUR** | Code | : **GY000A8** |
| State | : **Uttar Pradesh** | District | : **Allahabad** |
| Division | : **L.Y. D., Agra** | Sub-Division | : **Ken SD, Banda** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **-** |
| Sub-Sub-Trib. | : **-** | Local River | : **Yamuna** |
| Drainage Area | : **366522 Sq. Km.** | Bank | : **Right** |
| Latitude | : **25°22'00"N** | Longitude | : **81°40'00" E** |
| Zero of Gauge | : **70.000(m.s.l)** | | |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **01/04/1959** |
| Discharge: | : **01/04/1959** |
| Sediment | : **22/01/1963** |
| Water Quality | : **01/01/1983** |
| Wireless | : **-** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : Pratappur** **Division : LYD, Agra**

**Local River : YAMUNA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 01/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 21/04/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | Clear | Light Brown | | | | | | L. Green | | Clear | L.Green | Clear |
| 3 | Odour_Code (-) | | odour free | | | | | | | | | | | |
| 4 | Temperature | °C | 29.5 | 29.5 | 29 | 27.5 | 27.5 | 26 | 23 | 19 | 16 | 25 | 29.5 | 30 |
| 5 | pH_GEN (pH units) | | 9.20 | 8.00 | 7.00 | 7.30 | 8.50 | 8.70 | 8.60 | 8.60 | 8.30 | 8.30 | 8.90 | 9.00 |
| 6 | EC_GEN (µmho/cm) | NTU | 923 | 865 | 144 | 268 | 368 | 482 | 715 | 678 | 760 | 795 | 726 | 735 |
| 7 | Total Dissolved Solids | mg/L | 600 | 562 | 94 | 174 | 239 | 313 | 465 | 441 | 494 | 517 | 472 | 478 |
| 8 | Turbiidity | | - | - | - | - | - | - | - | - | - | - | - | - |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 20.25 | 0 | 0 | 0 | 20.5 | 24.25 | 20.25 | 14 | 18.25 | 22.25 | 29.75 | 21.25 |
| 10 | Alk-Tot (as $CaCO_3$) | | 208.00 | 160.00 | 28.33 | 83.33 | 116.00 | 121.00 | 203.83 | 213.00 | 202.33 | 207.83 | 198.67 | 219.17 |
| 11 | Boron | | 0.38 | 0.22 | 0.18 | 0.07 | 0.18 | 0.18 | 0.28 | 0.16 | 0.36 | 0.18 | 0.13 | 0.22 |
| 12 | Calcium | | 16.00 | 11.00 | 26.00 | 29.00 | 29.00 | 26.00 | 37.00 | 18.00 | 27.00 | 51.00 | 34.00 | 29.00 |
| 13 | Chloride | | 125.00 | 109.30 | 17.80 | 20.90 | 30.50 | 49.70 | 74.90 | 63.20 | 63.20 | 94.10 | 86.30 | 82.60 |
| 14 | Carbonate | | 24.30 | 0.00 | 0.00 | 0.00 | 24.60 | 29.10 | 24.30 | 16.80 | 21.90 | 26.70 | 35.70 | 25.50 |
| 15 | Fluoride | | 0.67 | 0.36 | 0.42 | 0.11 | 0.02 | 0.27 | 0.38 | 0.25 | 0.32 | 0.32 | 0.40 | 0.13 |
| 16 | Bicarbonate | | 201.00 | 192.00 | 34.00 | 100.00 | 90.00 | 87.00 | 196.00 | 222.00 | 199.00 | 196.00 | 167.00 | 212.00 |
| 17 | Potassium | | 8.20 | 9.00 | 3.10 | 2.70 | 3.50 | 4.70 | 3.50 | 1.20 | 1.20 | 7.00 | 7.20 | 6.80 |
| 18 | Magnesium | | 35.00 | 40.80 | 3.90 | 11.70 | 16.50 | 21.40 | 34.00 | 43.70 | 33.00 | 23.30 | 24.30 | 33.00 |
| 19 | Sodium | | 115.90 | 102.60 | 12.90 | 15.20 | 26.00 | 47.40 | 76.10 | 68.30 | 68.30 | 86.00 | 87.70 | 86.30 |
| 20 | Ammonia as N | | 0.08 | 0.13 | 0.00 | 0.15 | 0.04 | 0.10 | 0.04 | 0.08 | 0.06 | 0.14 | 0.08 | 0.08 |
| 21 | $NO_2$+$NO_3$ as N | | 0.00 | 0.11 | 0.94 | 0.57 | 0.35 | 0.24 | 1.25 | 0.53 | 0.57 | 1.16 | 0.25 | 0.01 |
| 22 | Nitrite as N | | 0.00 | 0.01 | 0.04 | 0.01 | 0.01 | 0.03 | 0.04 | 0.01 | 0.01 | 0.17 | 0.01 | 0.01 |
| 23 | Nitrate as N | | 0.00 | 0.10 | 0.90 | 0.56 | 0.34 | 0.21 | 1.21 | 0.52 | 0.56 | 0.99 | 0.24 | 0.00 |
| 24 | Tot. Phosphate as P | | 0.04 | 0.18 | 0.02 | 0.03 | 0.19 | 0.02 | 0.21 | 0.14 | 0.13 | 0.24 | 0.14 | 0.20 |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | 93.00 | 76.90 | 1.50 | 5.00 | 44.00 | 37.00 | 52.00 | 37.60 | 61.10 | 85.00 | 69.00 | 72.00 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 1.23 | 1.45 | 1.63 | 1.48 | 1.75 | 1.29 | 1.86 | 1.49 | 1.87 | 1.95 | 1.82 | 1.96 |
| 28 | COD | | 22.70 | 20.60 | 14.40 | 4.10 | 10.80 | 10.30 | 10.40 | 20.80 | 18.70 | 47.80 | 16.60 | 29.10 |
| 29 | Dissolved Oxygen | | 5.15 | 5.47 | 5.62 | 5.14 | 5.22 | 5.64 | 6.01 | 2.25 | 5.26 | 4.56 | 4.23 | 4.21 |
| 30 | DO_SAT % | % | 142 | | | 157 | 193 | 57 | | 131 | 140 | 129 | 140 | 124 |
| 31 | Tota Coliform | MPN/100 ml | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | Fecal Coliform | | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 3.590 | | | | 2.690 | | | | 5.010 | |
| 35 | Cadmium | | | | 0.086 | | | | 0.102 | | | | 0.277 | |
| 36 | Chromium | | | | 20.950 | | | | 2.210 | | | | 2.320 | |
| 37 | Copper | | | | 1.290 | | | | 3.400 | | | | 9.800 | |
| 38 | Iron | mg/l | | | 0.077 | | | | 0.093 | | | | 0.176 | |
| 39 | Lead | µg/L | | | 0.060 | | | | 0.720 | | | | 0.490 | |
| 40 | Nickel | | | | 1.430 | | | | 4.250 | | | | 6.500 | |
| 41 | Zinc | mg/l | | | 0.008 | | | | 0.019 | | | | 0.012 | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 40 | 28 | 64 | 72 | 72 | 64 | 92 | 44 | 68 | 128 | 84 | 72 |
| 43 | Tot-Hardness | | 186 | 198 | 80 | 121 | 141 | 153 | 234 | 226 | 206 | 225 | 185 | 210 |
| 44 | Na% | % | 56 | 52 | 25 | 21 | 28 | 39 | 41 | 40 | 42 | 45 | 50 | 46 |
| 45 | RSC (-) | | 0.40 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.20 |
| 46 | SAR (-) | | 3.70 | 3.20 | 0.60 | 0.60 | 1.00 | 1.70 | 2.20 | 2.00 | 2.10 | 2.50 | 2.80 | 2.60 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

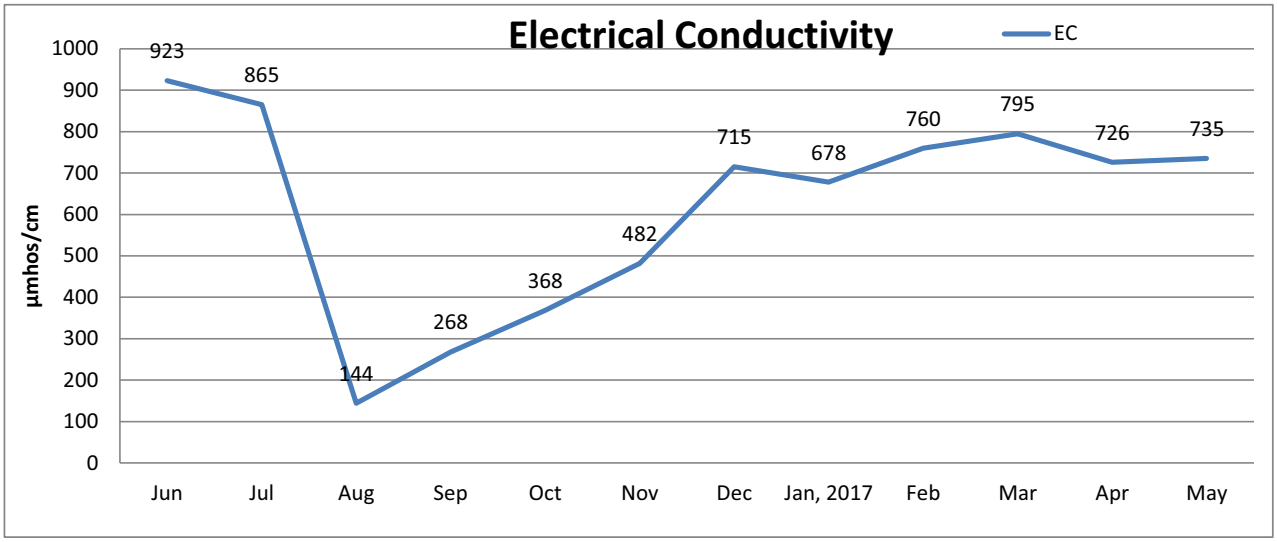
# RIVER WATER SUMMARY - 2016-2017

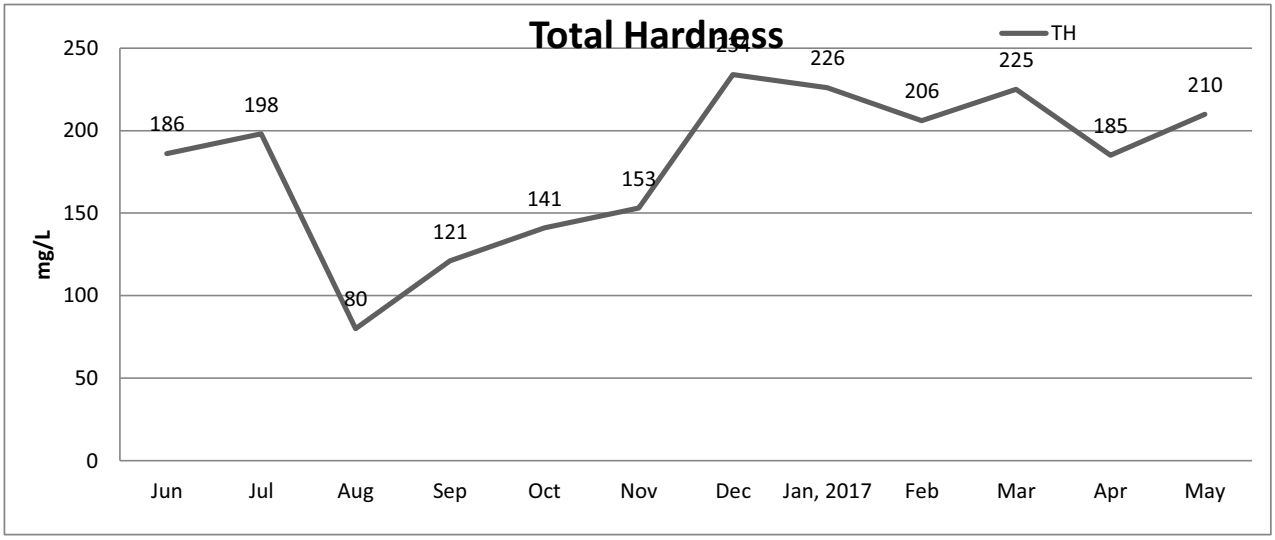
**Station Name : Pratappur** **Division : LYD, Agra**

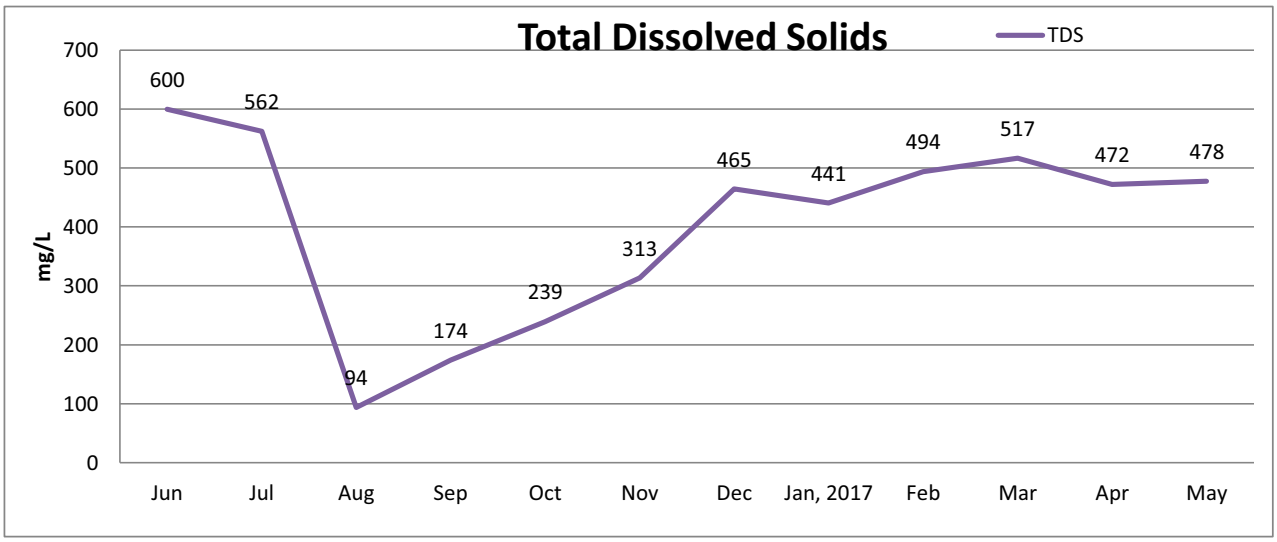
**Local River : YAMUNA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | 12 | 30 | 16 | 26 | 29 | 21 | 28 |
| pH_GEN (pH units) | - | - | - | - | - | - | - |
| EC_GEN (µmho/cm) | 12 | 923 | 144 | 622 | 514 | 659 | 752 |
| Total Dissolved Solids | | | | | | | |
| Turbiidity | - | - | - | - | - | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 29.75 | 0.00 | 15.9 | 8.15 | 19.19 | 24.42 |
| Alk-Tot (as $CaCO_3$) | 12 | 219.17 | 28.33 | 163.5 | 119.13 | 185.04 | 208.56 |
| Boron | 12 | 0.38 | 0.07 | 0.2 | 0.21 | 0.25 | 0.18 |
| Calcium | 12 | 51.00 | 11.00 | 27.8 | 22.20 | 27.00 | 38.00 |
| Chloride | 12 | 125.00 | 17.80 | 68.1 | 60.70 | 62.75 | 87.67 |
| Carbonate | 12 | 35.70 | 0.00 | 19.1 | 9.78 | 23.03 | 29.30 |
| Fluoride | 12 | 0.67 | 0.02 | 0.3 | 0.32 | 0.31 | 0.28 |
| Bicarbonate | 12 | 222.00 | 34.00 | 158.0 | 123.40 | 176.00 | 191.67 |
| Potassium | 12 | 9.00 | 1.20 | 4.8 | 5.30 | 2.65 | 7.00 |
| Magnesium | 12 | 43.70 | 3.90 | 26.7 | 21.58 | 33.03 | 26.87 |
| Sodium | 12 | 115.90 | 12.90 | 66.1 | 54.52 | 65.03 | 86.67 |
| Ammonia as N | 12 | 0.15 | 0.00 | 0.1 | 0.08 | 0.07 | 0.10 |
| $NO_2$+$NO_3$ as N | 12 | 1.25 | 0.00 | 0.5 | 0.39 | 0.65 | 0.47 |
| Nitrite as N | 12 | 0.17 | 0.00 | 0.0 | 0.01 | 0.02 | 0.06 |
| Nitrate as N | 12 | 1.21 | 0.00 | 0.5 | 0.38 | 0.63 | 0.41 |
| Tot. Phosphate as P | 12 | 0.24 | 0.02 | 0.1 | 0.09 | 0.13 | 0.19 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 93.00 | 1.50 | 52.8 | 44.08 | 46.93 | 75.33 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 2.0 | 1.2 | 1.6 | 1.5 | 1.6 | 1.9 |
| COD | 12 | 47.8 | 4.1 | 18.9 | 14.5 | 15.1 | 31.2 |
| Dissolved Oxygen | 12 | 6.01 | 2.25 | 4.90 | 5.32 | 4.8 | 4.3 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | - | - | - | - | - | - | - |
| Fecal Coliform | - | - | - | - | - | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 3 | 5.01 | 2.69 | 3.76 | 3.59 | 2.69 | 5.01 |
| Cadmium | 3 | 0.28 | 0.09 | 0.16 | 0.09 | 0.10 | 0.28 |
| Chromium | 3 | 20.95 | 2.21 | 8.49 | 20.95 | 2.21 | 2.32 |
| Copper | 3 | 9.80 | 1.29 | 4.83 | 1.29 | 3.40 | 9.80 |
| Iron | 3 | 0.18 | 0.08 | 0.12 | 0.08 | 0.09 | 0.18 |
| Lead | 3 | 0.72 | 0.06 | 0.42 | 0.06 | 0.72 | 0.49 |
| Nickel | 3 | 6.50 | 1.43 | 4.06 | 1.43 | 4.25 | 6.50 |
| Zinc | 3 | 0.02 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 128 | 28 | 69 | 55 | 67 | 95 |
| Tot-Hardness | 12 | 234 | 80 | 180 | 145 | 205 | 207 |
| Na% | 12 | 56 | 21 | 40 | 36 | 41 | 47 |
| RSC (-) | 12 | 0.40 | 0.00 | 0.1 | 0.16 | 0.00 | 0.17 |
| SAR (-) | 12 | 3.70 | 0.60 | 2.1 | 1.82 | 2.00 | 2.63 |
| **PESTICIDES** | | | | | | | |

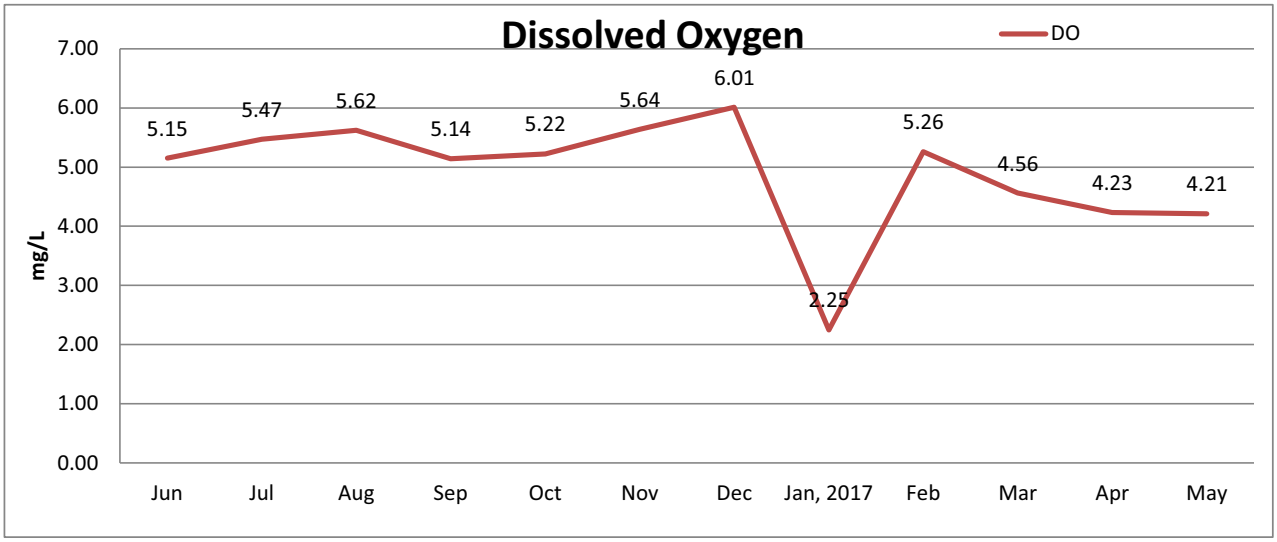
**Graphical Presentation of PRATAPPUR WQ Site**

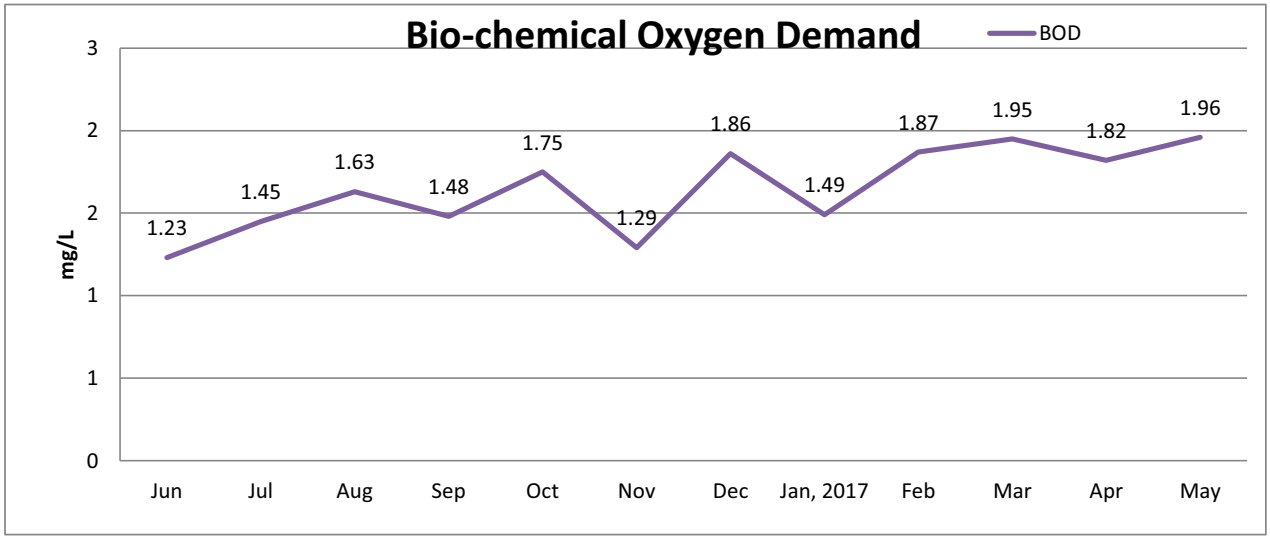


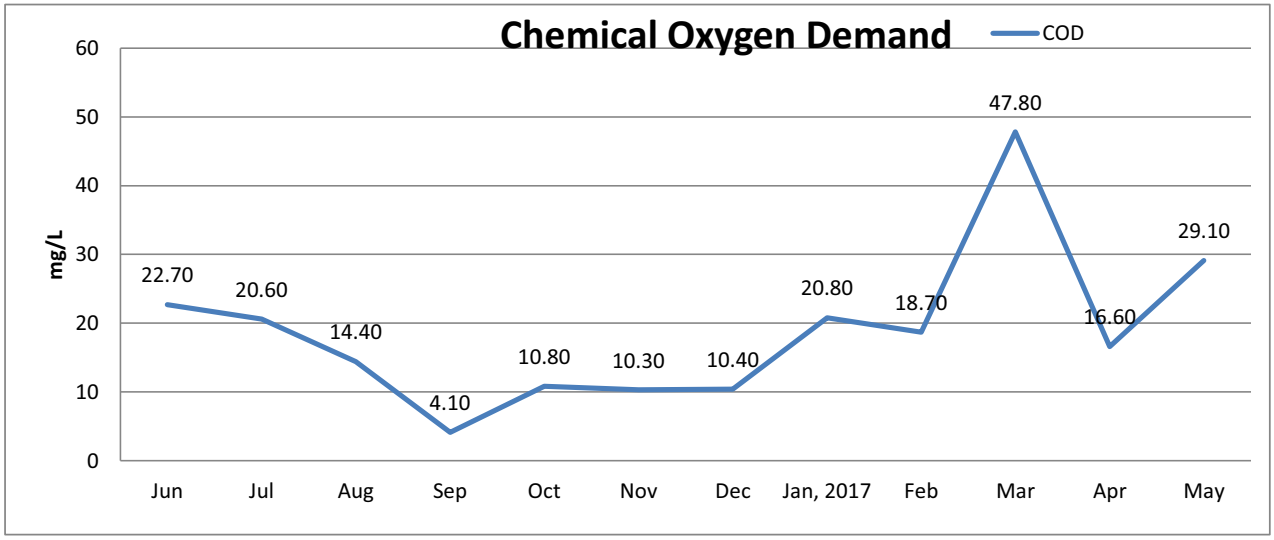



**Graphical Presentation of PRATAPPUR WQ Site**



# BANDA

## General Particulars

| | | | |
|---|---|---|---|
| Site | : **BANDA** | Code | : **GYH00G3** |
| State | : **Uttar Pradesh** | District | : **Banda** |
| Division | : **L.Y. D., Agra** | Sub-Division | : **LYSD-II, Agra** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **Ken** |
| Sub-Sub-Trib. | : **-** | Local River | : **Ken** |
| Drainage Area | : **27616 Sq. Km.** | Bank | : **Left** |
| Latitude | : **25°29'00"N** | Longitude | : **80°18'00" E** |
| Zero of Gauge | : **89.000(m.s.l)** | | |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **05/04/1959** |
| Discharge: | : **05/04/1959** |
| Sediment | : **01/01/1961** |
| Water Quality | : **01/01/1972** |
| Wireless | : **21/06/1978** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name :BANDA** **Division : LYD, Agra**

**Local River : KEN**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | | | 01/08/16 | | | 01/11/16 | | | 01/02/17 | | | 01/05/17 |
| | PHYSICAL | | | | | | | | | | | | | |
| 1 | Weather | | | | Cloudy | | | Clear | | | Clear | | | Clear |
| 2 | Colour_Cod (-) | | | | Light Brown | | | Light Brown | | | Light Green | | | Clear |
| 3 | Odour_Code (-) | | | | odour free | | | odour free | | | odour free | | | odour free |
| 4 | Temperature | °C | | | 27.5 | | | 24.5 | | | 17 | | | 29 |
| 5 | pH_GEN (pH units) | | | | 6.80 | | | 8.60 | | | 7.80 | | | 8.10 |
| 6 | EC_GEN (µmho/cm) | NTU | | | 127 | | | 342 | | | 380 | | | 445 |
| 7 | Total Dissolved Solids | mg/L | | | 83 | | | 222 | | | 247 | | | 289 |
| 8 | Turbiidity | | | | - | | | - | | | - | | | - |
| | CHEMICAL | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | | | 0 | | | 25.75 | | | 0 | | | 0 |
| 10 | Alk-Tot (as $CaCO_3$) | | | | 18.33 | | | 131.50 | | | 139.17 | | | 141.67 |
| 11 | Boron | | | | 0.14 | | | 0.07 | | | 0.04 | | | 0.10 |
| 12 | Calcium | | | | 22.00 | | | 29.00 | | | 26.00 | | | 26.00 |
| 13 | Chloride | | | | 13.80 | | | 15.30 | | | 20.90 | | | 28.80 |
| 14 | Carbonate | | | | 0.00 | | | 30.90 | | | 0.00 | | | 0.00 |
| 15 | Fluoride | | | | 0.21 | | | 0.08 | | | 0.51 | | | 1.77 |
| 16 | Bicarbonate | | | | 22.00 | | | 96.00 | | | 167.00 | | | 170.00 |
| 17 | Potassium | | | | 2.30 | | | 2.70 | | | 2.00 | | | 3.60 |
| 18 | Magnesium | | | | 4.90 | | | 16.50 | | | 23.30 | | | 17.50 |
| 19 | Sodium | | | | 12.40 | | | 23.50 | | | 25.10 | | | 46.00 |
| 20 | Ammonia as N | | | | 0.00 | | | 0.11 | | | 0.46 | | | 1.22 |
| 21 | $NO_2$+$NO_3$ as N | | | | 0.50 | | | 0.17 | | | 0.09 | | | 0.05 |
| 22 | Nitrite as N | | | | 0.07 | | | 0.03 | | | 0.01 | | | 0.04 |
| 23 | Nitrate as N | | | | 0.43 | | | 0.14 | | | 0.08 | | | 0.01 |
| 24 | Tot. Phosphate as P | | | | 0.07 | | | 0.02 | | | 0.06 | | | 0.16 |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | | | 17.90 | | | 20.00 | | | 10.20 | | | 10.00 |
| | /BACTERIOLOGICAL | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | | | 1.20 | | | 1.40 | | | 2.20 | | | 2.80 |
| 28 | COD | | | | 2.10 | | | 14.70 | | | 11.60 | | | 17.40 |
| 29 | Dissolved Oxygen | | | | 5.90 | | | 5.70 | | | 5.90 | | | 7.90 |
| 30 | DO_SAT % | % | | | 74 | | | 68 | | | 61 | | | 102 |
| 31 | Tota Coliform | MPN/100 | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | Fecal Coliform | | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| | TRACE & TOXIC | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 5.970 | | | 4.810 | | | | | | 0.190 |
| 35 | Cadmium | | | | 0.095 | | | 0.138 | | | | | | 0.254 |
| 36 | Chromium | | | | 0.820 | | | 1.790 | | | | | | 2.470 |
| 37 | Copper | | | | 1.550 | | | 3.570 | | | | | | 6.990 |
| 38 | Iron | mg/l | | | 0.170 | | | 0.180 | | | | | | 0.199 |
| 39 | Lead | µg/L | | | 0.570 | | | 0.930 | | | | | | 1.080 |
| 40 | Nickel | | | | 2.910 | | | 2.590 | | | | | | 3.670 |
| 41 | Zinc | mg/l | | | 0.009 | | | 0.017 | | | | | | 0.019 |
| | CHEMICAL INDICES | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | | | 56 | | | 72 | | | 64 | | | 64 |
| 43 | Tot-Hardness | | | | 76 | | | 141 | | | 161 | | | 137 |
| 44 | Na% | % | | | 26 | | | 26 | | | 25 | | | 42 |
| 45 | RSC (-) | | | | 0.00 | | | 0.00 | | | 0.00 | | | 0.90 |
| 46 | SAR (-) | | | | 0.60 | | | 0.90 | | | 0.90 | | | 1.70 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

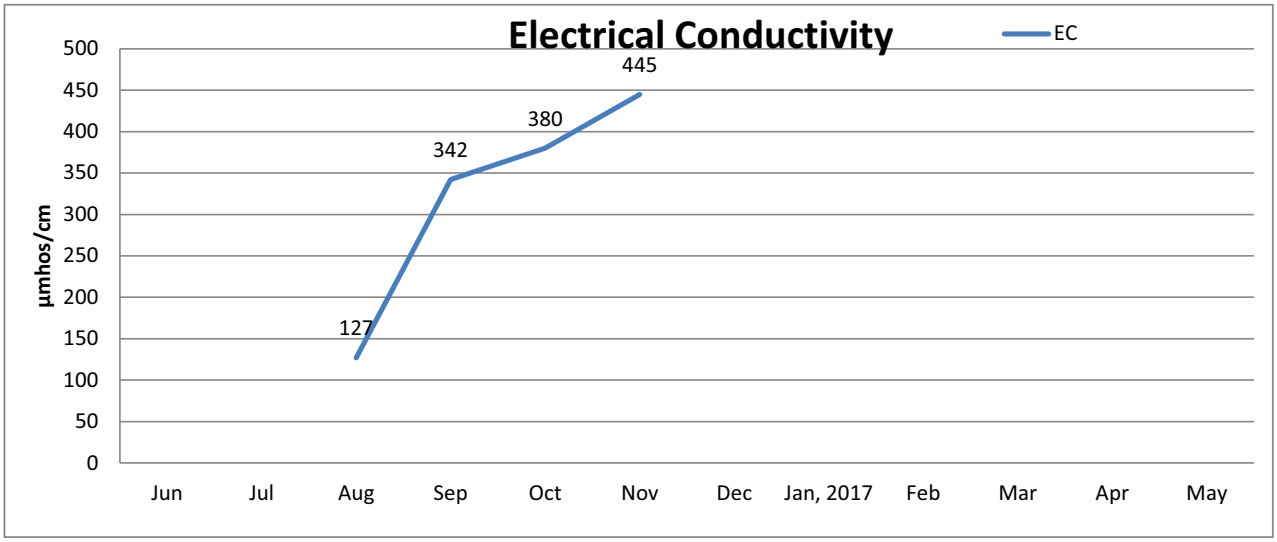
# RIVER WATER SUMMARY - 2016-2017

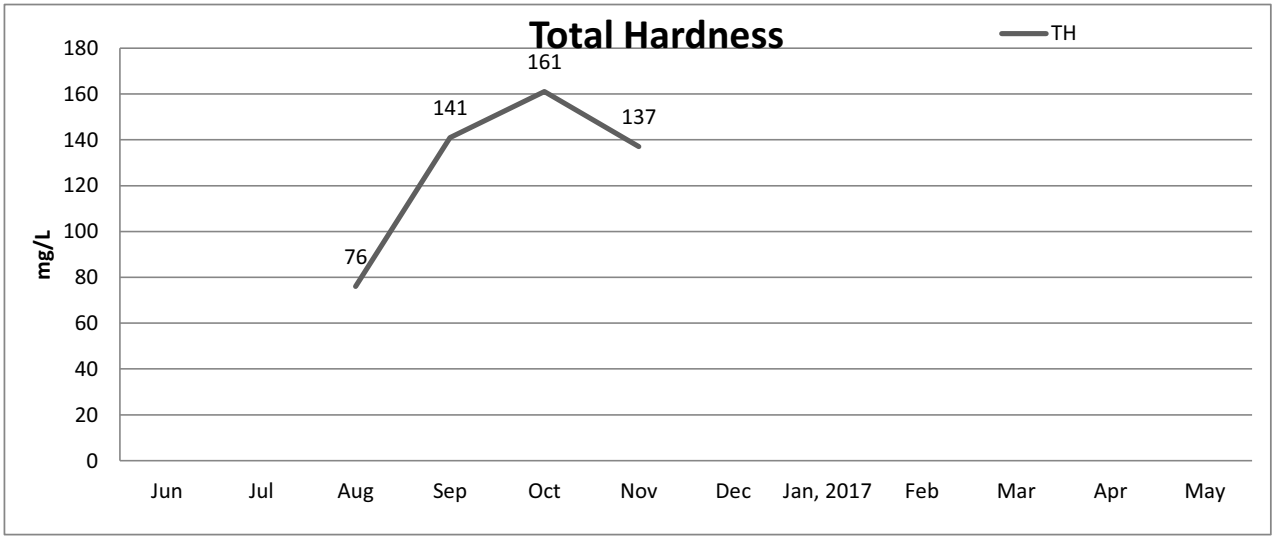
**Station Name : BANDA** **Division : LYD, Agra**

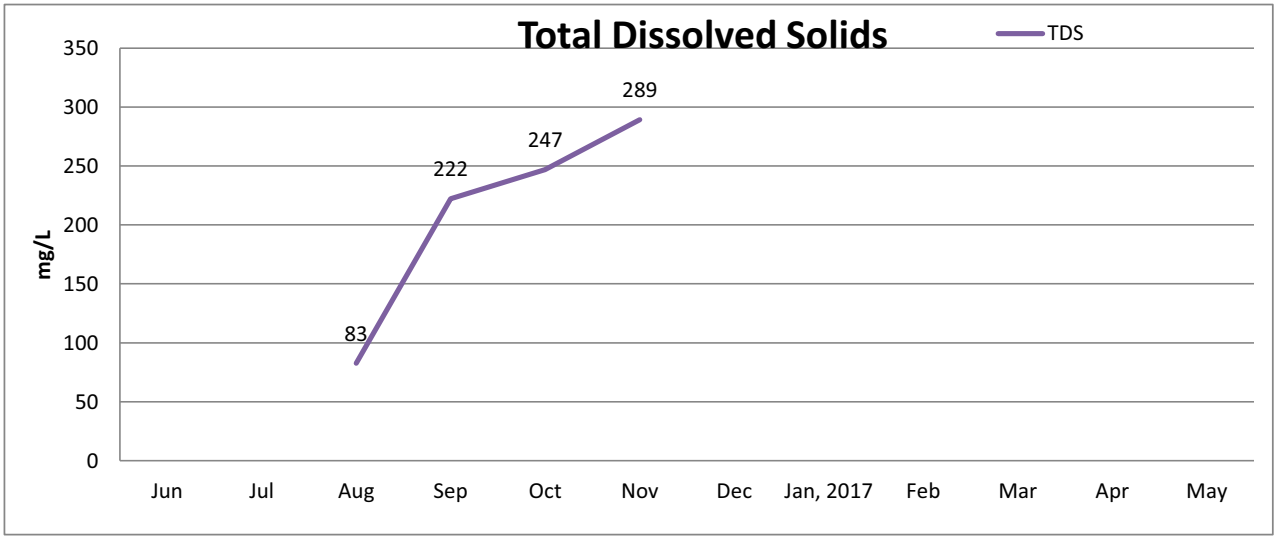
**Local River : KEN**

| Parameters | mber of Observat | Maxmium | Minimum | Mean | ood (Jun-O | ter (Nov-F | mer (Mar-M |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| **Weather** | | | | | | | |
| **Colour_Cod (-)** | - | - | - | - | - | - | - |
| **Odour_Code (-)** | - | - | - | - | - | - | - |
| **Temperature** | 4 | 29.0 | 17.0 | 24.5 | 27.5 | 20.8 | 29.0 |
| **pH_GEN (pH units)** | 4 | 8.60 | 6.80 | 7.83 | 6.80 | 8.20 | 8.10 |
| **EC_GEN (µmho/cm)** | 4 | 445 | 127 | 324 | 127 | 361 | 445 |
| **Total Dissolved Solids** | 4 | 289 | 83 | 210 | 83 | 235 | 289 |
| **Turbiidity** | - | - | - | - | - | - | - |
| **CHEMICAL** | | | | | | | |
| **Alk-Phen** (as $CaCO_3$) | 4 | 25.75 | 0.00 | 6.4 | 8.58 | 0.00 | 0.00 |
| **Alk-Tot** (as $CaCO_3$) | 4 | 141.67 | 18.33 | 107.7 | 96.33 | 140.42 | 141.67 |
| **Boron** | 4 | 0.14 | 0.04 | 0.1 | 0.08 | 0.07 | 0.10 |
| **Calcium** | 4 | 29.00 | 22.00 | 25.8 | 25.67 | 26.00 | 26.00 |
| **Chloride** | 4 | 28.80 | 13.80 | 19.7 | 16.67 | 24.85 | 28.80 |
| **Carbonate** | 4 | 30.90 | 0.00 | 7.7 | 10.30 | 0.00 | 0.00 |
| **Fluoride** | 4 | 1.77 | 0.08 | 0.6 | 0.27 | 1.14 | 1.77 |
| **Bicarbonate** | 4 | 170.00 | 22.00 | 113.8 | 95.00 | 168.50 | 170.00 |
| **Potassium** | 4 | 3.60 | 2.00 | 2.7 | 2.33 | 2.80 | 3.60 |
| **Magnesium** | 4 | 23.30 | 4.90 | 15.6 | 14.90 | 20.40 | 17.50 |
| **Sodium** | 4 | 46.00 | 12.40 | 26.8 | 20.33 | 35.55 | 46.00 |
| **Ammonia as N** | 4 | 1.22 | 0.00 | 0.4 | 0.19 | 0.84 | 1.22 |
| **$NO_2$+$NO_3$ as N** | 4 | 0.50 | 0.05 | 0.2 | 0.25 | 0.07 | 0.05 |
| **Nitrite as N** | 4 | 0.07 | 0.01 | 0.0 | 0.04 | 0.03 | 0.04 |
| **Nitrate as N** | 4 | 0.43 | 0.01 | 0.2 | 0.22 | 0.05 | 0.01 |
| **Tot. Phosphate as P** | 4 | 0.16 | 0.02 | 0.1 | 0.05 | 0.11 | 0.16 |
| **Silicate as $SiO_2$** | - | - | - | - | - | - | - |
| **Sulphate as $SO_4$** | 4 | 20.00 | 10.00 | 14.5 | 16.03 | 10.10 | 10.00 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| **BOD5-20°C** | 4 | 2.8 | 1.2 | 1.9 | 1.6 | 2.5 | 2.8 |
| **COD** | 4 | 17.4 | 2.1 | 11.5 | 9.5 | 14.5 | 17.4 |
| **Dissolved Oxygen** | 4 | 7.90 | 5.70 | 6.35 | 5.83 | 6.9 | 7.9 |
| **DO_SAT %** | - | - | - | - | - | - | - |
| **Tota Coliform** | - | - | - | - | - | - | - |
| **Fecal Coliform** | - | - | - | - | - | - | - |
| **E. Coli** | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| **Arsenic** | 3 | 5.97 | 0.19 | 3.66 | 5.39 | 0.19 | 0.19 |
| **Cadmium** | 3 | 0.25 | 0.10 | 0.16 | 0.12 | 0.25 | 0.25 |
| **Chromium** | 3 | 2.47 | 0.82 | 1.69 | 1.31 | 2.47 | 2.47 |
| **Copper** | 3 | 6.99 | 1.55 | 4.04 | 2.56 | 6.99 | 6.99 |
| **Iron** | 3 | 0.20 | 0.17 | 0.18 | 0.18 | 0.20 | 0.20 |
| **Lead** | 3 | 1.08 | 0.57 | 0.86 | 0.75 | 1.08 | 1.08 |
| **Nickel** | 3 | 3.67 | 2.59 | 3.06 | 2.75 | 3.67 | 3.67 |
| **Zinc** | 3 | 0.02 | 0.01 | 0.02 | 0.01 | 0.02 | 0.02 |
| **CHEMICAL INDICES** | | | | | | | |
| **Ca-Hardness** | 4 | 72 | 56 | 64 | 64 | 64 | 64 |
| **Tot-Hardness** | 4 | 161 | 76 | 129 | 126 | 149 | 137 |
| **Na%** | 4 | 42 | 25 | 30 | 26 | 34 | 42 |
| **RSC (-)** | 4 | 0.90 | 0.00 | 0.2 | 0.00 | 0.45 | 0.90 |
| **SAR (-)** | 4 | 1.70 | 0.60 | 1.0 | 0.80 | 1.30 | 1.70 |
| **PESTICIDES** | | | | | | | |

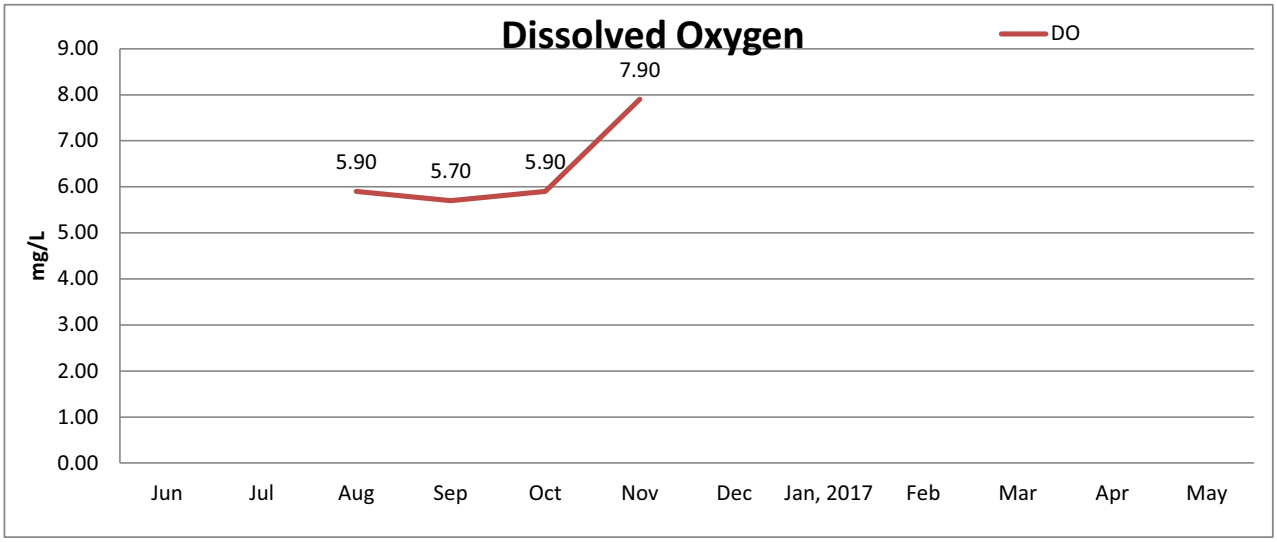
**Graphical Presentation of BANDA WQ Site**

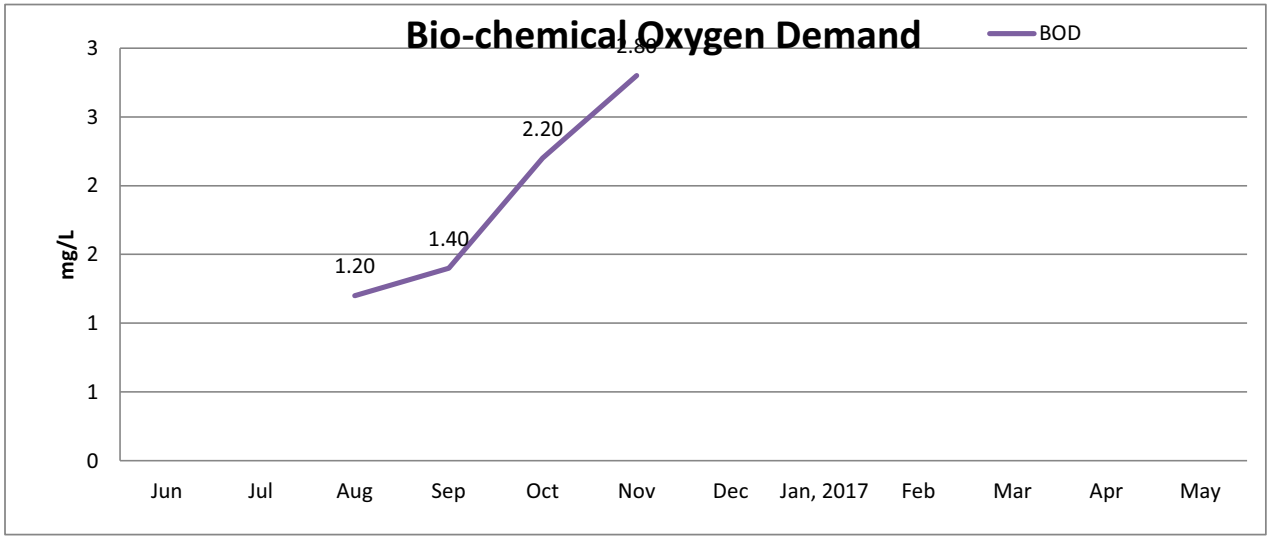


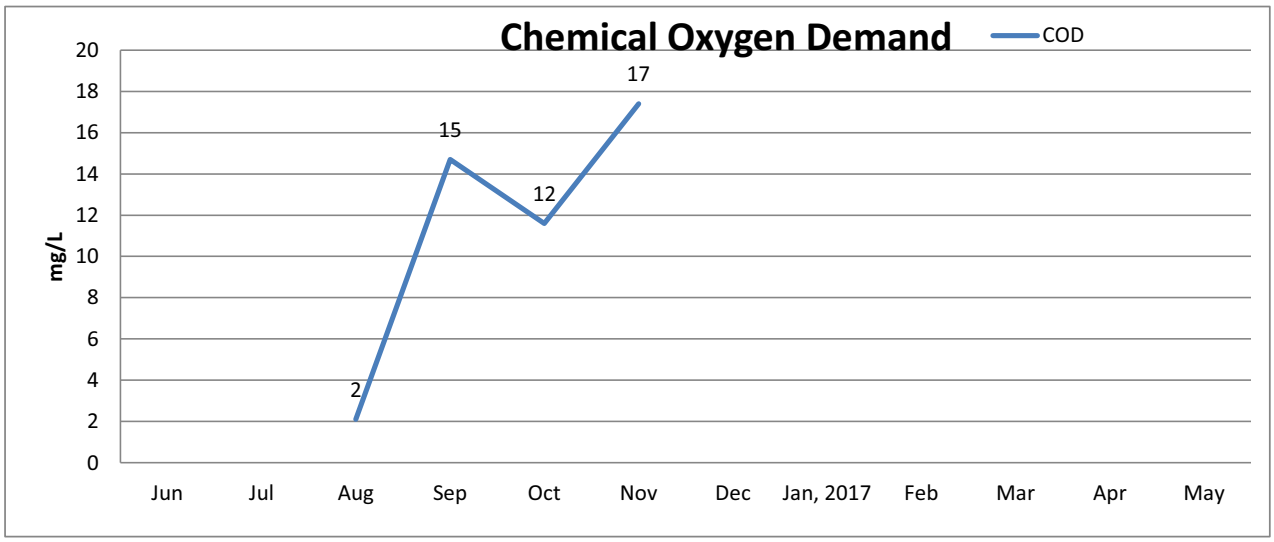



**Graphical Presentation of BANDA WQ Site**



# MADLA

## General Particulars

| | | | |
|---|---|---|---|
| Site | : **MADLA** | Code | : **GYHOOQ3** |
| State | : **Madhya Pradesh** | District | : **Panna** |
| Division | : **L.Y. D., Agra** | Sub-Division | : **-** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **Ken** |
| Sub-Sub-Trib. | : **-** | Local River | : **Ken** |
| Drainage Area | : **22069 Sq. Km.** | Bank | : **Left** |
| Latitude | : **24°44'00"N** | Longitude | : **80°00'24" E** |
| Zero of Gauge | : **-** | | |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name :MADLA** **Division : LYD, Agra**

**Local River : KEN**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 01/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 01/04/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | Clear | Clear | L.Brown | | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 3 | Odour_Code (-) | | odour free | | | | | | | | | | | |
| 4 | Temperature | °C | 30 | 29 | 23 | 26 | 26 | 22 | 19 | 16 | 18 | 20 | 24 | 26 |
| 5 | pH_GEN (pH units) | | 9.70 | 8.50 | 6.80 | 7.50 | 8.30 | 8.70 | 8.50 | 8.60 | 8.00 | 7.50 | 7.60 | 8.30 |
| 6 | EC_GEN (µmho/cm) | NTU | 247 | 163 | 100 | 115 | 169 | 299 | 165 | 336 | 247 | 248 | 132 | 252 |
| 7 | Total Dissolved Solids | mg/L | 161 | 106 | 65 | 75 | 110 | 194 | 107 | 218 | 161 | 161 | 86 | 164 |
| 8 | Turbiidity | | - | - | - | - | - | - | - | - | - | - | - | - |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 12.00 | 12.00 | 0.00 | 0.00 | 14.50 | 35.50 | 10.50 | 15.00 | 0.00 | 0.00 | 0.00 | 18.00 |
| 10 | Alk-Tot (as $CaCO_3$) | | 89.83 | 81.50 | 10.00 | 52.50 | 94.83 | 95.17 | 100.17 | 106.67 | 43.33 | 58.33 | 83.33 | 102.67 |
| 11 | Boron | | 0.02 | 0.01 | 0.18 | 0.14 | 0.25 | 0.07 | 0.18 | 0.06 | 0.00 | 0.06 | 0.04 | 0.04 |
| 12 | Calcium | | 14.00 | 16.00 | 19.00 | 21.00 | 13.00 | 32.00 | 32.00 | 34.00 | 34.00 | 32.00 | 29.00 | 29.00 |
| 13 | Chloride | | 15.60 | 17.80 | 9.90 | 7.80 | 15.30 | 13.50 | 15.30 | 19.20 | 15.30 | 15.30 | 15.30 | 17.30 |
| 14 | Carbonate | | 14.40 | 14.40 | 0.00 | 0.00 | 17.40 | 42.60 | 12.60 | 18.00 | 0.00 | 0.00 | 0.00 | 21.60 |
| 15 | Fluoride | | 0.87 | 0.29 | 0.14 | 0.18 | 0.14 | 0.04 | 0.55 | 0.02 | 0.11 | 0.11 | 0.29 | 0.06 |
| 16 | Bicarbonate | | 79.00 | 69.00 | 12.00 | 63.00 | 79.00 | 29.00 | 95.00 | 92.00 | 52.00 | 70.00 | 100.00 | 80.00 |
| 17 | Potassium | | 3.50 | 2.70 | 1.60 | 1.60 | 2.30 | 2.30 | 1.60 | 1.60 | 2.00 | 1.60 | 2.30 | 2.80 |
| 18 | Magnesium | | 16.50 | 13.60 | 3.90 | 7.80 | 21.40 | 16.50 | 9.70 | 9.70 | 6.80 | 8.70 | 10.70 | 8.70 |
| 19 | Sodium | | 18.60 | 16.10 | 5.50 | 6.70 | 10.10 | 13.10 | 6.40 | 9.90 | 8.50 | 10.10 | 13.10 | 14.70 |
| 20 | Ammonia as N | | 0.00 | 0.00 | 0.00 | 0.11 | 0.03 | 0.00 | 0.00 | 0.00 | 0.01 | 0.04 | 0.01 | 0.04 |
| 21 | $NO_2$+$NO_3$ as N | | 0.03 | 0.00 | 0.66 | 0.55 | 0.52 | 0.34 | 0.09 | 0.01 | 0.09 | 0.06 | 0.07 | 0.01 |
| 22 | Nitrite as N | | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 |
| 23 | Nitrate as N | | 0.03 | 0.00 | 0.60 | 0.55 | 0.52 | 0.34 | 0.08 | 0.01 | 0.08 | 0.06 | 0.06 | 0.00 |
| 24 | Tot. Phosphate as P | | 0.00 | 0.00 | 0.00 | 0.03 | 0.03 | 0.01 | 0.01 | 0.02 | 0.00 | 0.01 | 0.02 | 0.00 |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | 10.10 | 32.30 | 5.30 | 9.80 | 21.60 | 26.00 | 3.00 | 6.00 | 5.80 | 14.00 | 3.00 | 18.00 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 6.60 | 1.20 | 4.40 | 2.40 | 4.60 | 2.00 | 2.40 | 7.30 | 8.20 | 1.20 | 2.00 | 4.10 |
| 28 | COD | | 10.30 | 8.20 | 2.10 | 4.10 | 6.20 | 20.60 | 8.30 | 8.30 | 16.60 | 6.20 | 10.40 | 14.60 |
| 29 | Dissolved Oxygen | | 5.60 | 4.98 | 5.26 | 5.89 | 5.87 | 6.10 | 4.56 | 5.25 | 4.20 | 4.68 | 4.62 | 4.12 |
| 30 | DO_SAT % | % | 101 | 83 | 91 | 132 | 122 | 183 | 137 | 177 | 200 | 86 | 109 | 96 |
| 31 | Tota Coliform | MPN/100 ml | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | Fecal Coliform | | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 1.800 | | | | 1.860 | | | | 0.890 | |
| 35 | Cadmium | | | | 0.085 | | | | 0.061 | | | | 0.112 | |
| 36 | Chromium | | | | 0.810 | | | | 1.750 | | | | 0.490 | |
| 37 | Copper | | | | 5.900 | | | | 4.470 | | | | 1.400 | |
| 38 | Iron | mg/l | | | 0.066 | | | | 0.080 | | | | 0.199 | |
| 39 | Lead | µg/L | | | 0.230 | | | | 0.380 | | | | 0.970 | |
| 40 | Nickel | | | | 2.350 | | | | 0.680 | | | | 3.770 | |
| 41 | Zinc | mg/l | | | 0.007 | | | | 0.005 | | | | 0.008 | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 36 | 40 | 48 | 52 | 32 | 80 | 80 | 84 | 84 | 80 | 72 | 72 |
| 43 | Tot-Hardness | | 105 | 97 | 64 | 84 | 121 | 149 | 121 | 125 | 112 | 116 | 117 | 108 |
| 44 | Na% | % | 27 | 26 | 15 | 14 | 15 | 16 | 10 | 15 | 14 | 16 | 19 | 22 |
| 45 | RSC (-) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46 | SAR (-) | | 0.80 | 0.70 | 0.30 | 0.30 | 0.40 | 0.50 | 0.30 | 0.40 | 0.40 | 0.40 | 0.50 | 0.60 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

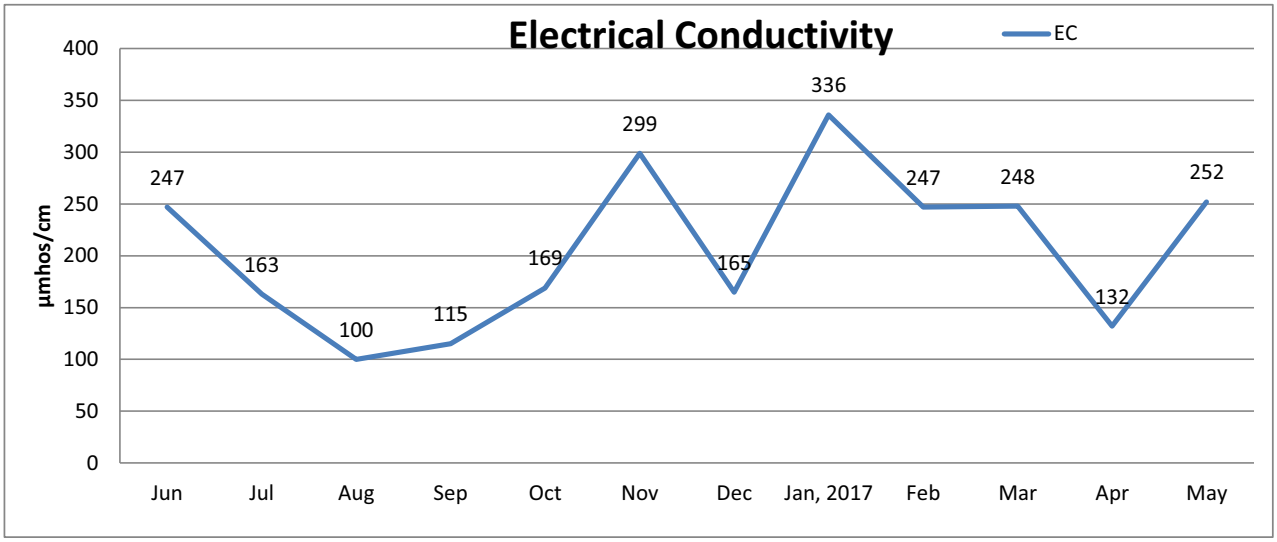
# RIVER WATER SUMMARY - 2016-2017

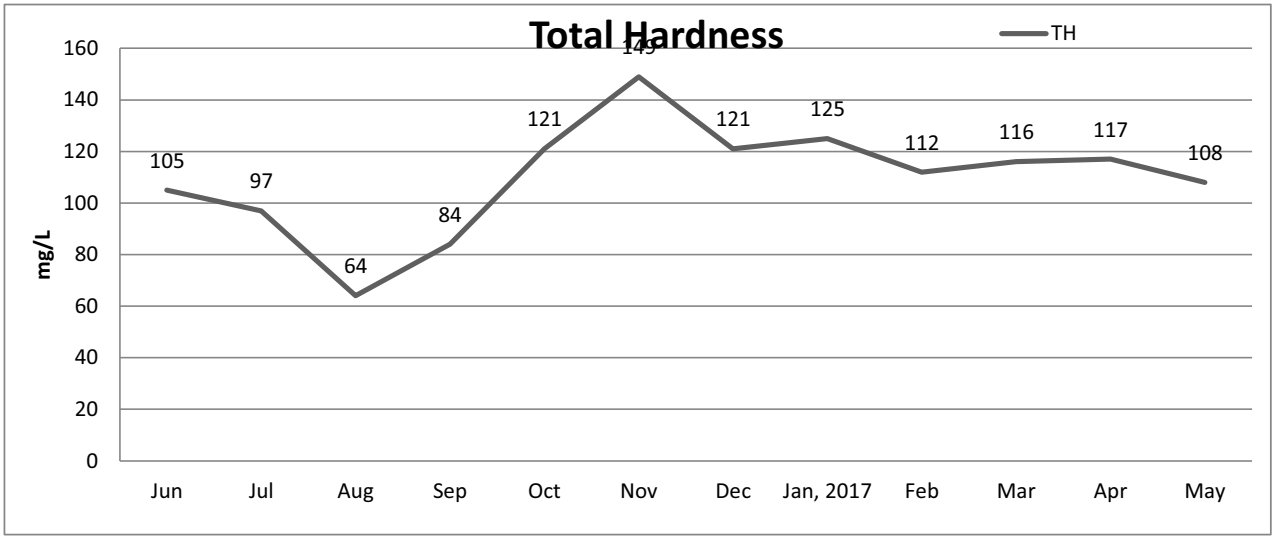
**Station Name : MADLA** **Division : LYD, Agra**

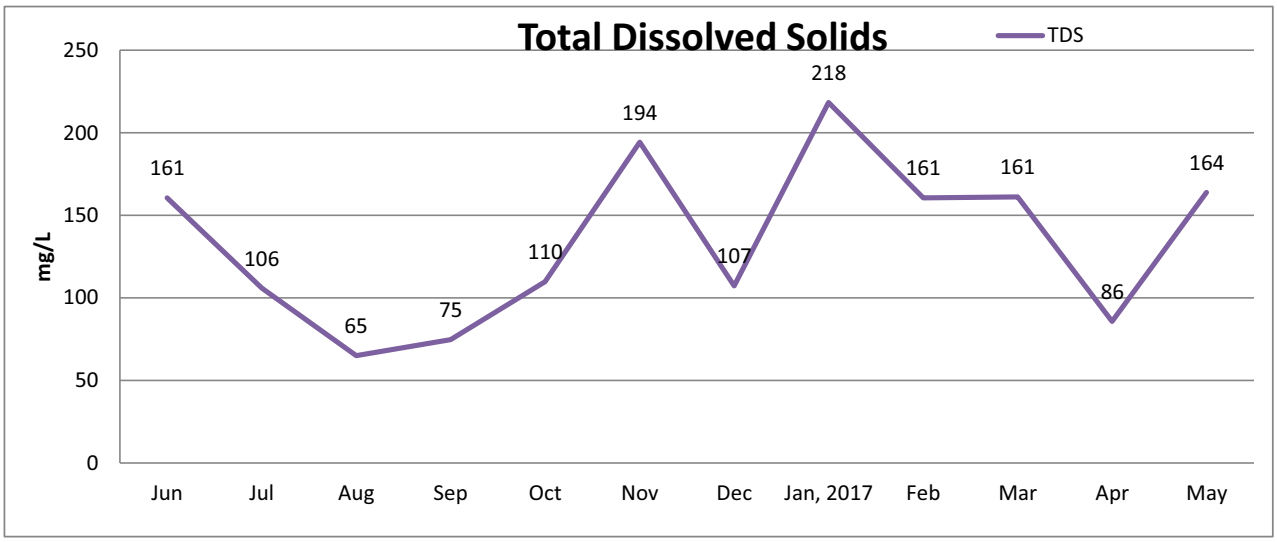
**Local River : KEN**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | 12 | 30 | 16 | 23 | 27 | 19 | 23 |
| pH_GEN (pH units) | - | - | - | - | - | - | - |
| EC_GEN (µmho/cm) | 12 | 336 | 100 | 206 | 159 | 262 | 211 |
| Total Dissolved Solids | | | | | | | |
| Turbiidity | - | - | - | - | - | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 35.50 | 0.00 | 9.8 | 7.70 | 15.25 | 6.00 |
| Alk-Tot (as $CaCO_3$) | 12 | 106.67 | 10.00 | 76.5 | 65.73 | 86.33 | 81.44 |
| Boron | 12 | 0.25 | 0.00 | 0.1 | 0.12 | 0.08 | 0.05 |
| Calcium | 12 | 34.00 | 13.00 | 25.4 | 16.60 | 33.00 | 30.00 |
| Chloride | 12 | 19.20 | 7.80 | 14.8 | 13.28 | 15.83 | 15.97 |
| Carbonate | 12 | 42.60 | 0.00 | 11.8 | 9.24 | 18.30 | 7.20 |
| Fluoride | 12 | 0.87 | 0.02 | 0.2 | 0.32 | 0.18 | 0.15 |
| Bicarbonate | 12 | 100.00 | 12.00 | 68.3 | 60.40 | 67.00 | 83.33 |
| Potassium | 12 | 3.50 | 1.60 | 2.2 | 2.34 | 1.88 | 2.23 |
| Magnesium | 12 | 21.40 | 3.90 | 11.2 | 12.64 | 10.68 | 9.37 |
| Sodium | 12 | 18.60 | 5.50 | 11.1 | 11.40 | 9.48 | 12.63 |
| Ammonia as N | 12 | 0.11 | 0.00 | 0.0 | 0.03 | 0.00 | 0.03 |
| $NO_2$+$NO_3$ as N | 12 | 0.66 | 0.00 | 0.2 | 0.35 | 0.13 | 0.05 |
| Nitrite as N | 12 | 0.06 | 0.00 | 0.0 | 0.01 | 0.01 | 0.01 |
| Nitrate as N | 12 | 0.60 | 0.00 | 0.2 | 0.34 | 0.13 | 0.04 |
| Tot. Phosphate as P | 12 | 0.03 | 0.00 | 0.0 | 0.01 | 0.01 | 0.01 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 32.30 | 3.00 | 12.9 | 15.82 | 10.20 | 11.67 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 8.2 | 1.2 | 3.9 | 3.8 | 5.0 | 2.4 |
| COD | 12 | 20.6 | 2.1 | 9.7 | 6.2 | 13.5 | 10.4 |
| Dissolved Oxygen | 12 | 6.10 | 4.12 | 5.09 | 5.52 | 5.0 | 4.5 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | - | - | - | - | - | - | - |
| Fecal Coliform | - | - | - | - | - | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 3 | 1.86 | 0.89 | 1.52 | 1.80 | 1.86 | 0.89 |
| Cadmium | 3 | 0.11 | 0.06 | 0.09 | 0.09 | 0.06 | 0.11 |
| Chromium | 3 | 1.75 | 0.49 | 1.02 | 0.81 | 1.75 | 0.49 |
| Copper | 3 | 5.90 | 1.40 | 3.92 | 5.90 | 4.47 | 1.40 |
| Iron | 3 | 0.20 | 0.07 | 0.12 | 0.07 | 0.08 | 0.20 |
| Lead | 3 | 0.97 | 0.23 | 0.53 | 0.23 | 0.38 | 0.97 |
| Nickel | 3 | 3.77 | 0.68 | 2.27 | 2.35 | 0.68 | 3.77 |
| Zinc | 3 | 0.01 | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 84 | 32 | 63 | 42 | 82 | 75 |
| Tot-Hardness | 12 | 149 | 64 | 110 | 94 | 127 | 114 |
| Na% | 12 | 27 | 10 | 17 | 19 | 14 | 19 |
| RSC (-) | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| SAR (-) | 12 | 0.80 | 0.30 | 0.5 | 0.50 | 0.40 | 0.50 |
| **PESTICIDES** | | | | | | | |

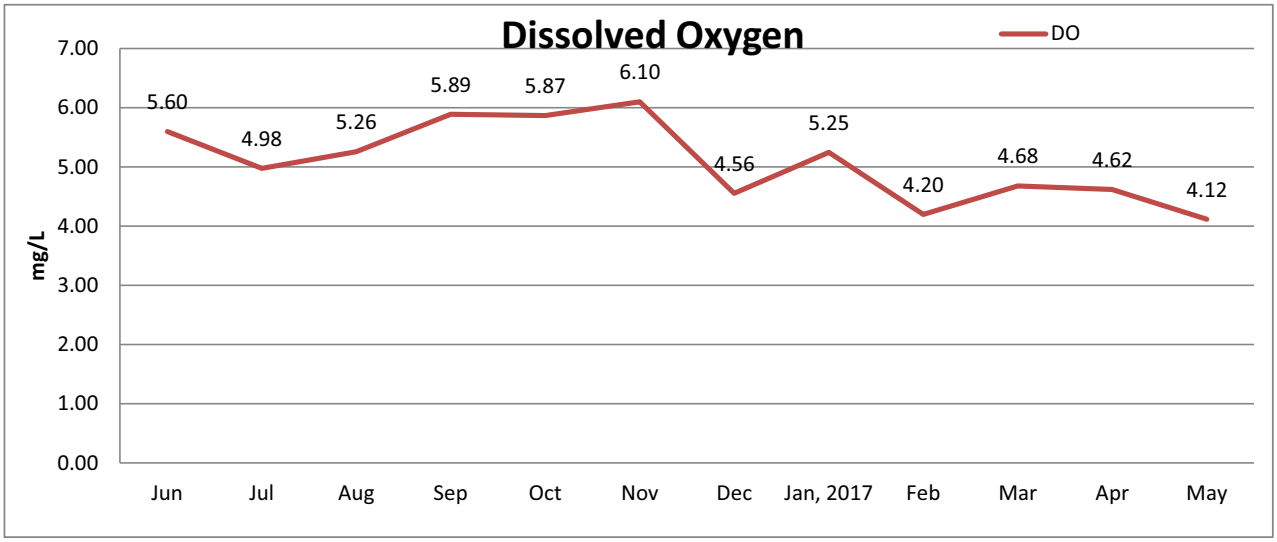
**Graphical Presentation of MADALA WQ Site**

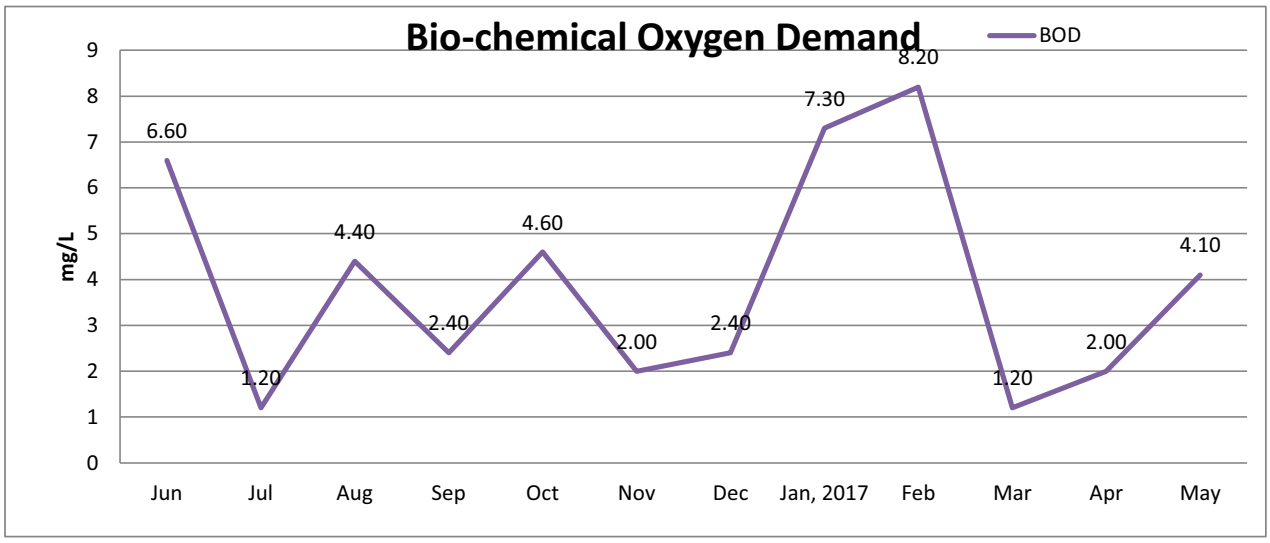


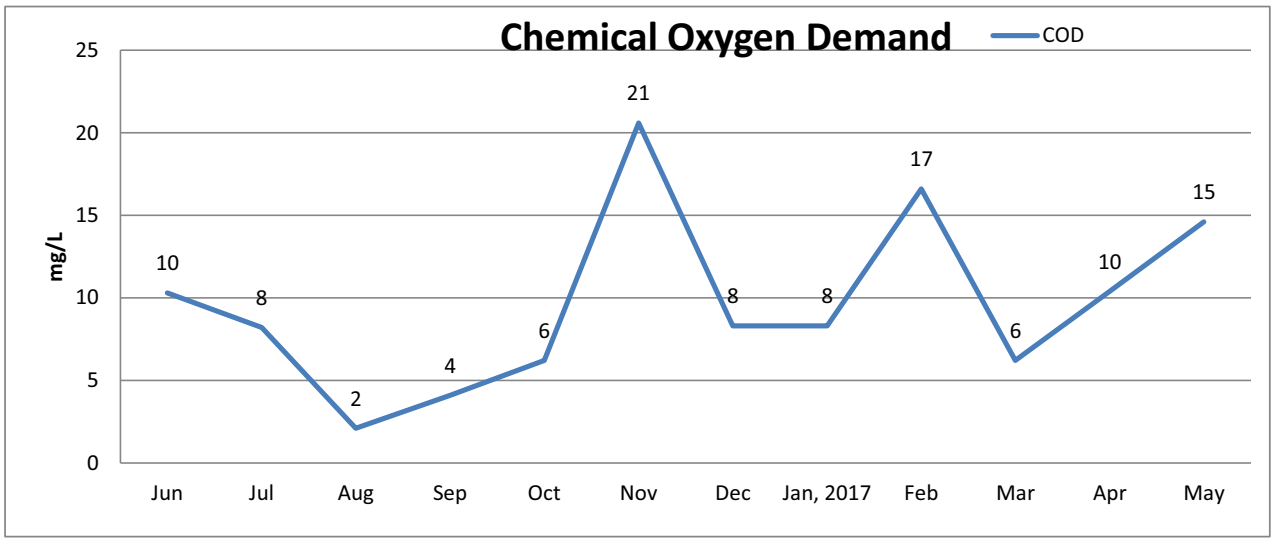



**Graphical Presentation of MADALA WQ Site**



# MOHANA

## General Particulars

| | | | |
|---|---|---|---|
| Site | : **MOHANA** | Code | : **GYKOOF6** |
| State | : **Uttar Pradesh** | District | : **Jalaun** |
| Division | : **L.Y. D., Agra** | Sub-Division | : **-** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **Betwa** |
| Sub-Sub-Trib. | : **-** | Local River | : **Betwa** |
| Drainage Area | : **41054 Sq. Km.** | Bank | : **Left** |
| Latitude | : **25°42'00"N** | Longitude | : **79°22'10" E** |
| Zero of Gauge | : **-** | | |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : MOHANA (Agra)** **Division : LYD, Agra**

**Local River : BETWA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 01/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 01/04/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | Clear | Clear | L.Brown | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 3 | Odour_Code (-) | | odour free | | | | | | | | | | | |
| 4 | Temperature | °C | 31 | 32 | 29 | 29 | 31 | 23.5 | 20 | 17 | 19 | 22 | 27 | 27.5 |
| 5 | pH_GEN (pH units) | | 9.20 | 7.10 | 6.70 | 7.50 | 8.50 | 8.60 | 8.40 | 8.60 | 7.90 | 7.80 | 8.20 | 8.80 |
| 6 | EC_GEN (µmho/cm) | NTU | 442 | 289 | 113 | 146 | 165 | 335 | 365 | 471 | 368 | 345 | 185 | 356 |
| 7 | Total Dissolved Solids | mg/L | 287 | 188 | 73 | 95 | 107 | 218 | 237 | 306 | 239 | 224 | 120 | 231 |
| 8 | Turbiidity | | - | - | - | - | - | - | - | - | - | - | - | - |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 48.25 | 0.00 | 0.00 | 0.00 | 17.00 | 19.00 | 12.50 | 14.00 | 0.00 | 0.00 | 0.00 | 29.25 |
| 10 | Alk-Tot (as $CaCO_3$) | | 178.17 | 90.00 | 10.00 | 80.00 | 101.50 | 146.33 | 125.83 | 181.33 | 119.17 | 89.17 | 142.50 | 145.17 |
| 11 | Boron | | 0.25 | 0.03 | 0.11 | 0.07 | 0.25 | 0.11 | 0.18 | 0.12 | 0.08 | 0.10 | 0.04 | 0.08 |
| 12 | Calcium | | 13.00 | 27.00 | 22.00 | 27.00 | 11.00 | 26.00 | 42.00 | 27.00 | 29.00 | 27.00 | 26.00 | 24.00 |
| 13 | Chloride | | 15.60 | 13.80 | 9.90 | 9.60 | 15.30 | 15.30 | 20.90 | 20.90 | 17.40 | 17.40 | 20.90 | 23.00 |
| 14 | Carbonate | | 57.90 | 0.00 | 0.00 | 0.00 | 20.40 | 22.80 | 15.00 | 16.80 | 0.00 | 0.00 | 0.00 | 35.10 |
| 15 | Fluoride | | 0.72 | 0.30 | 0.25 | 0.14 | 0.03 | 0.27 | 0.42 | 0.17 | 0.27 | 0.30 | 0.44 | 0.87 |
| 16 | Bicarbonate | | 98.00 | 108.00 | 12.00 | 96.00 | 81.00 | 130.00 | 121.00 | 184.00 | 143.00 | 107.00 | 171.00 | 104.00 |
| 17 | Potassium | | 3.10 | 4.30 | 2.30 | 2.00 | 2.30 | 2.30 | 1.60 | 1.60 | 2.00 | 1.60 | 2.30 | 2.30 |
| 18 | Magnesium | | 19.40 | 5.80 | 2.90 | 7.80 | 19.40 | 23.30 | 10.70 | 21.40 | 15.60 | 14.60 | 13.60 | 13.60 |
| 19 | Sodium | | 56.80 | 23.70 | 7.80 | 9.90 | 12.70 | 23.50 | 40.00 | 34.50 | 29.40 | 32.70 | 35.20 | 38.40 |
| 20 | Ammonia as N | | 0.00 | 0.31 | 0.01 | 0.15 | 0.10 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.11 |
| 21 | $NO_2$+$NO_3$ as N | | 0.01 | 0.48 | 0.57 | 0.38 | 0.15 | 0.18 | 0.05 | 0.15 | 0.00 | 0.10 | 0.10 | 0.00 |
| 22 | Nitrite as N | | 0.00 | 0.07 | 0.04 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 23 | Nitrate as N | | 0.01 | 0.41 | 0.53 | 0.38 | 0.14 | 0.18 | 0.04 | 0.14 | 0.00 | 0.10 | 0.10 | 0.00 |
| 24 | Tot. Phosphate as P | | 0.00 | 0.01 | 0.00 | 0.01 | 0.03 | 0.01 | 0.02 | 0.03 | 0.00 | 0.01 | 0.02 | 0.00 |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | 2.00 | 16.30 | 5.00 | 6.00 | 12.00 | 4.00 | 35.00 | 7.00 | 4.50 | 7.00 | 1.00 | 12.00 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 2.80 | 3.20 | 2.40 | 3.20 | 2.40 | 2.80 | 2.60 | 2.20 | 3.40 | 2.40 | 3.60 | 2.40 |
| 28 | COD | | 33.00 | 10.30 | 6.20 | 8.20 | 26.80 | 6.20 | 10.40 | 14.60 | 12.50 | 8.30 | 8.70 | 25.00 |
| 29 | Dissolved Oxygen | | 7.00 | 7.20 | 6.80 | 7.00 | 7.40 | 7.60 | 7.80 | 7.40 | 7.80 | 7.60 | 8.00 | 7.60 |
| 30 | DO_SAT % | % | 94 | 99 | 88 | 91 | 100 | 89 | 86 | 77 | 84 | 87 | 100 | 95 |
| 31 | Tota Coliform | MPN/100 ml | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | Fecal Coliform | | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 1.450 | | | | 2.410 | | | | 0.540 | |
| 35 | Cadmium | | | | 0.093 | | | | 0.030 | | | | 0.232 | |
| 36 | Chromium | | | | 1.300 | | | | 1.040 | | | | 2.040 | |
| 37 | Copper | | | | 7.350 | | | | 1.430 | | | | 62.870 | |
| 38 | Iron | mg/l | | | 0.126 | | | | 0.074 | | | | 0.144 | |
| 39 | Lead | µg/L | | | 0.180 | | | | 1.420 | | | | 4.460 | |
| 40 | Nickel | | | | 1.980 | | | | 0.970 | | | | 9.340 | |
| 41 | Zinc | mg/l | | | 0.010 | | | | 0.011 | | | | 0.007 | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 32 | 68 | 56 | 68 | 28 | 64 | 104 | 68 | 72 | 68 | 64 | 60 |
| 43 | Tot-Hardness | | 113 | 92 | 68 | 100 | 109 | 161 | 149 | 157 | 137 | 129 | 121 | 117 |
| 44 | Na% | % | 52 | 35 | 19 | 17 | 20 | 24 | 37 | 32 | 32 | 35 | 38 | 41 |
| 45 | RSC (-) | | 1.30 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.30 | 0.20 | 0.70 | 0.60 |
| 46 | SAR (-) | | 2.30 | 1.10 | 0.40 | 0.40 | 0.50 | 0.80 | 1.40 | 1.20 | 1.10 | 1.30 | 1.40 | 1.60 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

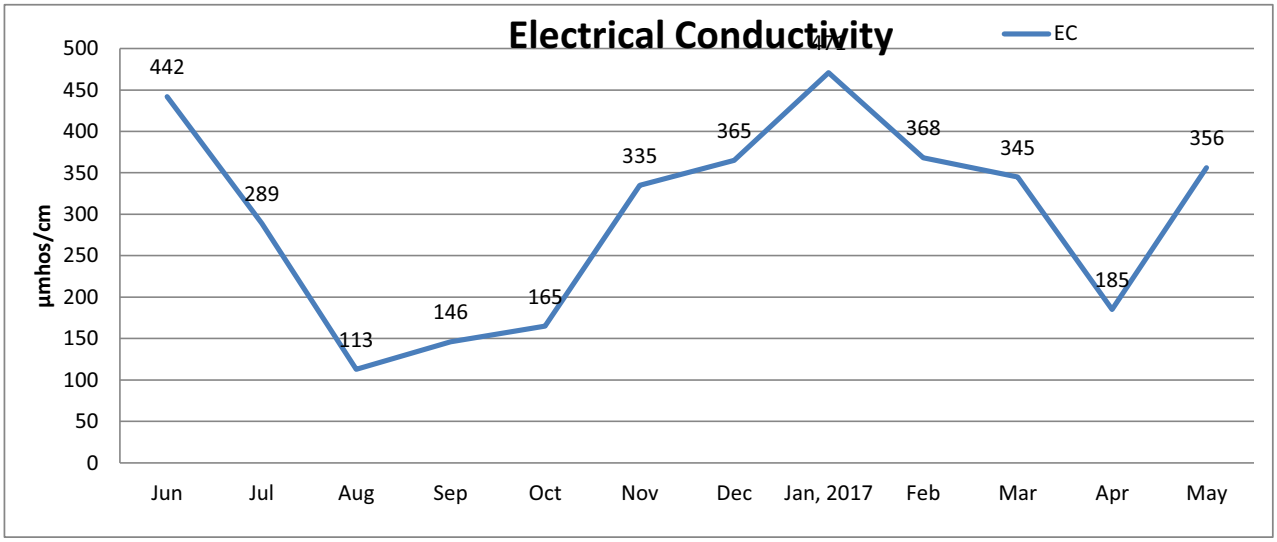
# RIVER WATER SUMMARY - 2016-2017

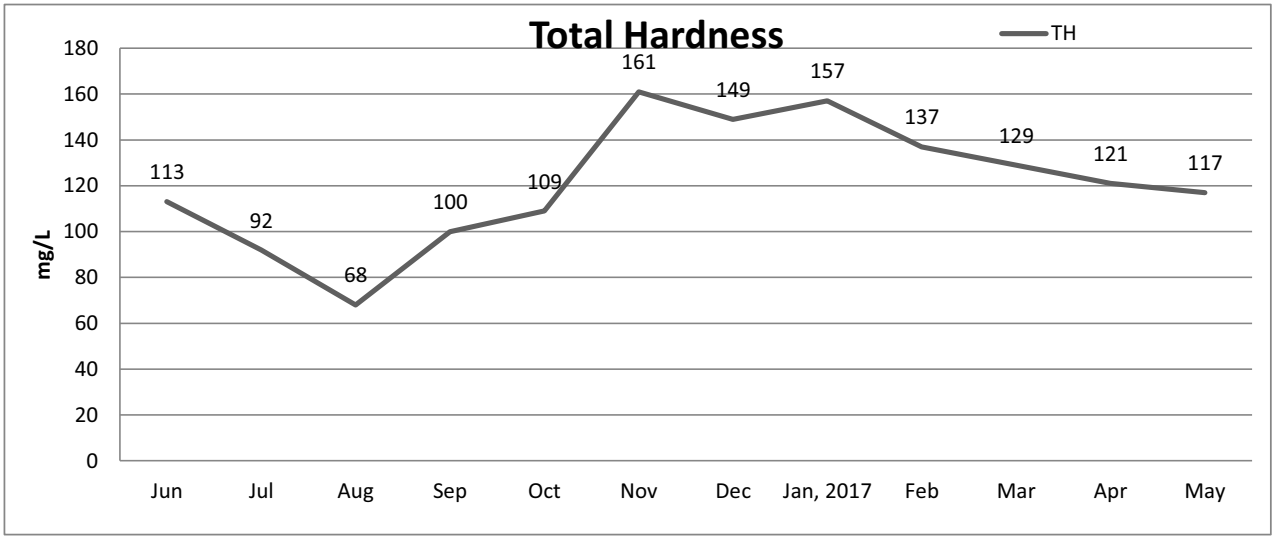
**Station Name : MOHANA (Agra)** **Division : LYD, Agra**

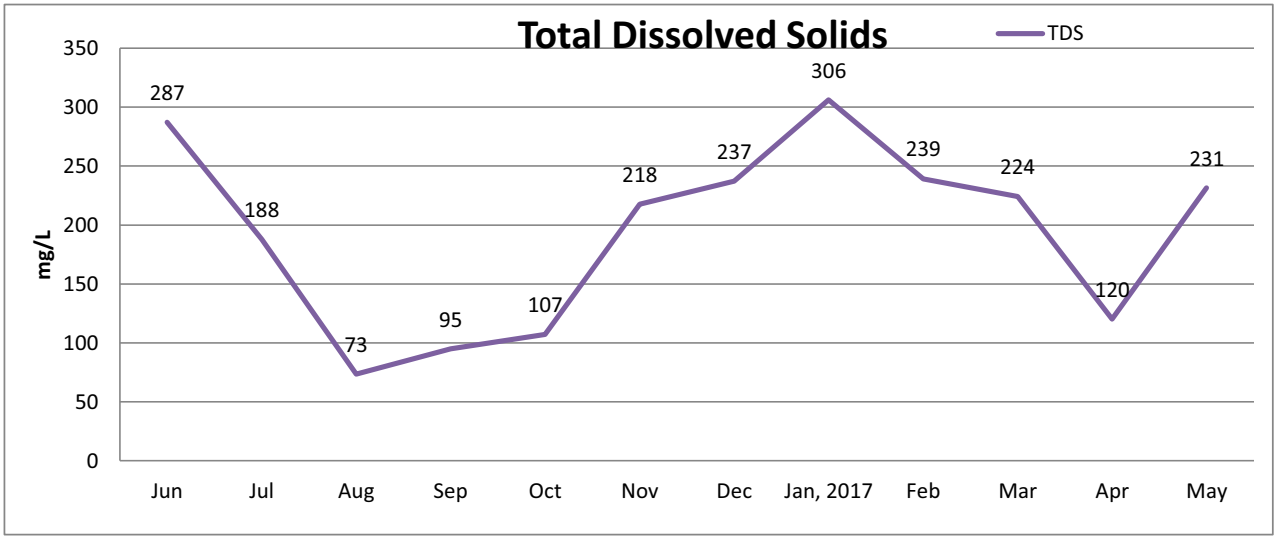
**Local River : BETWA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | 12 | 32 | 17 | 26 | 30 | 20 | 26 |
| pH_GEN (pH units) | - | - | - | - | - | - | - |
| EC_GEN (µmho/cm) | 12 | 471 | 113 | 298 | 231 | 385 | 295 |
| Total Dissolved Solids | | | | | | | |
| Turbiidity | - | - | - | - | - | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 48.25 | 0.00 | 11.7 | 13.05 | 11.38 | 9.75 |
| Alk-Tot (as $CaCO_3$) | 12 | 181.33 | 10.00 | 117.4 | 91.93 | 143.17 | 125.61 |
| Boron | 12 | 0.25 | 0.03 | 0.1 | 0.14 | 0.12 | 0.07 |
| Calcium | 12 | 42.00 | 11.00 | 25.1 | 20.00 | 31.00 | 25.67 |
| Chloride | 12 | 23.00 | 9.60 | 16.7 | 12.84 | 18.63 | 20.43 |
| Carbonate | 12 | 57.90 | 0.00 | 14.0 | 15.66 | 13.65 | 11.70 |
| Fluoride | 12 | 0.87 | 0.03 | 0.3 | 0.29 | 0.28 | 0.54 |
| Bicarbonate | 12 | 184.00 | 12.00 | 112.9 | 79.00 | 144.50 | 127.33 |
| Potassium | 12 | 4.30 | 1.60 | 2.3 | 2.80 | 1.88 | 2.07 |
| Magnesium | 12 | 23.30 | 2.90 | 14.0 | 11.06 | 17.75 | 13.93 |
| Sodium | 12 | 56.80 | 7.80 | 28.7 | 22.18 | 31.85 | 35.43 |
| Ammonia as N | 12 | 0.31 | 0.00 | 0.1 | 0.11 | 0.00 | 0.04 |
| $NO_2$+$NO_3$ as N | 12 | 0.57 | 0.00 | 0.2 | 0.32 | 0.10 | 0.07 |
| Nitrite as N | 12 | 0.07 | 0.00 | 0.0 | 0.02 | 0.01 | 0.00 |
| Nitrate as N | 12 | 0.53 | 0.00 | 0.2 | 0.29 | 0.09 | 0.07 |
| Tot. Phosphate as P | 12 | 0.03 | 0.00 | 0.0 | 0.01 | 0.02 | 0.01 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 35.00 | 1.00 | 9.3 | 8.26 | 12.63 | 6.67 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 3.6 | 2.2 | 2.8 | 2.8 | 2.8 | 2.8 |
| COD | 12 | 33.0 | 6.2 | 14.2 | 16.9 | 10.9 | 14.0 |
| Dissolved Oxygen | 12 | 8.00 | 6.80 | 7.43 | 7.08 | 7.7 | 7.7 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | - | - | - | - | - | - | - |
| Fecal Coliform | - | - | - | - | - | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 3 | 2.41 | 0.54 | 1.47 | 1.45 | 2.41 | 0.54 |
| Cadmium | 3 | 0.23 | 0.03 | 0.12 | 0.09 | 0.03 | 0.23 |
| Chromium | 3 | 2.04 | 1.04 | 1.46 | 1.30 | 1.04 | 2.04 |
| Copper | 3 | 62.87 | 1.43 | 23.88 | 7.35 | 1.43 | 62.87 |
| Iron | 3 | 0.14 | 0.07 | 0.11 | 0.13 | 0.07 | 0.14 |
| Lead | 3 | 4.46 | 0.18 | 2.02 | 0.18 | 1.42 | 4.46 |
| Nickel | 3 | 9.34 | 0.97 | 4.10 | 1.98 | 0.97 | 9.34 |
| Zinc | 3 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 104 | 28 | 63 | 50 | 77 | 64 |
| Tot-Hardness | 12 | 161 | 68 | 121 | 96 | 151 | 122 |
| Na% | 12 | 52 | 17 | 32 | 29 | 31 | 38 |
| RSC (-) | 12 | 1.30 | 0.00 | 0.3 | 0.34 | 0.20 | 0.50 |
| SAR (-) | 12 | 2.30 | 0.40 | 1.1 | 0.94 | 1.13 | 1.43 |
| **PESTICIDES** | | | | | | | |

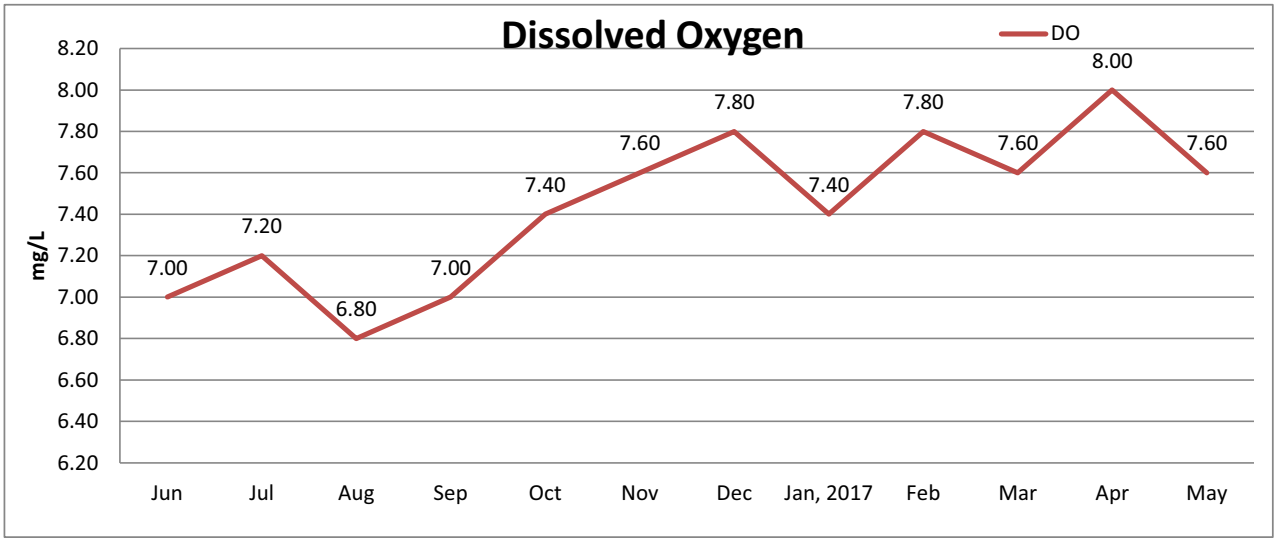
**Graphical Presentation of MOHANA(AGRA) WQ Site**

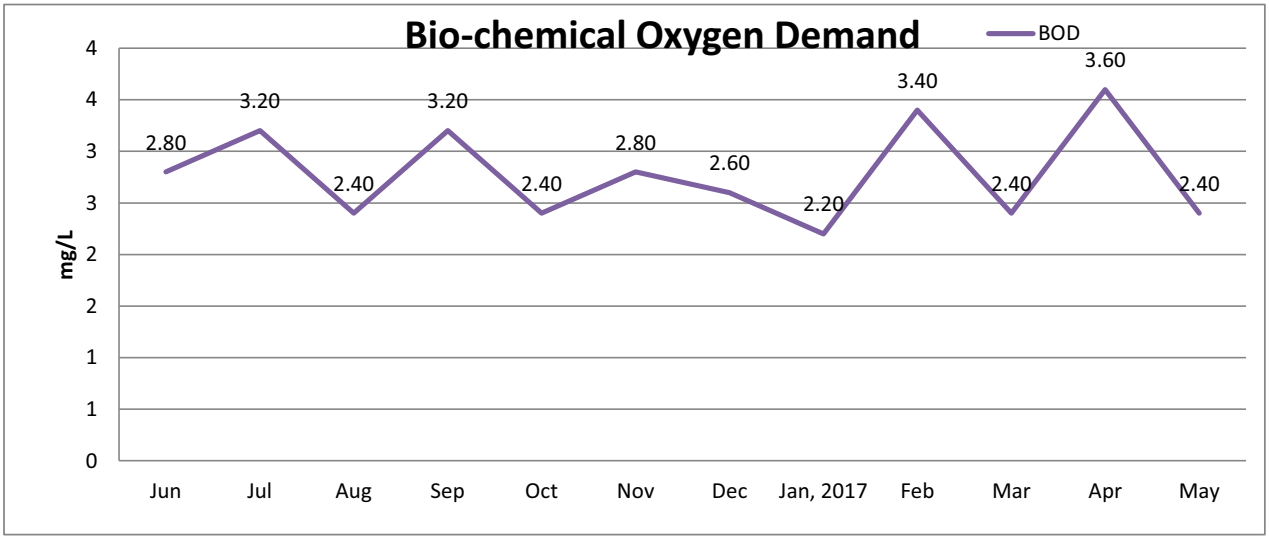


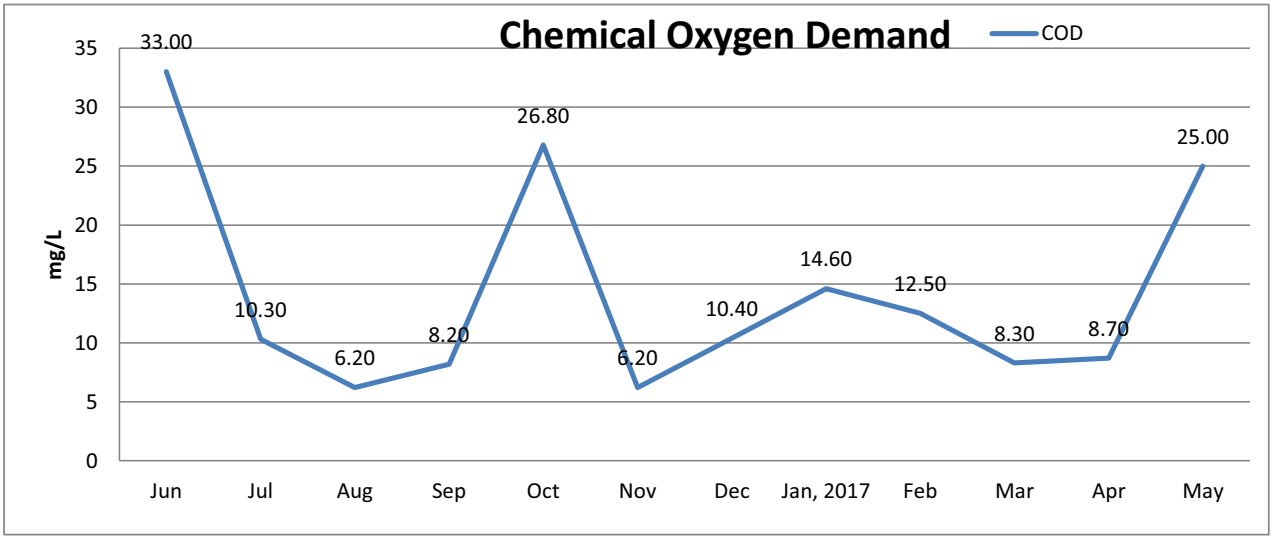



## Graphical Presentation of MOHANA(AGRA) WQ Site



# RAJGHAT

## GENERAL PARTICULARS

| | | | |
|---|---|---|---|
| Site | :***RAJGHAT*** | Code | : **GYK00P1** |
| State | : **Uttar Pradesh** | District | : **Lalitpur** |
| Division | : **L.Y. D., Agra** | Sub-Division | : **-** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **-** |
| Sub-Sub-Trib. | : **-** | Local River | : **Betwa** |
| Drainage Area | : **16540 Sq. Km.** | Bank | : |
| Latitude | : **24°50'00"N** | Longitude | : **78°12'00" E** |

## DETAILS OF OPERATION (OPENING DATE)

| | |
|---|---|
| Gauge: | : **-** |
| Discharge: | : **21/11/1970** |
| Sediment | : **01/01/1978** |
| Water Quality | : **01/08/1992** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name :RAJGHAT** **Division : LYD, Agra**

**Local River : BETWA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 01/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 01/04/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | Clear | River | Light Brow | Brown | Clear | Clear | Light Brow | Clear | Clear | Clear | River dry | River dry |
| 3 | Odour_Code (-) | | odour free | | | | | | | | | | | |
| 4 | Temperature | °C | 30.5 | | 27 | 27.5 | 27.5 | 27.5 | 25 | 17 | 18 | 22 | | |
| 5 | pH_GEN (pH units) | | 8.50 | | 6.80 | 7.50 | 8.20 | 8.50 | 8.50 | 8.30 | 8.00 | 7.80 | | |
| 6 | EC_GEN (µmho/cm) | NTU | 1763 | | 99 | 131 | 145 | 152 | 1840 | 1111 | 319 | 279 | | |
| 7 | Total Dissolved Solids | mg/L | 1146 | | 64 | 85 | 94 | 99 | 1196 | 722 | 207 | 181 | | |
| 8 | Turbiidity | | - | | - | - | - | - | - | - | - | - | | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 28.25 | | 0.00 | 0.00 | 0.00 | 22.25 | 10.50 | 17.75 | 0.00 | 0.00 | | |
| 10 | Alk-Tot (as $CaCO_3$) | | 89.00 | | 16.67 | 70.00 | 56.67 | 81.17 | 123.50 | 180.50 | 70.83 | 61.67 | | |
| 11 | Boron | | 0.14 | | 0.11 | 0.14 | 0.25 | 0.11 | 0.14 | 0.17 | 0.03 | 0.08 | | |
| 12 | Calcium | | 35.00 | | 24.00 | 27.00 | 19.00 | 29.00 | 35.00 | 40.00 | 27.00 | 40.00 | | |
| 13 | Chloride | | 318.40 | | 9.90 | 7.80 | 13.50 | 13.50 | 13.50 | 176.40 | 17.40 | 17.40 | | |
| 14 | Carbonate | | 33.90 | | 0.00 | 0.00 | 0.00 | 26.70 | 12.60 | 21.30 | 0.00 | 0.00 | | |
| 15 | Fluoride | | 1.65 | | 0.15 | 0.14 | 0.16 | 0.11 | 0.59 | 1.01 | 0.23 | 0.30 | | |
| 16 | Bicarbonate | | 39.00 | | 20.00 | 84.00 | 68.00 | 44.00 | 123.00 | 174.00 | 85.00 | 74.00 | | |
| 17 | Potassium | | 2.30 | | 2.70 | 2.00 | 2.00 | 2.00 | 2.70 | 1.60 | 2.30 | 1.60 | | |
| 18 | Magnesium | | 78.70 | | 5.80 | 6.80 | 12.60 | 7.80 | 9.70 | 63.20 | 18.50 | 6.80 | | |
| 19 | Sodium | | 170.00 | | 6.20 | 6.90 | 8.30 | 9.00 | 7.40 | 100.70 | 12.40 | 13.10 | | |
| 20 | Ammonia as N | | 0.01 | | 0.00 | 0.15 | 0.01 | 0.06 | 0.00 | 0.06 | 0.00 | 0.00 | | |
| 21 | $NO_2$+$NO_3$ as N | | 4.76 | | 0.62 | 0.36 | 0.25 | 0.23 | 0.05 | 1.78 | 0.00 | 0.04 | | |
| 22 | Nitrite as N | | 0.01 | | 0.14 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | | |
| 23 | Nitrate as N | | 4.75 | | 0.48 | 0.36 | 0.25 | 0.22 | 0.04 | 1.78 | 0.00 | 0.04 | | |
| 24 | Tot. Phosphate as P | | 0.00 | | 0.00 | 0.02 | 0.03 | 0.01 | 0.02 | 0.09 | 0.00 | 0.04 | | |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | 157.90 | | 15.00 | 5.00 | 11.00 | 3.00 | 2.00 | 69.00 | 7.20 | 9.00 | | |
| /BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 2.00 | | 2.40 | 1.25 | 1.60 | 2.00 | 3.80 | 1.00 | 4.80 | 0.80 | | |
| 28 | COD | | 16.80 | | 6.20 | 4.10 | 6.20 | 12.70 | 14.60 | 4.20 | 18.70 | 16.60 | | |
| 29 | Dissolved Oxygen | | 5.30 | | 5.78 | 5.90 | 6.10 | 4.98 | 4.78 | 5.01 | 5.25 | 4.12 | | |
| 30 | DO_SAT % | % | 143 | | 158 | 168 | 127 | 106 | 113 | 114 | 111 | 114 | | |
| 31 | Tota Coliform | MPN/100 | - | | - | - | - | - | - | - | - | - | | |
| 32 | Fecal Coliform | | - | | - | - | - | - | - | - | - | - | | |
| 33 | E. Coli | | - | | - | - | - | - | - | - | - | - | | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 0.930 | | | | 3.450 | | | | | |
| 35 | Cadmium | | | | 0.110 | | | | 0.053 | | | | | |
| 36 | Chromium | | | | 2.630 | | | | 1.170 | | | | | |
| 37 | Copper | | | | 13.510 | | | | 1.710 | | | | | |
| 38 | Iron | mg/l | | | 0.088 | | | | 0.060 | | | | | |
| 39 | Lead | µg/L | | | 0.290 | | | | 0.220 | | | | | |
| 40 | Nickel | | | | 1.780 | | | | 2.080 | | | | | |
| 41 | Zinc | mg/l | | | 0.007 | | | | 0.008 | | | | | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 88 | | 60 | 68 | 48 | 72 | 88 | 100 | 68 | 100 | | |
| 43 | Tot-Hardness | | 416 | | 84 | 96 | 101 | 104 | 129 | 363 | 145 | 128 | | |
| 44 | Na% | % | 47 | | 13 | 13 | 15 | 15 | 11 | 38 | 16 | 18 | | |
| 45 | RSC (-) | | 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 46 | SAR (-) | | 3.60 | | 0.30 | 0.30 | 0.40 | 0.40 | 0.30 | 2.30 | 0.50 | 0.50 | | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

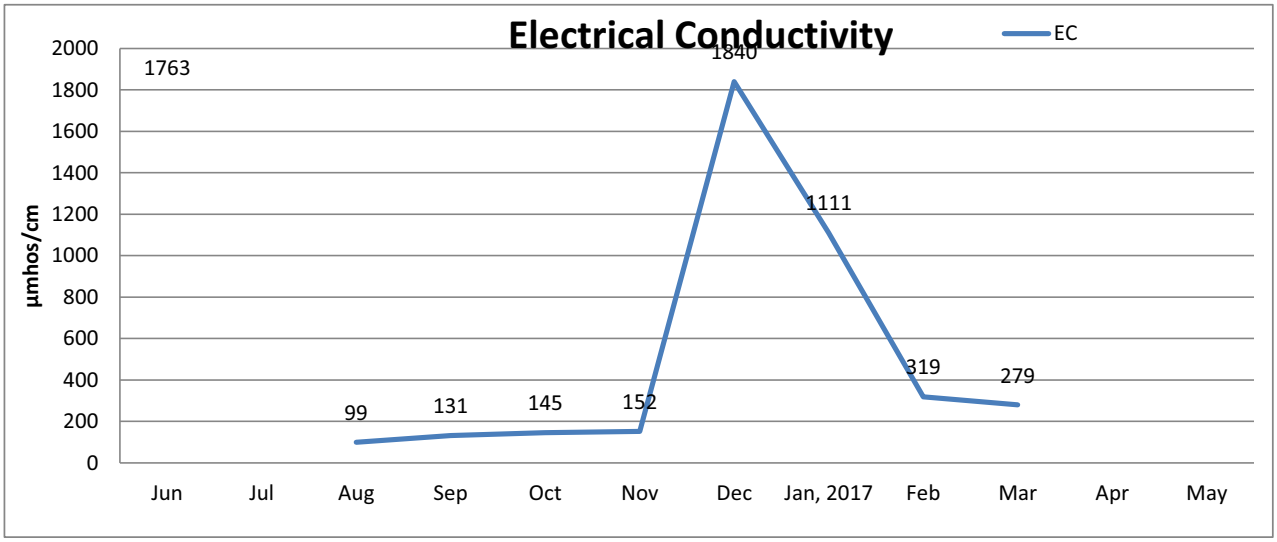
# RIVER WATER SUMMARY - 2016-2017

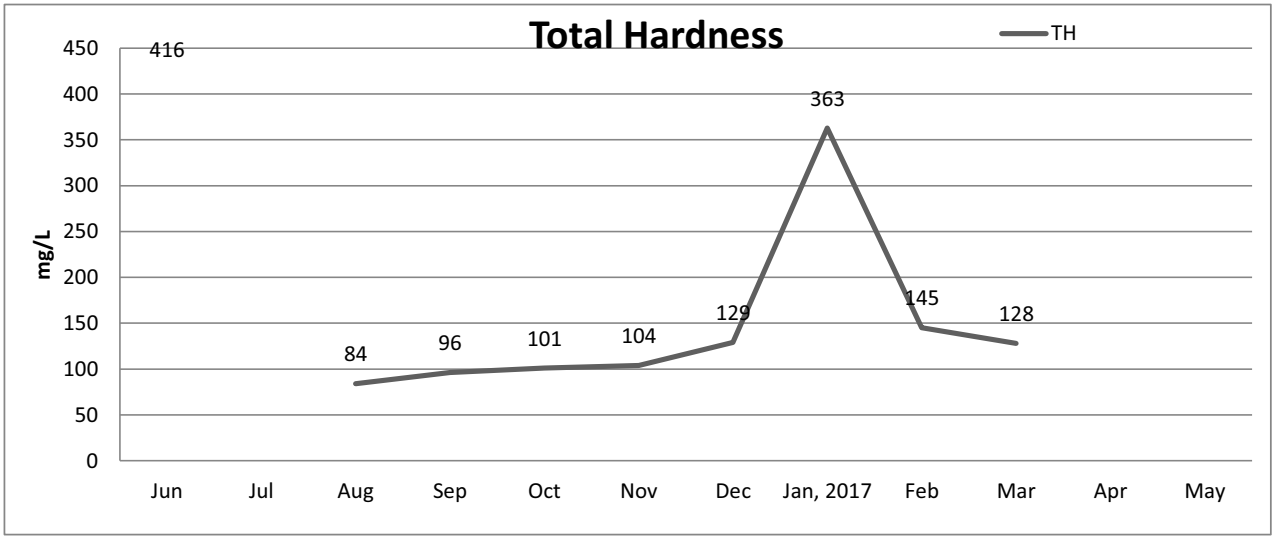
**Station Name : RAJGHAT** **Division : LYD, Agra**

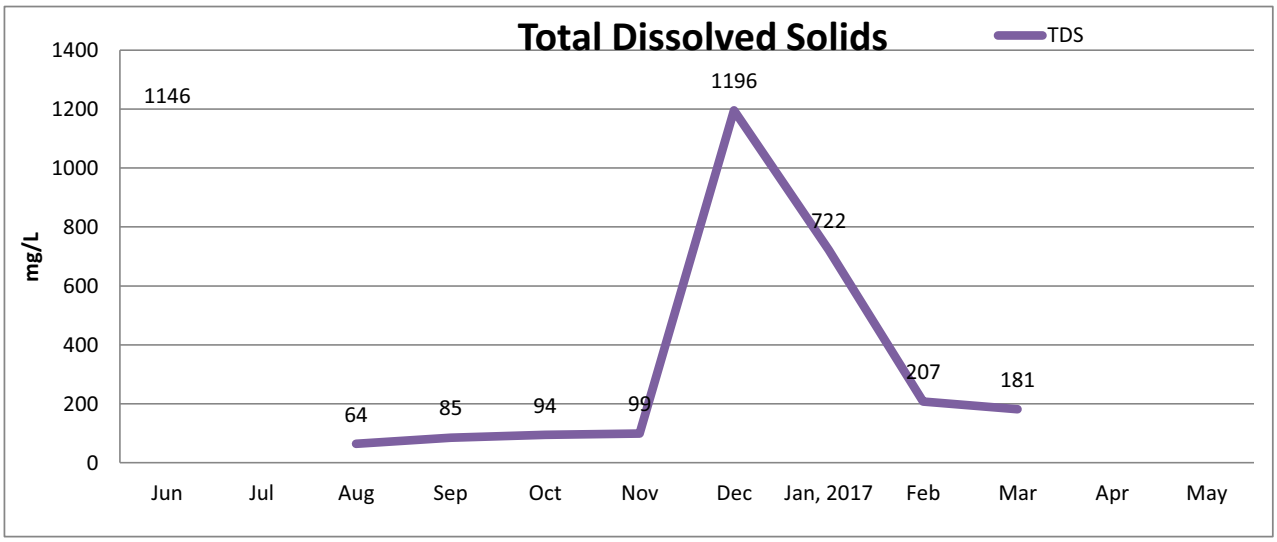
**Local River : BETWA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | 9 | 31 | 17 | 25 | 28 | 22 | 22 |
| pH_GEN (pH units) | - | - | - | - | - | - | - |
| EC_GEN (µmho/cm) | 9 | 1840 | 99 | 649 | 535 | 856 | 279 |
| Total Dissolved Solids | | | | | | | |
| Turbiidity | - | - | - | - | - | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 9 | 28.25 | 0.00 | 8.8 | 7.06 | 12.63 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 9 | 180.50 | 16.67 | 83.3 | 58.08 | 114.00 | 61.67 |
| Boron | 9 | 0.25 | 0.03 | 0.1 | 0.16 | 0.11 | 0.08 |
| Calcium | 9 | 40.00 | 19.00 | 30.7 | 26.25 | 32.75 | 40.00 |
| Chloride | 9 | 318.40 | 7.80 | 65.3 | 87.40 | 55.20 | 17.40 |
| Carbonate | 9 | 33.90 | 0.00 | 10.5 | 8.48 | 15.15 | 0.00 |
| Fluoride | 9 | 1.65 | 0.11 | 0.5 | 0.53 | 0.49 | 0.30 |
| Bicarbonate | 9 | 174.00 | 20.00 | 79.0 | 52.75 | 106.50 | 74.00 |
| Potassium | 9 | 2.70 | 1.60 | 2.1 | 2.25 | 2.15 | 1.60 |
| Magnesium | 9 | 78.70 | 5.80 | 23.3 | 25.98 | 24.80 | 6.80 |
| Sodium | 9 | 170.00 | 6.20 | 37.1 | 47.85 | 32.38 | 13.10 |
| Ammonia as N | 9 | 0.15 | 0.00 | 0.0 | 0.04 | 0.03 | 0.00 |
| $NO_2$+$NO_3$ as N | 9 | 4.76 | 0.00 | 0.9 | 1.50 | 0.52 | 0.04 |
| Nitrite as N | 9 | 0.14 | 0.00 | 0.0 | 0.04 | 0.01 | 0.00 |
| Nitrate as N | 9 | 4.75 | 0.00 | 0.9 | 1.46 | 0.51 | 0.04 |
| Tot. Phosphate as P | 9 | 0.09 | 0.00 | 0.0 | 0.01 | 0.03 | 0.04 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 9 | 157.90 | 2.00 | 31.0 | 47.23 | 20.30 | 9.00 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 9 | 4.8 | 0.8 | 2.2 | 1.8 | 2.9 | 0.8 |
| COD | 9 | 18.7 | 4.1 | 11.1 | 8.3 | 12.6 | 16.6 |
| Dissolved Oxygen | 9 | 6.10 | 4.12 | 5.25 | 5.77 | 5.0 | 4.1 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | - | - | - | - | - | - | - |
| Fecal Coliform | - | - | - | - | - | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 2 | 3.45 | 0.93 | 2.19 | 0.93 | 3.45 | - |
| Cadmium | 2 | 0.11 | 0.05 | 0.08 | 0.11 | 0.05 | - |
| Chromium | 2 | 2.63 | 1.17 | 1.90 | 2.63 | 1.17 | - |
| Copper | 2 | 13.51 | 1.71 | 7.61 | 13.51 | 1.71 | - |
| Iron | 2 | 0.09 | 0.06 | 0.07 | 0.09 | 0.06 | - |
| Lead | 2 | 0.29 | 0.22 | 0.26 | 0.29 | 0.22 | - |
| Nickel | 2 | 2.08 | 1.78 | 1.93 | 1.78 | 2.08 | - |
| Zinc | 2 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | - |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 9 | 100 | 48 | 77 | 66 | 82 | 100 |
| Tot-Hardness | 9 | 416 | 84 | 174 | 174 | 185 | 128 |
| Na% | 9 | 47 | 11 | 21 | 22 | 20 | 18 |
| RSC (-) | 9 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| SAR (-) | 9 | 3.60 | 0.30 | 1.0 | 1.15 | 0.88 | 0.50 |
| **PESTICIDES** | | | | | | | |

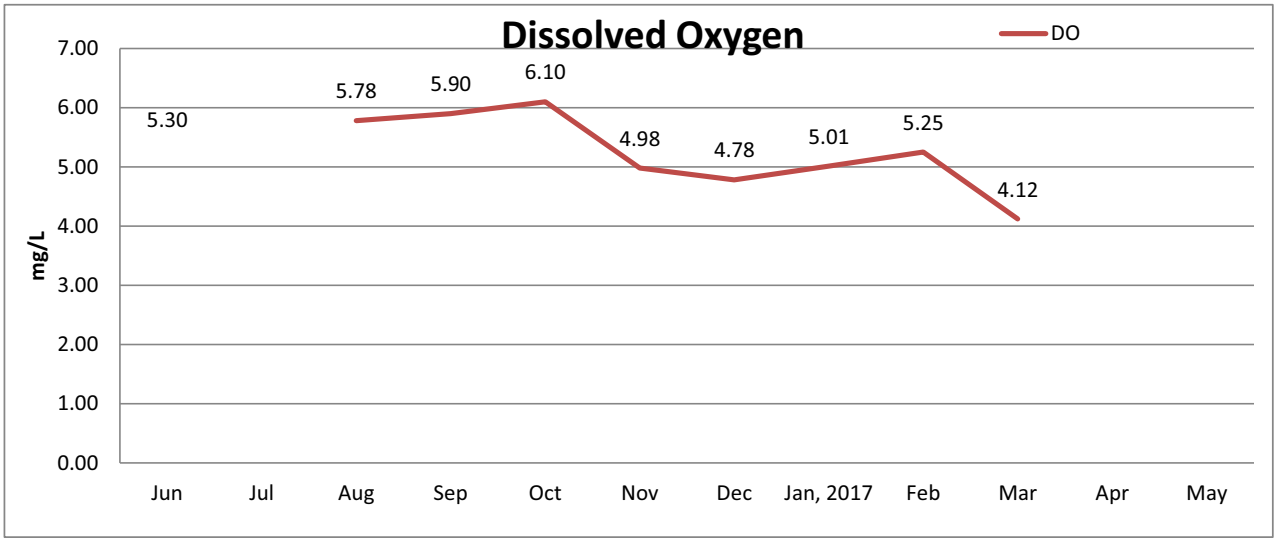
**Graphical Presentation of RAJGHAT WQ Site**

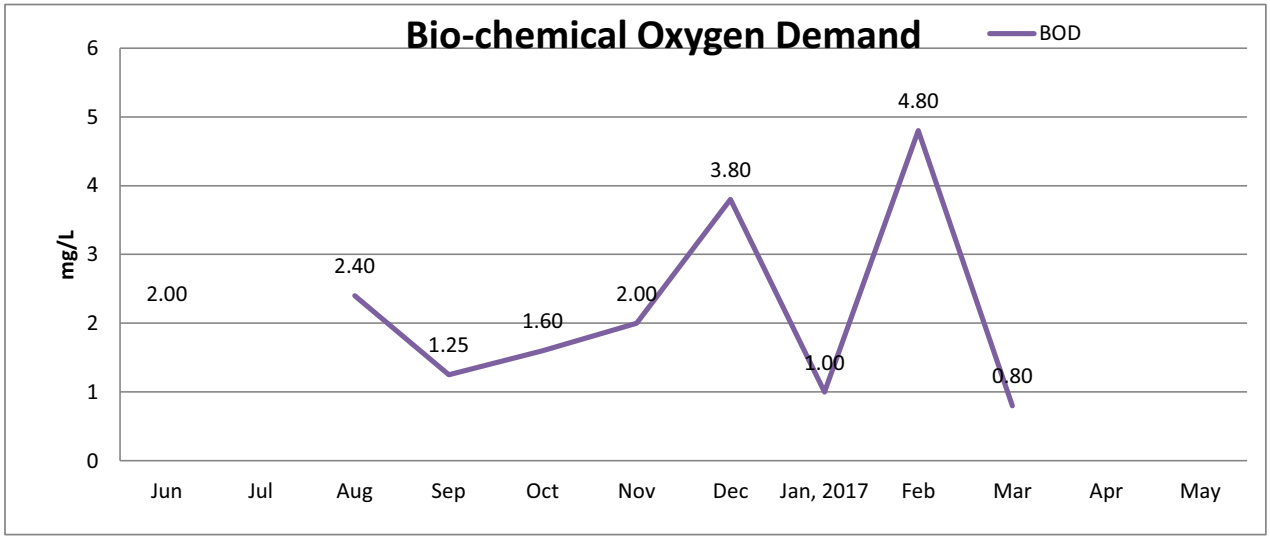


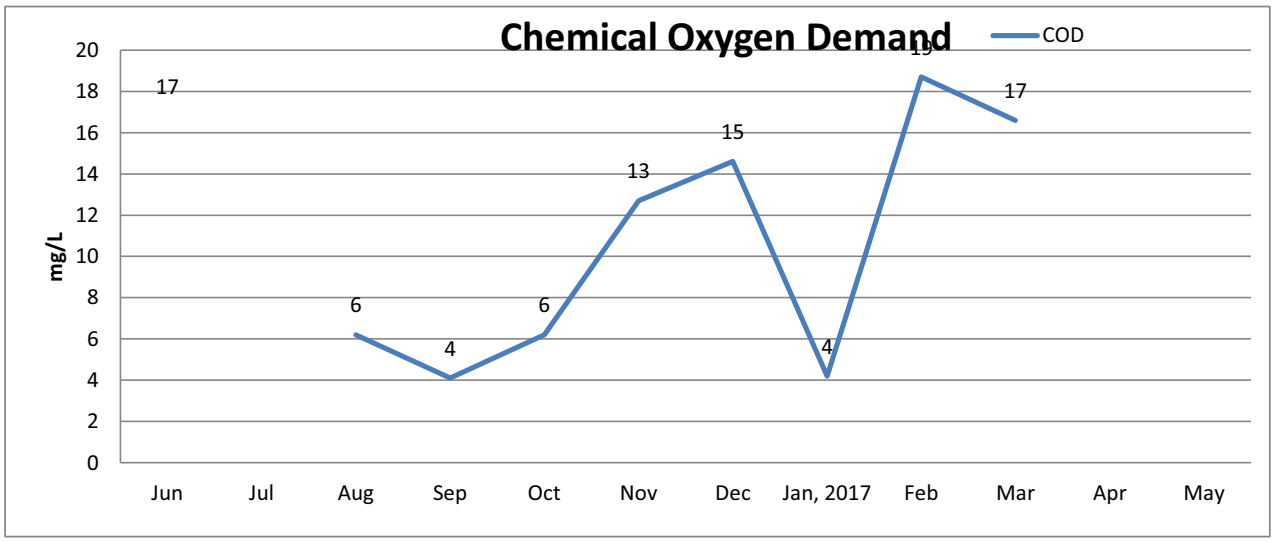



**Graphical Presentation of RAJGHAT WQ Site**



# SHAHIJINA

## General Particulars

| | | | |
|---|---|---|---|
| Site | : **SHAHIJINA** | Code | : **GYK00A6** |
| State | : **Uttar Pradesh** | District | : **Hamirpur** |
| Division | : **L.Y. D., Agra** | Sub-Division | : **LYSD-III, Hamirpur** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **Betwa** |
| Sub-Sub-Trib. | : **-** | Local River | : **Betwa** |
| Drainage Area | : **44023 Sq. Km.** | Bank | : **Right** |
| Latitude | : **25°57'00"N** | Longitude | : **80°09'00" E** |
| Zero of Gauge | : **88.000(m.s.l)** | | |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **08/06/1959** |
| Discharge: | : **08/06/1959** |
| Sediment | : **28/07/1961** |
| Water Quality | : **12/01/1964** |
| Wireless | : **-** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name :SHAHIJINA** **Division : LYD, Agra**

**Local River : BETWA**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 01/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 01/04/17 | 01/05/17 |
| | PHYSICAL | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | Clear | Light Brow | Brown | Light Brow | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 3 | Odour_Code (-) | | odour free | | | | | | | | | | | |
| 4 | Temperature | °C | 30 | 28.5 | 27.5 | 27.5 | 27.5 | 26 | 24 | 15 | 15 | 23 | 26.5 | 27 |
| 5 | pH_GEN (pH units) | | 8.70 | 7.60 | 6.80 | 7.40 | 8.40 | 8.50 | 8.40 | 8.60 | 8.00 | 7.20 | 7.50 | 8.10 |
| 6 | EC_GEN (µmho/cm) | NTU | 527 | 464 | 116 | 155 | 273 | 384 | 488 | 471 | 419 | 430 | 237 | 466 |
| 7 | Total Dissolved Solids | mg/L | 343 | 302 | 75 | 101 | 177 | 250 | 317 | 306 | 272 | 280 | 154 | 303 |
| 8 | Turbiidity | | - | - | - | - | - | - | - | - | - | - | - | - |
| | CHEMICAL | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 20.25 | 0 | 0 | 0 | 19 | 24.5 | 16 | 15 | 0 | 0 | 0 | 0 |
| 10 | Alk-Tot (as $CaCO_3$) | | 213.00 | 147.50 | 38.33 | 90.83 | 104.67 | 150.67 | 187.00 | 205.83 | 141.67 | 119.17 | 175.00 | 129.17 |
| 11 | Boron | | 0.25 | 0.14 | 0.14 | 0.14 | 0.32 | 0.14 | 0.26 | 0.12 | 0.08 | 0.14 | 0.08 | 0.12 |
| 12 | Calcium | | 22.00 | 18.00 | 29.00 | 29.00 | 8.00 | 26.00 | 29.00 | 27.00 | 27.00 | 32.00 | 26.00 | 22.00 |
| 13 | Chloride | | 33.40 | 23.40 | 11.70 | 11.40 | 17.40 | 17.40 | 24.90 | 24.90 | 23.10 | 23.10 | 27.00 | 28.80 |
| 14 | Carbonate | | 24.30 | 0.00 | 0.00 | 0.00 | 22.80 | 29.40 | 19.20 | 18.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | Fluoride | | 0.74 | 0.23 | 0.25 | 0.18 | 0.19 | 0.10 | 0.49 | 0.15 | 0.17 | 0.13 | 0.53 | 1.31 |
| 16 | Bicarbonate | | 207.00 | 177.00 | 46.00 | 109.00 | 80.00 | 122.00 | 186.00 | 211.00 | 170.00 | 143.00 | 210.00 | 155.00 |
| 17 | Potassium | | 4.70 | 3.10 | 2.30 | 2.30 | 2.30 | 2.70 | 2.00 | 1.60 | 2.00 | 1.60 | 2.70 | 3.00 |
| 18 | Magnesium | | 20.40 | 16.50 | 4.90 | 8.70 | 23.30 | 23.30 | 24.30 | 25.30 | 21.40 | 13.60 | 19.40 | 21.40 |
| 19 | Sodium | | 81.20 | 60.30 | 7.80 | 11.30 | 16.10 | 29.70 | 64.20 | 43.00 | 37.50 | 43.90 | 49.70 | 54.70 |
| 20 | Ammonia as N | | 0.01 | 0.31 | 0.00 | 0.15 | 0.01 | 0.17 | 0.04 | 0.39 | 0.25 | 0.14 | 0.38 | 0.24 |
| 21 | $NO_2$+$NO_3$ as N | | 0.00 | 0.09 | 0.52 | 0.57 | 0.15 | 0.28 | 0.15 | 0.49 | 0.19 | 0.15 | 0.53 | 0.19 |
| 22 | Nitrite as N | | 0.00 | 0.01 | 0.04 | 0.01 | 0.01 | 0.03 | 0.11 | 0.03 | 0.04 | 0.04 | 0.11 | 0.08 |
| 23 | Nitrate as N | | 0.00 | 0.08 | 0.48 | 0.56 | 0.14 | 0.25 | 0.04 | 0.46 | 0.15 | 0.11 | 0.42 | 0.11 |
| 24 | Tot. Phosphate as P | | 0.10 | 0.06 | 0.05 | 0.02 | 0.03 | 0.03 | 0.01 | 0.10 | 0.06 | 0.02 | 0.12 | 0.04 |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | 10.10 | 22.70 | 12.00 | 4.00 | 14.00 | 12.00 | 36.00 | 12.50 | 12.00 | 17.00 | 9.00 | 22.00 |
| | /BACTERIOLOGICAL | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 4.10 | 6.60 | 5.20 | 4.00 | 3.40 | 2.80 | 7.00 | 2.80 | 8.40 | 8.00 | 3.20 | 4.10 |
| 28 | COD | | 22.70 | 10.30 | 4.10 | 12.70 | 12.40 | 27.40 | 8.30 | 16.60 | 12.90 | 12.50 | 8.30 | 54.10 |
| 29 | Dissolved Oxygen | | 6.00 | 6.60 | 7.80 | 6.50 | 6.50 | 6.50 | 6.50 | 6.50 | 8.50 | 8.50 | 8.00 | 8.50 |
| 30 | DO_SAT % | % | 79 | 84 | 98 | 82 | 82 | 80 | 77 | 64 | 84 | 99 | 99 | 107 |
| 31 | Tota Coliform | MPN/100 | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | Fecal Coliform | | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| | TRACE & TOXIC | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 3.080 | | | | 2.720 | | | | 0.880 | |
| 35 | Cadmium | | | | 0.084 | | | | 0.027 | | | | 0.069 | |
| 36 | Chromium | | | | 0.820 | | | | 0.870 | | | | 7.550 | |
| 37 | Copper | | | | 3.650 | | | | 0.190 | | | | 2.570 | |
| 38 | Iron | mg/l | | | 0.152 | | | | 0.082 | | | | 0.150 | |
| 39 | Lead | µg/L | | | 0.150 | | | | 0.710 | | | | 1.200 | |
| 40 | Nickel | | | | 2.470 | | | | 2.100 | | | | 6.150 | |
| 41 | Zinc | mg/l | | | 0.009 | | | | 0.009 | | | | 0.010 | |
| | CHEMICAL INDICES | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 56 | 44 | 72 | 72 | 20 | 64 | 72 | 68 | 68 | 80 | 64 | 56 |
| 43 | Tot-Hardness | | 141 | 113 | 92 | 108 | 117 | 161 | 173 | 173 | 157 | 137 | 145 | 145 |
| 44 | Na% | % | 55 | 53 | 15 | 18 | 23 | 28 | 44 | 35 | 34 | 41 | 42 | 45 |
| 45 | RSC (-) | | 1.40 | 1.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.60 | 0.40 | 0.70 | 0.90 | 1.00 |
| 46 | SAR (-) | | 3.00 | 2.50 | 0.40 | 0.50 | 0.70 | 1.00 | 2.10 | 1.40 | 1.30 | 1.60 | 1.80 | 2.00 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

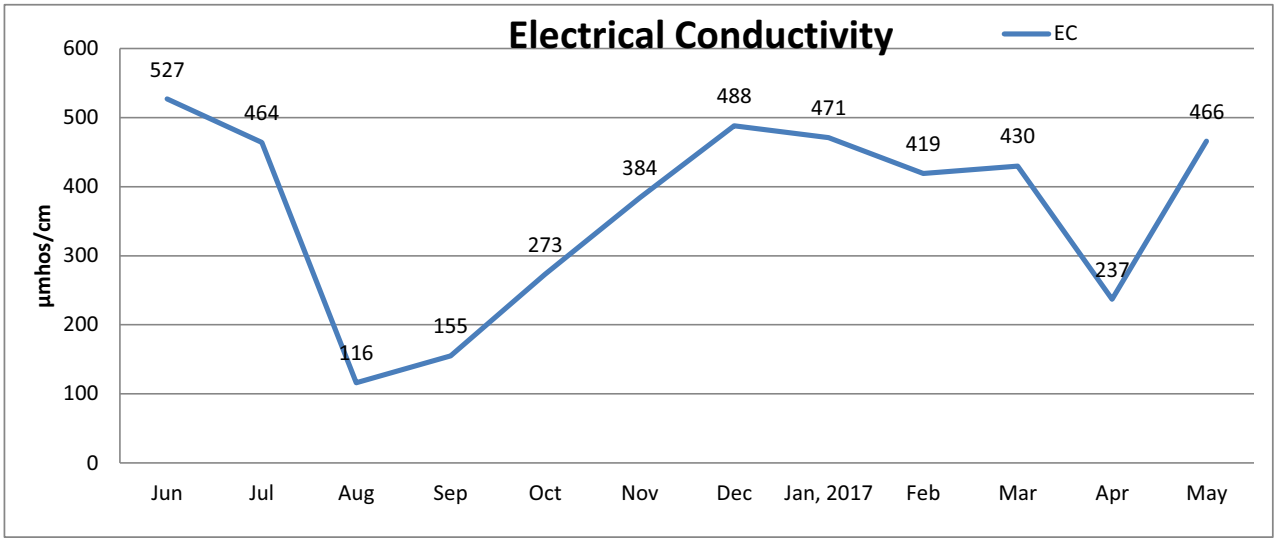
# RIVER WATER SUMMARY - 2016-2017

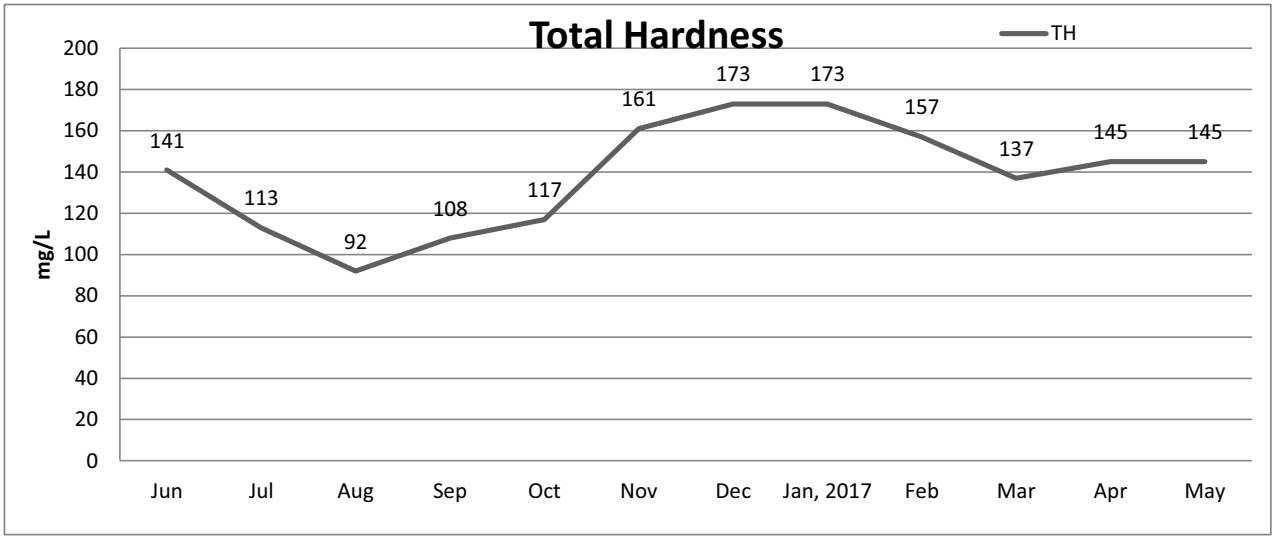
**Station Name : SHAHIJINA** **Division : LYD, Agra**

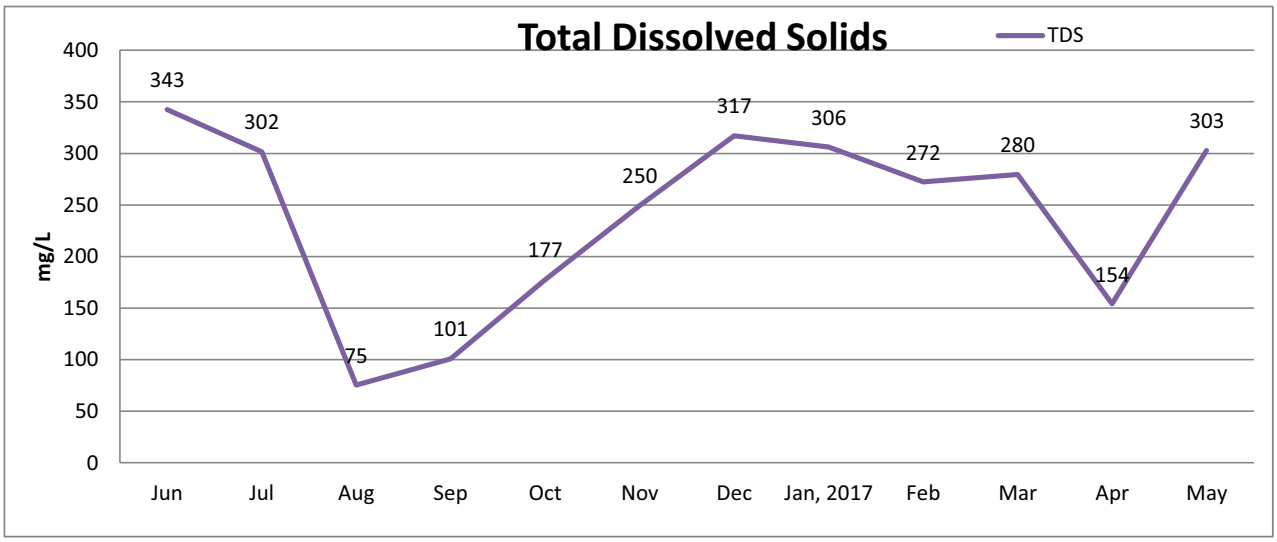
**Local River : BETWA**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | 12 | 30 | 15 | 25 | 28 | 20 | 26 |
| pH_GEN (pH units) | - | - | - | - | - | - | - |
| EC_GEN (µmho/cm) | 12 | 527 | 116 | 369 | 307 | 441 | 378 |
| Total Dissolved Solids | | | | | | | |
| Turbiidity | - | - | - | - | - | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 24.50 | 0.00 | 7.9 | 7.85 | 13.88 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 12 | 213.00 | 38.33 | 141.9 | 118.87 | 171.29 | 141.11 |
| Boron | 12 | 0.32 | 0.08 | 0.2 | 0.20 | 0.15 | 0.11 |
| Calcium | 12 | 32.00 | 8.00 | 24.6 | 21.20 | 27.25 | 26.67 |
| Chloride | 12 | 33.40 | 11.40 | 22.2 | 19.46 | 22.58 | 26.30 |
| Carbonate | 12 | 29.40 | 0.00 | 9.5 | 9.42 | 16.65 | 0.00 |
| Fluoride | 12 | 1.31 | 0.10 | 0.4 | 0.32 | 0.23 | 0.66 |
| Bicarbonate | 12 | 211.00 | 46.00 | 151.3 | 123.80 | 172.25 | 169.33 |
| Potassium | 12 | 4.70 | 1.60 | 2.5 | 2.94 | 2.08 | 2.43 |
| Magnesium | 12 | 25.30 | 4.90 | 18.5 | 14.76 | 23.58 | 18.13 |
| Sodium | 12 | 81.20 | 7.80 | 41.6 | 35.34 | 43.60 | 49.43 |
| Ammonia as N | 12 | 0.39 | 0.00 | 0.2 | 0.10 | 0.21 | 0.25 |
| $NO_2$+$NO_3$ as N | 12 | 0.57 | 0.00 | 0.3 | 0.27 | 0.28 | 0.29 |
| Nitrite as N | 12 | 0.11 | 0.00 | 0.0 | 0.01 | 0.05 | 0.08 |
| Nitrate as N | 12 | 0.56 | 0.00 | 0.2 | 0.25 | 0.23 | 0.21 |
| Tot. Phosphate as P | 12 | 0.12 | 0.01 | 0.1 | 0.05 | 0.05 | 0.06 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 36.00 | 4.00 | 15.3 | 12.56 | 18.13 | 16.00 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 8.4 | 2.8 | 5.0 | 4.7 | 5.3 | 5.1 |
| COD | 12 | 54.1 | 4.1 | 16.9 | 12.4 | 16.3 | 25.0 |
| Dissolved Oxygen | 12 | 8.50 | 6.00 | 7.20 | 6.68 | 7.0 | 8.3 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | - | - | - | - | - | - | - |
| Fecal Coliform | - | - | - | - | - | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 3 | 3.08 | 0.88 | 2.23 | 3.08 | 2.72 | 0.88 |
| Cadmium | 3 | 0.08 | 0.03 | 0.06 | 0.08 | 0.03 | 0.07 |
| Chromium | 3 | 7.55 | 0.82 | 3.08 | 0.82 | 0.87 | 7.55 |
| Copper | 3 | 3.65 | 0.19 | 2.14 | 3.65 | 0.19 | 2.57 |
| Iron | 3 | 0.15 | 0.08 | 0.13 | 0.15 | 0.08 | 0.15 |
| Lead | 3 | 1.20 | 0.15 | 0.69 | 0.15 | 0.71 | 1.20 |
| Nickel | 3 | 6.15 | 2.10 | 3.57 | 2.47 | 2.10 | 6.15 |
| Zinc | 3 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 80 | 20 | 61 | 53 | 68 | 67 |
| Tot-Hardness | 12 | 173 | 92 | 139 | 114 | 166 | 142 |
| Na% | 12 | 55 | 15 | 36 | 33 | 35 | 43 |
| RSC (-) | 12 | 1.50 | 0.00 | 0.6 | 0.58 | 0.33 | 0.87 |
| SAR (-) | 12 | 3.00 | 0.40 | 1.5 | 1.42 | 1.45 | 1.80 |
| **PESTICIDES** | | | | | | | |

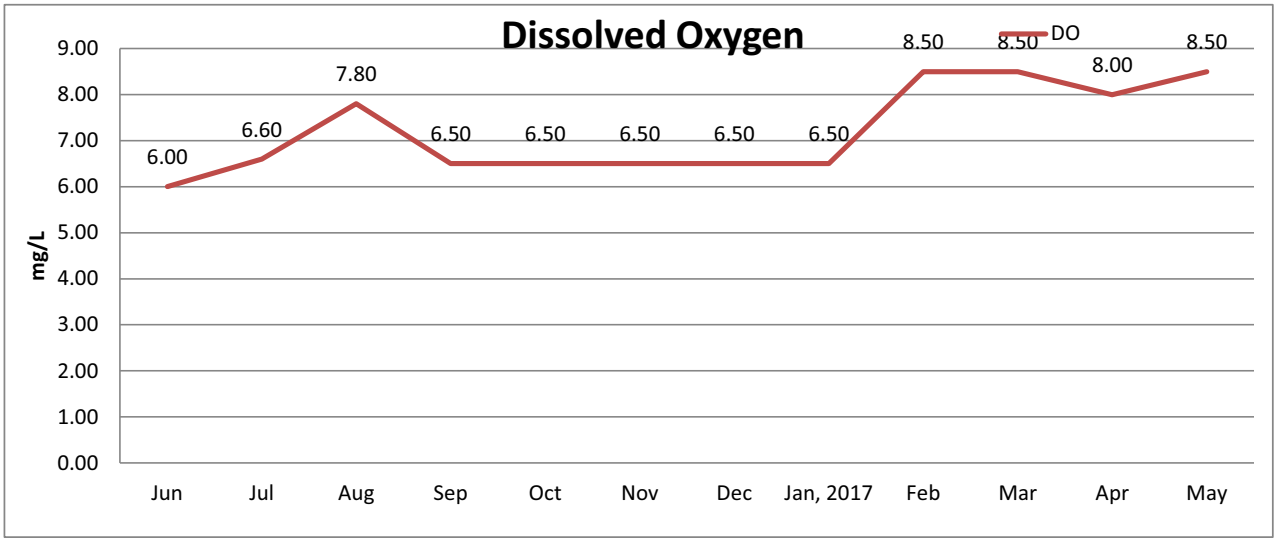
**Graphical Presentation of SHAHIJINA WQ Site**

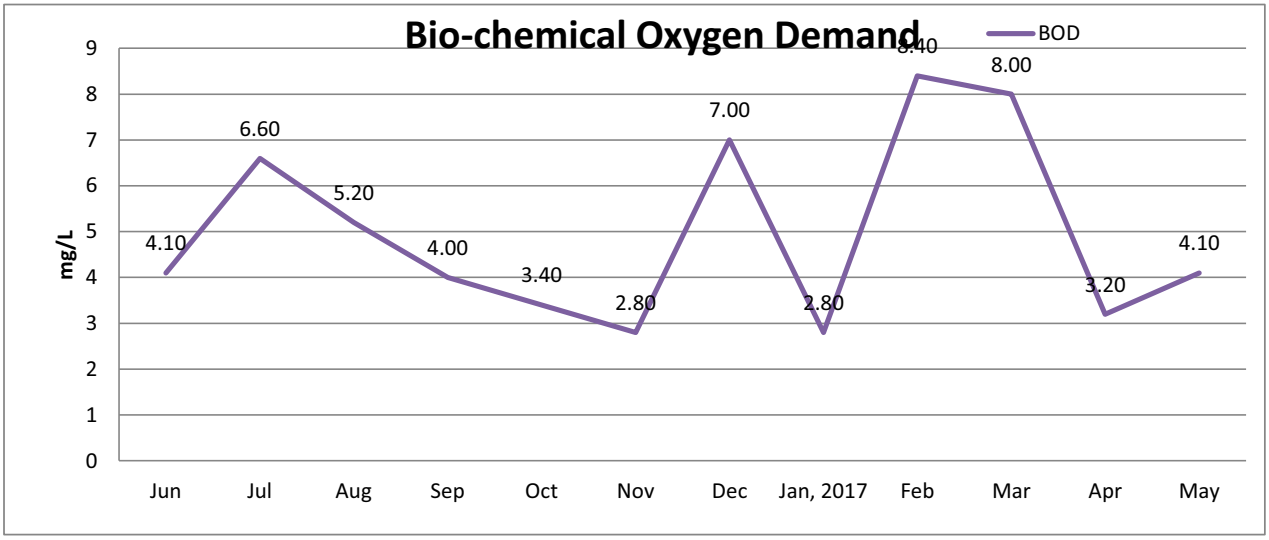


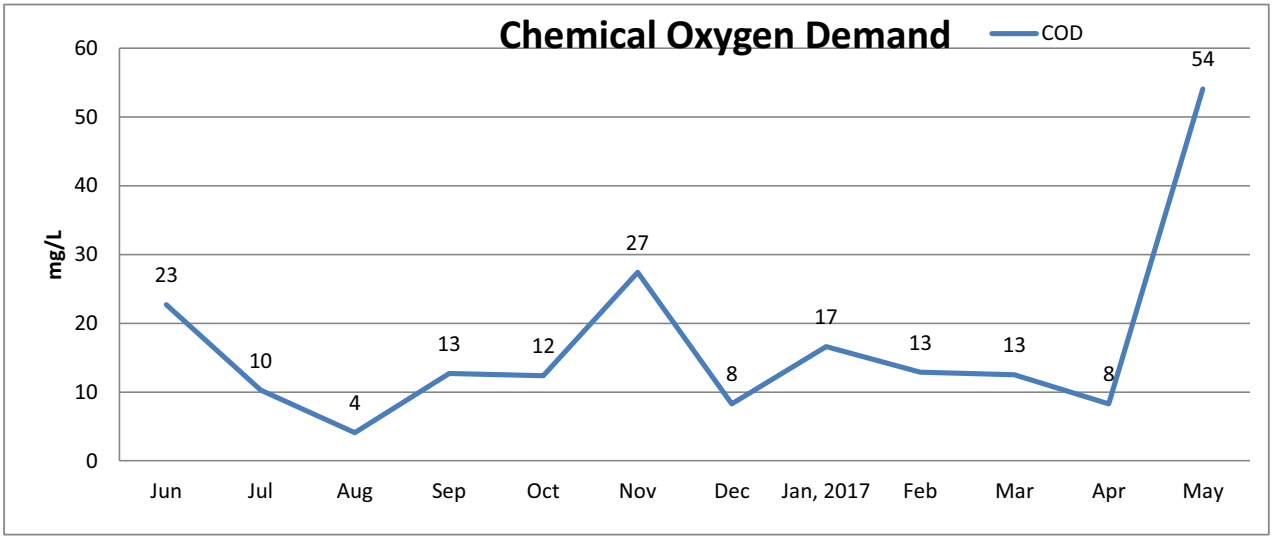



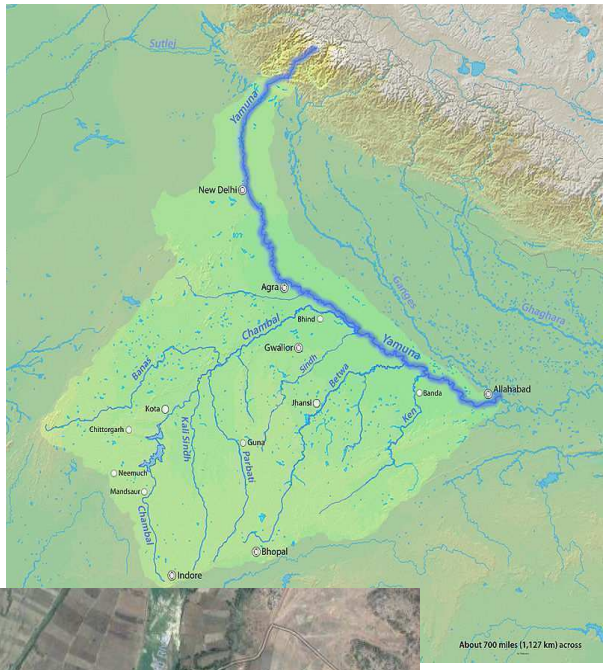
**Graphical Presentation of SHAHIJINA WQ Site**



# PACHAULI





## General Particulars

| | | | |
|---|---|---|---|
| Site | : **PACHAULI** | Code | : **-** |
| State | : **Madhya Pradesh** | District | : **Shivpuri** |
| Division | : **L.Y. D., Agra** | Sub-Division | : **-** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **-** |
| Sub-Sub-Trib. | : **-** | Local River | : **Sind** |
| Drainage Area | : **6706 Sq. Km.** | Bank | : **Right** |
| Latitude | : **25°10'44"** | Longitude | : **77°41'13"** |
| Zero of Gauge | : **-** | | |

## Details of operation (Opening date)

Water Quality : **11/01/1980**

# Water Quality Datasheet for the Period : 2016-2017

**Station Name :PACHAULI** **Division : LYD, Agra**

**Local River : SIND**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 01/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 01/04/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | | | Cloudy | Clear | Clear | Clear | | | | | | |
| 2 | Colour_Cod (-) | | River Dry | | Light Brown | | Clear | Clear | River dry | | | | | |
| 3 | Odour_Code (-) | | | | odour free | | | | | | | | | |
| 4 | Temperature | °C | | | 27 | 27 | 27.5 | 22.5 | | | | | | |
| 5 | pH_GEN (pH units) | | | | 6.80 | 7.50 | 8.30 | 8.60 | | | | | | |
| 6 | EC_GEN (µmho/cm) | NTU | | | 539 | 335 | 506 | 535 | | | | | | |
| 7 | Total Dissolved Solids | mg/L | | | 350 | 218 | 329 | 348 | | | | | | |
| 8 | Turbiidity | | | | - | - | - | - | | | | | | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | | | 0 | 0 | 20.25 | 22.5 | | | | | | |
| 10 | Alk-Tot (as $CaCO_3$) | | | | 57.50 | 90.83 | 210.50 | 187.50 | | | | | | |
| 11 | Boron | | | | 0.25 | 0.14 | 0.40 | 0.22 | | | | | | |
| 12 | Calcium | | | | 16.00 | 29.00 | 10.00 | 11.00 | | | | | | |
| 13 | Chloride | | | | 50.80 | 11.40 | 24.90 | 28.80 | | | | | | |
| 14 | Carbonate | | | | 0.00 | 0.00 | 24.30 | 27.00 | | | | | | |
| 15 | Fluoride | | | | 0.29 | 0.09 | 0.12 | 0.06 | | | | | | |
| 16 | Bicarbonate | | | | 69.00 | 109.00 | 204.00 | 171.00 | | | | | | |
| 17 | Potassium | | | | 2.00 | 2.30 | 3.10 | 2.70 | | | | | | |
| 18 | Magnesium | | | | 35.00 | 8.70 | 42.80 | 39.90 | | | | | | |
| 19 | Sodium | | | | 29.00 | 11.30 | 31.70 | 38.90 | | | | | | |
| 20 | Ammonia as N | | | | 0.14 | 0.15 | 0.03 | 0.01 | | | | | | |
| 21 | $NO_2$+$NO_3$ as N | | | | 2.50 | 0.57 | 1.90 | 1.99 | | | | | | |
| 22 | Nitrite as N | | | | 0.08 | 0.01 | 0.01 | 0.01 | | | | | | |
| 23 | Nitrate as N | | | | 2.42 | 0.56 | 1.89 | 1.98 | | | | | | |
| 24 | Tot. Phosphate as P | | | | 0.00 | 0.01 | 0.02 | 0.00 | | | | | | |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | | | 39.00 | 4.00 | 19.00 | 11.00 | | | | | | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | | | 2.40 | 1.60 | 1.80 | 2.60 | | | | | | |
| 28 | COD | | | | 6.20 | 6.20 | 20.60 | 22.70 | | | | | | |
| 29 | Dissolved Oxygen | | | | 5.10 | 4.98 | 5.20 | 5.10 | | | | | | |
| 30 | DO_SAT % | % | | | 114 | 133 | 89 | 96 | | | | | | |
| 31 | Tota Coliform | MPN/100 ml | | | - | - | - | - | | | | | | |
| 32 | Fecal Coliform | | | | - | - | - | - | | | | | | |
| 33 | E. Coli | | | | - | - | - | - | | | | | | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 3.570 | | | | | | | | | |
| 35 | Cadmium | | | | 0.080 | | | | | | | | | |
| 36 | Chromium | | | | 1.240 | | | | | | | | | |
| 37 | Copper | | | | 7.750 | | | | | | | | | |
| 38 | Iron | mg/l | | | 0.143 | | | | | | | | | |
| 39 | Lead | µg/L | | | 0.120 | | | | | | | | | |
| 40 | Nickel | | | | 2.450 | | | | | | | | | |
| 41 | Zinc | mg/l | | | 0.009 | | | | | | | | | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | | | 40 | 72 | 24 | 28 | | | | | | |
| 43 | Tot-Hardness | | | | 186 | 108 | 202 | 194 | | | | | | |
| 44 | Na% | % | | | 25 | 18 | 25 | 30 | | | | | | |
| 45 | RSC (-) | | | | 0.00 | 0.00 | 0.20 | 0.00 | | | | | | |
| 46 | SAR (-) | | | | 0.90 | 0.50 | 1.00 | 1.20 | | | | | | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

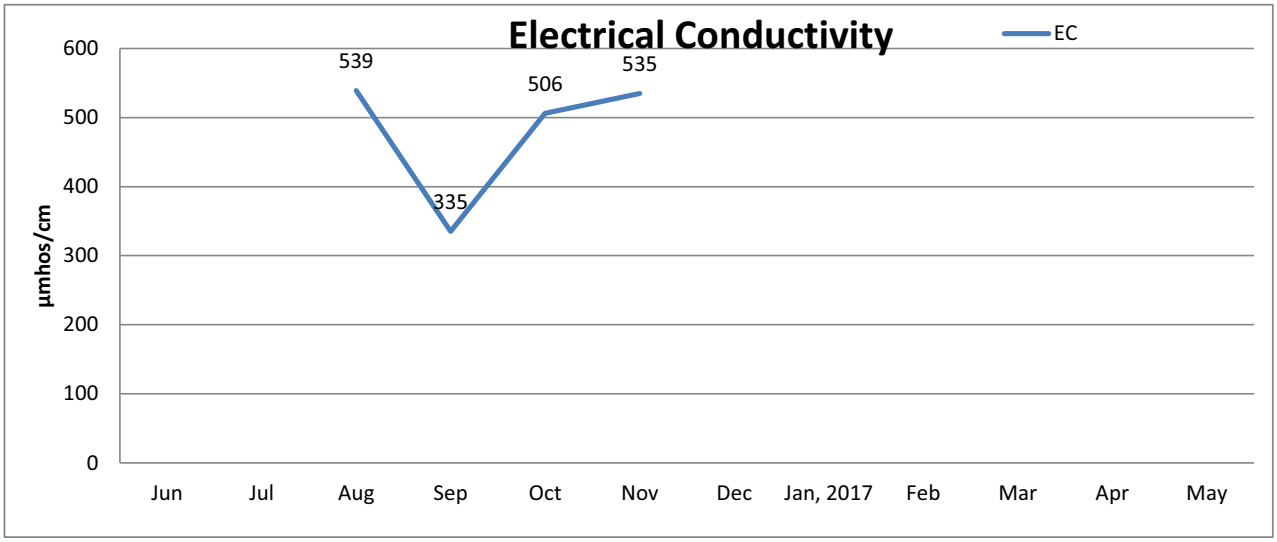
# RIVER WATER SUMMARY - 2016-2017

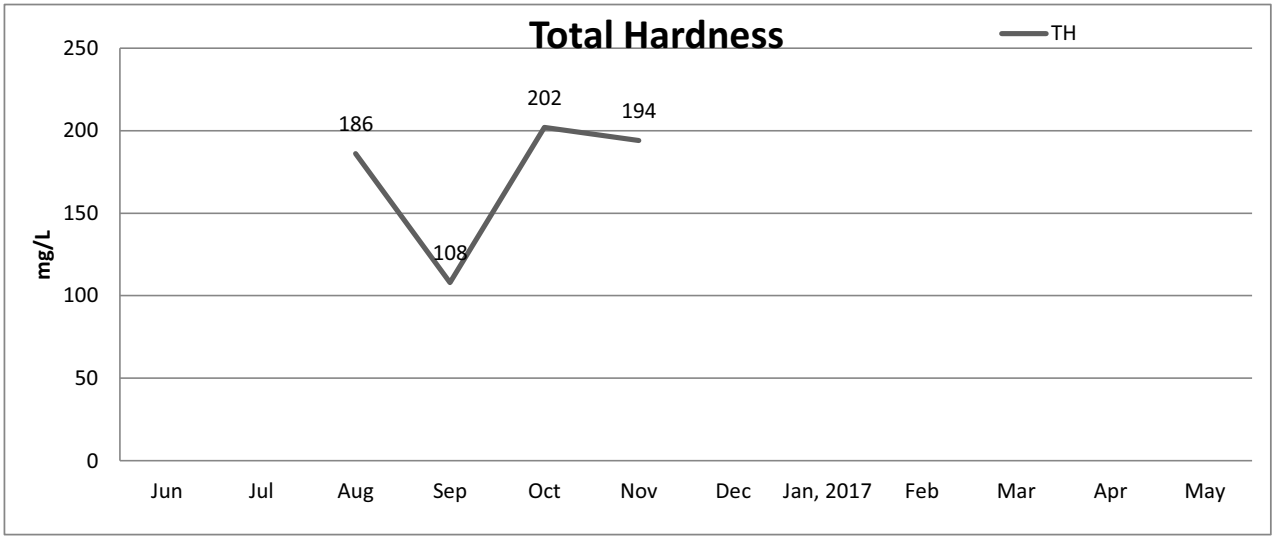
**Station Name : PACHAULI** **Division : LYD, Agra**

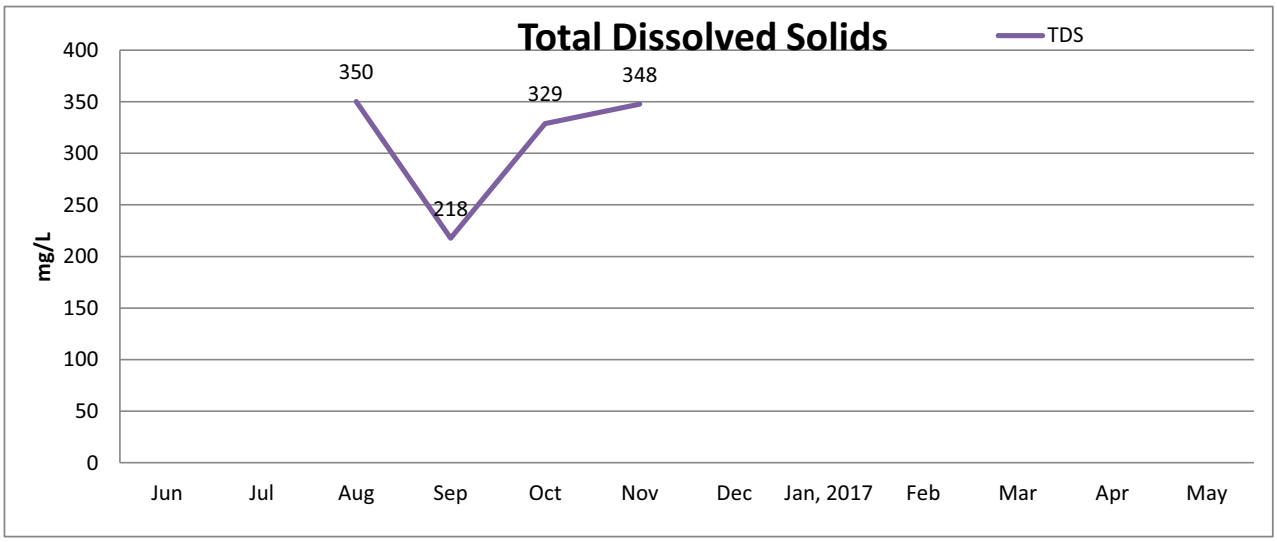
**Local River : SIND**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | 4 | 28 | 23 | 26 | 27 | 23 | - |
| pH_GEN (pH units) | - | - | - | - | - | - | - |
| EC_GEN (µmho/cm) | 4 | 539 | 335 | 479 | 460 | 535 | - |
| Total Dissolved Solids | | | | | | | |
| Turbiidity | - | - | - | - | - | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 4 | 22.50 | 0.00 | 10.7 | 6.75 | 22.50 | - |
| Alk-Tot (as $CaCO_3$) | 4 | 210.50 | 57.50 | 136.6 | 119.61 | 187.50 | - |
| Boron | 4 | 0.40 | 0.14 | 0.3 | 0.26 | 0.22 | - |
| Calcium | 4 | 29.00 | 10.00 | 16.5 | 18.33 | 11.00 | - |
| Chloride | 4 | 50.80 | 11.40 | 29.0 | 29.03 | 28.80 | - |
| Carbonate | 4 | 27.00 | 0.00 | 12.8 | 8.10 | 27.00 | - |
| Fluoride | 4 | 0.29 | 0.06 | 0.1 | 0.17 | 0.06 | - |
| Bicarbonate | 4 | 204.00 | 69.00 | 138.3 | 127.33 | 171.00 | - |
| Potassium | 4 | 3.10 | 2.00 | 2.5 | 2.47 | 2.70 | - |
| Magnesium | 4 | 42.80 | 8.70 | 31.6 | 28.83 | 39.90 | - |
| Sodium | 4 | 38.90 | 11.30 | 27.7 | 24.00 | 38.90 | - |
| Ammonia as N | 4 | 0.15 | 0.01 | 0.1 | 0.11 | 0.01 | - |
| $NO_2$+$NO_3$ as N | 4 | 2.50 | 0.57 | 1.7 | 1.66 | 1.99 | - |
| Nitrite as N | 4 | 0.08 | 0.01 | 0.0 | 0.03 | 0.01 | - |
| Nitrate as N | 4 | 2.42 | 0.56 | 1.7 | 1.62 | 1.98 | - |
| Tot. Phosphate as P | 4 | 0.02 | 0.00 | 0.0 | 0.01 | 0.00 | - |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 4 | 39.00 | 4.00 | 18.3 | 20.67 | 11.00 | - |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 4 | 2.6 | 1.6 | 2.1 | 1.9 | 2.6 | - |
| COD | 4 | 22.7 | 6.2 | 13.9 | 11.0 | 22.7 | - |
| Dissolved Oxygen | 4 | 5.20 | 4.98 | 5.10 | 5.09 | 5.1 | - |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | - | - | - | - | - | - | - |
| Fecal Coliform | - | - | - | - | - | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 1 | 3.57 | 3.57 | 3.57 | 3.57 | - | - |
| Cadmium | 1 | 0.08 | 0.08 | 0.08 | 0.08 | - | - |
| Chromium | 1 | 1.24 | 1.24 | 1.24 | 1.24 | - | - |
| Copper | 1 | 7.75 | 7.75 | 7.75 | 7.75 | - | - |
| Iron | 1 | 0.14 | 0.14 | 0.14 | 0.14 | - | - |
| Lead | 1 | 0.12 | 0.12 | 0.12 | 0.12 | - | - |
| Nickel | 1 | 2.45 | 2.45 | 2.45 | 2.45 | - | - |
| Zinc | 1 | 0.01 | 0.01 | 0.01 | 0.01 | - | - |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 4 | 72 | 24 | 41 | 45 | 28 | - |
| Tot-Hardness | 4 | 202 | 108 | 173 | 165 | 194 | - |
| Na% | 4 | 30 | 18 | 25 | 23 | 30 | - |
| RSC (-) | 4 | 0.20 | 0.00 | 0.1 | 0.07 | 0.00 | - |
| SAR (-) | 4 | 1.20 | 0.50 | 0.9 | 0.80 | 1.20 | - |
| **PESTICIDES** | | | | | | | |

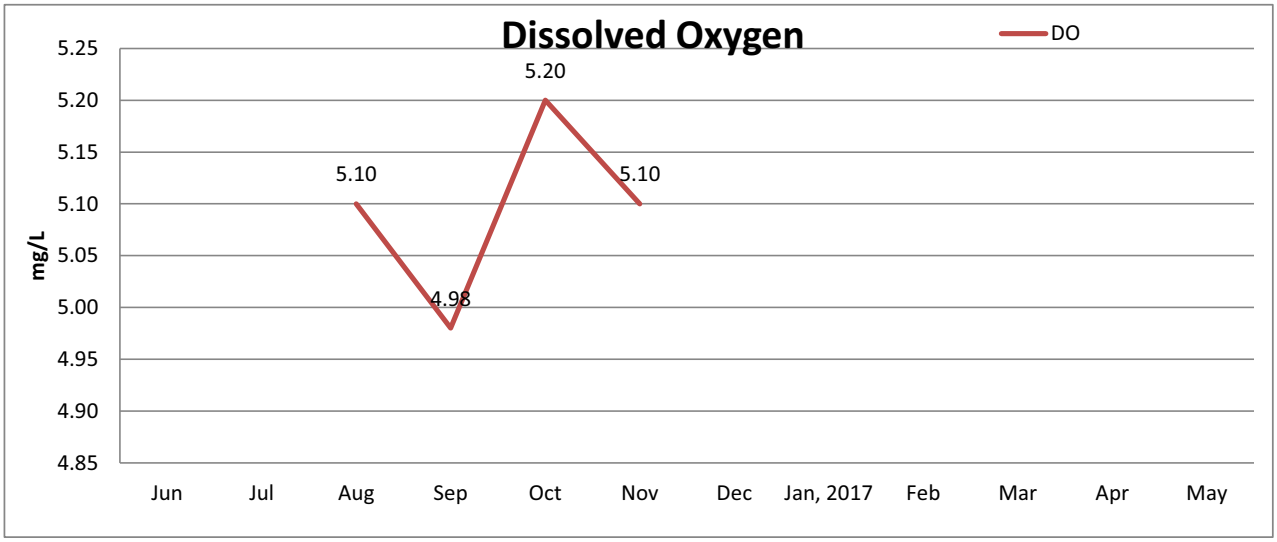
**Graphical Presentation of PACHAULI WQ Site**

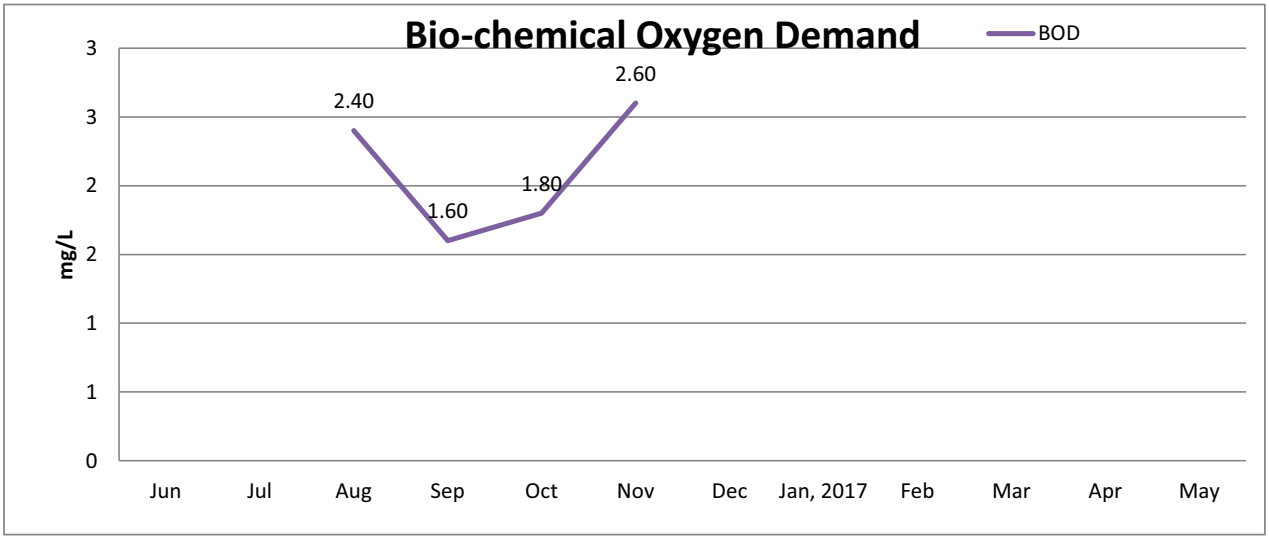


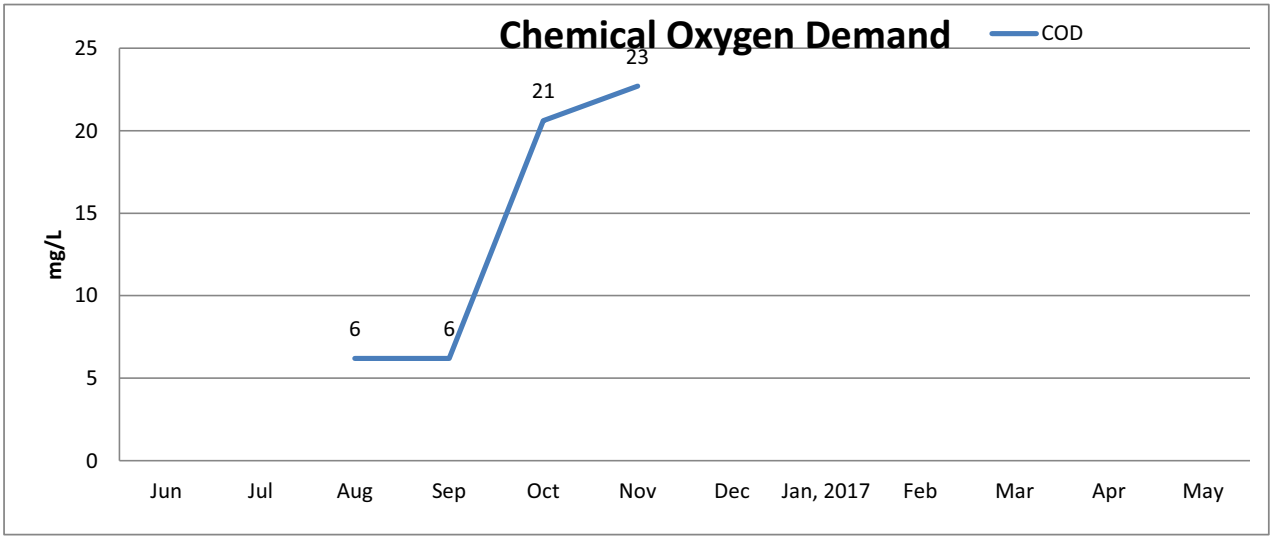



**Graphical Presentation of PACHAULI WQ Site**



# SEONDHA

## General Particulars

| | | | |
|---|---|---|---|
| Site | : ***SEONDHA*** | Code | : **GYN00D8** |
| State | : **Madhya Pradesh** | District | : **Datia** |
| Division | : **L.Y. D., Agra** | Sub-Division | : **Sindh Betwa SD, Jhansi** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **-** |
| Sub-Sub-Trib. | : **-** | Local River | : **Sind** |
| Drainage Area | : **16701 Sq. Km.** | Bank | : **Right** |
| Latitude | : **26°00'00"N** | Longitude | : **78°56'00" E** |
| Zero of Gauge | : **128.000(m.s.l)** | | |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **18/09/1959** |
| Discharge: | : **18/09/1959** |
| Sediment | : **15/02/1962** |
| Water Quality | : **01/05/1972** |
| Wireless | : **-** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name :SEONDHA** **Division : LYD, Agra**

**Local River : SIND**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 01/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 01/04/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | Clear | Light Brown | | | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 3 | Odour_Code (-) | | odour free | | | | | | | | | | | |
| 4 | Temperature | °C | 30 | 28.5 | 27.5 | 27.5 | 27.5 | 26 | 24 | 15 | 15 | 23 | 26.5 | 27 |
| 5 | pH_GEN (pH units) | | 8.70 | 7.60 | 6.80 | 7.40 | 8.40 | 8.50 | 8.40 | 8.60 | 8.00 | 7.20 | 7.50 | 8.10 |
| 6 | EC_GEN (µmho/cm) | NTU | 527 | 464 | 116 | 155 | 273 | 384 | 488 | 471 | 419 | 430 | 237 | 466 |
| 7 | Total Dissolved Solids | mg/L | 343 | 302 | 75 | 101 | 177 | 250 | 317 | 306 | 272 | 280 | 154 | 303 |
| 8 | Turbiidity | | - | - | - | - | - | - | - | - | - | - | - | - |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 20.25 | 0.00 | 0.00 | 0.00 | 19.00 | 24.50 | 16.00 | 15.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | Alk-Tot (as $CaCO_3$) | | 213.00 | 147.50 | 38.33 | 90.83 | 104.67 | 150.67 | 187.00 | 205.83 | 141.67 | 119.17 | 175.00 | 129.17 |
| 11 | Boron | | 0.25 | 0.14 | 0.14 | 0.14 | 0.32 | 0.14 | 0.26 | 0.12 | 0.08 | 0.14 | 0.08 | 0.12 |
| 12 | Calcium | | 22.00 | 18.00 | 29.00 | 29.00 | 8.00 | 26.00 | 29.00 | 27.00 | 27.00 | 32.00 | 26.00 | 22.00 |
| 13 | Chloride | | 33.40 | 23.40 | 11.70 | 11.40 | 17.40 | 17.40 | 24.90 | 24.90 | 23.10 | 23.10 | 27.00 | 28.80 |
| 14 | Carbonate | | 24.30 | 0.00 | 0.00 | 0.00 | 22.80 | 29.40 | 19.20 | 18.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | Fluoride | | 0.74 | 0.23 | 0.25 | 0.18 | 0.19 | 0.10 | 0.49 | 0.15 | 0.17 | 0.13 | 0.53 | 1.31 |
| 16 | Bicarbonate | | 207.00 | 177.00 | 46.00 | 109.00 | 80.00 | 122.00 | 186.00 | 211.00 | 170.00 | 143.00 | 210.00 | 155.00 |
| 17 | Potassium | | 4.70 | 3.10 | 2.30 | 2.30 | 2.30 | 2.70 | 2.00 | 1.60 | 2.00 | 1.60 | 2.70 | 3.00 |
| 18 | Magnesium | | 20.40 | 16.50 | 4.90 | 8.70 | 23.30 | 23.30 | 24.30 | 25.30 | 21.40 | 13.60 | 19.40 | 21.40 |
| 19 | Sodium | | 81.20 | 60.30 | 7.80 | 11.30 | 16.10 | 29.70 | 64.20 | 43.00 | 37.50 | 43.90 | 49.70 | 54.70 |
| 20 | Ammonia as N | | 0.01 | 0.31 | 0.00 | 0.15 | 0.01 | 0.17 | 0.04 | 0.39 | 0.25 | 0.14 | 0.38 | 0.24 |
| 21 | $NO_2$+$NO_3$ as N | | 0.00 | 0.09 | 0.52 | 0.57 | 0.15 | 0.28 | 0.15 | 0.49 | 0.19 | 0.15 | 0.53 | 0.19 |
| 22 | Nitrite as N | | 0.00 | 0.01 | 0.04 | 0.01 | 0.01 | 0.03 | 0.11 | 0.03 | 0.04 | 0.04 | 0.11 | 0.08 |
| 23 | Nitrate as N | | 0.00 | 0.08 | 0.48 | 0.56 | 0.14 | 0.25 | 0.04 | 0.46 | 0.15 | 0.11 | 0.42 | 0.11 |
| 24 | Tot. Phosphate as P | | 0.10 | 0.06 | 0.05 | 0.02 | 0.03 | 0.03 | 0.01 | 0.10 | 0.06 | 0.02 | 0.12 | 0.04 |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | 10.10 | 22.70 | 12.00 | 4.00 | 14.00 | 12.00 | 36.00 | 12.50 | 12.00 | 17.00 | 9.00 | 22.00 |
| /BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 4.10 | 6.60 | 5.20 | 4.00 | 3.40 | 2.80 | 7.00 | 2.80 | 8.40 | 8.00 | 3.20 | 4.10 |
| 28 | COD | | 22.70 | 10.30 | 4.10 | 12.70 | 12.40 | 27.40 | 8.30 | 16.60 | 12.90 | 12.50 | 8.30 | 54.10 |
| 29 | Dissolved Oxygen | | 6.00 | 6.60 | 7.80 | 6.50 | 6.50 | 6.50 | 6.50 | 6.50 | 8.50 | 8.50 | 8.00 | 8.50 |
| 30 | DO_SAT % | % | 79 | 84 | 98 | 82 | 82 | 80 | 77 | 64 | 84 | 99 | 99 | 107 |
| 31 | Tota Coliform | MPN/100 | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | Fecal Coliform | | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 2.590 | | | | 2.690 | | | | 0.440 | |
| 35 | Cadmium | | | | 0.087 | | | | 0.052 | | | | 0.033 | |
| 36 | Chromium | | | | 0.870 | | | | 0.490 | | | | 1.230 | |
| 37 | Copper | | | | 1.470 | | | | 5.660 | | | | 6.440 | |
| 38 | Iron | mg/l | | | 0.066 | | | | 0.067 | | | | 0.159 | |
| 39 | Lead | µg/L | | | 0.210 | | | | 0.420 | | | | 0.910 | |
| 40 | Nickel | | | | 1.290 | | | | 0.690 | | | | 0.010 | |
| 41 | Zinc | mg/l | | | 0.007 | | | | 0.009 | | | | 0.006 | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 56 | 44 | 72 | 72 | 20 | 64 | 72 | 68 | 68 | 80 | 64 | 56 |
| 43 | Tot-Hardness | | 141 | 113 | 92 | 108 | 117 | 161 | 173 | 173 | 157 | 137 | 145 | 145 |
| 44 | Na% | % | 55 | 53 | 15 | 18 | 23 | 28 | 44 | 35 | 34 | 41 | 42 | 45 |
| 45 | RSC (-) | | 1.40 | 1.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.60 | 0.40 | 0.70 | 0.90 | 1.00 |
| 46 | SAR (-) | | 3.00 | 2.50 | 0.40 | 0.50 | 0.70 | 1.00 | 2.10 | 1.40 | 1.30 | 1.60 | 1.80 | 2.00 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

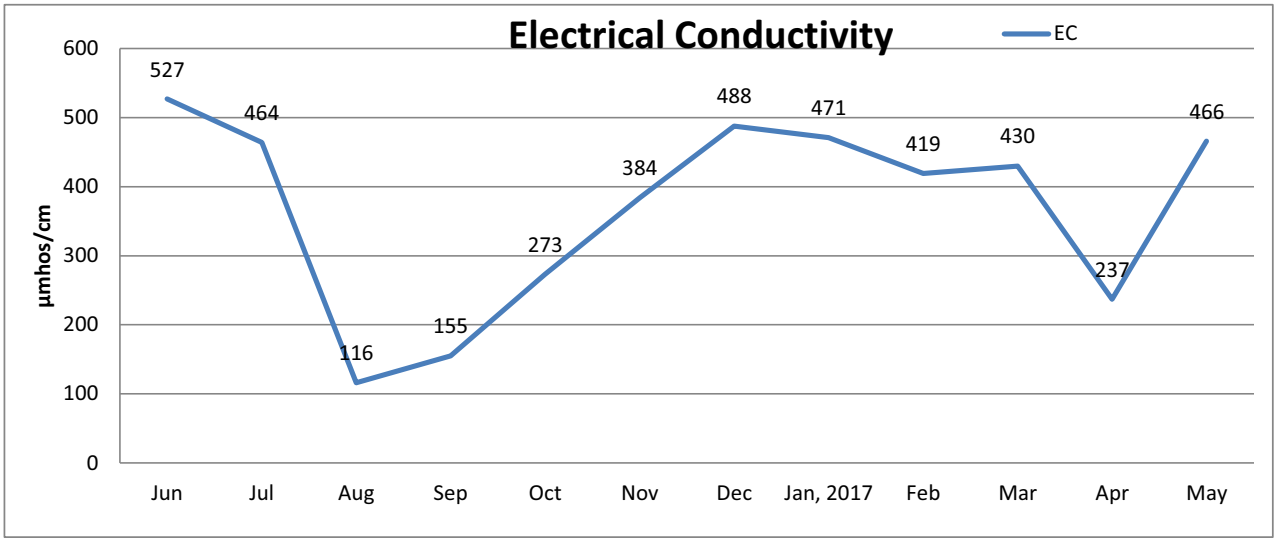
# RIVER WATER SUMMARY - 2016-2017

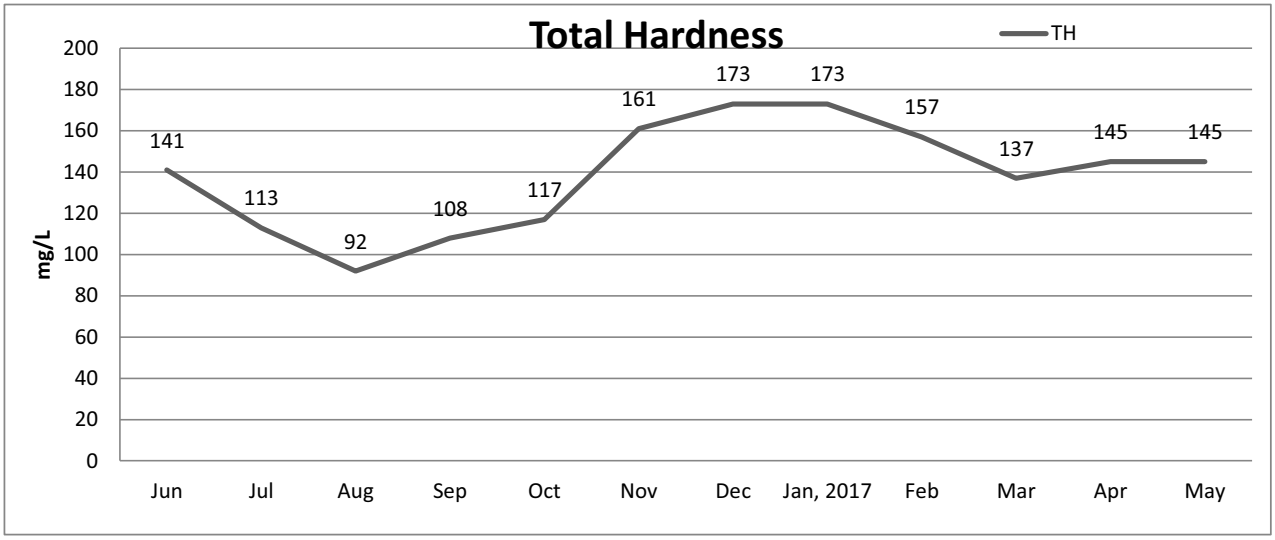
**Station Name : SEONDHA** **Division : LYD, Agra**

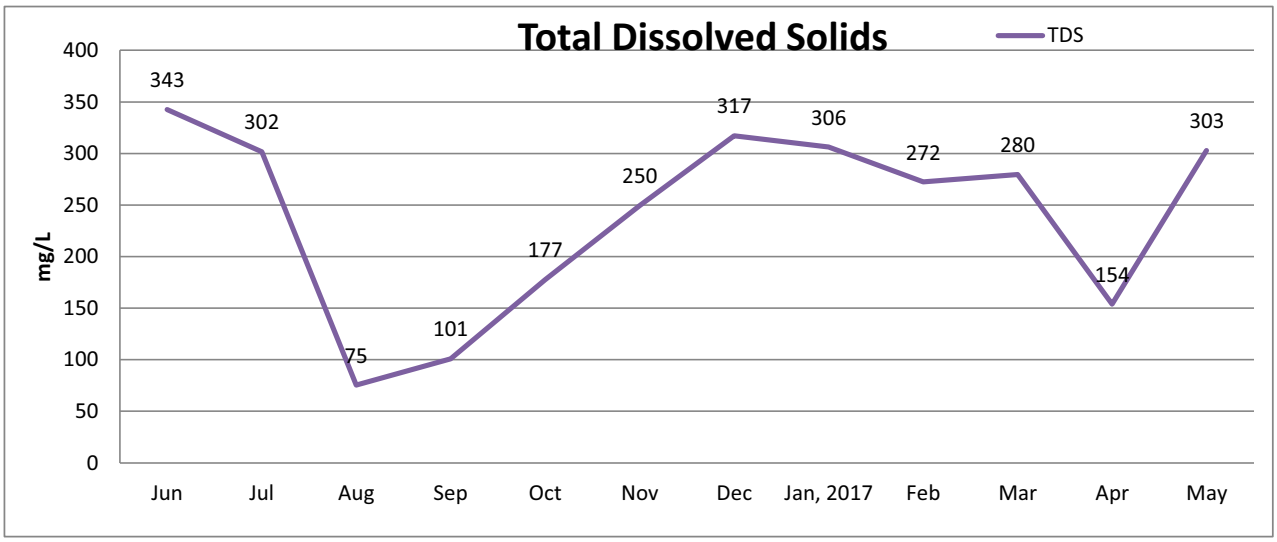
**Local River : SIND**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | 12 | 30 | 15 | 25 | 28 | 20 | 26 |
| pH_GEN (pH units) | - | - | - | - | - | - | - |
| EC_GEN (µmho/cm) | 12 | 527 | 116 | 369 | 307 | 441 | 378 |
| Total Dissolved Solids | | | | | | | |
| Turbiidity | - | - | - | - | - | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 24.50 | 0.00 | 7.9 | 7.85 | 13.88 | 0.00 |
| Alk-Tot (as $CaCO_3$) | 12 | 213.00 | 38.33 | 141.9 | 118.87 | 171.29 | 141.11 |
| Boron | 12 | 0.32 | 0.08 | 0.2 | 0.20 | 0.15 | 0.11 |
| Calcium | 12 | 32.00 | 8.00 | 24.6 | 21.20 | 27.25 | 26.67 |
| Chloride | 12 | 33.40 | 11.40 | 22.2 | 19.46 | 22.58 | 26.30 |
| Carbonate | 12 | 29.40 | 0.00 | 9.5 | 9.42 | 16.65 | 0.00 |
| Fluoride | 12 | 1.31 | 0.10 | 0.4 | 0.32 | 0.23 | 0.66 |
| Bicarbonate | 12 | 211.00 | 46.00 | 151.3 | 123.80 | 172.25 | 169.33 |
| Potassium | 12 | 4.70 | 1.60 | 2.5 | 2.94 | 2.08 | 2.43 |
| Magnesium | 12 | 25.30 | 4.90 | 18.5 | 14.76 | 23.58 | 18.13 |
| Sodium | 12 | 81.20 | 7.80 | 41.6 | 35.34 | 43.60 | 49.43 |
| Ammonia as N | 12 | 0.39 | 0.00 | 0.2 | 0.10 | 0.21 | 0.25 |
| $NO_2$+$NO_3$ as N | 12 | 0.57 | 0.00 | 0.3 | 0.27 | 0.28 | 0.29 |
| Nitrite as N | 12 | 0.11 | 0.00 | 0.0 | 0.01 | 0.05 | 0.08 |
| Nitrate as N | 12 | 0.56 | 0.00 | 0.2 | 0.25 | 0.23 | 0.21 |
| Tot. Phosphate as P | 12 | 0.12 | 0.01 | 0.1 | 0.05 | 0.05 | 0.06 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 36.00 | 4.00 | 15.3 | 12.56 | 18.13 | 16.00 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 8.4 | 2.8 | 5.0 | 4.7 | 5.3 | 5.1 |
| COD | 12 | 54.1 | 4.1 | 16.9 | 12.4 | 16.3 | 25.0 |
| Dissolved Oxygen | 12 | 8.50 | 6.00 | 7.20 | 6.68 | 7.0 | 8.3 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | - | - | - | - | - | - | - |
| Fecal Coliform | - | - | - | - | - | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 3 | 2.69 | 0.44 | 1.91 | 2.59 | 2.69 | 0.44 |
| Cadmium | 3 | 0.09 | 0.03 | 0.06 | 0.09 | 0.05 | 0.03 |
| Chromium | 3 | 1.23 | 0.49 | 0.86 | 0.87 | 0.49 | 1.23 |
| Copper | 3 | 6.44 | 1.47 | 4.52 | 1.47 | 5.66 | 6.44 |
| Iron | 3 | 0.16 | 0.07 | 0.10 | 0.07 | 0.07 | 0.16 |
| Lead | 3 | 0.91 | 0.21 | 0.51 | 0.21 | 0.42 | 0.91 |
| Nickel | 3 | 1.29 | 0.01 | 0.66 | 1.29 | 0.69 | 0.01 |
| Zinc | 3 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 80 | 20 | 61 | 53 | 68 | 67 |
| Tot-Hardness | 12 | 173 | 92 | 139 | 114 | 166 | 142 |
| Na% | 12 | 55 | 15 | 36 | 33 | 35 | 43 |
| RSC (-) | 12 | 1.50 | 0.00 | 0.6 | 0.58 | 0.33 | 0.87 |
| SAR (-) | 12 | 3.00 | 0.40 | 1.5 | 1.42 | 1.45 | 1.80 |
| **PESTICIDES** | | | | | | | |

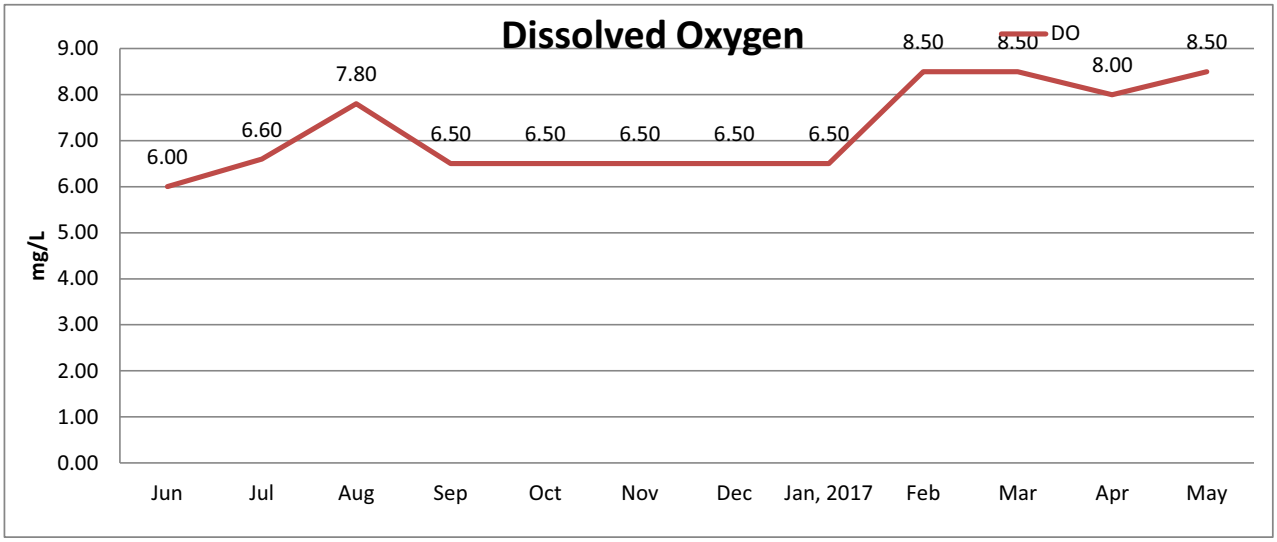
**Graphical Presentation of SEONDHA WQ Site**

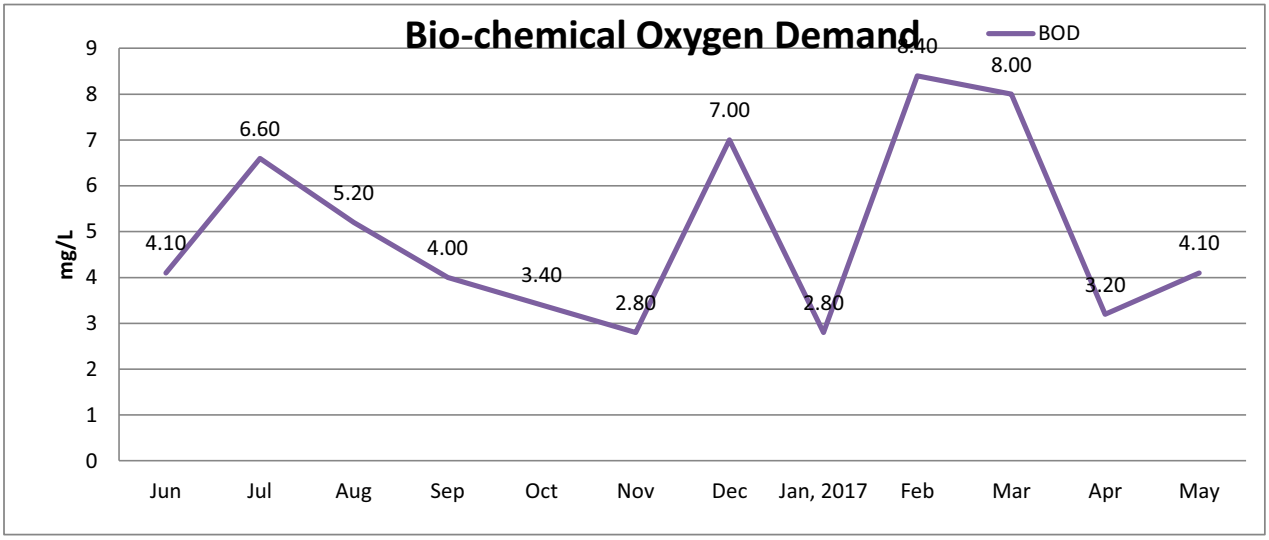


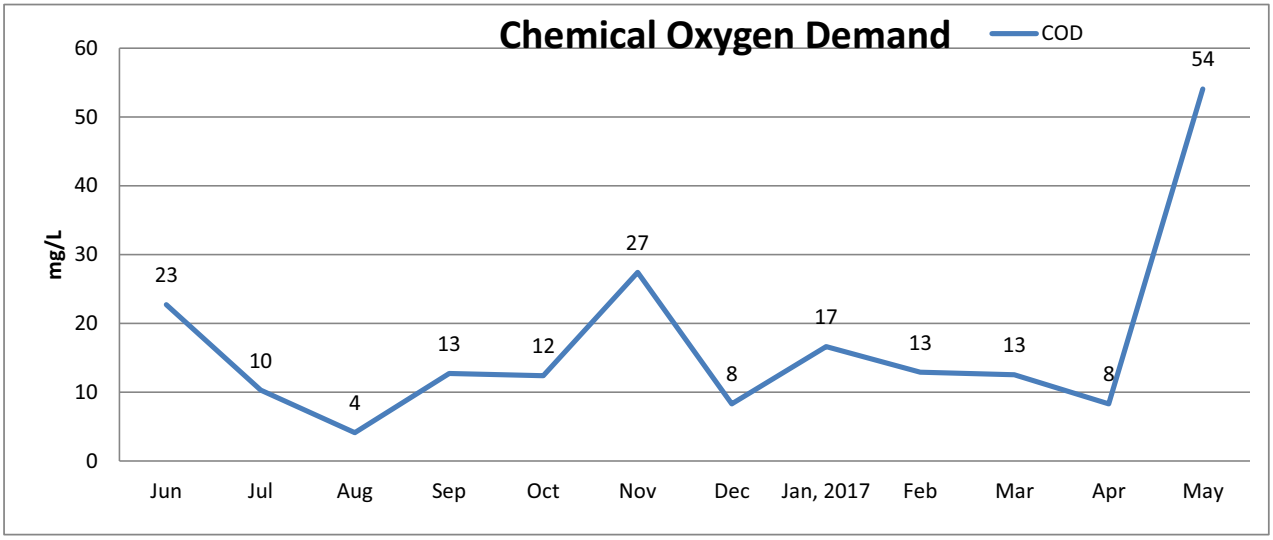



**Graphical Presentation of SEONDHA WQ Site**



# GARRAULI

## General Particulars

| | | | |
|---|---|---|---|
| Site | : **GARRAULI** | Code | : **GYK20G7** |
| State | : **Madhya Pradesh** | District | : **Chhatarpur** |
| Division | : **L.Y. D., Agra** | Sub-Division | : **Sindh Betwa SD, Jhansi** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **Betwa** |
| Sub-Sub-Trib. | : **Dhasan** | Local River | : **Dhasan** |
| Drainage Area | : **840 Sq. Km.** | Bank | : **Left** |
| Latitude | : **25°40'00"N** | Longitude | : **79°20'00" E** |
| Zero of Gauge | : **195.000(m.s.l)** | | |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **01/05/1982** |
| Discharge: | : **01/07/1982** |
| Sediment | : **01/11/1983** |
| Water Quality | : **01/03/1983** |
| Wireless | : **30/06/1983** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : GARRAULI** **Division : LYD, Agra**

**Local River :DHASAN**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | | | 01/08/16 | | | 01/11/16 | | | 01/02/17 | | | |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | | | Cloudy | | | Clear | | | Clear | | | |
| 2 | Colour_Cod (-) | | | | Brown | | | Clear | | | Clear | | | |
| 3 | Odour_Code (-) | | | | odour free | | | odour free | | | odour free | | | |
| 4 | Temperature | °C | | | 29 | | | 25 | | | 17 | | | |
| 5 | pH_GEN (pH units) | | | | 6.70 | | | 8.70 | | | 8.00 | | | |
| 6 | EC_GEN (µmho/cm) | NTU | | | 99 | | | 301 | | | 313 | | | |
| 7 | Total Dissolved Solids | mg/L | | | 64 | | | 196 | | | 203 | | | |
| 8 | Turbiidity | | | | - | | | - | | | - | | | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | | | 0 | | | 17 | | | 0 | | | |
| 10 | Alk-Tot (as $CaCO_3$) | | | | 12.50 | | | 114.00 | | | 74.17 | | | |
| 11 | Boron | | | | 0.11 | | | 0.11 | | | 0.00 | | | |
| 12 | Calcium | | | | 16.00 | | | 29.00 | | | 24.00 | | | |
| 13 | Chloride | | | | 11.70 | | | 19.20 | | | 15.30 | | | |
| 14 | Carbonate | | | | 0.00 | | | 20.40 | | | 0.00 | | | |
| 15 | Fluoride | | | | 0.12 | | | 0.11 | | | 0.27 | | | |
| 16 | Bicarbonate | | | | 15.00 | | | 96.00 | | | 89.00 | | | |
| 17 | Potassium | | | | 2.30 | | | 2.70 | | | 2.00 | | | |
| 18 | Magnesium | | | | 4.90 | | | 13.60 | | | 20.40 | | | |
| 19 | Sodium | | | | 5.50 | | | 16.30 | | | 12.20 | | | |
| 20 | Ammonia as N | | | | 0.01 | | | 0.01 | | | 0.01 | | | |
| 21 | $NO_2$+$NO_3$ as N | | | | 0.46 | | | 0.19 | | | 0.08 | | | |
| 22 | Nitrite as N | | | | 0.08 | | | 0.01 | | | 0.00 | | | |
| 23 | Nitrate as N | | | | 0.38 | | | 0.18 | | | 0.08 | | | |
| 24 | Tot. Phosphate as P | | | | 0.01 | | | 0.01 | | | 0.00 | | | |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | | | 3.30 | | | 8.00 | | | 3.80 | | | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | | | 2.10 | | | 3.60 | | | 4.10 | | | |
| 28 | COD | | | | 14.40 | | | 28.90 | | | 14.60 | | | |
| 29 | Dissolved Oxygen | | | | 5.10 | | | 4.10 | | | 4.98 | | | |
| 30 | DO_SAT % | % | | | 92 | | | 110 | | | 106 | | | |
| 31 | Tota Coliform | MPN/100 ml | | | - | | | - | | | - | | | |
| 32 | Fecal Coliform | | | | - | | | - | | | - | | | |
| 33 | E. Coli | | | | - | | | - | | | - | | | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 3.270 | | | 4.900 | | | 2.210 | | | |
| 35 | Cadmium | | | | 0.102 | | | 0.038 | | | 0.128 | | | |
| 36 | Chromium | | | | 0.730 | | | 1.310 | | | 2.110 | | | |
| 37 | Copper | | | | 1.220 | | | 3.900 | | | 1.220 | | | |
| 38 | Iron | mg/l | | | 0.147 | | | 0.084 | | | 0.120 | | | |
| 39 | Lead | µg/L | | | 0.530 | | | 0.460 | | | 0.116 | | | |
| 40 | Nickel | | | | 2.570 | | | 1.520 | | | 1.222 | | | |
| 41 | Zinc | mg/l | | | 0.008 | | | 0.011 | | | 0.311 | | | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | | | 40 | | | 72 | | | 60 | | | |
| 43 | Tot-Hardness | | | | 60 | | | 129 | | | 145 | | | |
| 44 | Na% | % | | | 16 | | | 21 | | | 15 | | | |
| 45 | RSC (-) | | | | 0.00 | | | 0.00 | | | 0.00 | | | |
| 46 | SAR (-) | | | | 0.30 | | | 0.60 | | | 0.40 | | | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

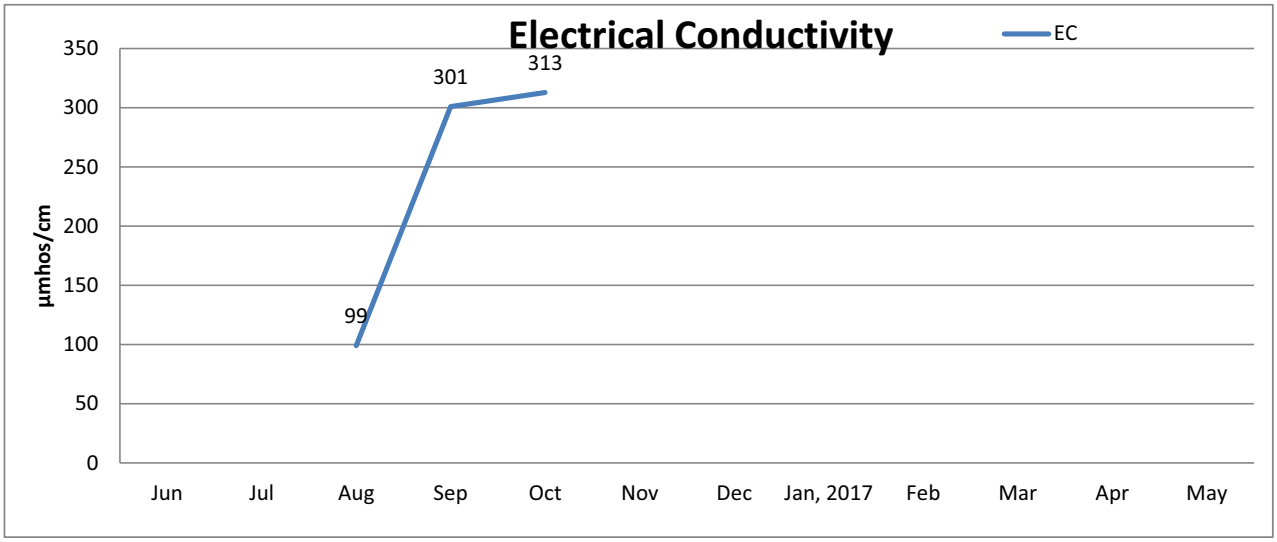
# RIVER WATER SUMMARY - 2016-2017

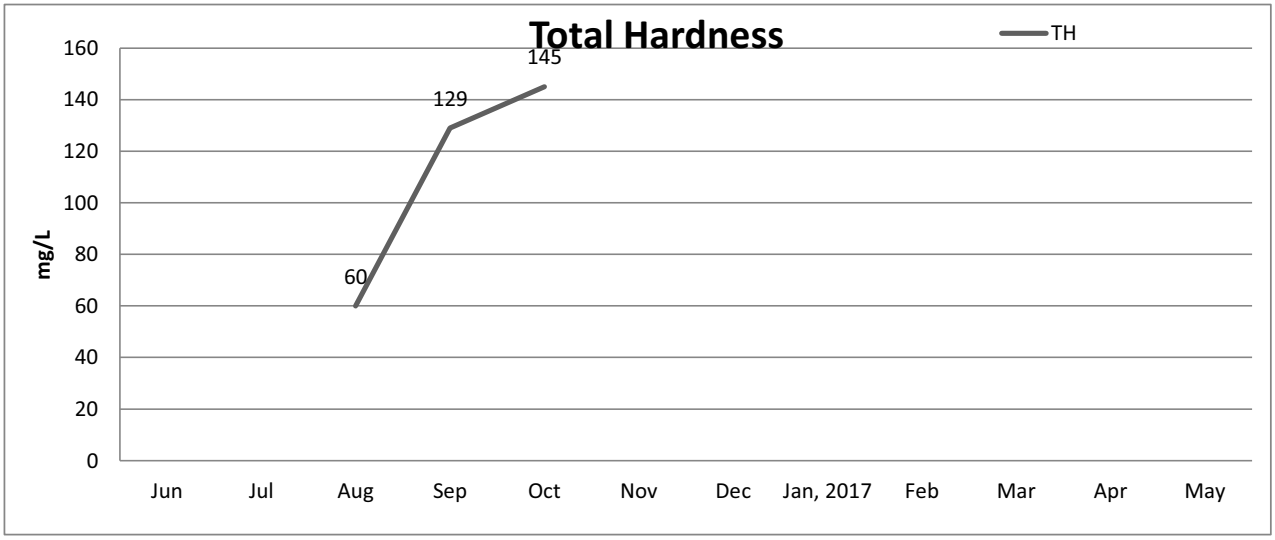
**Station Name : GARRAULI** **Division : LYD, Agra**

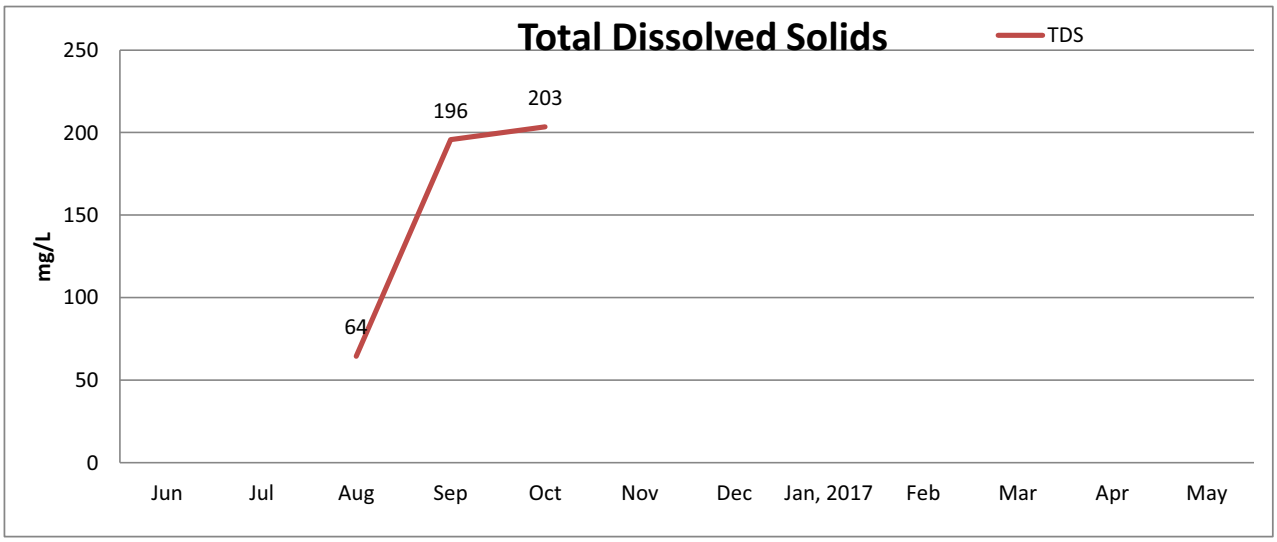
**Local River : DHASAN**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | 3 | 29 | 17 | 24 | 24 | 17 | - |
| pH_GEN (pH units) | - | - | - | - | - | - | - |
| EC_GEN (µmho/cm) | 3 | 313 | 99 | 238 | 238 | 313 | - |
| Total Dissolved Solids | | | | | | | |
| Turbiidity | - | - | - | - | - | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 3 | 17.00 | 0.00 | 5.7 | 5.67 | 0.00 | - |
| Alk-Tot (as $CaCO_3$) | 3 | 114.00 | 12.50 | 66.9 | 66.89 | 74.17 | - |
| Boron | 3 | 0.11 | 0.00 | 0.1 | 0.07 | 0.00 | - |
| Calcium | 3 | 29.00 | 16.00 | 23.0 | 23.00 | 24.00 | - |
| Chloride | 3 | 19.20 | 11.70 | 15.4 | 15.40 | 15.30 | - |
| Carbonate | 3 | 20.40 | 0.00 | 6.8 | 6.80 | 0.00 | - |
| Fluoride | 3 | 0.27 | 0.11 | 0.2 | 0.17 | 0.27 | - |
| Bicarbonate | 3 | 96.00 | 15.00 | 66.7 | 66.67 | 89.00 | - |
| Potassium | 3 | 2.70 | 2.00 | 2.3 | 2.33 | 2.00 | - |
| Magnesium | 3 | 20.40 | 4.90 | 13.0 | 12.97 | 20.40 | - |
| Sodium | 3 | 16.30 | 5.50 | 11.3 | 11.33 | 12.20 | - |
| Ammonia as N | 3 | 0.01 | 0.01 | 0.0 | 0.01 | 0.01 | - |
| $NO_2$+$NO_3$ as N | 3 | 0.46 | 0.08 | 0.2 | 0.24 | 0.08 | - |
| Nitrite as N | 3 | 0.08 | 0.00 | 0.0 | 0.03 | 0.00 | - |
| Nitrate as N | 3 | 0.38 | 0.08 | 0.2 | 0.21 | 0.08 | - |
| Tot. Phosphate as P | 3 | 0.01 | 0.00 | 0.0 | 0.01 | 0.00 | - |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 3 | 8.00 | 3.30 | 5.0 | 5.03 | 3.80 | - |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 3 | 4.1 | 2.1 | 3.3 | 3.3 | 4.1 | - |
| COD | 3 | 28.9 | 14.4 | 19.3 | 19.3 | 14.6 | - |
| Dissolved Oxygen | 3 | 5.10 | 4.10 | 4.73 | 4.73 | 5.0 | - |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | - | - | - | - | - | - | - |
| Fecal Coliform | - | - | - | - | - | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 3 | 4.90 | 2.21 | 3.46 | 3.46 | 2.21 | - |
| Cadmium | 3 | 0.13 | 0.04 | 0.09 | 0.09 | 0.13 | - |
| Chromium | 3 | 2.11 | 0.73 | 1.38 | 1.38 | 2.11 | - |
| Copper | 3 | 3.90 | 1.22 | 2.11 | 2.11 | 1.22 | - |
| Iron | 3 | 0.15 | 0.08 | 0.12 | 0.12 | 0.12 | - |
| Lead | 3 | 0.53 | 0.12 | 0.37 | 0.37 | 0.12 | - |
| Nickel | 3 | 2.57 | 1.22 | 1.77 | 1.77 | 1.22 | - |
| Zinc | 3 | 0.31 | 0.01 | 0.11 | 0.11 | 0.31 | - |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 3 | 72 | 40 | 57 | 57 | 60 | - |
| Tot-Hardness | 3 | 145 | 60 | 111 | 111 | 145 | - |
| Na% | 3 | 21 | 15 | 17 | 17 | 15 | - |
| RSC (-) | 3 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | - |
| SAR (-) | 3 | 0.60 | 0.30 | 0.4 | 0.43 | 0.40 | - |
| **PESTICIDES** | | | | | | | |

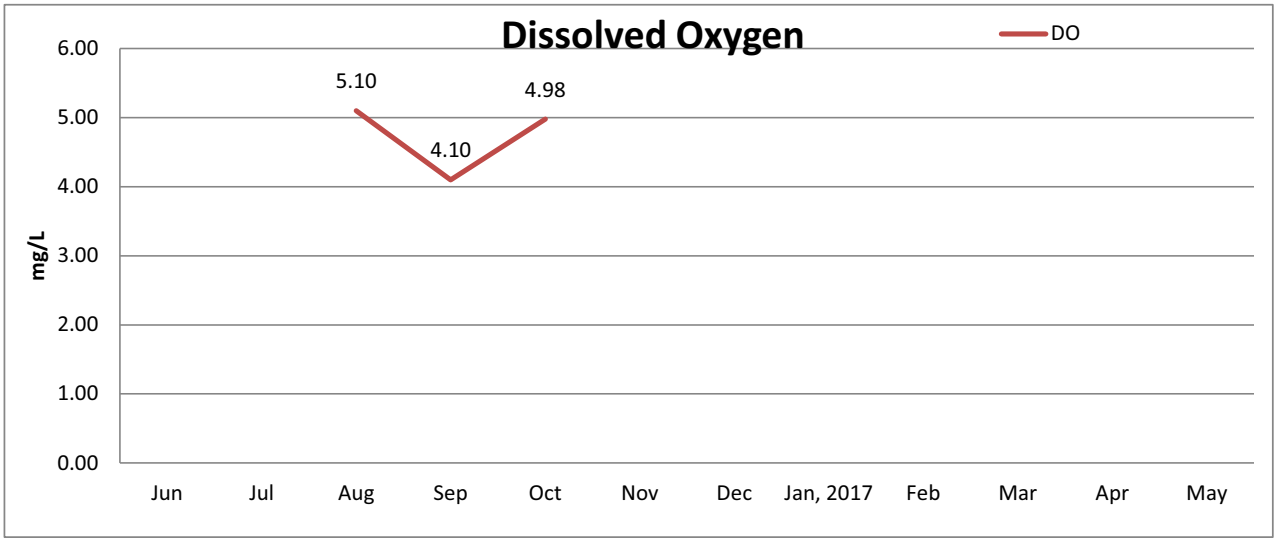
**Graphical Presentation of GARRAULI WQ Site**

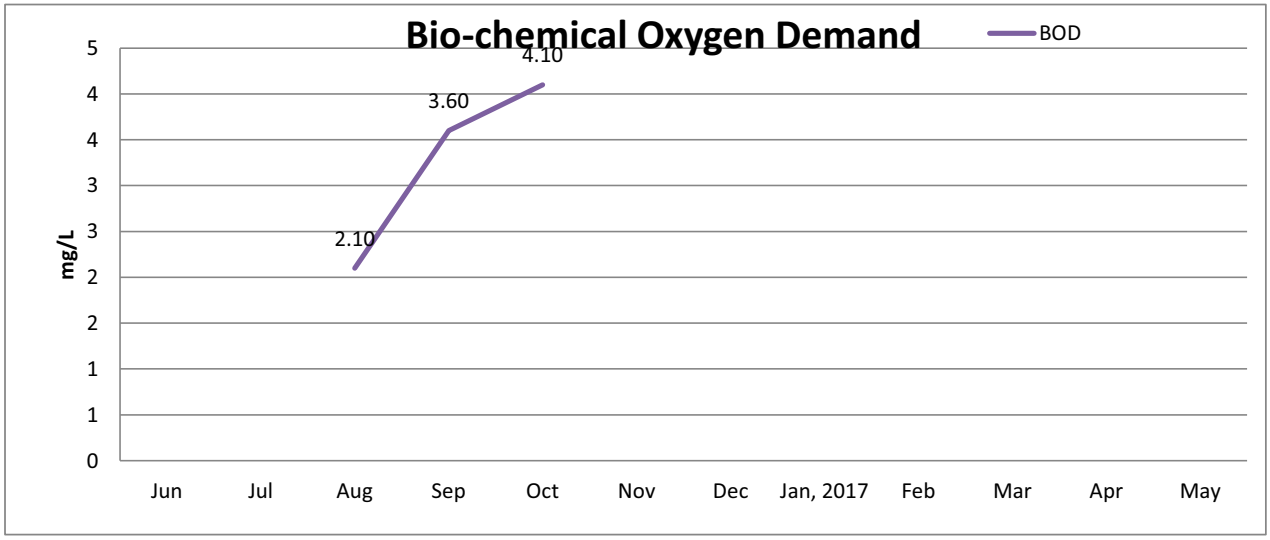


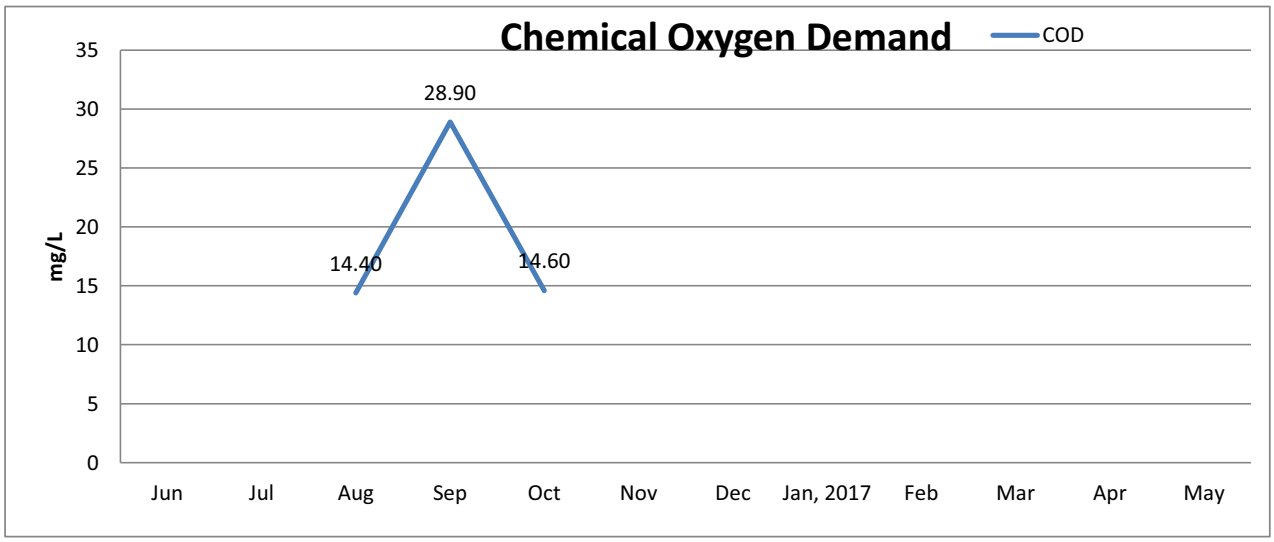



**Graphical Presentation of GARRAULI WQ Site**



# TAL

## General Particulars

| | | | |
|---|---|---|---|
| Site | : **TAL** | Code | : **GYP00V7** |
| State | : **Madhya Pradesh** | District | : **Ratlam** |
| Division | : **Chambal Div., Jaipur** | Sub-Division | : **U Chambal SD, Indore** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **Chambal** |
| Sub-Sub-Trib. | : **Chambal** | Local River | : **Chambal** |
| Drainage Area | : **4270 Sq. Km.** | Bank | : **Left** |
| Latitude | : **23°43'00"N** | Longitude | : **75°21'00" E** |
| Zero of Gauge | : **424.000(m.s.l)** | | |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **18/01/1976** |
| Discharge: | : **18/01/1976** |
| Sediment | : **03/09/1979** |
| Water Quality | : **02/08/1979** |
| Wireless | : **-** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : TAL** **Division : CD, Jaipur**

**Local River : Chambal**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | | | | 01/09/16 | 03/10/16 | | | | | | | |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | | | | Cloudy | Clear | | | | | | | |
| 2 | Colour_Cod (-) | | | | | Colourless | | | | | | | | |
| 3 | Odour_Code (-) | | | | | Odourless | | | | | | | | |
| 4 | Temperature | °C | | | | - | - | | | | | | | |
| 5 | pH_GEN (pH units) | | | | | 8.43 | 7.98 | | | | | | | |
| 6 | EC_GEN (µmho/cm) | NTU | | | | 589 | 465 | | | | | | | |
| 7 | Total Dissolved Solids | mg/L | | | | 293 | 279 | | | | | | | |
| 8 | Turbiidity | | | | | 76.9 | 40.1 | | | | | | | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | | | | 7.38 | 0.00 | | | | | | | |
| 10 | Alk-Tot (as $CaCO_3$) | | | | | 151.89 | 115.26 | | | | | | | |
| 11 | Boron | | | | | 0.01 | 0.09 | | | | | | | |
| 12 | Calcium | | | | | 33.26 | 27.34 | | | | | | | |
| 13 | Chloride | | | | | 53.96 | 57.51 | | | | | | | |
| 14 | Carbonate | | | | | 8.86 | 0.00 | | | | | | | |
| 15 | Fluoride | | | | | 0.26 | 0.25 | | | | | | | |
| 16 | Bicarbonate | | | | | 164.56 | 138.32 | | | | | | | |
| 17 | Potassium | | | | | 6.43 | 3.42 | | | | | | | |
| 18 | Magnesium | | | | | 24.71 | 16.40 | | | | | | | |
| 19 | Sodium | | | | | 49.63 | 40.08 | | | | | | | |
| 20 | Ammonia as N | | | | | 0.02 | 0.04 | | | | | | | |
| 21 | $NO_2$+$NO_3$ as N | | | | | 2.52 | 0.61 | | | | | | | |
| 22 | Nitrite as N | | | | | 0.51 | 0.29 | | | | | | | |
| 23 | Nitrate as N | | | | | 2.01 | 0.32 | | | | | | | |
| 24 | Tot. Phosphate as P | | | | | 0.02 | 0.12 | | | | | | | |
| 25 | Silicate as $SiO_2$ | | | | | - | - | | | | | | | |
| 26 | Sulphate as $SO_4$ | | | | | 71.80 | 39.20 | | | | | | | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | | | | 1.52 | 4.37 | | | | | | | |
| 28 | COD | | | | | 4 | 8 | | | | | | | |
| 29 | Dissolved Oxygen | | | | | 5.89 | 3.24 | | | | | | | |
| 30 | DO_SAT % | % | | | | - | - | | | | | | | |
| 31 | Tota Coliform | MPN/100 ml | | | | 7900 | 7900 | | | | | | | |
| 32 | Fecal Coliform | | | | | 1700 | 1300 | | | | | | | |
| 33 | E. Coli | | | | | - | - | | | | | | | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | | 0.410 | 0.860 | | | | | | | |
| 35 | Cadmium | | | | | 0.003 | 0.007 | | | | | | | |
| 36 | Chromium | | | | | 3.970 | 2.300 | | | | | | | |
| 37 | Copper | | | | | 2.360 | 2.920 | | | | | | | |
| 38 | Iron | mg/l | | | | 0.049 | 0.062 | | | | | | | |
| 39 | Lead | µg/L | | | | 0.710 | 0.660 | | | | | | | |
| 40 | Nickel | | | | | 1.860 | 3.770 | | | | | | | |
| 41 | Zinc | mg/l | | | | 0.000 | 0.006 | | | | | | | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | | | | 83 | 68 | | | | | | | |
| 43 | Tot-Hardness | | | | | 186 | 137 | | | | | | | |
| 44 | Na% | % | | | | 36 | 38 | | | | | | | |
| 45 | RSC (-) | | | | | -0.73 | -0.47 | | | | | | | |
| 46 | SAR (-) | | | | | 1.58 | 1.49 | | | | | | | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

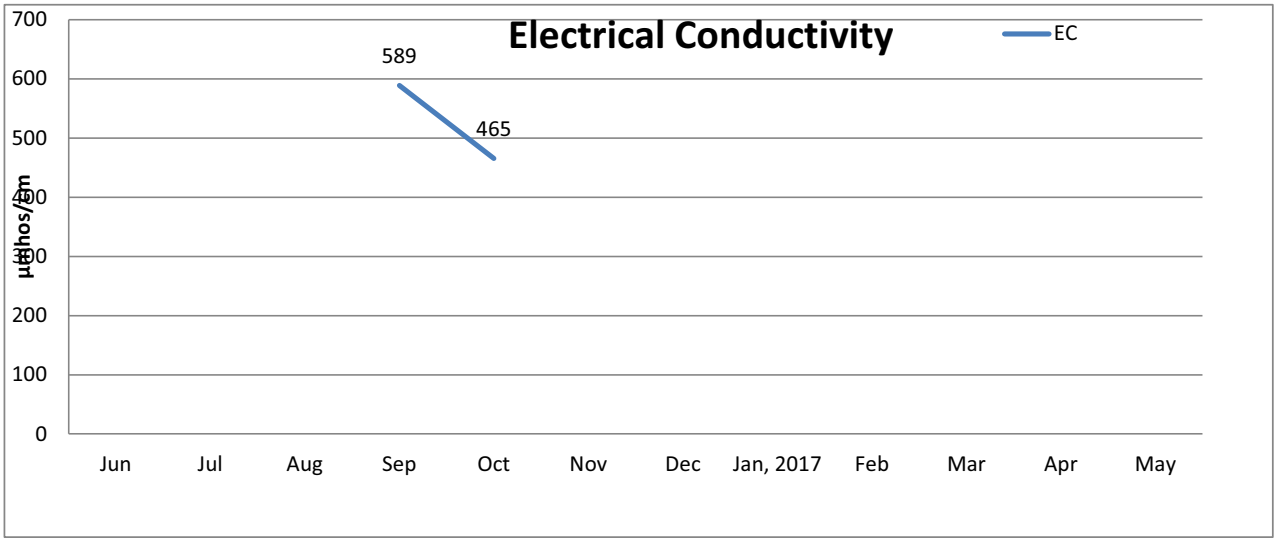
# RIVER WATER SUMMARY - 2016-2017

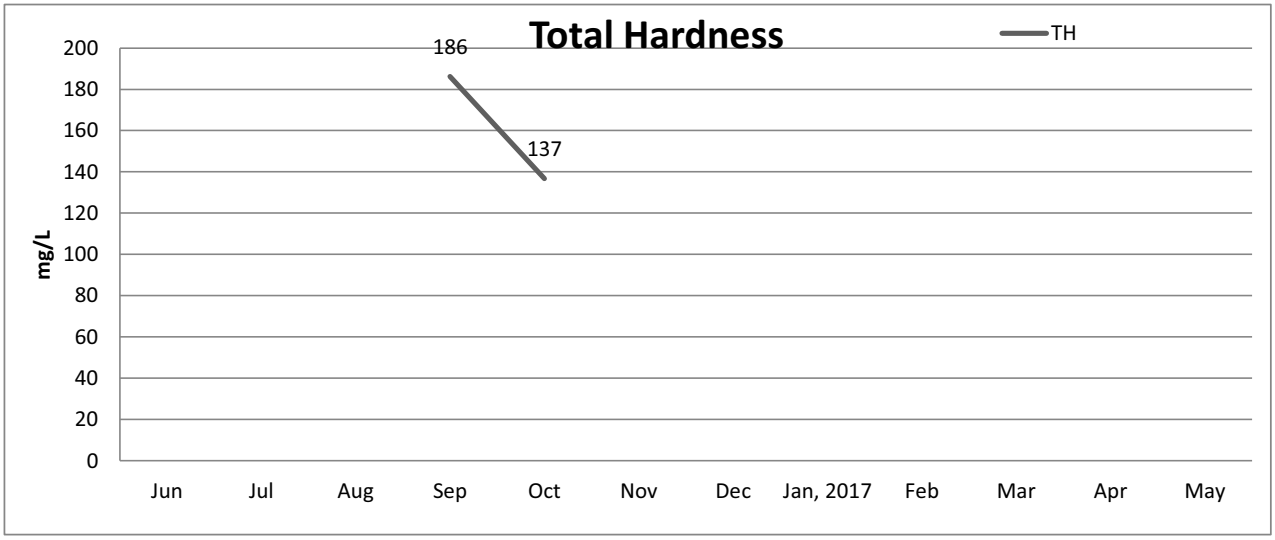
**Station Name : TAL** **Division : CD, Jaipur**

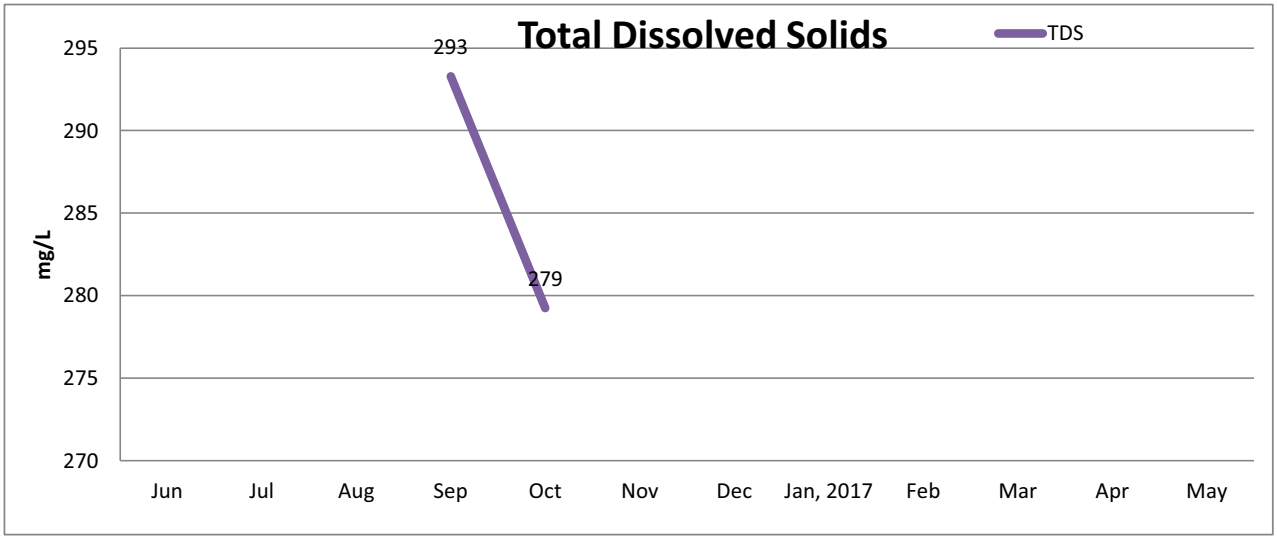
**Local River : Chambal**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 2 | 8.43 | 7.98 | 8.21 | 8.21 | - | - |
| EC_GEN (µmho/cm) | 2 | 589 | 465 | 527 | 527 | - | - |
| Total Dissolved Solids | 2 | 293 | 279 | 286 | 286 | - | - |
| Turbiidity | 2 | 76.9 | 40.1 | 58.5 | 58.5 | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 2 | 7.38 | 0.00 | 3.69 | 3.69 | - | - |
| Alk-Tot (as $CaCO_3$) | 2 | 151.89 | 115.26 | 133.58 | 133.58 | - | - |
| Boron | 2 | 0.09 | 0.01 | 0.05 | 0.05 | - | - |
| Calcium | 2 | 33.26 | 27.34 | 30.30 | 30.30 | - | - |
| Chloride | 2 | 57.51 | 53.96 | 55.74 | 55.74 | - | - |
| Carbonate | 2 | 8.86 | 0.00 | 4.43 | 4.43 | - | - |
| Fluoride | 2 | 0.26 | 0.25 | 0.26 | 0.26 | - | - |
| Bicarbonate | 2 | 164.56 | 138.32 | 151.44 | 151.44 | - | - |
| Potassium | 2 | 6.43 | 3.42 | 4.9 | 4.93 | - | - |
| Magnesium | 2 | 24.71 | 16.40 | 20.56 | 20.56 | - | - |
| Sodium | 2 | 49.63 | 40.08 | 44.86 | 44.86 | - | - |
| Ammonia as N | 2 | 0.04 | 0.02 | 0.03 | 0.03 | - | - |
| $NO_2$+$NO_3$ as N | 2 | 2.52 | 0.61 | 1.56 | 1.56 | - | - |
| Nitrite as N | 2 | 0.51 | 0.29 | 0.40 | 0.40 | - | - |
| Nitrate as N | 2 | 2.01 | 0.32 | 1.17 | 1.17 | - | - |
| Tot. Phosphate as P | 2 | 0.12 | 0.02 | 0.07 | 0.07 | - | - |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 2 | 71.80 | 39.20 | 55.5 | 55.50 | - | - |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 2 | 4.37 | 1.52 | 2.95 | 2.95 | - | - |
| COD | 2 | 8 | 4 | 6 | 6 | - | - |
| Dissolved Oxygen | 2 | 5.89 | 3.24 | 4.57 | 4.57 | - | - |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 2 | 7900 | 7900 | 7900 | 7900 | - | - |
| Fecal Coliform | 2 | 1700 | 1300 | 1500 | 1500 | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 2 | 0.860 | 0.410 | 0.635 | 0.635 | - | - |
| Cadmium | 2 | 0.007 | 0.003 | 0.005 | 0.005 | - | - |
| Chromium | 2 | 3.970 | 2.300 | 3.135 | 3.135 | - | - |
| Copper | 2 | 2.920 | 2.360 | 2.640 | 2.640 | - | - |
| Iron | 2 | 0.062 | 0.049 | 0.056 | 0.056 | - | - |
| Lead | 2 | 0.710 | 0.660 | 0.685 | 0.685 | - | - |
| Nickel | 2 | 3.770 | 1.860 | 2.815 | 2.815 | - | - |
| Zinc | 2 | 0.006 | 0.000 | 0.003 | 0.003 | - | - |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 2 | 83 | 68 | 76 | 76 | - | - |
| Tot-Hardness | 2 | 186 | 137 | 161 | 161 | - | - |
| Na% | 2 | 38 | 36 | 37 | 37 | - | - |
| RSC (-) | 2 | -0.47 | -0.73 | -0.60 | -0.60 | - | - |
| SAR (-) | 2 | 1.58 | 1.49 | 1.54 | 1.54 | - | - |
| **PESTICIDES** | | | | | | | |

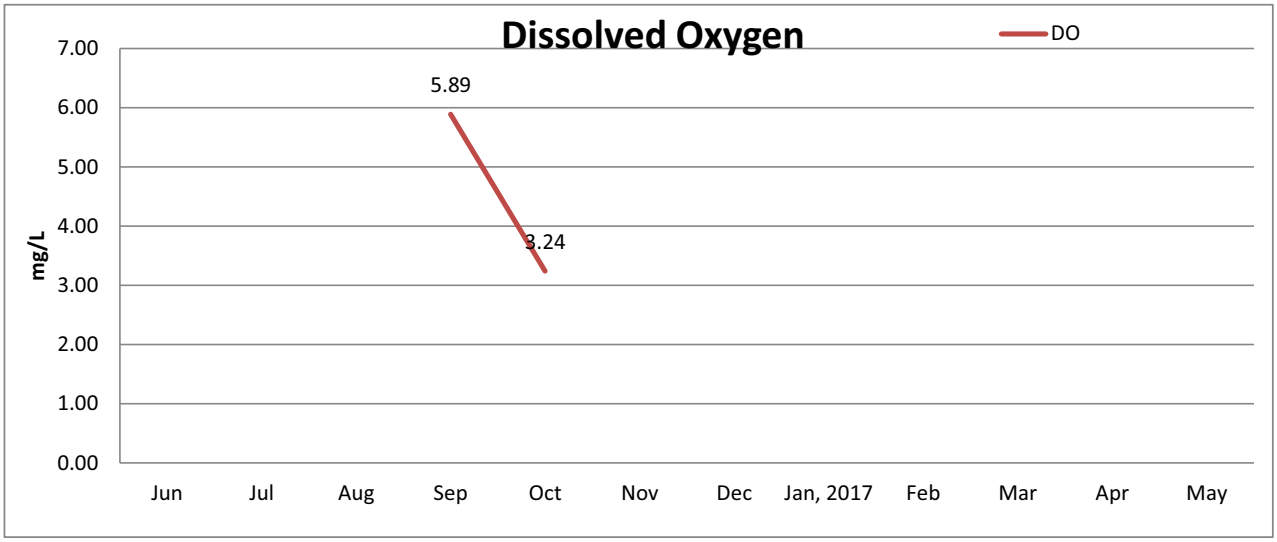
**Graphical Presentation of TAL WQ Site**

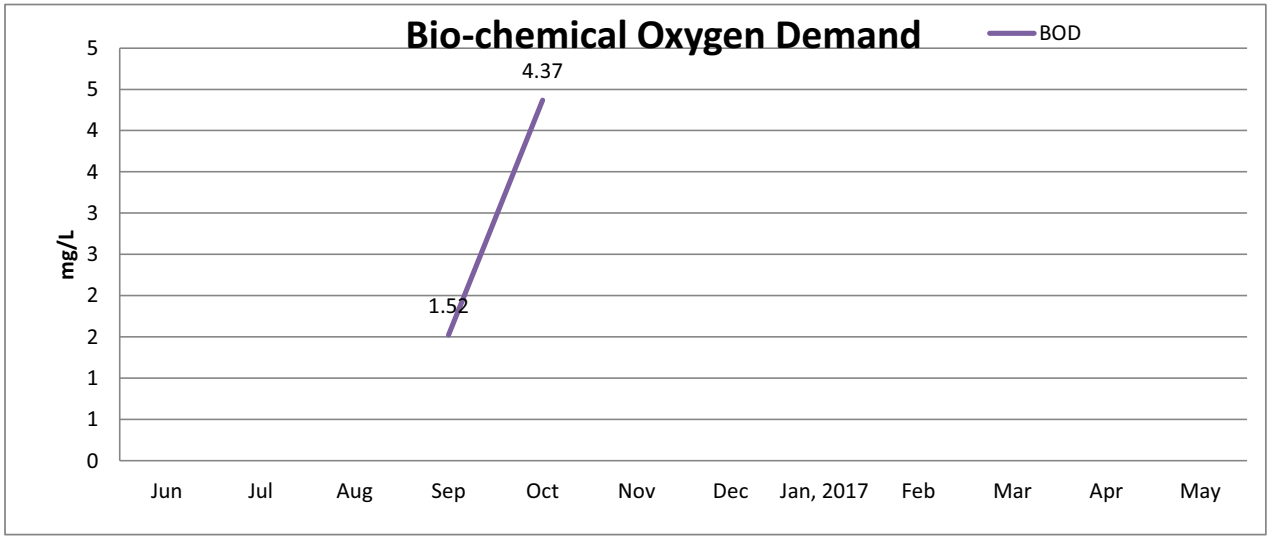


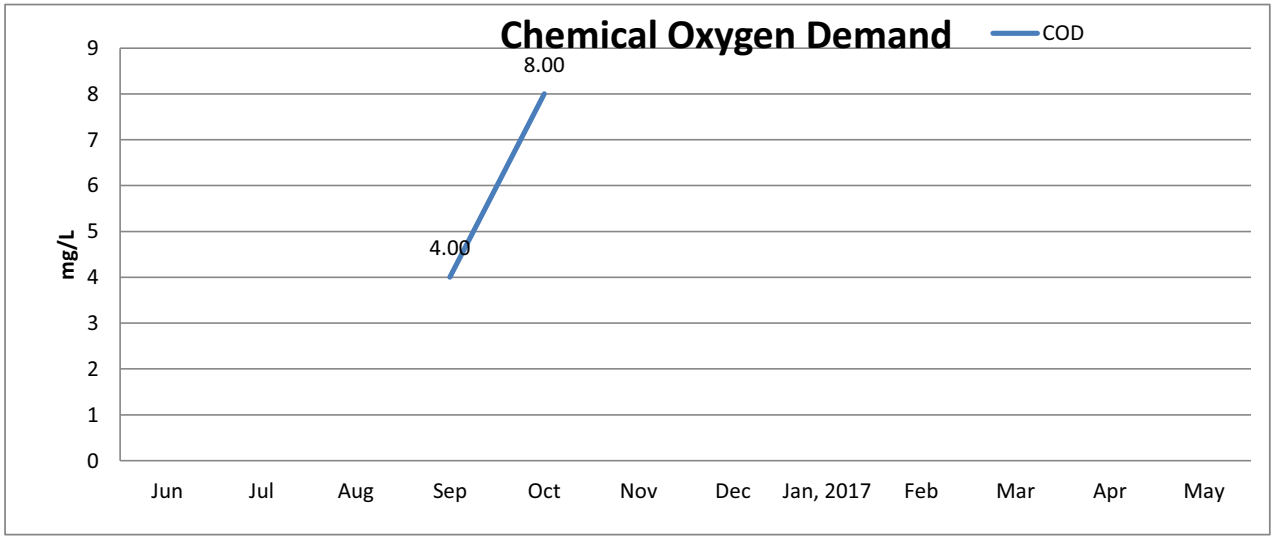



**Graphical Presentation of TAL WQ Site**



# DHOLPUR

## General Particulars

| | | | |
|---|---|---|---|
| Site | : **DHOLPUR** | Code | : **GYP00F4** |
| State | : **Rajasthan** | District | : **Dhaulpur** |
| Division | : **L.Y. D., Agra** | Sub-Division | : **LYSD-II, Agra** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **-** | Sub Tributary | : **-** |
| Sub-Sub-Trib. | : **-** | Local River | : **Chambal** |
| Drainage Area | : **138123 Sq. Km.** | Bank | : **Left** |
| Latitude | : **26°39'00"N** | Longitude | : **77°54'00" E** |
| Zero of Gauge | : **115.000(m.s.l)** | | |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **16/01/1976** |
| Discharge: | : **27/01/1976** |
| Sediment | : **18/11/1978** |
| Water Quality | : **01/12/1976** |
| Wireless | : **-** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : DHOLPUR** **Division : LYD, Agra**

**Local River : CHAMBAL**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 01/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 01/04/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | Clear | Clear | Light Brown | | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 3 | Odour_Code (-) | | odour free | | | | | | | | | | | |
| 4 | Temperature | °C | 30 | 31 | 29 | 30 | 30 | 26 | 20 | 18 | 19 | 22 | 25 | 26 |
| 5 | pH_GEN (pH units) | | 9.00 | 7.90 | 6.90 | 7.50 | 8.30 | 8.60 | 8.50 | 8.70 | 7.80 | 7.80 | 8.30 | 8.60 |
| 6 | EC_GEN (µmho/cm) | NTU | 651 | 596 | 168 | 388 | 493 | 480 | 559 | 563 | 595 | 589 | 614 | 624 |
| 7 | Total Dissolved Solids | mg/L | 423 | 387 | 109 | 252 | 320 | 312 | 363 | 366 | 387 | 383 | 399 | 406 |
| 8 | Turbiidity | | - | - | - | - | - | - | - | - | - | - | - | - |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 32.25 | 0 | 0 | 0 | 20.5 | 23.25 | 14 | 12 | 0 | 0 | 13 | 25 |
| 10 | Alk-Tot (as $CaCO_3$) | | 158.67 | 139.17 | 19.17 | 16.67 | 139.33 | 131.50 | 172.17 | 159.83 | 112.50 | 111.67 | 161.00 | 163.33 |
| 11 | Boron | | 0.25 | 0.01 | 0.25 | 0.04 | 0.32 | 0.22 | 0.28 | 0.22 | 0.20 | 0.20 | 0.09 | 0.24 |
| 12 | Calcium | | 22.00 | 22.00 | 27.00 | 14.00 | 8.00 | 27.00 | 29.00 | 26.00 | 24.00 | 30.00 | 27.00 | 32.00 |
| 13 | Chloride | | 50.80 | 45.10 | 17.40 | 27.00 | 42.20 | 40.10 | 46.20 | 46.20 | 47.90 | 46.20 | 51.80 | 51.80 |
| 14 | Carbonate | | 38.70 | 0.00 | 0.00 | 0.00 | 24.60 | 27.90 | 16.80 | 14.40 | 0.00 | 0.00 | 15.60 | 30.00 |
| 15 | Fluoride | | 1.16 | 0.49 | 0.34 | 0.05 | 0.11 | 0.10 | 0.30 | 0.21 | 0.34 | 0.19 | 0.44 | 0.38 |
| 16 | Bicarbonate | | 113.00 | 167.00 | 23.00 | 20.00 | 118.00 | 102.00 | 173.00 | 163.00 | 135.00 | 134.00 | 162.00 | 136.00 |
| 17 | Potassium | | 2.70 | 4.30 | 2.70 | 3.10 | 3.90 | 4.30 | 2.30 | 1.60 | 2.00 | 3.10 | 3.50 | 3.80 |
| 18 | Magnesium | | 27.20 | 25.30 | 7.80 | 28.20 | 36.00 | 23.30 | 27.20 | 26.20 | 30.10 | 23.30 | 22.40 | 21.40 |
| 19 | Sodium | | 93.20 | 66.50 | 16.60 | 26.00 | 39.30 | 43.00 | 66.20 | 56.40 | 52.20 | 60.00 | 70.80 | 73.00 |
| 20 | Ammonia as N | | 0.14 | 0.03 | 0.00 | 0.11 | 0.11 | 0.08 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 |
| 21 | $NO_2$+$NO_3$ as N | | 0.00 | 0.00 | 1.00 | 0.71 | 1.56 | 0.50 | 0.56 | 0.25 | 0.70 | 0.58 | 0.21 | 0.01 |
| 22 | Nitrite as N | | 0.00 | 0.00 | 0.03 | 0.01 | 0.03 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 |
| 23 | Nitrate as N | | 0.00 | 0.00 | 0.97 | 0.70 | 1.53 | 0.49 | 0.55 | 0.24 | 0.70 | 0.57 | 0.20 | 0.00 |
| 24 | Tot. Phosphate as P | | 0.00 | 0.00 | 0.00 | 0.03 | 0.03 | 0.02 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | 98.90 | 108.90 | 20.00 | 28.00 | 68.00 | 52.00 | 57.00 | 51.00 | 88.90 | 81.90 | 82.90 | 91.90 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 6.00 | 3.00 | 5.20 | 3.20 | 3.80 | 8.80 | 3.60 | 4.00 | 4.00 | 8.80 | 6.40 | 6.60 |
| 28 | COD | | 20.60 | 26.80 | 20.60 | 4.10 | 72.20 | 57.70 | 20.80 | 14.60 | 14.60 | 16.60 | 8.30 | 22.90 |
| 29 | Dissolved Oxygen | | 4.00 | 5.00 | 6.00 | 6.00 | 5.50 | 6.00 | 5.34 | 4.78 | 4.98 | 5.00 | 5.20 | 4.98 |
| 30 | DO_SAT % | % | 53 | 67 | 78 | 79 | 73 | 74 | 82 | 79 | 81 | 57 | 85 | 86 |
| 31 | Tota Coliform | MPN/100 ml | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | Fecal Coliform | | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 1.430 | | | | 2.040 | | | | 0.100 | |
| 35 | Cadmium | | | | 0.097 | | | | 0.029 | | | | 0.079 | |
| 36 | Chromium | | | | 0.680 | | | | 1.300 | | | | 1.730 | |
| 37 | Copper | | | | 3.520 | | | | 2.940 | | | | 8.330 | |
| 38 | Iron | mg/l | | | 0.063 | | | | 0.059 | | | | 0.144 | |
| 39 | Lead | µg/L | | | 0.050 | | | | 0.710 | | | | 0.960 | |
| 40 | Nickel | | | | 3.450 | | | | 2.860 | | | | 7.460 | |
| 41 | Zinc | mg/l | | | 0.097 | | | | 0.009 | | | | 0.006 | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 56 | 56 | 68 | 36 | 20 | 68 | 72 | 64 | 60 | 76 | 68 | 80 |
| 43 | Tot-Hardness | | 169 | 161 | 100 | 153 | 170 | 165 | 185 | 173 | 186 | 173 | 161 | 169 |
| 44 | Na% | % | 54 | 47 | 26 | 27 | 33 | 36 | 44 | 41 | 38 | 43 | 48 | 48 |
| 45 | RSC (-) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46 | SAR (-) | | 3.10 | 2.30 | 0.70 | 0.90 | 1.30 | 1.50 | 2.10 | 1.90 | 1.70 | 2.00 | 2.40 | 2.50 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

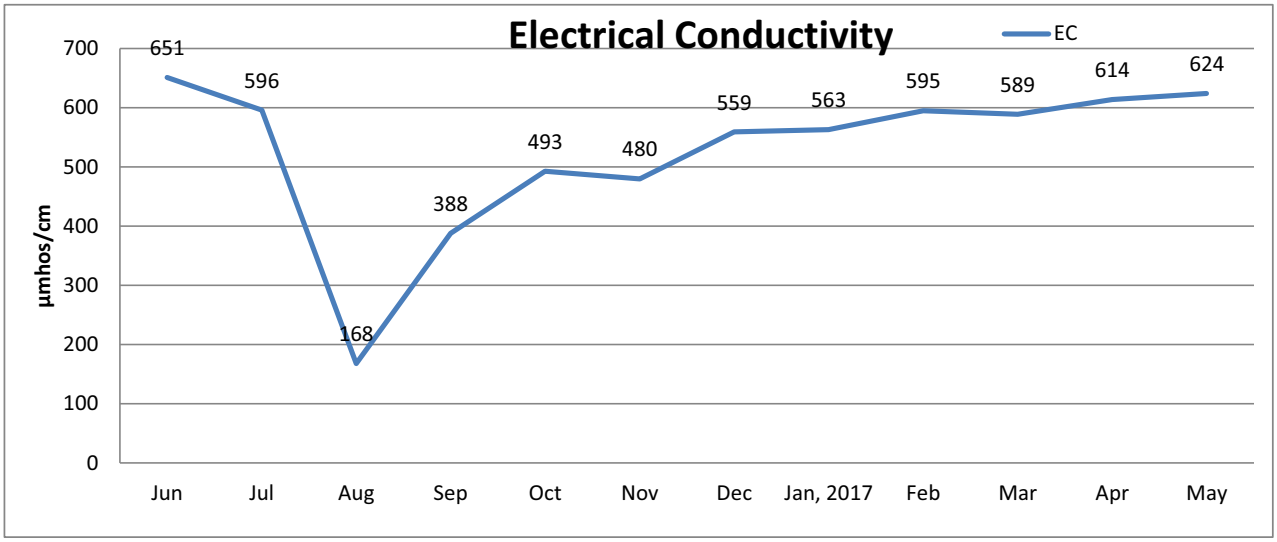
# RIVER WATER SUMMARY - 2016-2017

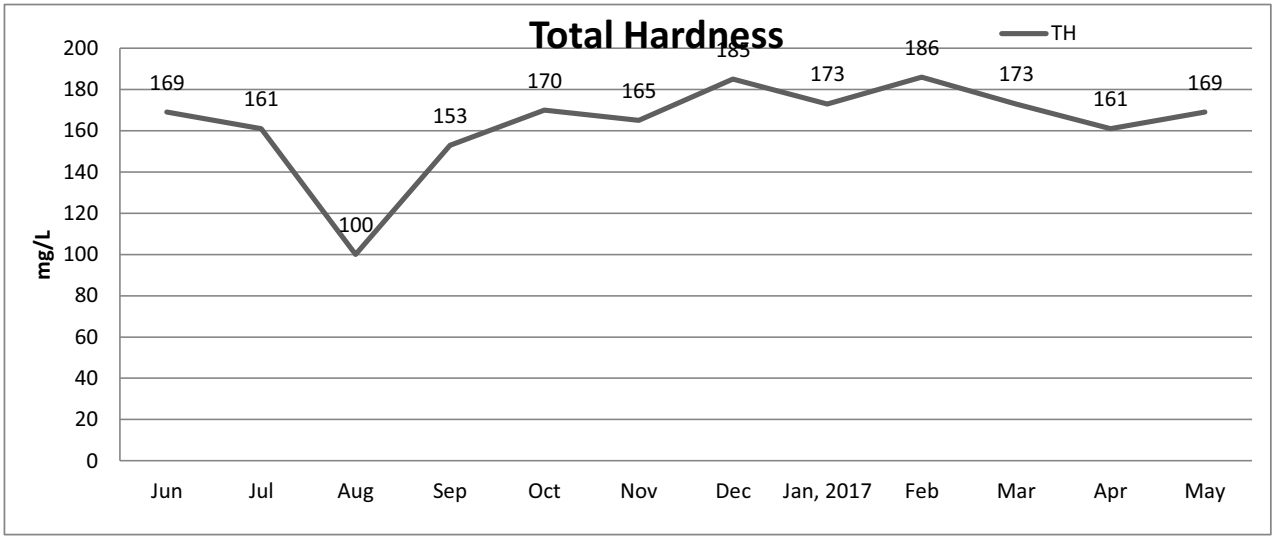
**Station Name : DHOLPUR** **Division : LYD, Agra**

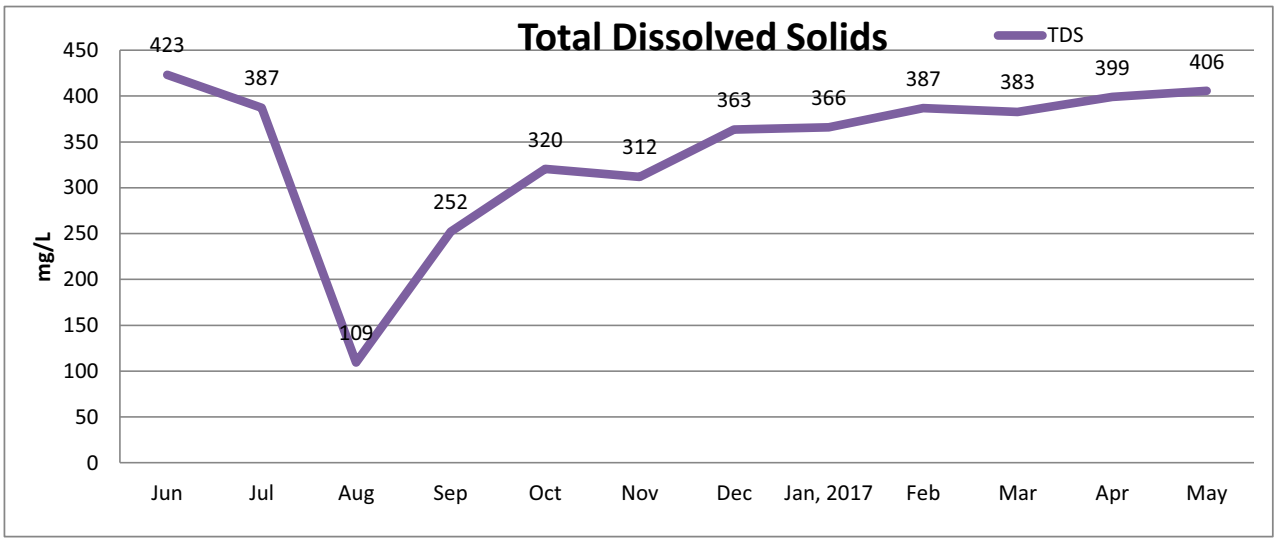
**Local River : CHAMBAL**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | 12 | 31 | 18 | 26 | 30 | 21 | 24 |
| pH_GEN (pH units) | - | - | - | - | - | - | - |
| EC_GEN (µmho/cm) | 12 | 651 | 168 | 527 | 459 | 549 | 609 |
| Total Dissolved Solids | | | | | | | |
| Turbiidity | - | - | - | - | - | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 32.25 | 0.00 | 11.7 | 10.55 | 12.31 | 12.67 |
| Alk-Tot (as $CaCO_3$) | 12 | 172.17 | 16.67 | 123.8 | 94.60 | 144.00 | 145.33 |
| Boron | 12 | 0.32 | 0.01 | 0.2 | 0.17 | 0.23 | 0.18 |
| Calcium | 12 | 32.00 | 8.00 | 24.0 | 18.60 | 26.50 | 29.67 |
| Chloride | 12 | 51.80 | 17.40 | 42.7 | 36.50 | 45.10 | 49.93 |
| Carbonate | 12 | 38.70 | 0.00 | 14.0 | 12.66 | 14.78 | 15.20 |
| Fluoride | 12 | 1.16 | 0.05 | 0.3 | 0.43 | 0.24 | 0.34 |
| Bicarbonate | 12 | 173.00 | 20.00 | 120.5 | 88.20 | 143.25 | 144.00 |
| Potassium | 12 | 4.30 | 1.60 | 3.1 | 3.34 | 2.55 | 3.47 |
| Magnesium | 12 | 36.00 | 7.80 | 24.9 | 24.90 | 26.70 | 22.37 |
| Sodium | 12 | 93.20 | 16.60 | 55.3 | 48.32 | 54.45 | 67.93 |
| Ammonia as N | 12 | 0.14 | 0.00 | 0.0 | 0.08 | 0.02 | 0.01 |
| $NO_2$+$NO_3$ as N | 12 | 1.56 | 0.00 | 0.5 | 0.65 | 0.50 | 0.27 |
| Nitrite as N | 12 | 0.03 | 0.00 | 0.0 | 0.01 | 0.01 | 0.01 |
| Nitrate as N | 12 | 1.53 | 0.00 | 0.5 | 0.64 | 0.50 | 0.26 |
| Tot. Phosphate as P | 12 | 0.03 | 0.00 | 0.0 | 0.01 | 0.03 | 0.02 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 108.90 | 20.00 | 69.1 | 64.76 | 62.23 | 85.57 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 8.8 | 3.0 | 5.3 | 4.2 | 5.1 | 7.3 |
| COD | 12 | 72.2 | 4.1 | 25.0 | 28.9 | 26.9 | 15.9 |
| Dissolved Oxygen | 12 | 6.00 | 4.00 | 5.23 | 5.30 | 5.3 | 5.1 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | - | - | - | - | - | - | - |
| Fecal Coliform | - | - | - | - | - | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 3 | 2.04 | 0.10 | 1.19 | 1.43 | 2.04 | 0.10 |
| Cadmium | 3 | 0.10 | 0.03 | 0.07 | 0.10 | 0.03 | 0.08 |
| Chromium | 3 | 1.73 | 0.68 | 1.24 | 0.68 | 1.30 | 1.73 |
| Copper | 3 | 8.33 | 2.94 | 4.93 | 3.52 | 2.94 | 8.33 |
| Iron | 3 | 0.14 | 0.06 | 0.09 | 0.06 | 0.06 | 0.14 |
| Lead | 3 | 0.96 | 0.05 | 0.57 | 0.05 | 0.71 | 0.96 |
| Nickel | 3 | 7.46 | 2.86 | 4.59 | 3.45 | 2.86 | 7.46 |
| Zinc | 3 | 0.10 | 0.01 | 0.04 | 0.10 | 0.01 | 0.01 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 80 | 20 | 60 | 47 | 66 | 75 |
| Tot-Hardness | 12 | 186 | 100 | 164 | 151 | 177 | 168 |
| Na% | 12 | 54 | 26 | 40 | 37 | 40 | 46 |
| RSC (-) | 12 | 0.00 | 0.00 | 0.0 | 0.00 | 0.00 | 0.00 |
| SAR (-) | 12 | 3.10 | 0.70 | 1.9 | 1.66 | 1.80 | 2.30 |
| **PESTICIDES** | | | | | | | |

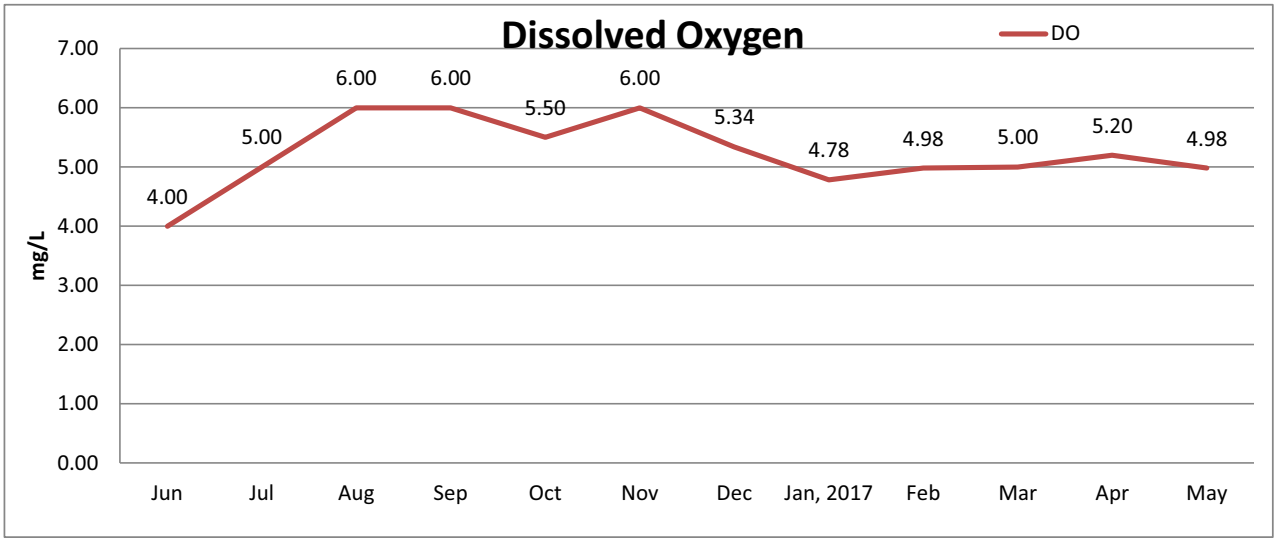
**Graphical Presentation of DHOLPUR WQ Site**

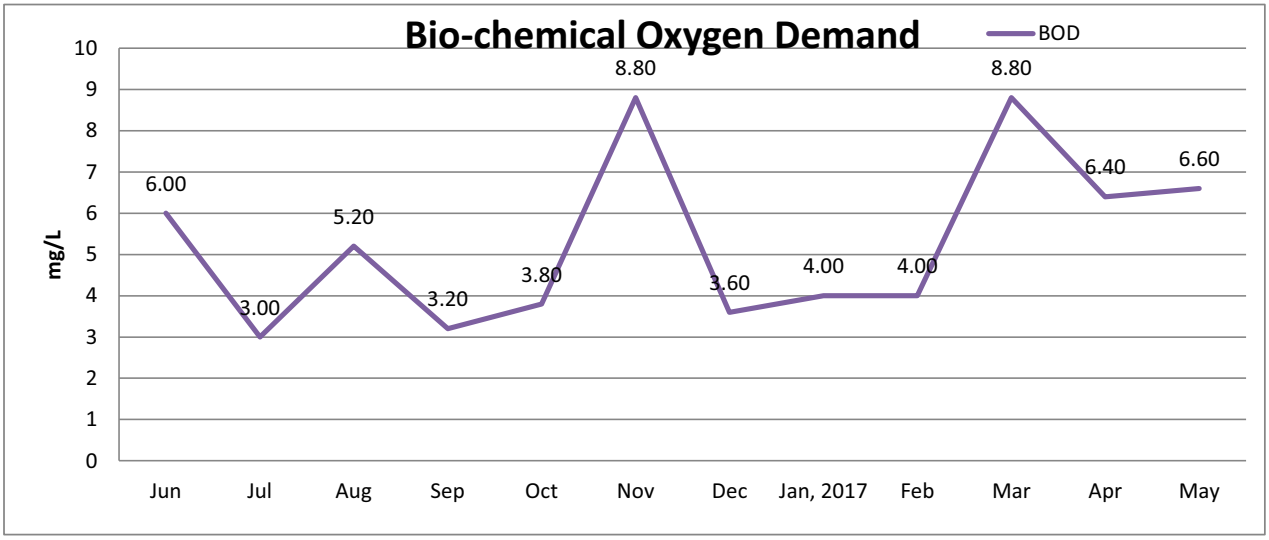


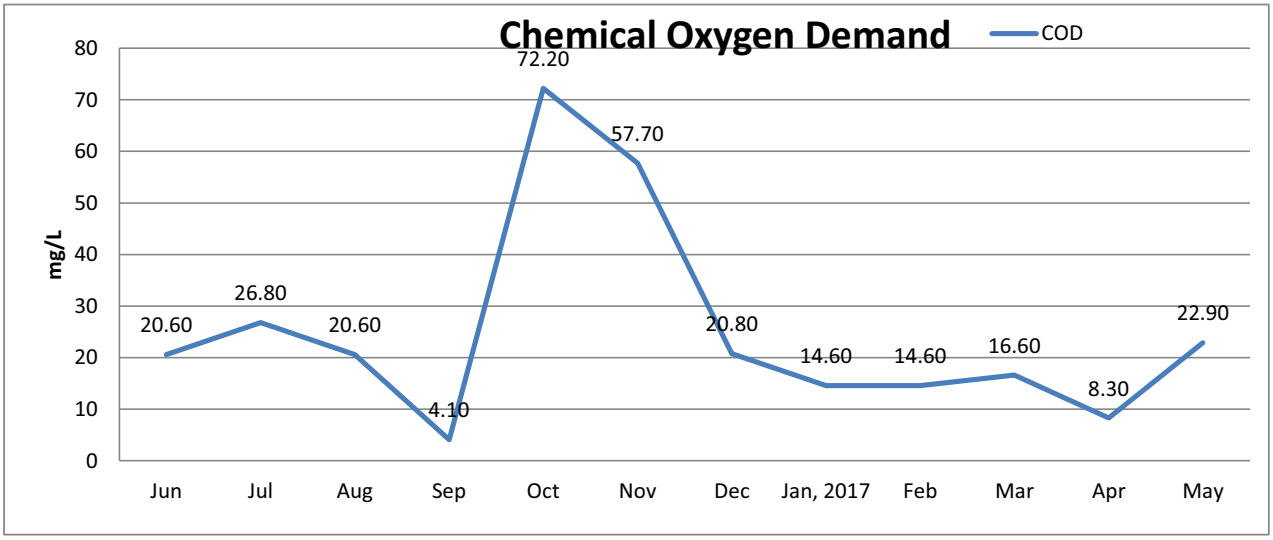



**Graphical Presentation of DHOLPUR WQ Site**



# UDI

## General Particulars

| | | | |
|---|---|---|---|
| Site | : **UDI** | Code | : **GYP00B6** |
| State | : **Uttar Pradesh** | District | : **Etawah** |
| Division | : **L.Y. D., Agra** | Sub-Division | : **LYSD-II, Agra** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **-** |
| Sub-Sub-Trib. | : **-** | Local River | : **Chambal** |
| Drainage Area | : **149972 Sq. Km.** | Bank | : **Left** |
| Latitude | : **26°42'00"N** | Longitude | : **78°56'00" E** |
| Zero of Gauge | : **102.000(m.s.l)** | | |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **21/06/1959** |
| Discharge: | : **21/06/1959** |
| Sediment | : **11/09/1961** |
| Water Quality | : **01/01/1972** |
| Wireless | : **-** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : UDI** **Division : LYD, Agra**

**Local River : CHAMBAL**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | 01/06/16 | 01/07/16 | 01/08/16 | 01/09/16 | 01/10/16 | 01/11/16 | 01/12/16 | 02/01/17 | 01/02/17 | 01/03/17 | 01/04/17 | 01/05/17 |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | Clear | Cloudy | Cloudy | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 2 | Colour_Cod (-) | | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear | Clear |
| 3 | Odour_Code (-) | | odour free | | | | | | | | | | | |
| 4 | Temperature | °C | 28.5 | 32 | 26 | 26 | 27 | 20 | 16 | 15 | 18 | 22 | 27 | 26 |
| 5 | pH_GEN (pH units) | | 9.50 | 7.80 | 7.00 | 7.50 | 8.50 | 8.80 | 8.60 | 8.80 | 7.80 | 8.00 | 8.40 | 8.70 |
| 6 | EC_GEN (µmho/cm) | NTU | 682 | 690 | 160 | 315 | 449 | 473 | 478 | 615 | 571 | 557 | 574 | 652 |
| 7 | Total Dissolved Solids | mg/L | 443 | 449 | 104 | 205 | 292 | 307 | 311 | 400 | 371 | 362 | 373 | 424 |
| 8 | Turbiidity | | - | - | - | - | - | - | - | - | - | - | - | - |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | 32.25 | 0.00 | 0.00 | 0.00 | 16.50 | 23.75 | 9.25 | 19.75 | 0.00 | 0.00 | 15.75 | 24.75 |
| 10 | Alk-Tot (as $CaCO_3$) | | 154.50 | 143.33 | 36.67 | 98.33 | 131.33 | 115.00 | 152.67 | 167.83 | 88.33 | 111.67 | 149.83 | 154.50 |
| 11 | Boron | | 0.29 | 0.20 | 0.18 | 0.22 | 0.25 | 0.18 | 0.22 | 0.23 | 0.16 | 0.20 | 0.07 | 0.25 |
| 12 | Calcium | | 18.00 | 18.00 | 27.00 | 19.00 | 6.00 | 24.00 | 35.00 | 26.00 | 18.00 | 34.00 | 27.00 | 19.00 |
| 13 | Chloride | | 64.60 | 60.70 | 17.80 | 23.10 | 34.40 | 44.00 | 40.10 | 51.80 | 49.70 | 47.60 | 53.60 | 61.30 |
| 14 | Carbonate | | 38.70 | 0.00 | 0.00 | 0.00 | 19.80 | 28.50 | 11.10 | 23.70 | 0.00 | 0.00 | 18.90 | 29.70 |
| 15 | Fluoride | | 0.72 | 0.29 | 0.32 | 0.14 | 0.15 | 0.13 | 0.42 | 0.15 | 0.23 | 0.17 | 0.40 | 1.03 |
| 16 | Bicarbonate | | 108.00 | 172.00 | 44.00 | 118.00 | 118.00 | 81.00 | 161.00 | 154.00 | 106.00 | 134.00 | 142.00 | 126.00 |
| 17 | Potassium | | 5.50 | 3.90 | 2.70 | 3.10 | 3.50 | 3.90 | 2.30 | 1.60 | 1.20 | 3.50 | 3.50 | 4.00 |
| 18 | Magnesium | | 29.20 | 30.10 | 6.80 | 18.50 | 32.10 | 24.30 | 20.40 | 31.10 | 34.00 | 16.50 | 21.40 | 27.20 |
| 19 | Sodium | | 102.80 | 79.60 | 15.20 | 21.40 | 37.30 | 48.50 | 60.50 | 66.20 | 51.50 | 58.90 | 68.80 | 77.80 |
| 20 | Ammonia as N | | 0.00 | 0.00 | 0.00 | 0.15 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 21 | $NO_2$+$NO_3$ as N | | 1.02 | 0.00 | 0.96 | 0.64 | 1.33 | 0.23 | 0.29 | 0.15 | 0.56 | 0.33 | 0.15 | 0.05 |
| 22 | Nitrite as N | | 0.00 | 0.00 | 0.04 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 |
| 23 | Nitrate as N | | 1.02 | 0.00 | 0.92 | 0.64 | 1.32 | 0.22 | 0.28 | 0.14 | 0.56 | 0.32 | 0.14 | 0.04 |
| 24 | Tot. Phosphate as P | | 0.00 | 0.00 | 0.01 | 0.02 | 0.03 | 0.02 | 0.03 | 0.03 | 0.00 | 0.02 | 0.02 | 0.01 |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | 112.40 | 58.00 | 16.00 | 15.00 | 48.00 | 54.00 | 50.00 | 70.90 | 84.00 | 82.90 | 73.00 | 92.90 |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | 2.00 | 3.60 | 4.80 | 4.80 | 5.00 | 2.40 | 3.00 | 3.60 | 4.40 | 4.80 | 3.20 | 2.00 |
| 28 | COD | | 10.30 | 28.90 | 4.10 | 6.20 | 6.20 | 19.20 | 27.00 | 20.80 | 16.60 | 20.80 | 18.70 | 17.40 |
| 29 | Dissolved Oxygen | | 7.50 | 6.20 | 7.60 | 7.70 | 7.80 | 7.60 | 10.10 | 8.00 | 6.10 | 7.00 | 5.70 | 7.00 |
| 30 | DO_SAT % | % | 96 | 85 | 94 | 95 | 98 | 84 | 102 | 79 | 64 | 80 | 72 | 86 |
| 31 | Tota Coliform | MPN/100 ml | - | - | - | - | - | - | - | - | - | - | - | - |
| 32 | Fecal Coliform | | - | - | - | - | - | - | - | - | - | - | - | - |
| 33 | E. Coli | | - | - | - | - | - | - | - | - | - | - | - | - |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 4.060 | | | | 1.840 | | | | 0.740 | |
| 35 | Cadmium | | | | 0.095 | | | | 0.290 | | | | 0.086 | |
| 36 | Chromium | | | | 1.090 | | | | 0.930 | | | | 6.590 | |
| 37 | Copper | | | | 3.670 | | | | 6.290 | | | | 6.470 | |
| 38 | Iron | mg/l | | | 0.069 | | | | 0.081 | | | | 0.154 | |
| 39 | Lead | µg/L | | | 0.010 | | | | 0.630 | | | | 1.290 | |
| 40 | Nickel | | | | 1.890 | | | | 1.200 | | | | 12.200 | |
| 41 | Zinc | mg/l | | | 0.097 | | | | 0.016 | | | | 0.005 | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | 44 | 44 | 68 | 48 | 16 | 60 | 88 | 64 | 44 | 84 | 68 | 48 |
| 43 | Tot-Hardness | | 166 | 170 | 96 | 125 | 150 | 161 | 173 | 194 | 186 | 153 | 157 | 161 |
| 44 | Na% | % | 57 | 50 | 25 | 27 | 35 | 39 | 43 | 43 | 38 | 45 | 48 | 51 |
| 45 | RSC (-) | | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 46 | SAR (-) | | 3.50 | 2.70 | 0.70 | 0.80 | 1.30 | 1.70 | 2.00 | 2.10 | 1.70 | 2.10 | 2.40 | 2.70 |
| 47 | PESTICIDES | | | | | | | | | | | | | |

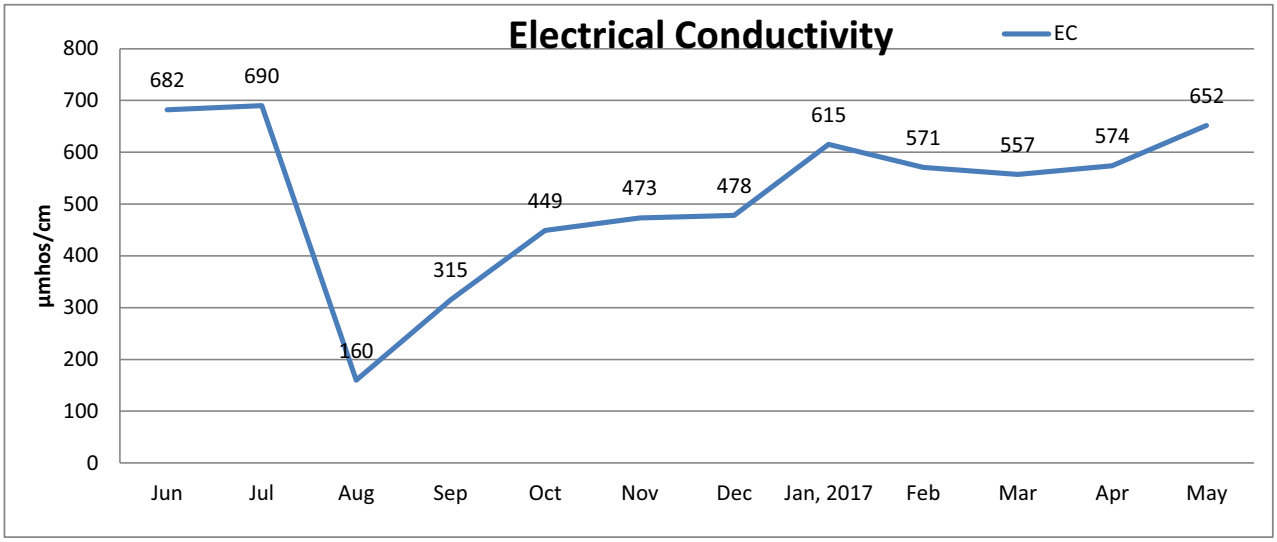
# RIVER WATER SUMMARY - 2016-2017

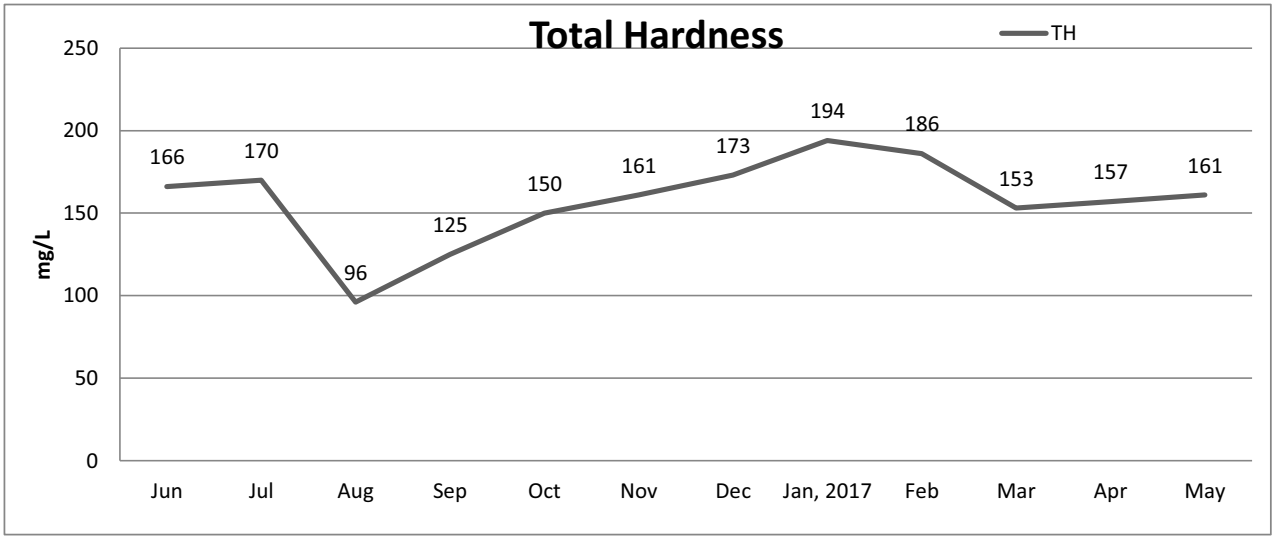
**Station Name : UDI** **Division : LYD, Agra**

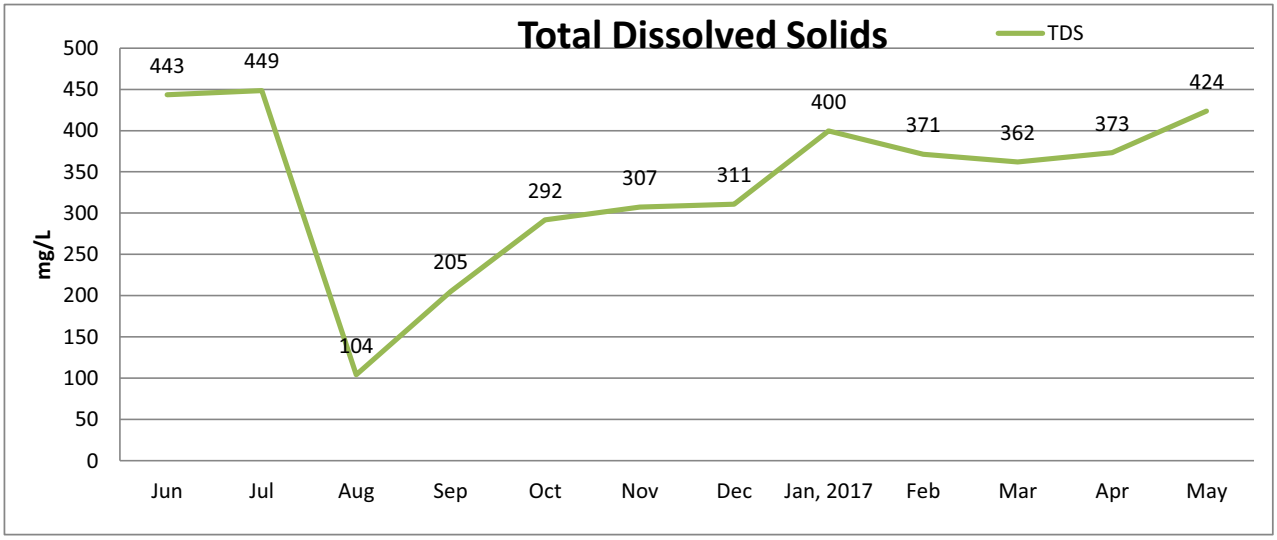
**Local River : CHAMBAL**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | 12 | 32 | 15 | 24 | 28 | 17 | 25 |
| pH_GEN (pH units) | - | - | - | - | - | - | - |
| EC_GEN (µmho/cm) | 12 | 690 | 160 | 518 | 459 | 534 | 594 |
| Total Dissolved Solids | | | | | | | |
| Turbiidity | - | - | - | - | - | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 12 | 32.25 | 0.00 | 11.8 | 9.75 | 13.19 | 13.50 |
| Alk-Tot (as $CaCO_3$) | 12 | 167.83 | 36.67 | 125.3 | 112.83 | 130.96 | 138.67 |
| Boron | 12 | 0.29 | 0.07 | 0.2 | 0.23 | 0.20 | 0.17 |
| Calcium | 12 | 35.00 | 6.00 | 22.6 | 17.60 | 25.75 | 26.67 |
| Chloride | 12 | 64.60 | 17.80 | 45.7 | 40.12 | 46.40 | 54.17 |
| Carbonate | 12 | 38.70 | 0.00 | 14.2 | 11.70 | 15.83 | 16.20 |
| Fluoride | 12 | 1.03 | 0.13 | 0.3 | 0.32 | 0.23 | 0.53 |
| Bicarbonate | 12 | 172.00 | 44.00 | 122.0 | 112.00 | 125.50 | 134.00 |
| Potassium | 12 | 5.50 | 1.20 | 3.2 | 3.74 | 2.25 | 3.67 |
| Magnesium | 12 | 34.00 | 6.80 | 24.3 | 23.34 | 27.45 | 21.70 |
| Sodium | 12 | 102.80 | 15.20 | 57.4 | 51.26 | 56.68 | 68.50 |
| Ammonia as N | 12 | 0.15 | 0.00 | 0.0 | 0.03 | 0.00 | 0.00 |
| $NO_2$+$NO_3$ as N | 12 | 1.33 | 0.00 | 0.5 | 0.79 | 0.31 | 0.18 |
| Nitrite as N | 12 | 0.04 | 0.00 | 0.0 | 0.01 | 0.01 | 0.01 |
| Nitrate as N | 12 | 1.32 | 0.00 | 0.5 | 0.78 | 0.30 | 0.17 |
| Tot. Phosphate as P | 12 | 0.03 | 0.00 | 0.0 | 0.01 | 0.02 | 0.02 |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 12 | 112.40 | 15.00 | 63.1 | 49.88 | 64.73 | 82.93 |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 12 | 5.0 | 2.0 | 3.6 | 4.0 | 3.4 | 3.3 |
| COD | 12 | 28.9 | 4.1 | 16.4 | 11.1 | 20.9 | 19.0 |
| Dissolved Oxygen | 12 | 10.10 | 5.70 | 7.36 | 7.36 | 8.0 | 6.6 |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | - | - | - | - | - | - | - |
| Fecal Coliform | - | - | - | - | - | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 3 | 4.06 | 0.74 | 2.21 | 4.06 | 1.84 | 0.74 |
| Cadmium | 3 | 0.29 | 0.09 | 0.16 | 0.10 | 0.29 | 0.09 |
| Chromium | 3 | 6.59 | 0.93 | 2.87 | 1.09 | 0.93 | 6.59 |
| Copper | 3 | 6.47 | 3.67 | 5.48 | 3.67 | 6.29 | 6.47 |
| Iron | 3 | 0.15 | 0.07 | 0.10 | 0.07 | 0.08 | 0.15 |
| Lead | 3 | 1.29 | 0.01 | 0.64 | 0.01 | 0.63 | 1.29 |
| Nickel | 3 | 12.20 | 1.20 | 5.10 | 1.89 | 1.20 | 12.20 |
| Zinc | 3 | 0.10 | 0.01 | 0.04 | 0.10 | 0.02 | 0.01 |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 12 | 88 | 16 | 56 | 44 | 64 | 67 |
| Tot-Hardness | 12 | 194 | 96 | 158 | 141 | 179 | 157 |
| Na% | 12 | 57 | 25 | 42 | 39 | 41 | 48 |
| RSC (-) | 12 | 0.10 | 0.00 | 0.0 | 0.02 | 0.00 | 0.00 |
| SAR (-) | 12 | 3.50 | 0.70 | 2.0 | 1.80 | 1.88 | 2.40 |
| **PESTICIDES** | | | | | | | |

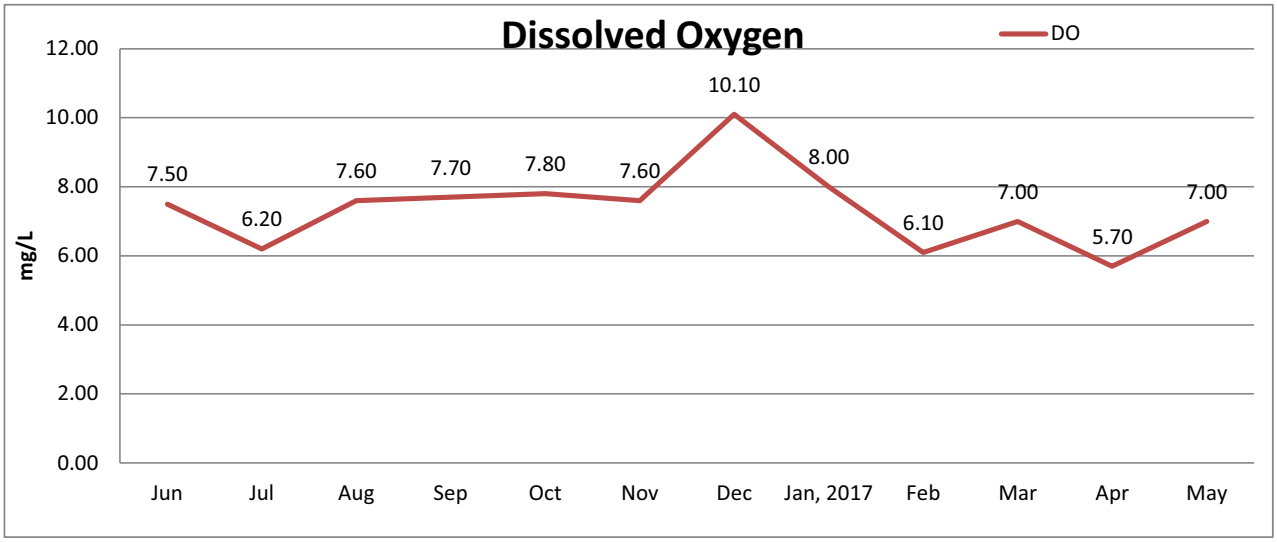
**Graphical Presentation of UDI WQ Site**

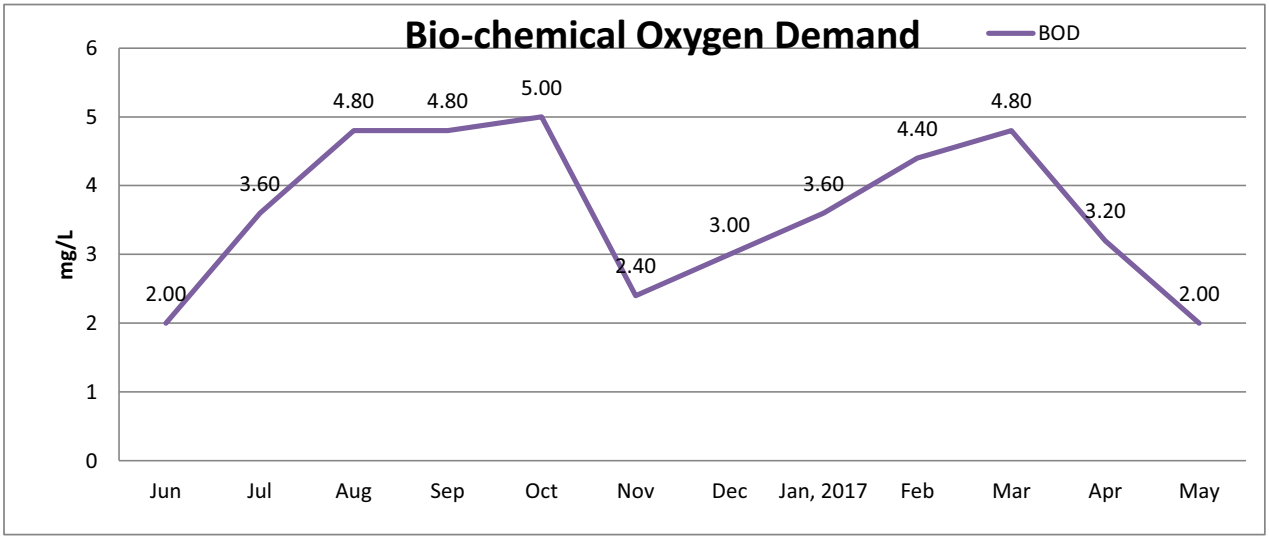


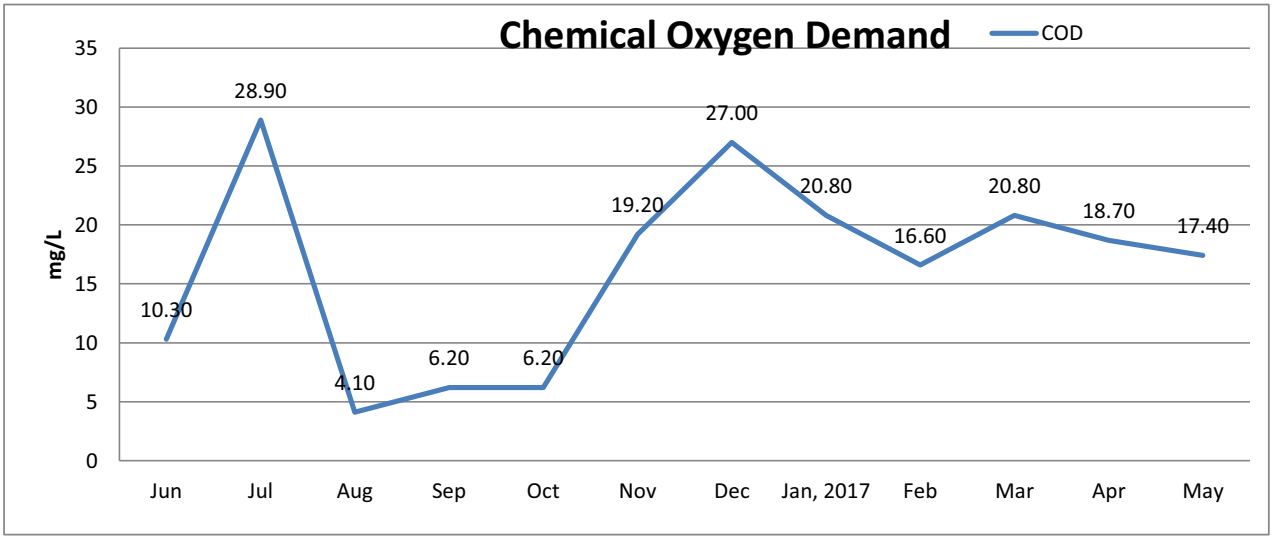



**Graphical Presentation of UDI WQ Site**



# RIVER WATER QUALITY DATA

# OF

# CHAMBAL DIVISION

# AB ROAD XING

## General Particulars

| | | | |
|---|---|---|---|
| Site | : **A.B. Road Xing** | Code | : **GYP4OM4** |
| State | : **Madhya Pradesh** | District | : **Guna** |
| Division | : **Chambal Div., Jaipur** | Sub-Division | : **U Chambal SD, Indore** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **Parwati** |
| Sub-Sub-Trib. | : **-** | Local River | : **Chambal** |
| Drainage Area | : **5669 Sq. Km.** | Bank | : **Left** |
| Latitude | : **24°22'00"N** | Longitude | : **75°05'00" E** |
| Zero of Gauge | : **383.000(m.s.l)** | | |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **16/01/1976** |
| Discharge: | : **16/01/1976** |
| Sediment | : **16/09/1978** |
| Water Quality | : **02/01/1978** |
| Wireless | : **-** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : A.B. Road** **Division : CD, Jaipur**

**Local River : Parwati**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | | | 01/08/16 | | 05/10/16 | | | | | | | |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | | | Cloudy | | Clear | | | | | | | |
| 2 | Colour_Cod (-) | | | | Colourless | | Colourless | | | | | | | |
| 3 | Odour_Code (-) | | | | Odourless | | Odourless | | | | | | | |
| 4 | Temperature | °C | | | - | | - | | | | | | | |
| 5 | pH_GEN (pH units) | | | | 7.77 | | 8.13 | | | | | | | |
| 6 | EC_GEN (µmho/cm) | NTU | | | 227 | | 481 | | | | | | | |
| 7 | Total Dissolved Solids | mg/L | | | 118 | | 288 | | | | | | | |
| 8 | Turbiidity | | | | 143 | | 21.8 | | | | | | | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | | | 0.00 | | 6.30 | | | | | | | |
| 10 | Alk-Tot (as $CaCO_3$) | | | | 69.88 | | 137.48 | | | | | | | |
| 11 | Boron | | | | | | 0.29 | | | | | | | |
| 12 | Calcium | | | | 30.10 | | 37.31 | | | | | | | |
| 13 | Chloride | | | | 15.92 | | 48.64 | | | | | | | |
| 14 | Carbonate | | | | 0.00 | | 7.56 | | | | | | | |
| 15 | Fluoride | | | | 0.22 | | 0.26 | | | | | | | |
| 16 | Bicarbonate | | | | 83.85 | | 149.85 | | | | | | | |
| 17 | Potassium | | | | 1.99 | | 1.93 | | | | | | | |
| 18 | Magnesium | | | | 4.47 | | 14.78 | | | | | | | |
| 19 | Sodium | | | | 8.85 | | 33.05 | | | | | | | |
| 20 | Ammonia as N | | | | 0.01 | | 0.03 | | | | | | | |
| 21 | $NO_2$+$NO_3$ as N | | | | 2.01 | | 0.54 | | | | | | | |
| 22 | Nitrite as N | | | | 0.18 | | 0.09 | | | | | | | |
| 23 | Nitrate as N | | | | 1.83 | | 0.45 | | | | | | | |
| 24 | Tot. Phosphate as P | | | | 0.21 | | 0.37 | | | | | | | |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | | | 19.20 | | 20.40 | | | | | | | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | | | 2.43 | | 2.92 | | | | | | | |
| 28 | COD | | | | 14 | | 10 | | | | | | | |
| 29 | Dissolved Oxygen | | | | 3.69 | | 4.89 | | | | | | | |
| 30 | DO_SAT % | % | | | - | | - | | | | | | | |
| 31 | Tota Coliform | MPN/100 ml | | | 3300 | | 7000 | | | | | | | |
| 32 | Fecal Coliform | | | | 1100 | | 1100 | | | | | | | |
| 33 | E. Coli | | | | - | | - | | | | | | | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 0.090 | | 1.650 | | | | | | | |
| 35 | Cadmium | | | | 0.001 | | 0.022 | | | | | | | |
| 36 | Chromium | | | | 0.380 | | 3.530 | | | | | | | |
| 37 | Copper | | | | 2.040 | | 1.140 | | | | | | | |
| 38 | Iron | mg/l | | | 0.020 | | 0.059 | | | | | | | |
| 39 | Lead | µg/L | | | 0.190 | | 0.180 | | | | | | | |
| 40 | Nickel | | | | 1.480 | | 2.080 | | | | | | | |
| 41 | Zinc | mg/l | | | 0.003 | | 0.002 | | | | | | | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | | | 75 | | 93 | | | | | | | |
| 43 | Tot-Hardness | | | | 94 | | 155 | | | | | | | |
| 44 | Na% | % | | | 17 | | 31 | | | | | | | |
| 45 | RSC (-) | | | | -0.50 | | -0.39 | | | | | | | |
| 46 | SAR (-) | | | | 0.40 | | 1.15 | | | | | | | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

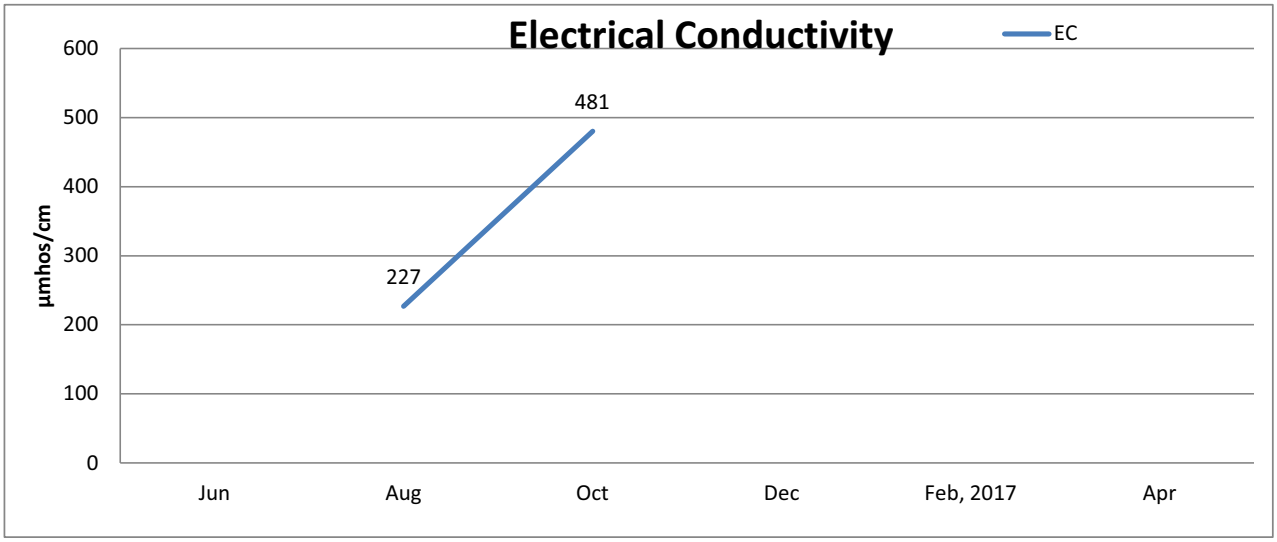
# RIVER WATER SUMMARY - 2016-2017

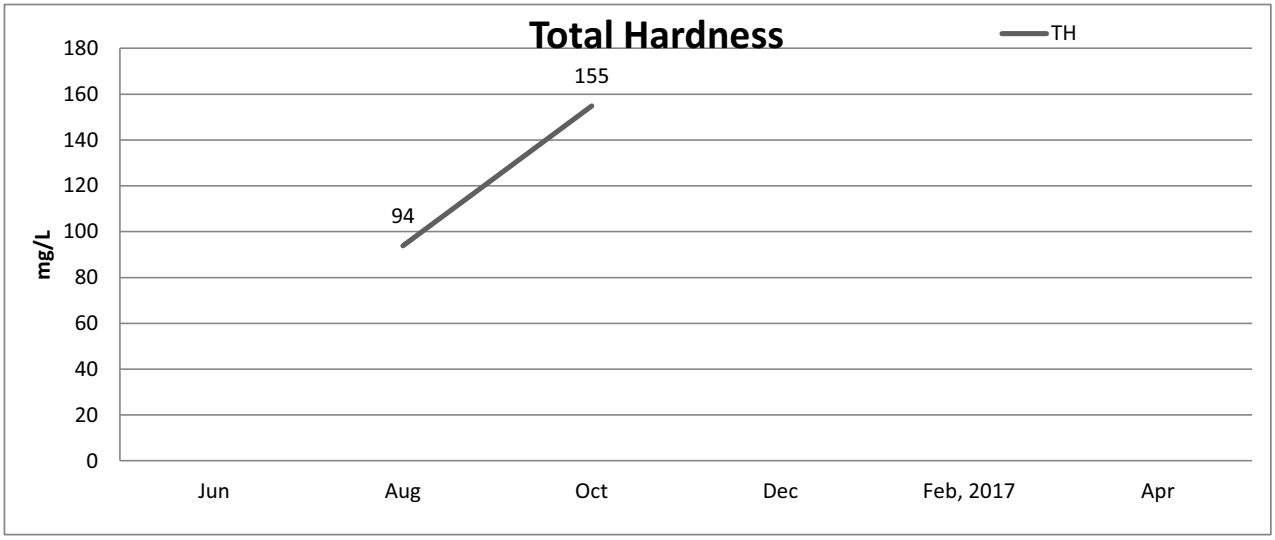
**Station Name : A.B. Road** **Division : CD, Jaipur**

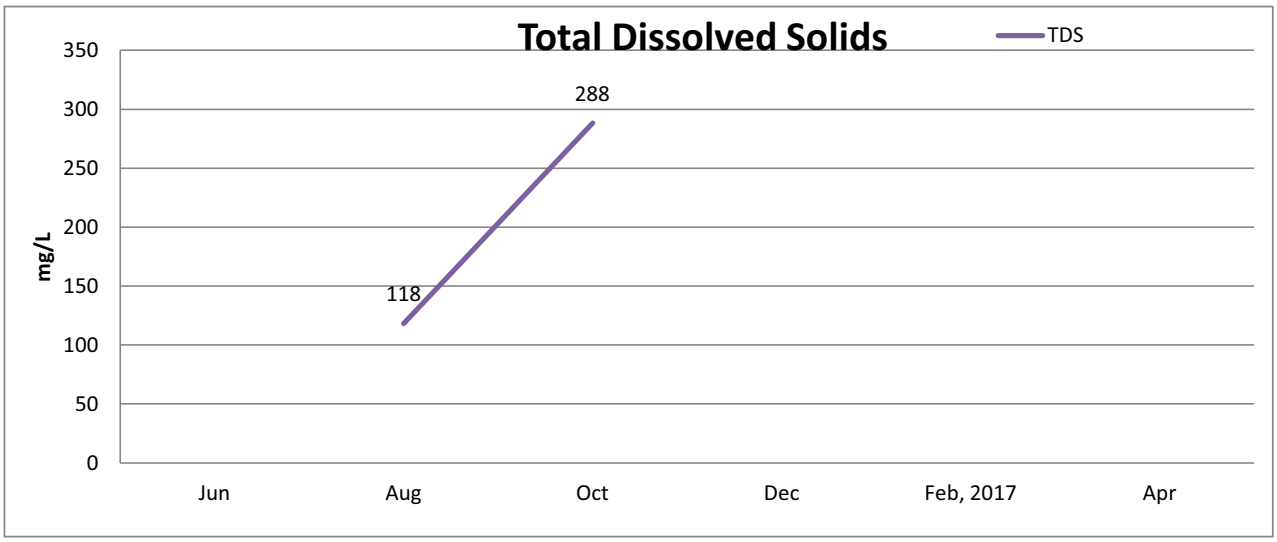
**Local River : Parwati**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 2 | 8.13 | 7.77 | 7.95 | 7.95 | - | - |
| EC_GEN (µmho/cm) | 2 | 481 | 227 | 354 | 354 | - | - |
| Total Dissolved Solids | 2 | 288 | 118 | 203 | 203 | - | - |
| Turbiidity | 2 | 143.0 | 21.8 | 82.4 | 82.4 | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 2 | 6.30 | 0.00 | 3.15 | 3.15 | - | - |
| Alk-Tot (as $CaCO_3$) | 2 | 137.48 | 69.88 | 103.68 | 103.68 | - | - |
| Boron | 1 | 0.29 | 0.29 | 0.29 | 0.29 | - | - |
| Calcium | 2 | 37.31 | 30.10 | 33.70 | 33.70 | - | - |
| Chloride | 2 | 48.64 | 15.92 | 32.28 | 32.28 | - | - |
| Carbonate | 2 | 7.56 | 0.00 | 3.78 | 3.78 | - | - |
| Fluoride | 2 | 0.26 | 0.22 | 0.24 | 0.24 | - | - |
| Bicarbonate | 2 | 149.85 | 83.85 | 116.85 | 116.85 | - | - |
| Potassium | 2 | 1.99 | 1.93 | 2.0 | 1.96 | - | - |
| Magnesium | 2 | 14.78 | 4.47 | 9.62 | 9.62 | - | - |
| Sodium | 2 | 33.05 | 8.85 | 20.95 | 20.95 | - | - |
| Ammonia as N | 2 | 0.03 | 0.01 | 0.02 | 0.02 | - | - |
| $NO_2$+$NO_3$ as N | 2 | 2.01 | 0.54 | 1.28 | 1.28 | - | - |
| Nitrite as N | 2 | 0.18 | 0.09 | 0.14 | 0.14 | - | - |
| Nitrate as N | 2 | 1.83 | 0.45 | 1.14 | 1.14 | - | - |
| Tot. Phosphate as P | 2 | 0.37 | 0.21 | 0.29 | 0.29 | - | - |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 2 | 20.40 | 19.20 | 19.8 | 19.80 | - | - |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 2 | 2.92 | 2.43 | 2.68 | 2.68 | - | - |
| COD | 2 | 14 | 10 | 12 | 12 | - | - |
| Dissolved Oxygen | 2 | 4.89 | 3.69 | 4.29 | 4.29 | - | - |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 2 | 7000 | 3300 | 5150 | 5150 | - | - |
| Fecal Coliform | 2 | 1100 | 1100 | 1100 | 1100 | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 2 | 1.650 | 0.090 | 0.870 | 0.870 | - | - |
| Cadmium | 2 | 0.022 | 0.001 | 0.012 | 0.012 | - | - |
| Chromium | 2 | 3.530 | 0.380 | 1.955 | 1.955 | - | - |
| Copper | 2 | 2.040 | 1.140 | 1.590 | 1.590 | - | - |
| Iron | 2 | 0.059 | 0.020 | 0.040 | 0.040 | - | - |
| Lead | 2 | 0.190 | 0.180 | 0.185 | 0.185 | - | - |
| Nickel | 2 | 2.080 | 1.480 | 1.780 | 1.780 | - | - |
| Zinc | 2 | 0.003 | 0.002 | 0.002 | 0.002 | - | - |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 2 | 93 | 75 | 84 | 84 | - | - |
| Tot-Hardness | 2 | 155 | 94 | 124 | 124 | - | - |
| Na% | 2 | 31 | 17 | 24 | 24 | - | - |
| RSC (-) | 2 | -0.39 | -0.50 | -0.45 | -0.45 | - | - |
| SAR (-) | 2 | 1.15 | 0.40 | 0.78 | 0.78 | - | - |
| **PESTICIDES** | | | | | | | |

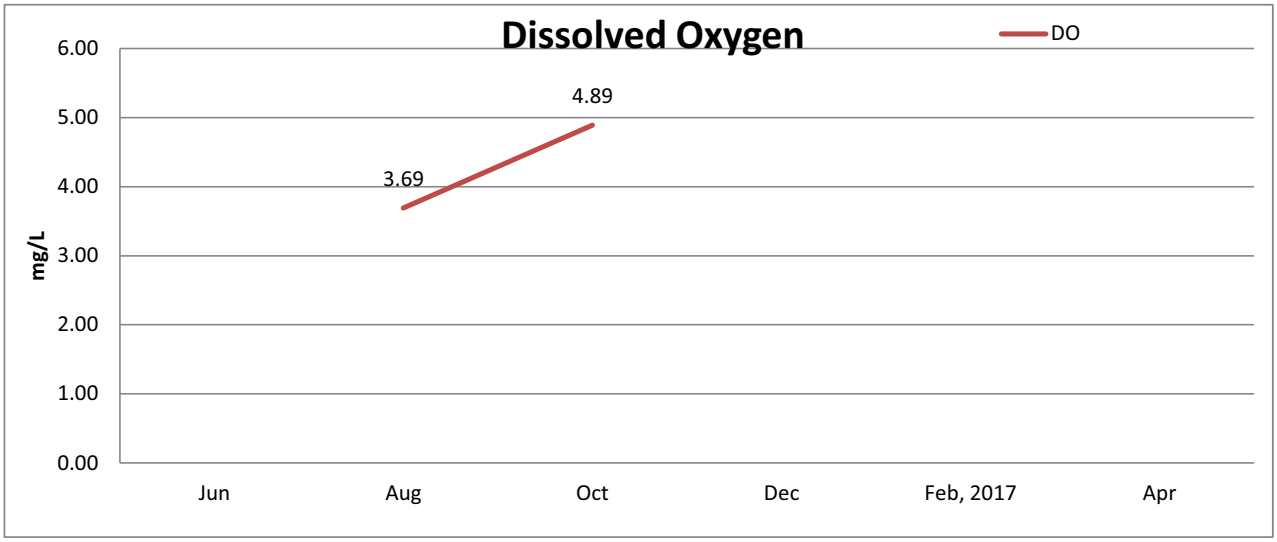
**Graphical Presentation of A.B. ROAD WQ Site**

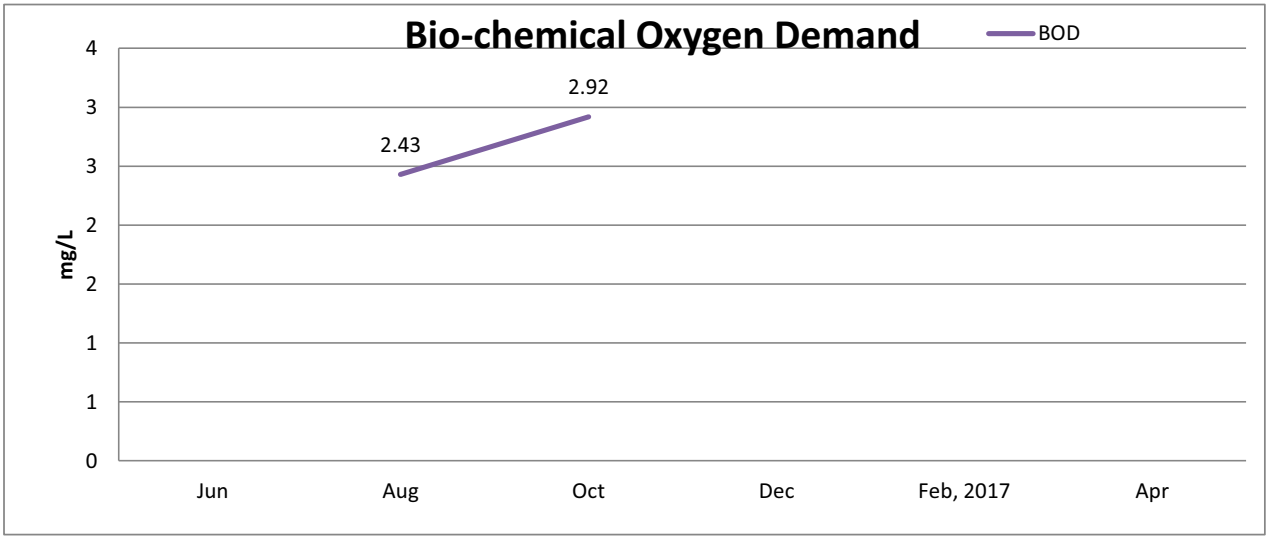


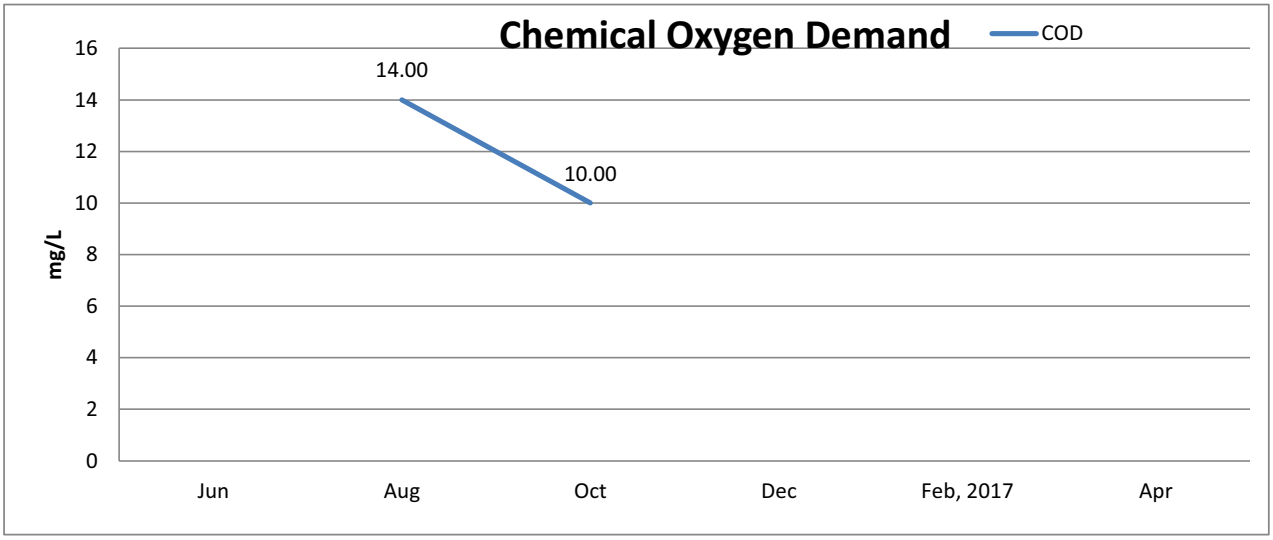



**Graphical Presentation of A.B. ROAD WQ Site**



# KHATOLI

## General Particulars

| | | | |
|---|---|---|---|
| Site | :***Khatoli*** | Code | : **GYP40B4** |
| State | : **Rajasthan** | District | : **Kota** |
| Division | : **Chambal Div., Jaipur** | Sub-Division | : **Kota** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **Chambal** |
| Sub-Sub-Trib. | : **Parwati** | Local River | : **Parwati** |
| Drainage Area | : **15148 Sq. Km.** | Bank | : **Left** |
| Latitude | : **25°41'00"N** | Longitude | : **76°29'00"E** |
| Zero of Gauge | : **187.00M** | | |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **11/01/1971** |
| Discharge: | : **11/01/1971** |
| Sediment | : **18/07/1978** |
| Water Quality | : **01/12/1978** |
| Wireless | : **23/05/1997** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : KHATOLI** **Division : CD, Jaipur**

**Local River : Parwati**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | | | 01/08/16 | | 03/10/16 | | 01/12/16 | | 01/02/17 | | | |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | | | Cloudy | | Clear | | Clear | | Clear | | | |
| 2 | Colour_Cod (-) | | | | Colourless | | Colourless | | Colourless | | Colourless | | | |
| 3 | Odour_Code (-) | | | | Odourless | | Odourless | | Odourless | | Odourless | | | |
| 4 | Temperature | °C | | | - | | - | | - | | - | | | |
| 5 | pH_GEN (pH units) | | | | 7.76 | | 8.48 | | 8.50 | | 8.38 | | | |
| 6 | EC_GEN (µmho/cm) | NTU | | | 254 | | 438 | | 508 | | 567 | | | |
| 7 | Total Dissolved Solids | mg/L | | | 116 | | 263 | | 305 | | 369 | | | |
| 8 | Turbiidity | | | | 258.5 | | 7.65 | | 12.55 | | 6.18 | | | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | | | 0.00 | | 9.18 | | 7.41 | | 0.00 | | | |
| 10 | Alk-Tot (as $CaCO_3$) | | | | 79.17 | | 124.58 | | 144.49 | | 199.27 | | | |
| 11 | Boron | | | | | | 0.09 | | 0.18 | | 0.25 | | | |
| 12 | Calcium | | | | 28.83 | | 38.45 | | 33.41 | | 48.26 | | | |
| 13 | Chloride | | | | 20.59 | | 34.44 | | 37.12 | | 55.38 | | | |
| 14 | Carbonate | | | | 0.00 | | 11.02 | | 8.89 | | 0.00 | | | |
| 15 | Fluoride | | | | 0.22 | | 0.27 | | 0.34 | | 0.37 | | | |
| 16 | Bicarbonate | | | | 95.00 | | 127.47 | | 155.60 | | 239.12 | | | |
| 17 | Potassium | | | | 2.25 | | 2.27 | | 3.48 | | 3.27 | | | |
| 18 | Magnesium | | | | 3.71 | | 15.04 | | 26.76 | | 26.90 | | | |
| 19 | Sodium | | | | 12.29 | | 27.10 | | 44.97 | | 41.39 | | | |
| 20 | Ammonia as N | | | | 0.01 | | 0.11 | | 0.01 | | 0.04 | | | |
| 21 | $NO_2$+$NO_3$ as N | | | | 2.26 | | 1.43 | | 1.27 | | 1.83 | | | |
| 22 | Nitrite as N | | | | 0.23 | | 0.08 | | 0.09 | | 0.03 | | | |
| 23 | Nitrate as N | | | | 2.03 | | 1.36 | | 1.18 | | 1.80 | | | |
| 24 | Tot. Phosphate as P | | | | 0.39 | | 0.08 | | 0.03 | | 0.01 | | | |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | | | 4.80 | | 30.32 | | 57.00 | | 20.21 | | | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | | | 4.87 | | 2.82 | | 3.69 | | 2.37 | | | |
| 28 | COD | | | | 21 | | 7 | | 32 | | 4 | | | |
| 29 | Dissolved Oxygen | | | | 4.13 | | 5.12 | | 4.68 | | 5.45 | | | |
| 30 | DO_SAT % | % | | | - | | - | | - | | - | | | |
| 31 | Tota Coliform | MPN/100 ml | | | 7900 | | 14000 | | 4700 | | 4600 | | | |
| 32 | Fecal Coliform | | | | 1700 | | 2600 | | 1400 | | 3200 | | | |
| 33 | E. Coli | | | | - | | - | | - | | - | | | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 0.420 | | 0.710 | | 6.270 | | 1.050 | | | |
| 35 | Cadmium | | | | 0.026 | | 0.135 | | 0.053 | | 0.014 | | | |
| 36 | Chromium | | | | 2.610 | | 2.760 | | 5.880 | | 0.220 | | | |
| 37 | Copper | | | | 1.050 | | 12.360 | | 8.440 | | 8.780 | | | |
| 38 | Iron | mg/l | | | 0.019 | | 0.231 | | 0.098 | | 0.069 | | | |
| 39 | Lead | µg/L | | | 0.270 | | 1.410 | | 1.640 | | 0.700 | | | |
| 40 | Nickel | | | | 17.280 | | 84.150 | | 21.930 | | 1.490 | | | |
| 41 | Zinc | mg/l | | | 0.001 | | 0.043 | | 0.014 | | 0.004 | | | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | | | 72 | | 96 | | 84 | | 121 | | | |
| 43 | Tot-Hardness | | | | 88 | | 159 | | 195 | | 233 | | | |
| 44 | Na% | % | | | 23 | | 27 | | 33 | | 28 | | | |
| 45 | RSC (-) | | | | -0.19 | | -0.72 | | -1.05 | | -0.73 | | | |
| 46 | SAR (-) | | | | 0.57 | | 0.94 | | 1.40 | | 1.18 | | | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

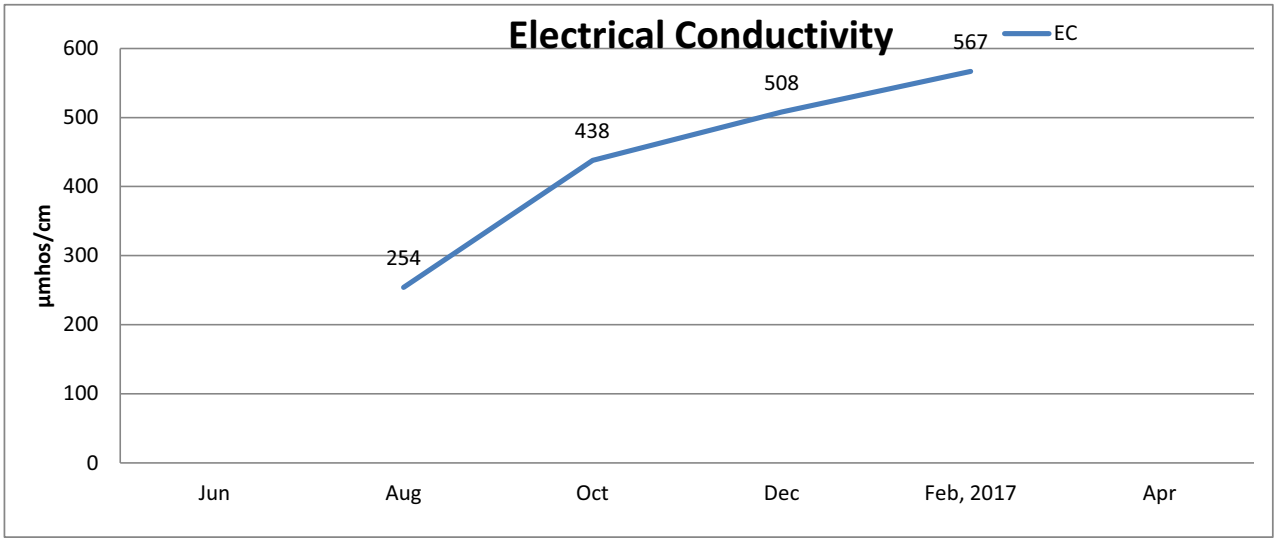
# RIVER WATER SUMMARY - 2016-2017

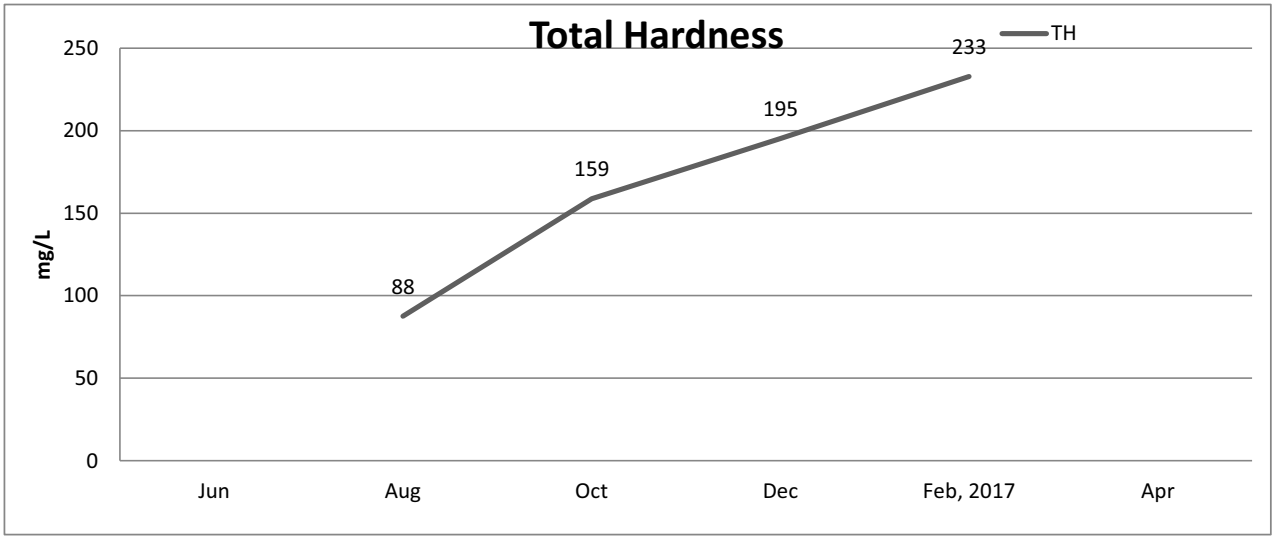
**Station Name : KHATOLI** **Division : CD, Jaipur**

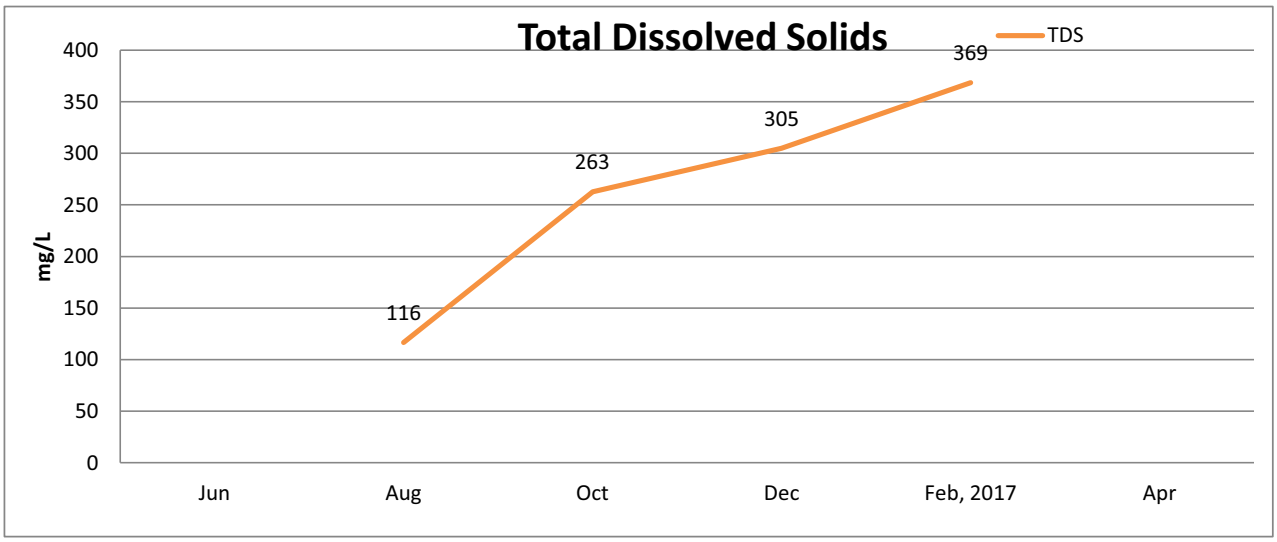
**Local River : Parwati**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | - | 8.50 | 7.76 | 8.28 | 8.28 | 8.44 | - |
| EC_GEN (µmho/cm) | 4 | 567 | 254 | 442 | 442 | 538 | - |
| Total Dissolved Solids | | 369 | 116 | 263 | 263 | 337 | - |
| Turbiidity | 4 | 258.5 | 6.2 | 71.2 | 71.2 | 9 | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 4 | 9.18 | 0.00 | 4.15 | 4.15 | 3.71 | - |
| Alk-Tot (as $CaCO_3$) | 4 | 199.27 | 79.17 | 136.88 | 136.88 | 171.88 | - |
| Boron | 3 | 0.25 | 0.09 | 0.17 | 0.17 | 0.21 | - |
| Calcium | 4 | 48.26 | 28.83 | 37.24 | 37.24 | 40.84 | - |
| Chloride | 4 | 55.38 | 20.59 | 36.88 | 36.88 | 46.25 | - |
| Carbonate | 4 | 11.02 | 0.00 | 4.98 | 4.98 | 4.45 | - |
| Fluoride | 4 | 0.37 | 0.22 | 0.30 | 0.30 | 0.35 | - |
| Bicarbonate | 4 | 239.12 | 95.00 | 154.30 | 154.30 | 197.36 | - |
| Potassium | 4 | 3.48 | 2.25 | 2.8 | 2.82 | 3.38 | - |
| Magnesium | 4 | 26.90 | 3.71 | 18.10 | 18.10 | 26.83 | - |
| Sodium | 4 | 44.97 | 12.29 | 31.44 | 31.44 | 43.18 | - |
| Ammonia as N | 4 | 0.11 | 0.01 | 0.05 | 0.05 | 0.03 | - |
| $NO_2$+$NO_3$ as N | 4 | 2.26 | 1.27 | 1.70 | 1.70 | 1.55 | - |
| Nitrite as N | 4 | 0.23 | 0.03 | 0.11 | 0.11 | 0.06 | - |
| Nitrate as N | 4 | 2.03 | 1.18 | 1.59 | 1.59 | 1.49 | - |
| Tot. Phosphate as P | 4 | 0.39 | 0.01 | 0.13 | 0.13 | 0.02 | - |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 4 | 57.00 | 4.80 | 28.1 | 28.08 | 38.61 | - |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 4 | 4.87 | 2.37 | 3.44 | 3.44 | 3.03 | - |
| COD | 4 | 32 | 4 | 16 | 16 | 18 | - |
| Dissolved Oxygen | 4 | 5.45 | 4.13 | 4.85 | 4.85 | 5.07 | - |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 4 | 14000 | 4600 | 7800 | 7800 | 4650.00 | - |
| Fecal Coliform | 4 | 3200 | 1400 | 2225 | 2225 | 2300.00 | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 4 | 6.270 | 0.420 | 2.113 | 2.113 | 3.660 | - |
| Cadmium | 4 | 0.135 | 0.014 | 0.057 | 0.057 | 0.034 | - |
| Chromium | 4 | 5.880 | 0.220 | 2.868 | 2.868 | 3.050 | - |
| Copper | 4 | 12.360 | 1.050 | 7.658 | 7.658 | 8.610 | - |
| Iron | 4 | 0.231 | 0.019 | 0.104 | 0.104 | 0.084 | - |
| Lead | 4 | 1.640 | 0.270 | 1.005 | 1.005 | 1.170 | - |
| Nickel | 4 | 84.150 | 1.490 | 31.213 | 31.213 | 11.710 | - |
| Zinc | 4 | 0.043 | 0.001 | 0.016 | 0.016 | 0.009 | - |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 4 | 121 | 72 | 93 | 93 | 102.09 | - |
| Tot-Hardness | 4 | 233 | 88 | 169 | 169 | 213.98 | - |
| Na% | 4 | 33 | 23 | 27 | 27 | 30.21 | - |
| RSC (-) | 4 | -0.19 | -1.05 | -0.68 | -0.68 | -0.89 | - |
| SAR (-) | 4 | 1.40 | 0.57 | 1.02 | 1.02 | 1.29 | - |
| **PESTICIDES** | | | | | | | |

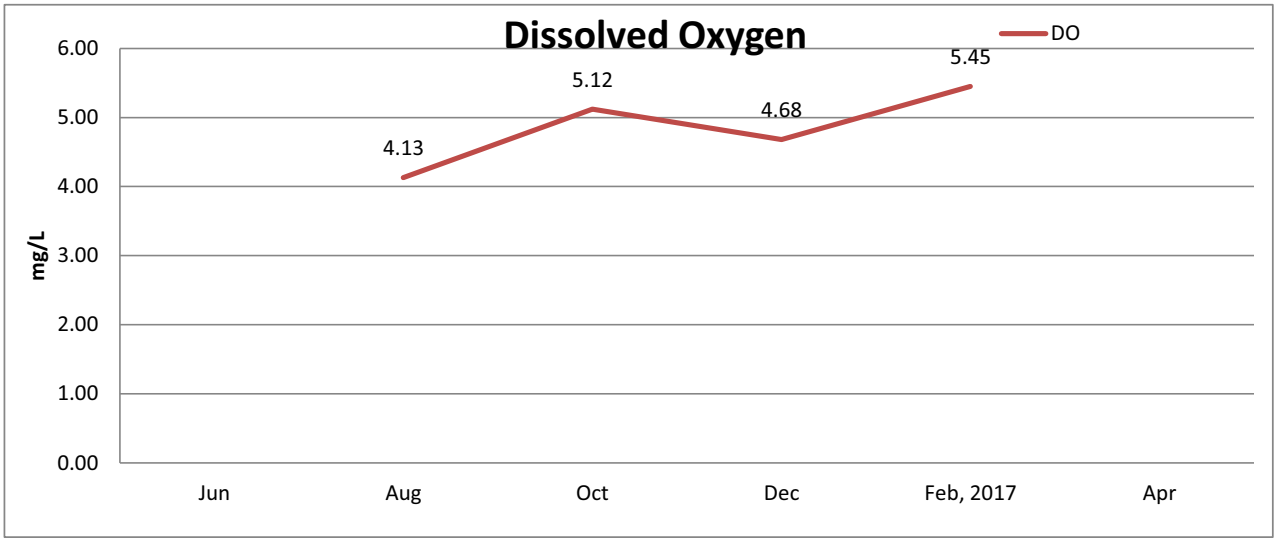
**Graphical Presentation of KHATOLI WQ Site**

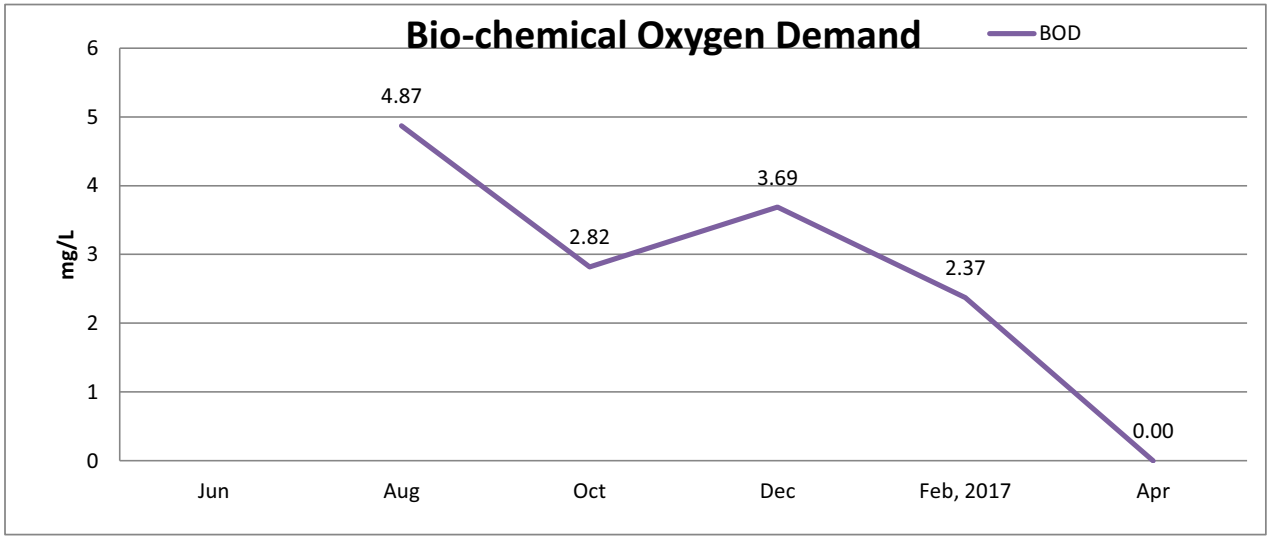


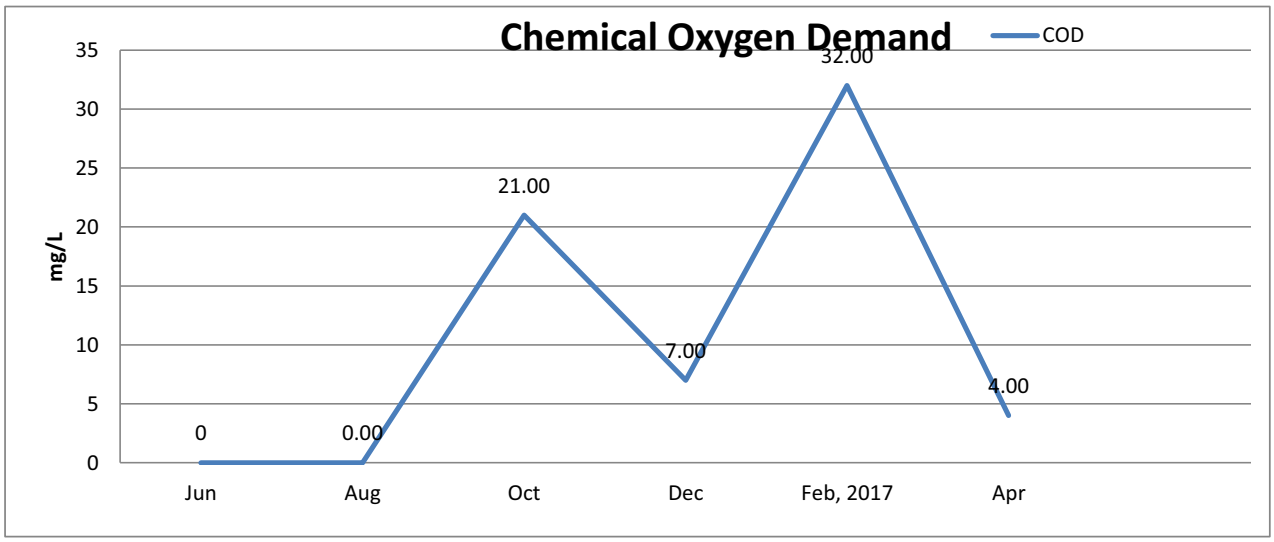



**Graphical Presentation of KHATOLI WQ Site**



# AKLERA

## GENERAL PARTICULARS

| | | | |
|---|---|---|---|
| Site | :***Aklera*** | Code | : **GYP61P7** |
| State | : **Rajasthan** | District | : **Jhalawar** |
| Division | : **Chambal Division, Jaipur** | Sub-Division | : **Kota** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **Chambal** |
| Sub-Sub-Trib. | : **Kalisind** | Local River | : **Parwan** |
| Drainage Area | : **6050 Sq. Km.** | Bank | : **Left** |
| Latitude | : **24°25'00"N** | Longitude | : **76°35'00"E** |
| Zero of Gauge | : **298.00M** | | |

## DETAILS OF OPERATION (OPENING DATE)

| | |
|---|---|
| Gauge: | : **02/08/1976** |
| Discharge: | : **03/08/1976** |
| Sediment | : **13/11/1976** |
| Water Quality | : **02/01/1978** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : AKLERA** **Division : CD, Jaipur**

**Local River : Parwan**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | | | 01/08/16 | | 03/10/16 | | | | | | | |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | | | Cloudy | | Clear | | | | | | | |
| 2 | Colour_Cod (-) | | | | Colourless | | Colourless | | | | | | | |
| 3 | Odour_Code (-) | | | | Odourless | | Odourless | | | | | | | |
| 4 | Temperature | °C | | | - | | - | | | | | | | |
| 5 | pH_GEN (pH units) | | | | 8.13 | | 8.44 | | | | | | | |
| 6 | EC_GEN (µmho/cm) | NTU | | | 261 | | 409 | | | | | | | |
| 7 | Total Dissolved Solids | mg/L | | | 138 | | 246 | | | | | | | |
| 8 | Turbiidity | | | | 66.5 | | 5.82 | | | | | | | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | | | 3.78 | | 7.56 | | | | | | | |
| 10 | Alk-Tot (as $CaCO_3$) | | | | 64.11 | | 116.70 | | | | | | | |
| 11 | Boron | | | | | | 0.06 | | | | | | | |
| 12 | Calcium | | | | 30.10 | | 29.90 | | | | | | | |
| 13 | Chloride | | | | 30.41 | | 34.44 | | | | | | | |
| 14 | Carbonate | | | | 4.54 | | 9.07 | | | | | | | |
| 15 | Fluoride | | | | 0.23 | | 0.23 | | | | | | | |
| 16 | Bicarbonate | | | | 67.86 | | 121.90 | | | | | | | |
| 17 | Potassium | | | | 2.18 | | 2.20 | | | | | | | |
| 18 | Magnesium | | | | 8.46 | | 18.03 | | | | | | | |
| 19 | Sodium | | | | 10.62 | | 23.81 | | | | | | | |
| 20 | Ammonia as N | | | | 0.01 | | 0.08 | | | | | | | |
| 21 | $NO_2$+$NO_3$ as N | | | | 0.54 | | 1.67 | | | | | | | |
| 22 | Nitrite as N | | | | 0.09 | | 0.07 | | | | | | | |
| 23 | Nitrate as N | | | | 0.45 | | 1.60 | | | | | | | |
| 24 | Tot. Phosphate as P | | | | 0.12 | | 0.07 | | | | | | | |
| 25 | Silicate as $SiO_2$ | | | | - | | - | | | | | | | |
| 26 | Sulphate as $SO_4$ | | | | 17.20 | | 23.60 | | | | | | | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | | | 0.80 | | 2.94 | | | | | | | |
| 28 | COD | | | | 9 | | 4 | | | | | | | |
| 29 | Dissolved Oxygen | | | | 5.20 | | 4.95 | | | | | | | |
| 30 | DO_SAT % | % | | | - | | - | | | | | | | |
| 31 | Tota Coliform | MPN/100 ml | | | 4900 | | 28000 | | | | | | | |
| 32 | Fecal Coliform | | | | 1400 | | 4000 | | | | | | | |
| 33 | E. Coli | | | | - | | - | | | | | | | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 3.960 | | 0.310 | | | | | | | |
| 35 | Cadmium | | | | 0.025 | | 0.300 | | | | | | | |
| 36 | Chromium | | | | 0.360 | | 3.760 | | | | | | | |
| 37 | Copper | | | | 2.500 | | 1.750 | | | | | | | |
| 38 | Iron | mg/l | | | 0.024 | | 0.600 | | | | | | | |
| 39 | Lead | µg/L | | | 0.180 | | 2.260 | | | | | | | |
| 40 | Nickel | | | | 0.090 | | 7.200 | | | | | | | |
| 41 | Zinc | mg/l | | | 0.003 | | 0.079 | | | | | | | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | | | 75 | | 75 | | | | | | | |
| 43 | Tot-Hardness | | | | 111 | | 150 | | | | | | | |
| 44 | Na% | % | | | 17 | | 25 | | | | | | | |
| 45 | RSC (-) | | | | -0.95 | | -0.70 | | | | | | | |
| 46 | SAR (-) | | | | 0.44 | | 0.85 | | | | | | | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

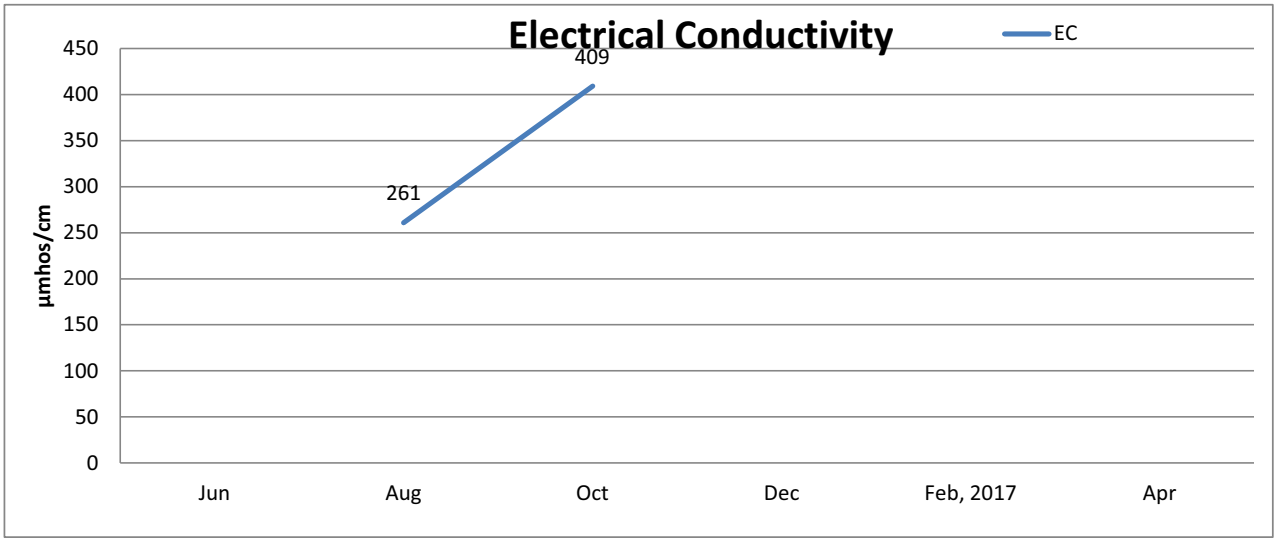
# RIVER WATER SUMMARY - 2016-2017

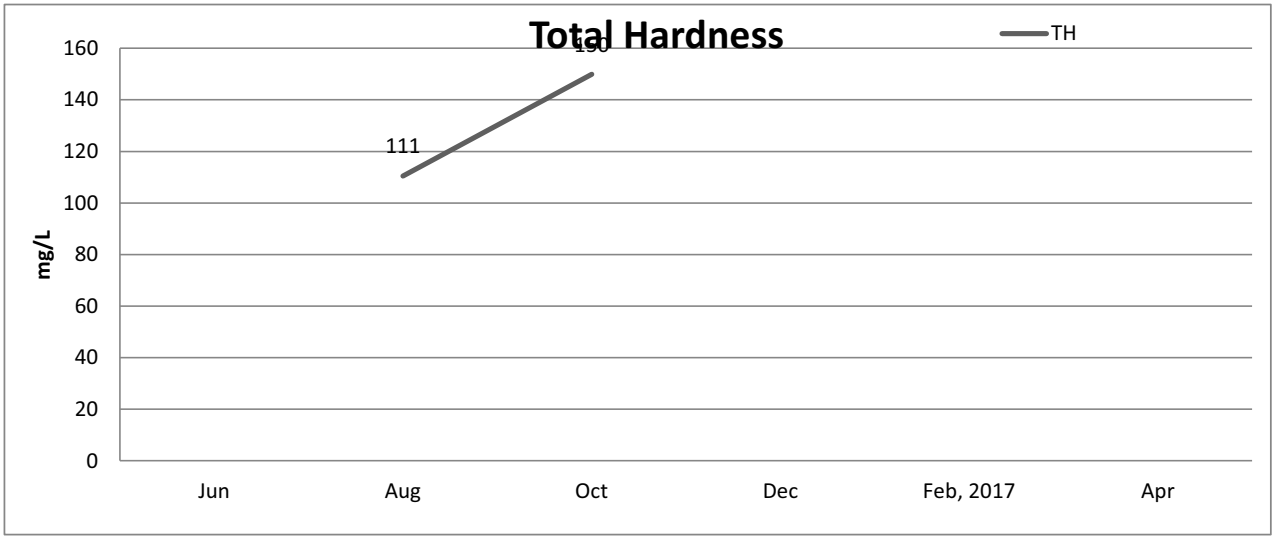
**Station Name : AKLERA** **Division : CD, Jaipur**

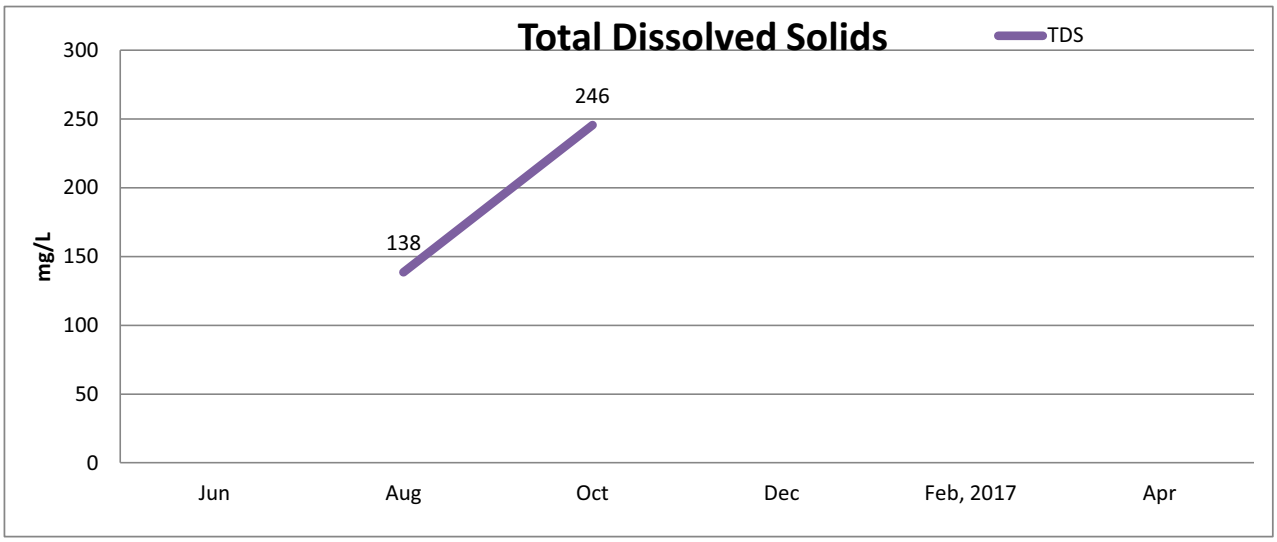
**Local River : Parwan**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | - | 8.44 | 8.13 | 8.29 | 8.29 | - | - |
| EC_GEN (µmho/cm) | 2 | 409 | 261 | 335 | 335 | - | - |
| Total Dissolved Solids | | 246 | 138 | 192 | 192 | - | - |
| Turbiidity | 2 | 66.5 | 5.8 | 36.2 | 36.2 | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 2 | 7.56 | 3.78 | 5.67 | 5.67 | - | - |
| Alk-Tot (as $CaCO_3$) | 2 | 116.70 | 64.11 | 90.40 | 90.40 | - | - |
| Boron | 1 | 0.06 | 0.06 | 0.06 | 0.06 | - | - |
| Calcium | 2 | 30.10 | 29.90 | 30.00 | 30.00 | - | - |
| Chloride | 2 | 34.44 | 30.41 | 32.42 | 32.42 | - | - |
| Carbonate | 2 | 9.07 | 4.54 | 6.80 | 6.80 | - | - |
| Fluoride | 2 | 0.23 | 0.23 | 0.23 | 0.23 | - | - |
| Bicarbonate | 2 | 121.90 | 67.86 | 94.88 | 94.88 | - | - |
| Potassium | 2 | 2.20 | 2.18 | 2.2 | 2.19 | - | - |
| Magnesium | 2 | 18.03 | 8.46 | 13.24 | 13.24 | - | - |
| Sodium | 2 | 23.81 | 10.62 | 17.22 | 17.22 | - | - |
| Ammonia as N | 2 | 0.08 | 0.01 | 0.05 | 0.05 | - | - |
| $NO_2$+$NO_3$ as N | 2 | 1.67 | 0.54 | 1.11 | 1.11 | - | - |
| Nitrite as N | 2 | 0.09 | 0.07 | 0.08 | 0.08 | - | - |
| Nitrate as N | 2 | 1.60 | 0.45 | 1.03 | 1.03 | - | - |
| Tot. Phosphate as P | 2 | 0.12 | 0.07 | 0.09 | 0.09 | - | - |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 2 | 23.60 | 17.20 | 20.4 | 20.40 | - | - |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 2 | 2.94 | 0.80 | 1.87 | 1.87 | - | - |
| COD | 2 | 9 | 4 | 7 | 7 | - | - |
| Dissolved Oxygen | 2 | 5.20 | 4.95 | 5.08 | 5.08 | - | - |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 2 | 28000 | 4900 | 16450 | 16450 | - | - |
| Fecal Coliform | 2 | 4000 | 1400 | 2700 | 2700 | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 2 | 3.960 | 0.310 | 2.135 | 2.135 | - | - |
| Cadmium | 2 | 0.300 | 0.025 | 0.163 | 0.163 | - | - |
| Chromium | 2 | 3.760 | 0.360 | 2.060 | 2.060 | - | - |
| Copper | 2 | 2.500 | 1.750 | 2.125 | 2.125 | - | - |
| Iron | 2 | 0.600 | 0.024 | 0.312 | 0.312 | - | - |
| Lead | 2 | 2.260 | 0.180 | 1.220 | 1.220 | - | - |
| Nickel | 2 | 7.200 | 0.090 | 3.645 | 3.645 | - | - |
| Zinc | 2 | 0.079 | 0.003 | 0.041 | 0.041 | - | - |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 2 | 75 | 75 | 75 | 75 | - | - |
| Tot-Hardness | 2 | 150 | 111 | 130 | 130 | - | - |
| Na% | 2 | 25 | 17 | 21 | 21 | - | - |
| RSC (-) | 2 | -0.70 | -0.95 | -0.82 | -0.82 | - | - |
| SAR (-) | 2 | 0.85 | 0.44 | 0.64 | 0.64 | - | - |
| **PESTICIDES** | | | | | | | |

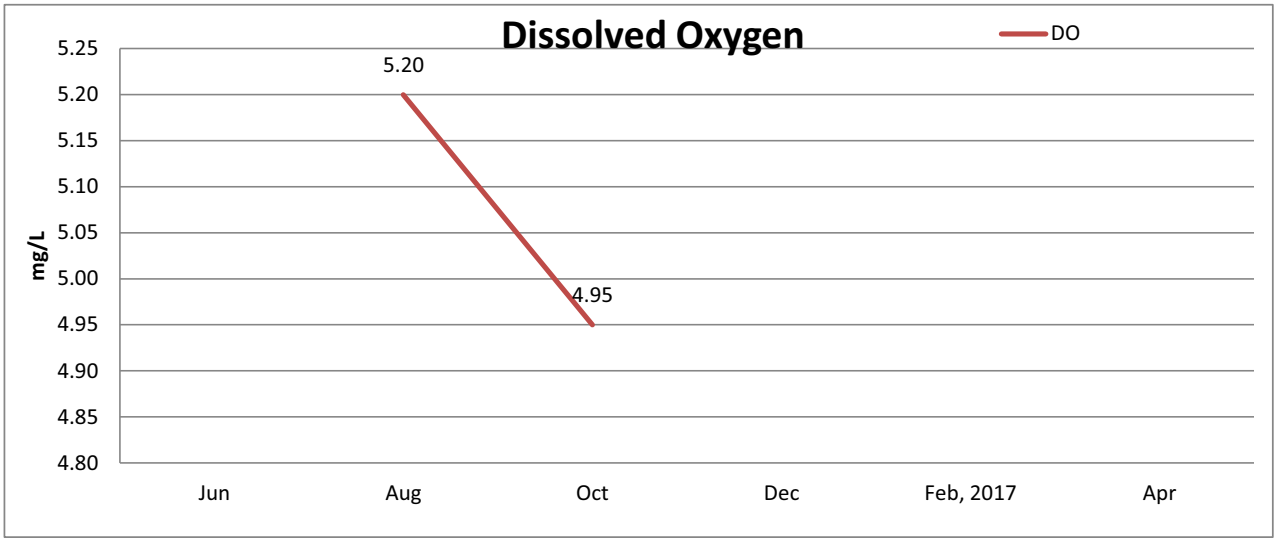
**Graphical Presentation of AKLERA WQ Site**

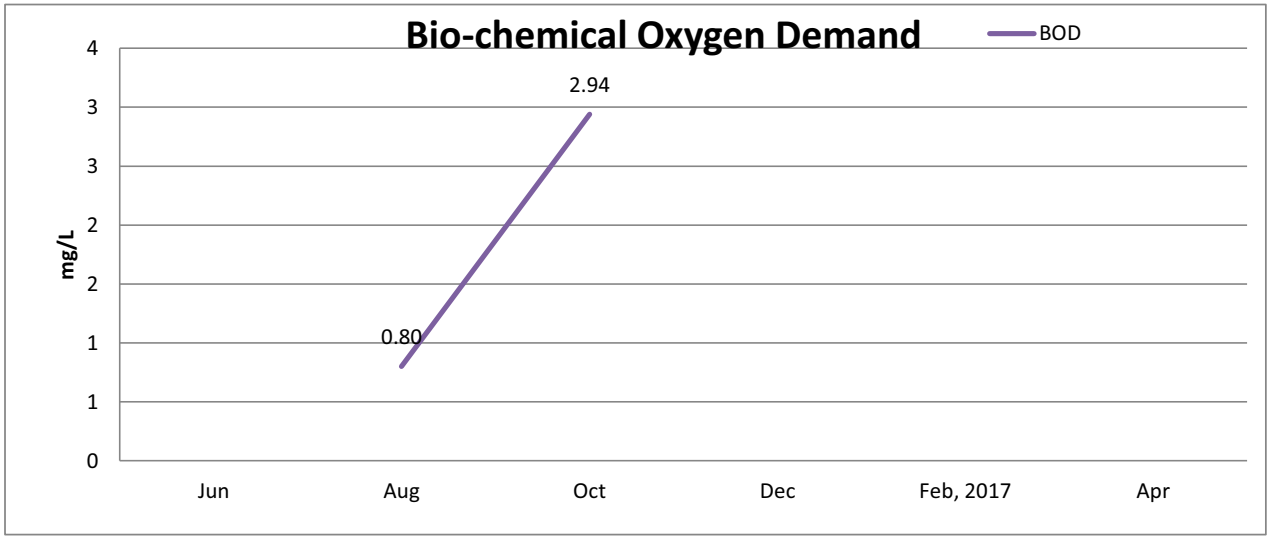


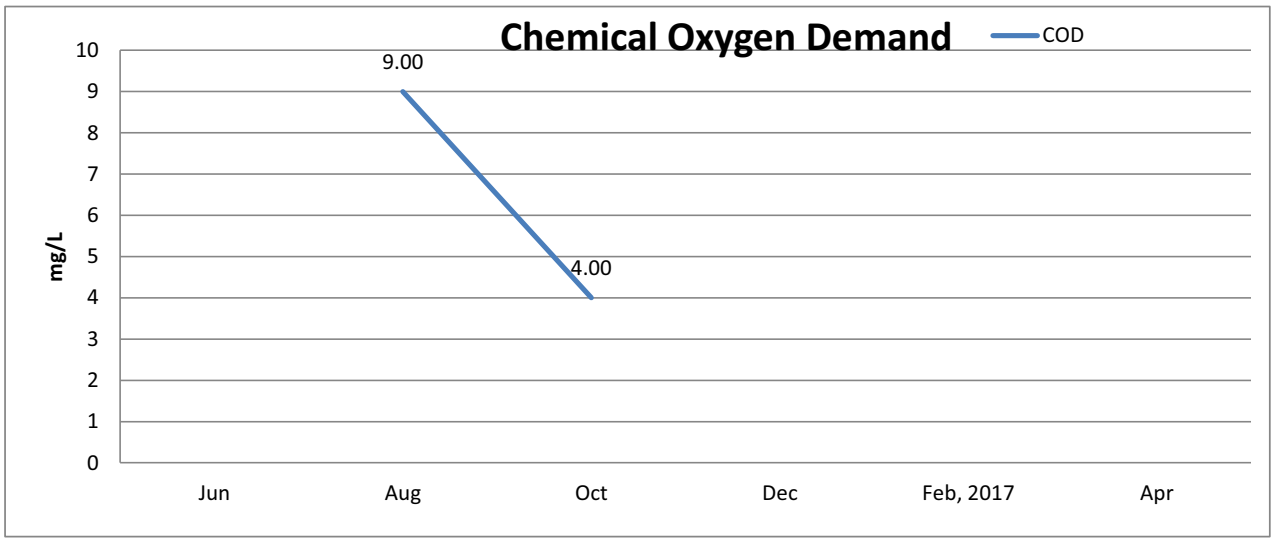



**Graphical Presentation of AKLERA WQ Site**



# SANGOD

## General Particulars

| | | | |
|---|---|---|---|
| Site | :***Sangod*** | Code | : **GYP61D3** |
| State | : **Rajasthan** | District | : **Kota** |
| Division | : **Chambal Div., Jaipur** | Sub-Division | : **Kota** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **Chambal** |
| Sub-Sub-Trib. | : **Parwan** | Local River | : **Parwan** |
| Drainage Area | : **9288 Sq. Km.** | Bank | : **Left** |
| Latitude | : **24°58'00"N** | Longitude | : **76°17'00"E** |
| Zero of Gauge | : **235.000M (GTS)** | Bank | : **Left Bank** |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **26/10/1970** |
| Discharge: | : **26/10/1970** |
| Sediment | : **-** |
| Water Quality | : **01/01/1978** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : SANGOD** **Division : CD, Jaipur**

**Local River : Parwan**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | | | 01/08/16 | | | | | | | | | |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | | | Cloudy | | | | | | | | | |
| 2 | Colour_Cod (-) | | | | Colourless | | | | | | | | | |
| 3 | Odour_Code (-) | | | | Odourless | | | | | | | | | |
| 4 | Temperature | °C | | | - | | | | | | | | | |
| 5 | pH_GEN (pH units) | | | | 8.07 | | | | | | | | | |
| 6 | EC_GEN (µmho/cm) | NTU | | | 251 | | | | | | | | | |
| 7 | Total Dissolved Solids | mg/L | | | 133 | | | | | | | | | |
| 8 | Turbiidity | | | | 41.5 | | | | | | | | | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | | | 5.58 | | | | | | | | | |
| 10 | Alk-Tot (as $CaCO_3$) | | | | 95.16 | | | | | | | | | |
| 11 | Boron | | | | 0.12 | | | | | | | | | |
| 12 | Calcium | | | | 30.41 | | | | | | | | | |
| 13 | Chloride | | | | 17.04 | | | | | | | | | |
| 14 | Carbonate | | | | 6.70 | | | | | | | | | |
| 15 | Fluoride | | | | 0.22 | | | | | | | | | |
| 16 | Bicarbonate | | | | 100.80 | | | | | | | | | |
| 17 | Potassium | | | | 1.93 | | | | | | | | | |
| 18 | Magnesium | | | | 6.65 | | | | | | | | | |
| 19 | Sodium | | | | 8.83 | | | | | | | | | |
| 20 | Ammonia as N | | | | 0.01 | | | | | | | | | |
| 21 | $NO_2$+$NO_3$ as N | | | | 0.78 | | | | | | | | | |
| 22 | Nitrite as N | | | | 0.08 | | | | | | | | | |
| 23 | Nitrate as N | | | | 0.70 | | | | | | | | | |
| 24 | Tot. Phosphate as P | | | | 0.05 | | | | | | | | | |
| 25 | Silicate as $SiO_2$ | | | | - | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | | | 15.60 | | | | | | | | | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | | | 6.77 | | | | | | | | | |
| 28 | COD | | | | 26 | | | | | | | | | |
| 29 | Dissolved Oxygen | | | | 3.08 | | | | | | | | | |
| 30 | DO_SAT % | % | | | - | | | | | | | | | |
| 31 | Tota Coliform | MPN/100 ml | | | 22000 | | | | | | | | | |
| 32 | Fecal Coliform | | | | 2100 | | | | | | | | | |
| 33 | E. Coli | | | | - | | | | | | | | | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 0.900 | | | | | | | | | |
| 35 | Cadmium | | | | 0.019 | | | | | | | | | |
| 36 | Chromium | | | | 0.070 | | | | | | | | | |
| 37 | Copper | | | | 1.400 | | | | | | | | | |
| 38 | Iron | mg/l | | | 0.013 | | | | | | | | | |
| 39 | Lead | µg/L | | | 0.220 | | | | | | | | | |
| 40 | Nickel | | | | 28.770 | | | | | | | | | |
| 41 | Zinc | mg/l | | | 0.001 | | | | | | | | | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | | | 76 | | | | | | | | | |
| 43 | Tot-Hardness | | | | 104 | | | | | | | | | |
| 44 | Na% | % | | | 15 | | | | | | | | | |
| 45 | RSC (-) | | | | -0.20 | | | | | | | | | |
| 46 | SAR (-) | | | | 0.38 | | | | | | | | | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

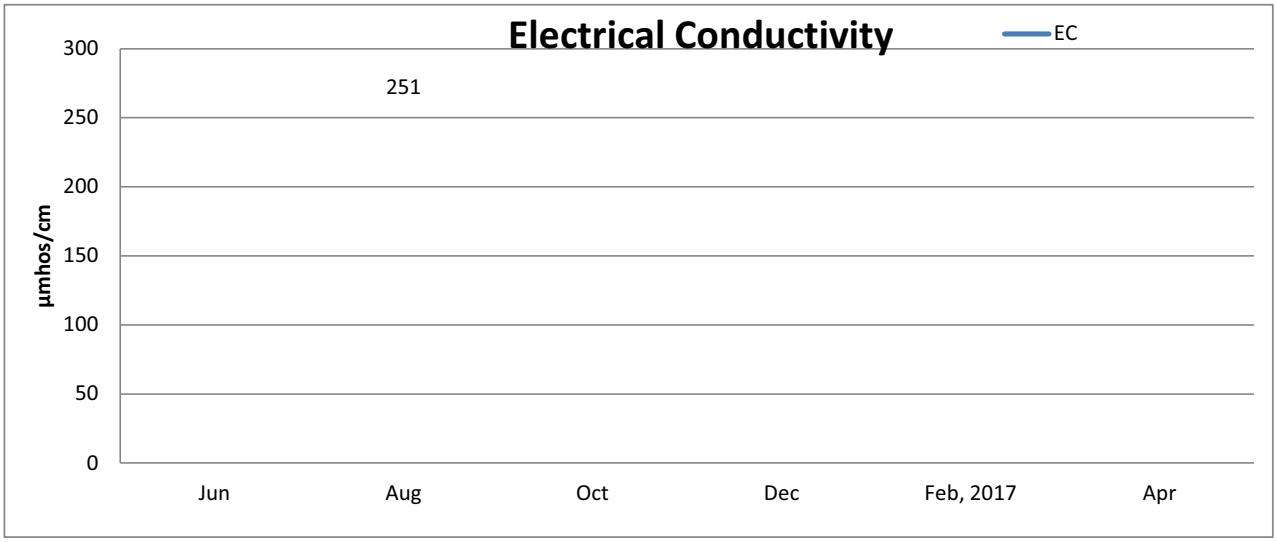
# RIVER WATER SUMMARY - 2016-2017

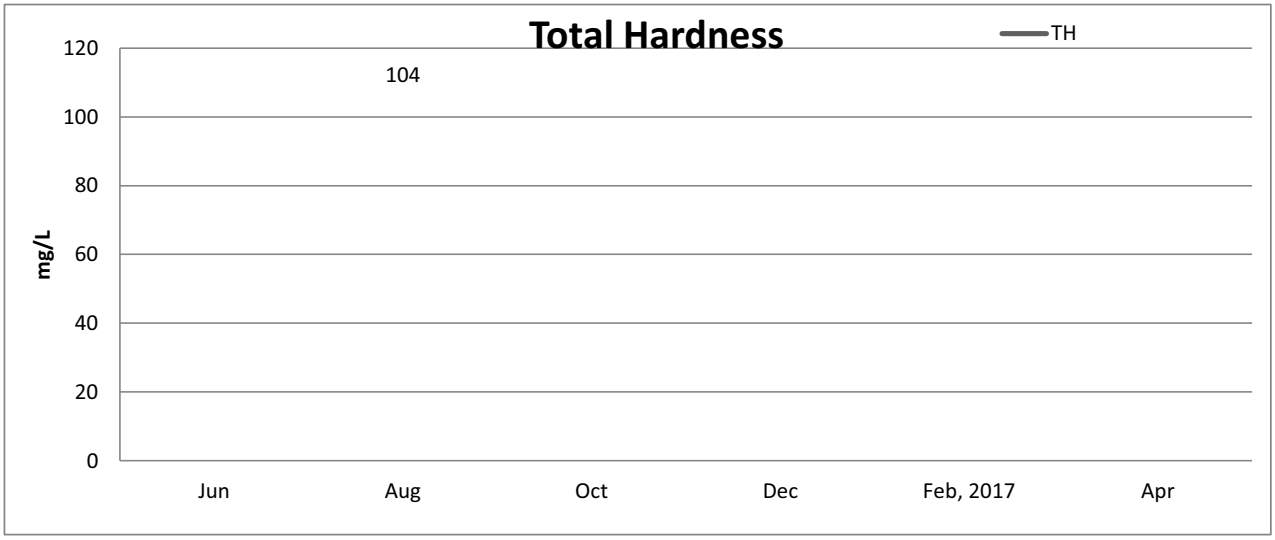
**Station Name : SANGOD** **Division : CD, Jaipur**

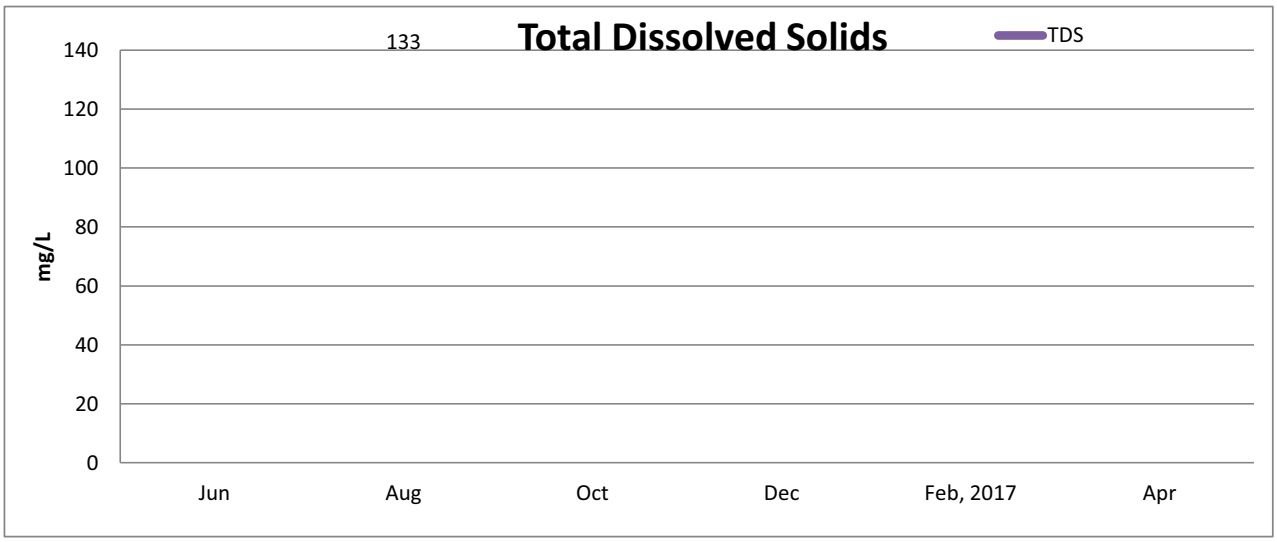
**Local River : Parwan**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 1 | 8.07 | 8.07 | 8.07 | 8.07 | - | - |
| EC_GEN (µmho/cm) | 1 | 251 | 251 | 251 | 251 | - | - |
| Total Dissolved Solids | 1 | 133 | 133 | 133 | 133 | - | - |
| Turbiidity | 1 | 41.5 | 41.5 | 41.5 | 41.5 | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 1 | 5.58 | 5.58 | 5.58 | 5.58 | - | - |
| Alk-Tot (as $CaCO_3$) | 1 | 95.16 | 95.16 | 95.16 | 95.16 | - | - |
| Boron | 1 | 0.12 | 0.12 | 0.12 | 0.12 | - | - |
| Calcium | 1 | 30.41 | 30.41 | 30.41 | 30.41 | - | - |
| Chloride | 1 | 17.04 | 17.04 | 17.04 | 17.04 | - | - |
| Carbonate | 1 | 6.70 | 6.70 | 6.70 | 6.70 | - | - |
| Fluoride | 1 | 0.22 | 0.22 | 0.22 | 0.22 | - | - |
| Bicarbonate | 1 | 100.80 | 100.80 | 100.80 | 100.80 | - | - |
| Potassium | 1 | 1.93 | 1.93 | 1.9 | 1.93 | - | - |
| Magnesium | 1 | 6.65 | 6.65 | 6.65 | 6.65 | - | - |
| Sodium | 1 | 8.83 | 8.83 | 8.83 | 8.83 | - | - |
| Ammonia as N | 1 | 0.01 | 0.01 | 0.01 | 0.01 | - | - |
| $NO_2$+$NO_3$ as N | 1 | 0.78 | 0.78 | 0.78 | 0.78 | - | - |
| Nitrite as N | 1 | 0.08 | 0.08 | 0.08 | 0.08 | - | - |
| Nitrate as N | 1 | 0.70 | 0.70 | 0.70 | 0.70 | - | - |
| Tot. Phosphate as P | 1 | 0.05 | 0.05 | 0.05 | 0.05 | - | - |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 1 | 15.60 | 15.60 | 15.6 | 15.60 | - | - |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 1 | 6.77 | 6.77 | 6.77 | 6.77 | - | - |
| COD | 1 | 26 | 26 | 26 | 26 | - | - |
| Dissolved Oxygen | 1 | 3.08 | 3.08 | 3.08 | 3.08 | - | - |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 1 | 22000 | 22000 | 22000 | 22000 | - | - |
| Fecal Coliform | 1 | 2100 | 2100 | 2100 | 2100 | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 1 | 0.900 | 0.900 | 0.900 | 0.900 | - | - |
| Cadmium | 1 | 0.019 | 0.019 | 0.019 | 0.019 | - | - |
| Chromium | 1 | 0.070 | 0.070 | 0.070 | 0.070 | - | - |
| Copper | 1 | 1.400 | 1.400 | 1.400 | 1.400 | - | - |
| Iron | 1 | 0.013 | 0.013 | 0.013 | 0.013 | - | - |
| Lead | 1 | 0.220 | 0.220 | 0.220 | 0.220 | - | - |
| Nickel | 1 | 28.770 | 28.770 | 28.770 | 28.770 | - | - |
| Zinc | 1 | 0.001 | 0.001 | 0.001 | 0.001 | - | - |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 1 | 76 | 76 | 76 | 76 | - | - |
| Tot-Hardness | 1 | 104 | 104 | 104 | 104 | - | - |
| Na% | 1 | 15 | 15 | 15 | 15 | - | - |
| RSC (-) | 1 | -0.20 | -0.20 | -0.20 | -0.20 | - | - |
| SAR (-) | 1 | 0.38 | 0.38 | 0.38 | 0.38 | - | - |
| **PESTICIDES** | | | | | | | |

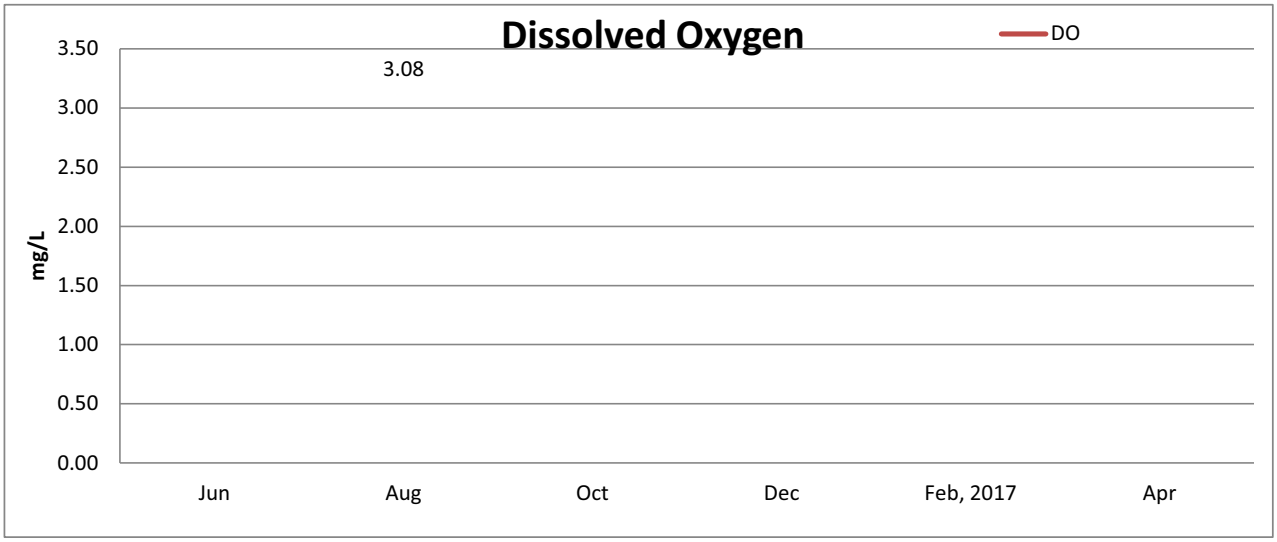
**Graphical Presentation of SANGOD WQ Site**

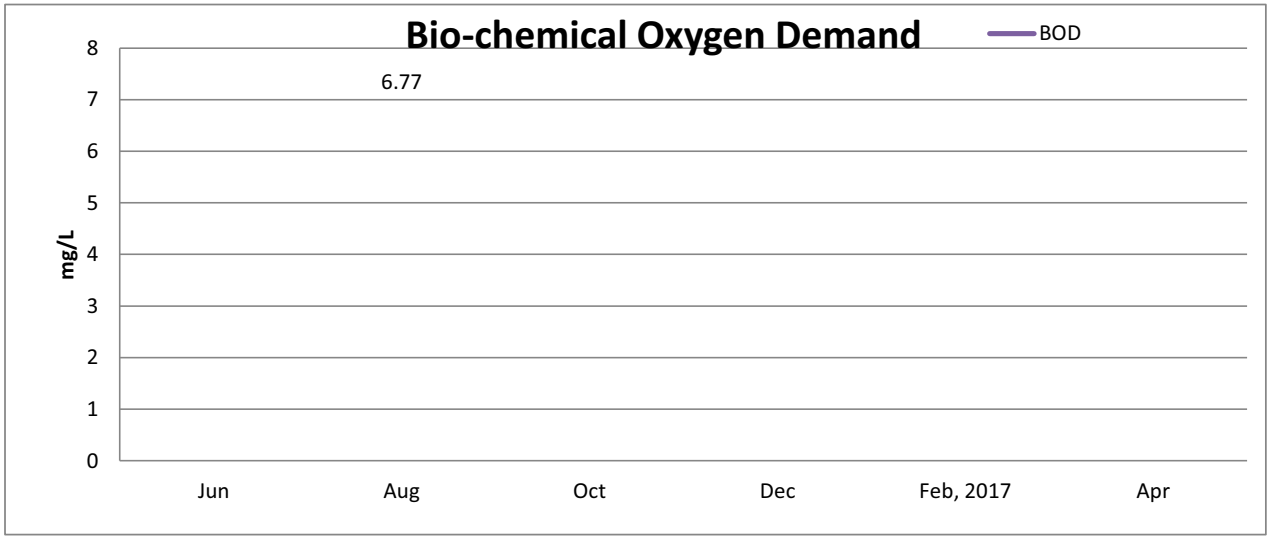


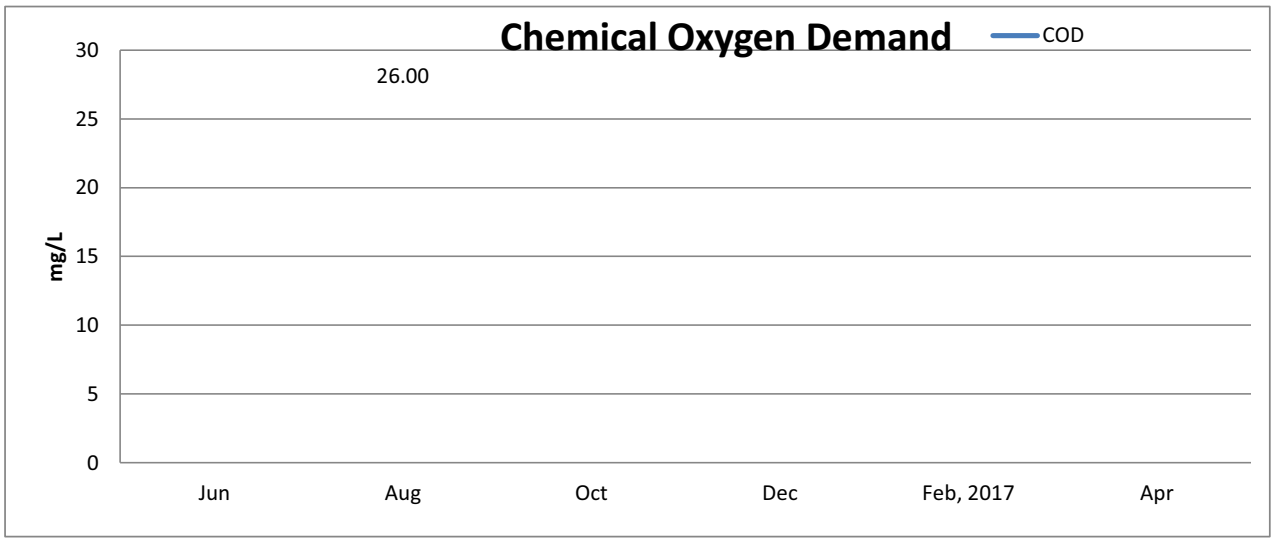



**Graphical Presentation of SANGOD WQ Site**



# UJJAIN

## General Particulars

| | | | |
|---|---|---|---|
| Site | : **Ujjain** | Code | : **GYP30A6** |
| State | : **Rajasthan** | District | : **Ujjain** |
| Division | : **Chambal Div., Jaipur** | Sub-Division | : **-** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **Chambal** |
| Sub-Sub-Trib. | : **Shipra** | Local River | : **Shipra** |
| Drainage Area | : **2070 Sq. Km.** | Bank | : **Left** |
| Latitude | : **23°10'06"N** | Longitude | : **75°46'16"E** |
| Zero of Gauge | : **-** | Bank | : **Left Bank** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : Ujjain** **Division : CD, Jaipur**

**Local River : Spira**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | | | 01/08/16 | | 03/10/16 | | | | | | | |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | | | Cloudy | | Clear | | | | | | | |
| 2 | Colour_Cod (-) | | | | Colourless | | Colourless | | | | | | | |
| 3 | Odour_Code (-) | | | | Odourless | | Odourless | | | | | | | |
| 4 | Temperature | °C | | | - | | - | | | | | | | |
| 5 | pH_GEN (pH units) | | | | 7.80 | | 8.04 | | | | | | | |
| 6 | EC_GEN (µmho/cm) | NTU | | | 616 | | 994 | | | | | | | |
| 7 | Total Dissolved Solids | mg/L | | | 370 | | 597 | | | | | | | |
| 8 | Turbiidity | | | | 66.7 | | 8.17 | | | | | | | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | | | 0.00 | | 0.00 | | | | | | | |
| 10 | Alk-Tot (as $CaCO_3$) | | | | 140.32 | | 218.25 | | | | | | | |
| 11 | Boron | | | | | | 0.21 | | | | | | | |
| 12 | Calcium | | | | 39.92 | | 48.70 | | | | | | | |
| 13 | Chloride | | | | 68.16 | | 116.09 | | | | | | | |
| 14 | Carbonate | | | | 0.00 | | 0.00 | | | | | | | |
| 15 | Fluoride | | | | 0.32 | | 0.34 | | | | | | | |
| 16 | Bicarbonate | | | | 168.38 | | 261.90 | | | | | | | |
| 17 | Potassium | | | | 8.54 | | 6.08 | | | | | | | |
| 18 | Magnesium | | | | 21.00 | | 23.84 | | | | | | | |
| 19 | Sodium | | | | 47.72 | | 96.75 | | | | | | | |
| 20 | Ammonia as N | | | | 3.30 | | 3.01 | | | | | | | |
| 21 | $NO_2$+$NO_3$ as N | | | | 2.64 | | 3.50 | | | | | | | |
| 22 | Nitrite as N | | | | 0.75 | | 2.03 | | | | | | | |
| 23 | Nitrate as N | | | | 1.89 | | 1.47 | | | | | | | |
| 24 | Tot. Phosphate as P | | | | 2.49 | | 2.79 | | | | | | | |
| 25 | Silicate as $SiO_2$ | | | | - | | - | | | | | | | |
| 26 | Sulphate as $SO_4$ | | | | 52.20 | | 56.80 | | | | | | | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | | | 3.79 | | 10.43 | | | | | | | |
| 28 | COD | | | | 19 | | 21 | | | | | | | |
| 29 | Dissolved Oxygen | | | | 4.02 | | 1.45 | | | | | | | |
| 30 | DO_SAT % | % | | | - | | - | | | | | | | |
| 31 | Tota Coliform | MPN/100 ml | | | 4600 | | 7000 | | | | | | | |
| 32 | Fecal Coliform | | | | 680 | | 2200 | | | | | | | |
| 33 | E. Coli | | | | - | | - | | | | | | | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 0.000 | | 0.680 | | | | | | | |
| 35 | Cadmium | | | | 0.017 | | 0.055 | | | | | | | |
| 36 | Chromium | | | | 1.520 | | 1.490 | | | | | | | |
| 37 | Copper | | | | 2.230 | | 5.970 | | | | | | | |
| 38 | Iron | mg/l | | | 0.025 | | 0.053 | | | | | | | |
| 39 | Lead | µg/L | | | 0.200 | | 0.920 | | | | | | | |
| 40 | Nickel | | | | 20.490 | | 64.420 | | | | | | | |
| 41 | Zinc | mg/l | | | 0.001 | | 0.003 | | | | | | | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | | | 100 | | 122 | | | | | | | |
| 43 | Tot-Hardness | | | | 187 | | 221 | | | | | | | |
| 44 | Na% | % | | | 34 | | 48 | | | | | | | |
| 45 | RSC (-) | | | | -0.99 | | -0.13 | | | | | | | |
| 46 | SAR (-) | | | | 1.52 | | 2.83 | | | | | | | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

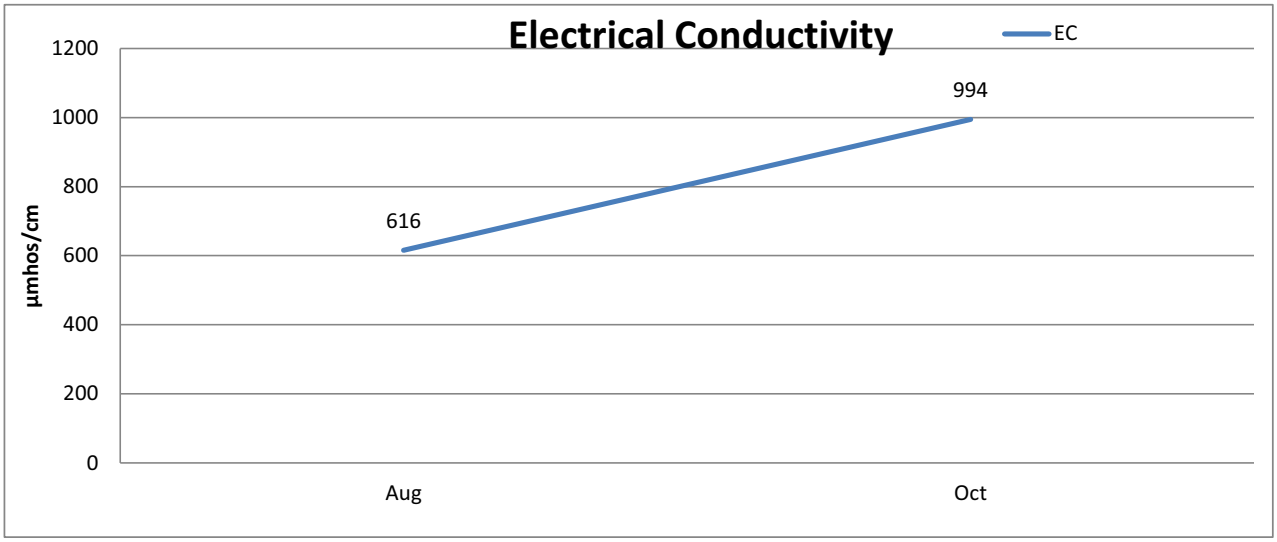
# RIVER WATER SUMMARY - 2016-2017

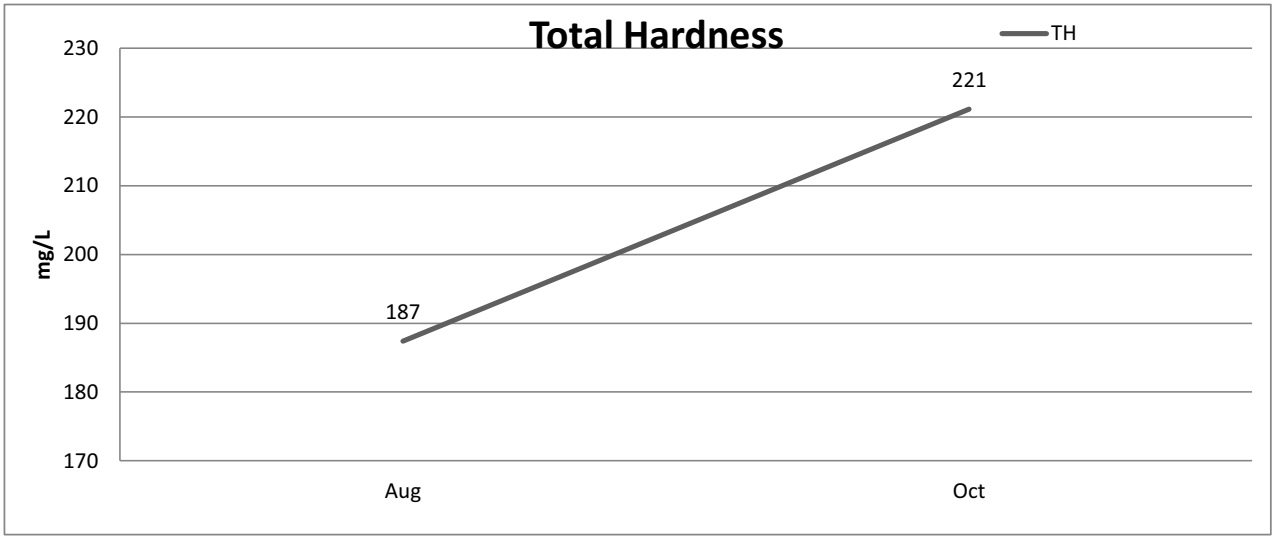
**Station Name : Ujjain** **Division : CD, Jaipur**

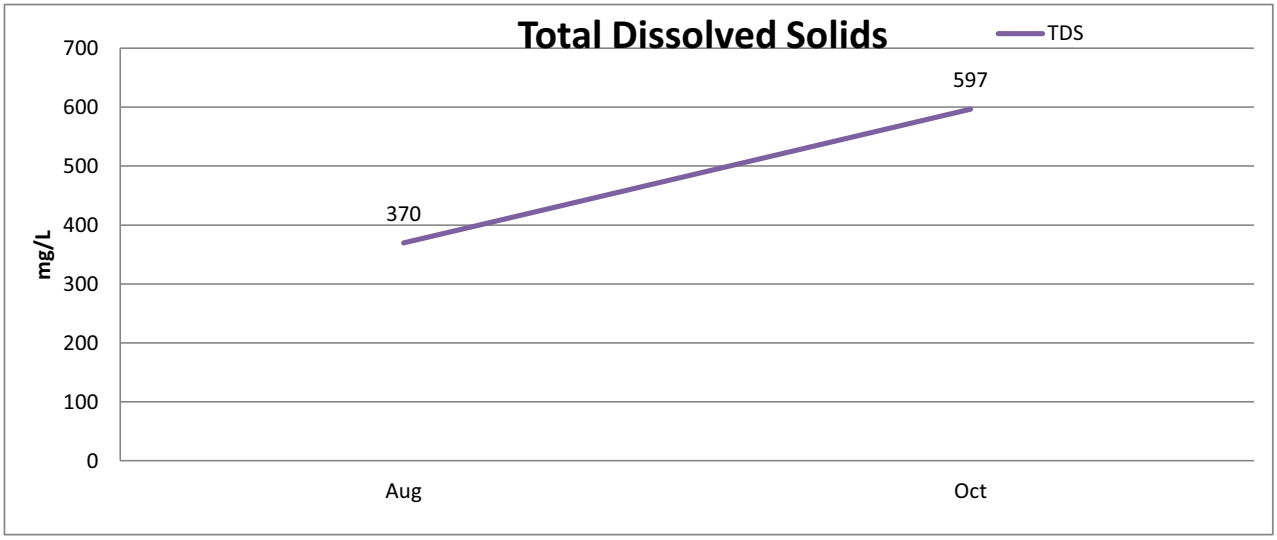
**Local River : Spira**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 2 | 8.04 | 7.80 | 7.92 | 7.92 | - | - |
| EC_GEN (µmho/cm) | 2 | 994 | 616 | 805 | 805 | - | - |
| Total Dissolved Solids | 2 | 597 | 370 | 483 | 483 | - | - |
| Turbiidity | 2 | 66.7 | 8.2 | 37.4 | 37.4 | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 2 | 0.00 | 0.00 | 0.00 | 0.00 | - | - |
| Alk-Tot (as $CaCO_3$) | 2 | 218.25 | 140.32 | 179.29 | 179.29 | - | - |
| Boron | 1 | 0.21 | 0.21 | 0.21 | 0.21 | - | - |
| Calcium | 2 | 48.70 | 39.92 | 44.31 | 44.31 | - | - |
| Chloride | 2 | 116.09 | 68.16 | 92.12 | 92.12 | - | - |
| Carbonate | 2 | 0.00 | 0.00 | 0.00 | 0.00 | - | - |
| Fluoride | 2 | 0.34 | 0.32 | 0.33 | 0.33 | - | - |
| Bicarbonate | 2 | 261.90 | 168.38 | 215.14 | 215.14 | - | - |
| Potassium | 2 | 8.54 | 6.08 | 7.3 | 7.31 | - | - |
| Magnesium | 2 | 23.84 | 21.00 | 22.42 | 22.42 | - | - |
| Sodium | 2 | 96.75 | 47.72 | 72.24 | 72.24 | - | - |
| Ammonia as N | 2 | 3.30 | 3.01 | 3.16 | 3.16 | - | - |
| $NO_2$+$NO_3$ as N | 2 | 3.50 | 2.64 | 3.07 | 3.07 | - | - |
| Nitrite as N | 2 | 2.03 | 0.75 | 1.39 | 1.39 | - | - |
| Nitrate as N | 2 | 1.89 | 1.47 | 1.68 | 1.68 | - | - |
| Tot. Phosphate as P | 2 | 2.79 | 2.49 | 2.64 | 2.64 | - | - |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 2 | 56.80 | 52.20 | 54.5 | 54.50 | - | - |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 2 | 10.43 | 3.79 | 7.11 | 7.11 | - | - |
| COD | 2 | 21 | 19 | 20 | 20 | - | - |
| Dissolved Oxygen | 2 | 4.02 | 1.45 | 2.74 | 2.74 | - | - |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 2 | 7000 | 4600 | 5800 | 5800 | - | - |
| Fecal Coliform | 2 | 2200 | 680 | 1440 | 1440 | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 2 | 0.680 | 0.000 | 0.340 | 0.340 | - | - |
| Cadmium | 2 | 0.055 | 0.017 | 0.036 | 0.036 | - | - |
| Chromium | 2 | 1.520 | 1.490 | 1.505 | 1.505 | - | - |
| Copper | 2 | 5.970 | 2.230 | 4.100 | 4.100 | - | - |
| Iron | 2 | 0.053 | 0.025 | 0.039 | 0.039 | - | - |
| Lead | 2 | 0.920 | 0.200 | 0.560 | 0.560 | - | - |
| Nickel | 2 | 64.420 | 20.490 | 42.455 | 42.455 | - | - |
| Zinc | 2 | 0.003 | 0.001 | 0.002 | 0.002 | - | - |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 2 | 122 | 100 | 111 | 111 | - | - |
| Tot-Hardness | 2 | 221 | 187 | 204 | 204 | - | - |
| Na% | 2 | 48 | 34 | 41 | 41 | - | - |
| RSC (-) | 2 | -0.13 | -0.99 | -0.56 | -0.56 | - | - |
| SAR (-) | 2 | 2.83 | 1.52 | 2.17 | 2.17 | - | - |
| **PESTICIDES** | | | | | | | |

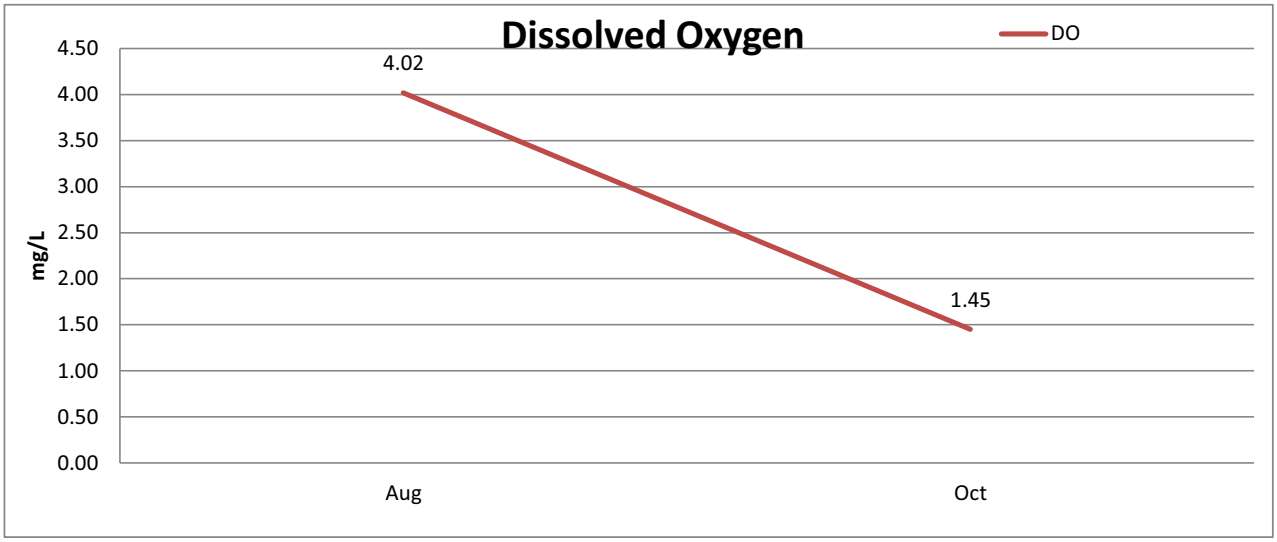
**Graphical Presentation of UJJAIN WQ Site**

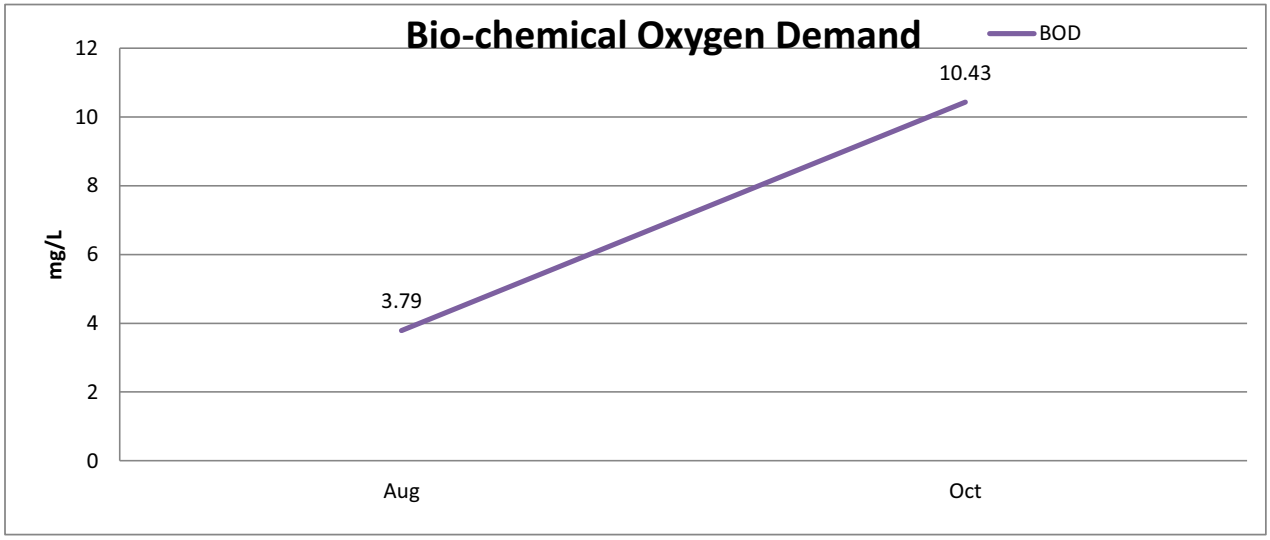


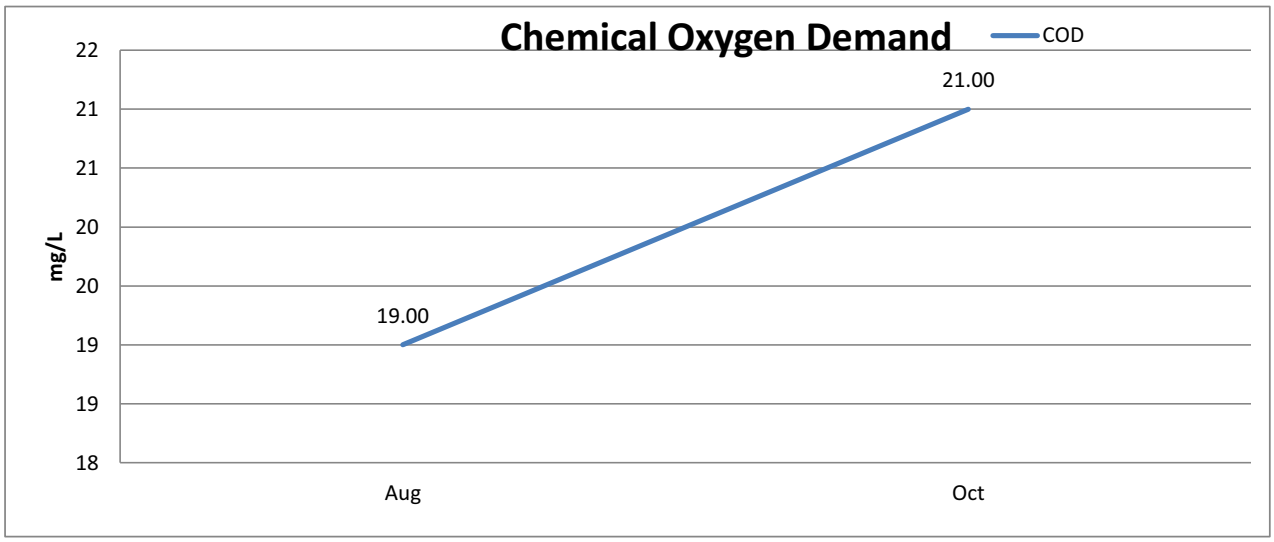



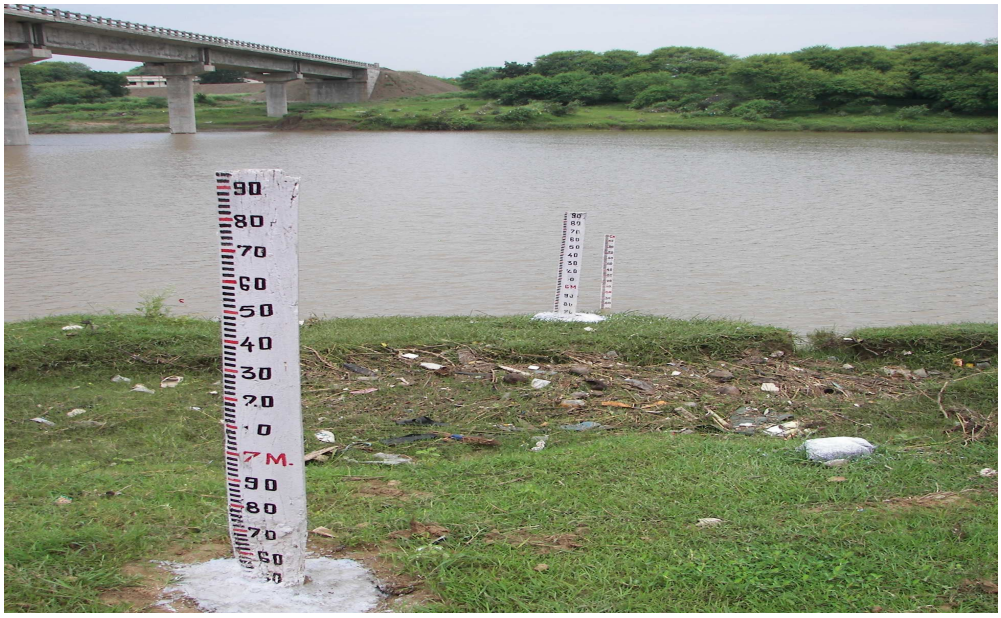
**Graphical Presentation of UJJAIN WQ Site**



# MAHIDPUR




## General Particulars

| | | | |
|---|---|---|---|
| Site | : **MAHIDPUR** | Code | : **GYP8OI5** |
| State | : **Madhya Pradesh** | District | : **Ujjin** |
| Division | : **Chambal Div., Jaipur** | Sub-Division | : **U Chambal SD, Indore** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **Spira** |
| Sub-Sub-Trib. | : **Chambal** | Local River | : **Chambal** |
| Drainage Area | : **4430 Sq. Km.** | Bank | : **Left** |
| Latitude | : **23°29'00"N** | Longitude | : **75°36'00" E** |
| Zero of Gauge | : **442.000(m.s.l)** | | |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **15/01/1976** |
| Discharge: | : **15/01/1976** |
| Sediment | : **25/09/1978** |
| Water Quality | : **02/01/1978** |
| Wireless | : **-** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : MAHIDPUR** **Division : CD, Jaipur**

**Local River : Spira**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | | | 01/08/16 | | | | | | | | | |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | | | Cloudy | | | | | | | | | |
| 2 | Colour_Cod (-) | | | | Colourless | | | | | | | | | |
| 3 | Odour_Code (-) | | | | Odourless | | | | | | | | | |
| 4 | Temperature | °C | | | - | | | | | | | | | |
| 5 | pH_GEN (pH units) | | | | 7.62 | | | | | | | | | |
| 6 | EC_GEN (µmho/cm) | NTU | | | 296 | | | | | | | | | |
| 7 | Total Dissolved Solids | mg/L | | | 159 | | | | | | | | | |
| 8 | Turbiidity | | | | 167 | | | | | | | | | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | | | 0.00 | | | | | | | | | |
| 10 | Alk-Tot (as $CaCO_3$) | | | | 77.11 | | | | | | | | | |
| 11 | Boron | | | | 0.11 | | | | | | | | | |
| 12 | Calcium | | | | 23.44 | | | | | | | | | |
| 13 | Chloride | | | | 26.33 | | | | | | | | | |
| 14 | Carbonate | | | | 0.00 | | | | | | | | | |
| 15 | Fluoride | | | | 0.33 | | | | | | | | | |
| 16 | Bicarbonate | | | | 92.54 | | | | | | | | | |
| 17 | Potassium | | | | 3.90 | | | | | | | | | |
| 18 | Magnesium | | | | 10.45 | | | | | | | | | |
| 19 | Sodium | | | | 18.81 | | | | | | | | | |
| 20 | Ammonia as N | | | | 0.01 | | | | | | | | | |
| 21 | $NO_2$+$NO_3$ as N | | | | 3.86 | | | | | | | | | |
| 22 | Nitrite as N | | | | 1.13 | | | | | | | | | |
| 23 | Nitrate as N | | | | 2.73 | | | | | | | | | |
| 24 | Tot. Phosphate as P | | | | 0.84 | | | | | | | | | |
| 25 | Silicate as $SiO_2$ | | | | | | | | | | | | | |
| 26 | Sulphate as $SO_4$ | | | | 18.00 | | | | | | | | | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | | | 3.36 | | | | | | | | | |
| 28 | COD | | | | 15 | | | | | | | | | |
| 29 | Dissolved Oxygen | | | | 4.49 | | | | | | | | | |
| 30 | DO_SAT % | % | | | - | | | | | | | | | |
| 31 | Tota Coliform | MPN/100 ml | | | 28000 | | | | | | | | | |
| 32 | Fecal Coliform | | | | 2200 | | | | | | | | | |
| 33 | E. Coli | | | | - | | | | | | | | | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 0.340 | | | | | | | | | |
| 35 | Cadmium | | | | 0.000 | | | | | | | | | |
| 36 | Chromium | | | | 0.000 | | | | | | | | | |
| 37 | Copper | | | | 1.510 | | | | | | | | | |
| 38 | Iron | mg/l | | | 0.024 | | | | | | | | | |
| 39 | Lead | µg/L | | | 0.270 | | | | | | | | | |
| 40 | Nickel | | | | 0.960 | | | | | | | | | |
| 41 | Zinc | mg/l | | | 0.002 | | | | | | | | | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | | | 59 | | | | | | | | | |
| 43 | Tot-Hardness | | | | 102 | | | | | | | | | |
| 44 | Na% | % | | | 28 | | | | | | | | | |
| 45 | RSC (-) | | | | -0.53 | | | | | | | | | |
| 46 | SAR (-) | | | | 0.81 | | | | | | | | | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

# RIVER WATER SUMMARY - 2016-2017

**Station Name : MAHIDPUR** **Division : CD, Jaipur**

**Local River : Spira**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 1 | 7.62 | 7.62 | 7.62 | 7.62 | - | - |
| EC_GEN (µmho/cm) | 1 | 296 | 296 | 296 | 296 | - | - |
| Total Dissolved Solids | 1 | 159 | 159 | 159 | 159 | - | - |
| Turbiidity | 1 | 167 | 167 | 167 | 167 | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 1 | 0.00 | 0.00 | 0.00 | 0.00 | - | - |
| Alk-Tot (as $CaCO_3$) | 1 | 77.11 | 77.11 | 77.11 | 77.11 | - | - |
| Boron | 1 | 0.11 | 0.11 | 0.11 | 0.11 | - | - |
| Calcium | 1 | 23.44 | 23.44 | 23.44 | 23.44 | - | - |
| Chloride | 1 | 26.33 | 26.33 | 26.33 | 26.33 | - | - |
| Carbonate | 1 | 0.00 | 0.00 | 0.00 | 0.00 | - | - |
| Fluoride | 1 | 0.33 | 0.33 | 0.33 | 0.33 | - | - |
| Bicarbonate | 1 | 92.54 | 92.54 | 92.54 | 92.54 | - | - |
| Potassium | 1 | 3.90 | 3.90 | 3.9 | 3.90 | - | - |
| Magnesium | 1 | 10.45 | 10.45 | 10.45 | 10.45 | - | - |
| Sodium | 1 | 18.81 | 18.81 | 18.81 | 18.81 | - | - |
| Ammonia as N | 1 | 0.01 | 0.01 | 0.01 | 0.01 | - | - |
| $NO_2$+$NO_3$ as N | 1 | 3.86 | 3.86 | 3.86 | 3.86 | - | - |
| Nitrite as N | 1 | 1.13 | 1.13 | 1.13 | 1.13 | - | - |
| Nitrate as N | 1 | 2.73 | 2.73 | 2.73 | 2.73 | - | - |
| Tot. Phosphate as P | 1 | 0.84 | 0.84 | 0.84 | 0.84 | - | - |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 1 | 18.00 | 18.00 | 18.0 | 18.00 | - | - |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 1 | 3.36 | 3.36 | 3.36 | 3.36 | - | - |
| COD | 1 | 15 | 15 | 15 | 15 | - | - |
| Dissolved Oxygen | 1 | 4.49 | 4.49 | 4.49 | 4.49 | - | - |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 1 | 28000 | 28000 | 28000 | 28000 | - | - |
| Fecal Coliform | 1 | 2200 | 2200 | 2200 | 2200 | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 1 | 0.340 | 0.340 | 0.340 | 0.340 | - | - |
| Cadmium | 1 | 0.000 | 0.000 | 0.000 | 0.000 | - | - |
| Chromium | 1 | 0.000 | 0.000 | 0.000 | 0.000 | - | - |
| Copper | 1 | 1.510 | 1.510 | 1.510 | 1.510 | - | - |
| Iron | 1 | 0.024 | 0.024 | 0.024 | 0.024 | - | - |
| Lead | 1 | 0.270 | 0.270 | 0.270 | 0.270 | - | - |
| Nickel | 1 | 0.960 | 0.960 | 0.960 | 0.960 | - | - |
| Zinc | 1 | 0.002 | 0.002 | 0.002 | 0.002 | - | - |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 1 | 59 | 59 | 59 | 59 | - | - |
| Tot-Hardness | 1 | 102 | 102 | 102 | 102 | - | - |
| Na% | 1 | 28 | 28 | 28 | 28 | - | - |
| RSC (-) | 1 | -0.53 | -0.53 | -0.53 | -0.53 | - | - |
| SAR (-) | 1 | 0.81 | 0.81 | 0.81 | 0.81 | - | - |
| **PESTICIDES** | | | | | | | |

# BAROD


## General Particulars

| | | | |
|---|---|---|---|
| Site | :***Barod*** | Code | : **GYP60B2** |
| State | : **Rajasthan** | District | : **Kota** |
| Division | : **Chambal Div., Jaipur** | Sub-Division | : **Kota** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **Chambal** |
| Sub-Sub-Trib. | : **Kalisind** | Local River | : **Kalisind** |
| Drainage Area | : **24713 Sq. Km.** | Bank | : **Left** |
| Latitude | : **25°23'00"N** | Longitude | : **76°20'00"E** |
| Zero of Gauge | : **197.00M** | Bank | : **Left Bank** |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **05/09/1970** |
| Discharge: | : **01/11/1970** |
| Sediment | : **02/05/1979** |
| Water Quality | : **02/01/1978** |
| Wireless | : **23/05/1997** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : BAROD** **Division : CD, Jaipur**

**Local River : Kalisindh**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | | | 01/08/16 | | 03/10/16 | | 01/12/16 | | 01/02/17 | | | |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | | | Cloudy | | Clear | | Clear | | Clear | | | |
| 2 | Colour_Cod (-) | | | | Colourless | | Colourless | | Colourless | | Colourless | | | |
| 3 | Odour_Code (-) | | | | Odourless | | Odourless | | Odourless | | Odourless | | | |
| 4 | Temperature | °C | | | - | | - | | - | | - | | | |
| 5 | pH_GEN (pH units) | | | | 7.98 | | 8.55 | | 8.65 | | 8.49 | | | |
| 6 | EC_GEN (µmho/cm) | NTU | | | 264 | | 453 | | 512 | | 496 | | | |
| 7 | Total Dissolved Solids | mg/L | | | 146 | | 272 | | 307 | | 322 | | | |
| 8 | Turbiidity | | | | 202 | | 10 | | 19 | | 9 | | | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | | | 0.00 | | 7.56 | | 7.79 | | 0.00 | | | |
| 10 | Alk-Tot (as $CaCO_3$) | | | | 83.62 | | 129.90 | | 147.19 | | 153.52 | | | |
| 11 | Boron | | | | | | 0.10 | | 0.18 | | 0.37 | | | |
| 12 | Calcium | | | | 28.51 | | 33.46 | | 31.65 | | 48.64 | | | |
| 13 | Chloride | | | | 22.01 | | 32.31 | | 38.53 | | 51.69 | | | |
| 14 | Carbonate | | | | 0.00 | | 9.07 | | 9.35 | | 0.00 | | | |
| 15 | Fluoride | | | | 0.24 | | 0.26 | | 0.35 | | 0.37 | | | |
| 16 | Bicarbonate | | | | 100.34 | | 137.74 | | 157.94 | | 184.22 | | | |
| 17 | Potassium | | | | 3.27 | | 2.40 | | 2.94 | | 2.72 | | | |
| 18 | Magnesium | | | | 5.89 | | 17.69 | | 19.06 | | 17.36 | | | |
| 19 | Sodium | | | | 16.50 | | 32.94 | | 48.79 | | 30.12 | | | |
| 20 | Ammonia as N | | | | 0.01 | | 0.05 | | 0.31 | | 0.24 | | | |
| 21 | $NO_2$+$NO_3$ as N | | | | 0.91 | | 2.21 | | 2.22 | | 2.01 | | | |
| 22 | Nitrite as N | | | | 0.21 | | 0.07 | | 0.02 | | 0.05 | | | |
| 23 | Nitrate as N | | | | 0.70 | | 2.15 | | 2.20 | | 1.97 | | | |
| 24 | Tot. Phosphate as P | | | | 0.30 | | 0.07 | | 0.04 | | 0.02 | | | |
| 25 | Silicate as $SiO_2$ | | | | - | | - | | - | | - | | | |
| 26 | Sulphate as $SO_4$ | | | | 7.80 | | 38.72 | | 52.80 | | 19.18 | | | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | | | 7.45 | | 2.94 | | 5.20 | | 2.85 | | | |
| 28 | COD | | | | 23 | | 8 | | 30 | | 8 | | | |
| 29 | Dissolved Oxygen | | | | 1.67 | | 4.98 | | 3.69 | | 4.98 | | | |
| 30 | DO_SAT % | % | | | - | | - | | - | | - | | | |
| 31 | Tota Coliform | MPN/100 ml | | | 4000 | | 14000 | | 11000 | | 7000 | | | |
| 32 | Fecal Coliform | | | | 920 | | 2100 | | 1700 | | 4000 | | | |
| 33 | E. Coli | | | | - | | - | | - | | - | | | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 0.980 | | 1.140 | | 0.870 | | 0.150 | | | |
| 35 | Cadmium | | | | 0.045 | | 0.051 | | 0.061 | | 0.010 | | | |
| 36 | Chromium | | | | 0.310 | | 2.370 | | 2.090 | | 0.380 | | | |
| 37 | Copper | | | | 1.490 | | 0.070 | | 6.370 | | 13.850 | | | |
| 38 | Iron | mg/l | | | 0.019 | | 0.070 | | 0.061 | | 0.107 | | | |
| 39 | Lead | µg/L | | | 0.250 | | 1.250 | | 1.490 | | 0.460 | | | |
| 40 | Nickel | | | | 0.230 | | 18.840 | | 9.440 | | 0.740 | | | |
| 41 | Zinc | mg/l | | | 0.000 | | 0.006 | | 0.004 | | 0.008 | | | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | | | 71 | | 84 | | 79 | | 122 | | | |
| 43 | Tot-Hardness | | | | 96 | | 157 | | 159 | | 194 | | | |
| 44 | Na% | % | | | 26 | | 31 | | 40 | | 25 | | | |
| 45 | RSC (-) | | | | -0.27 | | -0.59 | | -0.27 | | -0.86 | | | |
| 46 | SAR (-) | | | | 0.73 | | 1.14 | | 1.68 | | 0.94 | | | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

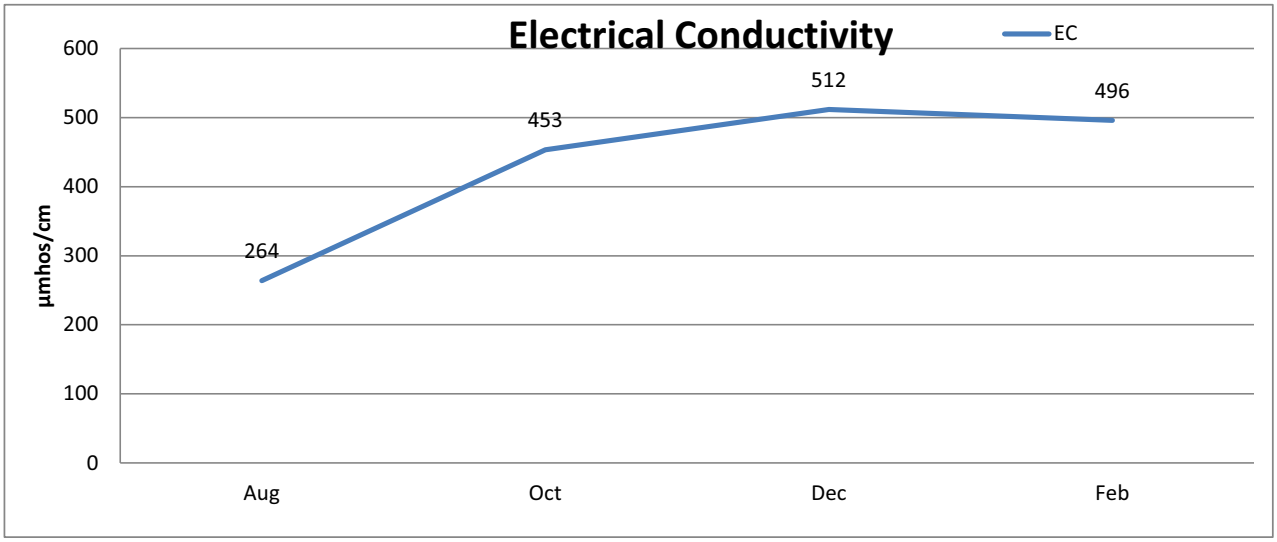
# RIVER WATER SUMMARY - 2016-2017

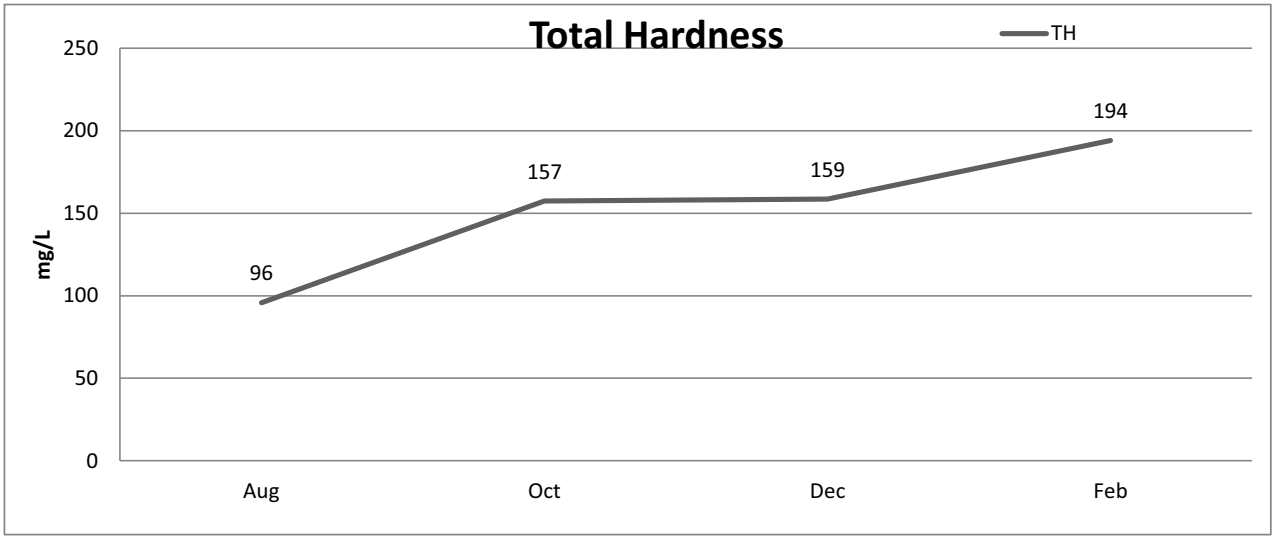
**Station Name : BAROD** **Division : CD, Jaipur**

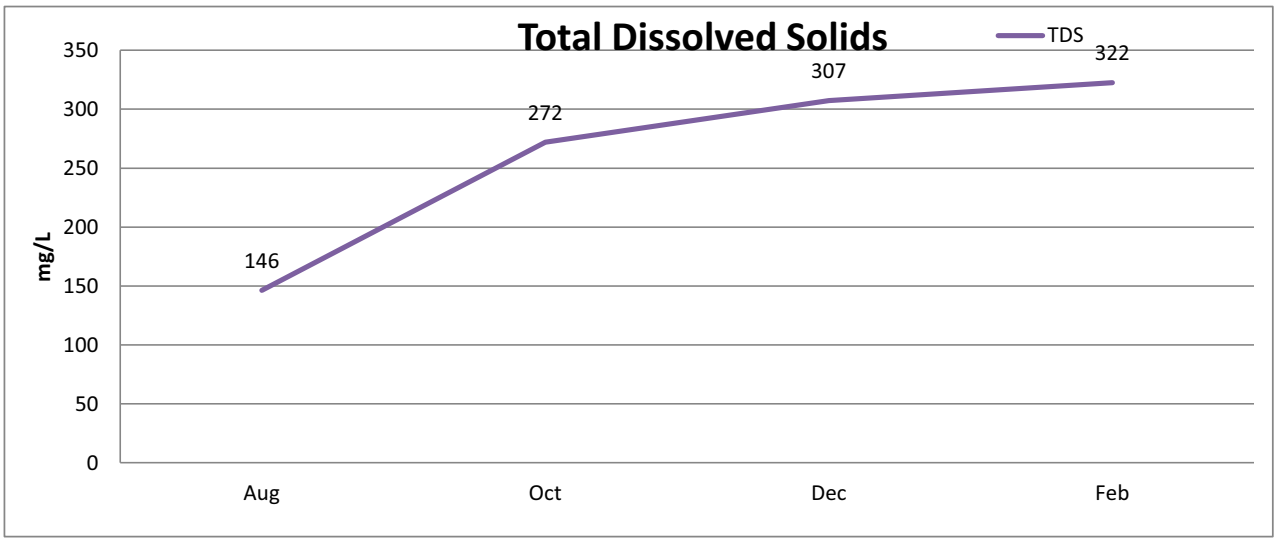
**Local River : Kalisindh**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 4 | 8.65 | 7.98 | 8.42 | 8.42 | 8.57 | - |
| EC_GEN (µmho/cm) | 4 | 512 | 264 | 431 | 431 | 504 | - |
| Total Dissolved Solids | 4 | 322 | 146 | 262 | 262 | 315 | - |
| Turbiidity | 4 | 202 | 9 | 60 | 106 | 14 | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 4 | 7.79 | 0.00 | 3.84 | 3.78 | 3.90 | - |
| Alk-Tot (as $CaCO_3$) | 4 | 153.52 | 83.62 | 128.56 | 106.76 | 150.35 | - |
| Boron | 3 | 0.37 | 0.10 | 0.21 | 0.10 | 0.27 | - |
| Calcium | 4 | 48.64 | 28.51 | 35.57 | 30.99 | 40.14 | - |
| Chloride | 4 | 51.69 | 22.01 | 36.13 | 27.16 | 45.11 | - |
| Carbonate | 4 | 9.35 | 0.00 | 4.61 | 4.54 | 4.67 | - |
| Fluoride | 4 | 0.37 | 0.24 | 0.31 | 0.25 | 0.36 | - |
| Bicarbonate | 4 | 184.22 | 100.34 | 145.06 | 119.04 | 171.08 | - |
| Potassium | 4 | 3.27 | 2.40 | 2.8 | 2.84 | 2.83 | - |
| Magnesium | 4 | 19.06 | 5.89 | 15.00 | 11.79 | 18.21 | - |
| Sodium | 4 | 48.79 | 16.50 | 32.09 | 24.72 | 39.46 | - |
| Ammonia as N | 4 | 0.31 | 0.01 | 0.15 | 0.03 | 0.27 | - |
| $NO_2$+$NO_3$ as N | 4 | 2.22 | 0.91 | 1.84 | 1.56 | 2.12 | - |
| Nitrite as N | 4 | 0.21 | 0.02 | 0.09 | 0.14 | 0.03 | - |
| Nitrate as N | 4 | 2.20 | 0.70 | 1.75 | 1.42 | 2.09 | - |
| Tot. Phosphate as P | 4 | 0.30 | 0.02 | 0.11 | 0.19 | 0.03 | - |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 4 | 52.80 | 7.80 | 29.6 | 23.26 | 35.99 | - |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 4 | 7.45 | 2.85 | 4.61 | 5.20 | 4.03 | - |
| COD | 4 | 30 | 8 | 17 | 16 | 19 | - |
| Dissolved Oxygen | 4 | 4.98 | 1.67 | 3.83 | 3.33 | 4.34 | - |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 4 | 14000 | 4000 | 9000 | 9000 | 9000 | - |
| Fecal Coliform | 4 | 4000 | 920 | 2180 | 1510 | 2850 | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 4 | 1.140 | 0.150 | 0.785 | 1.060 | 0.510 | - |
| Cadmium | 4 | 0.061 | 0.010 | 0.042 | 0.048 | 0.036 | - |
| Chromium | 4 | 2.370 | 0.310 | 1.288 | 1.340 | 1.235 | - |
| Copper | 4 | 13.850 | 0.070 | 5.445 | 0.780 | 10.110 | - |
| Iron | 4 | 0.107 | 0.019 | 0.064 | 0.045 | 0.084 | - |
| Lead | 4 | 1.490 | 0.250 | 0.863 | 0.750 | 0.975 | - |
| Nickel | 4 | 18.840 | 0.230 | 7.313 | 9.535 | 5.090 | - |
| Zinc | 4 | 0.008 | 0.000 | 0.005 | 0.003 | 0.006 | - |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 4 | 122 | 71 | 89 | 77 | 100 | - |
| Tot-Hardness | 4 | 194 | 96 | 151 | 127 | 176 | - |
| Na% | 4 | 40 | 25 | 30 | 29 | 32 | - |
| RSC (-) | 4 | -0.27 | -0.86 | -0.50 | -0.43 | -0.56 | - |
| SAR (-) | 4 | 1.68 | 0.73 | 1.12 | 0.94 | 1.31 | - |
| **PESTICIDES** | | | | | | | |

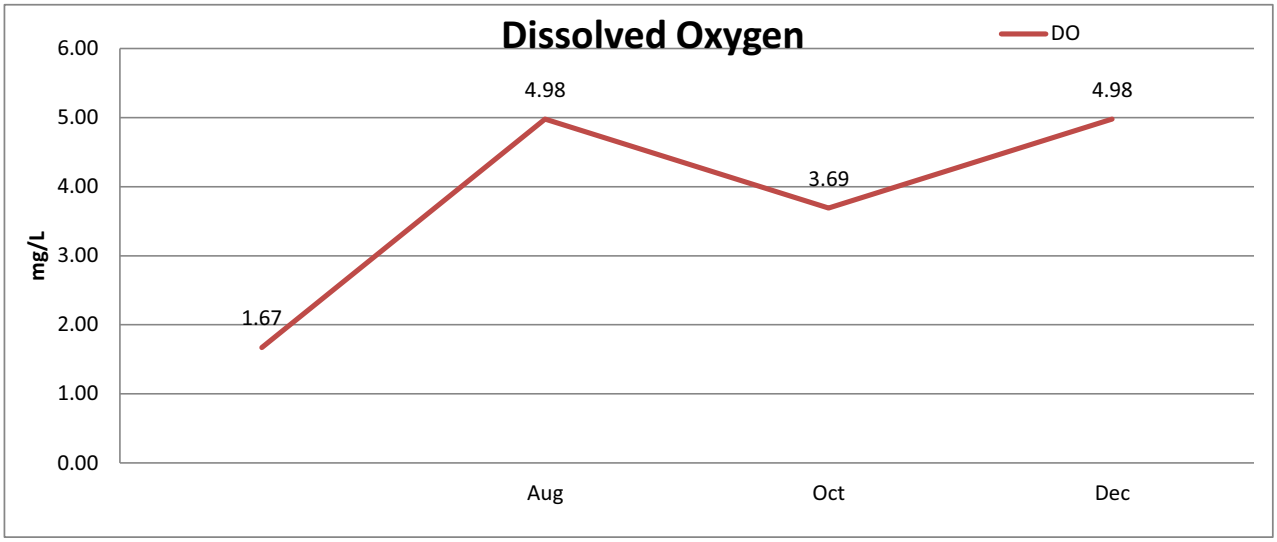
**Graphical Presentation of BAROD WQ Site**

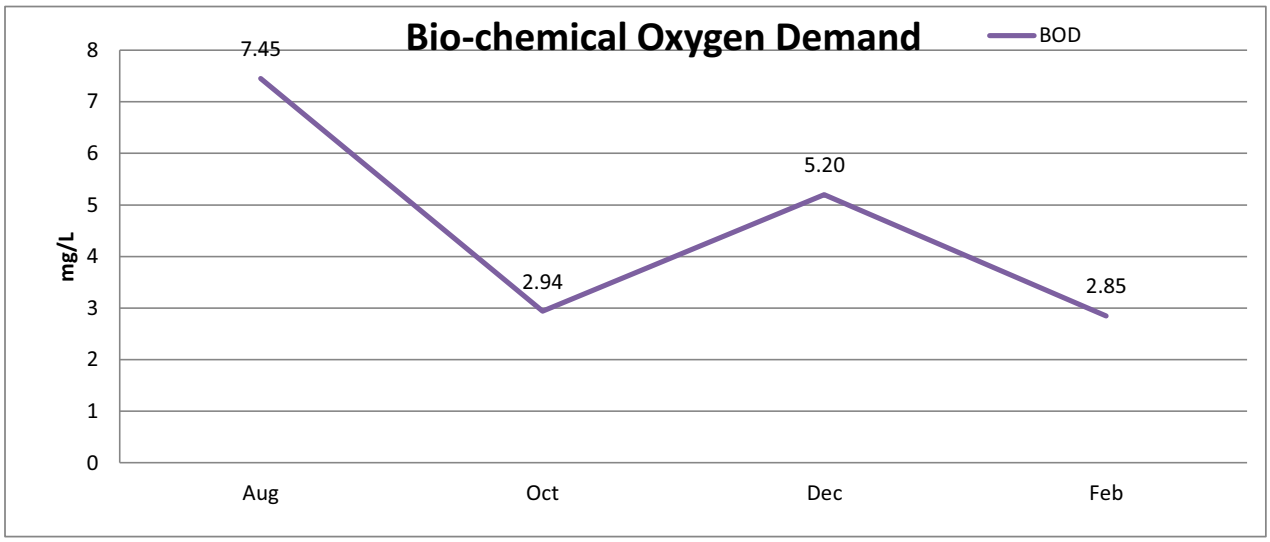


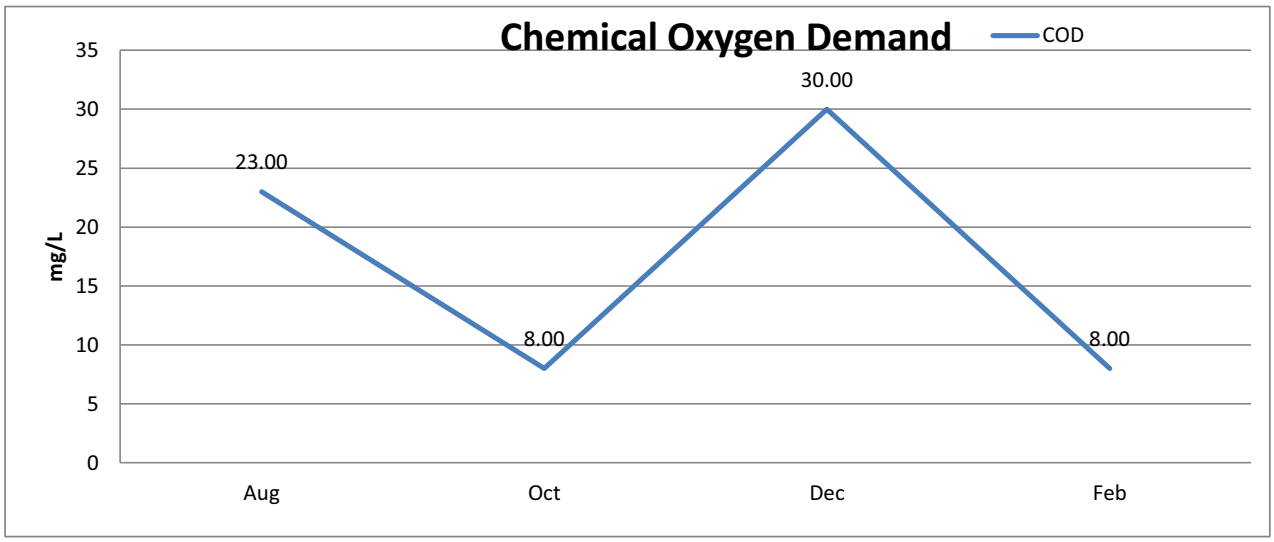



**Graphical Presentation of BAROD WQ Site**



# TONK

## General Particulars

| | | | |
|---|---|---|---|
| Site | : **TONK** | Code | : **GYP30G8** |
| State | : **Rajasthan** | District | : **Tonk** |
| Division | : **Chambal Div., Jaipur** | Sub-Division | : **L.C.SD, Jaipur** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **Chambal** |
| Sub-Sub-Trib. | : **Banas** | Local River | : **Banas** |
| Drainage Area | : **39614 Sq. Km.** | Bank | : **Right** |
| Latitude | : **26°12'00"N** | Longitude | : **75°47'00" E** |
| Zero of Gauge | : **253.000(m.s.l)** | | |

## Details of operation (Opening date)

| | |
|---|---|
| Gauge: | : **24/11/1970** |
| Discharge: | : **24/11/1970** |
| Sediment | : **01/08/1992** |
| Water Quality | : **01/04/1992** |
| Wireless | : **-** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : TONK** **Division : CD, Jaipur**

**Local River : Banas**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | | | | 01/09/16 | 04/10/16 | | | | | | | |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | | | | Cloudy | Clear | | | | | | | |
| 2 | Colour_Cod (-) | | | | | Colourless | | | | | | | | |
| 3 | Odour_Code (-) | | | | | Odourless | | | | | | | | |
| 4 | Temperature | °C | | | | - | - | | | | | | | |
| 5 | pH_GEN (pH units) | | | | | 8.79 | 7.39 | | | | | | | |
| 6 | EC_GEN (µmho/cm) | NTU | | | | 278 | 408 | | | | | | | |
| 7 | Total Dissolved Solids | mg/L | | | | 167 | 245 | | | | | | | |
| 8 | Turbiidity | | | | | 11.78 | 2.74 | | | | | | | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | | | | 5.71 | 6.84 | | | | | | | |
| 10 | Alk-Tot (as $CaCO_3$) | | | | | 99.72 | 97.24 | | | | | | | |
| 11 | Boron | | | | | 0.00 | 0.33 | | | | | | | |
| 12 | Calcium | | | | | 26.61 | 27.20 | | | | | | | |
| 13 | Chloride | | | | | 11.36 | 56.09 | | | | | | | |
| 14 | Carbonate | | | | | 6.85 | 8.21 | | | | | | | |
| 15 | Fluoride | | | | | 0.23 | 0.31 | | | | | | | |
| 16 | Bicarbonate | | | | | 105.97 | 100.28 | | | | | | | |
| 17 | Potassium | | | | | 4.06 | 3.74 | | | | | | | |
| 18 | Magnesium | | | | | 4.78 | 7.86 | | | | | | | |
| 19 | Sodium | | | | | 13.98 | 41.06 | | | | | | | |
| 20 | Ammonia as N | | | | | 0.02 | 0.02 | | | | | | | |
| 21 | $NO_2$+$NO_3$ as N | | | | | 1.36 | 0.53 | | | | | | | |
| 22 | Nitrite as N | | | | | 0.36 | 0.02 | | | | | | | |
| 23 | Nitrate as N | | | | | 1.01 | 0.51 | | | | | | | |
| 24 | Tot. Phosphate as P | | | | | 0.01 | 0.06 | | | | | | | |
| 25 | Silicate as $SiO_2$ | | | | | - | - | | | | | | | |
| 26 | Sulphate as $SO_4$ | | | | | 8.00 | 23.00 | | | | | | | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | | | | 2.64 | 7.67 | | | | | | | |
| 28 | COD | | | | | 23 | 12 | | | | | | | |
| 29 | Dissolved Oxygen | | | | | 3.84 | 2.21 | | | | | | | |
| 30 | DO_SAT % | % | | | | - | - | | | | | | | |
| 31 | Tota Coliform | MPN/100 ml | | | | 7900 | 35000 | | | | | | | |
| 32 | Fecal Coliform | | | | | 1700 | 2200 | | | | | | | |
| 33 | E. Coli | | | | | - | - | | | | | | | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | | 0.210 | 6.020 | | | | | | | |
| 35 | Cadmium | | | | | 0.012 | 0.122 | | | | | | | |
| 36 | Chromium | | | | | 3.690 | 1.270 | | | | | | | |
| 37 | Copper | | | | | 1.070 | 4.640 | | | | | | | |
| 38 | Iron | mg/l | | | | 0.054 | 0.082 | | | | | | | |
| 39 | Lead | µg/L | | | | 0.390 | 1.180 | | | | | | | |
| 40 | Nickel | | | | | 0.550 | 10.370 | | | | | | | |
| 41 | Zinc | mg/l | | | | 0.000 | 0.011 | | | | | | | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | | | | 67 | 68 | | | | | | | |
| 43 | Tot-Hardness | | | | | 86 | 101 | | | | | | | |
| 44 | Na% | % | | | | 25 | 46 | | | | | | | |
| 45 | RSC (-) | | | | | 0.24 | -0.10 | | | | | | | |
| 46 | SAR (-) | | | | | 0.65 | 1.78 | | | | | | | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

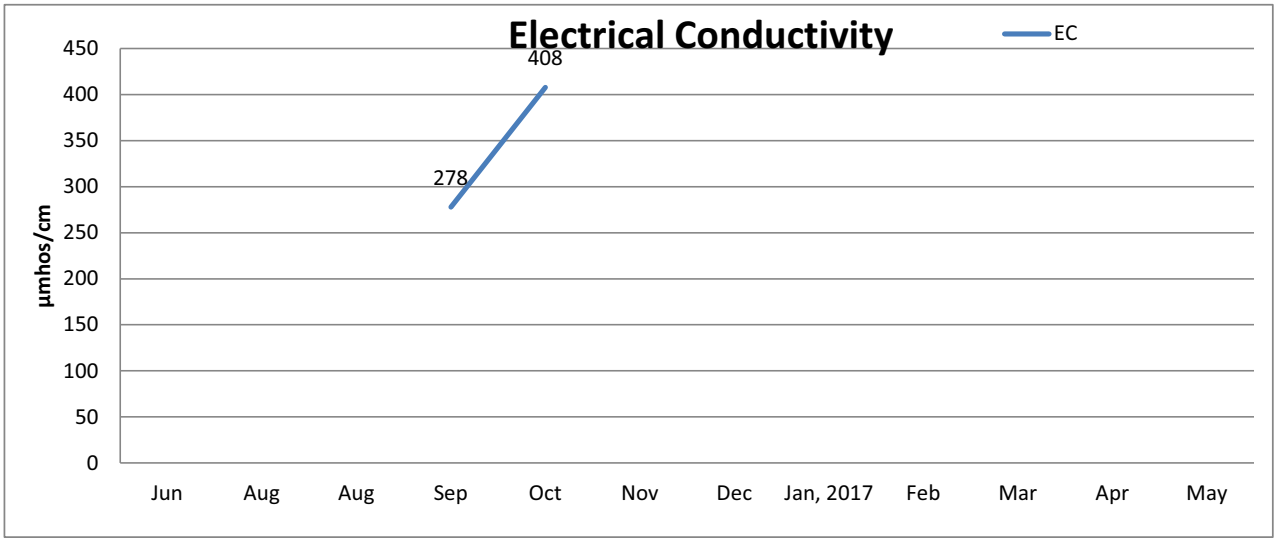
# RIVER WATER SUMMARY - 2016-2017

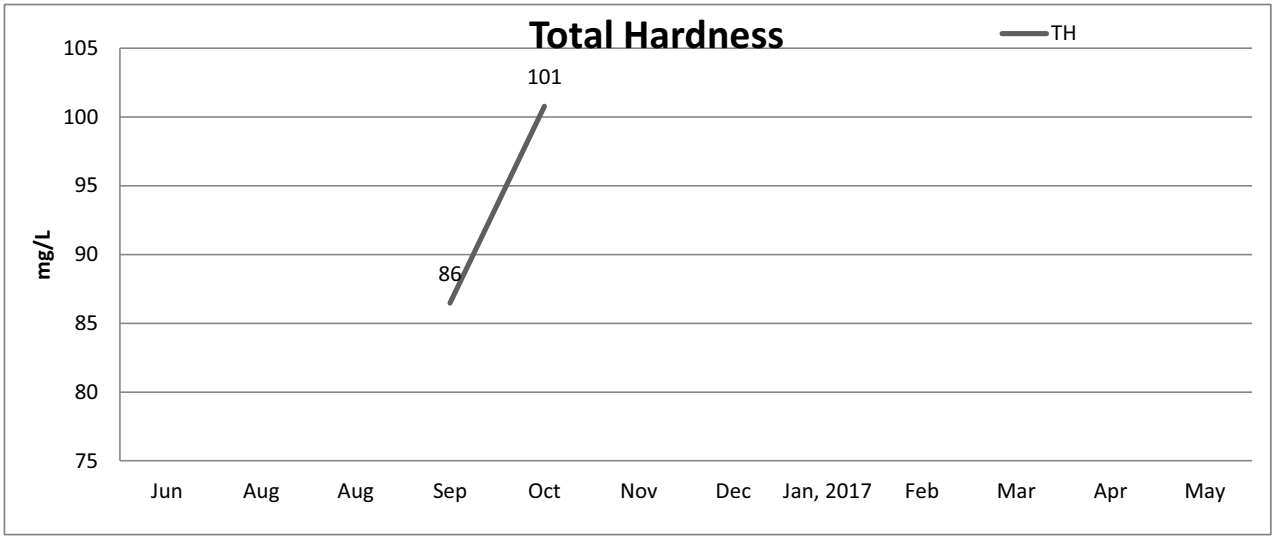
**Station Name : TONK** **Division : CD, Jaipur**

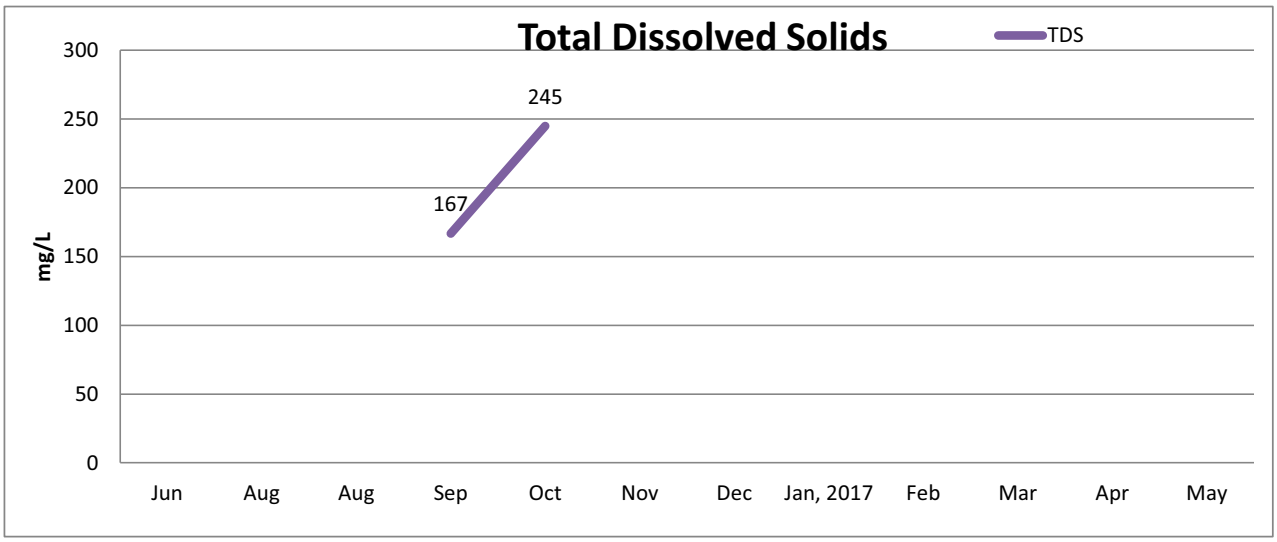
**Local River : Banas**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | 2 | 8.79 | 7.39 | 8.09 | 8.09 | - | - |
| EC_GEN (µmho/cm) | 2 | 408 | 278 | 343 | 343 | - | - |
| Total Dissolved Solids | 2 | 245 | 167 | 206 | 206 | - | - |
| Turbiidity | 2 | 11.8 | 2.7 | 7.3 | 7.3 | - | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 2 | 6.84 | 5.71 | 6.27 | 6.27 | - | - |
| Alk-Tot (as $CaCO_3$) | 2 | 99.72 | 97.24 | 98.48 | 98.48 | - | - |
| Boron | 2 | 0.33 | 0.00 | 0.17 | 0.17 | - | - |
| Calcium | 2 | 27.20 | 26.61 | 26.90 | 26.90 | - | - |
| Chloride | 2 | 56.09 | 11.36 | 33.73 | 33.73 | - | - |
| Carbonate | 2 | 8.21 | 6.85 | 7.53 | 7.53 | - | - |
| Fluoride | 2 | 0.31 | 0.23 | 0.27 | 0.27 | - | - |
| Bicarbonate | 2 | 105.97 | 100.28 | 103.12 | 103.12 | - | - |
| Potassium | 2 | 4.06 | 3.74 | 3.9 | 3.90 | - | - |
| Magnesium | 2 | 7.86 | 4.78 | 6.32 | 6.32 | - | - |
| Sodium | 2 | 41.06 | 13.98 | 27.52 | 27.52 | - | - |
| Ammonia as N | 2 | 0.02 | 0.02 | 0.02 | 0.02 | - | - |
| $NO_2$+$NO_3$ as N | 2 | 1.36 | 0.53 | 0.95 | 0.95 | - | - |
| Nitrite as N | 2 | 0.36 | 0.02 | 0.19 | 0.19 | - | - |
| Nitrate as N | 2 | 1.01 | 0.51 | 0.76 | 0.76 | - | - |
| Tot. Phosphate as P | 2 | 0.06 | 0.01 | 0.03 | 0.03 | - | - |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 2 | 23.00 | 8.00 | 15.5 | 15.50 | - | - |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 2 | 7.67 | 2.64 | 5.16 | 5.16 | - | - |
| COD | 2 | 23 | 12 | 18 | 18 | - | - |
| Dissolved Oxygen | 2 | 3.84 | 2.21 | 3.03 | 3.03 | - | - |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 2 | 35000 | 7900 | 21450 | 21450 | - | - |
| Fecal Coliform | 2 | 2200 | 1700 | 1950 | 1950 | - | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 2 | 6.020 | 0.210 | 3.115 | 3.115 | - | - |
| Cadmium | 2 | 0.122 | 0.012 | 0.067 | 0.067 | - | - |
| Chromium | 2 | 3.690 | 1.270 | 2.480 | 2.480 | - | - |
| Copper | 2 | 4.640 | 1.070 | 2.855 | 2.855 | - | - |
| Iron | 2 | 0.082 | 0.054 | 0.068 | 0.068 | - | - |
| Lead | 2 | 1.180 | 0.390 | 0.785 | 0.785 | - | - |
| Nickel | 2 | 10.370 | 0.550 | 5.460 | 5.460 | - | - |
| Zinc | 2 | 0.011 | 0.000 | 0.005 | 0.005 | - | - |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 2 | 68 | 67 | 67 | 67 | - | - |
| Tot-Hardness | 2 | 101 | 86 | 94 | 94 | - | - |
| Na% | 2 | 46 | 25 | 35 | 35 | - | - |
| RSC (-) | 2 | 0.24 | -0.10 | 0.07 | 0.07 | - | - |
| SAR (-) | 2 | 1.78 | 0.65 | 1.22 | 1.22 | - | - |
| **PESTICIDES** | | | | | | | |

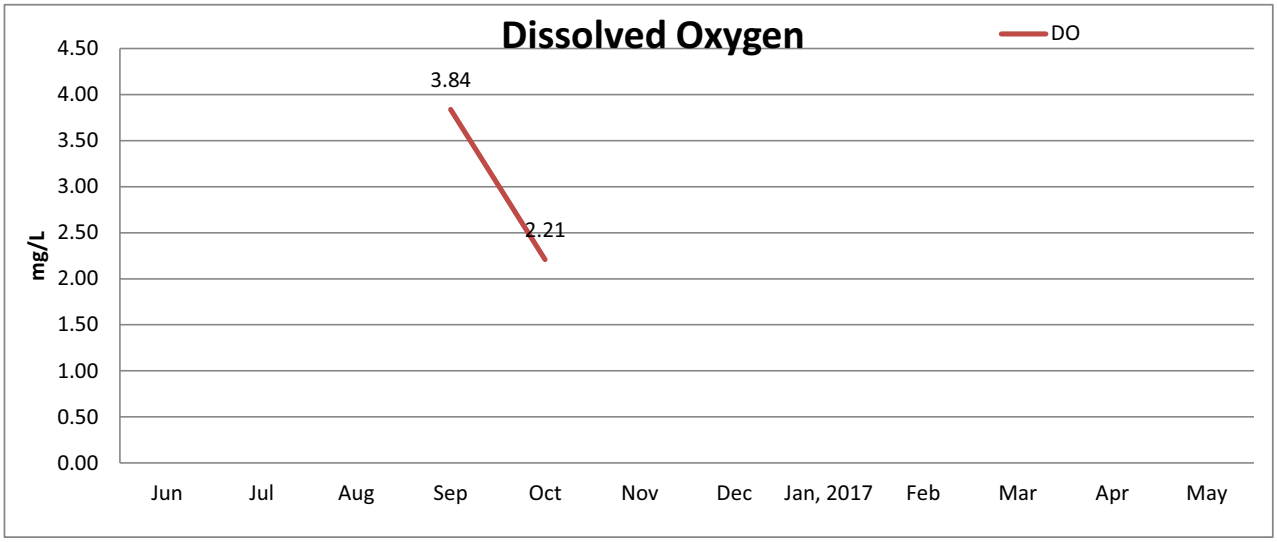
## Graphical Presentation of TONK WQ Site

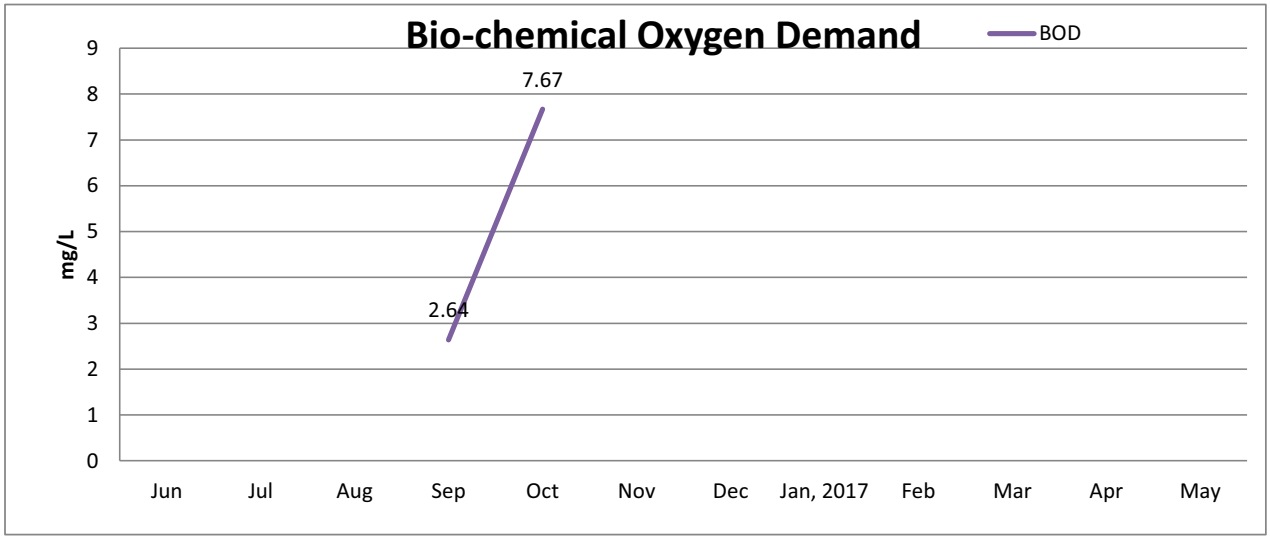


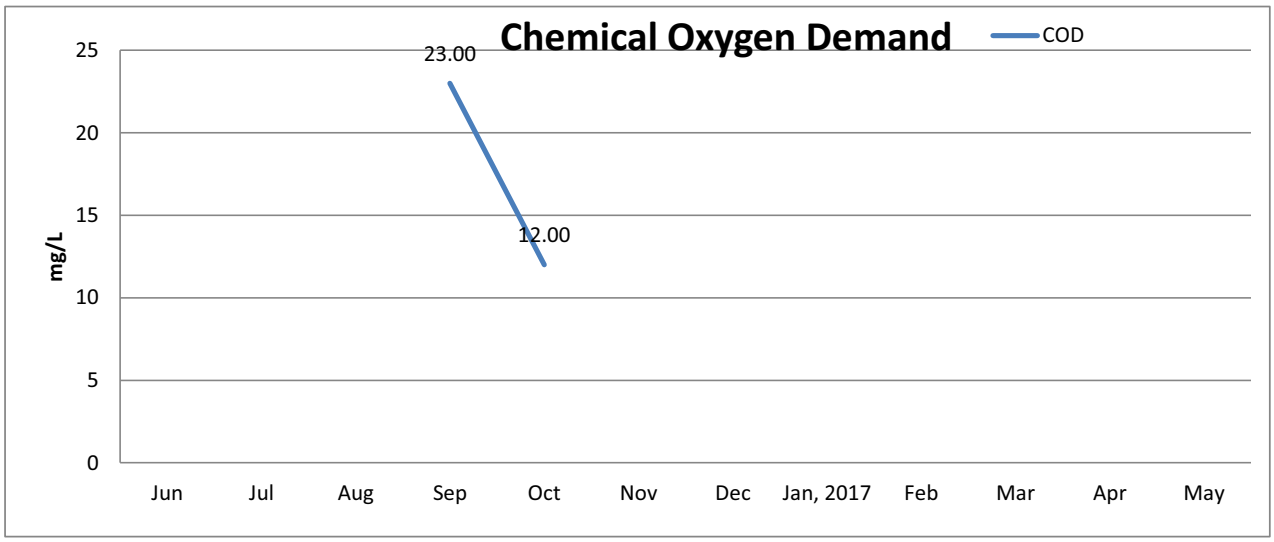



**Graphical Presentation of TONK WQ Site**



# BARANWADA

## GENERAL PARTICULARS

| | | | |
|---|---|---|---|
| Site | :**Baranwada** | Code | : **GYP30A6** |
| State | : **Rajasthan** | District | : **Sawai-madhopur** |
| Division | : **Chambal Div., Jaipur** | Sub-Division | : **-** |
| River Basin | : **Ganga-Brahm-Meghna** | Independent River | : **Ganga** |
| Tributary | : **Yamuna** | Sub Tributary | : **Chambal** |
| Sub-Sub-Trib. | : **Banas** | Local River | : **Banas** |
| Drainage Area | : **50524 Sq. Km.** | Bank | : **Left** |
| Latitude | : **26°00'00"N** | Longitude | : **76°40'00"E** |
| Zero of Gauge | : **-** | Bank | : **Left Bank** |

# Water Quality Datasheet for the Period : 2016-2017

**Station Name : BARANWADA** **Division : CD, Jaipur**

**Local River : Banas**

## River Water Analysis

| SNo | Parameters | Unit | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan-17 | Feb | Mar | Apr | May |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Date of Collection | | | | 01/08/16 | | 04/10/16 | | 08/12/16 | | | | | |
| PHYSICAL | | | | | | | | | | | | | | |
| 1 | Weather | | | | Cloudy | | Clear | | Clear | | | | | |
| 2 | Colour_Cod (-) | | | | Colourless | | Colourless | | Colourless | | | | | |
| 3 | Odour_Code (-) | | | | Odourless | | Odourless | | Odourless | | | | | |
| 4 | Temperature | °C | | | - | | - | | - | | | | | |
| 5 | pH_GEN (pH units) | | | | 8.04 | | 7.62 | | 8.55 | | | | | |
| 6 | EC_GEN (µmho/cm) | NTU | | | 379 | | 457 | | 552 | | | | | |
| 7 | Total Dissolved Solids | mg/L | | | 167 | | 274 | | 331 | | | | | |
| 8 | Turbiidity | | | | 62.4 | | 7.78 | | 7.12 | | | | | |
| CHEMICAL | | | | | | | | | | | | | | |
| 9 | Alk-Phen (as $CaCO_3$) | mg/l | | | 1.98 | | 0.00 | | 0.00 | | | | | |
| 10 | Alk-Tot (as $CaCO_3$) | | | | 117.12 | | 87.87 | | 139.85 | | | | | |
| 11 | Boron | | | | | | 0.34 | | 0.21 | | | | | |
| 12 | Calcium | | | | 13.94 | | 13.04 | | 31.94 | | | | | |
| 13 | Chloride | | | | 47.57 | | 46.86 | | 35.25 | | | | | |
| 14 | Carbonate | | | | 2.38 | | 0.00 | | 0.00 | | | | | |
| 15 | Fluoride | | | | 0.28 | | 0.30 | | 0.28 | | | | | |
| 16 | Bicarbonate | | | | 135.79 | | 105.44 | | 167.82 | | | | | |
| 17 | Potassium | | | | 3.58 | | 3.64 | | 3.30 | | | | | |
| 18 | Magnesium | | | | 16.54 | | 14.95 | | 19.41 | | | | | |
| 19 | Sodium | | | | 25.58 | | 40.22 | | 34.33 | | | | | |
| 20 | Ammonia as N | | | | 0.06 | | 0.03 | | 0.11 | | | | | |
| 21 | $NO_2$+$NO_3$ as N | | | | 0.60 | | 1.04 | | 1.63 | | | | | |
| 22 | Nitrite as N | | | | 0.09 | | 0.07 | | 0.87 | | | | | |
| 23 | Nitrate as N | | | | 0.51 | | 0.97 | | 0.76 | | | | | |
| 24 | Tot. Phosphate as P | | | | 0.07 | | 0.09 | | 0.03 | | | | | |
| 25 | Silicate as $SiO_2$ | | | | - | | - | | - | | | | | |
| 26 | Sulphate as $SO_4$ | | | | 11.40 | | 27.20 | | 39.20 | | | | | |
| BIOLOGICAL/BACTERIOLOGICAL | | | | | | | | | | | | | | |
| 27 | BOD5-20°C | mg/l | | | 1.97 | | 8.25 | | 2.43 | | | | | |
| 28 | COD | | | | 8 | | 18 | | 11 | | | | | |
| 29 | Dissolved Oxygen | | | | 4.87 | | 2.34 | | 5.89 | | | | | |
| 30 | DO_SAT % | % | | | - | | - | | - | | | | | |
| 31 | Tota Coliform | MPN/100 ml | | | 28000 | | 4900 | | 7000 | | | | | |
| 32 | Fecal Coliform | | | | 2200 | | 1700 | | 1700 | | | | | |
| 33 | E. Coli | | | | - | | - | | - | | | | | |
| TRACE & TOXIC | | | | | | | | | | | | | | |
| 34 | Arsenic | µg/L | | | 0.030 | | 2.290 | | 1.170 | | | | | |
| 35 | Cadmium | | | | 0.003 | | 0.029 | | 0.041 | | | | | |
| 36 | Chromium | | | | 0.060 | | 0.940 | | 0.920 | | | | | |
| 37 | Copper | | | | 2.150 | | 2.120 | | 5.640 | | | | | |
| 38 | Iron | mg/l | | | 0.017 | | 0.061 | | 0.076 | | | | | |
| 39 | Lead | µg/L | | | 0.180 | | 0.630 | | 1.310 | | | | | |
| 40 | Nickel | | | | 1.380 | | 4.410 | | 91.490 | | | | | |
| 41 | Zinc | mg/l | | | 0.002 | | 0.006 | | 0.007 | | | | | |
| CHEMICAL INDICES | | | | | | | | | | | | | | |
| 42 | Ca-Hardness | mg/l | | | 35 | | 33 | | 80 | | | | | |
| 43 | Tot-Hardness | | | | 104 | | 95 | | 161 | | | | | |
| 44 | Na% | % | | | 34 | | 47 | | 31 | | | | | |
| 45 | RSC (-) | | | | 0.23 | | -0.17 | | -0.46 | | | | | |
| 46 | SAR (-) | | | | 1.09 | | 1.80 | | 1.18 | | | | | |
| 47 | PESTICIDES | | | | | | | | | | | | | |

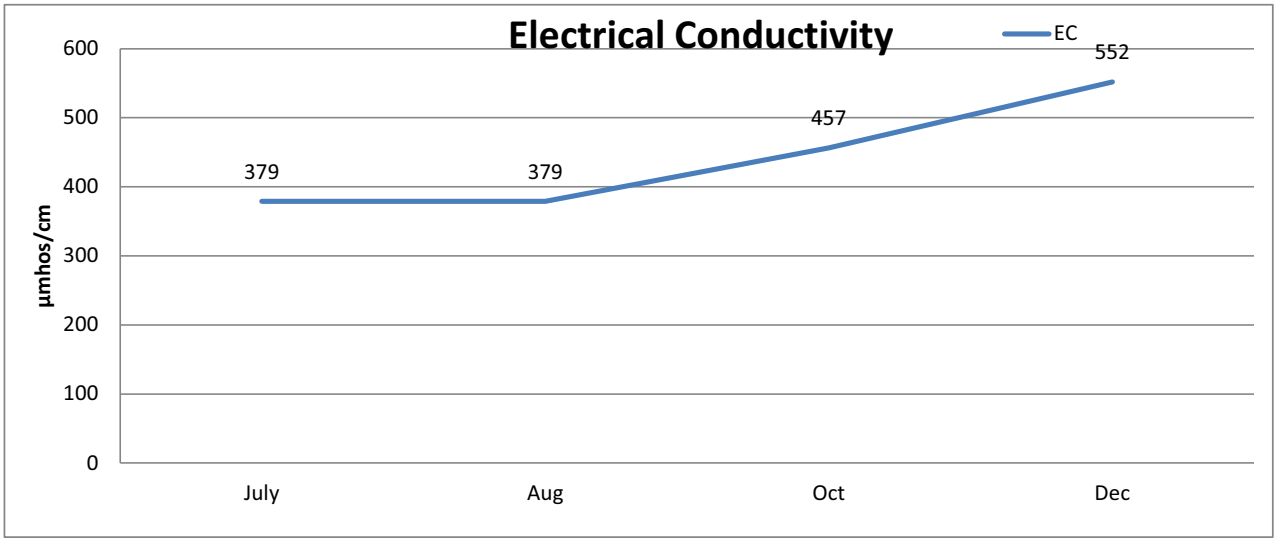
# RIVER WATER SUMMARY - 2016-2017

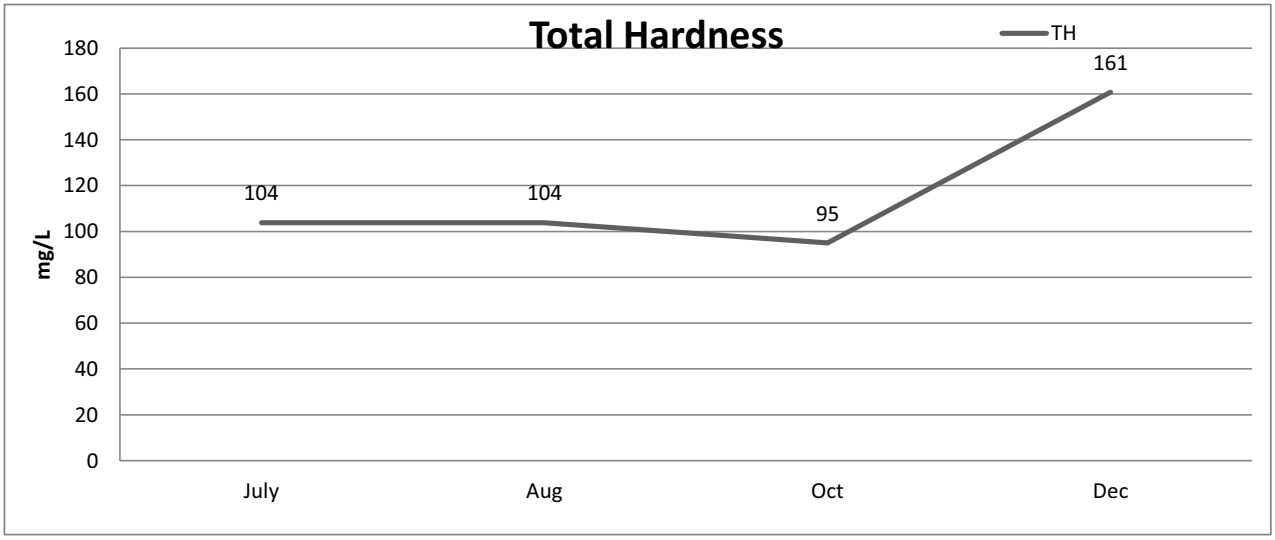
**Station Name : BARANWADA** **Division : CD, Jaipur**

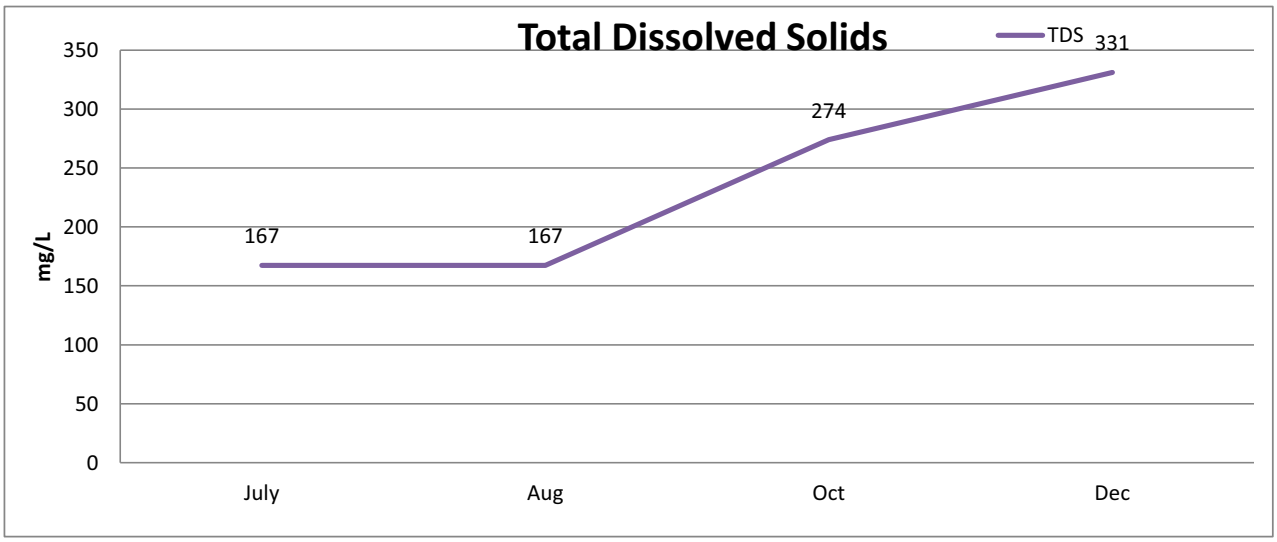
**Local River : Banas**

| Parameters | Number of Observation | Maxmium | Minimum | Mean | Flood (Jun-Oct) | Winter (Nov-Feb) | Summer (Mar-May) |
|---|---|---|---|---|---|---|---|
| **PHYSICAL** | | | | | | | |
| Weather | | | | | | | |
| Colour_Cod (-) | - | - | - | - | - | - | - |
| Odour_Code (-) | - | - | - | - | - | - | - |
| Temperature | - | - | - | - | - | - | - |
| pH_GEN (pH units) | - | 8.55 | 7.62 | 8.07 | 8.07 | 8.55 | - |
| EC_GEN (µmho/cm) | 3 | 552 | 379 | 463 | 463 | 552.00 | - |
| Total Dissolved Solids | 3 | 331 | 167 | 258 | 258 | 331 | - |
| Turbiidity | 3 | 62.4 | 7.1 | 25.8 | 35.1 | 7.1 | - |
| **CHEMICAL** | | | | | | | |
| Alk-Phen (as $CaCO_3$) | 3 | 1.98 | 0.00 | 0.66 | 0.99 | 0.00 | - |
| Alk-Tot (as $CaCO_3$) | 3 | 139.85 | 87.87 | 114.95 | 102.50 | 139.85 | - |
| Boron | 2 | 0.34 | 0.21 | 0.28 | 0.34 | 0.21 | - |
| Calcium | 3 | 31.94 | 13.04 | 19.64 | 13.49 | 31.94 | - |
| Chloride | 3 | 47.57 | 35.25 | 43.23 | 47.22 | 35.25 | - |
| Carbonate | 3 | 2.38 | 0.00 | 0.79 | 1.19 | 0.00 | - |
| Fluoride | 3 | 0.30 | 0.28 | 0.29 | 0.29 | 0.28 | - |
| Bicarbonate | 3 | 167.82 | 105.44 | 136.35 | 120.62 | 167.82 | - |
| Potassium | 3 | 3.64 | 3.30 | 3.5 | 3.61 | 3.30 | - |
| Magnesium | 3 | 19.41 | 14.95 | 16.97 | 15.74 | 19.41 | - |
| Sodium | 3 | 40.22 | 25.58 | 33.38 | 32.90 | 34.33 | - |
| Ammonia as N | 3 | 0.11 | 0.03 | 0.07 | 0.04 | 0.11 | - |
| $NO_2$+$NO_3$ as N | 3 | 1.63 | 0.60 | 1.09 | 0.82 | 1.63 | - |
| Nitrite as N | 3 | 0.87 | 0.07 | 0.34 | 0.08 | 0.87 | - |
| Nitrate as N | 3 | 0.97 | 0.51 | 0.75 | 0.74 | 0.76 | - |
| Tot. Phosphate as P | 3 | 0.09 | 0.03 | 0.06 | 0.08 | 0.03 | - |
| Silicate as $SiO_2$ | - | - | - | - | - | - | - |
| Sulphate as $SO_4$ | 3 | 39.20 | 11.40 | 25.9 | 19.30 | 39.20 | - |
| **BIOLOGICAL/BACTERIOLOGICAL** | | | | | | | |
| BOD5-20°C | 3 | 8.25 | 1.97 | 4.22 | 5.11 | 2.43 | - |
| COD | 3 | 18 | 8 | 12 | 13 | 11 | - |
| Dissolved Oxygen | 3 | 5.89 | 2.34 | 4.37 | 3.61 | 5.89 | - |
| DO_SAT % | - | - | - | - | - | - | - |
| Tota Coliform | 3 | 28000 | 4900 | 13300 | 16450 | 7000 | - |
| Fecal Coliform | 3 | 2200 | 1700 | 1867 | 1950 | 1700 | - |
| E. Coli | - | - | - | - | - | - | - |
| **TRACE & TOXIC** | | | | | | | |
| Arsenic | 3 | 2.290 | 0.030 | 1.163 | 1.160 | 1.170 | - |
| Cadmium | 3 | 0.041 | 0.003 | 0.024 | 0.016 | 0.041 | - |
| Chromium | 3 | 0.940 | 0.060 | 0.640 | 0.500 | 0.920 | - |
| Copper | 3 | 5.640 | 2.120 | 3.303 | 2.135 | 5.640 | - |
| Iron | 3 | 0.076 | 0.017 | 0.051 | 0.039 | 0.076 | - |
| Lead | 3 | 1.310 | 0.180 | 0.707 | 0.405 | 1.310 | - |
| Nickel | 3 | 91.490 | 1.380 | 32.427 | 2.895 | 91.490 | - |
| Zinc | 3 | 0.007 | 0.002 | 0.005 | 0.004 | 0.007 | - |
| **CHEMICAL INDICES** | | | | | | | |
| Ca-Hardness | 3 | 80 | 33 | 49 | 34 | 80 | - |
| Tot-Hardness | 3 | 161 | 95 | 120 | 99 | 161 | - |
| Na% | 3 | 47 | 31 | 37 | 40 | 31 | - |
| RSC (-) | 3 | 0.23 | -0.46 | -0.13 | 0.03 | -0.46 | - |
| SAR (-) | 3 | 1.80 | 1.09 | 1.35 | 1.44 | 1.18 | - |
| **PESTICIDES** | | | | | | | |

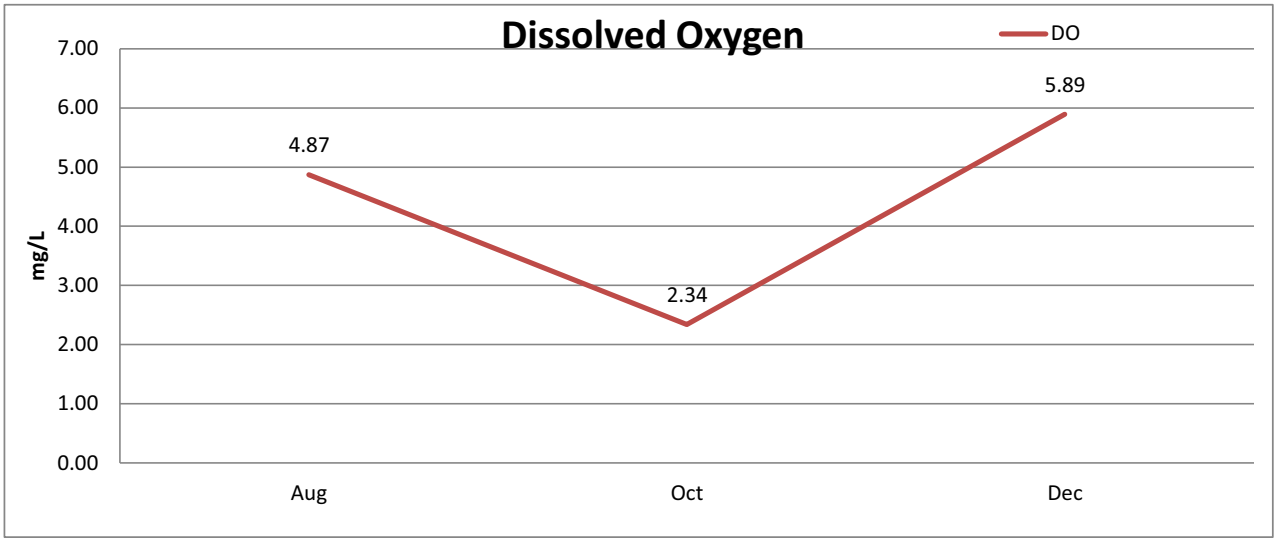
**Graphical Presentation of BARANWADA WQ Site**

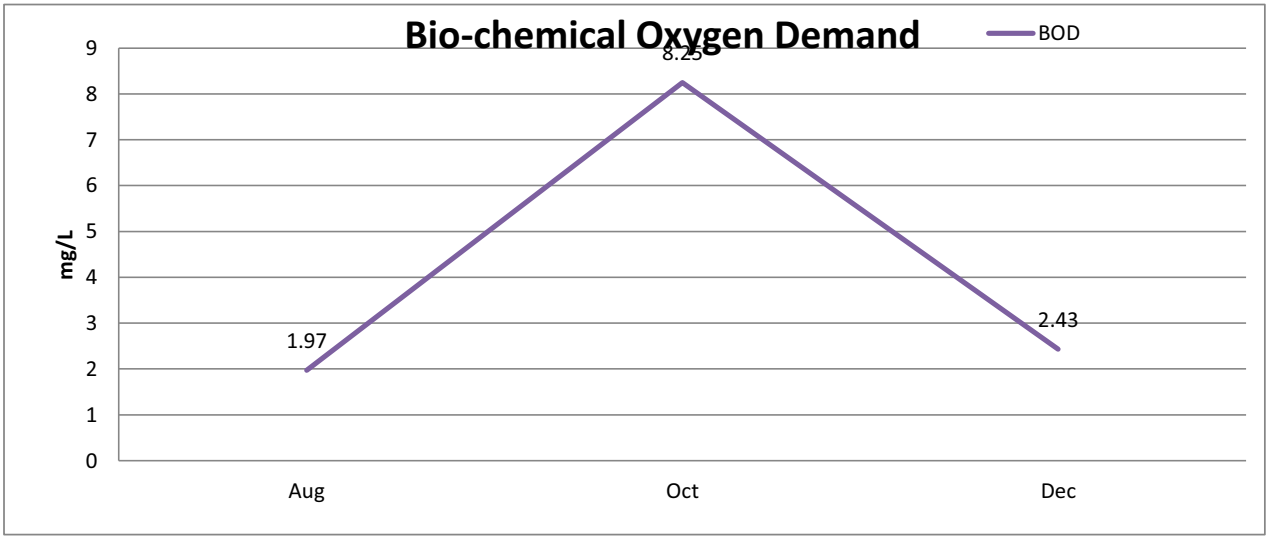


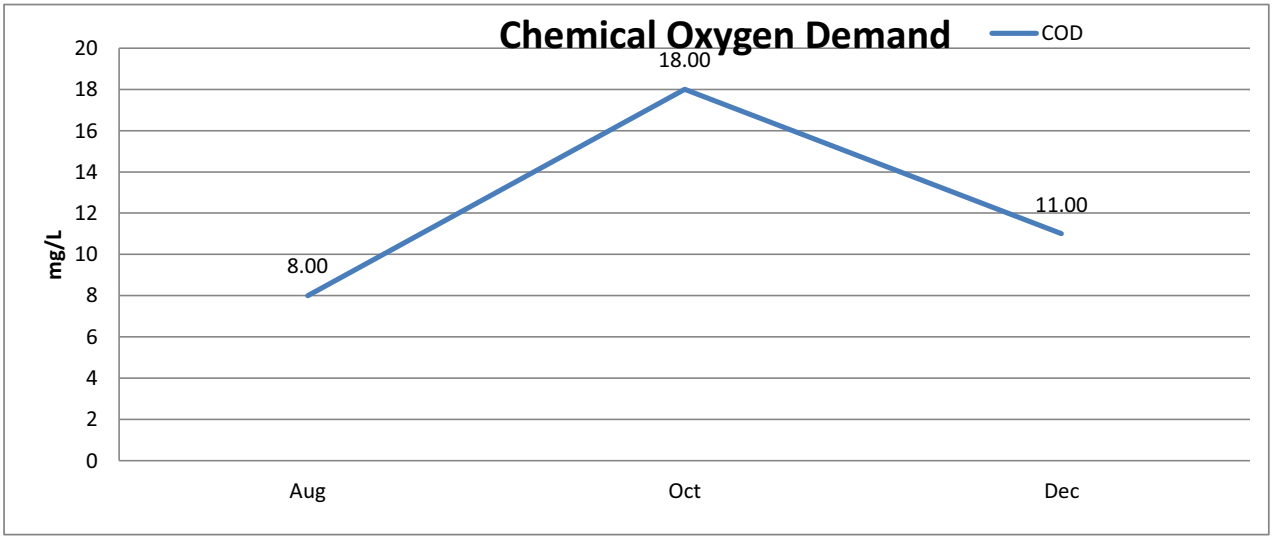



## Graphical Presentation of BARANWADA WQ Site



**CENTRAL WATER COMMISSION**

**Ministry of Water Resources,**
**River Development and Ganga Rejuvenation**
**New Delhi**