



# SURFACE AND GROUND WATER QUALITY REPORT 2018



**Department of Environment**  
Ministry of Environment, Forests and Climate Change  
Government of the People's Republic of Bangladesh  
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## Surface and Ground Water Quality Report 2018

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## MESSAGE

Rivers and wetlands are lifeline of Bangladesh. Three major river systems namely the Ganges, the Brahmaputra and the Meghna which drain through the country of the Bay of Bengal created huge floodplains, active and moribund and a good number of unique water ecosystems. Industrialisation, urbanisation and other development initiatives pose a continuous risk of pollution of surface and ground waters. Water is a major need for a growing economy with a continuous growth rate of more than 7 percent a year. Water is also important for irrigation, health, domestic use and for fisheries and other biodiversity.

Department of Environment (DoE) has been monitoring surface water quality since its establishment in 1973. DoE's surface water quality monitoring network includes pollution hotspots of rivers, lakes, marine water (on a limited scale) and ground water.

Surface and Ground Water Quality Report 2018 is the ninth of its kind that gives overall status of river and ground water quality in Bangladesh. Municipal and industrial solid wastes, untreated sewage and effluents, are highly polluting rivers surrounding major cities and other urban growth centers. Water quality of rivers around the major cities and towns were not within the quality standards as set in the Environment Conservation Rules, 1997 (amended 2010), the quality of water of large rivers such as the Padma, the Meghna, the Jamuna, the Brahmaputra was within the limit. Water quality of some rivers in southern coastal region degraded due to high salinity and turbidity and thus, waters of those rivers are often unfit for domestic and agricultural use specially in the dry season. In addition, this report includes the water quality of three lakes (namely Dhanmondi, Gulshan and Hatir Jheel), 4 stations of marine water and 160 ground water stations of five districts.

This report also highlighted the necessary steps to be taken for improvement in monitoring water quality and sustainable management of aquatic ecosystems. Hopefully this document will be useful in decision making for conservation of degraded riverine ecosystems of Bangladesh.

I sincerely thank Natural Resources Management and Research wing of the Department for preparing this report.

Dr A.K.M Rafique Ahammed  
(Additional Secretary)  
Director General



## FOREWORD

The aquatic ecosystem of Bangladesh is increasingly being threatened by surface water pollution and excessive ground water abstraction. Bangladesh, as a downstream part of three major rivers is dominated by floodplain and deltaic ecosystem. The aquatic ecosystem of these rivers, haors, baors and perennial flood-plains largely depends on the quality of its water. Population increase, release of untreated industrial effluents and sewage, unplanned solid waste dumping along the river banks, encroachment and non-point source pollution for agricultural activities are continuously deteriorating the water quality and their aquatic ecosystem. The dry season availability of both surface and ground water is already under pressure due to upstream uptake by the neighboring countries. Hence, monitoring of the quality and continuous improvement initiatives are vital for better ecosystem services.

The surface and ground water quality report 2018 contains data and some basic statistical analysis of a number of water quality parameters of 29 rivers, 03 lakes, 4 stations of sea water and 160 stations of 05 districts of ground water for the period from January to December 2018. Physiochemical water quality parameters such as pH, EC, TDS, DO, BOD, COD, SS, Chloride, Turbidity, Total Alkalinity and Salinity were measured in laboratory base analysis. The mean value of such respective parameters in both seasons were compared with the water quality standards as set by the EQS guideline of Department of Environment (DoE). This report also gives an annual trend of quality and its seasonal variation of those parameters from 2010 to 2018. The report does not include biological indicators for monitoring.

The quality of water of rivers in dry season surrounding Dhaka city, near Chattagram city, Khulna city and near other major urban areas were below the Environmental Quality Standard (EQS) depicted in the Environmental Conservation rules 1997. The pollution level of different points along a single stress of a river also varied. River erosion and dumping of solid waste increased the turbidity of river water in some sampling points. The water quality of three lakes in Dhaka was mostly below the EQS although Gulshan Lake's data showed some improvements.

The report suggests future programme of actions for conservation of water resources. Implementation of recommended activities in this report is vital to pave the way of conservation and sustainable use of water resources at various levels of our development agenda.

Dr. Fahmida Khanom  
Director (Joint Secretary)  
Natural Resources Management and Research



## EDITORIAL NOTES

Water is an essential element for industrial as well as agricultural development. Water quality refers to the chemical, physical, biological, and radiological characteristics of water. It is a measure of the condition of water relative to the requirements of one or more biotic species and or to any human need or purpose. It is most frequently used by reference to a set of standards against which compliance can be assessed. The most common standards used to assess water quality relate to health of ecosystems, safety of human contact, and drinking water. Water quality and quantity greatly affects ecosystems productivity and services they provide. To provide with necessary information for sustainable services especially of aquatic ecosystem, continuous monitoring of water quality is essential.

Water quality parameters like pH, Dissolve Oxygen (DO), Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Turbidity, Total Dissolve Solids (TDS), Suspended Solid (SS), Total Alkalinity, Electrical Conductivity (EC), Chloride and Salinity presented in this report were measured more or less round the year of 2018. Basic analysis was done on all rivers included in this report. The report did not incorporate biological data and data which were not measured/received from the DoE Laboratories. Due to limited time and resource allocation it also did not cover all the analytical methods. A number of data are missing in various months due to unavailability. The yearly trend analysis of water quality of major rivers was avaraged data and hence the data variation was unexpectedly high in some cases.

As water pollution affects the entire biosphere of plants and organisms living in these water bodies, as well as organisms and plants that might be exposed to the water, this report can act as a guide for intervention measures.

AKM Rafiqul Islam  
Deputy Director (Water & Bio)



## ACKNOWLEDGEMENT

The River Water Quality Report 2018 is an effort of series of analytical results of water quality data that were collected by the Laboratories of Department of Environment (DoE). At the outset, I would like to express our gratitude to Dr A.K.M Ranique Ahmed, Director General, Department of Environment, for the supervision and guidance during the preparation of this report. Our sincere gratitude to all laboratories' personnel (Directors, Deputy Directors, Senior Chemists, Junior Chemists, Assistant Biochemists and Sample Collectors) of all six laboratories of DoE for collecting water samples, conducting on-site and laboratory tests of water and provide us the data. Without their support it could not be done. I would like to extend our sincere thanks and appreciation to the editors Dr. Fahmida Khanom, Director (Natural Resources Management & Research) and A K M Rafiqul Islam, Deputy Director (Water & Bio) for their continuous efforts with excellent guidance to accomplish this report. Special thanks are also extended to Mr. Md. Abubakar Ahmed, Junior Consultant, for compiling data for this report.

Zawata Afnan  
Assistant Director (Water & Bio.)



## ABBREVIATIONS

BOD	-	Biochemical Oxygen Demand
COD	-	Chemical Oxygen Demand
TDS	-	Total Dissolved Solids
EC	-	Electrical Conductivity
ECA	-	Ecologically Critical Area
ECR	-	Environmental Conservation Rules
DO	-	Dissolved Oxygen
SS	-	Suspended Solids
DoE	-	Department of Environment
EQS	-	Environmental Quality Standard
GEMS	-	Global Environment Monitoring System
GPS	-	Global Positioning System
IWM	-	Integrated Watershed Management
NTU	-	Nephelometric Turbidity Unit
SoE	-	State of the Environment
WQI	-	Water Quality Index
WCZ	-	Water Control Zone

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## EXECUTIVE SUMMARY

Quality of surface and ground water mainly depends on the anthropogenic activities, its source characteristics, geological landform, volume of flow and the ecosystem of each habitat. As a riverine country Bangladesh's surface water sources cover the downstream of three major international rivers, (namely, the Ganges, the Brahmaputra and the Meghna) and their tributaries and distributaires, perinnial floods of riverine and deltaic flood plains and the wetlands (Haors, Baors and lakes, as a part of the geological sinks). They are also replenishing the sources of groundwater. The volumes of water they carry vary widely depending on the season, heavy summer rainstorms, upstream diversion of water flow and dry winter months. These sources carry a vast amount of biodiversity within each ecosystem. The dry season flow along with anthropogenic misuse of water resulted in poor quality of water which mainly prevails in major urban areas and industrial clusters and rural growth centres.

In 2018, Water quality-monitoring programme of DoE covered sampling from 124 points of 29 rivers, 16 points of 3 Lakes (Gulshan, Dhanmondi and Hatir Jheel lakes) of Dhaka and 160 groundwater points of 5 districts, 4 points of marine water along the Chattagram coast in Bangladesh. The monitoring involved field measurements (only pH at some stations) and collecting water samples for laboratory analyses. Six divisional offices measured a total of 12 parameters (physical and chemical) of collected samples. Depending on continuity of measurements and spatio-temporal context, ten parameters viz. pH, Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Suspended Solids (SS), Total Dissolved Solids (TDS), Electrical Conductivity (EC), Chloride, Turbidity, Total Alkalinity and Salinity were taken for analysis.

Based on the parameters, water quality of large rivers viz. the Padma, the Meghna, the Jumuna, the Surma, the Korotoa etc. was found within the limit of Environmental Quality Standards (EQS) in 2018. In the Meghna River DO and BOD level were found within the EQS which varied from 4.76 mg/l to 7.2 mg/l and 1.2 mg/l to 6.4 mg/l, respectively. In the Jamuna River, DO and BOD levels were found from 6.2 mg/l to 7.63 mg/l and 0.6 to 2.9 mg/l, respectively. On the other hand, rivers around greater Dhaka were highly polluted specially in the first five months of 2018 in terms of DO, BOD and COD values. High levels of Turbidity (154 mg/l),



TDS (695 mg/l), BOD (24 mg/l) and COD (91 mg/l) were found in the Buriganga River from January to December in 2018. High BOD (72 mg/l), COD (228) and Turbidity (166 NTU) was found in the Balu River.

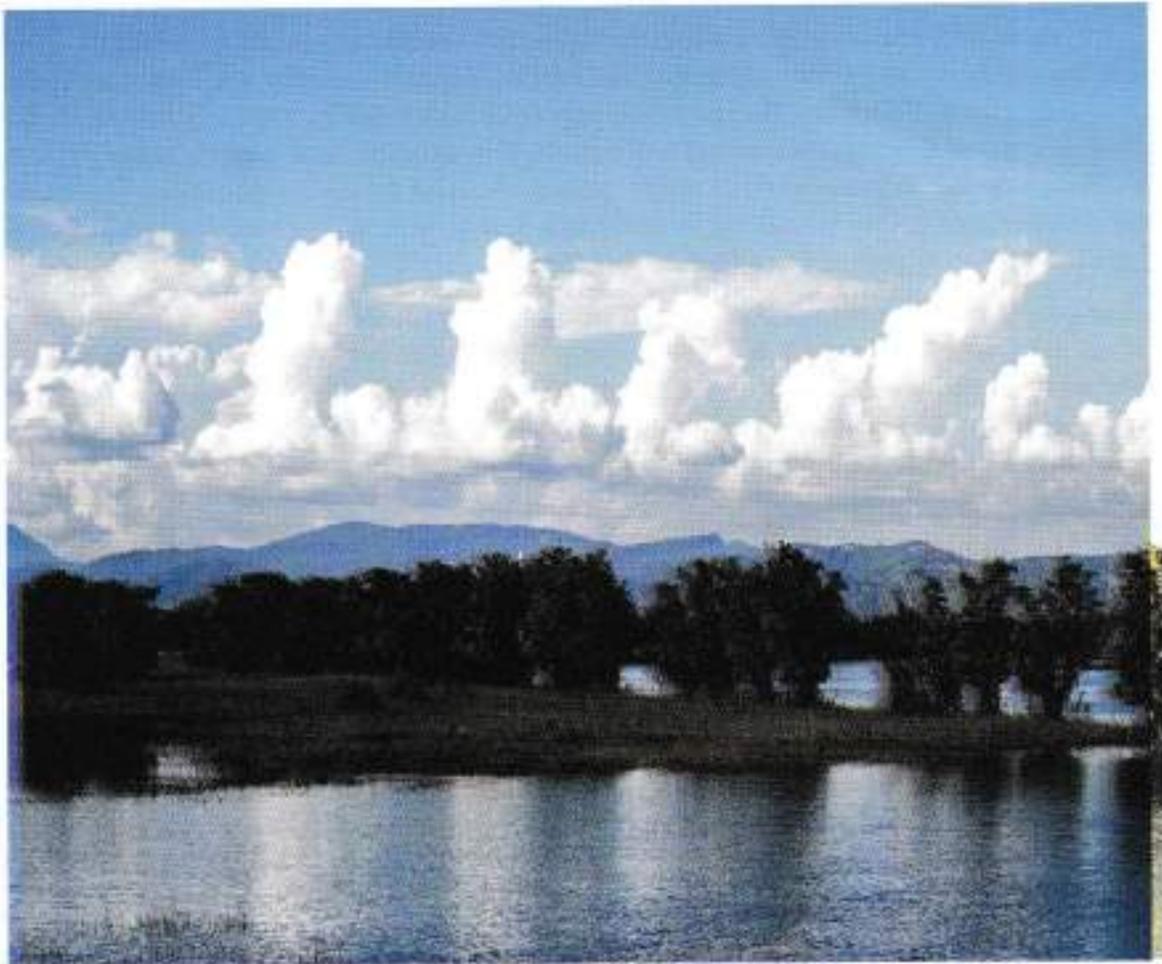
Among the coastal rivers, high levels of Chloride, TDS and Turbidity were found in the Moyuri, the Rupsa, the Pashur and in the Kakshiali River. The level of Chloride (8116 mg/l) and TDS (12732 mg/l) were also very high in the Pashur River. Highest value of Turbidity (128 NTU) and EC (32248  $\mu$ mhos/cm) was found in the Kakshiali River. High COD (324 mg/l) and Salinity (17.9 ppt) was found in the Karnapuli River.

Ground water has been the main source of water for drinking and irrigation. It is also the source of arsenic poisoning that affects millions of people in Bangladesh. For monitoring ground water quality, samples were collected from one hundred sixty (160) different locations of five districts of the country. Depending on continuity of measurements and spatio-temporal context, 6 parameters viz. pH, EC, TDS, Iron, Total-alkalinity and Total Hardness were taken for analysis. Based on these parameters, water quality of ground water was found within the limit of Environmental Quality Standards (EQS) in 2018.

This report also included a trend of quality of water of 10 rivers from 2010 to 2018. The trend showed that the quality of Dhaleshwari and Korotoa river had been decreased after 2011. The DO of Burigonga, Shitalakhya, Turag and Moyuri (near khulna city) river was below the EQS ( $\geq 5$  mg/l) and did not improve in last eight years.

Impact of seasonality on water quality was evident in data analysis. During dry seasons, water quality in rivers around Dhaka was more degraded. The quality improved greatly during the wet seasons indicating clear relationship between increased flow of river and river water quality.

# CHAPTER 1: INTRODUCTION





## CHAPTER 1: INTRODUCTION

### 1.1 Background

Water is essential not only for survival of human-beings, but also for animals, plants and all other living beings. Monitoring water quality is one of the vital responsibilities of the Department of Environment (DoE). According to the clause 18,A of the Constitution of Bangladesh "The state shall endeavor to protect and improve the environment and to preserve and safeguard the natural resources, biodiversity, wetlands, forests and wild life for the present and future citizens". A part of that responsibility the Government has to conserve water quality for human consumption and other uses. The Government has set Environmental Quality Standard (EQS) for inland surface water under the Environmental Conservation Rules (ECR), 1997. The monitoring of water quality includes and identifies part of diagnosis of functionality of the aquatic ecosystem of rivers and other surface water sources. Also, it would help evaluating effectiveness of the pollution control measures.

There are about 405 rivers in Bangladesh including 57 transboundary rivers (BWDB, 2011). The flows in the rivers varies greatly depending on seasons, rainfall intensity and upstream diversion of transboundary rivers. Following fluctuation in flow river water quality varies significantly. Dumping of industrial untreated wastes, household and municipal wastes, medical wastes, naval waste etc. into water courses further degrade surface water quality. Because of severe pollution, Government has already declared five rivers (Buriganga, Shitalakhya, Turag, Balu and Jaflong Dawki) as Ecologically Critical Area (ECA) to protect from further pollution.

DoE has established a monitoring network. Following this network for surface water quality, DoE collect surface water samples for laboratory analyses. Samples are collected on monthly basis from selected sampling points of rivers under the monitoring network. In 2018, the monitoring program covered sampling of 124 points of 29 rivers, 16 points of 3 Lakes (Gulshan, Dhanmondi and Hatir Jheel lakes) of Dhaka and 160 points of ground water of 5 districts, 4 points of marine water in Bangladesh.

### 1.2 Major objectives of the report

Major objectives of this report are to -

- provide updated information on quality of surface and ground water to help information-based decision-making process for environmental and ecosystem conservation, sustainable development and management of water resources;
- deliver information for research/study in the relevant field;
- water quality data to Global Environment Monitoring System (GEMS);
- sensitize and create awareness among the stakeholders and public in general;
- share information and prepare of State of the Environment (SoE) Report and
- give a guidance to policy makers.

### 1.3 Limitation of the report

This report has been prepared based on primary data and information collected by six divisional offices of DoE for the period of January to December 2018. The limitations of the report are:

- In some cases, data on all the parameters as per ECR 1997, for the entire period of the year could not be furnished with this report because of non-availability of data for certain parameters in some months of the year.
- This report does not include information on microbiological parameters and biological indicators. Data on weather conditions of the sampling locations at the time of sampling were unavailable.
- This report does not cover all the sources of surface water and all rivers.

**CHAPTER 2:  
OVERVIEW OF BANGLADESH'S  
SURFACE AND GROUND WATER**





## CHAPTER 2: OVERVIEW OF BANGLADESH'S SURFACE AND GROUND WATER

### Surface water sources and Rivers of Bangladesh:

Rivers, canals, streams, lakes, Haors, Baors, Beels and ponds as surface water sources are the most important elements of physiographic features of Bangladesh and play a crucial role in the economy. The rivers of Bangladesh are considered as the lifeline of the people. These rivers generally flow towards south. The larger rivers serve as the main source of water for cultivation and as the principal arteries of commercial transportation. Rivers also provide fish, an important source of protein. Flooding of the rivers during the monsoon season and river bank erosion cause enormous hardship and hinders development, but fresh deposits of rich silt replenish the fertile but overworked soil. The rivers also drain excess monsoon rainfall into the Bay of Bengal. Thus, the great river system is at the same time the country's principal resource and source of its greatest hazard.

As also mentioned earlier, Bangladesh is situated at the confluence of three mighty rivers the Ganges, the Brahmaputra and the Meghna. Apart from these three rivers, there are many rivers which create a net-like network covering the whole country. The country has 405 rivers (BWDB, 2011) of which 57 are trans-boundary rivers. A map of river network is also given in the Figure-A. Three large rivers systems (Brahmaputra-Jamuna, Ganges-Padma and Surma-Meghna) of the world covering a combined total catchments area of about 1.7 million sq. km. extending over Bhutan, China, India and Nepal, flow through this country. Out of these huge catchments only 7% lies within Bangladesh. The fourth river system lies in the Chittagong region of the country.

The river systems of the country can be divided into four major systems, which are:

1. Brahmaputra-Jamuna River System
2. Ganges-Padma River System
3. Surma-Meghna River System
4. Chittagong Region River System

**Brahmaputra-Jamuna River System:** Brahmaputra-Jamuna and old Brahmaputra, with their main tributary Teesta, and a good number of small tributaries and distributaries constitute the largest floodplain of Bangladesh.

The Brahmaputra enters Bangladesh from east of Bhabanipur (India) and northeast of Kurigram district. It first flows south and then turns southeast and travels through the Madhupur Tract to meet the Meghna near Bhairab Bazar. Among the major rivers, Brahmaputra-Jamuna is the most energetic and has the highest stream power.



**Ganges-Padma River System:** Ganges River is one of the largest river systems of the world and an important river flowing through India and Bangladesh. The Ganges rises near the Tibet-Indian border. The Bhagirathi is accepted traditionally as the original Ganges. The source is Gangotri glacier located at an altitude of about 3,900m in the Himalayas. The Bhagirathi joins its western tributary the Jahnvi, a little away to the north of the main Himalayan range and about 11 km below the Gangotri temple. The combined river then cuts through the main Himalayan range through a magnificent gorge in which the river bed is 3,960m below the peaks on either side. The river flows in a southeasterly direction across India and crosses the western border of Bangladesh in Nawabganj district.

Flowing almost in the same direction it meets the Jamuna (the Brahmaputra) at Goalondaghat and then further down meets the Meghna at Chandpur. From the confluence with the Jamuna to the confluence with the Meghna the river is named Padma. The Ganges has a total length of about 2,600 km up to its confluence with the Jamuna and a catchment area of about 10,87,400 sq. km of which about 46,300 sq. km lies within Bangladesh.

**Surma-Meghna River System:** Surma-Meghna River System is the longest river (669 km) system in the country. It also drains one of the world's heaviest rainfall areas (e.g. about 1,000 cm at Cherapunji, Meghalaya, India). East of Brahmaputra-Jamuna river system is Surma-Meghna River System. The Surma originates in the hills of Shillong and Meghalaya of India. The main source is Barak River, which has a considerable catchment in the ridge and valley terrain of Naga-Manipur hills bordering Myanmar. Barak-Meghna has a length of 950 km of which 340 km lies within Bangladesh. On reaching the border with Bangladesh at Amalshid in Sylhet district, Barak bifurcates to form the steep and highly flashy rivers Surma and Kushiyara.

Between the Surma and the Kushiyara, there lays a complex basin area comprised of depressions (Haors). Most of the Surma system falls in the Haor basin, where the line of drainage is not clear or well defined.

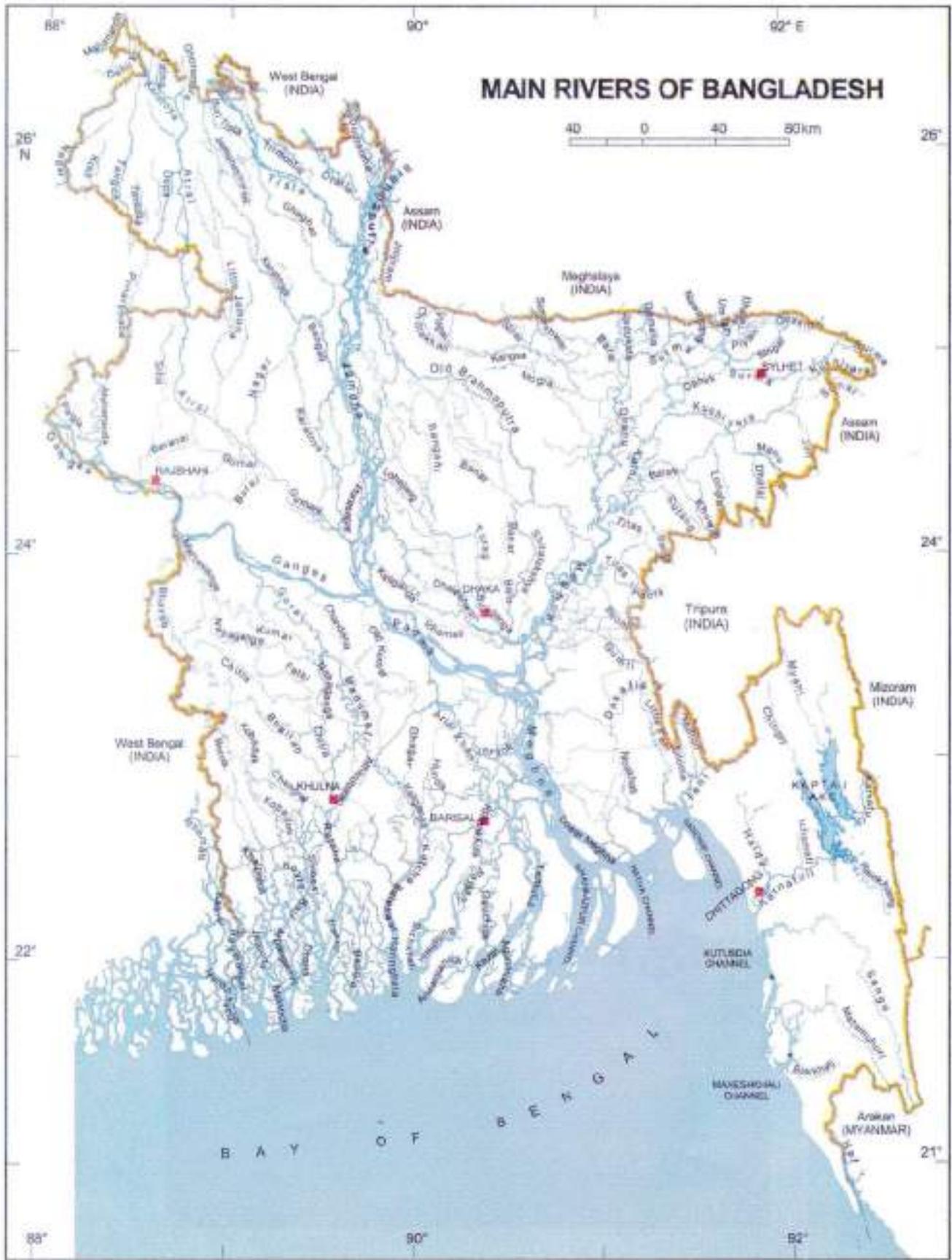
Meghna has two distinct parts. Upper Meghna from Bhairab Bazar to Shaitnol is comparatively a small river. Lower Meghna below Shaitnol is one of the largest rivers in the world, because it is the mouth of Ganges-Padma and Brahmaputra-Jamuna rivers. It is a tidal reach carrying almost the entire fluvial discharge of Ganges, Brahmaputra and Upper Meghna River.

**Chittagong Region River System:** Chittagong Region River System the Chittagong region consists of the 5 hilly districts of Chittagong division namely Chittagong, Cox's Bazar, Bandarban, Rangamati and Khagrachhari. It is bounded by the Bay of Bengal on the south and west, the Naf river with Myanmar on the southeast, and India on the east. The region is characterized by three distinct ecological zones: inter-tidal zone, coastal plains and extensive hill areas. The remainder of the region consists of plains. The total area is approximately 19,956 sq. km with a hilly area of 1,300 sq. km.

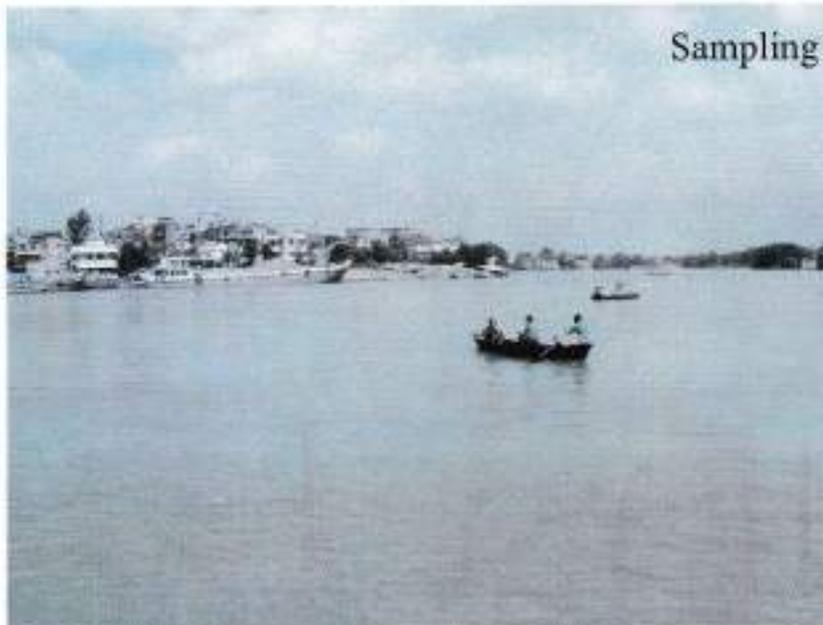
The major rivers of this region are: Karnafuli and its tributaries (e.g. Rainkhiang, Kasalong, Halda, Ichamati etc.); Bakkhali, Sangu, Matamuhuri, Naf, and Feni. The Kutubdia and Maheshkhali channels are the coastal channels of the region. The Karnafuli is the principal river of the region. It originates in the Lushai Hills of Mizoram (India), flows through Rangamati and the port city of Chittagong and discharges into the Bay of Bengal near Patenga. The river is flashy and its length is about 131 km. Rainkhiang, Sublong, Thega, Kasalong, Ichamati and Halda are its main tributaries. Its major distributaries are Saylok and Boalkhali.



Artesian flow (where groundwater comes to surface naturally) occurs in a few places on piedmont plains near the foot of the Northern and Eastern Hills and in some Madhupur Tract valleys (Brammer, 2012).



# CHAPTER 3: METHODS FOR MEASUREMENT AND ANALYSIS OF WATER QUALITY



## CHAPTER 3: METHODS FOR MEASUREMENT AND ANALYSIS OF WATER QUALITY

### 3.1 Water Quality Parameters

Water quality monitoring can help researchers predict and learn from natural processes in the environment and determine human impacts on an ecosystem. These measurement efforts can also assist in restoration projects or ensure environmental standards are being met.

Water has physical, chemical and biological properties. Physical properties of water quality include temperature and turbidity. Chemical characteristics involve parameters such as pH and dissolved oxygen. Biological indicators of water quality include algae and phytoplankton. These parameters are relevant not only to surface water studies of the ocean, lakes and rivers, but also to groundwater and industrial processes as well.

A comprehensive range of physico-chemical parameters such as Temperature, Electrical Conductivity (EC), Dissolved Oxygen (DO), pH, Total Alkalinity, Turbidity, Total Dissolved Solids (TDS), Suspended Solids (SS), Biochemical Oxygen Demand (BOD<sub>5</sub>) and Chemical Oxygen Demand (COD), Chloride and Salinity were measured to assess the inland surface water quality in Bangladesh.

### 3.2 Sampling Locations

In 2018, the monitoring program covered sampling of 124 points of 29 rivers, 16 points of 3 Lakes (Gulshan, Dhanmondi and Hatir Jheel lakes) of Dhaka and 160 stations (Chittagong Dist.-8 points, Khulna Dist.-26 points, Barisal Dist.-104 points Stations, Sylhet Dist.-11 points, Bogura Dist.-11 points) of 5 districts, 4 points of sea water in Bangladesh. Nearly 50% of these locations were monitored on monthly basis (Figure A).

### 3.3 Methods of Analysis

Usually testing procedures and parameters grouped into physical, chemical, bacteriological and microscopic categories.

- Physical tests indicate properties detectable by the senses.
- Chemical tests determine the amounts of mineral and organic substances that affect water quality.
- Bacteriological tests show the presence of bacteria, characteristic of faecal pollution. This report only covered the physio-chemical analysis.

The methods taken by DoE are as follows:

Parameters	Methods
Dissolved Oxygen (DO)	Modified Winkler's Method/Titrimetric Method
Biochemical Oxygen Demand (BOD <sub>5</sub> )	Dilution Method
Chemical Oxygen Demand (COD)	Closed Reflux Colorimetric Method
Total Dissolved Solid (TDS)	Gravimetric Method
Suspended Solid (SS)	Gravimetric Method
Chloride	Argentometric Method
Temperature	Thermometer
Turbidity	Nephelometric Method
pH	Standard method/Using Electrode
EC	Standard method
Total Alkalinity	Standard method/ Titrimetric Method
Salinity	Using Electrode

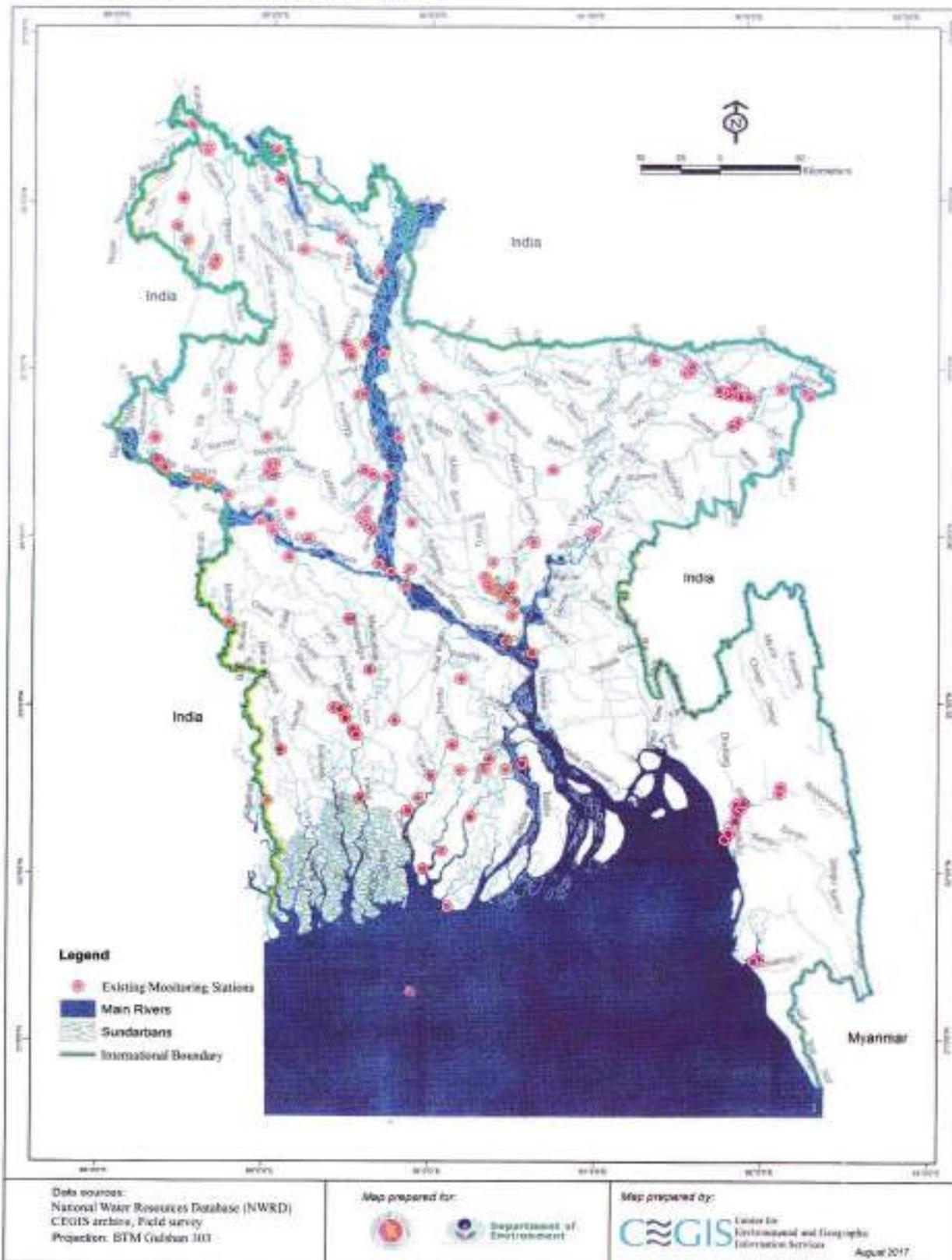


Sl	River Name	Monitoring Stations	No. of Stations
1	Buriganga	Mirpur Bridge, Hazaribagh, Kamrangir Char, Chandni Ghat, Sadar Ghat, Dholaikhal, Pagla, Bangladesh China Friendship Bridge	08
2	Shitalakhya	Near ACT Factory, Demra Ghat, Ghorashal Fertilizer Factory, Near Kanakpur Bridge	04
3	Turag	Gabtolli Bridge, Mirpur BIWTA Landing Station, Ashulia BIWTA Landing Station, Tongi Istima Mat and North Side of Tongi Bridge	05
4	Dhaleshwari	200m up of CETP, Dropping Point of CETP, 200m Down of CETP, Muktarpur Bridge, Munshiganj and Harindhara, Hemayetpur, Savar	05
5	Brahmaputra	Mymensingh	01
6	Kaliganga	Veuta Ghat, Manikgonj	01
7	Jamuna	Bahadurabad Ghat, Near Jamuna Fertilizer Factory, Fulchari Ghat, Gibanda (UP & Down Steam), Shariakandi Groin Badth, Bogra (UP & Down Steam), Near Bangabandhu Bridge (UP & Down Steam).	08
8	Meghna	Bhairob Bazar, Meghna Ghat and Shahajalal Paper Mills	03
9	Padma	Mawa Ghat, Shimulia Ghat, Pakshi Ghat (Up and Down Steam), Pabna and Baro Kuti Ghat (Up and Down Steam), Rajshahi.	06
10	Korotoa	Near Fateh Ali Bridge (Up and Down Steam), Near Dutta Bari Bridge (Up and Down Steam), Near Matidali Bridge (Up and Down Steam), Near S.P Bridge (Up and Down Steam) and Shshjadpur (Up and Down Steam).	10
11	Teesta	Tista Bridge (Up Stream and Down stream)	02
12	Karnaphuli	TSP Side, Patenga and CUFL Side, Anowara and Chaktai Khal	03
13	Halda	WASA Intake Mohara, Maduna Ghat, Mohona, Khandakiya Khal, Madari Khal, Katakhal Khal, Krishna Khal	07
14	Moyuri	Gallamari Bridge (Bank, Middle and Oposite )	03
15	Bhairab	Noapara Ghat (Bank, Middle and Oposite), Fultala Ghat (Bank, Middle and Oposite)	06
16	Rupsa	Rupsa Ghat (Bank, Middle and Oposite), Labanchara Ghat (Bank, Middle and Oposite)	06
17	Mathavanga	Pipeghat (200M Upstream, Downstream and Middle Stream), Darshana.	03
18	Passur	Mongla Port (Bank, Middle and Oposite)	03
19	Kankshiali	Kaliganj (Bank, Middle and Oposite), Satkhira	03
20	Gorai	Kamarkhali Ghat (Bank, Middle and Oposite), Kustia and Magura Bank, Middle and Oposite)	06
21	Modhumoti	Moliarhat (Bank, Middle and Oposite), Bagarhat.	03
22	Beel Dakatia	Khulna (Bank and Middle)	02
23	Kirtankhola	Launch ghat (Bank and Middle), Dopdopia Khbeyaghat (Bank and Middle), Beltola Fery Gaht (Bank and Middle)	06
24	Tetulia	Vedhoria Feri Ghat (Bank and Middle), Bhola.	02
25	Sugandha	Jhalkathi Launch Ghat (Bank and Middle)	02
26	Lohalia	Patuakhali Launch Ghat, (Bank and Middle)	02
27	Surma	Mendibag Point, Kin Bridge, Shak Ghat, Chattak and Kazi Bazaar	05
28	Kushiara	Jokigonj (BSF Ghat, BDR Camp) and Fenchugonj Point	03
29	Balu	Near Jaber & Jubair Fabrics Ltd., Near Hossain Dyeing Ltd., Near Damra University College, Near Balu Bridge, 300 feet Road, Near Fulpukuria Dyeing Ltd., South Side of Tongi Rail Bridge, Pagar, Tongi.	06



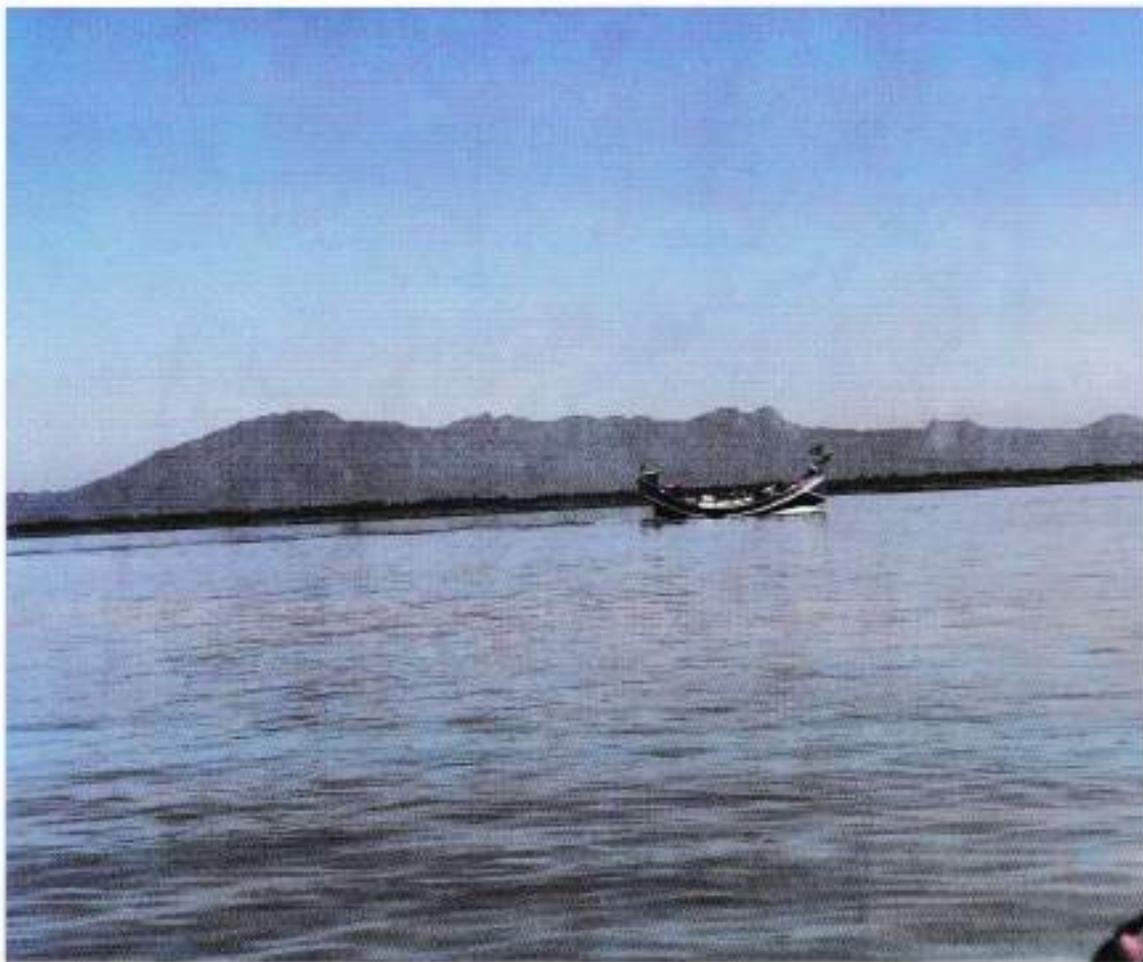
Sl	River Name	Monitoring Stations	No. of Stations
1	Buriganga	Mirpur Bridge, Hazaribagh, Kamrangir Char, Chandni Ghat, Sadar Ghat, Dholaikhal, Pagla, Bangladesh China Friendship Bridge	08
2	Shitalakhya	Near ACI Factory, Demra Ghat, Ghorashal Fertilizer Factory, Near Kanchpur Bridge	04
3	Turag	Gabtohi Bridge, Mirpur BIWTA Landing Station, Ashulia BIWTA Landing Station, Tongi Istima Mat and North Side of Tongi Bridge	05
4	Dhaleshwari	200m up of CETP, Dropping Point of CETP, 200m Down of CETP, Muktarpur Bridge, Munshiganj and Harindhara, Hemayetpur, Savar	05
5	Brahmaputra	Mymensingh	01
6	Kaliganga	Veuta Ghat, Manikgonj	01
7	Jamuna	Bahadarabad Ghat, Near Jamuna Fertilizer Factory, Fulchari Ghat, Gibanda (UP & Down Steam), Shariakandi Groin Badth, Bogra (UP & Down Steam), Near Bangabandhu Bridge (UP & Down Steam).	08
8	Meghna	Bhairob Bazar, Meghna Ghat and Shahajalal Paper Mills	03
9	Padma	Mawa Ghat, Shimulia Ghat, Pakshi Ghat (Up and Down Steam), Pabna and Baro Kutu Ghat (Up and Down Steam), Rajshahi.	06
10	Korotoa	Near Fateh Ali Bridge (Up and Down Steam), Near Dutta Bari Bridge (Up and Down Steam), Near Matidali Bridge (Up and Down Steam), Near S.P Bridge (Up and Down Steam) and Shahjadpur (Up and Down Steam).	10
11	Teesta	Tista Bridge (Up Stream and Down stream)	02
12	Karnaphuli	TSP Side, Patenga and CUFL Side, Anowara and Chaktai Khal	03
13	Halda	WASA Intake Mohara, Maduna Ghat, Mohona, Khandakiya Khal, Madari Khal, Katakhal Khal, Krishna Khal	07
14	Moyuri	Gallamari Bridge (Bank, Middle and Oposite )	03
15	Bhairab	Noapara Ghat (Bank, Middle and Oposite), Fultala Ghat (Bank, Middle and Oposite)	06
16	Rupsa	Rupsa Ghat (Bank, Middle and Oposite), Labancham Ghat (Bank, Middle and Oposite)	06
17	Mathavanga	Pipeghat (200M Upstream, Downstream and Middle Stream), Darshana.	03
18	Passur	Mongla Port (Bank, Middle and Oposite)	03
19	Kankshiali	Kaliganj (Bank, Middle and Oposite), Satkhira	03
20	Gorai	Kamarkhali Ghat (Bank, Middle and Oposite), Kustia and Magura Bank, Middle and Oposite)	06
21	Modhumoti	Mollarhat (Bank, Middle and Oposite), Bagarhat.	03
22	Beel Dakatia	Khulna (Bank and Middle)	02
23	Kirtankhola	Launch ghat (Bank and Middle), Dopdopia Kheyaghat (Bank and Middle), Beltola Fery Gaht (Bank and Middle)	06
24	Tetulia	Vedhoria Feri Ghat (Bank and Middle), Bhola.	02
25	Sugandha	Jhalkathi Launch Ghat (Bank and Middle)	02
26	Lohalia	Patuakhali Launch Ghat, (Bank and Middle)	02
27	Surma	Mendibag Point, Kin Bridge, Shak Ghat, Chattak and Kazi Bazaar	05
28	Kushiara	Jokigonj (BSF Ghat, BDR Camp) and Fenchugonj Point	03
29	Balu	Near Jaber & Jubair Fabrics Ltd., Near Hossain Dyeing Ltd., Near Damra University College, Near Balu Bridge, 300 feet Road, Near Fulpukuria Dyeing Ltd., South Side of Tongi Rail Bridge, Pagar, Tongi.	06

### Map of Existing Monitoring Station of DoE

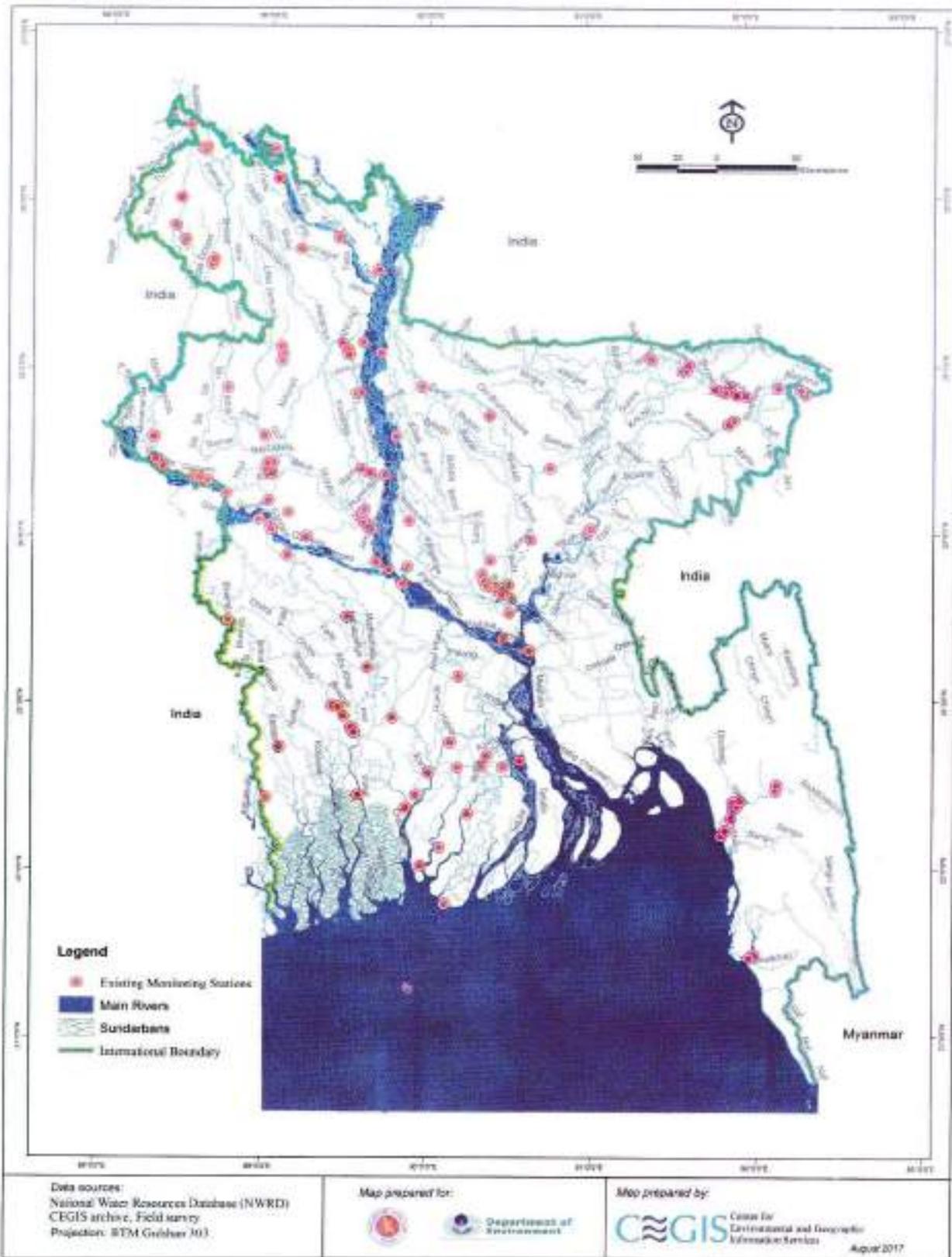


**Figure-B: Location of Surface Water Monitoring Stations**

## **CHAPTER 4: RIVER WATER QUALITY IN 2018**



### Map of Existing Monitoring Station of DoE



**Figure-B: Location of Surface Water Monitoring Stations**



## CHAPTER 4: RIVER WATER QUALITY IN 2018

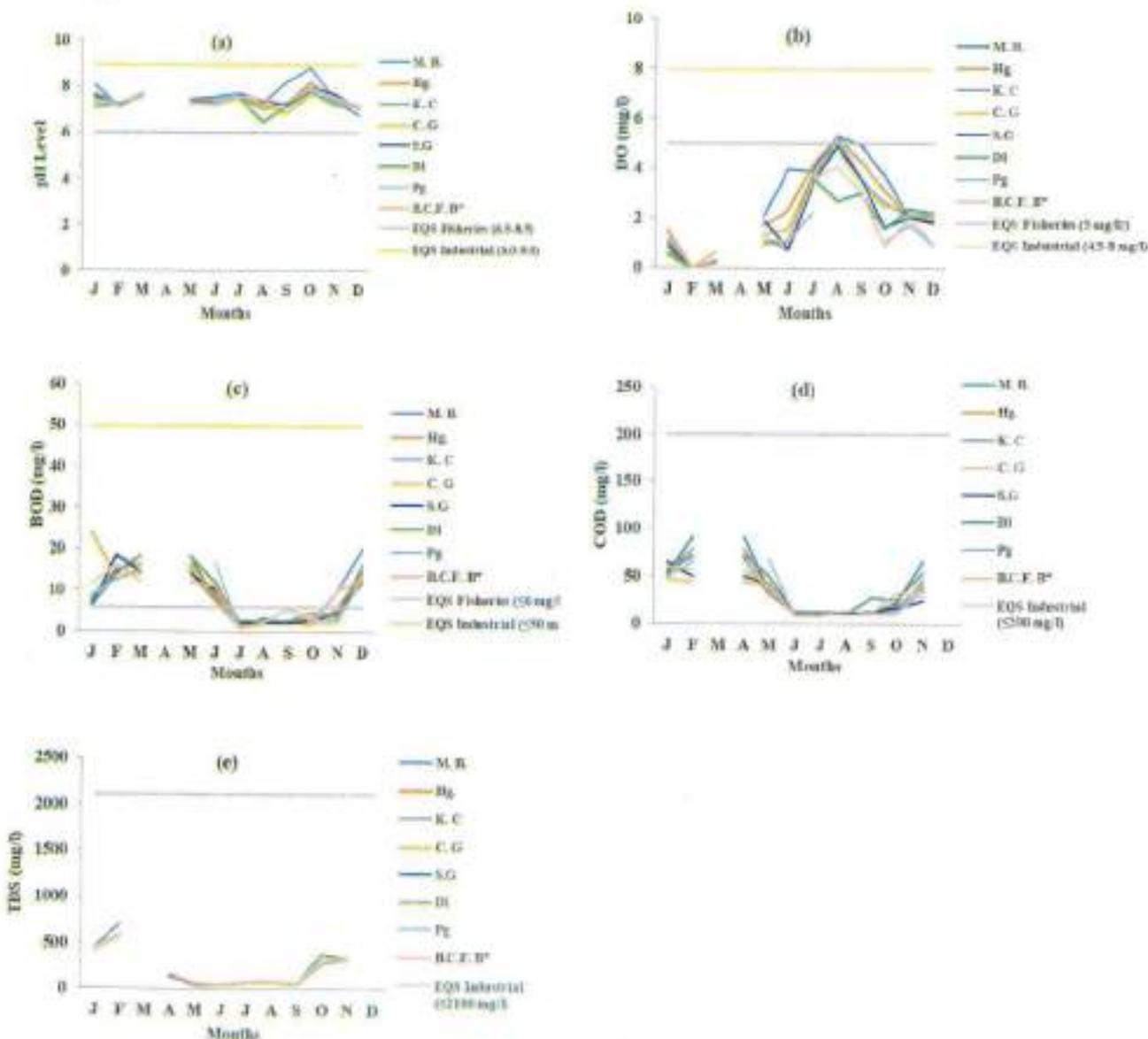
### 4.1 Buriganga River

Buriganga river starts from Turag River at Amin Bazar of Savar and falls into Dhaleswari River at Keraniganj of Dhaka (Source: Bangladesh Water Development Board 2011, Department of Bangladesh Haor & Wetlands Development 2016).

To monitor water quality of Buriganga river, samples were collected from eight different locations viz. Mirpur Bridge (M.B), Hazaribag (Hg), Kamrangir Char (K.C), Chandni Ghat (C.G), Sadar Ghat (S.G), Dholaikhal (DL), Bangladesh China Friendship Bridge (B.C.F.B) and Pagla (Pa) along the river. Detail data is attached Annex-1 (Table:1-10).

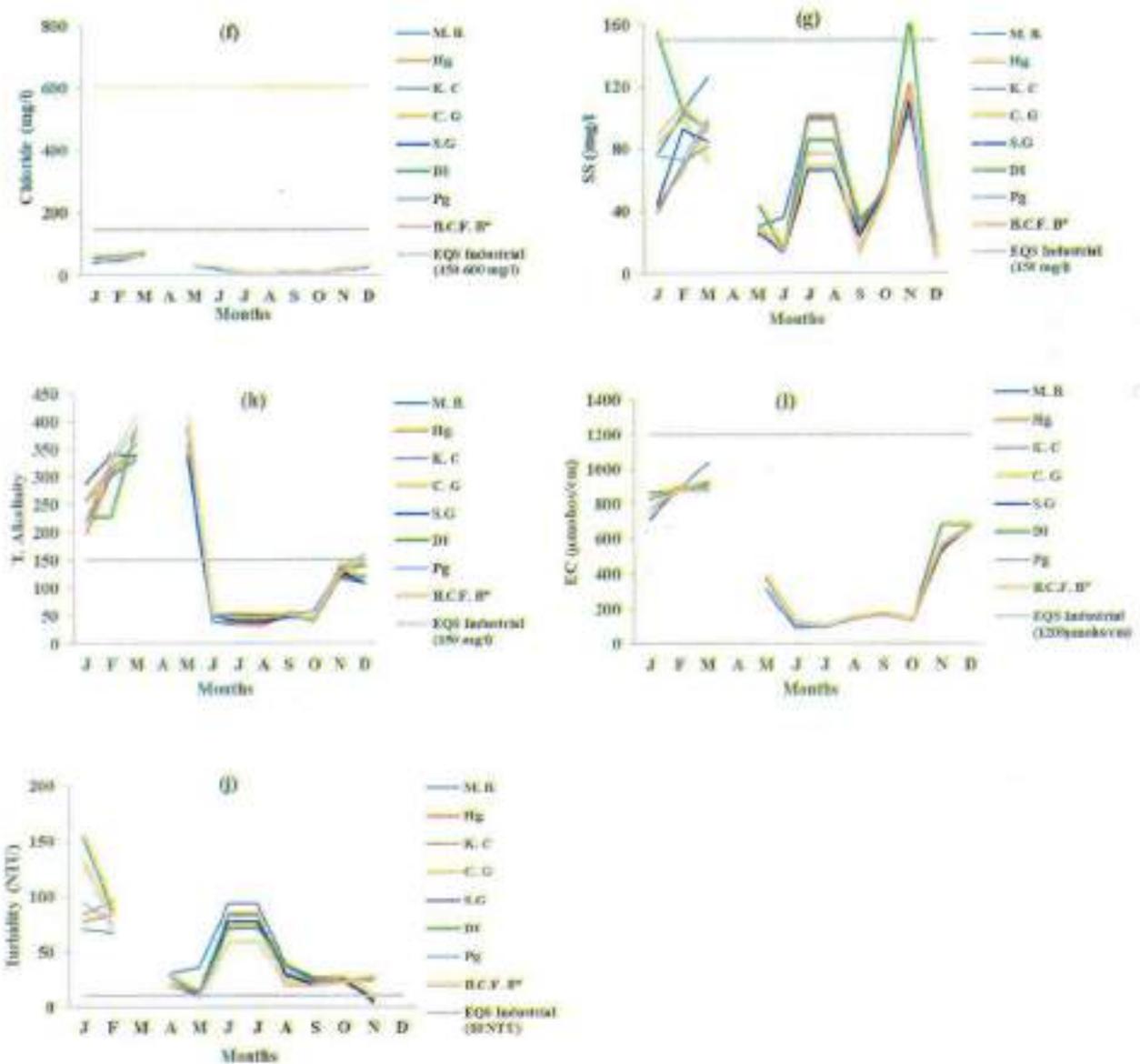
In 2018, pH among different locations varied from 6.49 to 8.81 (Fig.1.1 a) while standard pH range for inland surface water for fisheries is 6.5 to 8.5. In 2017, pH range varied from 7.05 to 7.93. In 2018, the maximum DO (5.28 mg/l) was found at Mirpur Bridge in August and the minimum (0.0 mg/l) was at all locations in February (Fig.1.1 b). Direct discharge of untreated effluent from industries, reduced flow of river water, municipal wastes and tannery wastes into the river are the proximate causes for depletion of DO in dry season. DO level was slightly increased in wet season (July to October) at all locations of the river. In 2017, DO level varied from 0.0 mg/l to 5.58 mg/l. In 2018, BOD of Buriganga river water was higher than EQS ( $\leq 6$  mg/l). The maximum BOD (24 mg/l) was found at Chadnighat Point in January and the minimum (1.0 mg/l) was at B.C.F.B Point in July (Fig.1.1 c). In 2017, BOD range was 0.8 to 32 mg/l. In 2018, COD level was mostly below the EQS (200 mg/l) set for industrial waste water after treatment. The maximum and the minimum COD concentration of Buriganga river was 91 mg/l at Mirpur Bridge Point in May and 9 mg/l at B.C.F.B point in July (Fig.1d). In 2017, COD varied from 10 mg/l to 113 mg/l. In 2018, TDS of Buriganga river varied from 37.1 to 695 mg/l (Fig.1.1 e) against the EQS of 2100 mg/l for industrial wastewater after treatment. In 2017, TDS concentration varied from 71.7 to 605 mg/l.

In 2018, Chloride concentration of the Buriganga river was below the EQS for industrial wastewater after treatment. The maximum concentration was 73 mg/l at Dholaikhal point in March and the minimum 8.0 mg/l at Mirpur Bridge in October (Fig.1.2 f). In 2017, Chloride concentration varied from 4.0 mg/l to 89 mg/l. In 2018, SS of Buriganga river water at different locations was below the EQS (150 mg/l) for wastewater after treatment from industrial units. The maximum SS was 166 mg/l in November at Dholaikhal and the minimum 10 mg/l in December at B.C.F.B point (Fig.1.2 g). In 2017, SS varied from 11 mg/l to 142 mg/l. In 2018, the maximum and the minimum Total Alkalinity of Buriganga river water was 410 mg/l at B.C.F.B point in May and 34 mg/l at Mirpur Bridge in July (Fig.1.2 h). In 2017, T.Aikalinity varied from 40 mg/l to 284 mg/l. In 2018, the maximum EC of Buriganga river water was 1043  $\mu$ mhos/cm in March at Mirpur Bridge point and the minimum 88.7  $\mu$ mhos/cm in June at the same location (Fig.1.2 i). In 2017, EC varied from 151.2  $\mu$ mhos/cm to 1178  $\mu$ mhos/cm. In 2018, the maximum and the minimum Turbidity of Buriganga river water was 154 NTU at Dholaikhal in February and 3.42 NTU at Kamrangir Char point in December while EQS is 10 NTU (Fig.1.2 j). In 2017, Turbidity range varied from 9.66 to 184 NTU.



**Fig.1.1: Status of pH, DO, BOD, COD and TDS of Buriganga River in 2018**

Note: Mirpur Bridge (M.B), Hazaribag (Hg), Kamrangir Char (K.C), Chandni Ghat (C.G), Sadar Ghat (S.G), Dholaikhal (DL), Bangladesh China Friendship Bridge (B.C.F.B) and Pagla (Pa).



**Fig.1.2: Status of Chloride, SS, T. Alkalinity, EC and Turbidity of Buriganga River in 2018**

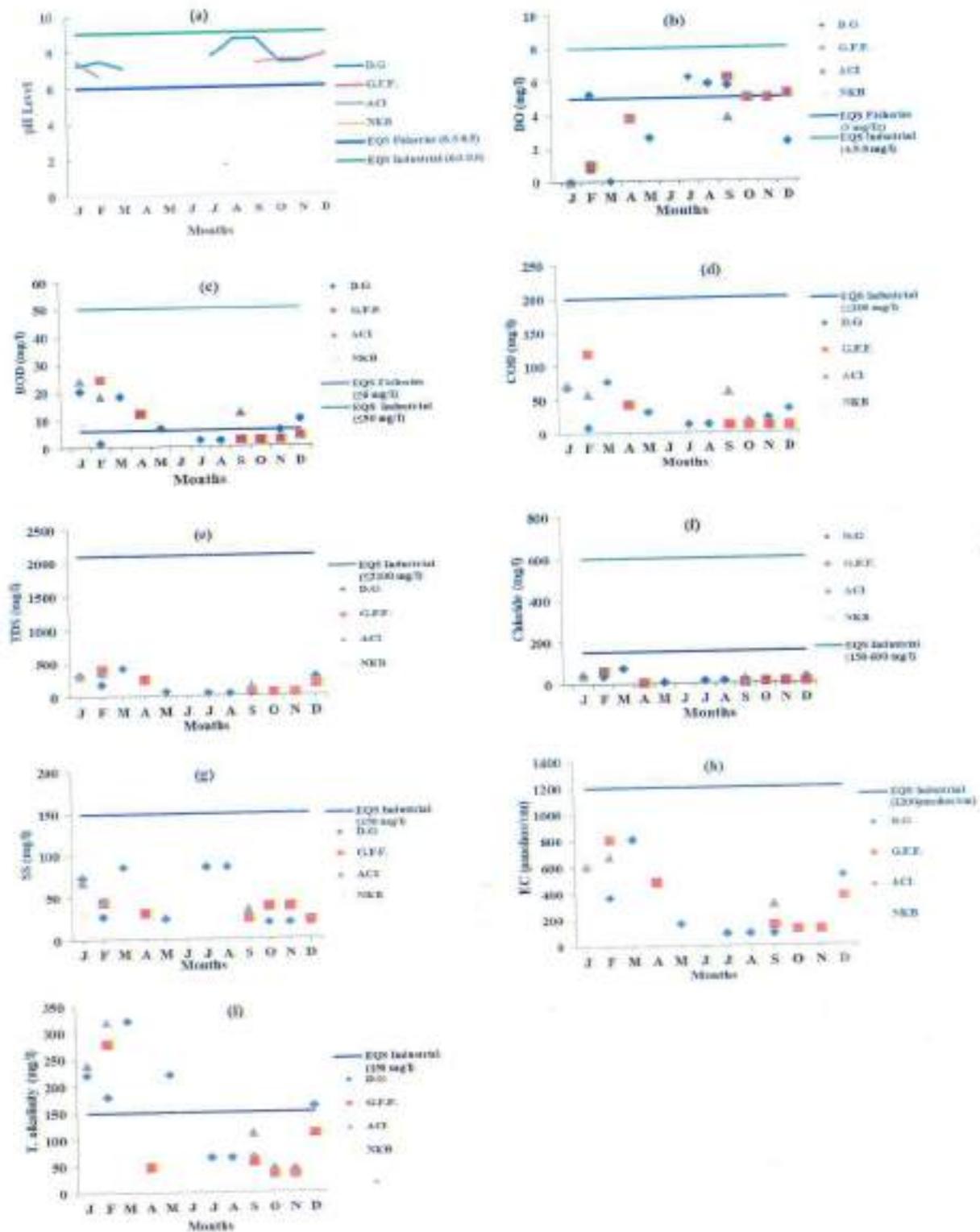
Note: Mirpur Bridge (M.B), Hazaribag (Hg), Kamrangir Char (K.C), Chandni Ghat (C.G), Sadar Ghat (S.G), Dholaikhal (DL), Bangladesh China Friendship Bridge (B.C.F.B) and Pagla (Pa).



## 4.2 Shitalakhya River

The Shitalakhya river is a distributary of the Brahmaputra river. It remains navigable round the year. For monitoring water quality, samples were collected from four different locations viz. Demra Ghat (D.G), Ghorasal Fertilizer Factory (G.F.F), Near Kanchpur Bridge (N.K.B) and near ACI Factory at Narayanganj. Detail data is attached Annex-1 (Table:11-19).

In 2018, pH of Shitalakhya river water was within the EQS (6.5-8.5) range for inland surface water. The maximum pH was 8.66 in September at Demra Ghat and the minimum PH was 6.61 in February at ACI Factory point (Fig.2a). In 2017, pH varied from 7.68 to 8.18. In 2018, the maximum DO (6.2 mg/l) was found at Demra Ghat point in July and the minimum (1.0 mg/l) was found at Ghorasal Fertilizer Factory point in February and February (Fig.2b). In 2017, DO varied from 0.0 to 7.2 mg/l. In 2018, BOD at Demra Ghat was very high during dry period and was above the EQS ( $\leq 6$  mg/l) for fisheries. Highest value of BOD (24.6 mg/l) was found Ghorasal Fertilizer Factory in February and lowest (1.4 mg/l) was in July at Demra Ghat point (Fig.2c). In 2017, BOD concentration varied from 1.0 mg/l to 44.6 mg/l. In 2018, COD level was within the EQS (200 mg/l) for wastewater after treatment from industrial units at all locations of Shitalakhya river. The maximum COD (118 mg/l) was at Ghorasal Fertilizer Factory in February and the minimum COD (8.4 mg/l) was at Demra Ghat in February (Fig.2d). In 2017, COD level varied from 5 mg/l to 110 mg/l. In 2018, TDS of Shitalakhya river water varied from 37.4 to 411 mg/l against the EQS (2100 mg/l) for wastewater after treatment from industrial units. In dry season maximum TDS (411 mg/l) was at Ghorasal Fertilizer Factory in February and the minimum (37.4 mg/l) in August at Demra Ghat (Fig.2e). In 2017, TDS range was from 58.2 to 556 mg/l. In 2018, Chloride concentration of the Shitalakhya river water was below the EQS (600 mg/l) for wastewater after treatment from industrial units. The maximum Chloride (70 mg/l) was found at Demra Ghat in March and the minimum was 7.0 mg/l at near G.F.F in April (Fig.2f). In 2017, Chloride concentration varied from 4.0 mg/l to 280 mg/l. In 2018, SS of Shitalakhya river water at different sampling locations was within the EQS (150 mg/l). Maximum SS concentration of Shitalakhya river was 86 mg/l at Demra Ghat point in August and the minimum was 19 mg/l in November at the same location (Fig.2g). In 2017, SS varied from 10 mg/l to 198 mg/l. In 2018, EC of Shitalakhya river at different locations was mostly within the EQS (1200  $\mu$ mhoms/cm) for treated wastewater from industrial units (Fig.2h). The maximum EC (809  $\mu$ mhoms/cm) was at demra Ghat point in March and the minimum EC (86  $\mu$ mhoms/cm) was at Demra Ghat in July. In 2017, EC varied from 114.1  $\mu$ mhoms/cm to 1108  $\mu$ mhoms/cm. In 2018, Maximum Total Alkalinity (322 mg/l) was at Demra Ghat in March and that of minimum was (36 mg/l) at Ghorasal Fertilizer Factory in October (Fig.2i). In 2017, Total Alkalinity varied from 36 mg/l to 338 mg/l.



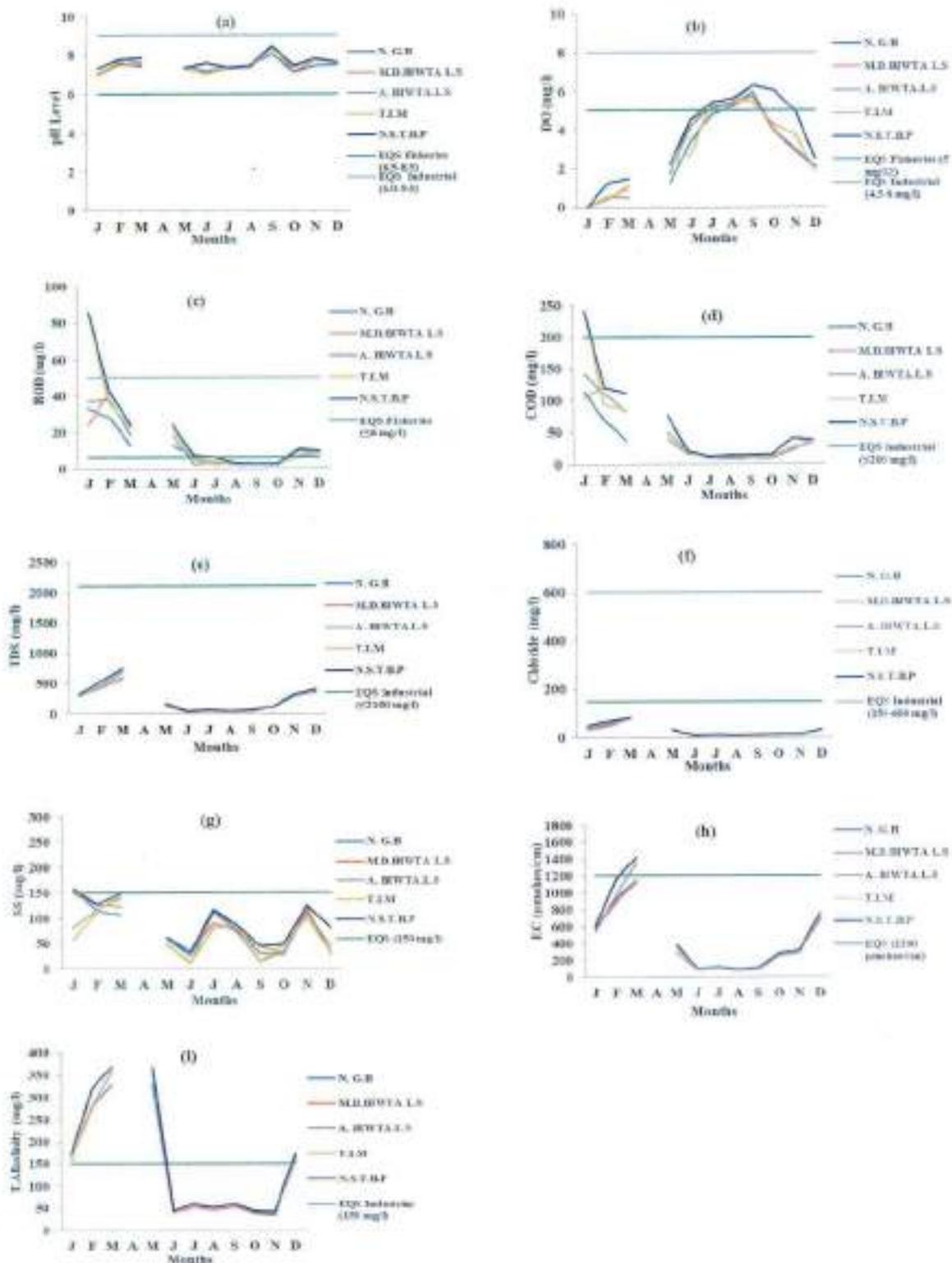
**Fig.2: Status of pH, DO, BOD, COD, TDS, Chloride, SS, EC and T. Alkalinity of Shitalakhya River in 2018**  
 Note: Demra Ghat (DG), Ghorasal Fertilizer Factory (GFF), Near Kanchpur Bridge (NKB) and near ACI Factory



### 4.3 Turag River

The Turag river is the upper tributary of the Buriganga. It sourced (offtake) from Bangshi River of Kaliakair Upazila of Gazipur District and ended (outfall) into Buriganga River of Savar Upazila of Dhaka District (Source: Bangladesh Water Development Board 2011, Department of Bangladesh Haor & Wetlands Development 2016). To monitor water quality in 2018, water samples were collected from five locations such as New Gabtoli Bridge (NGB), Mirpur Diabary BIWTA Landing Station (MDLS), Ashulia BIWTA Landing Station (ALS), Tongi Istima Mat and (TIM), North Side of Tongi Bridge (NSTB). Detail data is attached Annex-1 (Table:20-28).

In 2018, the pH range (6.99- 8.48) (Fig.3a) of Turag river was within EQS (6.5 -8.5). The maximum pH 8.48 was found in September at Mirpur Diabary BIWTA Landing Station and the minimum pH 6.99 was found in January at the same location. In 2017, pH range was 6.68- 8.13. In 2018, DO concentration of Turag river water was very low during dry season. The maximum DO (6.32 mg/l) found at Ashulia BIWTA Landing Station in September and the minimum DO (0.0) mg/l was found in January at the all locations (Fig.3b). In 2016, DO was varied from 0.0 to 5.87. In 2017, BOD of Turag river water was beyond the EQS ( $\leq 6$  mg/l) for all sampling locations. The maximum BOD was 86 mg/l in January at Tongi Istima Mat and the minimum was 2.2 mg/l in October at New Gabtoli Bridge (Fig.3c). In 2017, BOD varied from 0.5 mg/l to 54 mg/l. In 2018, COD at almost all locations of Turag river was below the EQS (200 mg/l) for waste water after treatment from industrial units. The maximum and the minimum COD content of Turag river water was 241 mg/l at Tongi Istima Mat in January and 10 mg/l at Mirpur Diabary BIWTA Landing Station in July (Fig.3d). In 2017, COD range was from 5.0 mg/l to 130 mg/l. In 2018, TDS was below the EQS (2100 mg/l) for wastewater after treatment from industrial units (Fig.3e) at all the sampling points. The maximum TDS was 746 mg/l in March at Tongi Istima Mat while that of minimum was 35.4 in June at Ashulia BIWTA Landing Station. In 2017, TDS varied from 60.1 mg/l to 789 mg/l. In 2018, Chloride content of Turag river water was below the EQS (600 mg/l). The maximum Chloride was (83 mg/l) found in March at New Gabtoli Bridge and the minimum Chloride was (5.0 mg/l) in June at the same locations (Fig.3f). In 2017, Chloride varied from 3.0 mg/l to 135 mg/l. In 2018, the maximum SS (159 mg/l) was at New Gabtoli Bridge in January and the minimum (12 mg/l) in June at Ashulia BIWTA Landing Station (Fig.3g). In 2017, SS varied from 9.0 mg/l to 297 mg/l. In 2018, the maximum EC (1418  $\mu$ mhos/cm) was in March at Tongi Istima Mat and the minimum (83.6  $\mu$ mhos/cm) was in June (Fig.3h) at Ashulia BIWTA Landing Station. In 2017, EC varied from 116  $\mu$ mhos/cm to 1679  $\mu$ mhos/cm. In 2018, the maximum Total Alkalinity (368 mg/l) was at Tongi Istima Mat in March and the minimum (36 mg/l) in November at New Gabtoli Bridge (Fig.3i). In 2017, Total Alkalinity varied from 38 mg/l to 320 mg/l.



**Fig.3. Status of pH, DO, BOD, COD, TDS, Chloride, SS, EC and T.A. Alkalinity of Turag River in 2018**  
 New Gabtoli Bridge (NGB), Mirpur Diabary BIWTA Landing Station (MDLS), Ashulia BIWTA Landing Station (ALS), Tongi Istima Mat and (TIM), North Side of Tongi Bridge (NSTB).



#### 4.4 Dhaleshwari River

The Dhaleshwari river is a 160 km long distributary of the Jamuna river flowing through central part of Bangladesh. Dhaleswari River is an important branch river Brahmaputra-Jamuna River. It starts off Brahmaputra-Jamuna River at Kalihati Upazila of Tangail District and finally meets with Meghna (Upper) River at Gazaria Upazila of Munshiganj District. (Source: Bangladesh Water Development Board 2011, Department of Bangladesh Haor & Wetlands Development 2016).

In 2018, water samples were collected from five locations namely 200m up of CETP, Dropping Point of CETP, 200m Down of CETP, Muktarpur Bridge (M.B), Munshiganj and Harindhara, Hemayetpur, Savar, Dhaka for analyses. Data was not available in the months of May, November and December. Detail data is attached Annex-1 (Table: 29-37).

In 2018, Dhaleshwari river water was almost neutral and pH varied from 6.55 to 8.44 (Fig.4a). In 2017, pH level varied from 6.55 to 8.27. In 2018, the maximum DO concentration (6.83 mg/l) was at 200m Down of CETP point in July and the minimum (0.0 mg/l) at all Points of CETP in January (Fig.4b). In 2017, DO concentration varied from 0.5 to 6.8 mg/l. In 2018, BOD varied from 2.0 to 7.9 mg/l (Fig.4c) while EQS for fisheries is  $\leq 6$  mg/l. The maximum BOD was 7.9 mg/l in June at Dropping Point of CETP and the minimum BOD was 2.0 mg/l in June at 200m up of CETP. In 2017, BOD varied from 0.4 to 12.8 mg/l. Level of COD of Dhaleshwari river water was within the EQS. The maximum COD of Dhaleshwari river water was 187 mg/l in July at 200m Dropping point of CETP and the minimum was 5mg/l in June at 200m up of CETP (Fig.4d) against the EQS (200 mg/l) for wastewater after treatment from industrial units. In 2017, COD varied from 10 to 79 mg/l. In 2018, TDS concentration varied from 78.8 to 3430 mg/l (Fig.4e) while standard TDS level is 2100 mg/l for wastewater after treatment from industrial units. The maximum TDS was 3430 mg/l in October at Dropping Point of CETP and the minimum TDS was 78.8 mg/l in June at 200m up of CETP. In 2017, TDS varied from 57 to 580 mg/l. In 2018, Chloride concentration ranged from 7 to 121 mg/l (Fig.4f), which is far below the EQS (600 mg/l) for wastewater after treatment from industrial units. In 2017, Chloride concentration range of Dhaleshwari river water was from 4 to 73 mg/l mg/l. In 2018, SS concentration ranged from 10 to 78 mg/l (Fig.4g), which is within the EQS (150 mg/l) for wastewater after treatment from industrial units. In 2017, SS concentration range of Dhaleshwari river water was from 4 to 78 mg/l mg/l. In 2018, Electrical Conductivity (EC) of Dhaleshwari river water at different locations was mostly within the EQS (1200  $\mu$ mhos/cm). The maximum and the minimum EC of Dhaleshwari river water was 7370  $\mu$ mhos/cm in September at Dropping Point of CETP and 152.9  $\mu$ mhos/cm in October at 200m Down of CETP (Fig.4h). In 2017, EC of Dhaleshwari river water was from 116.4  $\mu$ mhos/cm to 1365  $\mu$ mhos/cm. In 2018, the maximum Total Alkalinity of Dhaleshwari river water was 363 mg/l in February at Dropping point of CETP and the minimum was 48 mg/l in April at Muktarpur Bridge (Fig.4i). In 2017, Total Alkalinity of Dhaleshwari river water was from 50 to 236 mg/l.

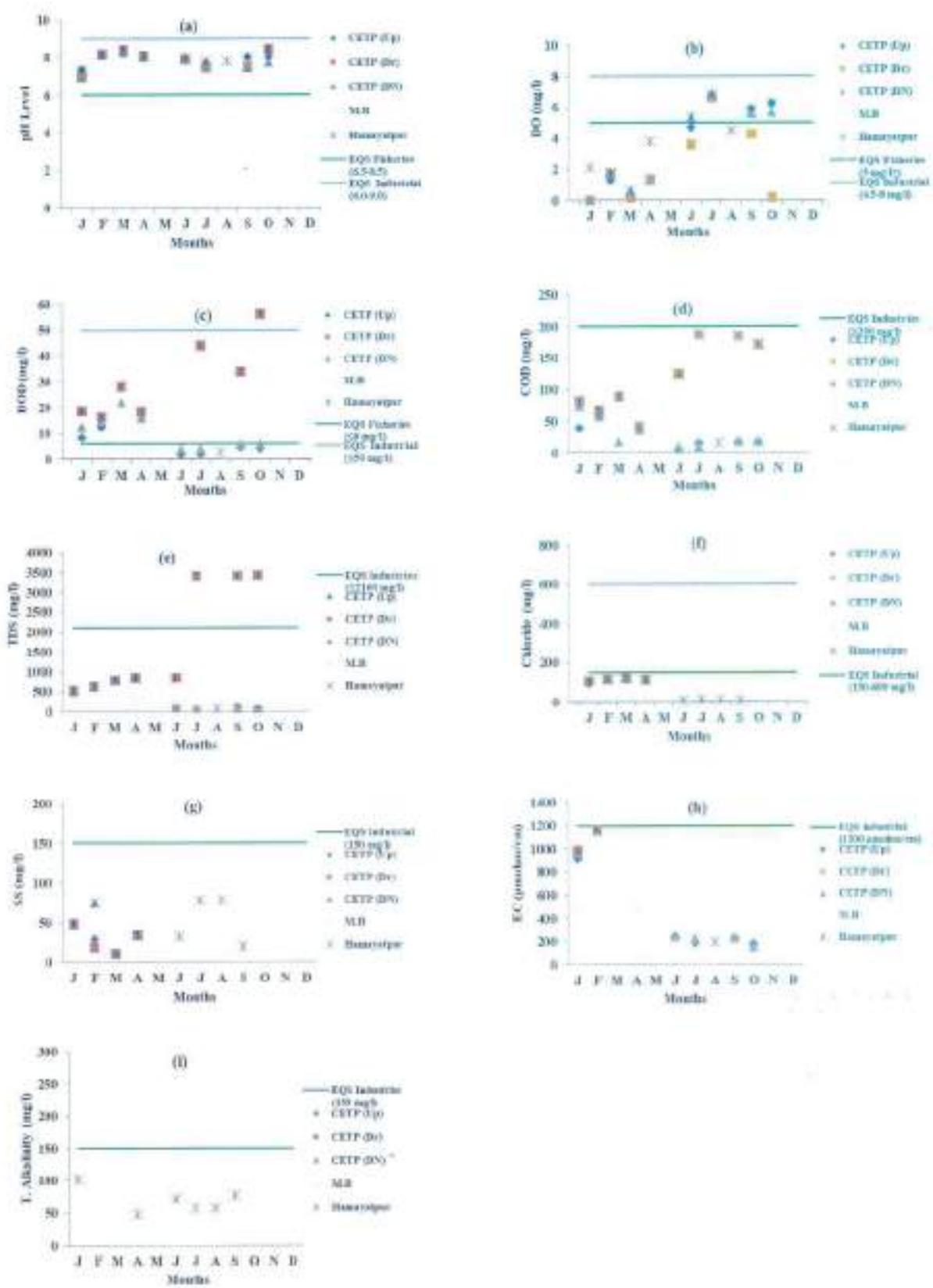


Fig.4. Status of pH, DO, BOD, COD, TDS, Chloride, SS, EC and T. Alkalinity of Dhaleshwari River in 2018



### 4.5 Brahmaputra River

Brahmaputra river originates from mount kailash of the Himalay. After flowing past Chilmari, Bangladesh, it is joined on its right bank by the Tista River and then follows south as the Jamuna River. South of Gaibanda, the Brahmaputra leaves the left bank of the mainstream and flows past Jamalpur and Mymensingh to join the Meghna River at Bhairab Bazar (Source: Bangladesh Water Development Board 2011, Department of Bangladesh Haor & Wetlands Development 2016). For monitoring of water quality, water samples were collected from one location (e.g. Mymensingh) of the river. Date was not available for the months of January to April, July and October to December of the river, Detail data is attached Annex-1 (Table: 38-43).

In 2018, pH level of Brahmaputra river water varied from 7.47 to 8.34 (Fig.5a), while standard range for fisheries is 6.5 to 8.5. In 2017, pH level varied from 6.38 to 7.55. In 2018, DO concentration varied from 5.9 to 6.61 mg/l (Fig.5b). The highest and the lowest DO was found in August and May respectively, while EQS for DO for fisheries is  $\geq 5$  mg/l. In 2017, DO varied from 6.4 to 8.5 mg/l. In 2018, BOD concentration varied from 2.0 to 2.6 mg/l (Fig.5c) while EQS for fisheries is  $\leq 6$  mg/l. In 2017, BOD varied from 1.2 to 2.8 mg/l. In 2018, TDS level ranged from 44.4 to 210 mg/l (Fig.5d) and was within the EQS (2100 mg/l). In 2017, TDS level varied from 76.4 to 557 mg/l. In 2018, SS was varied from 21 to 45 mg/l (Fig.5e). In 2017, SS was 7 to 25 mg/l. In 2018, Chloride level was from 10.0 to 12.0 mg/l (Fig.5f) and which is less than EQS (600 mg/l) for treated wastewater from industrial units. In 2017, Chloride concentration varied from 6.0 to 10.0mg/l.

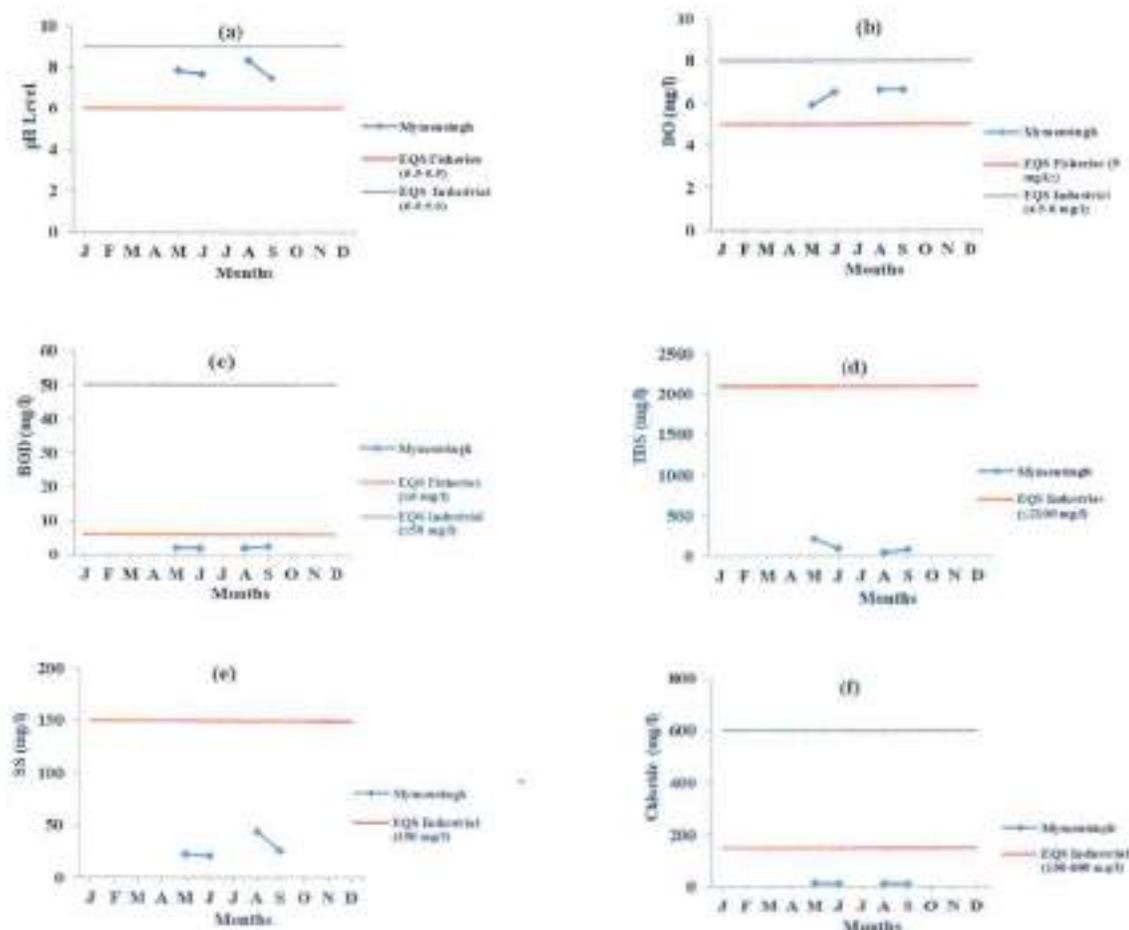


Fig.5. Graphical presentation of pH, DO, BOD, TDS, SS and Chloride of Brahmaputra River in 2018



## 4.6 Kaliganga River

The Kaliganga river flows by Manikganj district. For monitoring of water quality, water samples were collected from one location (e.g. Bheutha Ghat, Manikganj) of the river. Data was not available for the months of February, April, June, July, and October to December of the river. Detail data is attached Annex-1 (Table: 44-49).

In 2018, pH of Kaliganga river varied from 6.89 to 7.76 (Fig.6a). The maximum and the minimum pH was found in May and January, respectively. In 2017, pH level varied from 7.06 to 7.99. In 2018, DO range was from 5.8 to 8.0 mg/l (Fig.6b). In 2017, DO was from 5.8 to 8.8 mg/l. In 2018, BOD varied within a range of 1.4 to 6.0 mg/l (Fig.6c). In 2017, BOD varied from 0.8 to 4.2 mg/l. In 2018, COD varied within a range of 2.5 to 18.0 mg/l (Fig.6d). In 2018, TDS concentration was within the limit of EQS (2100 mg/l) for wastewater after treatment from industrial units. The maximum TDS was 308 mg/l in January and the minimum TDS was 78 mg/l in May (Fig.6e). In 2017, TDS concentration varied from 57 to 226 mg/l. In 2018, SS of Kaliganga river water was within the EQS (150 mg/l). The maximum and the minimum SS was 20.0 mg/l and 11.0 mg/l, respectively (Fig.6f). In 2017, SS varied from 18.0 to 90.0 mg/l.

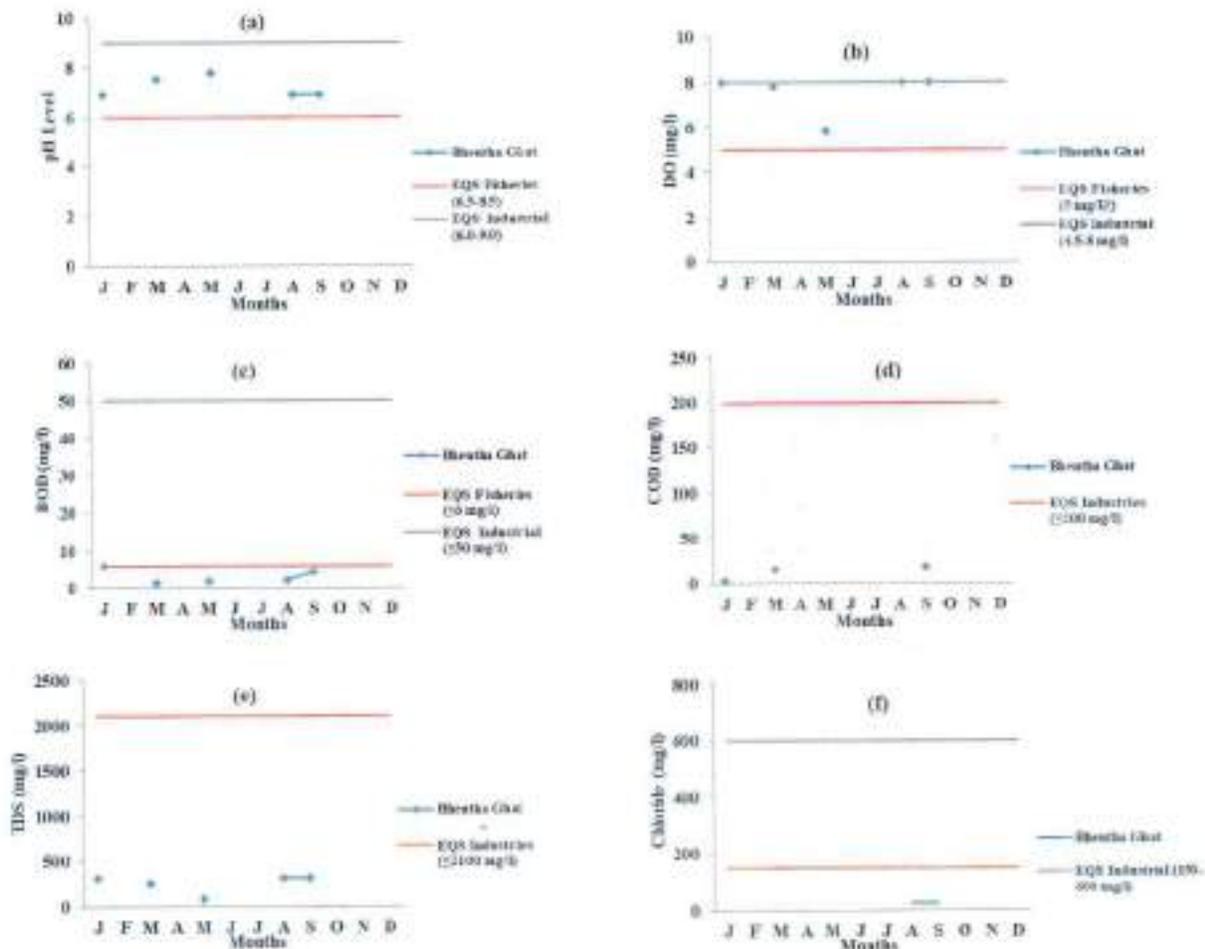


Fig.6. Status of pH, DO, BOD, COD, TDS and SS of Kaliganga River in 2018



## 4.7 Jamuna River

To monitor water quality, samples were collected only from eight locations e.g. Bahadurabad Ghat (B.G), Near Jamuna Fertilizer Factory (N.J.F.F), Fulchari Ghat, Gibanda (F.G.G), Shariakandi Groin Badth, Bogra (S.G.B.B), Near Bangabandhu Bridge (N.B.B). Data was not available for the months of January, April to June and August to December at the Bahadurabad Ghat and Near Jamuna Fertilizer Factory of the river. Detail data is attached Annex-1 (Table: 50-55).

In 2018, pH varied from 7.3 to 8.73 and it was within the EQS limits (6.5 to 8.5) (Fig. 7a). In 2017, pH was varied from 6.95 to 8.48. In 2018, DO concentrations ranged from 6.2 to 7.63 mg/l (Fig. 7b) and it was within the EQS ( $\geq 5$  mg/l) for fisheries. In 2017, DO concentration varied from 4.4 to 7.5 mg/l. In 2018, the maximum BOD level was 2.9 mg/l in February at Fulchari Ghat, Gibanda and the minimum BOD level was 0.6 mg/l in August at Near Jamuna Fertilizer Factory (Fig. 7c). BOD was below the EQS ( $\leq 6$  mg/l) for fisheries (Fig. 7c). In 2017, BOD concentration varied from 2.0 to 5.8 mg/l. In 2018, SS concentration varied 44 mg/l to 90 mg/l and was below the EQS (150 mg/l) ((Fig. 7d). In 2017, SS was from 30 mg/l to 93 mg/l. In 2018, level of TDS of Jamuna river water varied from 40.7 to 365 mg/l (Fig. 7e), while EQS for TDS is 2100 mg/l. In 2017, TDS level varied from 56.9 to 294 mg/l. In 2018, Chloride content was varied from 8.0 mg/l to 35.0 mg/l (Fig. 7f). In 2017, Chloride concentration varied from 3.0 mg/l to 50.0 mg/l.

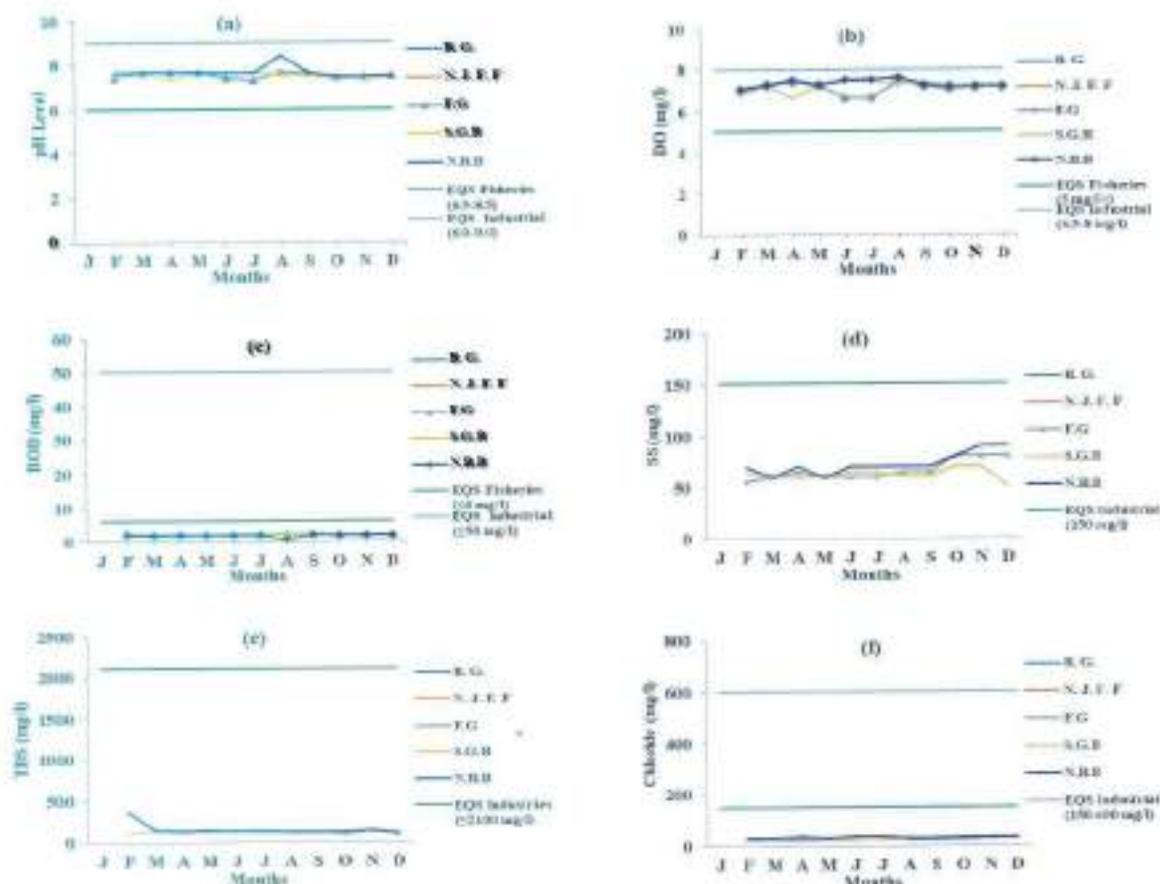


Fig.7. Status of pH, DO, BOD, SS, TDS and Chloride of Jamuna River in 2018



## 4.8 Meghna River

To monitor water quality, water samples were collected from three locations of Bhairab Bazar (B.B), Meghna Ghat (M.G), Near Shahjalal Paper Mills (N.S.P.M) of the Meghna river. Detail data is attached Annex-1 (Table: 56-61).

In 2018, the highest pH was 7.94 in August at Meghna Ghat point and the minimum pH was 6.52 at the same location in November (Fig.8a). In 2017, pH level varied from 6.12 to 8.02. In 2018, DO level of Meghna river was varied 4.76 mg/l to 7.2 mg/l and was often higher than the EQS ( $\geq 5$  mg/l) for fisheries (Fig.8b). In 2017, DO level varied from 4.8 mg/l to 7.99 mg/l. In 2018, at all the sampling locations of the river, BOD was below the EQS ( $\leq 6$  mg/l) for fisheries round the year. The maximum and the minimum BOD load were 6.4 mg/l in March at Near Shahjalal Paper Mills and 1.2 mg/l in January at Bhairab Bazar point (Fig.8c). In 2017, BOD concentration varied from 0.8 to 5.3 mg/l. In 2018, TDS of Meghna river water was very low and the range was from 16.52 to 95.60 mg/l (Fig.8d). In 2017, TDS concentration varied from 31.5 to 111.5 mg/l. In 2018, SS of Meghna river varied from 6.0 to 84.0 mg/l (Fig.7e). In 2017, SS was varied from 10.0 to 36.0 mg/l. In 2018, Chloride concentration at all the sampling locations was within the EQS (600 mg/l) for waste water after treatment from industrial units. The maximum Chloride (13.0 mg/l) was found in November at Near Shahjalal Paper Mills and the minimum (2.0 mg/l) was in September at Meghna Ghat point (Fig.8f). In 2017, Chloride concentration varied from 4.0 to 13.0 mg/l.

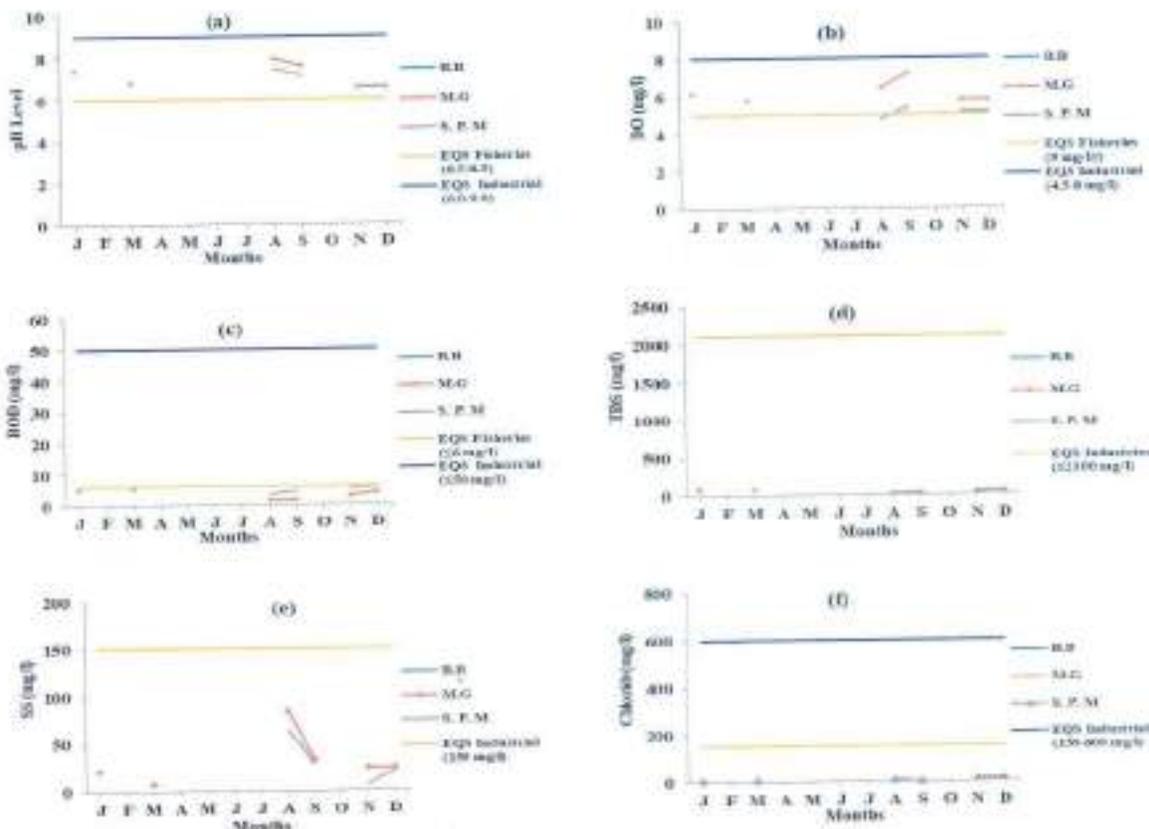


Fig.8. Status of pH, DO, BOD, TDS, SS and Chloride of Meghna River in 2018



## 4.9 Padma River

Padma River is the main distributary of the Ganges, originates from the Gangotri Glacier of Himalay. It enters Bangladesh from India near Nawabganj of Rajshahi and meets the Jamuna near Aricha and retains its name, but finally meets with the Meghna near Chandpur and adopts the name Meghna before flowing into the Bay of Bengal (Source: Bangladesh Water Development Board 2011, Department of Bangladesh Haor & Wetlands Development 2016).

Water samples were collected from six locations of the river namely Mawa Ghat, Shimulia Ghat, Pakshi Ghat (Up and Down Stream) of Pabna and Baro Kuti Ghat (Up and Down Stream) of Rajshahi only middle points were used in the analysis. For analysis, average values of two points were considered. Data was available for the months of January, February, April, August and September of the river. Detail data is attached Annex-1 (Table: 62-67).

In 2018, pH of Padma river water was mostly neutral and varied from 7.3 to 7.93 (Fig.9a) while standard pH for fisheries is 6.5 to 8.5. The maximum pH was found at Mawa Ghat in April and the minimum pH level was at Pakshi Ghat in August. In 2017, pH level varied from 7.31 to 8.58. In 2018, DO level of Padma river was above EQS ( $\geq 5$  mg/l) for fisheries at almost all the locations and it varied from 6.4 to 8.2 mg/l (Fig.9b). In 2017, DO concentration ranged from 6.8 to 7.8 mg/l. In 2018, BOD load was within the EQS ( $\leq 6$  mg/l) for fisheries at all locations. The maximum BOD was found 2.9 mg/l in February at Pakshi Ghat (Down) and the minimum was 0.4 mg/l in September at Mawa Ghat (Fig.9c). In 2017, BOD load varied from 1.6 to 2.9 mg/l. In 2018, TDS level of Padma river water was within EQS throughout the year and it varied from 69.7 to 156 mg/l (Fig.9d). In 2017, TDS concentration varied from 63.5 to 170 mg/l. In 2018, SS level of Padma river water was within EQS throughout the year and it varied from 15 to 72 mg/l (Fig.9e). In 2017, SS varied from 18 to 205 mg/l. In 2018, the maximum and the minimum EC of Padma river water was 320  $\mu\text{mhos/cm}$  in November at Boro Kuti Ghat (Up Stream) and 115.1  $\mu\text{mhos/cm}$  in April at Mawa Ghat (Fig.9f), while EQS is 1200  $\mu\text{mhos/cm}$  wastewater after treatment from industrial units. In 2017, EC varied from 19  $\mu\text{mhos/cm}$  to 334  $\mu\text{mhos/cm}$ .

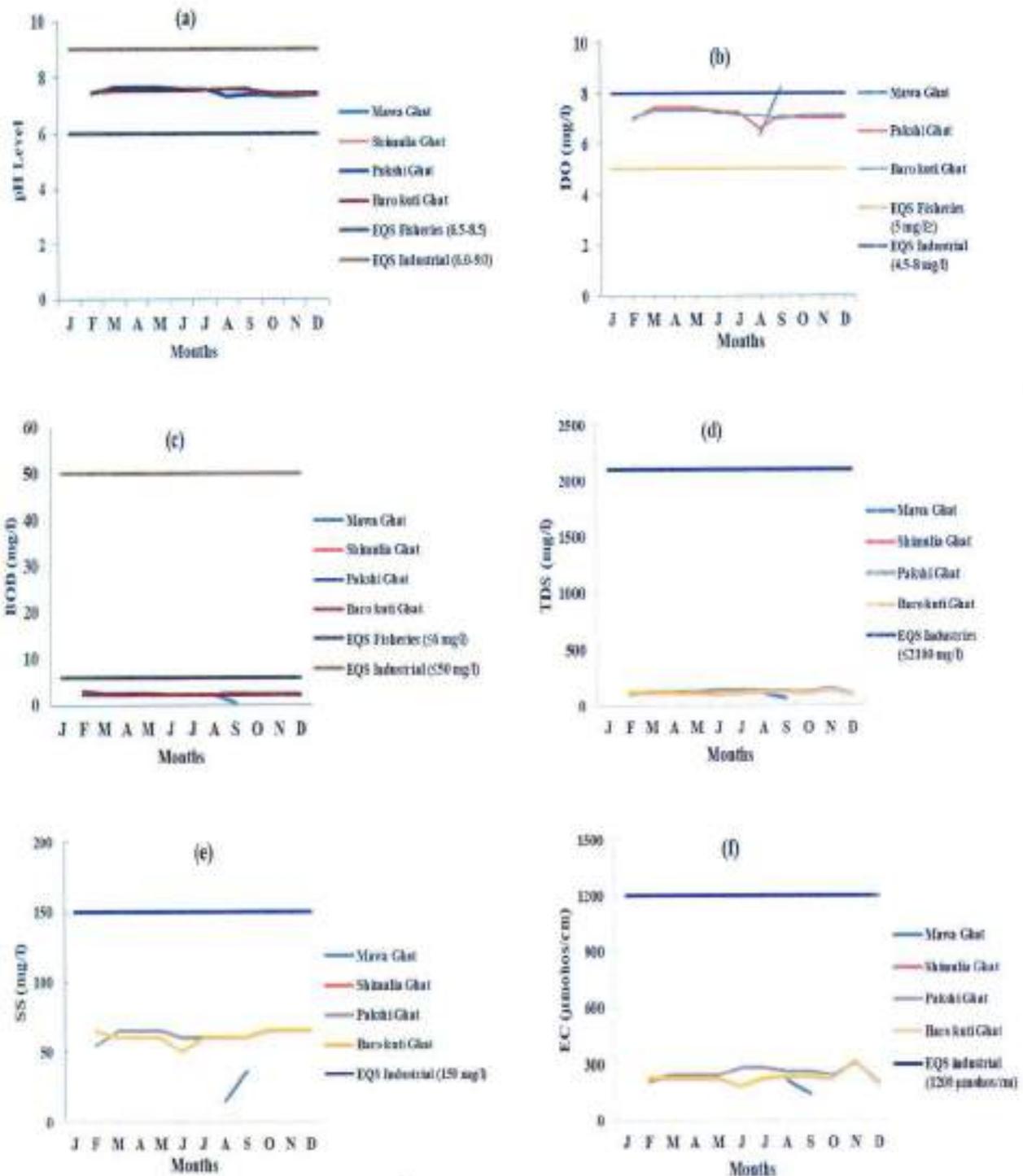


Fig.9. Status of pH, DO, BOD, TDS, SS and EC of Padma River in 2018



### 4.10 Korotoa River

To monitor water quality of Korotoa river in 2018, water samples were collected from ten locations of the river e.g. Near Fateh Ali Bridge (F.A.B), Near Dutta Bari Bridge (D.B.B), Near Matidali Bridge (M.B), Near S.P Bridge (S.P.B) and Shahjadpur (Spr). Data was not available for the months of February and September at all the sampling points of the river. Detail data is attached Annex-1 (Table: 68-73).

In 2018, pH level of Korotoa river water varied from 6.58 to 7.66 (Fig.10a) and was within EQS limit. In 2016, pH level varied from 6.86 to 7.63. In 2018, DO level of Korotoa river water was lower than EQS ( $\geq 5$  mg/l) for fisheries Shahjadpur Point. DO varied from 2.7 to 7.5 mg/l (Fig.10b). In 2017, DO concentration varied from 1.8 to 7.4 mg/l. In 2018, the minimum BOD was 2.0 in November at Shahjadpur and the maximum BOD was 6.3 mg/l in November at Near Dutta Bari Bridge (Fig.10c). In 2017, BOD concentration varied from 2.05 to 7.15 mg/l. In 2018, TDS varied from 110 mg/l to 350mg/l (Fig.10d). In 2017, TDS range was from 110 mg/l to 190 mg/l. In 2018, level of SS of Korotoa river water at different locations was within the EQS. The maximum and the minimum SS was 120 mg/l in October at Shahjadpur and 50 mg/l in June at Near Dutta Bari Bridge (Fig.10e). In 2017, SS concentration varied from 55 mg/l to 100 mg/l. In 2018, average EC varied from 220  $\mu\text{mhos/cm}$  to 700  $\mu\text{mhos/cm}$  (Fig.10f) and was within the EQS limit. In 2017, EC concentration varied from 230  $\mu\text{mhos/cm}$

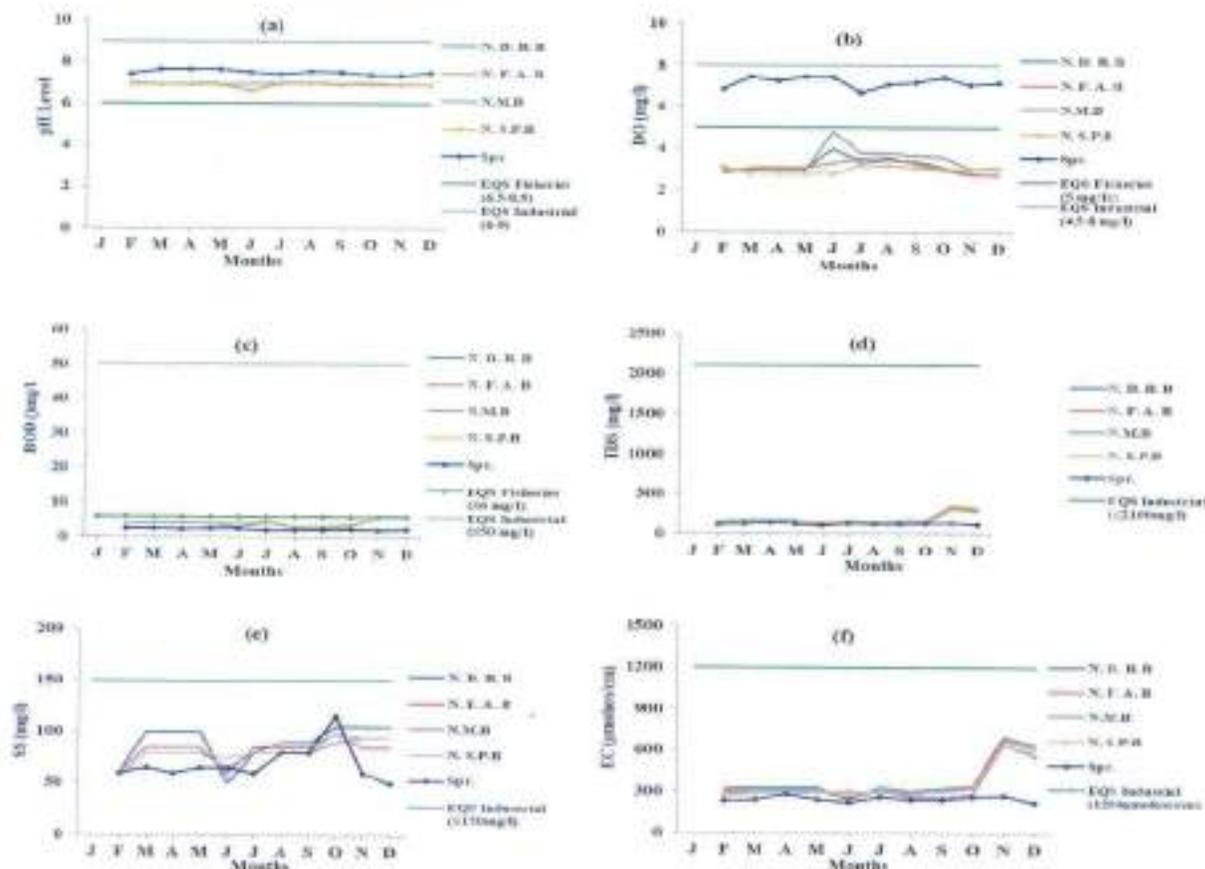


Fig.10. Status of pH, DO, BOD, COD, TDS, SS and EC of Korotoa River in 2018

### 4.11 Teesta River

The Teesta River is about 315 km long and it rises in the eastern Himalayas, flows through the Indian states of West Bengal and Sikkim through Bangladesh and enters the Bay of Bengal. It joins the Jamuna River at Fulchhari in Bangladesh. It drains an area of 12,540 km<sup>2</sup>. It forms the border between Sikkim and West Bengal. Water samples were collected from two locations near Tista Bridge (up Stream and down stream) of Teesta river for monitoring of water quality in 2018. Detail data is attached Annex-1 (Table: 74-79).

In 2018, pH level of Teesta river water varied from 7.35 to 7.64 (Fig.11a) and was within the EQS limit. In 2017, pH level varied from 7.41 to 7.61. In 2018, DO level of Teesta river water was above the EQS ( $\geq 5$  mg/l) for fisheries. DO varied from 7.0 to 7.5 mg/l (Fig.11b). In 2017, DO level varied from 6.8 to 7.4 mg/l. In 2018, the maximum BOD was 2.4 mg/l in June and the minimum BOD was 2.0 mg/l in July (Fig.11c). In 2017, BOD level varied from 2.05 to 2.4 mg/l. In 2018, TDS varied from 90 mg/l to 142 mg/l (Fig.10d). In 2017, TDS level varied from 95 mg/l to 160 mg/l. In 2018, Level of SS of Teesta river at different locations was within the EQS. The maximum and the minimum SS was 90 mg/l in October and 50 mg/l in February (Fig.11e). In 2017, SS level varied from 50 to 65 mg/l. In 2018, the maximum and the minimum Turbidity was 14.30 mg/l in February and 12 mg/l in June (Fig.11f). In 2017, Turbidity level varied from 12.0 to 14.20 mg/l.

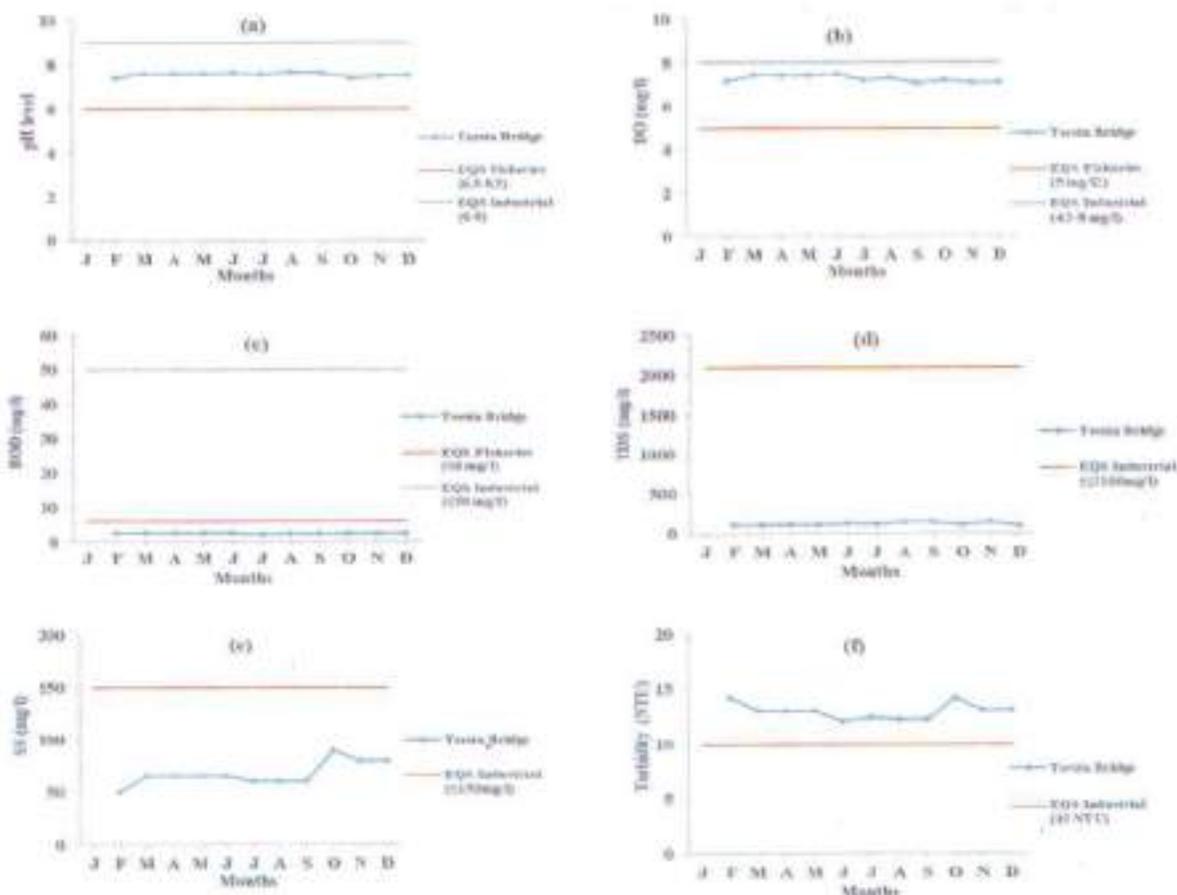


Fig.11. Status of pH, DO, BOD, TDS, SS and Turbidity of Teesta River in 2018



## 4.12 Karnaphuli River

The Karnaphuli river is in the south-eastern part of Bangladesh that flows through Chattagram Hill Tracts and Chattagram into the Bay of Bengal. Water samples were collected from three locations (e.g. TSP Side, Patenga, Chaktai Khal and CUFL Side, Anowara of Karnaphuli river for monitoring of water quality in 2018. Detail data is attached Annex-1 (Table: 80-85).

In 2018, pH level at the sampling points of the Karnaphuli river varied from 6.5 to 8.5 (Fig.12a), while standard pH for inland surface water for fisheries is 6.4 to 8.6. In 2017, pH level varied from 6.5 to 8.5. DO level of Karnaphuli river was within the EQS althrough the year of 2018 and met the standard of DO for fisheries ( $\geq 5$  mg/l). DO varied from 5.0 to 8.8 mg/l (Fig.12b). In 2017, DO concentration varied from 4.7 to 7.3 mg/l. In 2018, COD value varied from 69 to 326 mg/l (fig. 11c), while EQS for wastewater after treatment from industrial units is 200 mg/l. In 2017, COD value varied from 80 to 332 mg/l. In 2018, the maximum TDS was 13226 mg/l in March at TSP point and the minimum was 105 mg/l in July at Chaktai Khal point (Fig.12d). In 2017, TDS concentration varied from 765 to 13168 mg/l. In 2018, level of SS of Karnaphuli river water at different points was beyond the EQS (150 mg/l). The maximum and the minimum SS was 582 mg/l in December at TSP point and 166 mg/l in January at TSP point (Fig.12e). In 2017, SS value varied from 132 to 510 mg/l. In 2018, EC concentration was relatively higher during high tide at all locations of the river. The maximum EC concentration was 26330  $\mu\text{mhos/cm}$  in March at TSP point and the minimum EC concentration was 290  $\mu\text{mhos/cm}$  in August at Chaktai Khal point (Fig.12f). In 2017, EC concentration varied from 1523 to 26330  $\mu\text{mhos/cm}$ . In 2018, Salinity concentration varied from 1.23 ppt to 17.4 ppt (Fig.12g). In 2017, Salinity concentration varied from 0.09 ppt to 17.6 ppt. In 2018, Total Solids concentration varied from 362 mg/l to 13546 mg/l (Fig.12h). In 2017, Total Solids concentration varied from 8.97 mg/l to 13476 mg/l.

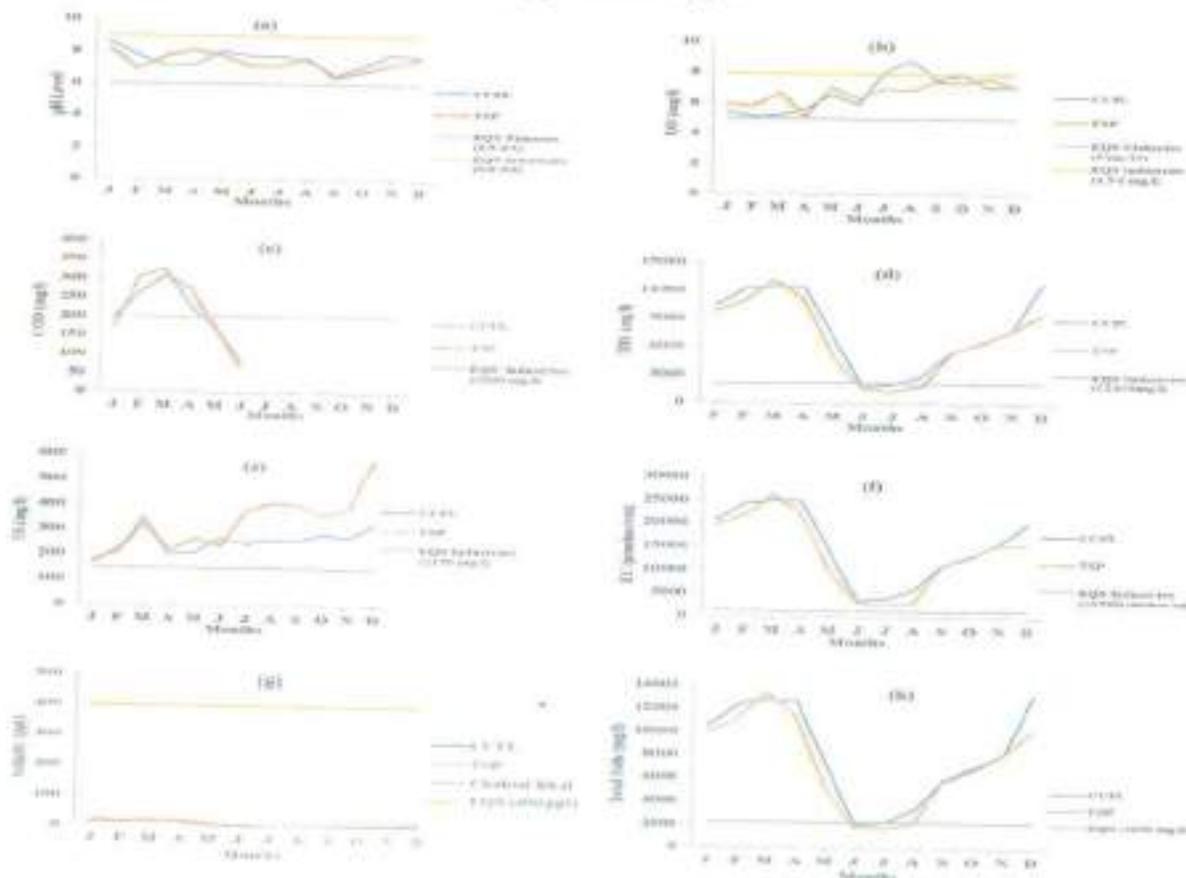


Fig.12. Status of pH, DO, COD, TDS, SS, EC, Salinity and Total Solids of Karnaphuli River in 2018

### 4.13 Halda River

The Halda river passes through the South-Eastern part of Bangladesh. Water sampling seven locations were WASA Intake, Maduna Ghat, Mohona, Khandakiya Khal, Madari Khal, Katakhal Khal and Krishna Khal of Halda River. Detail data is attached Annex-1 (Table: 86-91).

In 2018, pH of Halda river water was within EQS limit and varied from 6.7 to 7.52 (Fig.13a). In 2017, pH level varied from 6.6 to 7.9. In 2018, DO varied from 3.8 to 4.98 mg/l (Fig.13b). In 2017, DO range was from 5.5 to 7.5mg/l. In 2018, COD at the sampling locations of Halda river during high and low tide was varied 23 mg/l to 113 mg/l (Fig.13c). In 2017, COD range was from 119.0 mg/l to 102 mg/l. In 2018, TDS level of Halda River was within the EQS (2100 mg/l) for treated wastewater from industrial units. TDS varied from 34 to 240 mg/l (Fig.13d). In 2017, TDS concentration varied from 59 to 246 mg/l. In 2018, the maximum and the minimum SS content of Halda river water was 236 mg/l in June at Moduna Ghat point and 15 mg/l in July at Krishna Khal (Fig.13e). In 2017, SS value varied from 57 to 234 mg/l. In 2018, the maximum and the minimum EC was 488  $\mu$ mhos/cm in February at Moduna Ghat point and 65  $\mu$ mhos/cm in June at WASA Intake point (fig.13f). In 2017, EC concentration varied 125 and 490  $\mu$ mhos/cm.

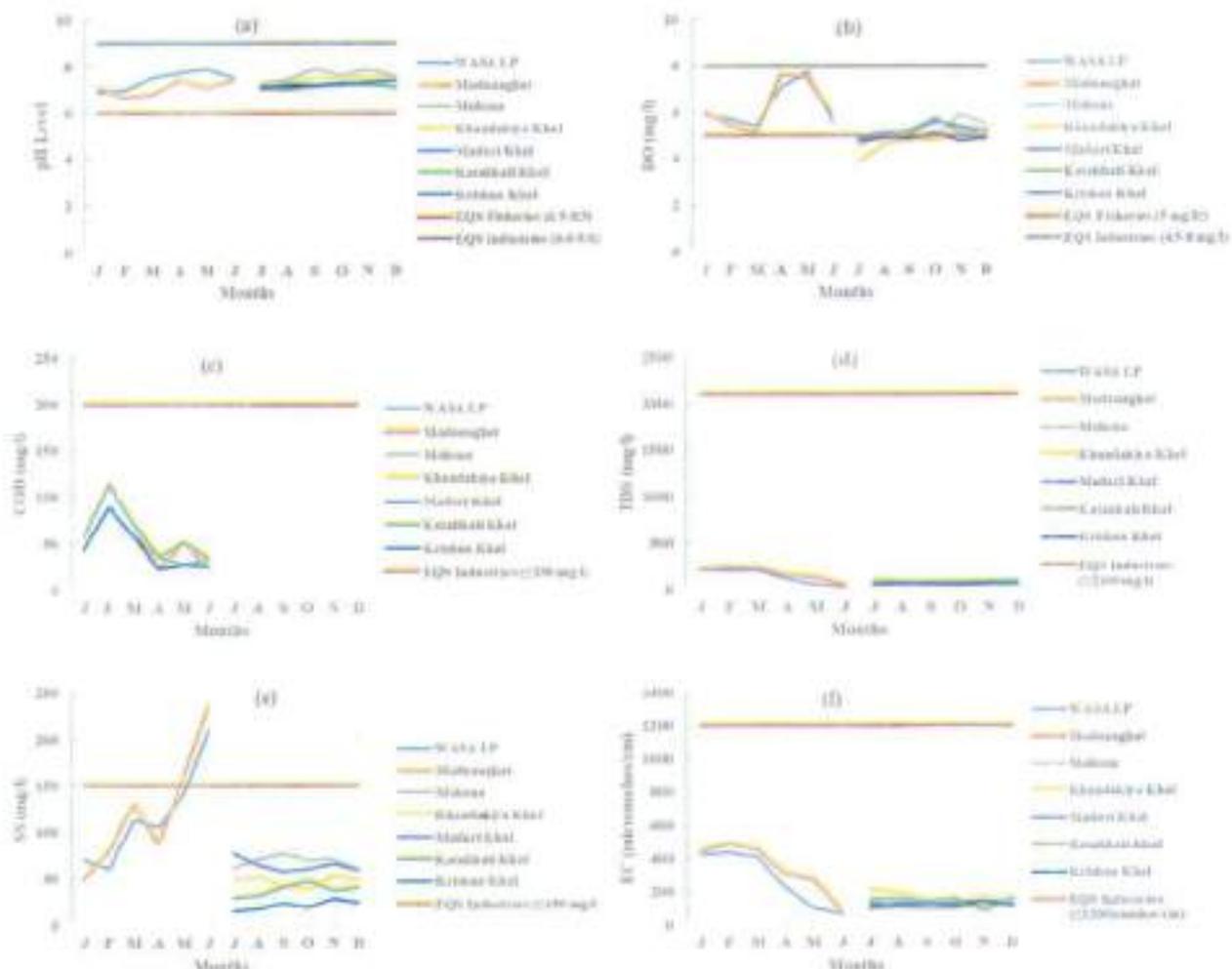


Fig.13. Status of pH, DO, COD, TDS, SS and EC of Halda River in 2018



### 4.14 Moyuri River

The Moyuri river is situated at the back swamp of the Bhairab-Rupsa river. For monitoring water samples were collected from three location named Gallamari Bridge (G.B) comprising both of the banks and middle point of the river. Average value of those three points was used in the analysis. Detail data is attached Annex-1 (Table: 92-99).

In 2018, pH level of Moyuri river water varied from 7.43 to 7.76 (Fig.14a) and was within the EQS limit. In 2017, pH level varied from 7.31 to 7.67.

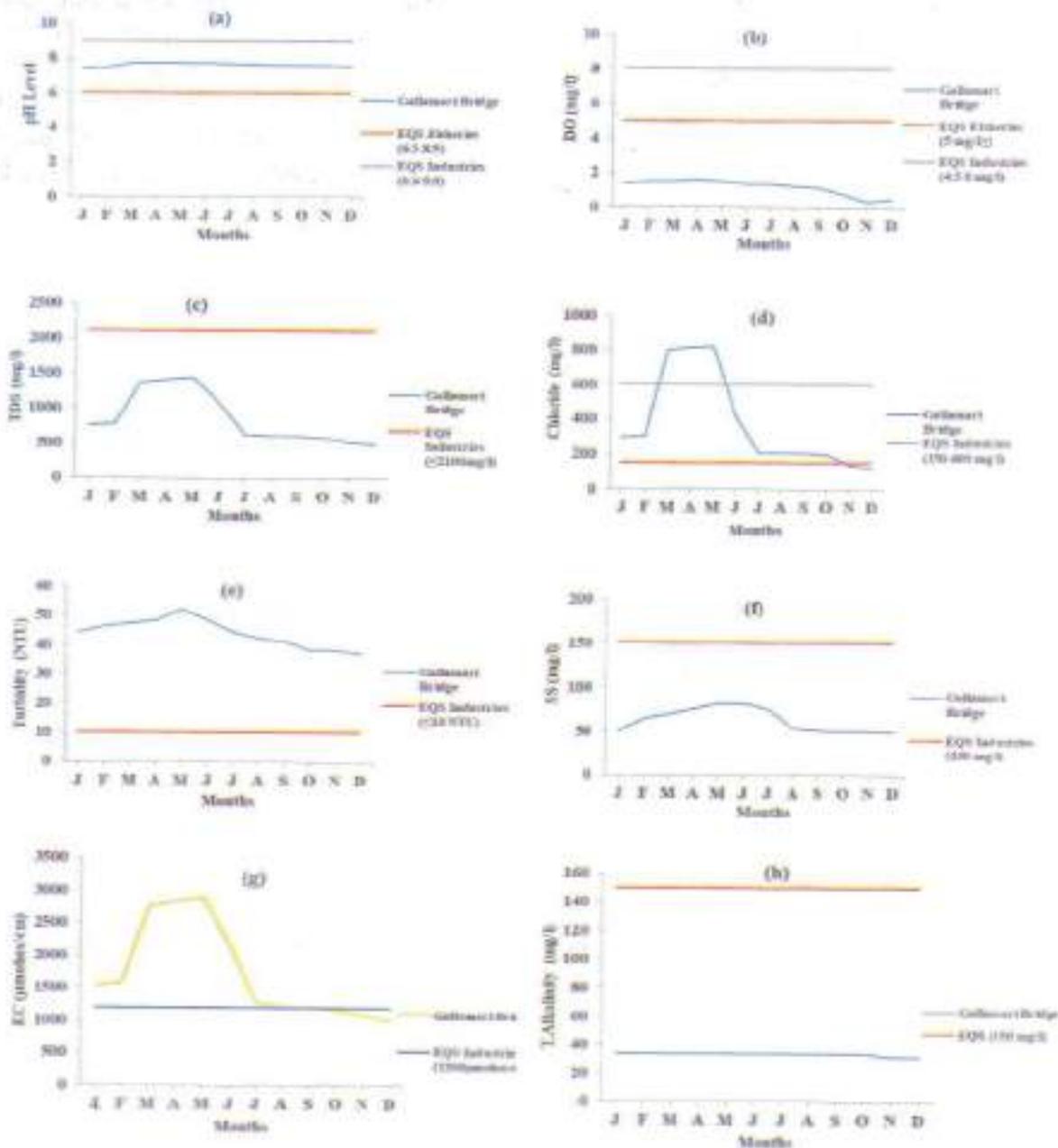


Fig.14. Status of pH, DO, TDS, Chloride, Turbidity, SS, EC and T. Alkalinity of Moyuri River in 2018

In 2018, DO concentration of Moyuri river water varied from 0.3 to 1.6 (Fig.14b) and was lower than the EQS ( $\geq 5$  mg/l) for fisheries. In 2017, DO varied from 0.2 to 2.6 mg/l. In 2018, TDS level of the Moyuri river water varied from 492 to 1440 mg/l (Fig.14c) while EQS is 2100 mg/l. In 2017, TDS range was from 464 to 1424 mg/l. In 2018, Chloride range was from 120 to 824 mg/l (Fig.14d) while EQS is 600 mg/l. Highest Chloride was found in May. In 2017, Chloride level varied from 212 to 816 mg/l. In 2018, the maximum Turbidity was 54.4 NTU in May and the minimum Turbidity was 37.2 NTU in December (Fig.14e) while EQS is 10 NTU. In 2017, Turbidity level varied from 28.3 to 55.2 NTU. In 2018, SS content of Moyuri river water was below the EQS (150 mg/l). SS varied from 46 to 84 mg/l (Fig.14f) and was within the EQS limit. In 2017, SS varied from 34 to 94 mg/l. In 2018, the maximum and the minimum EC was 2878  $\mu\text{mhos/cm}$  in May and 980  $\mu\text{mhos/cm}$  in December respectively (Fig.14g) while standard for treated wastewater from industrial unit EC is 1200  $\mu\text{mhos/cm}$ . In 2017, EC was from 718  $\mu\text{mhos/cm}$  to 2845  $\mu\text{mhos/cm}$ . In 2018, Total alkalinity varied from 32 to 34 mg/l (Fig.14h). In 2017, Total alkalinity varied from 34 to 34.66 mg/l (Fig.14h).

#### 4.15 Bhairab River

The Bhairab river flows in the south of Bangladesh. Its water carries plenty of silt. Water samples were collected from three locations comprising six different points [e.g. Noapara Ghat Bank (NG), Middle and Opposite bank, Fultala Ghat (FG) Side, Middle and Opposite bank of Bhairab River for monitoring water quality in 2018. To simplify data analysis only middle point of all locations were considered. Because, no significant variation was found between side, middle and opposite bank point of a location of the river. Detail data is attached Annex-1 (Table: 100-107).

In 2018, pH at different locations of the Bhairab river varied from 7.6 to 7.87 (Fig.15a) while EQS for inland surface water is 6.5 to 8.5. In 2017, pH varied from 7.6 to 7.88. DO was around the EQS ( $\geq 5$  mg/l) for fisheries. In 2018, DO was from 5.1 to 6.5 mg/l (Fig.15b). In 2017, DO varied from 4.3 to 6.3 mg/l. In 2018, BOD level of Bhairab river water was below the EQS ( $\leq 6$  mg/l) for fisheries round the year. BOD varied from 0.7 to 1.6 mg/l (Fig.15c). In 2017, BOD level varied from 0.5 to 0.9 mg/l. In 2018, at all locations TDS level of Bhairab river water was very high during March to July. The maximum and the minimum TDS were 11044 mg/l in May at Fultala Ghat and 98 mg/l in December at Noapara Ghat (Fig.15d) while EQS is 2100 mg/l. In 2017, TDS was from 118 to 10894 mg/l. In 2018, Chloride was varied from 72 to 7038 mg/l (Fig.15e) while EQS for Chloride is 600 mg/l. Highest Chloride (7038 mg/l) was found in May at Fultala Ghat and lowest was 72 mg/l in December at Noapara Ghat point. In 2017, Chloride level varied from 62 to 8886 mg/l. Turbidity of Bhairab river water at all locations was very high in 2018. It varied from 46.2 to 86.2 NTU while the EQS for drinking water is 10 NTU (Fig.15f). The prime reason may be of carrying huge silt by the river throughout the year. In 2017, Turbidity level varied from 34.26 to 96.67 NTU. In 2018, the maximum EC was 22088  $\mu\text{mhos/cm}$  in May at Fultala Ghat and the minimum Ec was 194  $\mu\text{mhos/cm}$  in December at Noapara Ghat (Fig.15g). In 2017, EC varied from 236  $\mu\text{mhos/cm}$  to 21788  $\mu\text{mhos/cm}$  (Fig.15h). In 2018, maximum T.alkalinity was 36 mg/l in May at Noapara Ghat and minimum T.alkalinity 32 mg/l in November at the sama location. In 2017, T.alkalinity was varied 33 mg/l to 36 mg/l.

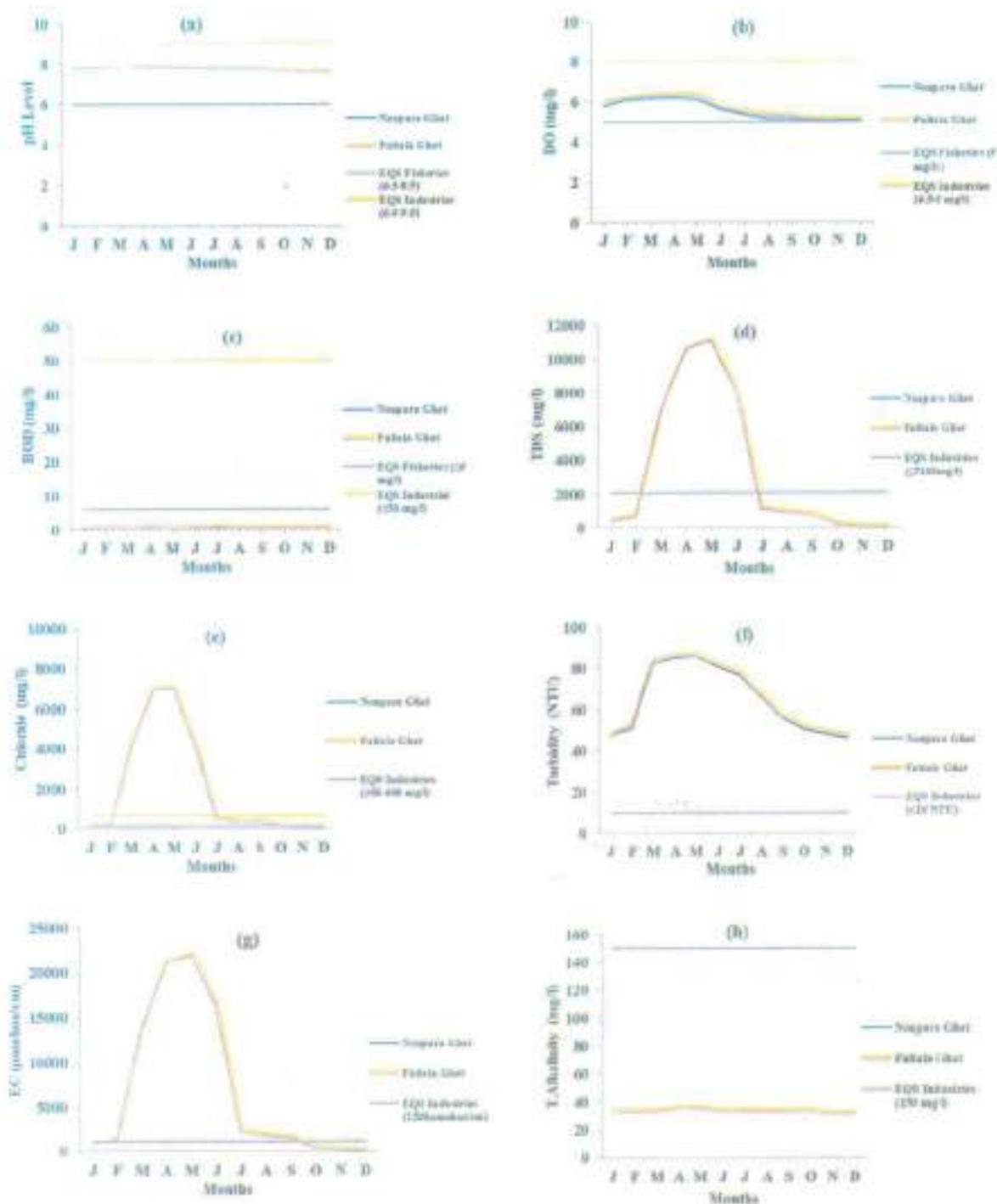


Fig.15. Status of pH, DO, BOD, TDS, Chloride, Turbidity, EC and T.alkalinity of Bhairab River in 2018

### 4.16 Rupsa River

The Rupsa river forms from the confluence of the Bhairab and Atrai rivers, and flows into the Pasur River. Its entire length is affected by tides. Water samples were collected from six different locations comprising six points [e.g. Rupsa Ghat Bank, Middle and Opposite and Labanchara Ghat Bank, Middle and Opposite] of Rupsa river for monitoring water quality in 2018. For analysis, average of three points of a location were considered. Detail data is attached Annex-1 (Table: 108-115).

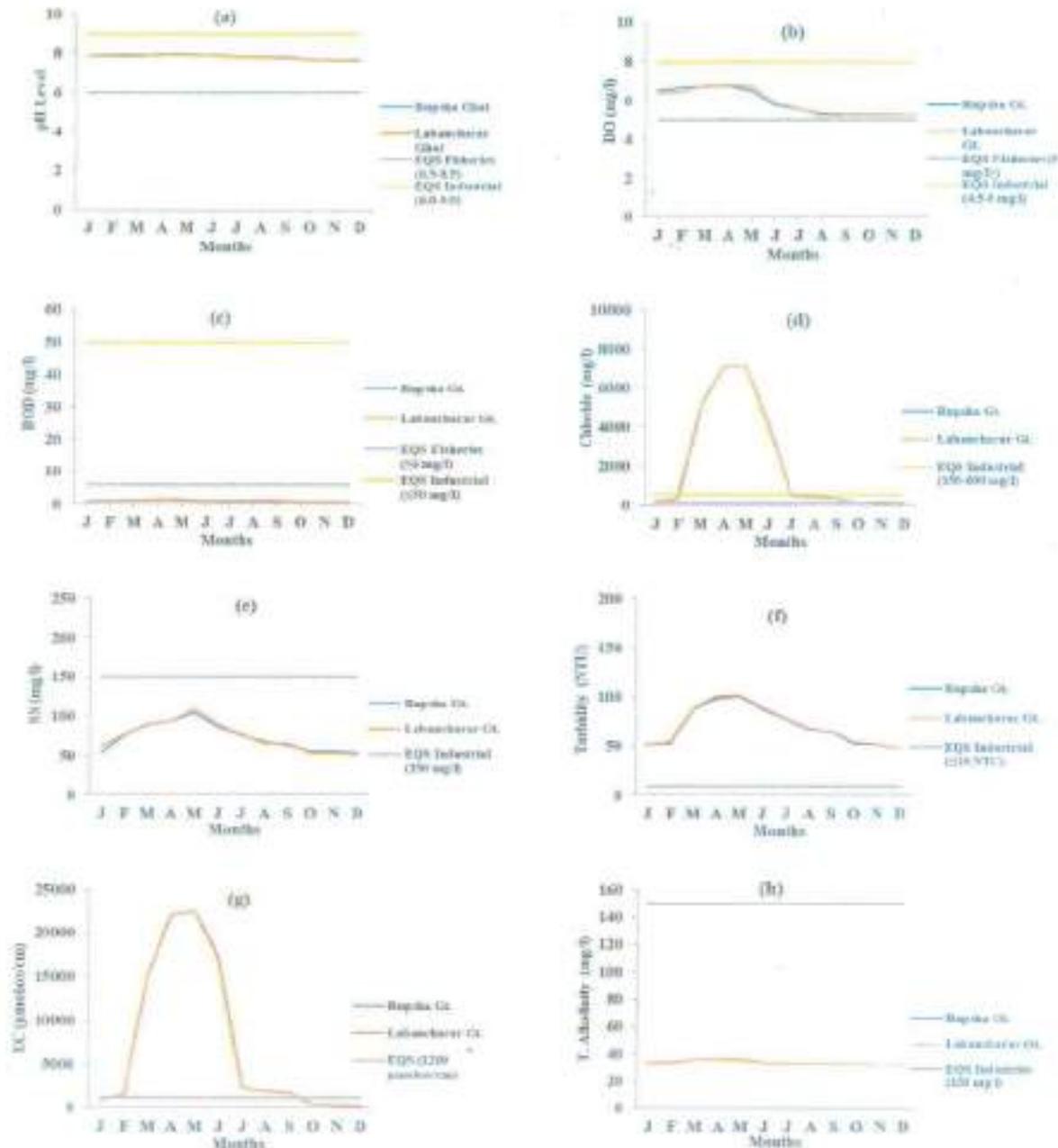


Fig.16. Status of pH, DO, BOD, Chloride, SS, Turbidity, EC and T.alkalinity of Rupsa River in 2018



In 2018, pH varied from 7.6 to 7.94 (Fig.16a) while standard pH for inland surface water is 6.5 to 8.5. In 2017, pH level varied from 7.31 to 7.88. In 2018, DO level was above the EQS ( $\geq 5$  mg/l) for fisheries. The maximum and the minimum DO content was 6.9 in March at Labanchara Ghat and 5.2 mg/l in October at Rupsa Ghat respectively (Fig.16b). In 2017, DO level was varied from 5.3 to 6.6 mg/l. In 2018, the maximum and the minimum BOD was 1.6 mg/l in May and 0.7 mg/l in January at Labanchara Ghat respectively (Fig.16c). In 2017, BOD level was from 0.6 to 1.0 mg/l. In 2018, Chloride level was much higher from February to June than the EQS (600 mg/l) for treated wastewater from industrial units. Chloride content varied from 80 to 7130 mg/l (Fig.16d). In 2017, Chloride varied from 68 to 9066 mg/l. In 2018, SS varied from 52 to 112 mg/l (Fig.16e) and was within the EQS limit. In 2017, SS varied from 43 to 98 mg/l. In 2018, Turbidity level of Rupsa river was very high all over the year. Turbidity varied from 48.1 to 101.3 NTU (Fig.15f) while EQS for drinking water is 10 NTU. In 2017, Turbidity range was from 34.66 to 105.36 NTU. In 2018, EC was high from February to September. EC level varied from 204 to 17142  $\mu\text{mhos/cm}$  (Fig.16g) while standard EC for treated wastewater from industrial units is 1200  $\mu\text{mhos/cm}$ . In 2017, EC level varied from 260 to 23223  $\mu\text{mhos/cm}$ . In 2018, T.alkalinity level varied from 34 mg/l to 36 mg/l (Fig.16h). In 2017, T.alkalinity level varied from 32 mg/l to 36 mg/l.

#### 4.17 Mathavanga River

For monitoring water quality of Mathavanga river, water samples were collected from a single location comprising three different points, Pipeghat (up stream) and Pipeghat (down stream) and Darshana, Chuadanga. Average values of three points were taken while analysis carried out. Data was not available in the month of February. Detail data is attached Annex-1 (Table: 116-123).

In 2018, pH varied from 6.52 to 7.78 (Fig.17a) while standard pH for inland surface water is 6.5 to 8.5. In 2017, pH range was from 7.46 to 7.78. In 2018, DO level varied from 2.6 to 5.3 mg/l (Fig.17b) while standard DO for fisheries is  $\geq 5$  mg/l. In 2017, DO level varied from 5.1 to 7.83 mg/l. In 2018, BOD was varied 0.6 to 1.8 mg/l (Fig.17c). In 2017, BOD was varied 0.8 to 1.86 mg/l. In 2018, TDS varied from 90 to 440 mg/l (Fig.17d). In 2017, TDS range was from 144 to 3374 mg/l. In 2018, Chloride of Mathavanga river water varied from 26 to 40 mg/l (Fig.17e) while EQS for Chloride is 600 mg/l. In 2017, Chloride content varied from 28 to 704 mg/l. In 2018, Turbidity level was higher than EQS (10 NTU) for drinking water and varied from 24 to 36.5 NTU (Fig.17f). In 2017, Turbidity range was from 20.2 to 36.2 NTU. In 2018, the maximum EC was 876  $\mu\text{mhos/cm}$  in March and the minimum EC was 180  $\mu\text{mhos/cm}$  in December at pipe ghat point (Fig.17g). In 2017, EC varied from 288  $\mu\text{mhos/cm}$  to 6746  $\mu\text{mhos/cm}$  (Fig.17h). In 2018, T.alkalinity varied from 24 to 36 mg/l. In 2017, T.alkalinity was varied 32 to 34 mg/l.

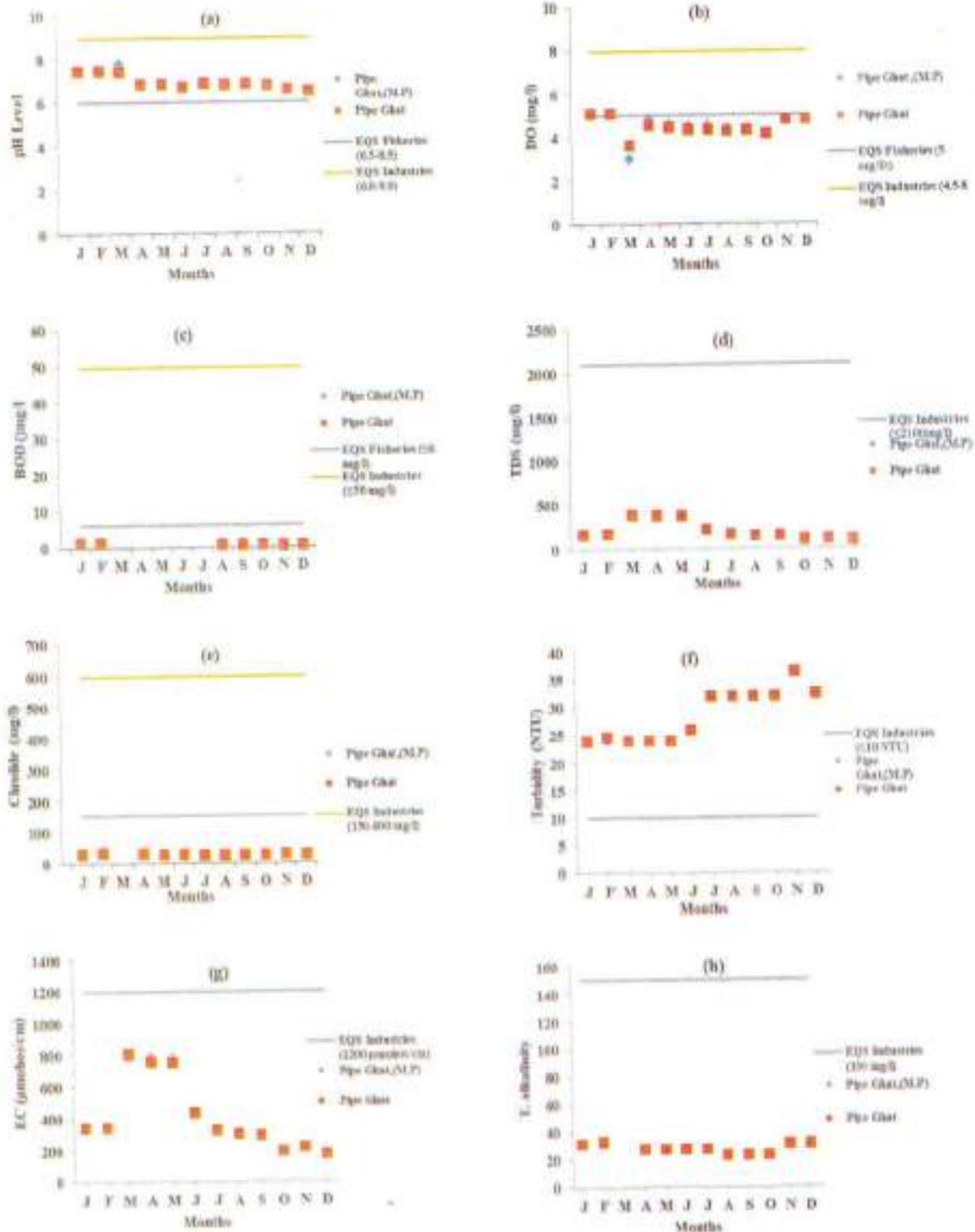


Fig.17. Status of pH, DO, BOD, TDS, Chloride, Turbidity, EC and T.alkalinity of Mathavanga River in 2018



## 4.18 Pashur River

The Pashur river located in southwestern Bangladesh, and a distributary of the Ganges, continues the Rupsa river. All its distributaries are tidal. It meets the Shibsra River within the Sundarbans, and near to the sea the river becomes the Kunga River. For monitoring of water quality, water samples were collected from one location of Pashur river comprising three different points at Mongla Port (Bank, Middle and Opposite bank). For analysis, average values of three points were taken. Detail data is attached Annex-1 (Table: 124-131).

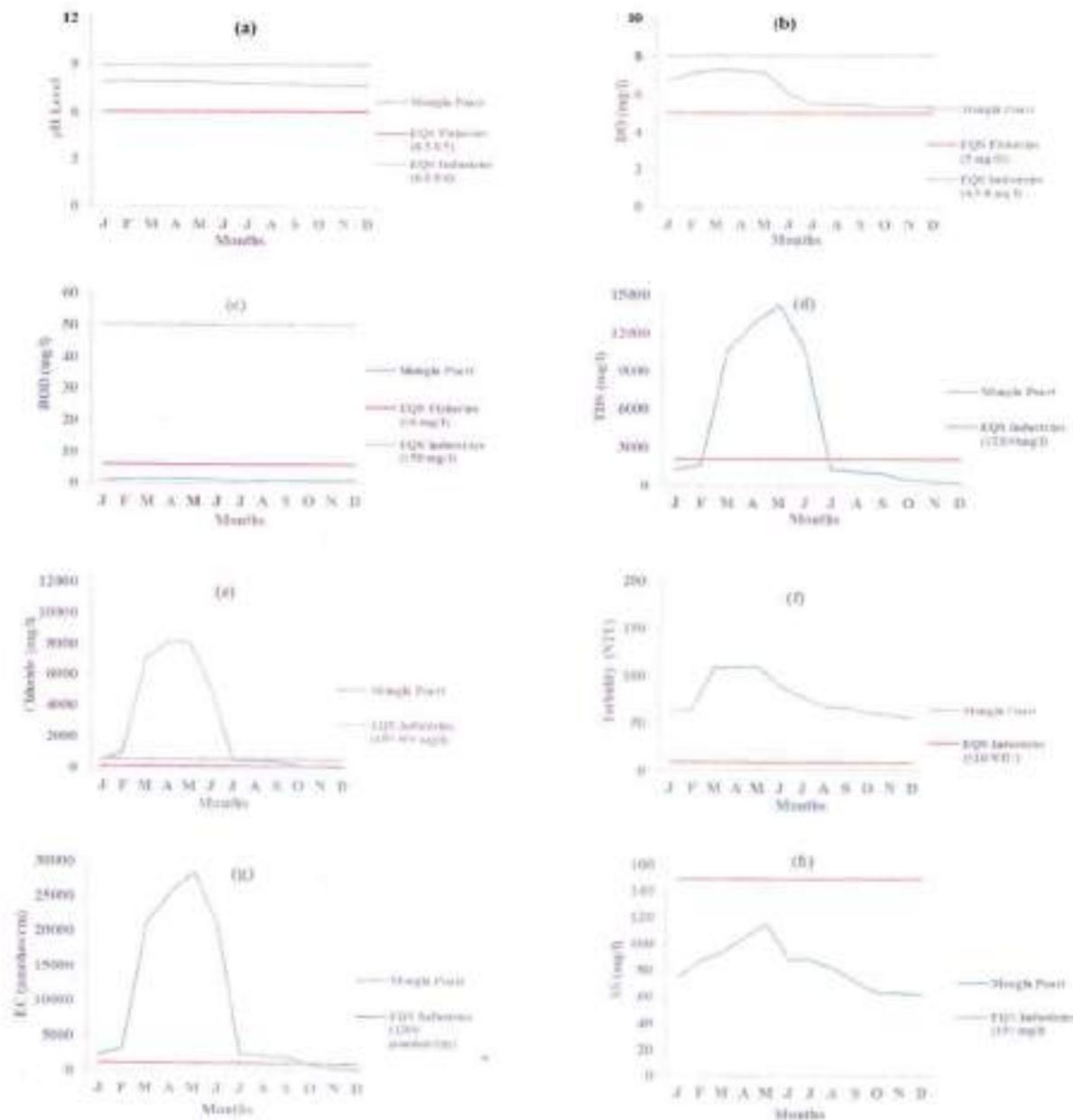


Fig.18. Status of pH, DO, BOD, TDS, Chloride, Turbidity, EC and SS of Pashur River in 2018



In 2018, pH level varied from 7.62 to 7.94 (Fig.18a) and was within the EQS (6.5 to 8.5) though slightly alkaline. In 2017, pH level varied from 7.59 to 7.99. In 2018, DO level was above the EQS ( $\geq 5$  mg/l) for fisheries all over the year. The maximum and the minimum concentration of DO was 7.3 mg/l in March and 5.2 mg/l in December (Fig/18b). In 2017, DO varied from 5.5 mg/l and 7.1 mg/l. In 2018, BOD level was within the EQS ( $\leq 6$  mg/l) for fisheries. The maximum and the minimum value of BOD was 1.6 mg/l and 0.8 mg/l respectively (Fig.18c). In 2017, BOD level varied from 0.5 mg/l to 1.0 mg/l. In 2018, TDS varied from 182 to 12732 mg/l (Fig.17d). In 2017, TDS level varied from 262 to 13374 mg/l. In 2018, Chloride level of Passur river water varied from 92 to 8116 mg/l. Chloride concentration was higher at all points during February to June compare to rest of the period (Fig.18e). In 2017, Chloride level varied from 124 mg/l to 11208 mg/l. In 2018, Turbidity level varied from 54.2 to 110 NTU (Fig.18f) against the EQS (10 NTU) for industrial discharge. Turbidity concentration was very high all over the year. In 2017, Turbidity level varied from 44 to 128.43 NTU. In 2018, the maximum EC was 28458  $\mu\text{mhos/cm}$  in May and the minimum EC was 364  $\mu\text{mhos/cm}$  in December (Fig.18g). In 2017, EC varied from 523  $\mu\text{mhos/cm}$  to 26746  $\mu\text{mhos/cm}$  (Fig.18g). In 2018, the maximum SS was 118 mg/l in May and the minimum SS was 58 mg/l in December (Fig.18h). In 2017, SS was varied 34 mg/l to 114 mg/l.

#### 4.19 Khakshiali River

The Khakshiali river is located in Satkhira district in Khulna division. To monitor water quality of Khakshiali river, water samples were collected from three different points of Kaligonj location e.g. Kaligonj Bank, Middle and Opposite bank at Shatkhira in 2018. For analysis, average values of three points were considered. Detail data is attached Annex-1 (Table: 132-139).

In 2018, pH level was within the EQS (6.5-8.5) for inland surface water and was varied from 7.4 to 7.73 (Fig.19a). In 2017, pH was from 7.46 to 7.77. In 2018, DO level varied from 5.1 to 5.6 mg/l (Fig.19b) throughout the year while EQS for fisheries is  $\geq 5$  mg/l. In 2017, DO level varied from 5.1 to 6.3 mg/l. In 2018, BOD was far below the EQS ( $\leq 6$  mg/l). It varied from 0.8 to 1.0 mg/l (Fig.19c). In 2017, BOD level varied from 0.8 to 1.6 mg/l. In 2018, TDS level was very high from January to June. The minimum TDS was 492 mg/l in December and the maximum TDS was 16124 mg/l in May (Fig.19d). In 2017, TDS level varied from 314 to 13744 mg/l. In 2018, Chloride concentration was very high from January to June and varied from 104 to 8588 mg/l (Fig.19e) while standard for treated wastewater from industrial units is 150-600 mg/l. The highest Chloride was found in May and the lowest value was in November. In 2017, Chloride level varied from 272 to 11436 mg/l. In 2018, Turbidity level was above the EQS (10 NTU) limit for drinking water all the year that varied from 56 to 128 NTU (Fig.19f). In 2017, Turbidity level varied from 50 to 96.8NTU. In 2018, the maximum EC was 32248  $\mu\text{mhos/cm}$  in May and the minimum 982  $\mu\text{mhos/cm}$  in December while EQS for EC is 1200  $\mu\text{mhos/cm}$  (Fig.19g). In 2017, EC varied from 711 to 27488  $\mu\text{mhos/cm}$ . In 2018, SS varied from 46 mg/l to 136 mg/l (Fig.19h). In 2017, SS varied from 41 mg/l to 108 mg/l.

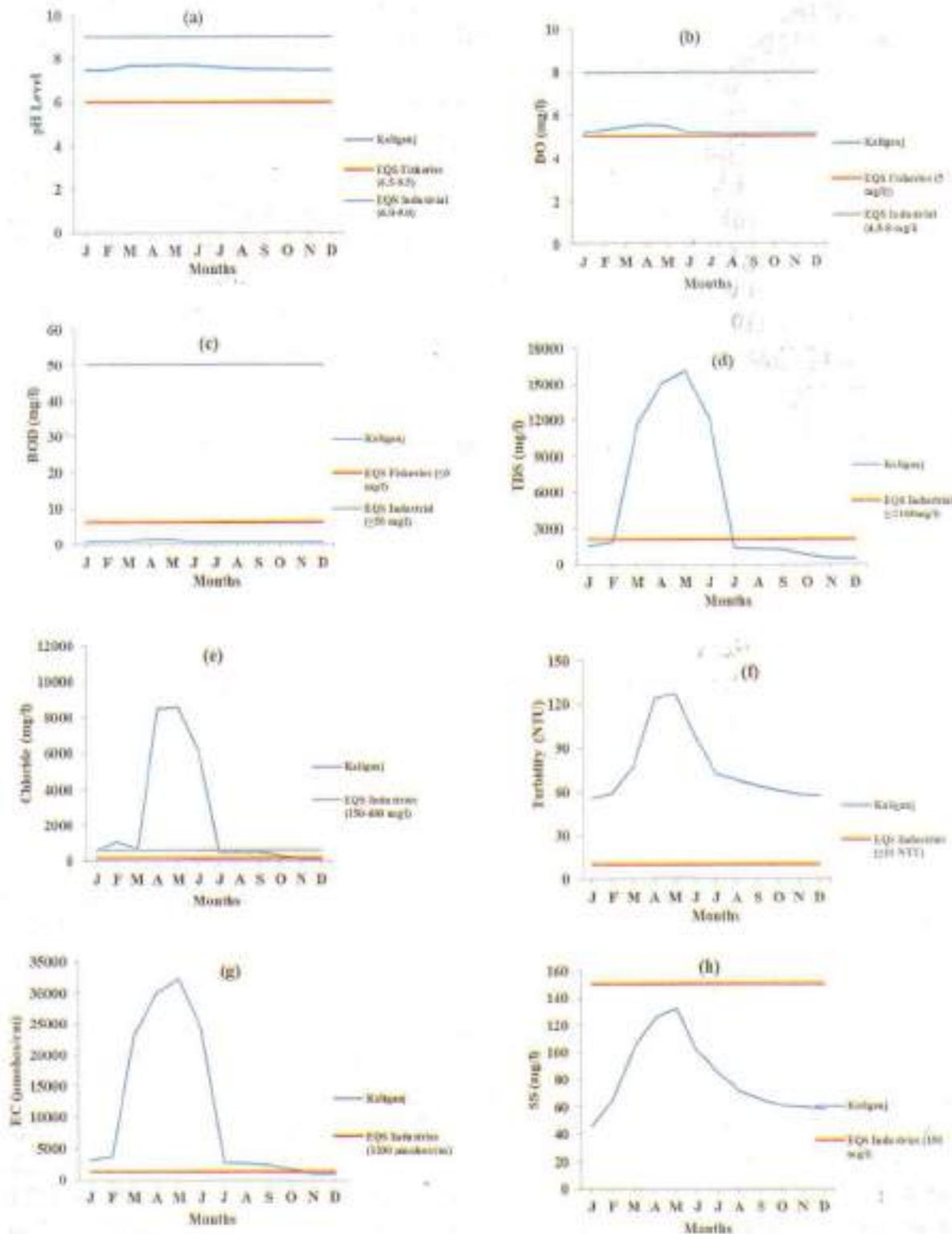


Fig.19. Status of pH, DO, BOD, TDS, Chloride, Turbidity, EC and SS of Khakshiali River in 2018

## 4.20 Gorai River

The Gorai river is located in Kushtia district in Khulna division. Water samples were collected from two locations viz. Magura and Kustia comprising three points each. Average values of six points of a location were used for graphical representation. Detail data is attached Annex-1 (Table:140-1147).

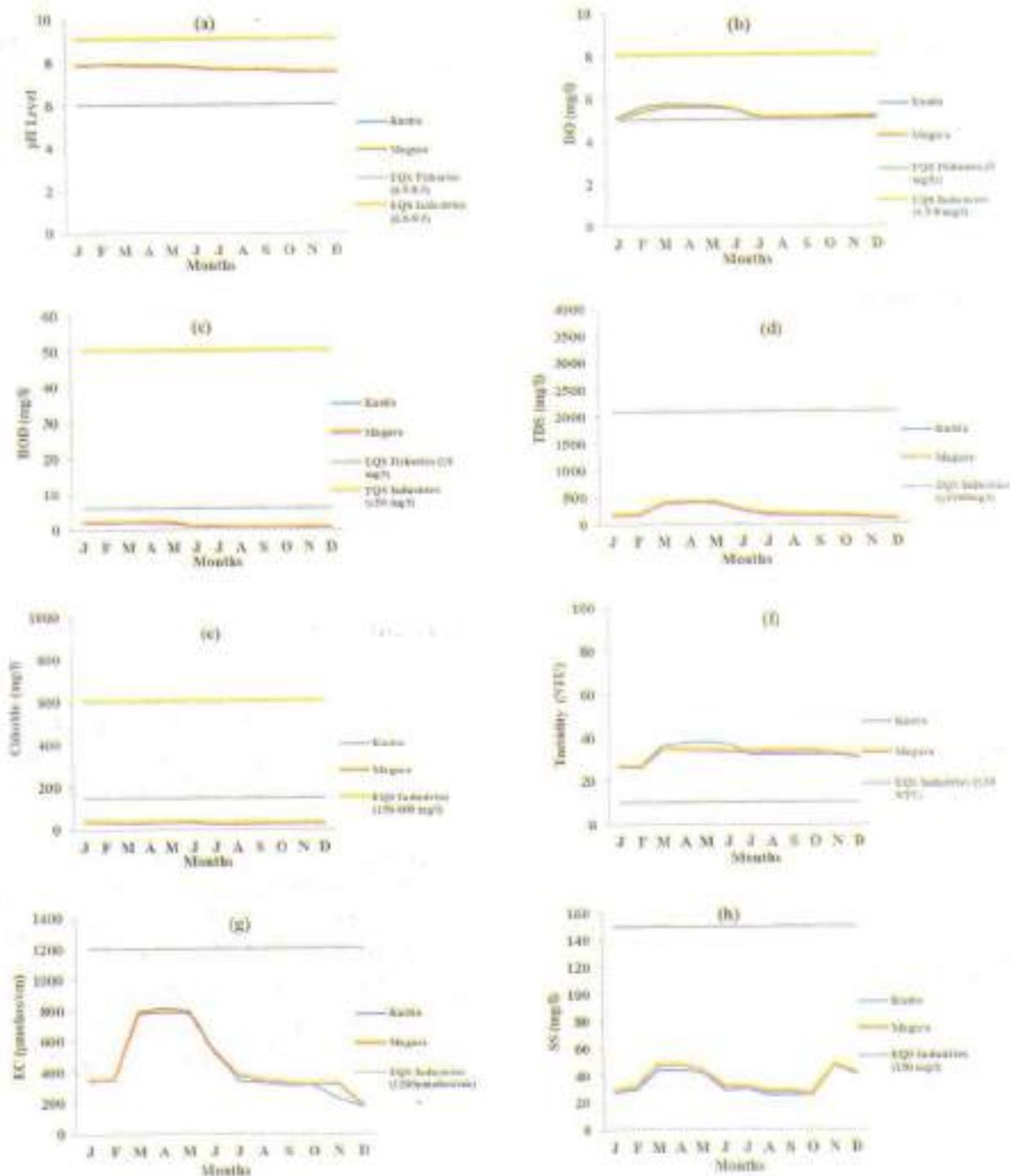


Fig.20. Status of pH, DO BOD, TDS, Chloride, Turbidity, EC and SS of Gorai River in 2018



In 2018, pH of Gorai river water was varied from 7.5 to 7.89 (Fig.20a) and was within the EQS (6.5-8.5) for inland surface water. In 2017, pH level varied from 7.58 to 7.88. In 2018, DO was above the EQS ( $\geq 5$  mg/l) limit for fisheries at both locations. Level of DO varied from 5.0 to 5.8 mg/l (Fig.20b). In 2017, DO level varied from 4.6 to 6.6 mg/l. In 2018, BOD level was within the EQS ( $\leq 6$  mg/l) and varied from 0.6 to 2.3 mg/l (Fig.20c). In 2017, BOD range was from 0.8 to 2.5 mg/l. In 2018, TDS level of Gorai river water was within the limit while comparing to the EQS (2100 mg/l) for treated wastewater from industrial units. It varied from 86 to 416 mg/l (Fig.20d). In 2017, TDS level varied from 144 to 3548 mg/l. In 2018, the maximum and the minimum Chloride values were 36 and 28 mg/l (Fig.20e). In 2017, Chloride level was from 38 to 728 mg/l. In 2018, Turbidity level was relatively higher throughout the year than the EQS (10 NTU). It varied from 28 to 40 NTU (Fig.20f). In 2017, Turbidity level varied from 25.66 to 46.43 NTU. In 2018, the maximum EC was 830  $\mu\text{mhos/cm}$  in April and the minimum 172  $\mu\text{mhos/cm}$  in December while EQS for EC is 1200  $\mu\text{mhos/cm}$  (Fig.20g). In 2017, EC varied from 284 to 7094  $\mu\text{mhos/cm}$ . In 2018, SS varied from 24mg/l to 48 mg/l (Fig.20 h). In 2017, SS varied from 22 mg/l to 54 mg/l.

#### 4. 21 Modhumoti River

The Madhumati river, distributary of the upper Padma River, flowing through southwestern Bangladesh. It leaves the Padma just north of Kushtia and flows 306 km southeast before turning south across the swampy Sundarbans region to empty into the Bay of Bengal. In its upper course it is called the Garai; in its lower course it is known as the Baleswar; and its estuary mouth, which is some 14 km wide, is called the Haringhata. The Madhumati is one of the largest of the Padma distributaries in the southern part of the Gangetic Plain, and it offers the best navigation conditions of any river at the head of the Bay of Bengal. To monitor water quality of Modhumoti river in 2018, samples were collected from three location comprising three different points (Mollarhat side, middle and opposite) of Bagerhat. For analysis, average values of three points were considered. Detail data is attached Annex-1 (Table: 148-155).

In 2018, pH level of Modhumoti river was within the EQS and varied from 7.4 to 7.58 (Fig.21a). In 2017, pH level varied from 7.4 to 7.67. In 2018, DO was varied from 4.6 to 5.5 mg/l while EQS is  $\geq 5$  mg/l for fisheries (Fig.21b). In 2017, DO level was varied from 4.8 to 6.2 mg/l. In 2018, BOD varied from 0.6 mg/l to 1.0 mg/l (Fig.21c). In 2017, BOD was varied from 0.8 mg/l to 8.0. In 2018, TDS of Modhumoti river water was within EQS (2100 mg/l). The maximum and the minimum value was 400 mg/l in April and 96 mg/l in december (Fig.21d). In 2017, TDS level varied from 144 to 418 mg/l. In 2018, Chloride level varied from 26 to 42 mg/l while EQS for treated wastewater from industrial units is 600 mg/l (Fig.20e). In 2017, Chloride level varied from 34 to 76 mg/l. In 2018, Turbidity varied from 27.2 to 46.2 NTU (Fig.21f). In 2017, Turbidity varied from 29 to 48.2 NTU. In 2018, the maximum EC was 788  $\mu\text{mhos/cm}$  in March and the minimum 192  $\mu\text{mhos/cm}$  in December while EQS for EC is 1200  $\mu\text{mhos/cm}$  (Fig.21g). In 2017, EC varied from 288 to 836  $\mu\text{mhos/cm}$ . In 2018, SS varied from 28 mg/l to 40 mg/l (Fig.21 h). In 2017, SS varied from 21 mg/l to 48 mg/l.

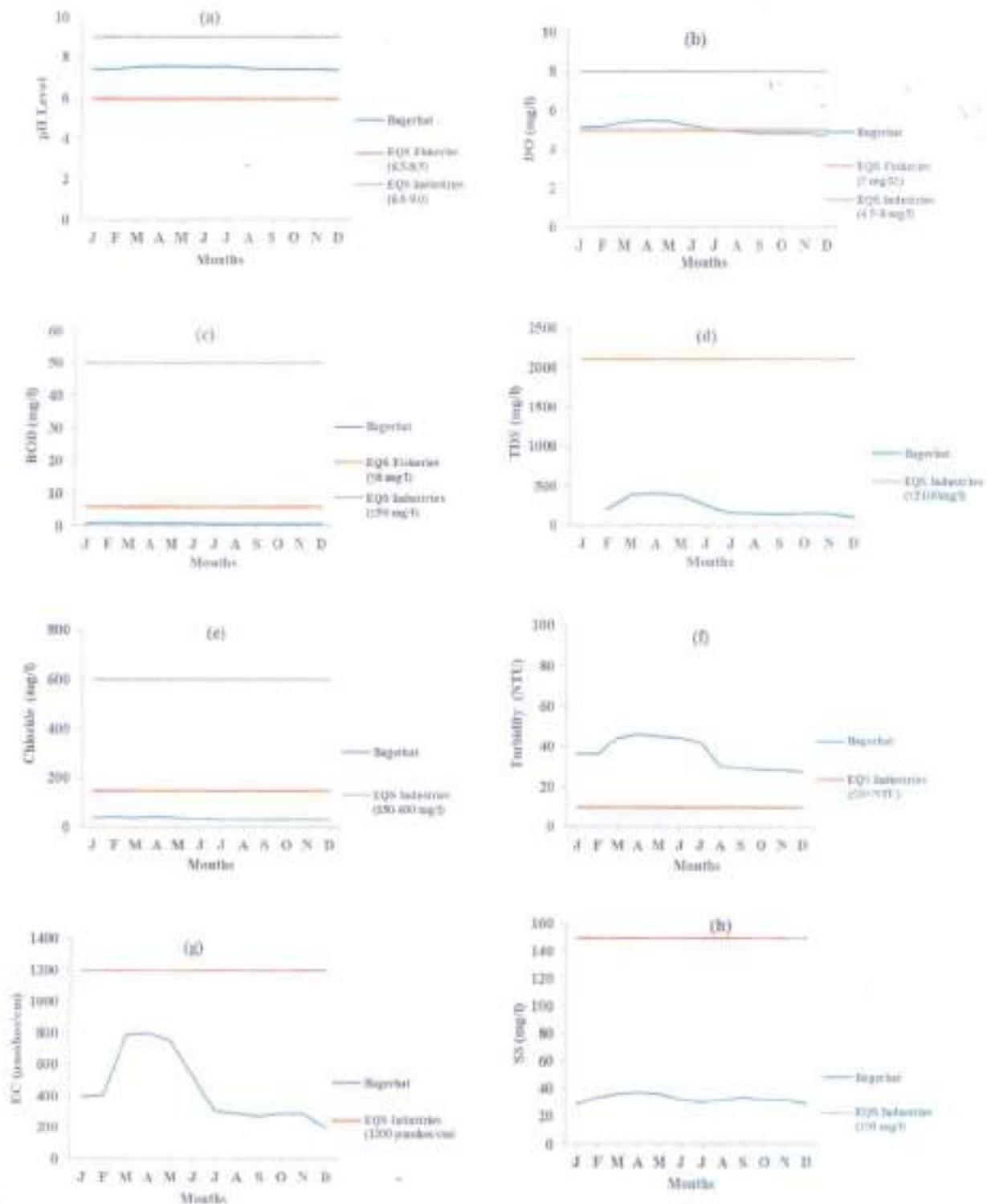


Fig.21. Status of pH, DO, BOD, TDS, Chloride, Turbidity, EC and SS of Modhumoti River in 2018



### 4.22 Beel Dakatia River

The Beel Dakatia river located in the north-eastern part of khulna district. To monitor water quality of Beel Dakatia river in 2018, samples were collected from two location at Khulna comprising two points (bank and middle). For analysis, average of two points were used. Detail data is attached Annex-1 (Table: 156-163).

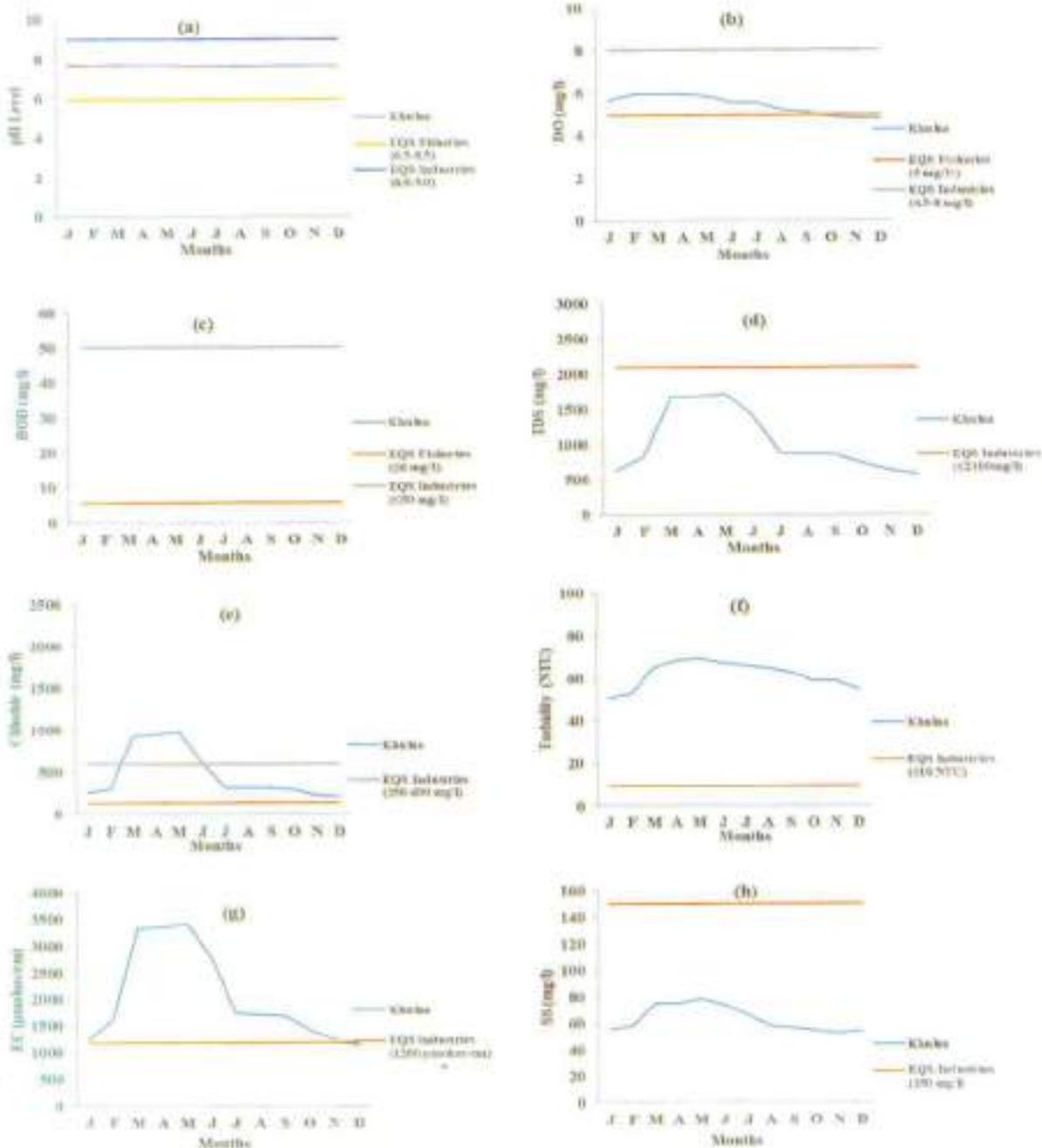


Fig.22. Status of pH, DO, BOD, TDS, Chloride, Turbidity, EC and SS of Beel Dakatia River in 2018



In 2018, pH level was within the EQS and varied from 7.6 to 7.68 (Fig.22a). In 2017, pH level varied from 7.48 to 7.68. In 2018, DO varied from 4.8 to 5.9 mg/l (Fig.22b) and was closer to the EQS for fisheries ( $\geq 5$  mg/l). In 2017, DO level varied from 2.2 to 5.9 mg/l. In 2018, BOD Concentration varied from 0.6 to 2.7 mg/l (Fig.22c). In 2017, BOD Concentration varied from 0.7 to 1.1 mg/l. In 2018, the maximum and the minimum TDS was 1714 mg/l in May and 564 mg/l in December (Fig.22d). In 2017, TDS level varied from 275 to 2772 mg/l. In 2018, Chloride level varied from 204 mg/l to 976 mg/l while EQS for treated wastewater from industrial units is 150-600 mg/l. The maximum value was found in May and the minimum was in December (Fig.22e). In 2017, Chloride level varied from 144 mg/l to 2612 mg/l. In 2018, Turbidity varied from 54.6 to 64.8 NTU (Fig.22f) and was higher than EQS (10 NTU) for drinking water. In 2017, Turbidity range was from 43 to 66.3 NTU. In 2018, the maximum EC was 3409  $\mu\text{mhos/cm}$  in May and the minimum 1126  $\mu\text{mhos/cm}$  in December while EQS for EC is 1200  $\mu\text{mhos/cm}$  (Fig.22g). In 2017, EC varied from 585 to 5542  $\mu\text{mhos/cm}$ . In 2018, SS varied from 56 mg/l to 78 mg/l (Fig.22 h). In 2017, SS varied from 46 mg/l to 82 mg/l.

### 4.23 Kirtankhola River

The Kirtankhola river starting from Sayeshtabad in Barisal district, the river Kirtankhola ends into the Gajalia near Gabkhan khal. This old river is now known as the Barisal river. The total length of the river is about 160 km. For monitoring purpose water samples were collated from one location of the river at Launch ghat (bank and in the middle), Dopdopia Kheyaghat (bank and middle), Beltola Fery Gaht (bank and middle). For analysis, average of six points were used. Data was not available in the month of November. Detail data is attached Annex-1 (Table:164-169).

In 2018, pH level of Kirtankhola river water varied from 7.4 to 7.81 (Fig.23a) and was within the EQS. In 2017, pH range was from 6.8 to 7.71. In 2018, DO level of Kirtankhola river was above the EQS ( $\geq 5$  mg/l) for fisheries. DO varied from 5.2 mg/l to 6.6 mg/l (Fig.23b). In 2017, DO level varied from 5.16 mg/l to 7.3 mg/l. In 2018, BOD level varied from 1.8 mg/l to 2.4 mg/l. (Fig.23c). In 2017, BOD was varied from 2.18 mg/l to 2.6. In 2018, TDS of Kirtankhola river water was also within the EQS (2100 mg/l) throughout the year and the range was from 71 to 133 mg/l (Fig.23d). In 2017, TDS level varied from 59 to 102 mg/l. In 2018, TS content varied from 86 to 150 mg/l (Fig.23e) while EQS for treated wastewater from industrial units is 2250 mg/l. In 2017, TS content varied from 81 to 140 mg/l. In 2018, EC level of the Kirtankhola river varied from 142 to 264  $\mu\text{mhos/cm}$  against the EQS for treated wastewater from industrial units is 1200  $\mu\text{mhos/cm}$  (Fig.23f). In 2017, EC varied from 129 to 189  $\mu\text{mhos/cm}$ .

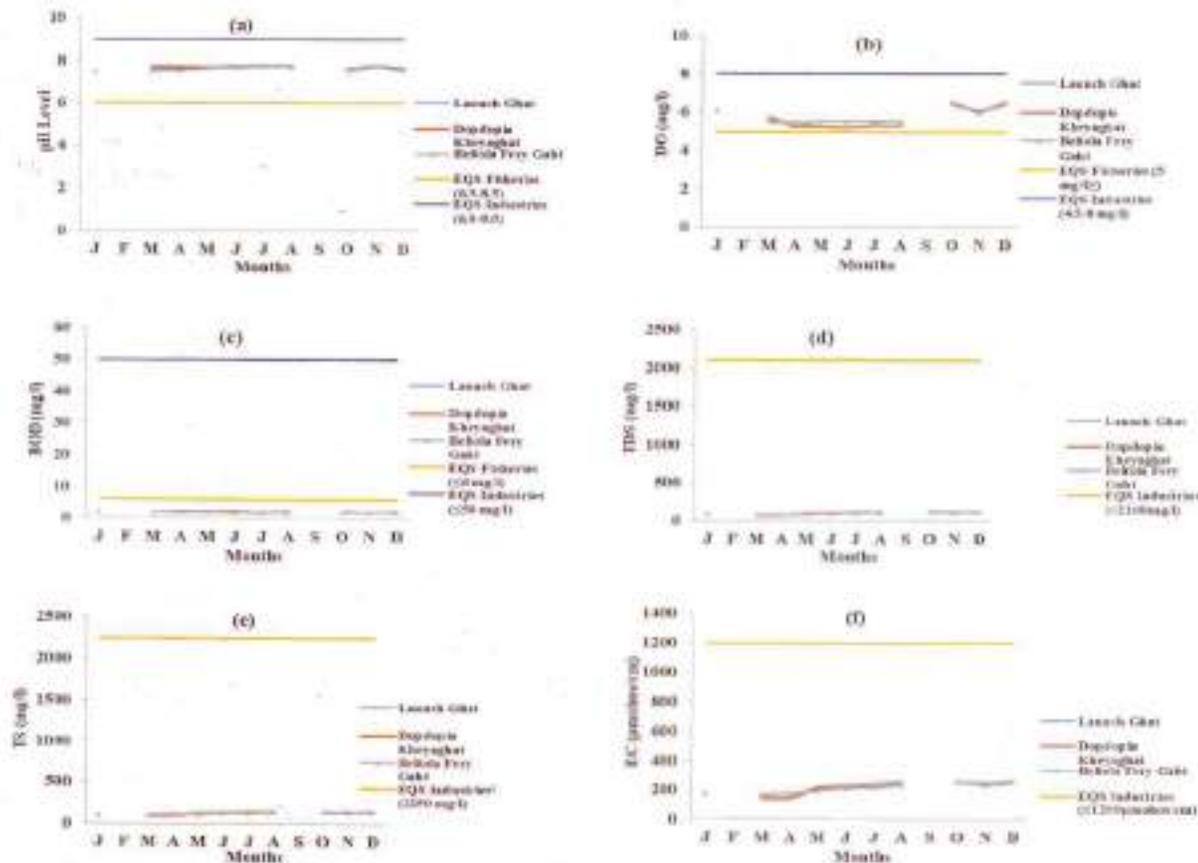


Fig.23. Status of pH, DO, BOD, TDS, TS and EC of Kirtankhola River in 2018

#### 4.24 Tatulia River

For monitoring of water quality of Tatulia river water samples was collated from Vedhoria Feri Ghat (VFG) location (bank and middle point). For analysis, average of two points were used. Data was not available in the month of January, March, May, July, September and November. Detail data is attached Annex-1 (Table: 170-175).

In 2018, pH level of the Tatulia river water ranged from 7.28 to 7.44 mg/l (Fig.24a) while in 2017, the pH range was from 7.05 to 7.3. In 2018, DO varied from 5.2 to 6.4 mg/l (Fig.24b) while standard limit for fisheries is ( $\geq 5$  mg/l). In 2017, DO level varied from 5.65 to 7.0 mg/l. In 2018, BOD level of the Tetulia river water was varied 1.8 mg/l to 2.3 mg/l (Fig.23c) against corresponding EQS ( $\leq 6$  mg/l) for fisheries. In 2017, BOD level was varying from 2.0 mg/l to 2.55 mg/l. In 2018, TDS range varied from 89 to 103 mg/l (Fig.24d). In 2017, TDS range was 83 mg/l to 140 mg/l. In 2017, TS varied from 108 mg/l to 118 mg/l (Fig.24e). In 2017, TS varied from 74 mg/l to 156 mg/l. In 2018, EC varied from 178 µmhos/cm to 206 µmhos/cm (Fig.24f). In 2017, EC varied from 150 µmhos/cm to 172 µmhos/cm.

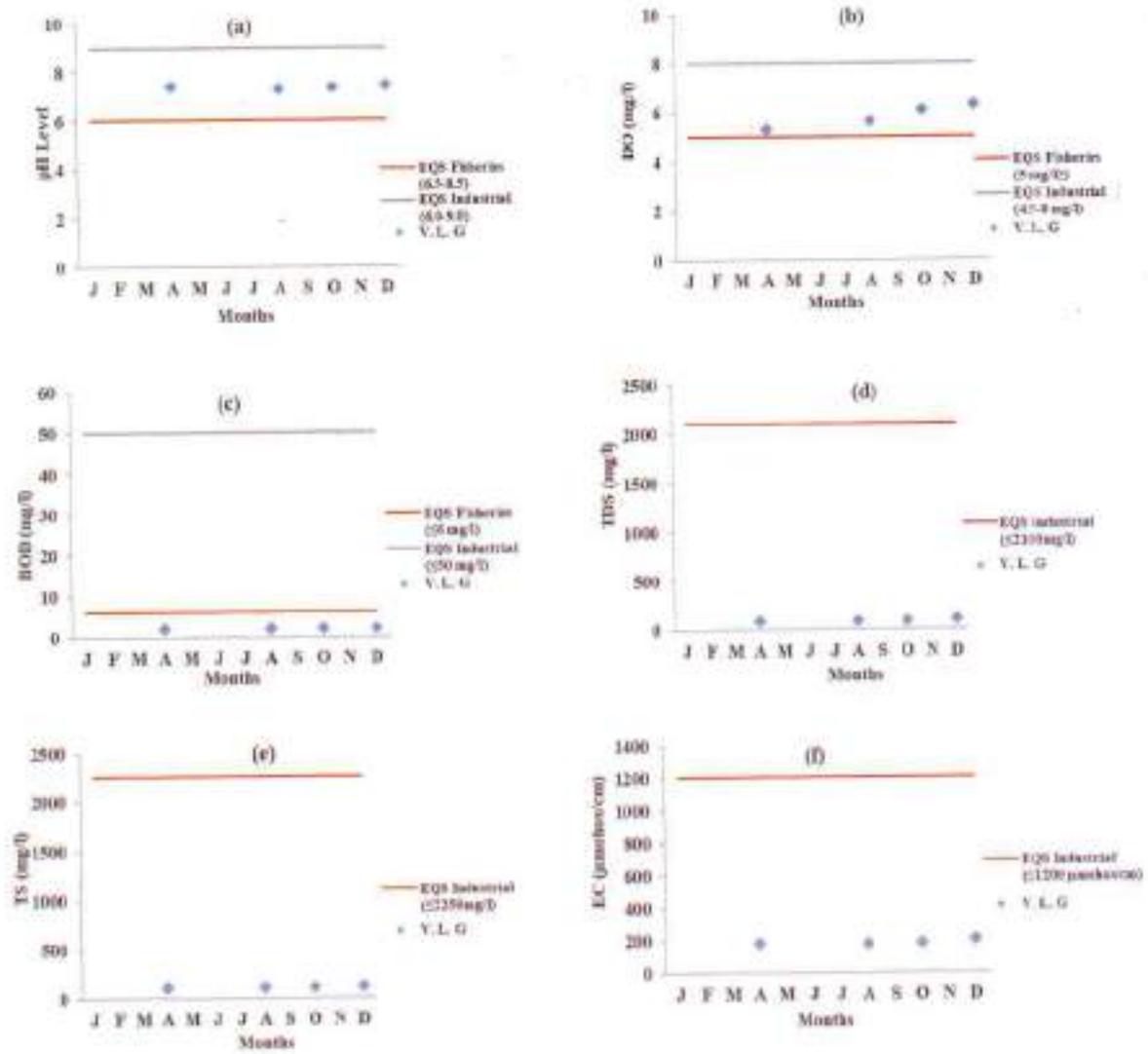


Fig.24. Status of pH, DO, BOD, TDS, TS and EC of Tatulia River in 2018



### 4.25 Sugandha River/Bishkhali River

The Bishkhali is a river of Bangladesh, a continuation of the Sugandha. Bishkhali River continuation of the kirtankhola and nalchity rivers. The total length of the river is 96 km. The average width of the river from its origin to first 30 km is about 1 km and the rest is about 2 km. The average depth is about 16m. The Sugandha turns into Bishkhali after entering Jhalokati town. To monitor water quality of Sugandha River water samples were collected for analysis from two points, Jhalkathi Launch Ghat (Side and Middle) of the river. Data was not available in the month of January to April, June, August to October and December. Detail data is attached Annex-1 (Table: 176-181).

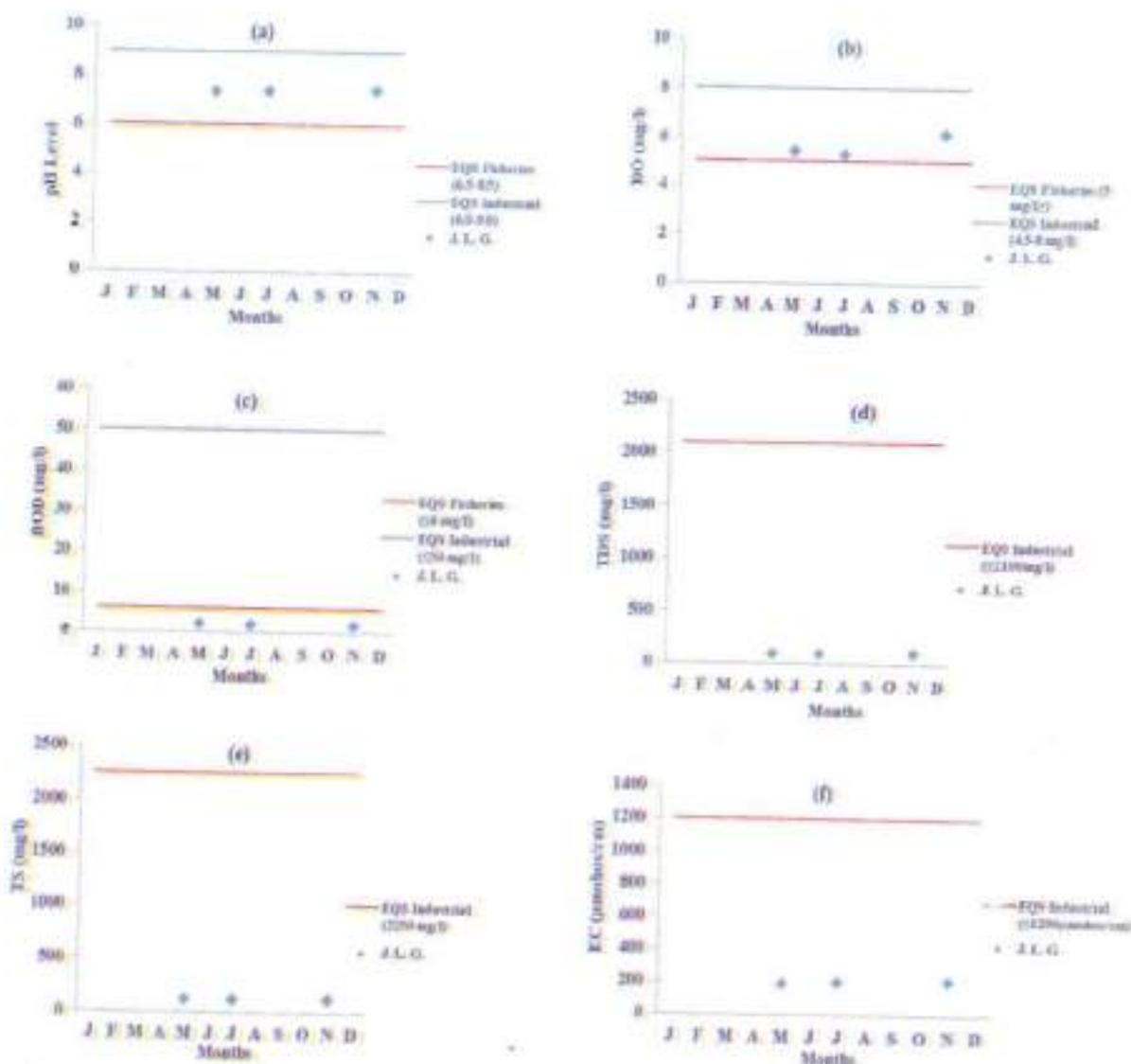


Fig.25. Status of pH, DO, BOD, TDS and EC of Sugandha River in 2018



In 2018, pH level of the Sughanda river water varied from 7.35 to 7.48. (Fig.25a) while EQS for fisheries is 6.5 to 8.5. In 2017, pH level varied from 7.1 to 7.3. In 2018, DO level varied from 5.2 mg/l to 6.3 mg/l (Fig.25b) and was above the EQS ( $\geq 5$  mg/l) for fisheries. In 2017, DO level varied from 6.9 mg/l to 7.3 mg/l. In 2018, BOD level varied from 2.0 mg/l to 2.35 mg/l (Fig.25c) while EQS for fisheries is  $\leq 6$  mg/l. In 2017, BOD range varied from 1.9 mg/l to 2.4 mg/l. In 2018, TDS level of the Sughanda river water was from 95 mg/l to 111 mg/l (Fig.25d) while corresponding EQS is 2100 mg/l for treated wastewater from industrial units. In 2017, TDS level varied from 80 mg/l to 140 mg/l. In 2018, TS level of the Sughanda river water was from 115 mg/l to 129 mg/l (Fig.25e) while corresponding EQS is 2250 mg/l for treated wastewater from industrial units. In 2017, TS level varied from 74 mg/l to 160 mg/l. In 2018, EC of the Sughanda river water was from 188  $\mu\text{mhos/cm}$  to 222  $\mu\text{mhos/cm}$  (Fig.25f) while corresponding EQS is 1200  $\mu\text{mhos/cm}$  for treated wastewater from industrial units. In 2017, EC varied from 144  $\mu\text{mhos/cm}$  to 210  $\mu\text{mhos/cm}$ .

#### 4.26 Lohalia River/Laukathi River

Patuakhali city is surrounded on three sides by two rivers. The two major rivers are Laukathi and Lohalia, which are directly connected with the Bay of Bengal. For monitoring purpose water samples were collected from Patuakhali Launch Ghat (PLG) (side and middle). For analysis, average of two points were used. Data was not available in the month of February, March, May, July, September and November. Detail data is attached Annex-1 (Table: 182-187).

In 2018, pH level of the Lohalia river water varied from 7.34 to 7.47. (Fig.26a) while EQS for fisheries is 6.5 to 8.5. In 2017, pH was varied from 7.15 to 7.3. In 2018, DO level varied from 5.45 to 6.1 mg/l (Fig.25b) and was above the EQS ( $\geq 5$  mg/l) for fisheries. In 2017, DO was varied from 5.7 to 7.15 mg/l. In 2018, BOD was varied from 2.0 to 2.2 mg/l (Fig.25c) while EQS for fisheries is  $\leq 6$  mg/l. In 2017, BOD was varied from 2.0 to 2.3 mg/l. In 2018, TDS level of the Lohalia river water was from 69 mg/l to 106 mg/l (Fig.25d) EQS is 2100 mg/l. In 2017, TDS was varied from 68 mg/l to 106 mg/l. In 2018, TS level of the Lohalia river was varied from 85 to 124 mg/l (Fig.24e) against EQS (2250 mg/l) for treated wastewater from industrial units. In 2017, TS was varied from 95 to 124 mg/l. In 2018, EC level of the Lohalia river water was from 137 to 211  $\mu\text{mhos/cm}$  (Fig.25f) EQS is 1200  $\mu\text{mhos/cm}$ . In 2017, EC level was varied from 122 to 172  $\mu\text{mhos/cm}$ .

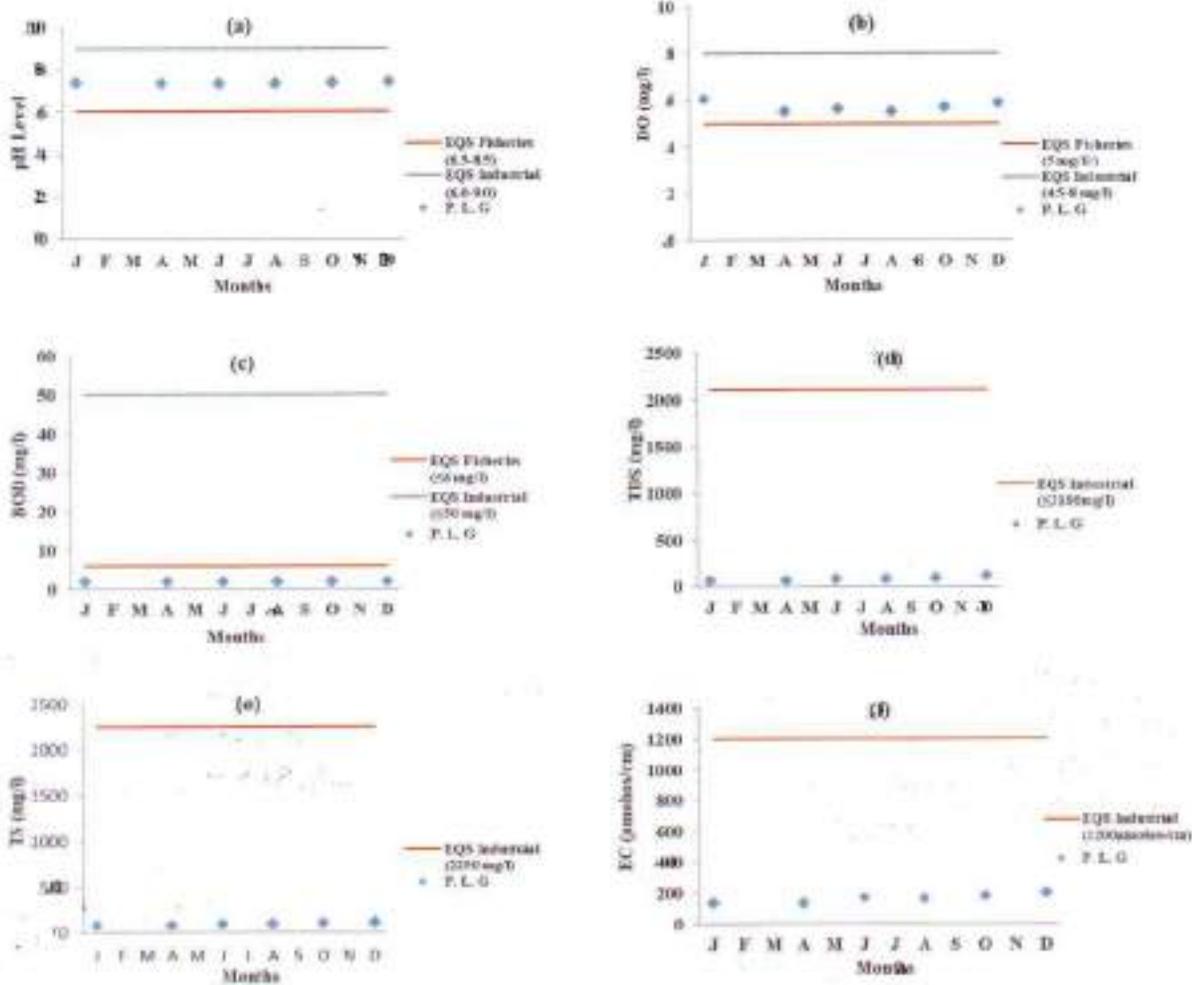


Fig.26. Status of pH, DO, BOD, TDS, TS and EC of Lohalia River in 2018

#### 4.27 Surma River

The Surma River is a major river in Bangladesh, part of the Surma-Meghna River System. It starts when the Barak River from northeast India divides at the Bangladesh border into the Surma and the Kushiya rivers. It ends in Kishoreganj District, above Bhairab Bazar, where the two rivers rejoin to form the Meghna River. The waters from the river ultimately flow into the Bay of Bengal. The average depth of this river is 86m and maximum depth is 170m. For monitoring purpose water samples were collected from five different locations of the river namely Mendibag Point (MP), Kin Bridge (KB), Shak Ghat (SG), Chattak and Kazi Bazar (KB). Detail data is attached Annex-1 (Table: 188-193).



In 2018, pH level of the Surma river water varied from 7.4 to 8.84 (Fig. 27a) while in 2017, pH was from 6.8 to 8.9. In 2018, DO content was mostly above the EQS ( $\geq 5$  mg/l). It varied from 5.8 to 7.1 mg/l (Fig. 27b). In 2017, DO level varied from 6.5 to 7.8 mg/l. In 2018, BOD value was also within the EQS at all locations. The maximum and the minimum BOD was 2.7 mg/l in August at Shak Ghat point and 1.9 mg/l in February at Kazi Bazar point (Fig. 27c). In 2017, BOD level varied from 1.7 to 2.9 mg/l. In 2018, COD content was within the EQS (200 mg/l) and varied from 9 to 26 mg/l (Fig. 27d). In 2017, COD level varied from 8 to 35 mg/l. In 2018, TDS range was from 26.6 to 854 mg/l (Fig. 27e) where EQS for TDS is 2100 mg/l for treated wastewater from industrial units. In 2017, TDS level was varied from 133 to 461 mg/l. In 2017, EC level of Surma river water was within the EQS limit for treated wastewater from industrial unit. It varied from 64 to 1766  $\mu$ mhos/cm (Fig. 27f). In 2017, EC was varied from 266 to 881  $\mu$ mhos/cm.

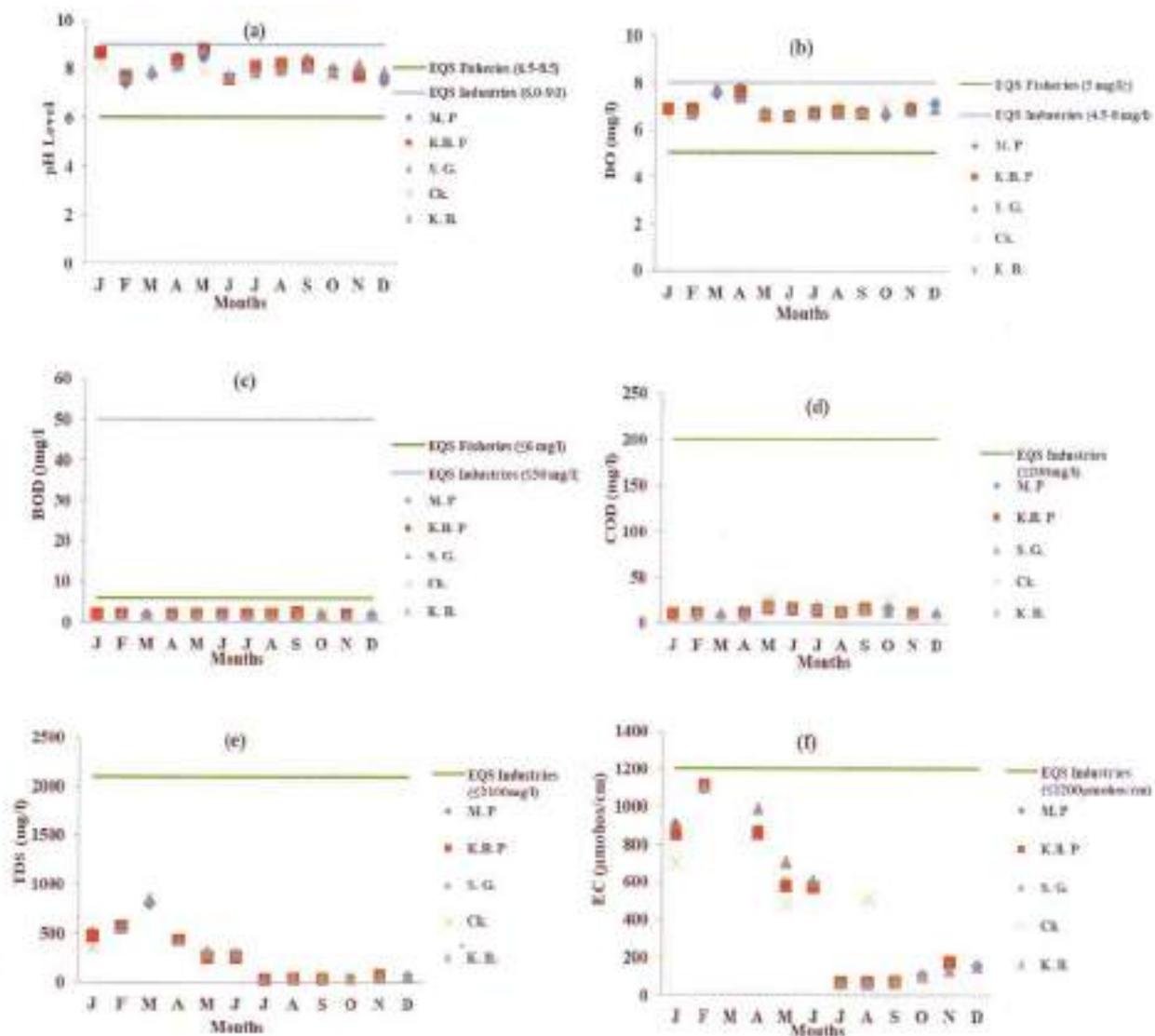


Fig.27. Status of pH, DO, BOD, COD, TDS and EC of Surma River in 2018



## 4.28 Kushiara River

The Kushiara river is one of the Trans-boundary rivers of Bangladesh. The total length of the Kushiara is about 161 km and width of the river is 250m. During rainy season the mean depth of the Kushiara reaches upto 10m. Water samples were collected Fenchugonj point among the three locations (e.g. Jokigonj (BSF Ghat, BDR Camp) and Fenchugonj point of the river in 2018 for analysis of water quality. Data was not available in the month of April, May, July, October and November. Detail data is attached Annex-1 (Table: 194-199).

In 2018, pH level of Kushiara river water was within EQS (6.5-8.5) for inland surface water. It varied from 7.7 to 8.3 (Fig. 28a). In 2017, pH level varied from 7.3 to 7.6. In 2018, DO was above the EQS ( $\geq 5$  mg/l) for fisheries and varied from 6.67 to 7.9 mg/l (Fig. 28b). In 2017, DO level varied from 6.56 to 6.9 mg/l. In 2018, BOD level was from 1.8 mg/l to 2.1 mg/l while EQS for fisheries is  $\leq 6$  mg/l (Fig. 28c). In 2017, BOD level varied from 2 mg/l to 3 mg/l. In 2018, COD content was within the EQS (200 mg/l) and varied from 8.0 mg/l to 13 mg/l (Fig. 28d). In 2017, COD level varied from 11 mg/l to 16 mg/l. In 2018, TDS level of Kushiara river water was below the EQS for treated wastewater from industrial unit and varied from 28 to 498 mg/l (Fig. 28e). In 2017, TDS level varied from 156 to 201mg/l. In 2018, EC was within the EQS limit and it varied from 72 to 912  $\mu$ mhos/cm (Fig. 28f). In 2017, EC was from 312 to 402  $\mu$ mhos/cm.

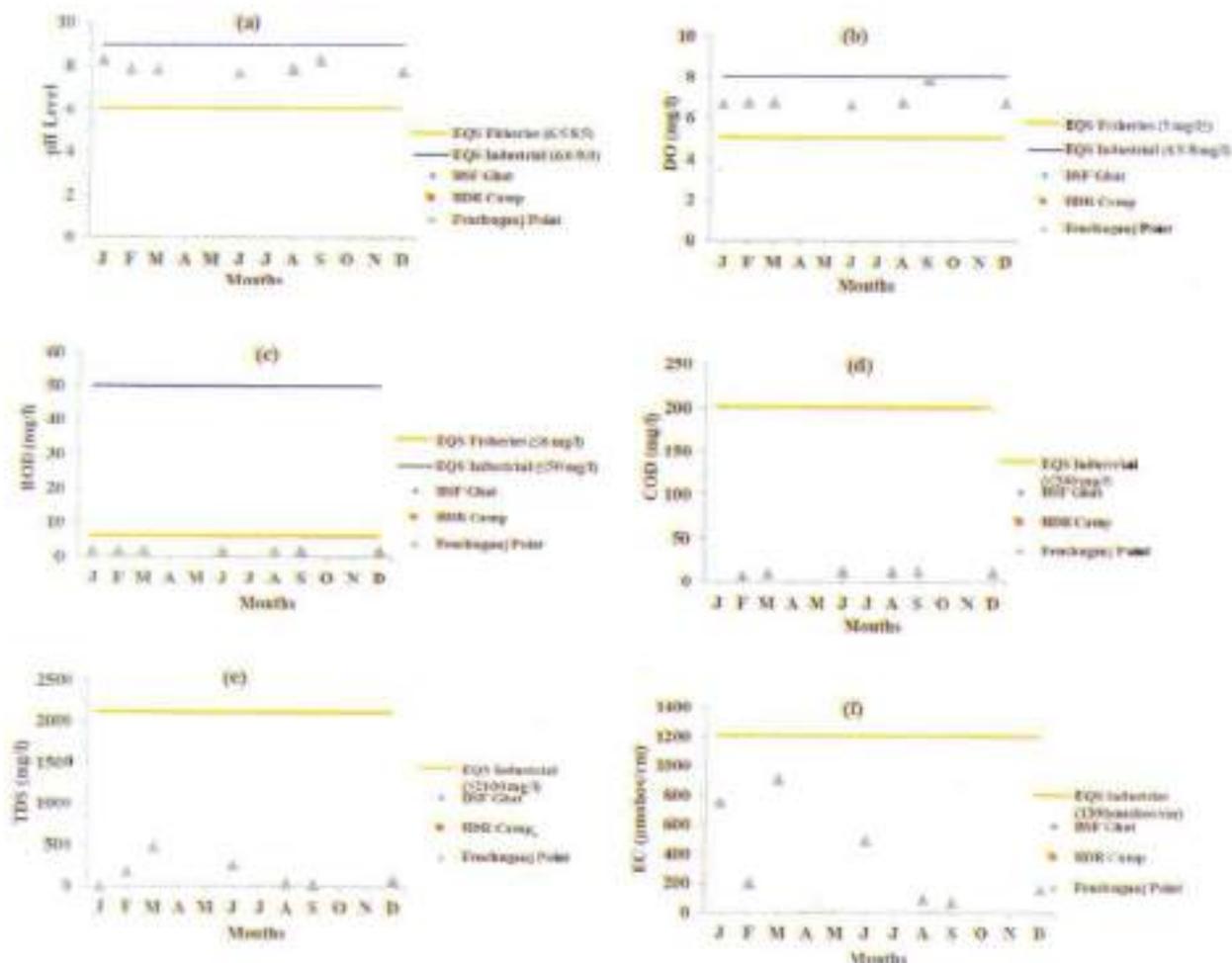


Fig 28. Status of pH, DO, BOD, COD, TDS and EC of Kushiara River in 2018



## 4.29 Balu River

The Balu river runs mainly through the extensive swamps of Beel Belai and those east of Dhaka, joining the Shitalakshya near demra. It has a narrow connection through the Suti Nadi near kapasia with the Shitalakshya, and also by way of the Tongi Khal with the turag; there is also a link with the Shitalakshya near kaliganj. Although it carries floodwater from the Shitalakshya and the Turag during the flood season, the Balu is of importance mainly for local drainage and access by small boats. [Sifatul Quader Chowdhury]. To monitor water quality in 2018, water samples were collected from six locations such as Near Jaber & Jubair Fabrics Ltd. Tongi (N.J&J F.L.T), Near Hossain Dyeing Ltd. Pagar, Tongi (N.H.D.L.T), Near Damra University College, Demra, Dhaka (N.D.U.C.D), Near Balu Bridge, 300 feet Road, Dhaka (N.B.B.D), Near Fulpukuria Dyeing Ltd. Pagar, Tongi (N.F.D.L.T), South Side of Tongi Rail Bridge, Pagar, Tongi (S.S.T.R.B.T). Data was not available in the months of February to December at the Near Fulpukuria Dyeing Ltd. Pagar, Tongi and South Side of Tongi Rail Bridge, Pagar, Tongi. Detail data is attached Annex-1 (Table:200-209).

In 2018, the pH range (6.89 to 8.43) (Fig.29a) of Balu river was within EQS (6.5 -8.5). The maximum pH 8.43 was found in November at Near Jaber & Jubair Fabrics Ltd. point and the minimum pH 6.89 was found in August at Near Hossain Dyeing Ltd. point. In 2017, pH level varied from 6.94 to 8.81. In 2018, DO concentration of Balu river water was very low during dry season. The maximum DO (5.6 mg/l) found at Near Damra University College point in July and the minimum DO (0.0) mg/l was found in January at Near Hossain Dyeing Ltd. point (Fig.29b). In 2017, DO level varied from 0.0 to 5.2 mg/l. In 2018, the maximum BOD was 72 mg/l in February at Near Hossain Dyeing Ltd. and the minimum was 1.0 mg/l in August at Near Damra University College point (Fig.29c). In 2017, BOD level varied from 1.1 to 84 mg/l. In 2018, COD of Balu river was over the EQS (200 mg/l) in dry season for waste water after treatment from industrial units. The maximum and the minimum COD content of Balu river water was 228 mg/l at Near Jaber & Jubair Fabrics Ltd. point in March and 10 mg/l at Near Hossain Dyeing Ltd. point (Fig.29d). In 2017, COD level varied from 7.0 to 282 mg/l. In 2018, TDS was below the EQS (2100 mg/l) for wastewater after treatment from industrial units (Fig.29e) at all the sampling points. The maximum TDS was 860 mg/l in February at Near Hossain Dyeing Ltd. point while that of minimum was 41.3 in August at, Near Balu Bridge. In 2017, TDS level varied from 83.7 to 1110 mg/l. In 2018, the maximum Chloride was (130 mg/l) found in March at Near Jaber & Jubair Fabrics Ltd. point and the minimum Chloride was (7.0 mg/l) in September at Near Hossain Dyeing Ltd. point (Fig.29f). In 2017, Chloride level varied from 7.0 to 176 mg/l. In 2018, the maximum SS 166 mg/l) was at Near Hossain Dyeing Ltd. point in March and the minimum (10 mg/l) in September at Near Jaber & Jubair Fabrics Ltd. point (Fig.29g). In 2017, SS level varied from 9.0 to 234 mg/l. In 2017, the maximum EC (1501  $\mu$ mhos/cm) was in February at Near Hossain Dyeing Ltd. point and the minimum (120  $\mu$ mhos/cm) was in July at Near Fulpukuria Dyeing Ltd. point (Fig.29h). In 2017, EC level varied from 166 to 2433 $\mu$ mhos/cm. In 2018, the maximum Total Alkalinity (420 mg/l) was at Near Jaber & Jubair Fabrics Ltd. point in February and the minimum (52 mg/l) in August at the same location (Fig.29i). In 2017, Total Alkalinity level varied from 42 to 430mg/l. In 2017, the maximum Turbidity of Balu river was (166 mg/l) at Near Jaber & Jubair Fabrics Ltd. point in March and the minimum (7.34 mg/l) in September at Near Balu Bridge point (Fig.29j). In 2017, Turbidity level varied from 9.36 to 250 NTU.

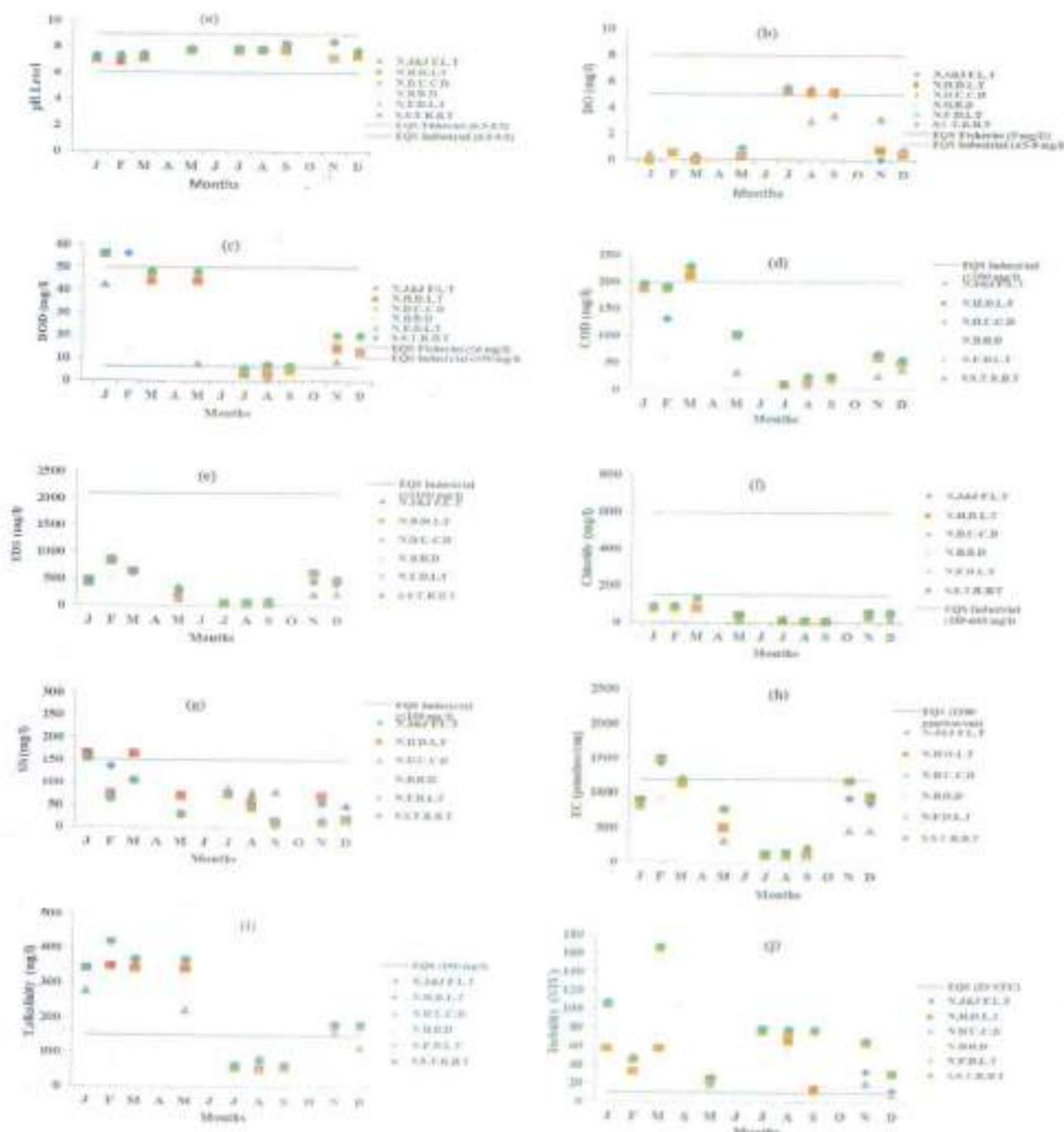


Fig 29. Status of pH, DO, BOD, COD, TDS, Chloride, SS, EC, T.alkalinity and Turbidity of Balu River in 2018

Near Jaber & Jubair Fabrics Ltd. Tongi (N.J&J F.L.T), Near Hossain Dyeing Ltd. Pagar, Tongi (N.H.D.L.T), Near Damra University College, Demra, Dhaka (N.D.U.C.D), Near Balu Bridge, 300 feet Road, Dhaka (N.B.B.D), Near Fulpukuria Dyeing Ltd. Pagar, Tongi (N.F.D.L.T), South Side of Tongi Rail Bridge, Pagar, Tongi (S.S.T.R.B.T).

## **CHAPTER 5: WATER QUALITY PARAMETERS OF LAKE AND GROUND WATER**





## CHAPTER 5: WATER QUALITY PARAMETERS OF LAKE AND GROUND WATER

### 5.1 Water Quality Parameters of Gulshan Lake Water

It is an important urban water body in Dhaka city providing environmental services. However, the lake itself is a victim of environmental pollution. Direct discharge of sewage and dumping of municipal waste into the lake turned it highly polluted. The lake has been declared by the government as "Ecologically Critical Area" in 2001. Water samples were collected from nine locations e.g. Near United Hospital, Kalachadpur (N.U.H.K), Near Housing, South Bridge (N.H.S.B), Near Lake View Clinic (N.L.V.C), North Side Gulshan Baridhara Lake (N.S.G.B.L), Taltola Shooting Complex, South Side (T.S.C.S.S), North Side of Gulshan-1, Gudara Ghat (N.S.G.G.G), South Side of Gulshan-1, Gudara Ghat (S.S.G.G.G), Gulshan-Bonani Connection Bridge (G.B.C.B), Bonani Bridge (B.B) of the lake in 2017 for analysis of water quality. For analysis, average of nine points were used. Data was not available in the month of May and September. Detail data is attached Annex-2 (Table:210-219).

In 2018, pH of Gulshan Lake water varied from 6.9 to 8.39. The maximum pH was in August at Near United Hospital point and the minimum pH was in January at North Side of Gulshan-1, Gudara Ghat point (Fig. 30a). In 2017, pH of Gulshan Lake water varied from 6.79 to 8.05. In 2018, DO content of Gulshan lake widely varied among the sampling locations as well as among sampling months. DO of Gulshan Lake water varied from 0.3 to 14.1 mg/l. The maximum DO was in July at North Side of Gulshan-1, Gudara Ghat and the minimum DO (0.3) mg/l was in September at North Side Gulshan Baridhara Lake (Fig. 30b). In 2017, DO concentration of Gulshan Lake water varied from 0 to 11.41 mg/l. In 2018, BOD of Gulshan Lake water varied from 11 to 62 mg/l. The maximum BOD (62 mg/l) was in March at North Side of Gulshan-1, Gudara Ghat point and the minimum BOD (11.0) was in June at Taltola Shooting Complex, South Side point (Fig. 30c). BOD was higher than EQS throughout the year of 2017. In 2017, BOD of Gulshan Lake water varied from 6.0 to 80 mg/l. In 2018, COD of Gulshan Lake water varied from 34 to 170 mg/l. The maximum COD (170 mg/l) was in March at North Side of Gulshan-1, Gudara Ghat point and the minimum COD (34) mg/l was in August at South Side of Gulshan-1, Gudara Ghat point (Fig. 30d). In 2017, COD of Gulshan Lake water varied from 19.7 to 186 mg/l. In 2018, TDS of Gulshan Lake water varied from 161.5 to 475 mg/l. The maximum TDS (475 mg/l) was in January at South Side of Gulshan-1, Gudara Ghat point and the minimum TDS (161.5 mg/l) was in October at Near Lake View Clinic point (Fig. 30e). In 2017, TDS of Gulshan Lake water varied from 31 to 440 mg/l. In 2018, Turbidity of Gulshan Lake water varied from 15.4 to 153 NTU. The maximum Turbidity (153 NTU) was in January at Taltola Shooting Complex, South Side point and the minimum Turbidity (15.4 NTU) was in September at Bonani Bridge point (Fig. 30f). In 2017, Turbidity of Gulshan Lake water varied from 16.3 to 96.7 NTU and it was higher than EQS throughout the year. In 2018, Chloride of Gulshan Lake water varied from 16 to 59 mg/l. The maximum Chloride (59 mg/l) was in May at South Side of Gulshan-1, Gudara Ghat point and the minimum Chloride (16 mg/l) was in June at Near United Hospital point (Fig. 30g). In 2017, Chloride of Gulshan Lake water varied from 11 to 55 mg/l. In 2018, SS of Gulshan Lake water varied from 22 mg/l to 211 mg/l. The maximum SS (211 mg/l) was in January at Taltola Shooting Complex, South Side and the minimum SS (22 mg/l) was in September at North Side of Gulshan-1, Gudara Ghat (Fig. 30h). In 2017, SS of Gulshan Lake water varied from 25 mg/l to 156 mg/l. In 2018, Total Alkalinity of Gulshan Lake water varied from 14 mg/l to 286 mg/l. The maximum Total Alkalinity (286 mg/l) was in March at South Side of Gulshan-1, Gudara Ghat point and the minimum Total Alkalinity (14 mg/l) was in June at Near United Hospital point (Fig. 30i). In 2017, Total Alkalinity of Gulshan Lake water varied from 104 mg/l to 210 mg/l. In 2018, the maximum EC 875  $\mu\text{mhos/cm}$  was in January at South Side of Gulshan-1, Gudara Ghat point and the minimum EC 305  $\mu\text{mhos/cm}$  was in October at Near Lake View Clinic point (Fig. 30j). In 2017, EC of Gulshan Lake water varied from 280  $\mu\text{mhos/cm}$  to 812  $\mu\text{mhos/cm}$ .

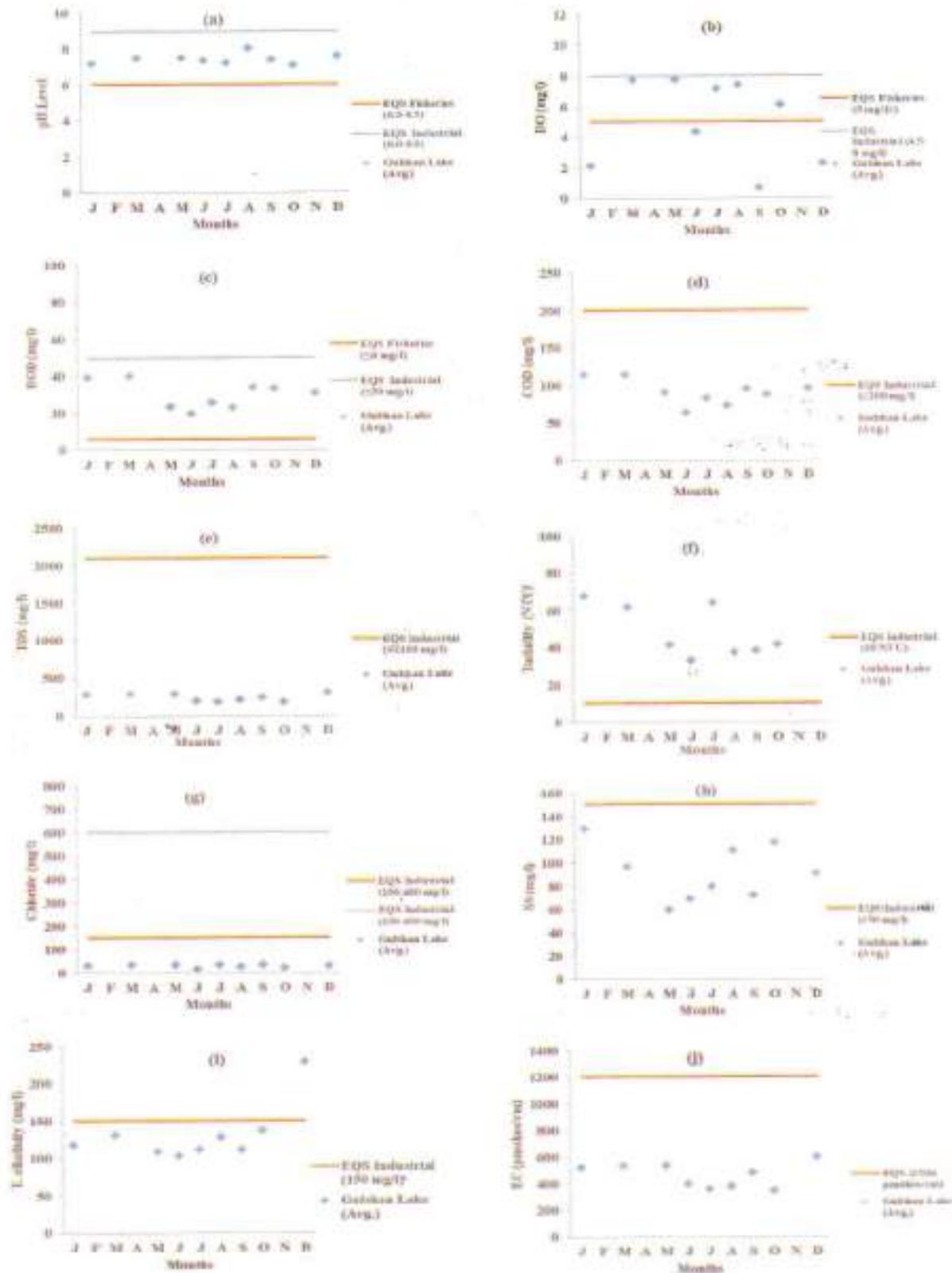


Fig 30. Status of pH, DO, BOD, COD, TDS, Turbidity, Chloride, SS, T. Alkalinity and EC of Gulshan Lake in 2018



## 5.2 Water Quality Parameters of Dhanmondi Lake

Dhanmondi Lake is in the Dhanmondi residential area in Dhaka, Bangladesh. The lake was originally a dead channel and was connected to the Turag River. The lake is partially connected with the Begunbari Canal. In 1956, Dhanmondi was developed as a residential area. In the development plan, about 16% of the total area of Dhanmondi was designated for the lake. The lake has become a well visited tourist spot, with cultural hubs such as the Rabindra-Sarobar located along its side. Data was available in the months of January, March, May, August and September. Detail data is attached Annex-2 (Table: 220-229).

Water samples were collected from four locations e.g. 8 No. Road Bridge (8 N.R.B), Near Gigatola Pilkhana More (N.G.P.M), Near Dhanmondi-32 Bangabandhu Jadughor (N.D.B.J), Near Dhanmondi-32 Bridge (N.D.B) of the lake in 2018 for analysis of water quality.

In 2018, pH level of Dhanmondi Lake water was within the EQS (6.5-8.5) for fisheries. It varied from 6.8 to 8.45 (Fig. 31a). In 2017, pH level varied from 7.1 to 8.54. In 2018, DO was varied from 2.6 to 10.8 mg/l (Fig. 31b). In 2017, DO was varied from 4.4 to 6.9 mg/l. In 2018, BOD was varied from 3.1 to 4.4 mg/l (Fig. 31c). In 2017, BOD was varied from 1.5 to 4.6 mg/l. In 2018, COD was varied from 14 to 43 mg/l COD was within the EQS (Fig. 31d). In 2017, COD was varied from 8 to 12 mg/l. In 2018, TDS was varied from 99.3 to 136.8 mg/l and was within the EQS (Fig. 31e). In 2017, TDS was varied from 92.3 to 184.2 mg/l. In 2018, Turbidity was varied from 3.99 to 10.11 NTU and the month of March Turbidity concentration was out the EQS (Fig. 31f). In 2017, Turbidity was varied from 2.3 to 12.8 NTU. In 2018, Chloride was varied from 10 to 49 mg/l and was within the EQS (Fig. 31g). In 2017, Chloride was varied from 18 to 40 mg/l. In 2018, SS was varied from 18 to 48 mg/l and was within the EQS (Fig. 31h). In 2017, SS was varied from 12 to 32 mg/l. In 2018, Total Alkalinity was within the EQS (150 mg/l) and varied from 90 to 118 mg/l (Fig. 31i). In 2017, Total Alkalinity varied from 51 to 90 mg/l. In 2018, EC was within the EQS (1200  $\mu$ mhos/cm) limit and it was varied 209 to 273  $\mu$ mhos/cm (Fig. 31j). Overall condition of the lake is good. In 2017, EC was varied  $\mu$ mhos/cm 189.7 to 335  $\mu$ mhos/cm.

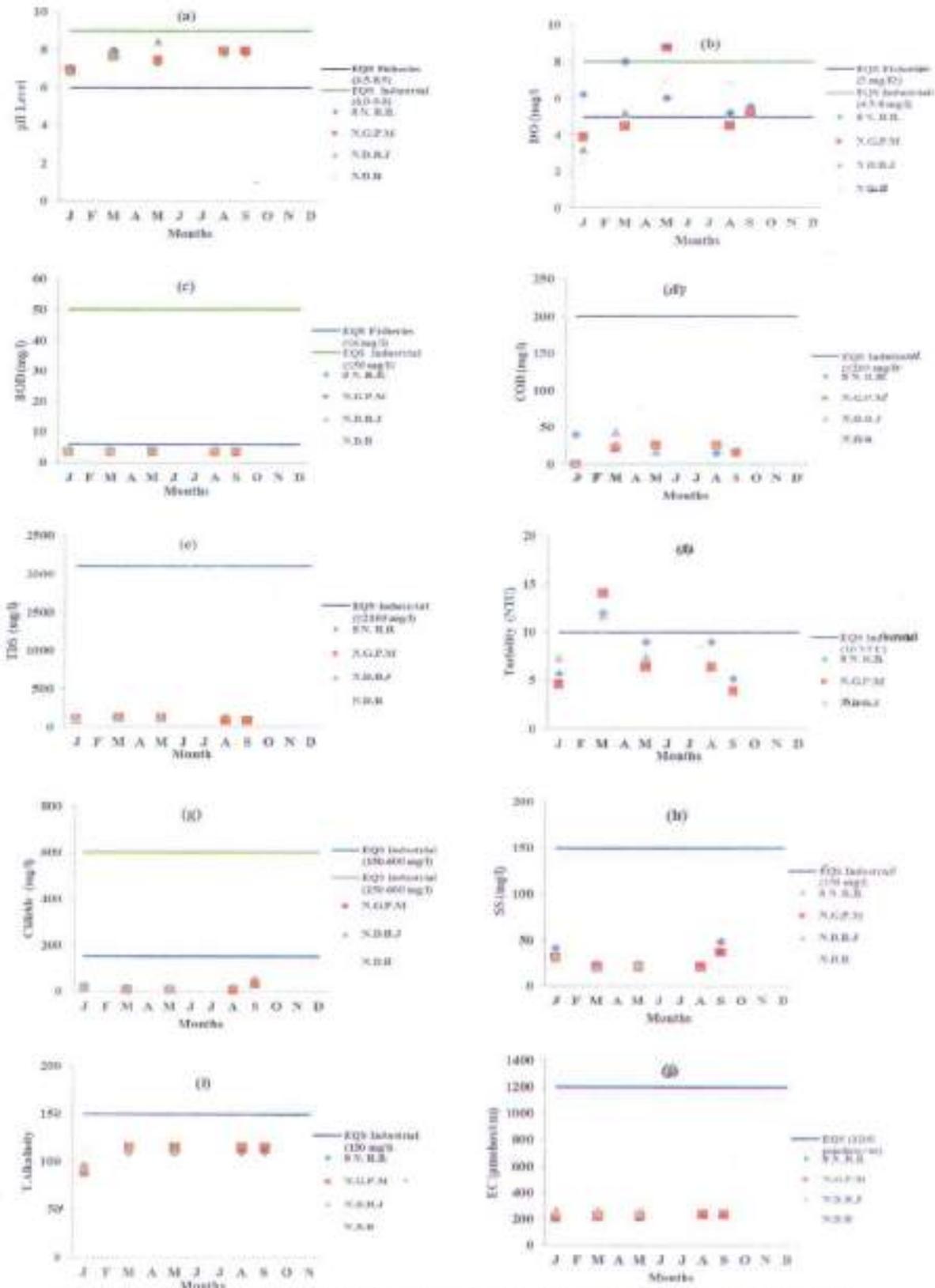


Fig 31. Status of pH, DO, BOD, COD, TDS, Turbidity, Chloride, SS, T. Alkalinity and EC of Dhamnondi Lake in 2018



### 5.3 Water Quality Parameters of Hatir-Jheel Lake

Hatir-Jheel is a lake front in Dhaka, Bangladesh that has been transformed into a transportation medium for minimizing traffic congestion. It is now a popular recreational spot for residents of Dhaka. Hatir Jheel, the new projects of beautification Dhaka city. It has already become an attractive location to visit in Dhaka City.

Hatirjheel is located at the centre of the capital city, Dhaka. It has a latitude of 23.7495747 and a longitude of 90.3967635. In other words, the Hatirjheel has a coordinate of 23°44'58.47"N 90°23'48.35"E. The area stretches from Sonargaon Hotel in the south to all the way to Banasree in the north. The place is surrounded by Tejgaon, Gulshan, Badda, Rampura, Banasree, Niketon, and Maghbazar, and it made the transportation of the people living near these areas much easier.

Direct discharge of sewage, municipal waste and industrial effluent cause water pollution in the lake. Water samples were collected from three locations e.g. Badda-Gulshan Link Road Bridge (B.G.L.R), Rampura Bridge (R.B), FDC More Bridge (FDC M.B), of the lake in 2018 for analysis of water quality. Data was available in the months of January, March, May, August and September. Detail data is attached Annex-2 (Table: 230-239).

In 2018, pH level of Hatir Jheel Lake water was within the EQS (6.5-8.5) for fisheries. It varied from 6.84 to 7.8 (Fig.32a). In 2017, pH level varied from 6.93 to 8.0. In 2018, DO was varied from 0 to 9.76 mg/l (Fig.32b). In 2017, DO was varied from 0.0 to 9.76 mg/l. In 2018, BOD was varied from 16 to 54 mg/l (Fig.32c). In 2017, BOD was varied from 3.0 to 29.1 mg/l. In 2018, COD of Hatir Jheel water varied from 36 to 211 mg/l (Fig.32d). In 2017, COD of Hatir Jheel water varied from 12 to 75 mg/l. In 2018, TDS was varied from 189.2 to 358 mg/l (Fig.32e). In 2017, TDS was varied from 173.2 to 352 mg/l. In 2018, Turbidity was varied from 16.8 to 88.5 NTU and was above the EQS (Fig.32f). In 2017, Turbidity was varied from 12.2 to 37 NTU. In 2018, Chloride of Hatir Jheel Lake water varied from 33 to 132 mg/l (Fig.32g). In 2017, Chloride of Hatir Jheel Lake water varied from 24 to 52 mg/l. In 2018, SS was varied from 20 to 167 mg/l (Fig.32h). In 2017, SS was varied from 18 to 64 mg/l. In 2018, Total Alkalinity was above the EQS (150 mg/l) and varied from 158 to 246 mg/l (Fig. 32i). In 2017, Total Alkalinity varied from 198 to 451 mg/l. In 2018, EC was within the EQS (1200  $\mu$ mhos/cm) limit and it varied from 358 to 680  $\mu$ mhos/cm (Fig. 32j). In 2017, EC varied from 326 to 646  $\mu$ mhos/cm.

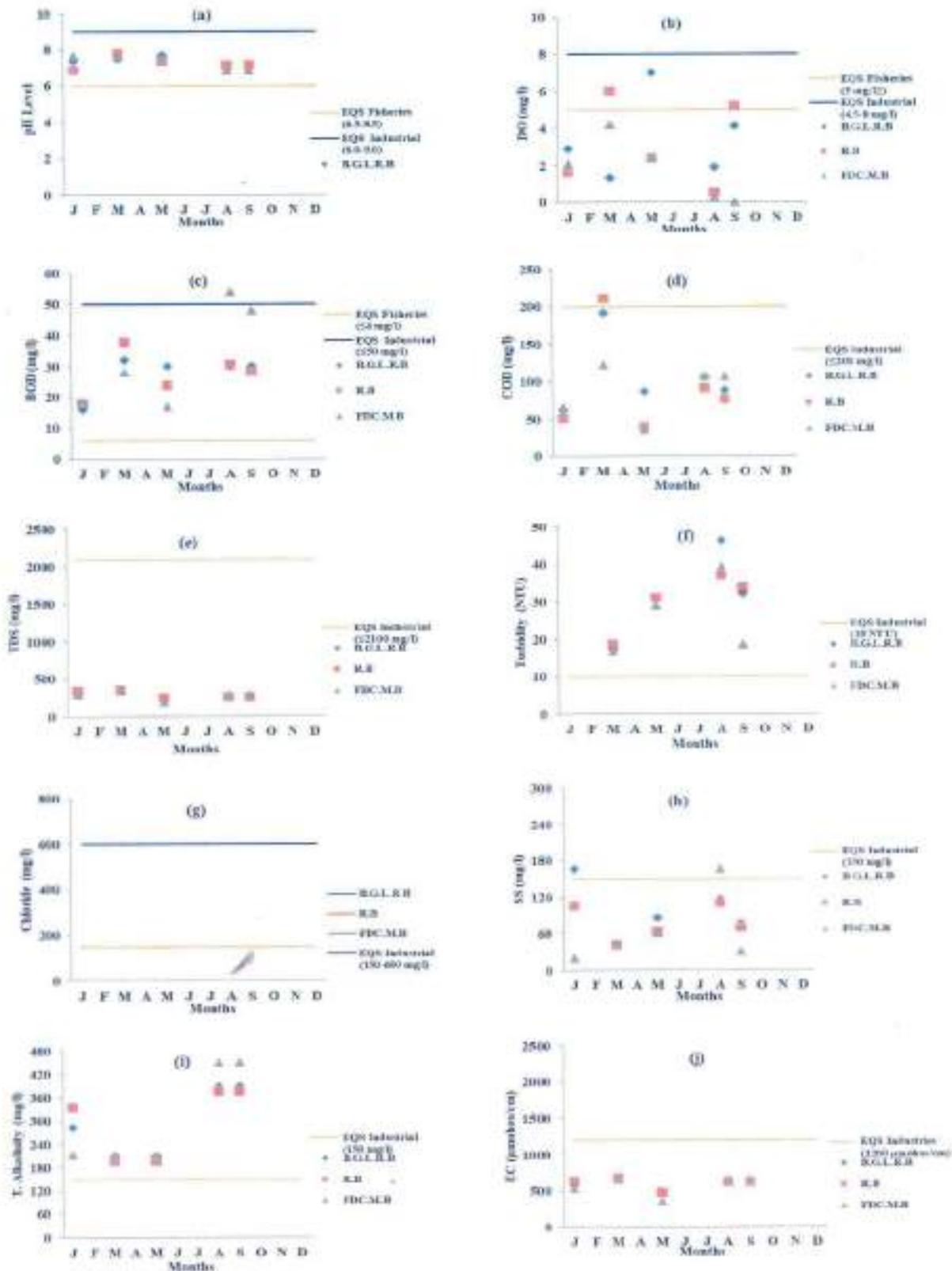


Fig 32. Status of pH, DO, BOD, COD, TDS, Turbidity, Chloride, SS, T. Alkalinity and EC of Hatir Jheel Lake in 2018



## 5.4 Water Quality Parameters of Ground Water in Chittagong District

Chittagong is the second largest city of Bangladesh. It is a sea port city and faces various environmental challenges like industrial pollution, land slide, municipal wastes dumping, etc. There is possibility of increasing ground water salinity as the city is on the sea coast. For monitoring ground water quality, samples were collected from eight different locations viz. MES College Area (MES C.A), USTC Area (USTC A), Nsirabad 2 No. Gate Area (N.2No.G.A), and Chittagong Politechnic Institute Area (C.P.I.A), City College Area (C.C.A), Agrabad Women College Area (A.W.C.A), CEPZ Area (CEPZ A). For analysis, average points were used. Detail data is attached Annex-3 (Table: 240-245).

In 2018, pH level of ground water of Chittagong District area was within EQS (6.5-8.5) for drinking water. It varied from 6.2 to 8.7 (Fig. 33a). In 2017, pH level varied from 6.6 to 8.2. In 2018, TDS level of Chittagong District area ground water was below the EQS (1000 mg/l) for treated wastewater from drinking unit and varied from 60 to 286 mg/l (Fig. 33b). In 2017, TDS varied from 54 to 175 mg/l. In 2018, Chloride was within the EQS limit and it varied from 22 to 150 mg/l (Fig. 33c). In 2017, Chloride was varied from 33 to 111 mg/l. In 2018, EC was within the EQS limit and it varied from 116 to 578  $\mu\text{mhos/cm}$  (Fig.33d). In 2017, EC concentration varied from 115 to 348  $\mu\text{mhos/cm}$ . In 2018, Iron was within the EQS (0.3-1 mg/l) limit and it varied from 0.1 to 0.48 mg/l (Fig. 33e). In 2017, Iron level from 0.06 to 0.4 mg/l. In 2018, Hardness was within the EQS (200-500 mg/l) limit and it varied from 122 to 187 mg/l (Fig. 33f). In 2017, Hardness level varied from 115 to 180 mg/l.

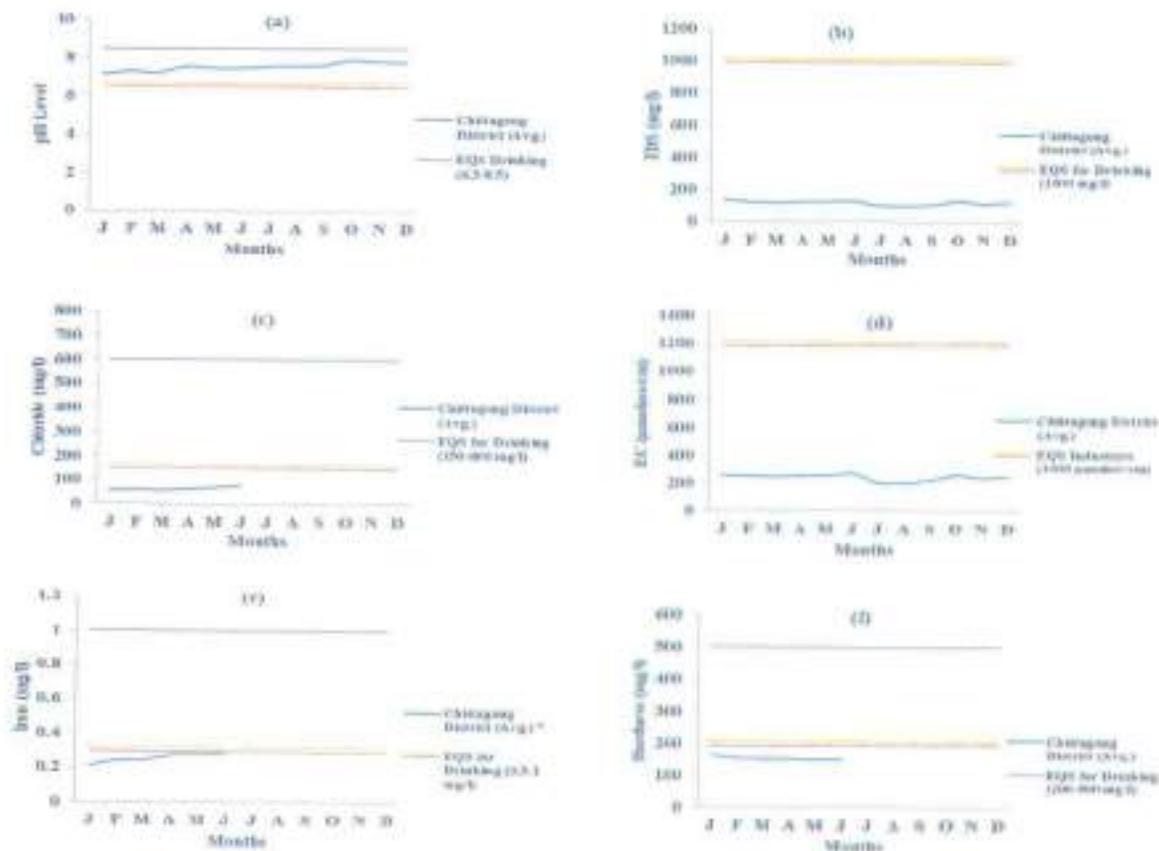


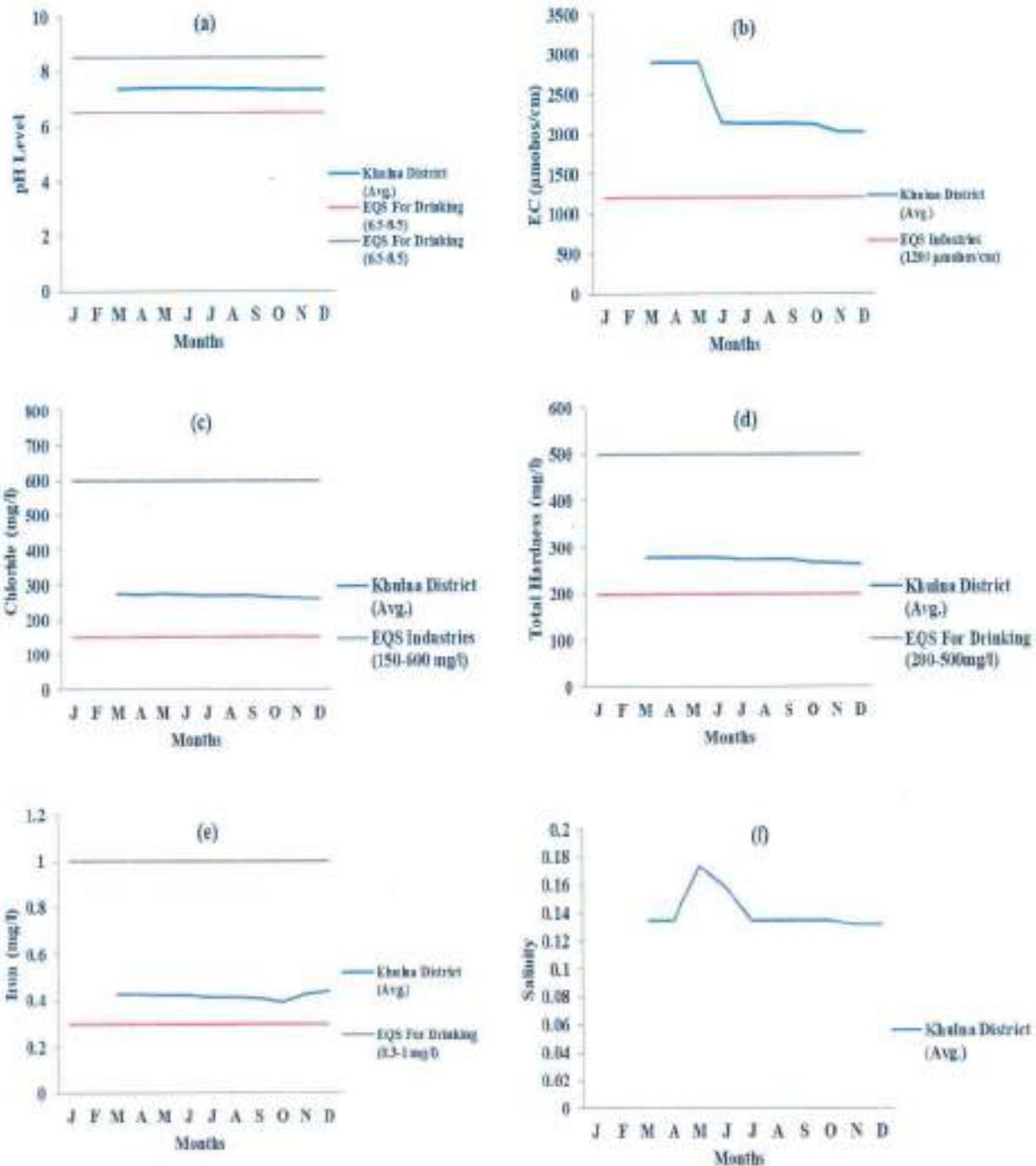
Fig 33. Status of pH, TDS, Chloride, EC, Iron and Hardness of Chittagong District area ground water in 2018



## 5.5 Water Quality Parameters of Ground Water in Khulna District

Khulna is the third-largest city of Bangladesh. It is situated north of the port of Mongla and has various heavy and light industries. For monitoring ground water quality, samples were collected from twenty six different locations viz. Divisional Commissioner Office, Boyra (D.C.O.B), Govt. Girls College, Boyra (G.G.C.B), Khulna Public College, Boyra (K.P.C.B), Boyra Bazar More, Boyra (B.B.M.B), Aizer More, Boyra (A.M.B), Rupsa Bus Stand, Rupsa (R.B.S.R), Natun Bazar, Rupsa (N.B.R), Govt. Commercial College, Sonadanga (G.C.C.S), Sonadanga Bus Stand, Sonadanga (S.B.S.S), Sarjical Clinic, Sonadanga (S.C.S), Govt. B.L College, Daulatpur (G.B.L.C.D), KUET University Main Gate, Fulbari Gate (KUET U.M.G.F.G), Gollamari Bus Stand, Gollamari (G.B.F.G), Govt. Mohasin College, Khalishpur (G.M.C.K), Moylapota More (M.M), Nirala More (N.M), Islami Bank Hospital, Santidham More (I.B.H.S.M), Seba Clinic, Sher-E-Bangal Road (S.C.S-E-B.R), Jia Hall, Sib Bary (J.H.S.B), Khulna University, Vaskarja Chattar (K.U.V.C), Sarkit House (S.H), Govt. Khulna Gila School (G.K.G.S), D.C Office (D.C O), Dak Banglo More (D.B.M), Govt. Azom Khan Commerce College (G.A.K.C.C), Govt. Majid Memorial City College (G.M.M.C.C). For analysis, average points were used. Details data is attached annexure -3 (Table: 246-251).

In 2018, pH of Khulna district ground water was within the EQS (6.5-8.5). It varied from 7.2 to 7.48 (Fig. 34a). In 2017, pH varied from 7.26 to 7.58. In 2018, EC of Khulna district ground water mostly was above the EQS (1200  $\mu$ mhos/cm). It varied from 1926 to 2368  $\mu$ mhos/cm. The maximum EC (2368  $\mu$ mhos/cm) was in June at Govt. Girls College, Boyra and the minimum EC (1926  $\mu$ mhos/cm) was in November at Govt. Majid Memorial City College point (Fig. 34b). In 2017, EC level varied from 1676 to 2552  $\mu$ mhos/cm. In 2018, the maximum Chloride concentration of Khulna district ground water was 308 mg/l in March at Jia Hall, Sib Bary point and the minimum Chloride concentration was 212 mg/l at Aizer More, Boyra in January (Fig. 34c) where the EQS is (150-600 mg/l). In 2017, Chloride level varied from 212 to 412 mg/l. In 2018, Total Hardness of Khulna district ground water within the EQS (200-500 mg/l). It varied from 224 to 298 mg/l (Fig. 34d). In 2017, Total Hardness varied from 180 to 364 mg/l. In 2018, Iron of Khulna district ground water was within EQS (0.3-1.0 mg/l). It varied from 0.3 to 0.59 mg/l (Fig. 34e). Ground water quality is good throughout the year of 2017. In 2017, Iron level varied from 0.22 to 0.56 mg/l. In 2018, Salinity of Khulna district ground water was within EQS (400 ppt). It varied from 0.0 to 0.3 ppt (Fig. 34f). In 2017, Salinity varied from 0.0 to 0.3 ppt.



**Fig 34. Status of pH, EC, Chloride, Total Hardness, Iron and Salinity of Khulna District area ground water in 2018**

## 5.6 Water Quality Parameters of Ground Water in Barisal District

Barisal is a major city that lies on the bank of Kirtankhola river in south-central Bangladesh. It is one of the oldest municipalities and river ports of the country. For monitoring ground water quality, samples were collected from one hundred four different locations viz. Govt. Gournody college, Gournody, UNO office, Gournody, Gournody Sadar Thana, Gournody Bus Stand, Gournody Girls School and College, Upzilla Porisahd, Upzilla Animal Office, Gournody Pouroshava, Gournody Model Primary School, Dudht Bazar, Gournody bandar, Hatem Ali college, Chowmatha bazar, Sadar Upozila Porishad, Durany Zame Mosque, Nuria Secondary School, Baitul Mamun Zame Mosque, Police Line Zame Mosque, Sher-e- Bangla Medical College Hospital, B M College, Govt. Barisal college, Govt. Girls School, Sharsaty Girls School, Fakir Bary Zame Mosque, City College, Amirita Lal College, Munshy Grage, Jamea Madani Haji Omar Shah Madrasha, Halima Khatun Secondary School, Adalot Para Zame Mosque, Asmot Ali Khan Institution, Keramotia Zame Mosque, Sheikh Afsar Uddin Kouni Madrasha, Launchghat, Barisal, 1st Floor Launchghat, Labourghat Tubewel, Zailkhanaget Tubewel Civil Surgeon Office, PWD Office, Deputy Commissioner Office, City market DC Ghat, Tubewel water of Gorsthan More, Tubewel water of Hatem Ali College, Tubewel water of Choumatha Bazar, Tubewel water of Jameya Madania Uttor Shah Madrasha, Tubewel Water of Custom Exsize & VAT Commissioner Office, Tubewel Water Of Halima Khatun Giri's High School, Tubewel Water of City Market, Tubewel Water of Balur Math, Tubewel Water of Chanmari, Tubewel Water of Port Road More, Tubewel Water of Model Thana, Tubewel Water of Zai Khana Gate, Tubewel Water of Bibir Pukur Mosque, Gournadi Girl's School, Upizilla Settlement Office, Beside the North Side of Gournadi Upizilla, Upizillah Livestock Office, Gournodi Municipality, Model Thana, Gournadi, Sub-Register Office, Gournadi, Mondir Moore, Gournadi, Zilla Porishad Dak Banglo, Gournadi, Sufi Ahmmad Madrasha & Mosque, Gournadi, Upizillah Health Complex, Gournadi, Agricultural Extension Office, Gournadi, Udoyon Secondary School, Sadar, T&T Colony Jame Mosque, Sadar, Barisal, Divisional Controller Of Accounts, Sadar, Barisal, Principal Post office, Sadar, Divisional Museum, Sadar, Steamergat Police Fari, Sadar, BIWTA Office, Shoroshoti Girl's School, Sadar, Barisal College, Bottala Bazar Market, Sadar, B.M School, Kalibari Road, Ambia Hospital More, Bogura Road, Amrito Lal Dey College, Zailkhanaget, Sadar, Model Thana, Sadar, Kashipur High School, Kashipur Choumatha, Sadar, Munshy Garage, West Bogra Road, Choumatha Bazar, Sadar, Poshim Gorsthan, Baitul Fala Mosque, Nathullabad, 99 Bogra Nothullabad Govt. Primary School, Sader Hospital Mosque, Law College Govt. Primary School, Zailkhana Mosque, Sadar, Govt. Wemen College, Sadar, Govt. Girl's School, Sadar, Mohshin School, Sadar, Fishery Road More, Sadar, Sher-e- Bangla Govt. Primary School, Munshi Garage, Sadar, City College, Sadar, Sher-e Bangla Hospital, Sadar, Shagordi Bazar, Sadar, Upozillah Sadar Complex, Sadar, For analysis, average points were used. Detail data is attached Annex-3 (Table: 252-257).

In 2018, pH level of Barisal district ground water was within EQS (6.5-8.5). It varied from 7.12 to 7.51 (Fig.35a). In 2017, pH was varied from 6.96 to 7.4. In 2018, EC was within the EQS (1200  $\mu$ mhos/cm) limit and it varied from 325 to 416  $\mu$ mhos/cm (Fig.35b). In 2017, EC was varied from 378 to 642  $\mu$ mhos/cm. In 2018, TDS level of Barisal district ground water was within EQS (1000 mg/l). It varied from 183 mg/l to 321 mg/l (Fig.35c). In 2017, TDS was varied from 110 mg/l to 321 mg/l. In 2018, Iron level of Barisal district ground water was within EQS (0.3-1.0 mg/l). It varied from 0.12 mg/l to 0.38 mg/l (Fig.35d). In 2017, Iron was varied from 0.30 mg/l to 4.0 mg/l. In 2018, T.alkalinity was within the EQS (150 mg/l) limit and it varied from 20 to 35 mg/l ((Fig.35e). In 2017, T.alkalinity varied from 28 to 36 mg/l. In 2018, Hardness was within the EQS (200-500 mg/l) limit and it varied from 100 to 250 mg/l (Fig.35f). In 2017, Hardness was varied from 200 to 220 mg/l.

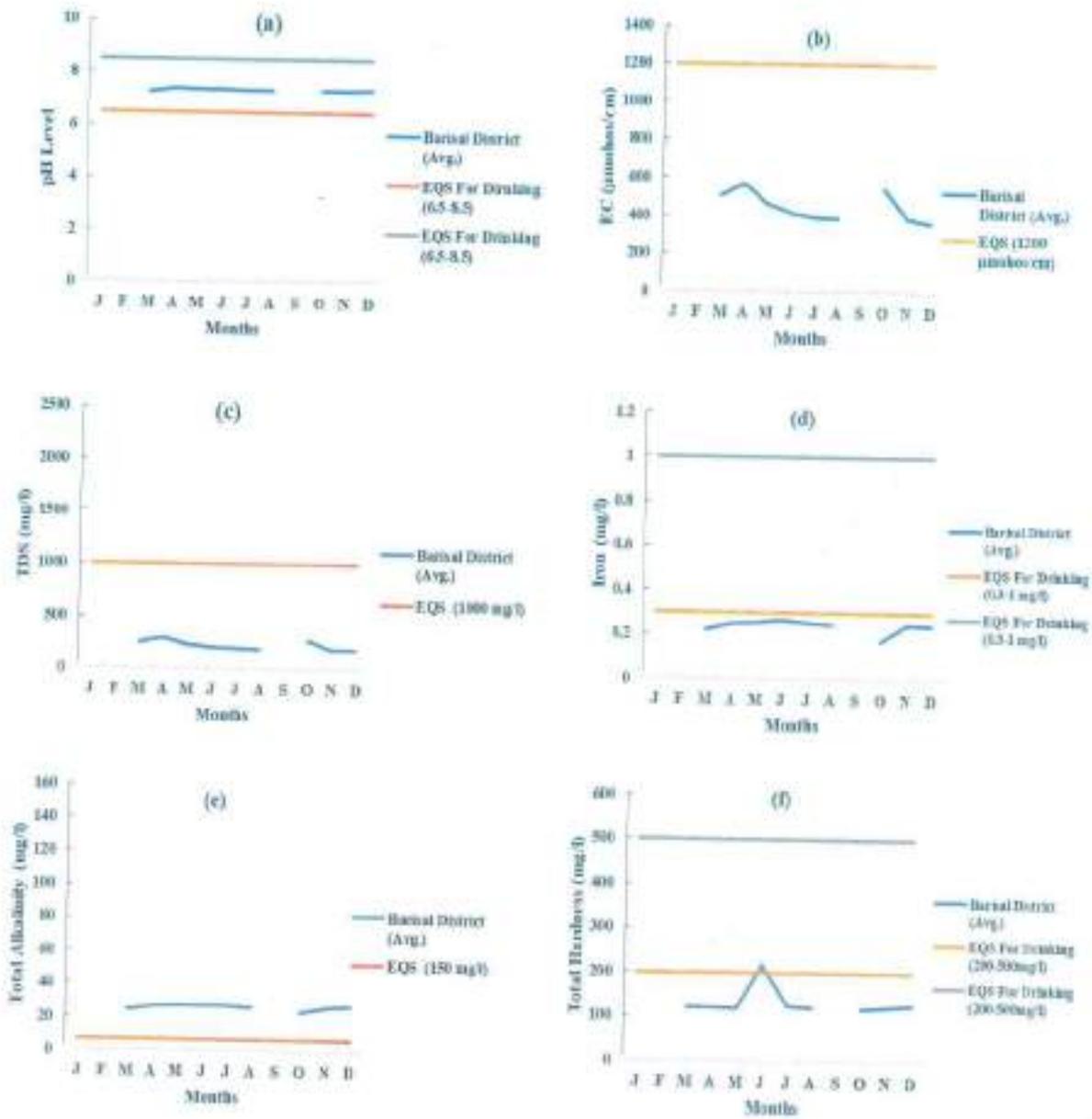
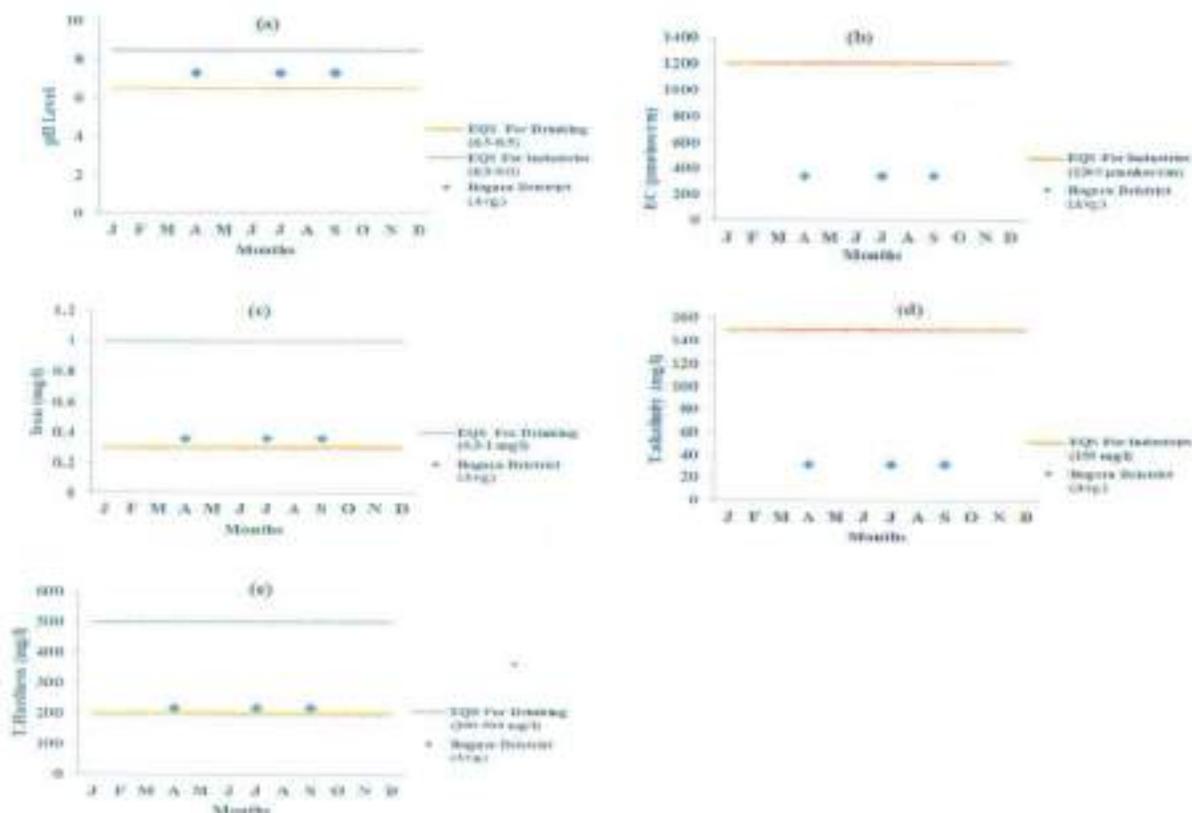


Fig 35. Status of pH, EC, TDS, Iron, T. alkalinity and Total Hardness of Barisal District area ground water in 2018

## 5.7 Water Quality Parameters of Ground Water in Bogura District

Bogura district is a northern district of Bangladesh in the Rajshahi division. It is called the gateway to north bangal. Bogura is an industrial city where many small and mid-sized industries are sited. For monitoring ground water quality, samples were collected from eleven different locations viz. Bogra Zilla School (B.Z.S), VM School Sadar, (VM.S.S), Zilla Parishad (Z.P), Office of the Duputy Commissioner (O.D.C), Office of the Bogra Municipality (O.B.M), Yakubiya Girls High School (Y.G.H.S), Head Post Office (H.P.O), Biddut Office (B.O), T & T Office (T & T. O), Commercial College (C.C), Office of the Police Super (O.P.S). For analysis, average points were used. Data was available in the months of April, July and September. Detail data is attached Annex-3 (Table: 258-262).

In 2018, pH level of Bogura district ground water was within EQS (6.5-8.5) for drinking water. It varied from 7.24 to 7.35 (Fig. 35a). In 2017, pH level varied from 7.0 to 7.48. In 2018, EC was within the EQS (1200  $\mu$ mohos/cm) limit and it varied from 325 to 360  $\mu$ mohos/cm (Fig. 35b). In 2017, EC varied from 216 to 220  $\mu$ mohos/cm. In 2018, Iron was within the EQS (0.3-1.0 mg/l) and it varied from 0.32 to 0.38 mg/l (Fig. 35c). In 2017, Iron was varied from 0.3 to 0.4 mg/l. In 2018, Total Alkalinity was also within the EQS (150 mg/l) and varied from 28 to 34 mg/l (Fig. 35d). In 2017, Total Alkalinity was varied from 18 to 30 mg/l. In 2018, Total Hardness varied from 210 to 220 mg/l while EQS for Total Hardness (200-500 mg/l) ((Fig. 35e)). In 2017, Total Hardness varied from 110 to 150 mg/l.



**Fig 36. Status of pH, EC, Iron, T. alkalinity and T.Hardness of Bogura District area ground water in 2018**



### 5.8 Different Water Quality Parameters of Ground Water in Sylhet District

Sylhet is the northeastern division of Bangladesh. The area around Sylhet is a traditional tea growing area. For monitoring ground water quality, samples were collected from eleven different locations viz. MC College, Tilagor (MC. C.T), Kadamtoli Bus Terminal (K.B.T), Sylhet Railway Station (S.R.S), Durgakumar Govt. Primary School (D.G.P.S), Agrogami Girls High School (A.G.H.S), Sylhet Govt. Girls High School (S.G.H.S), Osmani Medical College (O.M.C), Kadamtoli Primary School (K.P.S), Shahjalal Darga, Sadar (S.D.S), Shahporan Darga, Khadinnagar (S.D.K), Lal bazar/bandar bazar, Sylhet. Detail data is attached Annex-3 (Table: 263-267).

In 2018, pH level of Sylhet district ground water was within EQS (6.5-8.5). It varied from 6.9 to 8.2 (Fig.37a). In 2017, pH level varied from 6.8 to 7.8. In 2017, EC was within the EQS (1200  $\mu$ mhos/cm) limit and it varied from 75 to 389  $\mu$ mhos/cm (Fig.37b). In 2017, EC varied from 312 to 388  $\mu$ mhos/cm. In 2018, Chloride was within the EQS (150-600 mg/l) and it varied from 9.0 to 18 mg/l (Fig.37c). In 2017, Chloride was varied from 12 to 26 mg/l. In 2017, Alkalinity was within the EQS (0.3-1.0 mg/l) and it varied from 9.0 to 28 mg/l (Fig.37d). In 2018, Iron was within the EQS (150 mg/l) and it varied from 0.45 to 2.3 mg/l (Fig.37e). In 2017, Iron varied from 0.58 to 0.85 mg/l.

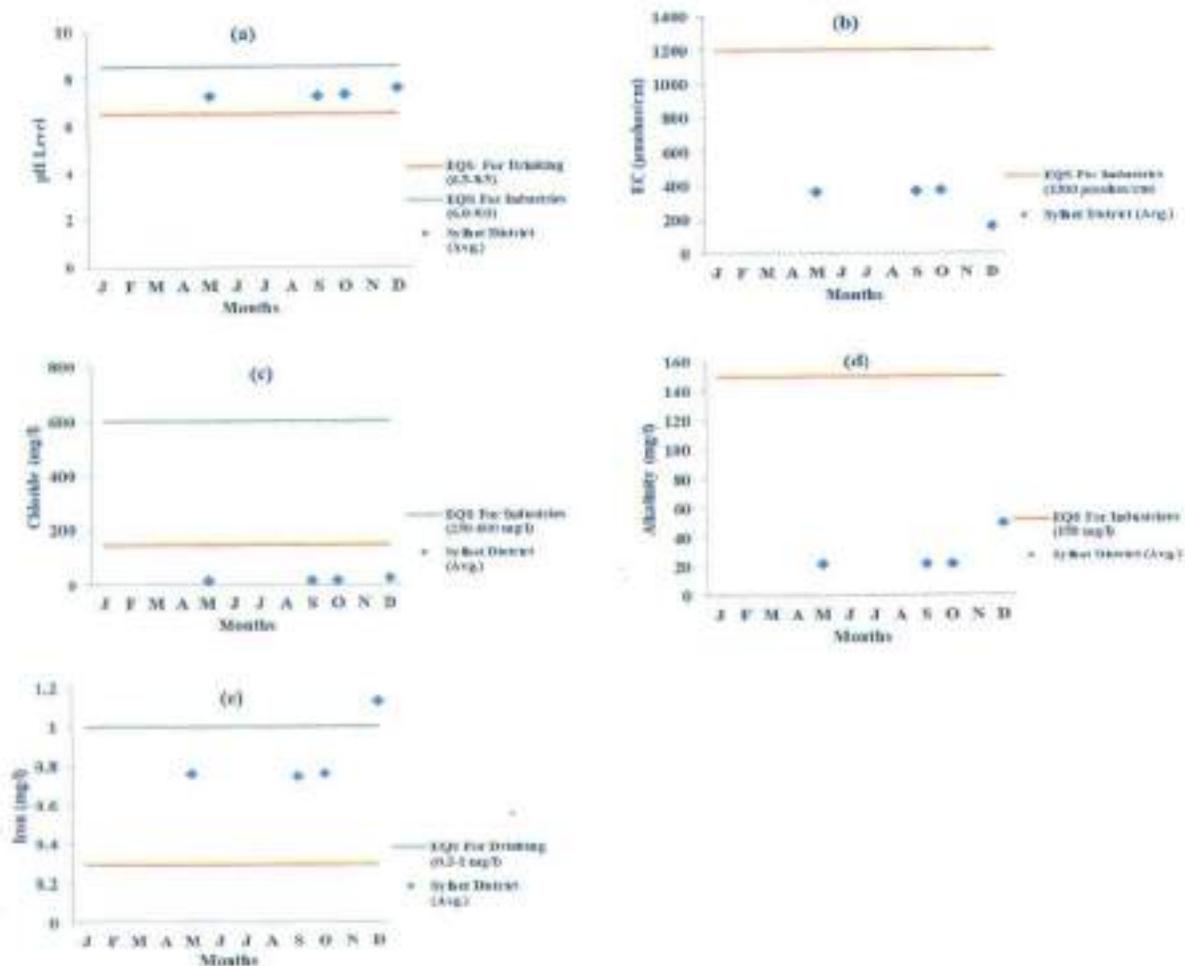


Fig 37. Status of pH, EC, Chloride, T. alkalinity, Iron and T.Hardness of Sylhet District area ground water in 2018

## CHAPTER 6: TREND ANALYSIS OF WATER QUALITY OF MAJOR RIVERS

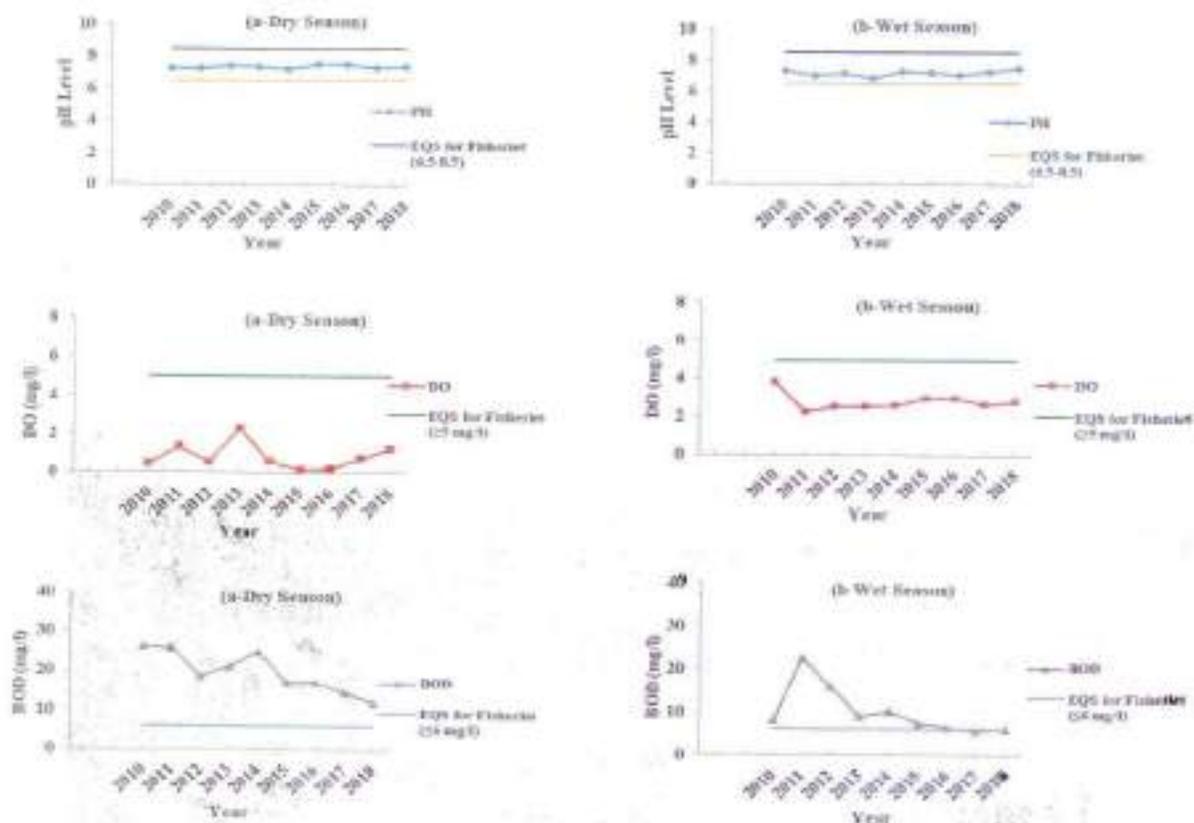




## CHAPTER 6: TREND ANALYSIS OF WATER QUALITY OF MAJOR RIVERS

### 6.1 Buriganga River

The Buriganga River flows pass the southwest outskirts of Dhaka City. The Buriganga receives high amount of food waste including rotten fruits, vegetables, and fish. Value in each cell is seasonal (Dry: November to April, Wet: May to October) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Detail data is attached Annex-4 (Table: 268).



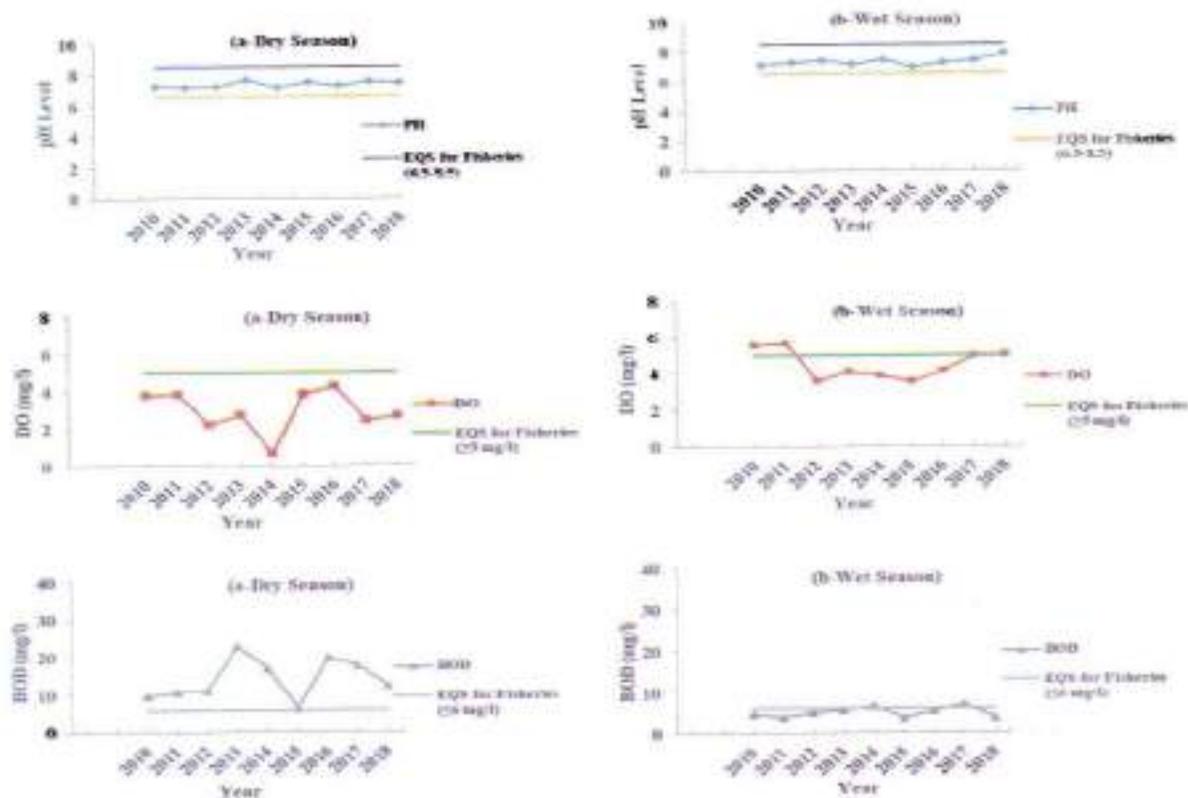
**Fig 38. Trend of pH, DO and BOD of Buriganga river water from 2010 to 2018**

During 2010-2018, pH of Buriganga river water was within the EQS (6.5-8.5) for inland surface water for fisheries. DO of Buriganga river was below the EQS. Direct discharge of untreated effluent from industries, domestic wastes, tannery wastes into the river and reduced flow of water are the proximate causes for depletion of DO in dry season of recent years. BOD content was higher than EQS ( $\leq 6$  mg/l) irrespective of dry season (Fig.38).

With the passage of time tremendous human pressure on Buriganga river (in terms of plying motorized vessels, infrastructural development, encroachment, industrial and sewage waste dumping etc.) and dumping of ever increasing all sorts of wastes turned Buriganga a worst polluted and ecologically dysfunctional river.

## 6.2 Shitalakhya River

The Shitalakhya river is a distributary of the Brahmaputra. In its initial stages it flows in a southwest direction and then east of the city of Narayanganj in central Bangladesh until it merges with the Dhaleswari near Kalagachhiya. A portion of its upper course is known as Banar River. The river is about 110 kilometres long and at it widest, near Narayanganj, it is 300 metres across. Its flow, measured at Demra, has reached 74 cubic metres per second (2,600 cu ft/s). It remains navigable yearround. The river flows through Gazipur district forming its border with Narsingdi for some distance and then through Narayanganj District. The river's maximum depth is 21 metres and average depth is 10 metres. Different parameters of Shitalakhya River water are given in the following graph. Value in each cell is seasonal (Dry: November to April, Wet: May to October) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Detail data is attached Annex-4 (Table: 269).



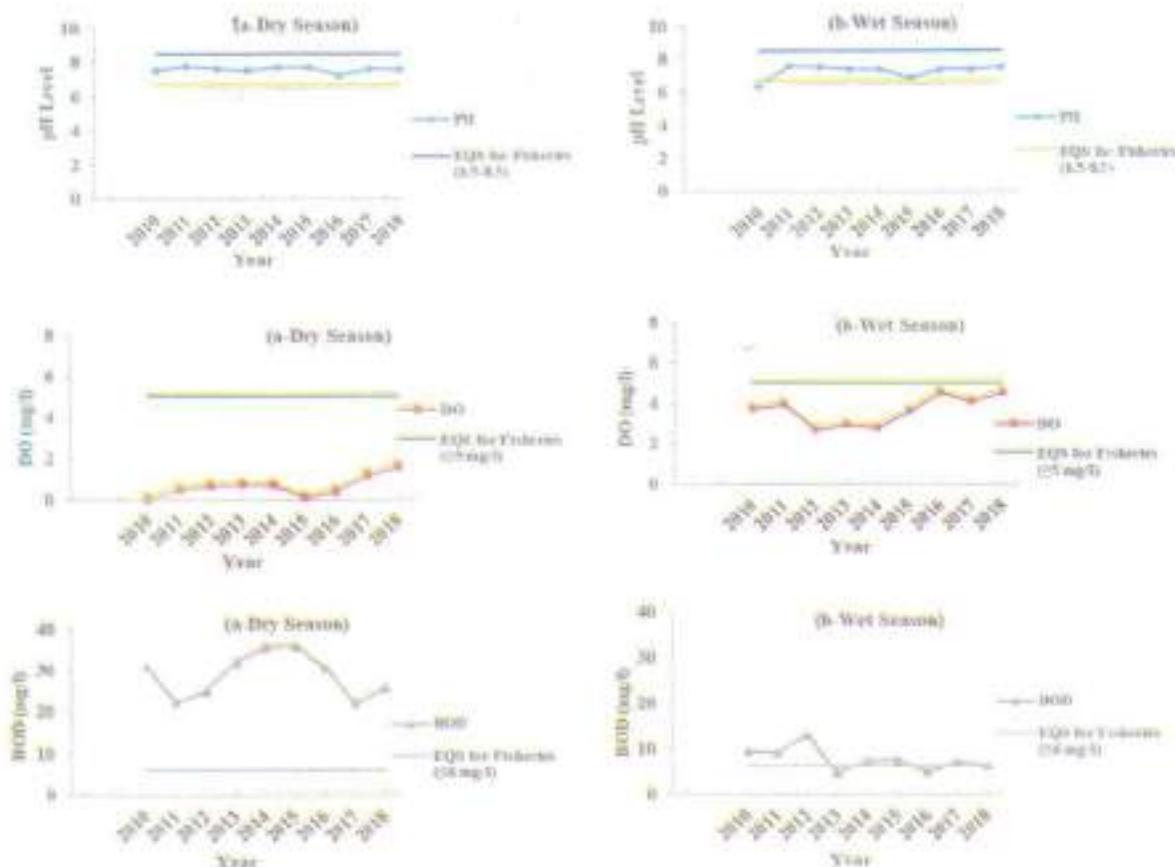
**Fig 39. Trend of pH, DO and BOD of Sitalakhya river water from 2010 to 2018**

During 2010-2018, pH of Shitalakhya river water was within the EQS (6.5-8.5) for inland surface water for fisheries. DO content was below the EQS ( $\leq 5$  mg/l). BOD was exceeded EQS during 2010-2017 though water quality. This may be due to increase of flow in the river. Direct discharge of untreated effluent from industries, loading/unloading construction materials, municipal and human wastes pollute river water. Some textile dyeing industries, consumer item producing industries and jute mills are located around the sampling location and all of those industries discharge wastes into river water (Fig.39).



### 6.3 Turag River

The Turag River is the upper tributary of the Buriganga, a major river in Bangladesh. The Turag originates from the Bangshi River, the latter an important tributary of the Dhaleshwari River, flows through Gazipur and joins the Buriganga at Mirpur in Dhaka District. Different parameters of Turag River water are shown below. Value in each cell is seasonal (Dry: November to April, Wet: May to October) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Detail data is attached Annex-4 (Table: 270).



**Fig 40. Trend of pH, DO and BOD of Turag river water from 2010 to 2018**

During 2010-2018, pH of Turag river water was within the EQS (6.5-8.5) for inland surface water for fisheries. DO content was below the EQS irrespective of seasons. Sometimes, DO reached to zero especially in dry season. In wet seasons BOD was higher than the EQS in the recent past. Seasons or flow of the river is clearly a factor affecting water quality along with dumping of wastes (Fig.40).

There are many industries dotting the banks of this river those dispose their wastes into the river. During the Bishwa Ijtema, Muslims pilgrims coming from all over the world and stay on the river bank for few days. Unfortunately, the site lack of proper accommodation and an adequate sanitation system. As a result, human waste and garbage generated are disposed into the river and pollutes the river heavily. Encroachment, sand/earth filling, dumping of industrial, municipal and medical waste, etc. turned its water pitch black and unfit for any use.

### 6.4 Dhaleshwari River

The Dhaleshwari river is a 160 km long distributary of the Jamuna river flowing through central part of Bangladesh. It starts off the Jamuna near the northwestern tip of Tangail. Then it divided into two: the north branch retains the name Dhaleshwari and the other branch flows as Kaliganga. The both branches merged at the southern part of Manikganj district. Finally, the merged flow meets the Shitalakhya River near Narayanganj district. Value in each cell is seasonal (Dry: November to April, Wet: May to October) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Detail data is attached Annex-4 (Table: 271

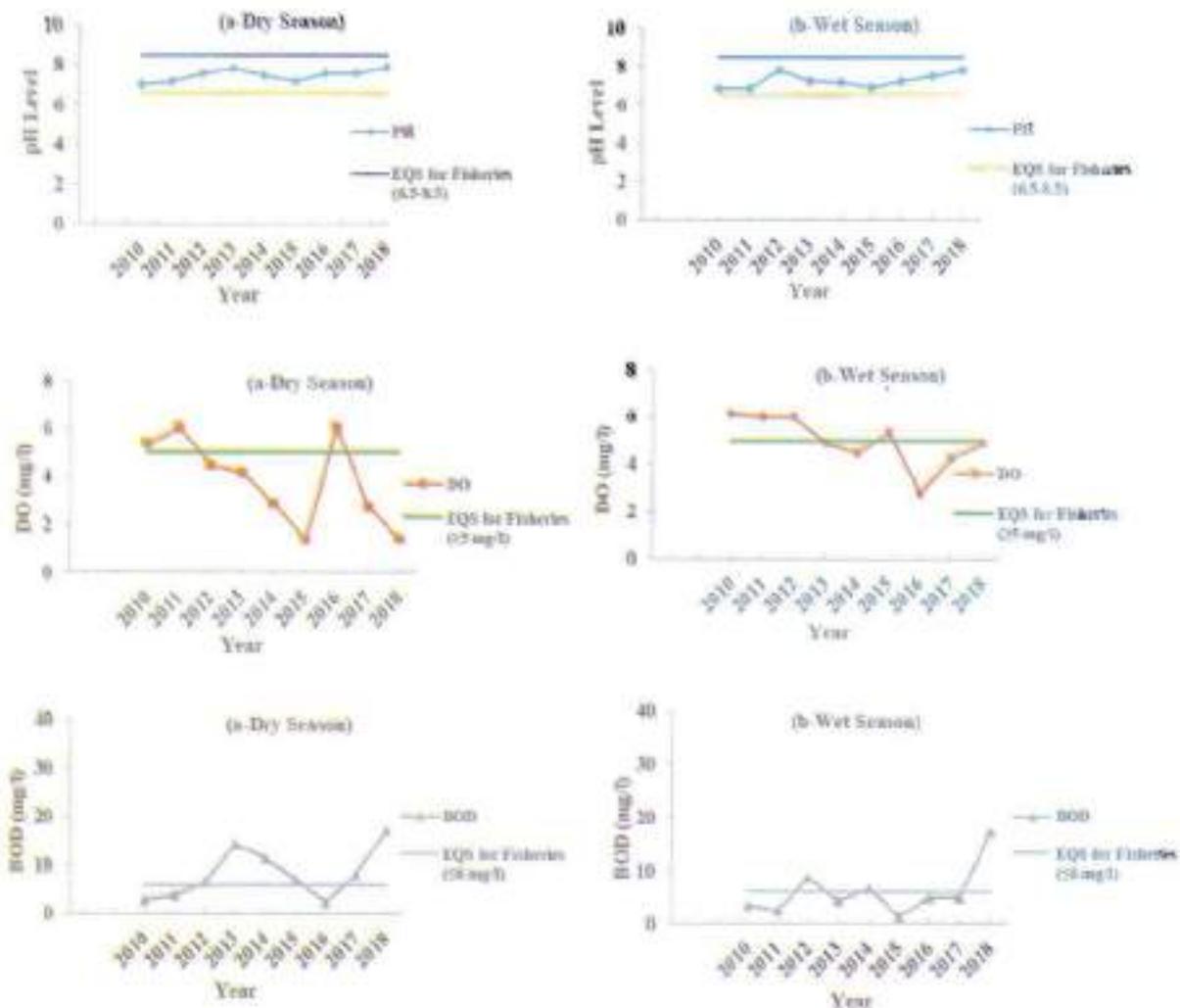


Fig 41. Trend of pH, DO and BOD of Dhaleshwari river water from 2010 to 2018

During 2010-2018, pH of Padma river water was within the EQS for inland surface water for fisheries. DO content was within the EQS in the wet season. And BOD content of Dhaleshwari river water was within the EQS in wet season. (Fig.41).



### 6.5 Brahmaputra River

The Brahmaputra, a trans-boundary river that originates from Manossarobar near Mount Kailash in the Himalayas and flows via Tibet, China, India and Bangladesh to Bay of Bengal. The total length it travels from Himalayans to the Bay of Bangal is 2900 km (Chowdhury, 2006). Value in each cell is seasonal (Dry: November – April, Wet: May-October) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Detail data is attached Annex-4 (Table: 272).

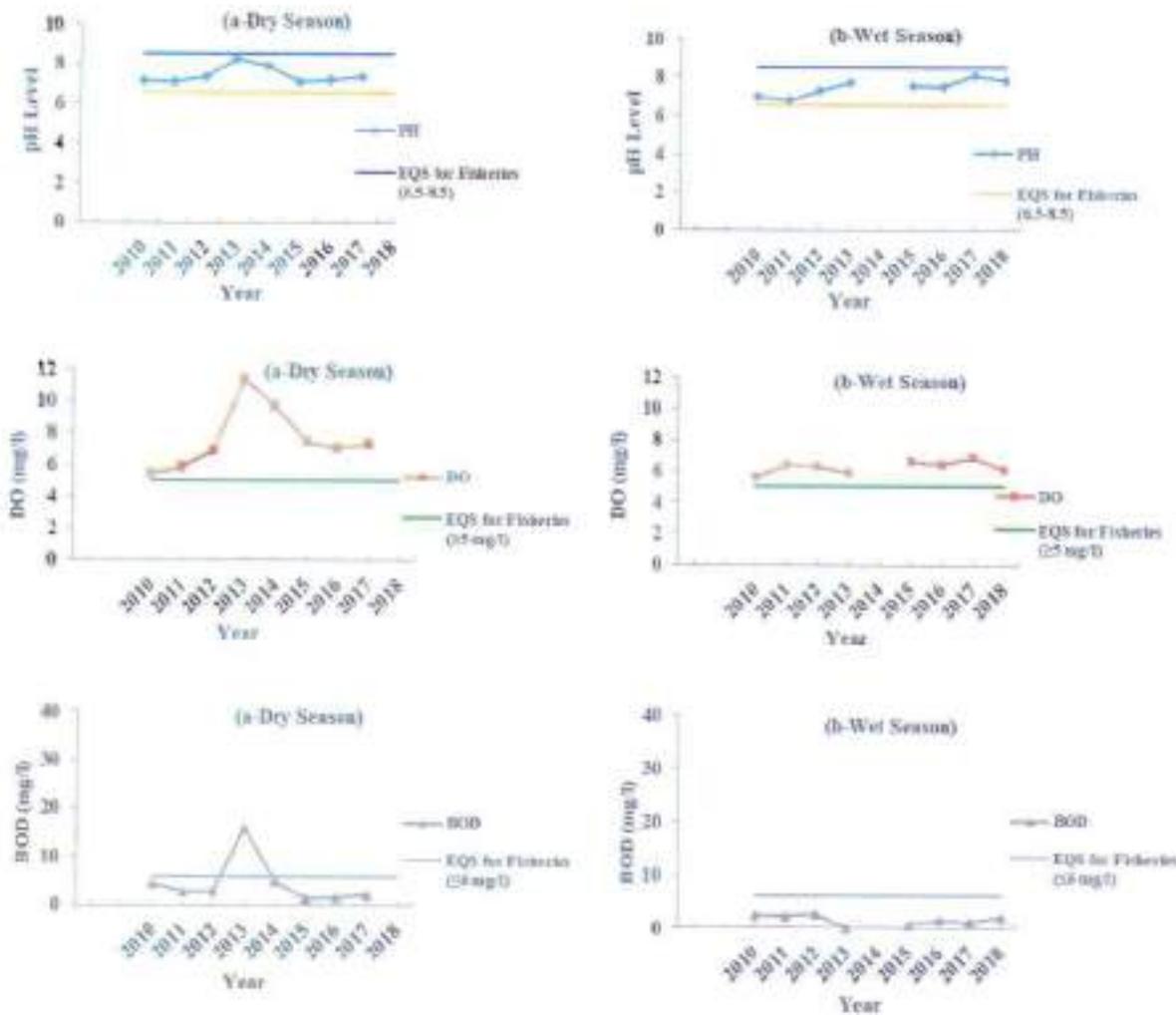
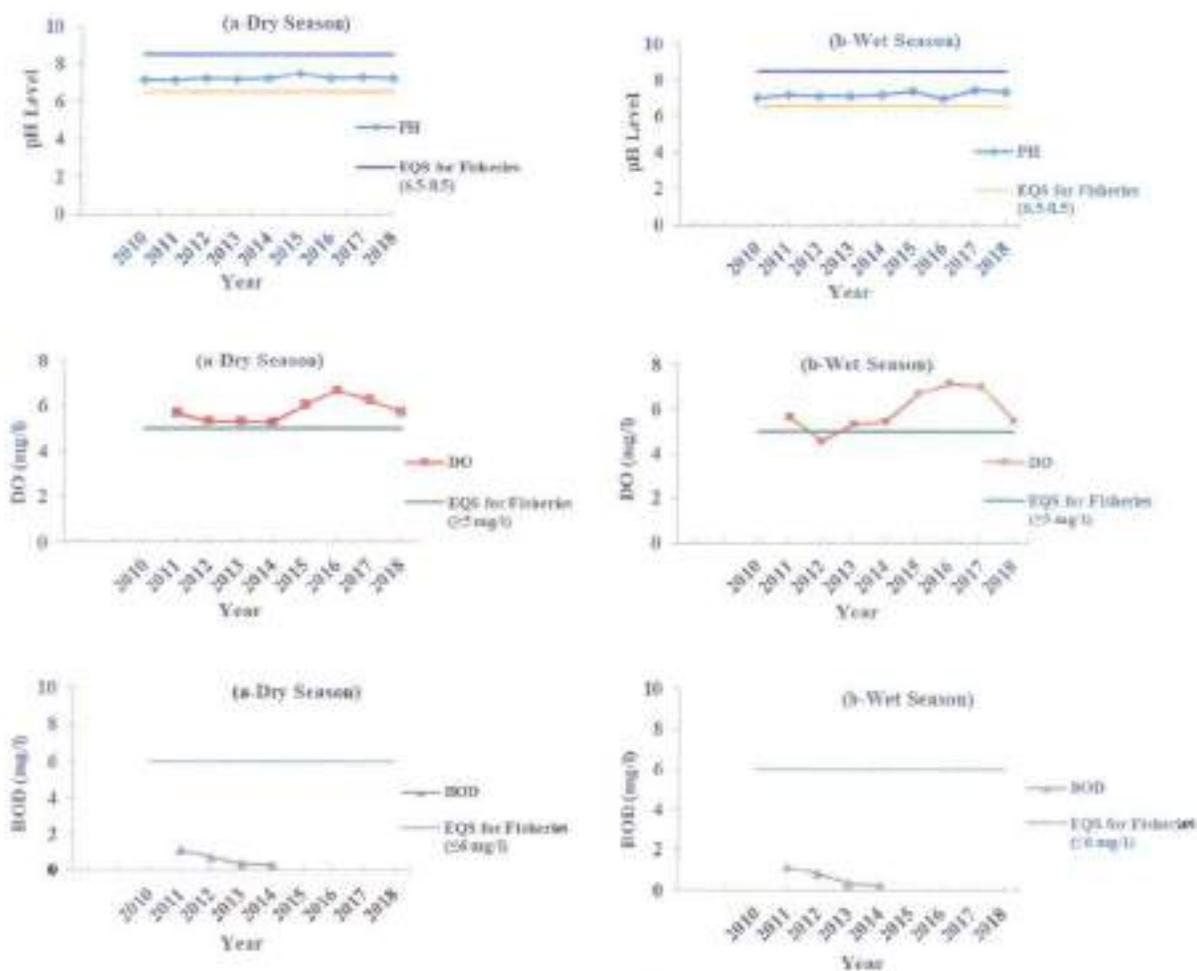


Fig 42. Trend of pH, DO and BOD of Brahmaputra river water from 2010 to 2018

During 2010-2018, pH of Brahmaputra river water was within the EQS for inland surface water for fisheries. DO content was within the EQS in the wet season. BOD content of Brahmaputra river water was higher than the EQS in the year 2013 in Dry Season (Fig.42).

## 6.6 Halda River

The Halda River is a river in south-eastern Bangladesh. It originates at the Badnatali Hill Ranges in Ramgarh Upazila in the Chittagong Hill Tracts, flows through Fatikchhari Upazila, Bhujpur Thana, Hathazari Upazila, Raozan Upazila and Chandgaon Thana of the Chittagong Metropolitan City, and falls into the Karnaphuli River. The 81-kilometre (50 mi) long river has a very turbulent tributary, the Dhurung River, which joins Purba Dhalai about 48 kilometres (30 mi) downstream. The river is navigable by big boats 29 km into it (up to Nazir Hat) and by small boats 16–24 km further (up to Narayanhat). The Halda reaches up 21 feet (6.4 m) in depth and 30 feet (9.1 m) in deepest point.[21] Value in each cell is seasonal (Dry: November to April, Wet: May to October) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Detail data is attached Annex-4 (Table: 273).



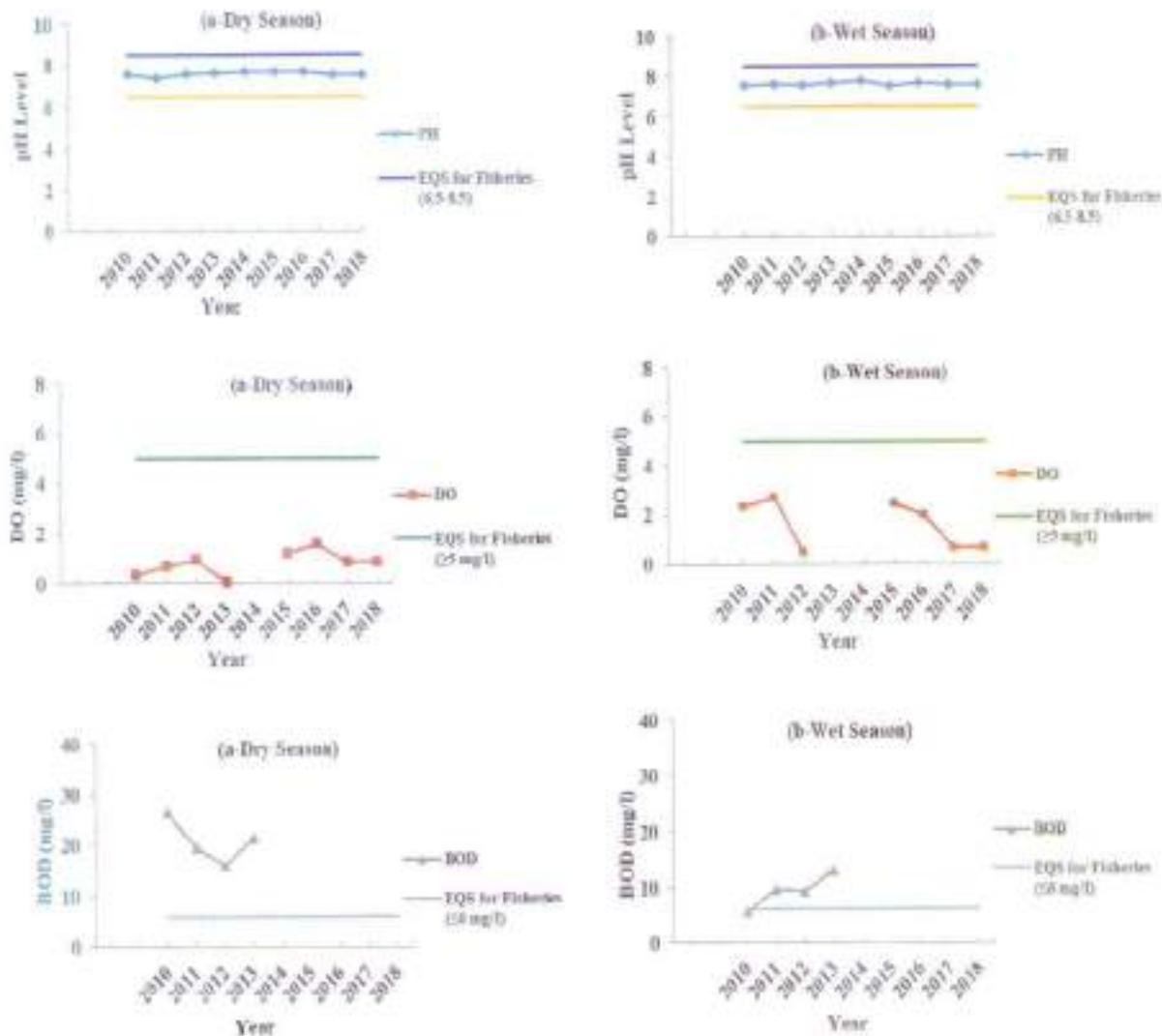
**Fig 43. Trend of pH, DO and BOD of Halda river water from 2010 to 2018**

During 2010-2018, pH of Halda river water was within the EQS for inland surface water for fisheries. DO and BOD content was within the EQS. In 2015-2018, BOD data was not available. Considering pH, DO and BOD, water quality of Halda is good (Fig.43).



## 6.7 Moyuri River

The Moyuri river is situated at the back swamp of the Bhairab-Rupsa River. Khulna City Corporation (KCC) is situated on the bank of this river basin and the Mayuri River borders the westbound of the city. Value in each cell is seasonal (Dry: November – April, Wet: May–October) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Detail data is attached Annex-4 (Table: 274).

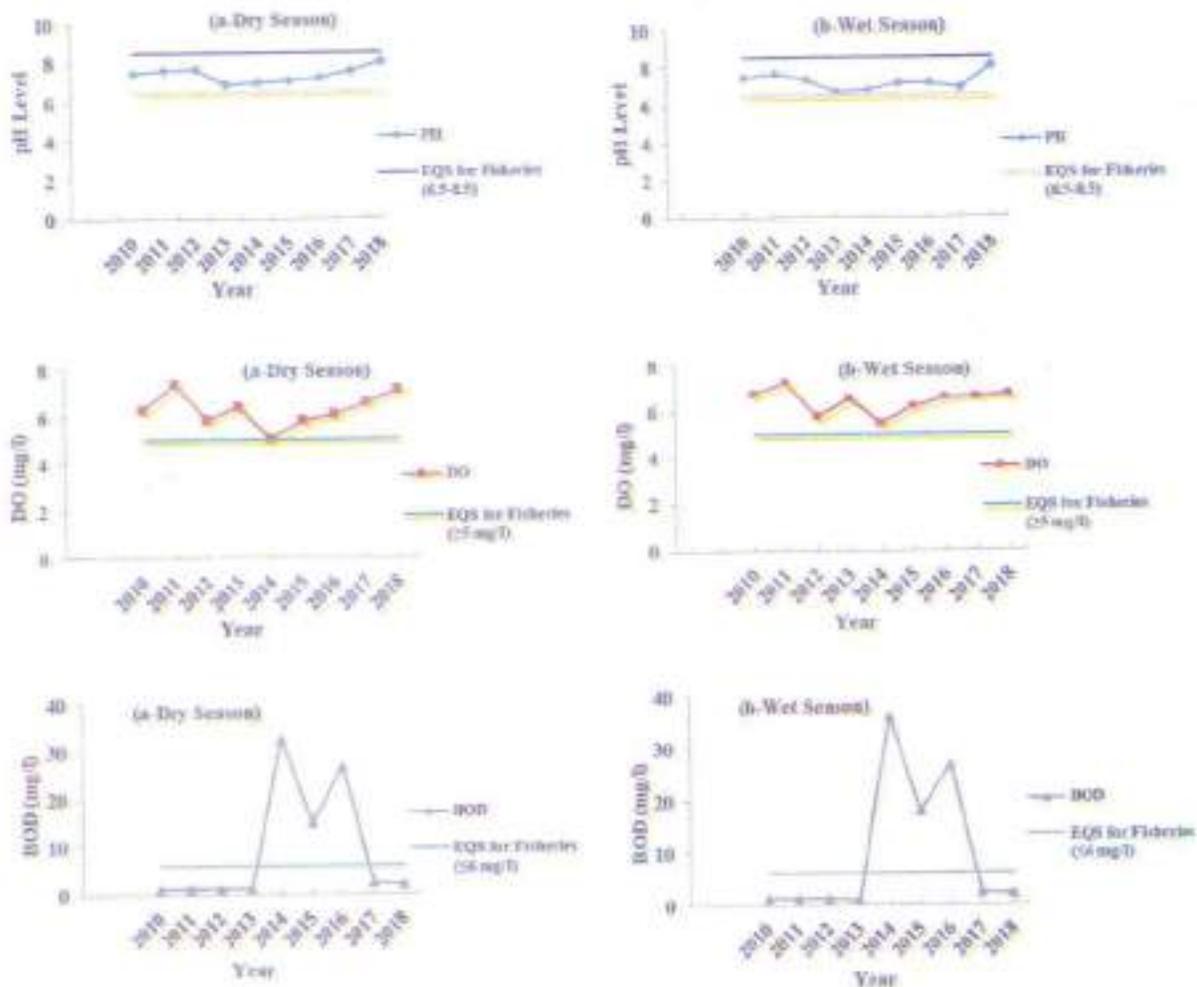


**Fig 44. Trend of pH, DO and BOD of Moyuri river water from 2010 to 2018**

During 2010-2018, pH of Moyuri river water was within the EQS for inland surface water for fisheries. In 2014-2018, BOD data was not available. DO content was not within the EQS. And BOD content of Moyuri river water was over the EQS (Fig.44).

## 6.8 Surma River

The Surma river is a major river in Bangladesh, part of the Surma-Meghna river System. It starts when the Barak river from northeast India divides at the Bangladesh border into the Surma and the Koshiyara rivers. It ends in Kishoreganj District, above Bhairab Bazar, where the two rivers rejoin to form the Meghna river. The waters from the river ultimately flow into the Bay of Bengal. The average depth of this river is 86m and maximum depth is 170m. Value in each cell is seasonal (Dry: November to April, Wet: May to October) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Detail data is attached Annex-4 (Table: 275).



**Fig 45. Trend of pH, DO and BOD of Surma river water from 2010 to 2018**

During 2010-2018, pH of Surma river water was within the EQS (6.5-8.5) for inland surface water for fisheries. DO content was around the EQS. And BOD content of Surma river water was much over the EQS in the year of 2013 to 2016. BOD content of Surma river water was the EQS in the year of 2018 (Fig.45).



## 6.9 Korotoa River

Korotoa river is a small stream in Rajshahi division of Bangladesh, was once a large and sacred river. A channel of it presently flows by the ancient ruins of Mahasthangarh (or Pundranagara, ancient capital of Pundravardhana) in Bogra District. Value in each cell is seasonal (Dry: November to April, Wet: May to October) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Detail data is attached Annex-4 (Table: 276).

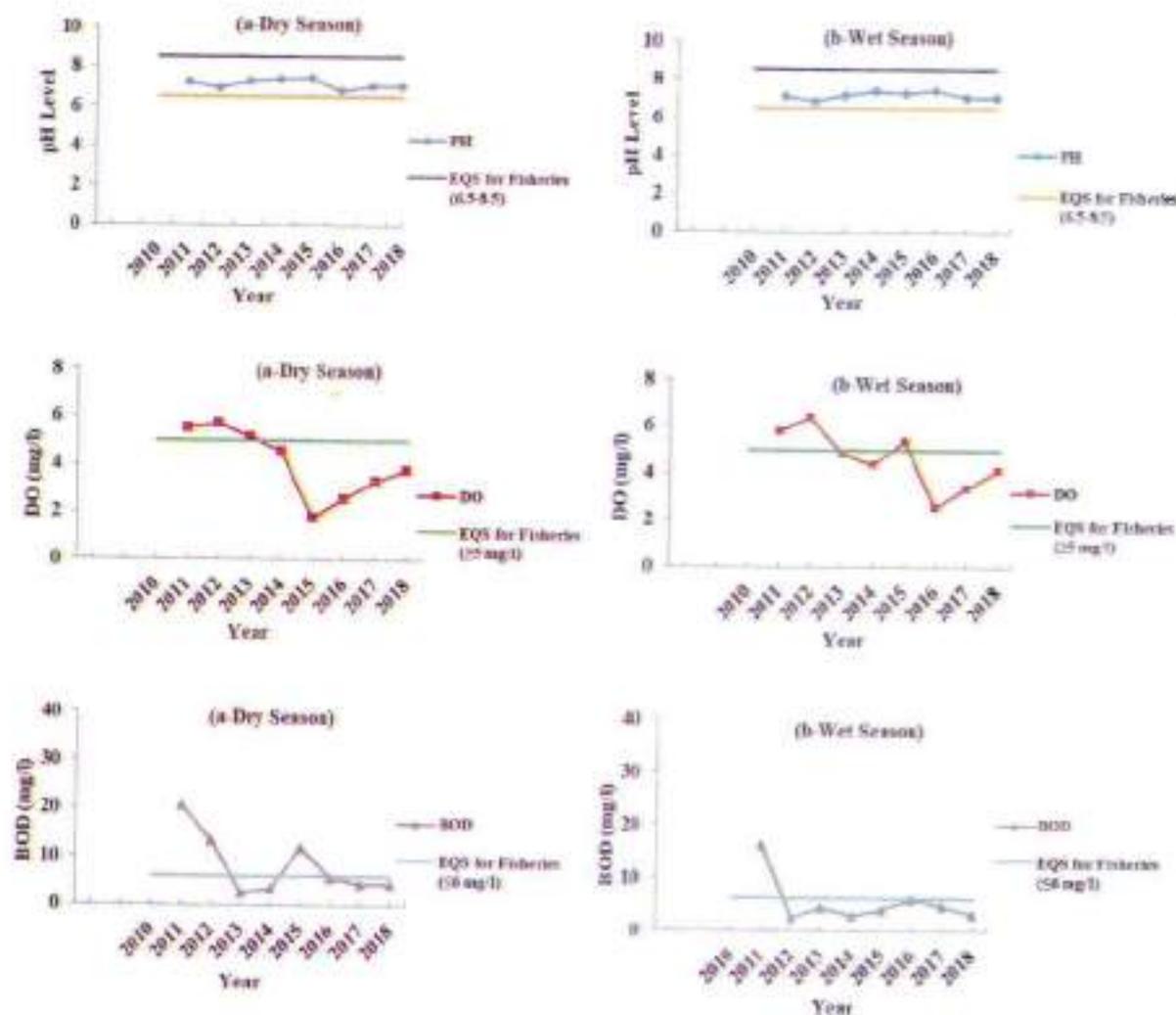
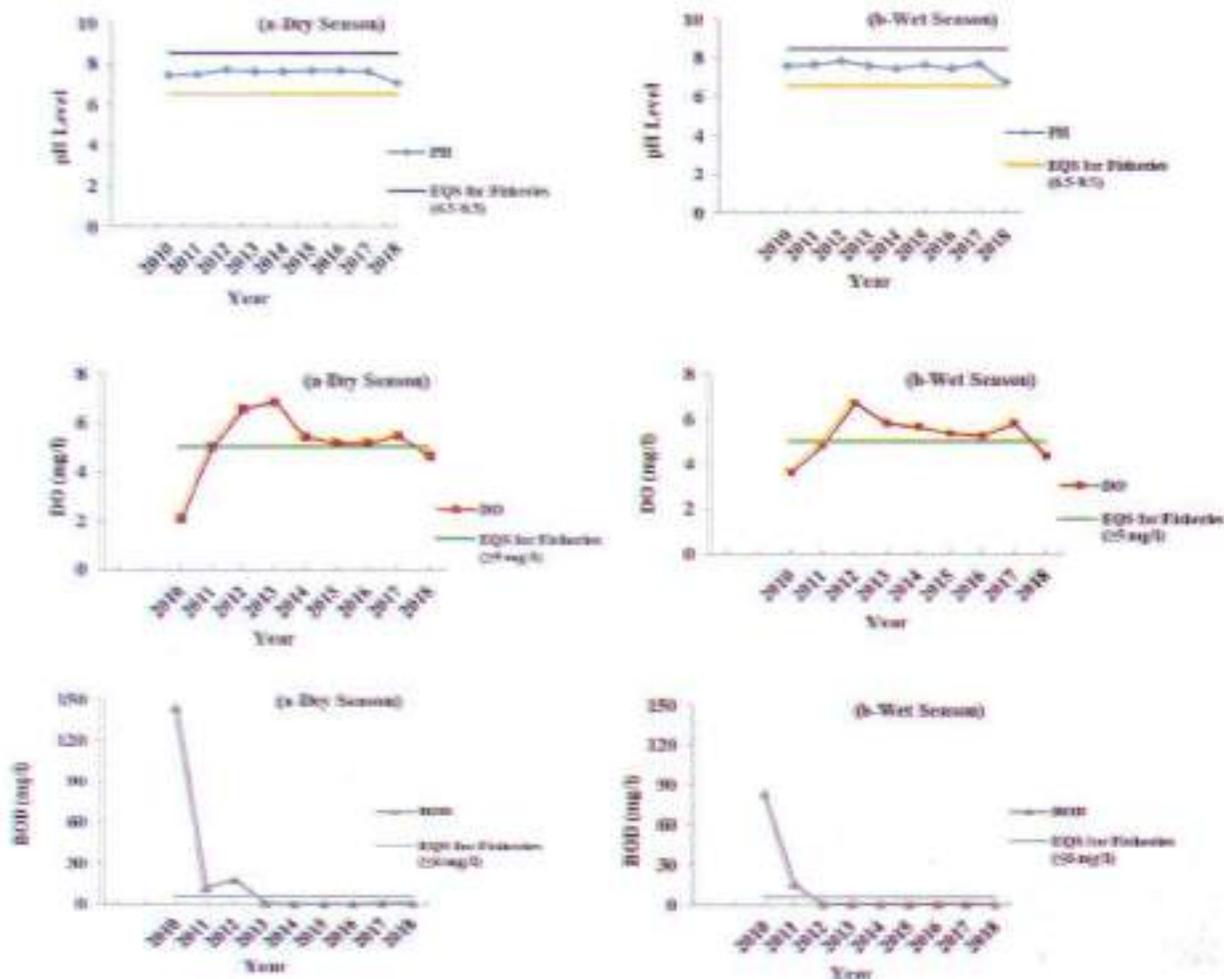


Fig 46. Trend of pH, DO and BOD of Korotoa river water from 2010 to 2018

During 2011-2018, pH of Korotoa river water was within the EQS (6.5-8.5) for inland surface water for fisheries. DO level was below EQS after 2013 till 2018. However, BOD content of Korotoa river water did not match with DO and was over the EQS in the year of 2011, 2012 (Dry season) and 2015 (Dry Season). BOD content of Korotoa river water was the EQS in the year of 2018. It is assumed that the high level of BoD at certain points influenced the average results (Fig.46).

## 6.10 Mathavanga River

The Mathavanga or Hauli, whose lower reach is called the Haulia, leaves the Padma about ten miles below the point where the Jalangi leaves from it. It flows first in a south-easterly direction as far as Hatboalia, where it bifurcates one branch, which is there-after as the Kumar or Pangasi, it then proceeds in the same direction, past Alamdanga, up to the boundary of the district which it forms for a few miles until it passes into Jessore, whilst the other branch pursues a very tortuous course. The general trend of which is to the south, until, after passing Chuadanga it reaches Krishnaganj (in India). There a second bifurcation takes place, the two resulting streams being as the Chumi and the Ichamati, and the name of the parent river being lost. It borderline's between India and Bangladesh. Value in each cell is seasonal (Dry: November to April, Wet: May to October) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Detail data is attached Annex-4 (Table: 277).



**Fig 47. Trend of pH, DO and BOD of Mathavanga river water from 2010 to 2018**

During 2010-2018, pH of Mathavanga river water was within the EQS (6.5-8.5) for inland surface water for fisheries. DO level was within the EQS after 2011. And BOD content of Mathavanga river water was over the EQS in the year of 2010, 2011 and 2012 (Dry Season). BOD content of Mathavanga river water was the EQS in the year of 2018 (Fig.47).

## **CHAPTER 7: QUALITY OF MARINE WATER**





## CHAPTER 7: QUALITY OF MARINE WATER

### 7.1 Overview of Sources of Pollution

Bangladesh is one of the coastal countries of the Bay of Bengal. The country is located between 20°34' to 26°38' north latitude and 88°01' to 92°42' east longitude. The total land area is 147,570 sq. km. and consists of low and flat land (BBS, 2009). The estimated distance of the coast of Bangladesh is 654 km (Snead, 1985, BBS, 2009). There are several sources of marine pollution in Bangladesh those can be broadly placed under two categories-

#### 7.1.1 Land Based Marine Pollution

Land based pollution is discharged directly into the sea, or enters through rivers, floods, tides, ground water or by atmospheric deposition. This means that pollution sources can be located far away from coastal areas and still have an impact, despite an on-going process of attenuation that might be occurring on the way. What is a point source and what is a diffuse source of pollution is also partly a matter of scale.

**Point Source:** Point sources of pollution are those for which a particular point of entry of pollution into the environment can be identified. They can be associated with localized gradients in the concentration of pollutants and can often be traced and found in this way. Point sources are usually found for industrial plants, sewage outfalls, reclamations and other earth works, but can occur in other pollution categories not normally thought of as point sources, such as ground waters exiting in a lagoon. Point sources of pollution may only account for a fraction of the land-based sources affecting marine environments.

**Non-point Source:** Non-point or diffuse sources are harder to identify and result from broad-scale activities that cannot be as readily identified as originating from a single source (GESAMP, 2001). These are harvested from large areas within which polluting activities are occurring and are usually mobilized by water or air. They usually are carried by urban storm water runoff, overflow discharges, and run-off from forests, agriculture and aquaculture (UNEP 2000)

#### 7.1.2. Sea Based Marine Pollution

It is a potential threat to the coastal and marine environment. Result mainly from the crude oil transportation systems, water-oil from different sea cargo, ships and mechanized vessels, workshop, refinery handling loss, dumping of ballast and bilge water etc. Besides this, in Bangladesh more than 50% of the marine oil pollution comes from urban activities and throw river run-off (UNEP 1986, Alam, 2004). In addition, a number of accidental spillage or discharge of crude petroleum was also reported at the coast of Bay of Bengal, Bangladesh or recent offshore hydro carbon drilling operation in the EEZ of Bangladesh could be a factor of marine pollution, though not much reported. Some important seabased sources of marine pollution are given below-

- o Crude Petroleum- (PAHs)
- o Antifouling Agents- (TBT)
- o Volatile Organic Compound (VOC)- PCBs, DDTs, Dioxins, Furans
- o Oil Spill, Bilge from Ship, Boats & Dumping of Wastes
- o Introduction of Alien species through ballast water etc.



### 7.1.3. Priority Categories of Parameters, Bangladesh

Based on the pollution sources in the coastal water body of Bangladesh, the Priority Concerns parameters should be:

- o Heavy metals: Hg, As, Pb, Cr, Cd, Ni etc.
- o Nutrients & Fertilizers: BOD, Nitrate, Phosphate etc.
- o PAHs and other hydrocarbons, including tar balls, oil, grease etc.
- o Total suspended solids (TSS), total dissolved solids (TDS) etc.
- o Microbes & health hazards bacteria (e.g. F. coliform, F. streptococci, Salmonella etc.)
- o Persistent organic pollutants (POPs) and pesticides.
- o Marine litters etc.

## 7.2 Present Status of Marine Pollution

Rivers of Bangladesh are heavily contaminated with untreated municipal sewage, industrial effluent, agricultural run-off and sediments. One of the most serious impacts is the decline in estuarine and coastal water quality caused by rising levels of nutrients from land-based sources. Expansion of intensive agricultural practices has resulted in increasing agrochemical pollution, particularly in developing countries of the region. Some important marine pollution in Bangladesh are given below-

- o Nutrient Pollution
- o Oil Pollution and Oil Spill, Refinery Waste Water and Offshore Operations
- o Heavy Metals
- o Persistent Organic pollutants (POPs)
- o Municipal Waste
- o Industrial Pollution
- o Agriculture and Aquaculture Pollution
- o Ship Breaking Activities
- o Siltation and turbidity

## 7.3 Water Quality Parameters of Sea Water

Patenga is a sea beach of the Bay of Bengal, located 14 kilometres south from the port city of Chattogram, Bangladesh. It is near to the mouth of the Karnaphuli River. Patenga is a popular and renowned tourist spot. The beach is very close to the Bangladesh Naval Academy of the Bangladesh Navy and Shah Amanat International Airport. To monitor water quality of sea water in July'2018 to June'2019, water samples were collected from Four locations of the sea e.g. Karnaphuli Mohona, 1.0 km straight from Patenga Sea Beach, Patenga Charpara and 1.0 km straight from CEPZ. Detail data is attached Annex-1 (Table: 278-282).

pH level of sea water was within EQS (6.5-8.5) for inland surface water. It varied from 7.0 to 8.6 (Fig. 48a). DO was above the EQS ( $\geq 5$  mg/l) for fisheries and varied from 7.0 mg/l to 8.5 mg/l (Fig. 48b). The maximum DO (8.5 mg/l) was found at Patenga Charpara in November'18 and the minimum DO (7.0 mg/l) was found at 1.0 km straight from CEPZ in June'19. TDS was above the EQS ( $\leq 2100$  mg/l) for industries and varied from 4030 mg/l to 19130 mg/l (Fig. 48c). The maximum TDS (19130 mg/l) was found at Patenga Charpara in February'19 and the minimum TDS (4030 mg/l) was found at Karnaphuli Mohona in July'18. SS was varied from 90 mg/l to 488 mg/l (Fig. 48d) where the EQS ( $\leq$

150 mg/l) for industries. The maximum SS (488 mg/l) was found at Patenga Charpara in the EQS ( $\leq 150$  mg/l) and the minimum SS (90 mg/l) was found at the same location in April'19. EC was above the EQS (1200  $\mu\text{mhos/cm}$ ) for industries and varied from 8060  $\mu\text{mhos/cm}$  to 32800  $\mu\text{mhos/cm}$  (Fig. 48e). The maximum EC (32800  $\mu\text{mhos/cm}$ ) was found at Patenga Charpara in February'19 and the minimum EC (8060  $\mu\text{mhos/cm}$ ) was found at Karnaphuli Mohona in January'18.

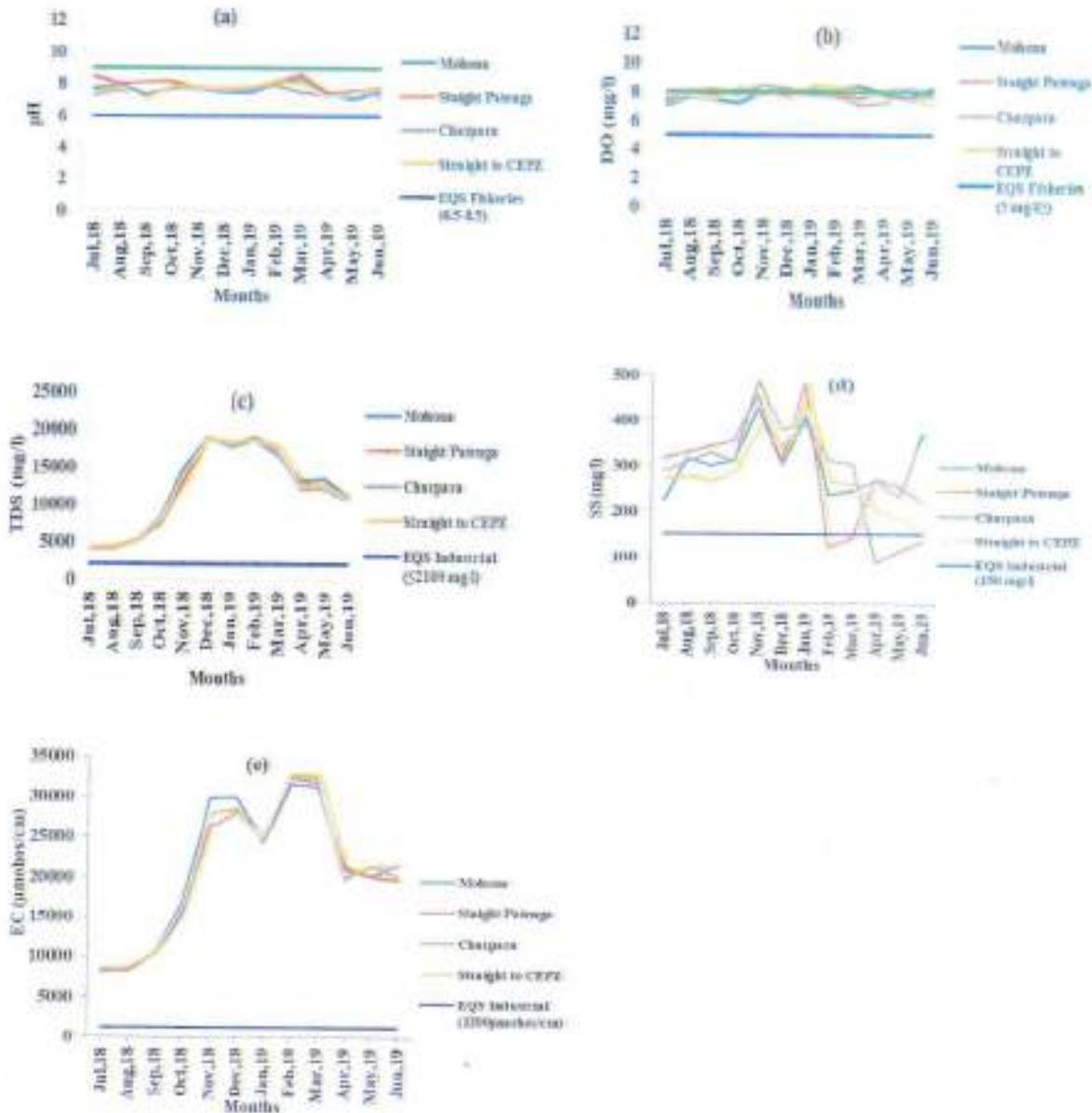


Fig 48. Status of pH, DO, TDS, SS, and EC of Sea Water in June 2018 to June2019

## **CHAPTER 8: CONCLUSION AND RECOMMENDATIONS**



## CHAPTER 8: CONCLUSION AND RECOMMENDATIONS

### 8.1 Conclusion

The present investigation demonstrates that most of the water bodies in Bangladesh are contaminated with several contaminants and not suitable for human consumption without proper treatment. Besides heavy metal contamination, pesticide contamination of surface water sources is the most prospective menace for the people of Bangladesh. In Bangladesh, sewage and solid waste & industrial waste & effluents are the main cause of surface water pollution. Industrial pollutants are the major cause of surface water pollution in the urban region in Bangladesh. Impacts of seasonal variation of flow, industrialization and urbanization has been assumed to be responsible for poor water quality for the rivers around Dhaka city, Chattagram and Khulna city. Spatial and temporal variation in water quality has been evident from the data analysis. Ninety percent of surface water flows through the 57 transboundary rivers. Low rainfall and upstream intake of water by the neighboring countries reduces the flow of water in dry season. During monsoon water quality of most monitoring stations was improved, when compared to the Environmental Quality Standard (EQS) set in the ECR, 1997. High density of industries, poor solid waste management by the City Corporations and untreated liquid wastes including sewage are assumed to be responsible for poor quality water quality of rivers around Dhaka city, Chattagram and Khulna city. The difference in pollution level among the sampling points along a single river was also evident because of urbanization.

High salinity together with high turbidity are making river ecosystem in the southern region fragile. Salinity level of rivers in southern Bangladesh greatly increases during dry season. Long dry period and reduced upstream flow are the proximate causes of high salinity of surface water in southern region. Soil erosion from catchment area, dumping of solid wastes into rivers are the main causes of high turbidity. Salinity level reduces near to EQS during wet season. Summer rainfall and increased flow from upstream are proximate causes of salinity decrease.

Despite discontinuous sampling and measurement of a few parameters, this report provides important indication of pollution level of surface and ground water of the country. Due to limited time and restricted budget the trend analysis has been limited to certain parameters and a few rivers. Still, the report can be used as a basis for identifying the reasons of pollution and developing sustainable water resource management plans.

This report also tries to give an overview on the up to date information of surface water, ground water lake water and sea water, what should be monitored to assess the status of river pollution in Bangladesh. Thus, the report also discusses the role and activities of concerned ministry, departments, research organizations and on their ongoing activities, program, and projects related to environment and biodiversity conservation, linkage to other regional and international organizations.



## 8.2 Recommendations

To provide with useful information for policy feedback a continuous monitoring of a comprehensive set of parameters is essential. The following actions are recommended to avail comprehensive data sets:

- a. Take a comprehensive look at water management issues, participate in learning processes and exchange knowledge and information on better water management practices.
- b. Introduction of online water quality monitoring system is essential could be introduced to avoid the discontinuity of data.
- c. Review and updating of surface water monitoring network is essential. Pollution hot-spots could be identified and monitoring stations should include those hotspots.
- d. For each river, sampling must be done from more than one location. Collection of water samples and analyses must be in a consistent way and on regular basis for assessment of water quality.
- e. More rivers can be included in the monitoring programme;
- f. Other wetlands besides river and lake can be included;
- g. More parameters such as biological indicators should be included in the monitoring programme. A comprehensive set of parameters including microbial test (Fecal Coliform, E-Coli etc) of river water is essential to evaluate water quality of rivers.
- h. Weather information could be collected while sampling.
- i. Use of Global Positioning System (GPS) to represent monitoring results in global context is essential.
- j. Monitoring of ETP outlets of major industrial zones should be intensified and data should be collected more frequently.
- k. Enforcement programme should be increased to stop all illegal discharges to surface water.
- l. Existing parameters should be revisited and new parameters should be included for a comprehensive groundwater monitoring.
- m. For the sustainable management of trans-boundary rivers and to increase river flow during dry season strengthening regional cooperation is essential and Integrated Watershed Management (IWM) approach can be implemented in this regard.
- n. Programmes could be initiated to develop River Health Card and establish Water Quality Index (WQI) for each river to guide the policy makers.
- o. River conservation program have direct linkage with coastal habitat conservation. However, very little efforts have been made at linking river conservation program with coastal conservation activities. A comprehensive approach to river conservation in terms of land use planning, scientific urban management, industrial siting, transportation of chemicals, and discharge of effluents needs to be adopted.
- p. Increase skilled manpower at all level of water quality analysis including sample collection.
- q. To initiate program for spreading awareness about scarcity of water and introduce better management practices in agriculture, urban and industrial use.
- r. To take immediate measures to develop legislation for regulating with-drawl of ground water on a sustainable basis.

## GLOSSARY

### **pH:**

In chemistry, pH is a logarithmic scale used to specify the acidity or basicity of an aqueous solution. It is approximately the negative of the base 10 logarithm of the molar concentration, measured in units of moles per liter, of hydrogen ions. More precisely it is the negative of the base 10 logarithm of the activity of the hydrogen ion. At 25 °C, solutions with a pH less than 7 are acidic and solutions with a pH greater than 7 are basic. The neutral value of the pH depends on the temperature, being lower than 7 if the temperature increases. Pure water is neutral, pH 7 at (25 °C), being neither an acid nor a base. Contrary to popular belief, the pH value can be less than 0 or greater than 14 for very strong acids and bases respectively. Measurements of pH are important in agronomy, medicine, chemistry, water treatment, and many other applications. The pH scale is traceable to a set of standard solutions whose pH is established by international agreement. Primary pH standard values are determined using a concentration cell with transference, by measuring the potential difference between a hydrogen electrode and a standard electrode such as the silver chloride electrode. The pH of aqueous solutions can be measured with a glass electrode and a pH meter, or an indicator.

### **Dissolved Oxygen (DO):**

Dissolved Oxygen is the amount of gaseous oxygen (O<sub>2</sub>) dissolved in the water. Oxygen enters the water by direct absorption from the atmosphere, by rapid movement, or as a waste product of plant photosynthesis. Water temperature and the volume of moving water can affect dissolved oxygen levels. Oxygen dissolves easier in cooler water than warmer water. Adequate dissolved oxygen is important for good water quality and necessary to all forms of life. Dissolved oxygen levels that drop below 5.0 mg/L cause stress to aquatic life. Lower concentrations cause greater stress. Oxygen levels that go below 1-2 mg/L for a few hours may result in large fish kills.

### **Biochemical Oxygen Demand (BODs):**

Biochemical Oxygen Demand (BOD<sub>5</sub>), also called Biological Oxygen Demand) is the amount of dissolved oxygen needed (i.e. demanded) by aerobic biological organisms to break down organic material present in a given water sample at certain temperature over a specific time period. The BOD value is most commonly expressed in milligrams of oxygen consumed per litre of sample during 5 days of incubation at 20 °C and is often used as a surrogate of the degree of organic pollution of water. BOD can be used as a gauge of the effectiveness of wastewater treatment plants. BOD is similar in function to chemical oxygen demand (COD), in that both measure the amount of organic compounds in water. However, COD is less specific, since it measures everything that can be chemically oxidized, rather than just levels of biodegradable organic matter.

**Methods-** There are two commonly recognized methods for the measurement of BOD.

#### **Dilution method**

This standard method is recognized by U.S. EPA, which is labeled Method 5210B in the Standard Methods for the Examination of Water and Wastewater. In order to obtain BOD<sub>5</sub>, dissolved oxygen (DO) concentrations in a sample must be measured before and after the incubation period, and appropriately adjusted by the sample corresponding dilution factor. This analysis is performed using



300 ml incubation bottles in which buffered dilution water is dosed with seed microorganisms and stored for 5 days in the dark room at 20 °C to prevent DO production via photosynthesis. In addition to the various dilutions of BOD samples, this procedure requires dilution water blanks, glucose glutamic acid (GGA) controls, and seed controls. The dilution water blank is used to confirm the quality of the dilution water that is used to dilute the other samples. This is necessary because impurities in the dilution water may cause significant alterations in the results. The GGA control is a standardized solution to determine the quality of the seed, where its recommended BOD<sub>5</sub> concentration is 198 mg/l ± 30.5 mg/l. For measurement of carbonaceous BOD (cBOD), a nitrification inhibitor is added after the dilution water has been added to the sample. The inhibitor hinders the oxidation of ammonia nitrogen, which supplies the nitrogenous BOD (nBOD). When performing the BOD<sub>5</sub> test, it is conventional practice to measure only cBOD because nitrogenous demand does not reflect the oxygen demand from organic matter. This is because nBOD is generated by the breakdown of proteins, whereas cBOD is produced by the breakdown of organic molecules.

BOD<sub>5</sub> is calculated by: 
$$\text{Seeded : } BOD_5 = \frac{(D_0 - D_5) - (B_0 - B_5)f}{P} \quad \text{Unseeded : } BOD_5 = \frac{(D_0 - D_5)}{P}$$

where:

$D_0$  is the dissolved oxygen (DO) of the diluted solution after preparation (mg/l)

$D_5$  is the DO of the diluted solution after 5 days incubation (mg/l)

$P$  is the decimal dilution factor

$B_0$  is the DO of diluted seed sample after preparation (mg/l)

$B_5$  is the DO of diluted seed sample after 5 days incubation (mg/l)

$f$  is the ratio of seed volume in dilution solution to seed volume in BOD test on seed

### Manometric method

This method is limited to the measurement of the oxygen consumption due only to carbonaceous oxidation. Ammonia oxidation is inhibited. The sample is kept in a sealed container fitted with a pressure sensor. A substance that absorbs carbon dioxide (typically lithium hydroxide) is added in the container above the sample level. The sample is stored in conditions identical to the dilution method. Oxygen is consumed and, as ammonia oxidation is inhibited, carbon dioxide is released. The total amount of gas, and thus the pressure, decreases because carbon dioxide is absorbed. From the drop of pressure, the sensor electronics computes and displays the consumed quantity of oxygen.

The main advantages of this method compared to the dilution method are:

- simplicity: no dilution of sample required, no seeding, no blank sample.
- direct reading of BOD value.
- continuous display of BOD value at the current incubation time.

### Chemical Oxygen Demand (COD):

In environmental chemistry, the chemical oxygen demand (COD) is an indicative measure of the amount of oxygen that can be consumed by reactions in a measured solution. It is commonly expressed in mass of oxygen consumed over volume of solution which in SI units is milligrams per litre (mg/L). A COD test can be used to easily quantify the amount of organics in water. The most common application of COD is in quantifying the amount of oxidizable pollutants found in surface water (e.g. lakes and rivers) or wastewater. COD is useful in terms of water quality by providing a metric to determine the effect an effluent will have on the receiving body, much like biochemical oxygen demand (BOD).

Using potassium dichromate: Potassium dichromate is a strong oxidizing agent under acidic conditions. (Acidity is usually achieved by the addition of sulfuric acid.) Most commonly, a 0.25 N solution of potassium dichromate is used for



COD determination, although for samples with COD below 50 mg/L, a lower concentration of potassium dichromate is preferred. In the process of oxidizing the organic substances found in the water sample, potassium dichromate is reduced (since in all redox reactions, one reagent is oxidized and the other is reduced), forming  $\text{Cr}^{3+}$ . The amount of  $\text{Cr}^{3+}$  is determined after oxidization is complete, and is used as an indirect measure of the organic contents of the water sample.

### **Total Dissolved Solid (TDS):**

Total dissolved solids (TDS) is a measure of the dissolved combined content of all inorganic and organic substances present in a liquid in molecular, ionized or micro-granular (colloidal sol) suspended form. Generally, the operational definition is that the solids must be small enough to survive filtration through a filter with two-micrometer (nominal size, or smaller) pores. Total dissolved solids are normally discussed only for freshwater systems, as salinity includes some of the ions constituting the definition of TDS. The principal application of TDS is in the study of water quality for streams, rivers and lakes, although TDS is not generally considered a primary pollutant (e.g. it is not deemed to be associated with health effects) it is used as an indication of aesthetic characteristics of drinking water and as an aggregate indicator of the presence of a broad array of chemical contaminants.

### **Measurement**

The two principal methods of measuring total dissolved solids are gravimetry and conductivity. Gravimetric methods are the most accurate and involve evaporating the liquid solvent and measuring the mass of residues left. This method is generally the best, although it is time-consuming. If inorganic salts comprise the great majority of TDS, gravimetric methods are appropriate. Electrical conductivity of water is directly related to the concentration of dissolved ionized solids in the water. Ions from the dissolved solids in water create the ability for that water to conduct an electrical current, which can be measured using a conventional conductivity meter or TDS meter. When correlated with laboratory TDS measurements, conductivity provides an approximate value for the TDS concentration, usually to within ten-percent accuracy. The relationship of TDS and specific conductance of groundwater can be approximated by the following equation:

$\text{TDS} = k\text{EC}$ , where TDS is expressed in mg/L and EC is the electrical conductivity in microsiemens per centimeter at 25 °C. The correlation factor  $k$  varies between 0.55 and 0.8.

### **Electrical Conductivity (EC):**

Electrical conductivity is the measure of the amount of electrical current a material can carry or it's ability to carry a current. Electrical conductivity is also known as specific conductance. Conductivity is an intrinsic property of a material.

### **Units of Electrical Conductivity**

Electrical conductivity is denoted by the symbol  $\sigma$  and has SI units of siemens per meter (S/m). In electrical engineering, the Greek letter  $\kappa$  is used. Sometimes the Greek letter  $\gamma$  represents conductivity. In water, conductivity is often reported as specific conductance, which is a measure compared to that of pure water at 25°C. The electrical conductivity of the water depends on the water temperature; the higher the temperature, the higher the electrical conductivity would be. The electrical conductivity of water increases by 2-3% for an increase of 1 degree Celsius of water temperature. Many EC meters nowadays automatically standardize the readings to 25°C. While the electrical conductivity is a good indicator of the total salinity, it still does not provide any information about the ion composition in the



water. The same electrical conductivity values can be measured in low quality water (e.g. water rich with Sodium, Boron and Fluorides) as well as in high quality irrigation water (e.g. adequately fertilized water with appropriate nutrient concentrations and ratios). The commonly used units for measuring EC of water are:  $\mu\text{S}/\text{cm}$  (microSiemens/cm) or  $\text{dS}/\text{m}$  (deciSiemens/m), Where:  $1000 \mu\text{S}/\text{cm} = 1 \text{dS}/\text{m}$

#### **Relationship between TDS and EC :**

Since the electrical conductivity is a measure to the capacity of water to conduct electrical current, it is directly related to the concentration of salts dissolved in water, and therefore to the Total Dissolved Solids (TDS). Salts dissolve into positively charged ions and negatively charged ions, which conduct electricity. Since, it is difficult to measure TDS in the field, the electrical conductivity of the water is used as a measure. The electrical conductivity of the water can be determined in a quick and inexpensive way, using portable meters. Distilled water does not contain dissolved salts and, as a result, it does not conduct electricity and has an electrical conductivity of zero. Nevertheless, when the salt concentration reaches a certain level, electrical conductivity is no longer directly related to salts concentration. This is because ion pairs are formed. Ion pairs weaken each other's charge, so that above this level, higher TDS will not result in equally higher electrical conductivity.

EC can be converted to TDS using the following calculation:

$$\text{TDS (ppm)} = 0.64 \times \text{EC } (\mu\text{S}/\text{cm}) = 640 \times \text{EC } (\text{dS}/\text{m})$$

This relation provides an estimate only.

#### **Suspended Solids (SS):**

Suspended solids refers to small solid particles which remain in suspension in water as a colloid or due to the motion of the water. It is used as one indicator of water quality. It is sometimes abbreviated SS, but is not to be confused with settleable solids, also abbreviated SS, which contribute to the blocking of sewer pipes.

#### **Total Suspended Solids (TSS):**

Total suspended solids (TSS) is the dry-weight of suspended particles, that are not dissolved, in a sample of water that can be trapped by a filter that is analyzed using a filtration apparatus. It is a water quality parameter used to assess the quality of a specimen of any type of water or water body, ocean water for example, or wastewater after treatment in a wastewater treatment plant. It is listed as a conventional pollutant in the U.S. Clean Water Act. Total dissolved solids is another parameter acquired through a separate analysis which is also used to determine water quality based on the total substances that are fully dissolved within the water, rather than undissolved suspended particles. TSS was previously called non-filterable residue (NFR), but was changed to TSS because of ambiguity in other scientific disciplines.

TSS in  $\text{mg}/\text{L}$  can be calculated as:

$$(\text{dry weight of residue and filter} - \text{dry weight of filter alone, in grams}) / \text{mL of sample} * 1,000,000$$

TSS of a water or wastewater sample is determined by pouring a carefully measured volume of water (typically one litre; but less if the particulate density is high, or as much as two or three litres for very clean water) through a pre-weighed filter of a specified pore size, then weighing the filter again after drying to remove all water. Filters for TSS measurements are typically composed of glass fibres.[2] The gain in weight is a dry weight measure of the particulates present in the water sample expressed in units derived or calculated from the volume of water filtered (typically milligrams per litre or  $\text{mg}/\text{L}$ ).

**Chloride:**

The chloride ion is the anion (negatively charged ion)  $\text{Cl}^-$ . It is formed when the element chlorine (a halogen) gains an electron or when a compound such as hydrogen chloride is dissolved in water or other polar solvents. Chloride salts such as sodium chloride are often very soluble in water. It is an essential electrolyte located in all body fluids responsible for maintaining acid/base balance, transmitting nerve impulses and regulating fluid in and out of cells.

**Alkalinity:**

Alkalinity is the capacity of water to resist changes in pH that would make the water more acidic. (It should not be confused with basicity which is an absolute measurement on the pH scale.) Alkalinity is the strength of a buffer solution composed of weak acids and their conjugate bases. It is measured by titrating the solution with a monoprotic acid such as HCl until its pH changes abruptly, or it reaches a known endpoint where that happens. Alkalinity is expressed in units of meq/L (milliequivalents per liter), which corresponds to the amount of monoprotic acid added as a titrant in millimoles per liter.

**Turbidity:**

Turbidity is the cloudiness or haziness of a fluid caused by large numbers of individual particles that are generally invisible to the naked eye, similar to smoke in air. The measurement of turbidity is a key test of water quality. Fluids can contain suspended solid matter consisting of particles of many different sizes. While some suspended material will be large enough and heavy enough to settle rapidly to the bottom of the container if a liquid sample is left to stand (the settleable solids), very small particles will settle only very slowly or not at all if the sample is regularly agitated or the particles are colloidal. These small solid particles cause the liquid to appear turbid. Turbidity (or haze) is also applied to transparent solids such as glass or plastic. In plastic production, haze is defined as the percentage of light that is deflected more than  $2.5^\circ$  from the incoming light direction.

**Salinity:**

Salinity is the saltiness or amount of salt dissolved in a body of water, called saline water (see also soil salinity). Salinity is an important factor in determining many aspects of the chemistry of natural waters and of biological processes within it, and is a thermodynamic state variable that, along with temperature and pressure, governs physical characteristics like the density and heat capacity of the water.

Salinity is the saltiness or dissolved salt content of a water body. Salinity is an important factor in determining many aspects of the chemistry of natural waters and of biological processes within it, and is a thermodynamic state variable that, along with temperature and pressure, governs physical characteristics like the density and heat capacity of the water. Seawater typically has a salinity of around 35 g/kg, although lower values are typical near coasts where rivers enter the ocean. Rivers and lakes can have a wide range of salinities, from less than 0.01 g/kg to a few g/kg, although there are many places where higher salinities are found. The Dead Sea has a salinity of more than 200 g/kg.

**Hardness:**

Hardness is a measure of the resistance to localized plastic deformation induced by either mechanical indentation or abrasion. Some materials (e.g. metals) are harder than others (e.g. plastics, wood). Macroscopic hardness is generally characterized by strong intermolecular bonds, but the behavior of solid materials under force is complex; therefore, there are different measurements of hardness: scratch hardness, indentation hardness, and rebound hardness. Hardness is dependent on ductility, elastic stiffness, plasticity, strain, strength, toughness, viscoelasticity, and viscosity.



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*Annex-1*

*List of Tables for Different Parameters of  
River Water*



## 1.0 Buriganga River (Table: 1-10)

Table-1. Level of pH of Buriganga River Water in 2018

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	8.05	7.12	7.6	-	7.45	7.54	7.71	7.3	8.17	<b>8.81</b>	7.41	6.75
Hajaribag	7.72	7.19	7.64	-	7.39	7.35	7.6	7.21	7.31	8.21	7.43	7.04
Kamrangir Char	7.58	7.28	7.62	-	7.39	7.42	7.58	7.03	7.29	7.98	7.67	7.11
Chadnighat	7.42	7.23	7.61	-	7.29	7.26	7.61	7.26	6.85	7.67	7.57	7.17
Sadar Ghat	7.54	7.21	7.62	-	7.3	7.31	7.65	7.42	7.25	7.91	7.7	7.07
Dlolaikhal	7.15	7.23	7.67	-	7.32	7.23	7.53	<b>6.49</b>	7.15	7.8	7.22	7.14
Pagla	7.44	7.27	7.52	-	-	7.38	7.71	-	-	7.81	7.38	7.07
Bangladesh China Frp. Brg.	7.32	7.22	7.6	-	7.28	7.28	7.59	7.44	7.29	7.92	7.53	7.18
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-2. Level of DO (mg/l) of Buriganga River Water in 2018

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	1.09	0	0.23	-	2.1	3.97	3.87	<b>5.28</b>	4.93	3.7	2	1.9
Hajaribag	1.52	0	0.25	-	1.69	2.32	4.11	5.26	4.28	3.1	2	1.93
Kamrangir Char	0.93	0	0.20	-	1.21	0.66	3.36	5.27	3.53	2.61	2.08	2.1
Chadnighat	0.67	0	0.59	-	1.37	1.56	3.74	4.84	3.47	2.47	2.4	2.1
Sadar Ghat	0.85	0	0.26	-	1.86	0.75	3.36	4.93	3.55	1.62	2	1.8
Dlolaikhal	0.53	0	0.28	-	0.96	1.07	3.66	2.69	2.97	1.55	2.34	2.2
Pagla	1.1	0	0.31	-	-	1.04	2.23	-	-	1.09	1.69	0.9
Bangladesh China Frp. Brg.	1.31	0	0.29	-	1.18	1.02	3.54	4.07	3.09	0.86	1.98	0.98
EQS Fisheries (5 mg/lz)												
EQS Industrial (4.5-8 mg/l)												

Table-3. Level of BOD (mg/l) of Buriganga River Water in 2018

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	6.4	13.8	18.4	-	18.4	8	1.2	3.2	2	2.8	10	20
Hajaribag	8.2	15	16.4	-	16.4	8.8	1.6	2.6	2.2	2.1	6	14.4
Kamrangir Char	6.8	18	14.4	-	14.4	7.6	1.6	2.6	2.4	2.8	2.8	14.8
Chadnighat	<b>24</b>	12.6	15.6	-	15.6	10	2.6	2.6	2.6	2.4	2.5	14
Sadar Ghat	6.8	18.6	14	-	14.0	10	2	2	2	2.8	4.4	12
Dlolaikhal	8.4	14.4	18.4	-	18.4	12	2.4	2.4	2.4	4.6	3.6	16.4
Pagla	8.8	12.6	14.6	-	-	16.8	1.2	-	-	2.8	2.8	12.8
Bangladesh China Frp. Brg.	12	16.2	12.4	-	12.4	10.8	<b>1.0</b>	2.0	5.6	2.2	10.2	12.4
EQS Fisheries ( $\leq 6$ mg/l)												
EQS Industrial ( $\leq 50$ mg/l)												

Table-4. Level of COD (mg/l) of Buriganga River Water in 2018

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	17	52	91	-	<b>91</b>	36	12	12	12	12	22	65
Hajaribag	25	56	79	-	79	36	10	10	10	12	19	38
Kamrangir Char	16	62	69	-	69	31	12	12	10	10	10	46
Chadnighat	57	48	45	-	45	41	10	10	12	10	10	42
Sadar Ghat	16	64	50	-	50	43	10	10	10	12	17	24
Dlolaikhal	27	83	72	-	72	51	12	12	10	27	25	53
Pagla	36	49	65	-	-	67	10	-	-	10	12	34
Bangladesh China Frp. Brg.	34	60	57	-	57	41	<b>9</b>	<b>9</b>	14	10	34	29
EQS Industrial ( $\leq 200$ mg/l)												

Table-5. Level of TDS (mg/l) of Buriganga River Water in 2018

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	435	444	<b>695</b>	-	138.5	<b>37.1</b>	42.5	72.6	79.8	61.8	298	335
Hajaribag	382	441	578	-	166.3	48.4	41.5	71.9	82.7	58	287	327
Kamrangir Char	385	446	562	-	165.7	48.6	41.7	72.9	81.3	58	281	330
Chadnighat	418	449	567	-	166.1	52.1	41.8	73.6	80.2	59	283	335
Sadar Ghat	359	445	583	-	166.2	49.5	41.9	71.1	80	59.6	287	329
Dlolaikhal	414	441	591	-	167.1	50	42.9	74.2	81.4	60.8	361	330
Pagla	372	445	580	-	-	60.6	45.9	-	-	62.8	298	329
Bangladesh China Frp. Brg.	380	442	595	-	173.7	51.6	43	74.3	80.4	61.5	292	321
EQS Industrial (≤2100 mg/l)												

Table-6. Level of Turbidity (NTU) of Buriganga River Water in 2018

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	53.7	70.8	67		30.5	35.7	93.4	93.4	37.4	25.8	26.8	8.11
Hajaribag	31.4	77.6	83.8		21.6	14.9	84.6	84.6	28.5	24.6	26.6	7.44
Kamrangir Char	29.6	83.7	95.8		19.3	13.2	83.3	83.3	31.7	21.6	24.6	<b>3.42</b>
Chadnighat	73.1	128	82.7		19.8	11.5	72.9	72.9	21.7	20	22	4.56
Sadar Ghat	40.9		79.5		18.7	10.9	78	78	29.2	19.8	24.8	4.54
Dlolaikhal	40.9	<b>154</b>	87.3		27.6	11.3	71.6	71.6	36.3	21.9	23.9	25.9
Pagla	58.4	94.4	76.9			10.8	58.3			21	24	23.71
Bangladesh China Frp. Brg.	100	135	68.3		19.4	6.92	58.5	58.5	20.1	19.9	22.9	23.98
EQS Industrial (10 NTU)												

Table-7. Level of Chloride (mg/l) of Buriganga River Water in 2018

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	50	50	70	-	30	23	10	10	10	<b>8</b>	18	25
Hajaribag	43	62	68	-	32	17	10	10	10	9	19	25
Kamrangir Char	45	58	66	-	35	16	9	9	12	8	17	25
Chadnighat	60	60	67	-	32	20	8	8	11	9	21	26
Sadar Ghat	45	64	66	-	32	19	8	8	12	9	18	27
Dlolaikhal	60	64	<b>73</b>	-	33	22	9	9	11	10	19	28
Pagla	52	62	68	-	-	20	8	-	-	9	19	28
Bangladesh China Frp. Brg.	50	61	69	-	33	27	10	10	12	10	17.9	29
EQS Industrial (150-600 mg/l)												

Table-8. Level of SS (mg/l) of Buriganga River Water in 2018

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	76	103	126	-	31	36	100	100	26	57	120	11
Hajaribag	43	67	96	-	27	15	99	99	30	56	122	17
Kamrangir Char	39	71	82	-	26	16	102	102	28	54	105	12
Chadnighat	83	99	71	-	30	17	69	69	16	52	115	17
Sadar Ghat	45	93	85	-	26	14	67	67	24	53	111	10
Dlolaikhal	155	104	92	-	44	15	86	86	34	53	<b>166</b>	10
Pagla	76	73	100	-	-	16	79	-	-	52	118	24
Bangladesh China Frp. Brg.	88	109	91	-	29	15	77	77	13	52	117	<b>10</b>
EQS Industrial (150 mg/l)												



Table-9. Level of Total Alkalinity (mg/l) of Buriganga River Water in 2018

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	218	300	332	-	332	40	34	34	56	40	120	110
Hajaribag	198	314	360	-	360	54	34	34	56	42	123	120
Kamrangir Char	256	306	342	-	342	54	44	44	52	60	130	120
Chadnighat	264	320	340	-	340	52	46	46	48	46	142	110
Sadar Ghat	288	342	338	-	338	50	40	40	48	44	132	110
Dlolaikhal	228	228	390	-	390	52	50	50	50	42	134	140
Pagla	220	326	386	-	-	52	56	-	-	46	135	160
Bangladesh China Frp. Brg.	226	336	410	-	410	54	54	54	52	44	126	150
EQS Industrial (150 mg/l)												

Table-10. Level of EC ( $\mu\text{mohs/cm}$ ) of Buriganga River Water in 2018

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	868	883	1043	-	314	88.7	99.6	145	169.8	138.3	565	672
Hajaribag	761	885	886	-	374	115.7	95.9	142	164.5	133.5	547	660
Kamrangir Char	769	896	890	-	375	114.6	96.4	144	161.5	132.3	530	663
Chadnighat	837	904	896	-	378	122.1	96.1	146	169.3	132.7	535	665
Sadar Ghat	717	895	914	-	375	116.1	96.5	142	169.1	134.6	540	670
Dlolaikhal	826	886	913	-	374	117.6	98.9	148	162.9	137	681	675
Pagla	760	898	890	-	-	122.2	107	-	-	140.9	567	668
Bangladesh China Frp. Brg.	759	890	932	-	391	121.4	99.3	148	169.3	138	560	664
EQS Industrial (1200 $\mu\text{mohs/cm}$ )												

## 2.0 Shitalakhya River (Table: 11-19)

Table-11. Level of pH of Shitalakhya River Water in 2018

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	7.24	7.47	7.1	-	7.69	-	7.76	8.66	8.66	7.38	7.38	7.78
Ghorashal F.F.	-	7.1	-	8.24	-	-	-	-	7.36	7.49	7.49	7.71
Near ACI Factory	7.48	6.61	-	-	-	-	-	-	7.24	-	-	-
Near Kanchpur Bridge	7.59	-	-	-	-	-	-	-	-	-	-	-
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-12. Level of DO ( $\text{mg/l}$ ) of Shitalakhya River Water in 2018

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	0	5.2	0	-	2.6	-	6.2	5.79	5.7	5	5	2.3
Ghorashal F.F.	-	1	-	3.8	-	-	-	-	6.2	5	5	5.2
Near ACI Factory	0	0.8	-	-	-	-	-	-	3.8	-	-	-
Near Kanchpur Bridge	3.4	-	-	-	-	-	-	-	-	-	-	-
EQS Fisheries (5 $\text{mg/l}$ )												
EQS Industrial (4.5-8 $\text{mg/l}$ )												

**Table-13. Level of BOD (mg/l) of Shitalakhya River Water in 2018**

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	20.4	1.4	18.4	-	6.8	-	2.3	2	2.4	2.8	5.8	9.6
Ghorashal F.F.	-	24.6	-	12	-	-	-	-	2.4	2.4	2.4	3.8
Near ACI Factory	24.2	18.6	-	-	-	-	-	-	12.4	-	-	-
Near Kanchpur Bridge	8.4	-	-	-	-	-	-	-	-	-	-	-
EQS Fisheries ( $\leq 6$ mg/l)												
EQS Industrial ( $\leq 50$ mg/l)												

**Table-14. Level of COD (mg/l) of Shitalakhya River Water in 2017**

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	68	8.4	76	-	30	-	12	12	12	15	20	34
Ghorashal F.F.	-	118	-	42	-	-	-	-	11	10	10	10
Near ACI Factory	72	58	-	-	-	-	-	-	61	-	-	-
Near Kanchpur Bridge	8.4	-	-	-	-	-	-	-	-	-	-	-
EQS Industrial ( $\leq 200$ mg/l)												

**Table-15. Level of TDS (mg/l) of Shitalakhya River Water in 2018**

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	314	183.5	411	-	70	-	43	37.4	37.4	66.2	66.2	265
Ghorashal F.F.	-	411	-	262	-	-	-	-	77.6	61.2	61.2	187.2
Near ACI Factory	320	359	-	-	-	-	-	-	155.1	-	-	-
Near Kanchpur Bridge	230	-	-	-	-	-	-	-	-	-	-	-
EQS Industrial ( $\leq 2100$ mg/l)												

**Table-16. Level of Chloride (mg/l) of Shitalakhya River Water in 2018**

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	38	35	70	-	7	-	11	11	8	11	11	24
Ghorashal F.F.	-	60	-	7	-	-	-	-	7	8	8	8
Near ACI Factory	42	62	-	-	-	-	-	-	20	-	-	-
Near Kanchpur Bridge	15	-	-	-	-	-	-	-	-	-	-	-
EQS Industrial (150-600 mg/l)												

**Table-17. Level of SS (mg/l) of Shitalakhya River Water in 2018**

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	73	27	86	-	24	-	86	86	25	19	19	19
Ghorashal F.F.	-	44	-	32	-	-	-	-	25	39	39	23
Near ACI Factory	68	47	-	-	-	-	-	-	35	-	-	-
Near Kanchpur Bridge	30	-	-	-	-	-	-	-	-	-	-	-
EQS Industrial (150 mg/l)												

**Table-18. Level of EC ( $\mu$ mhos/cm) of Shitalakhya River Water in 2018**

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	590	364	809	-	164	-	86	87.8	87.8	131.7	131.7	523
Ghorashal F.F.	-	809	-	478	-	-	-	-	158.6	121.7	121.7	366
Near ACI Factory	610	678	-	-	-	-	-	-	312	-	-	-
Near Kanchpur Bridge	611	-	-	-	-	-	-	-	-	-	-	-
EQS Industrial (1200 $\mu$ mhos/cm)												



Table-19. Level of Total Alkalinity (mg/l) of Shitalakhya River Water in 2018

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	220	180	322	-	220	-	64	64	64	42	42	160
Ghorashal F.F.	-	280	-	48	-	-	-	-	58	36	36	110
Near ACI Factory	240	320	-	-	-	-	-	-	110	-	-	-
Near Kanchpur Bridge	170	-	-	-	-	-	-	-	-	-	-	-
EQS Industrial (150 mg/l)												

## 3.0 Turagh River (Table: 20-28)

Table-20. Level of pH of Turagh River Water in 2018

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	7	7.57	7.42	-	7.34	7.2	7.34	7.45	8.04	7.11	7.46	7.48
Mirpur Diabary BIWTA L.S	6.99	7.52	7.49	-	7.3	7.59	7.3	7.36	8.48	7.13	7.72	7.59
Ashulia BIWTA L.S	7.31	7.78	7.62	-	7.29	7.15	7.29	7.39	8.41	7.39	7.82	7.61
Tongi Istima Mat	7.04	7.69	7.84	-	7.34	7.03	7.34	7.38	8.32	7.45	7.72	
North Side of Tongi Bridge	7.31	7.78	7.84	-	7.34	7.59	7.34	7.45	8.48	7.45	7.82	7.61
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-21. Level of DO (mg/l) of Turagh River Water in 2018

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	0	1.25	1.47	-	1.26	3.42	4.8	5.2	5.96	4	3	2.1
Mirpur Diabary BIWTA L.S	0	0.42	1.07	-	1.68	4.54	5.1	5.3	5.73	3.99	2.9	2
Ashulia BIWTA L.S	0	0.54	0.5	-	1.83	4.2	5.2	5.4	6.32	6.04	5	2.5
Tongi Istima Mat	0	0.52	0.9	-	2.22	2.72	5.4	5.6	5.44	4.29	3.79	1.9
North Side of Tongi Bridge	0	1.25	1.47	-	2.22	4.54	5.4	5.6	6.32	6.04	5	2.5
EQS Fisheries (5 mg/l <sub>2</sub> )												
EQS Industrial (4.5-8 mg/l)												

Table-22. Level of BOD (mg/l) of Turagh River Water in 2018

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	33	28	12.4	-	12.4	7.2	6.1	3.2	2.6	2.2	10.8	8.8
Mirpur Diabary BIWTA L.S	24	42	24	-	24	5.2	3.9	2.8	2.8	2.4	7.2	8.4
Ashulia BIWTA L.S	37	38	18.4	-	18.4	2.4	3	2.4	2.4	2.2	9.6	8
Tongi Istima Mat	86	36	22.4	-	22.4	4.6	2.4	3.2	2.8	2.6	7.2	9.6
North Side of Tongi Bridge	86	42	24	-	24	7.2	6.1	3.2	2.8	2.6	10.8	9.6
EQS Fisheries (5 mg/l <sub>2</sub> )												
EQS Industrial (6.0-9.0)												

Table-23. Level of COD (mg/l) of Turagh River Water in 2018

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	114	69	38	-	50	20	10	10	10	10	22	39
Mirpur Diabary BIWTA L.S	106	120	112	-	76	18	10	12	14	10	24	34
Ashulia BIWTA L.S	142	111	84	-	39	16	12	12	14	15	41	34
Tongi Istima Mat	241	93	86	-	49	18	10	14	10	12	27	36
North Side of Tongi Bridge	241	120	112	-	76	20	12	14	14	15	41	39
EQS Industrial (<200 mg/l)												

**Table-24. Level of TDS (mg/l) of Turagh River Water in 2018**

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	323	450	598	-	167.9	35.8	55	43.2	40.4	113.9	322	348
Mirpur Diabary BIWTA L.S	309	435	591	-	155.8	41.1	57	44.2	40.4	114.3	301	363
Ashulia BIWTA L.S	293	476	695	-	129.8	<b>35.4</b>	60.1	44.5	48.7	109.6	287.6	389
Tongi Istima Mat	326	539	<b>746</b>	-	150.1	36.3	55.2	42.3	42.7	119.8	304	405
North Side of Tongi Bridge	326	539	746	-	167.9	41.1	60.1	44.5	48.7	119.8	322	405
EQS Industrial ( $\leq 2100$ mg/l)												

**Table-25. Level of Chloride (mg/l) of Turagh River Water in 2018**

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	40	56	<b>83</b>	-	34	<b>5</b>	12	8	8	6	7	35
Mirpur Diabary BIWTA L.S	35	52	82	-	35	6	12	8	8	14	13	35
Ashulia BIWTA L.S	37	58	82	-	33	8	11	7	12	8	9	35
Tongi Istima Mat	50	70	83	-	36	8	12	8	6	5	5	35
North Side of Tongi Bridge	50	70	83	-	36	8	12	8	12	14	13	35
EQS Industrial (150-600 mg/l)												

**Table-26. Level of SS (mg/l) of Turagh River Water in 2018**

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	<b>159</b>	114	106	-	59	27	117	78	31	28	126	81
Mirpur Diabary BIWTA L.S	150	127	123	-	62	33	90	76	44	31	121	29
Ashulia BIWTA L.S	81	117	140	-	47	<b>12</b>	112	72	14	34	111	43
Tongi Istima Mat	58	113	148	-	48	13	80	86	14	48	102	33
North Side of Tongi Bridge	159	127	148	-	62	33	117	86	44	48	126	81
EQS for Industrial Discharge (150 mg/l)												

**Table-27. Level of EC ( $\mu$ mhos/cm) of Turagh River Water in 2018**

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	597	923	1148	-	378	84.1	110	84.6	91.1	259	322	676
Mirpur Diabary BIWTA L.S	586	893	1135	-	353	97.9	112	86.4	91.4	259	301	701
Ashulia BIWTA L.S	538	969	1343	-	293	<b>83.6</b>	120	88.2	115.9	252	287	751
Tongi Istima Mat	600	1156	<b>1418</b>	-	382	85.7	110	84.4	98.1	279	304	748
North Side of Tongi Bridge	600	1156	1418	-	382	97.9	120	88.2	115.9	279	322	751
EQS for Industrial Discharge (1200 $\mu$ mhos/cm)												

**Table-28. Level of Total Alkalinity (mg/l) of Turagh River Water in 2018**

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	164	280	328	-	328	40	56	48	56	38	<b>36</b>	170
Mirpur Diabary BIWTA L.S	164	280	356	-	356	40	54	46	54	40	38	160
Ashulia BIWTA L.S	170	320	366	-	366	44	58	52	58	42	40	166
Tongi Istima Mat	152	320	<b>368</b>	-	368	38	60	50	60	44	42	164
North Side of Tongi Bridge	170	320	368	-	368	44	60	52	60	44	42	170
EQS for Industrial Discharge (150 mg/l)												



## 4.0 Dhalaeswari River (Table: 29-37)

Table-29. Level of pH of Dhaleshwari River Water in 2018

Location of Dhaleshwari river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
200m up of CETP	7.31	8.11	-	-	-	7.86	7.68	-	8.03	8.02	-	-
Droping Point of CETP	6.96	8.15	8.4	8.1	-	7.88	7.51	-	7.51	<b>8.44</b>	-	-
200m Down of CETP	6.93	8.11	8.28	8.01	-	7.99	7.47	-	7.47	7.75	-	-
Muktarpur Bridge	7.12	-	-	7.6	-	<b>6.55</b>	7.81	7.81	7.69	-	-	-
Hamayatpur	7.31	8.15	8.4	8.1	-	7.99	7.81	7.81	8.03	8.44	-	-
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-30. Level of DO (mg/l) of Dhaleshwari River Water in 2018

Location of Dhaleshwari river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
200m up of CETP	0	1.26	-	-	-	4.7	6.72	-	5.89	6.23	-	-
Droping Point of CETP	<b>0</b>	1.72	<b>0.2</b>	1.35	-	3.62	6.61	-	4.3	0.17	-	-
200m Down of CETP	0	1.76	0.6	1.27	-	5.31	<b>6.83</b>	-	5.6	5.66	-	-
Muktarpur Bridge	2.1	-	-	3.8	-	3.8	3.28	4.5	2.4	-	-	-
Hamayatpur	2.1	1.76	0.6	3.8	-	5.31	6.83	4.5	5.89	6.23	-	-
EQS Fisheries (5 mg/l <sub>2</sub> )												
EQS Industrial (4.5-8 mg/l)												

Table-31. Level of BOD (mg/l) of Dhaleshwari River Water in 2018

Location of Dhaleshwari river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
200m up of CETP	8.2	12.6	-	-	-	<b>2</b>	2	-	4.8	4.2	-	-
Droping Point of CETP	18.6	16.2	28	18.4	-	<b>79</b>	44	-	34	56	-	-
200m Down of CETP	12.6	14.4	22	16	-	4	4	-	5.8	5.6	-	-
Muktarpur Bridge	4.5	-	-	12	-	3.8	3.1	2.8	6.4	-	-	-
Hamayatpur	18.6	16.2	28	18.4	-	79	44	2.8	34	56	-	-
EQS Fisheries ( $\leq 6$ mg/l)												
EQS Industrial ( $\leq 50$ mg/l)												

Table-32. Level of COD (mg/l) of Dhaleshwari River Water in 2018

Location of Dhaleshwari river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
200m up of CETP	39	57	-	-	-	<b>5</b>	15	-	17	17	-	-
Droping Point of CETP	82	68	90	42	-	125	<b>187</b>	-	185	172	-	-
200m Down of CETP	74	59	18	36	-	10	10	-	18	18	-	-
Muktarpur Bridge	10	-	-	42	-	12	12	16	39	-	-	-
Hamayatpur	82	68	90	42	-	125	187	16	185	172	-	-
EQS Industries ( $\leq 200$ mg/l)												

Table-33. Level of TDS (mg/l) of Dhaleshwari River Water in 2018

Location of Dhaleshwari river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
200m up of CETP	489	630	-	-	-	102	<b>78.8</b>	-	116	94.8	-	-
Droping Point of CETP	525	627	792	850	-	855	3410	-	3410	<b>3430</b>	-	-
200m Down of CETP	510	622	792	835	-	102	94.4	-	94.4	81.6	-	-
Muktarpur Bridge	263	-	-	262	-	112	84	84	86.4	-	-	-
Hamayatpur	525	630	792	850	-	855	3410	84	3410	3430	-	-
EQS Industries ( $\leq 2100$ mg/l)												

**Table-34. Level of Chloride (mg/l) of Dhaleshwari River Water in 2018**

Location of Dhaleshwari river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
200m up of CETP	92	114	-	-	-	-	-	-	-	-	-	-
Dropping Point of CETP	108	117	121	112	-	-	-	-	-	-	-	-
200m Down of CETP	105	113	116	110	-	-	-	-	-	-	-	-
Muktarpur Bridge	8	-	-	7	-	8	10	10	8	-	-	-
Hamayatpur	108	117	121	112	-	8	10	10	8	-	-	-
<b>EQS Industrial (150-600 mg/l)</b>												

**Table-35. Level of SS (mg/l) of Dhaleshwari River Water in 2018**

Location of Dhaleshwari river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
200m up of CETP	46	29	-	-	-	-	-	-	-	-	-	-
Dropping Point of CETP	49	19	11	34	-	-	-	-	-	-	-	-
200m Down of CETP	47	75	10	34	-	-	-	-	-	-	-	-
Muktarpur Bridge	20	-	-	32	-	32	78	78	20	-	-	-
Hamayatpur	49	75	11	34	-	32	78	78	20	-	-	-
<b>EQS Industrial (150 mg/l)</b>												

**Table-36. Level of EC (1200µmohs/cm) of Dhaleshwari River Water in 2018**

Location of Dhaleshwari river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
200m up of CETP	914	1165	-	-	-	240	190	-	225	177.2	-	-
Dropping Point of CETP	985	1164	1470	1558	-	1890	7370	-	7370	5720	-	-
200m Down of CETP	955	1156	1466	1545	-	242	227	-	227	152.9	-	-
Muktarpur Bridge	510	-	-	478	-	223	192	192	166.8	-	-	-
Hamayatpur	985	1165	1470	1558	-	1890	7370	192	7370	5720	-	-
<b>EQS industrial (1200 µmohs/cm)</b>												

**Table-37. Level of Total Alkalinity (mg/l) of Dhaleshwari River Water in 2018**

Location of Dhaleshwari river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
200m up of CETP	358	330	-	-	-	-	-	-	-	-	-	-
Dropping Point of CETP	360	364	306	324	-	-	-	-	-	-	-	-
200m Down of CETP	304	314	336	310	-	-	-	-	-	-	-	-
Muktarpur Bridge	102	-	-	48	-	72	58	58	78	-	-	-
Hamayatpur	102	314	306	48	-	72	58	58	78	-	-	-
<b>EQS Industries (150 mg/l)</b>												

**5.0 Brahmaputra River (Table: 38-43)****Table-38. Level of pH of Brahmaputra River Water in 2018**

Location of Brahmaputra river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mymensingh	-	-	-	-	7.86	7.68	-	8.34	7.47	-	-	-
<b>EQS Fisheries (6.5-8.5)</b>												
<b>EQS Industrial (6.0-9.0)</b>												

**Table-39. Level of DO (mg/l) of Brahmaputra River Water in 2018**

Location of Brahmaputra river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mymensingh	-	-	-	-	5.9	6.5	-	6.61	6.61	-	-	-
<b>EQS Fisheries (5 mg/l<sub>2</sub>)</b>												
<b>EQS Industrial (4.5-8 mg/l)</b>												

**Table-40. Level of BOD (mg/l) of Brahmaputra River Water in 2018**

Location of Brahmaputra river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mymensingh	-	-	-	-	2	2.1	-	2.1	2.6	-	-	-
EQS Fisheries ( $\leq 6$ mg/l )												
EQS Industrial ( $\leq 50$ mg/l )												

**Table-41. Level of TDS (mg/l) of Brahmaputra River Water in 2018**

Location of Brahmaputra river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mymensingh	-	-	-	-	210	92	-	44.4	80.9	-	-	-
EQS Industries ( $\leq 100$ mg/l)												

**Table-42. Level of SS (mg/l) of Brahmaputra River Water in 2018**

Location of Brahmaputra river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mymensingh	-	-	-	-	23	21	-	45	26	-	-	-
EQS Industrial (150 mg/l)												

**Table-43. Level of Chloride (mg/l) of Brahmaputra River Water in 2018**

Location of Brahmaputra river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mymensingh	-	-	-	-	12	11	-	10	10	-	-	-
EQS Industrial (150-600 mg/l)												

**6.0 Kaligonga River (Table: 44-49)****Table-44. Level of pH of Kaligonga River Water in 2018**

Location of Kaligonga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bheutha Ghat	6.89	-	7.55	-	7.76	-	-	6.89	6.89	-	-	-
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

**Table-45. Level of DO (mg/l) of Kaligonga River Water in 2018**

Location of Kaligonga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bheutha Ghat	8	-	7.8	-	5.8	-	-	8	8	-	-	-
EQS Fisheries (5 mg/l <sub>2</sub> )												
EQS Industrial (4.5-8 mg/l)												

**Table-46. Level of BOD (mg/l) of Kaligonga River Water in 2018**

Location of Kaligonga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bheutha Ghat	6	-	1.4	-	1.8	-	-	2	4.2	-	-	-
EQS Fisheries ( $\leq 6$ mg/l)												
EQS Industrial ( $\leq 50$ mg/l )												



Table-47. Level of TDS (mg/l) of Kaligonga River Water in 2018

Location of Kaligonga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bheutha Ghat	308	-	252	-	78	-	-	308	308	-	-	-
EQS Industries ( $\leq 2100$ mg/l)												

Table-48. Level of SS (mg/l) of Kaligonga River Water in 2018

Location of Kaligonga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bheutha Ghat	16	-	11	-	20	-	-	16	16	-	-	-
EQS Industrial (150 mg/l)												

Table-49. Level of Chloride (mg/l) of Kaligonga River Water in 2018

Location of Kaligonga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bheutha Ghat	25	-	40	-	16	-	-	25	25	-	-	-
EQS Industrial (150-600 mg/l)												

## 7.0 Jamuna River (Table: 50-55)

Table-50. Level of pH of Jamuna River Water in 2018

Location of Jamuna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhadurabad Ghat	-	-	-	-	-	-	-	8.43	-	-	-	-
Near Jamuna Fertilizer Factory	-	7.61	-	-	-	-	-	8.4	-	-	-	-
Fulchari Ghat, Gibanda (US)	-	7.41	7.64	7.66	7.64	7.42	7.32	7.66	7.62	7.44	7.44	7.48
Fulchari Ghat, Gibanda (DS)	-	7.41	7.63	7.65	7.63	7.42	7.3	7.65	7.62	7.42	7.43	7.49
Fulchari Ghat, Gibanda (Avg)	-	7.41	7.63	7.65	7.635	7.42	7.31	7.65	7.6	7.43	7.43	7.485
Shariakandi Groin Badth (US)	-	7.42	7.64	7.32	7.64	7.62	7.61	7.54	7.52	7.37	7.37	7.44
Shariakandi Groin Badth (DS)	-	7.41	7.63	7.3	7.63	7.61	7.62	7.53	7.52	7.39	7.39	7.46
Shariakandi Groin Badth (Avg)	-	7.41	7.63	7.31	7.638	7.61	7.61	7.53	7.52	7.38	7.38	7.45
Near Bangabandhu Bridge (US)	-	7.44	7.58	7.58	7.58	7.54	7.54	7.58	7.54	7.44	7.35	7.43
Near Bangabandhu Bridge (DS)	-	7.43	7.57	7.57	7.57	7.54	7.53	7.57	7.54	7.43	7.36	7.42
Near Bangabandhu Bridge (Avg)	-	7.43	7.57	7.57	7.575	7.54	7.53	7.57	7.5	7.43	7.35	7.425
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-51. Level of DO (mg/l) of Jamuna River Water in 2018

Location of Jamuna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhadurabad Ghat	-	-	-	-	-	-	-	7.31	-	-	-	-
Near Jamuna Fertilizer Factory	-	6.2	-	-	-	-	-	7.63	-	-	-	-
Fulchari Ghat, Gibanda (US)	-	6.9	7.3	7.5	7.3	6.6	6.6	7.5	7.2	7.1	7.2	7.2
Fulchari Ghat, Gibanda (DS)	-	7	7.2	7.4	7.2	6.6	6.6	7.4	7.2	7	7.1	7.1
Fulchari Ghat, Gibanda (Avg)	-	6.95	7.25	7.45	7.25	6.6	6.6	7.45	7.2	7.05	7.15	7.15
Shariakandi Groin Badth (US)	-	6.8	7.3	6.6	7.3	7.5	7.5	7.4	7.3	7.1	7.1	7.1
Shariakandi Groin Badth (DS)	-	6.8	7.2	6.6	7.2	7.4	7.4	7.3	7.3	7.2	7.2	7.2
Shariakandi Groin Badth (Avg)	-	6.8	7.25	6.6	7.25	7.45	7.45	7.35	7.3	7.15	7.15	7.15
Near Bangabandhu Bridge (US)	-	7.1	7.3	7.3	7.3	7.3	7.1	7.4	7.1	7.2	7.1	7.1
Near Bangabandhu Bridge (DS)	-	7	7	7	7	7	7	7.4	7	7.1	7.2	7.2
Near Bangabandhu Bridge (Avg)	-	7.05	7.15	7.15	7.15	7.15	7.05	7.4	7.05	7.15	7.15	7.15
EQS Fisheries (5 mg/l $\geq$ )												
EQS Industrial (4.5-8 mg/l)												

**Table-52. Level of BOD (mg/l) of Jamuna River Water in 2018**

Location of Jamuna river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhadurabad Ghat	-	-	-	-	-	-	-	1.3	-	-	-	-
Near Jamuna Fertilizer Factory	-	2.6	-	-	-	-	-	0.6	-	-	-	-
Fulchari Ghat, Gibanda (US)	-	2.9	2.2	2.4	2.2	2.2	2.2	2.4	2.4	2.2	2.1	2.1
Fulchari Ghat, Gibanda (DS)	-	2.8	2.1	2.3	2.1	2.2	2.2	2.3	2.3	2.1	2	2
Fulchari Ghat, Gibanda (Avg)	-	2.85	2.15	2.35	2.15	2.2	2.2	2.35	2.35	2.15	2.05	2.05
Shariakandi Groin Badth (US)	-	2.9	2.2	2.2	2.2	2.4	2.4	2.2	2.4	2.1	2.1	2.1
Shariakandi Groin Badth (DS)	-	2.8	2.1	2.2	2.1	2.3	2.3	2.2	2.4	2.2	2.2	2.2
Shariakandi Groin Badth (Avg)	-	2.85	2.15	2.2	2.15	2.35	2.35	2.2	2.4	2.15	2.15	2.15
Near Bangabandhu Bridge (US)	-	2.1	2.1	2.1	2.1	2.1	2	2.4	2.3	2.1	2.2	2.2
Near Bangabandhu Bridge (US)	-	2	2.1	2.1	2.1	2.1	2	2.3	2.3	2	2.1	2.1
Near Bangabandhu Bridge (Avg)	-	2.05	2.1	2.1	2.1	2.1	2	2.35	2.3	2.05	2.15	2.15
EQS Fisheries ( $\leq 6$ mg/l )												
EQS Industrial ( $\leq 50$ mg/l )												

**Table-53. Level of SS of Jamuna River Water in 2018**

Location of Jamuna river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhadurabad Ghat	-	-	-	-	-	-	-	56	-	-	-	-
Near Jamuna Fertilizer Factory	-	53	-	-	-	-	-	44	-	-	-	-
Fulchari Ghat, Gibanda (US)	-	60	60	70	60	60	60	70	70	80	80	80
Fulchari Ghat, Gibanda (DS)	-	50	60	60	60	60	60	60	60	80	80	80
Fulchari Ghat, Gibanda (Avg)	-	55	60	65	60	60	60	65	65	80	80	80
Shariakandi Groin Badth (US)	-	60	60	60	60	70	70	60	60	70	70	50
Shariakandi Groin Badth (DS)	-	70	60	60	60	60	60	60	60	70	70	50
Shariakandi Groin Badth (Avg)	-	65	60	60	60	65	65	60	60	70	70	50
Near Bangabandhu Bridge (US)	-	60	60	60	60	60	60	70	70	80	90	90
Near Bangabandhu Bridge (US)	-	70	60	60	60	60	60	60	60	80	90	90
Near Bangabandhu Bridge (Avg)	-	65	60	60	60	60	60	65	65	80	90	90
EQS Industrial (150 mg/l)												

**Table-54. Level of TDS (mg/l) of Jamuna River Water in 2018**

Location of Jamuna river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhadurabad Ghat	-	-	-	-	-	-	-	40.7	-	-	-	-
Near Jamuna Fertilizer Factory	-	365	-	-	-	-	-	57.5	-	-	-	-
Fulchari Ghat, Gibanda (US)	-	120	140	120	140	130	130	120	120	90	142	90
Fulchari Ghat, Gibanda (DS)	-	100	140	120	140	130	130	120	120	90	132	90
Fulchari Ghat, Gibanda (Avg)	-	110	140	120	140	130	130	120	120	90	137	90
Shariakandi Groin Badth (US)	-	110	140	130	140	120	120	110	110	110	140	100
Shariakandi Groin Badth (DS)	-	110	140	130	140	120	120	110	110	110	140	100
Shariakandi Groin Badth (Avg)	-	110	140	130	140	120	120	110	110	110	140	100
Near Bangabandhu Bridge (US)	-	120	120	120	120	120	120	110	110	120	102	90
Near Bangabandhu Bridge (US)	-	110	120	120	120	120	120	100	100	120	98	90
Near Bangabandhu Bridge (Avg)	-	115	120	120	120	120	120	105	105	120	100	90
EQS Industries ( $\leq 2100$ mg/l)												

**Table-55. Level of Chloride (mg/l) of Jamuna River Water in 2018**

Location of Jamuna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhadurabad Ghat	-	-	-	-	-	-	-	8	-	-	-	-
Near Jamuna Fertilizer Factory	-	20	-	-	-	-	-	11	-	-	-	-
Fulchari Ghat, Gibanda (US)	-	25	25	25	25	35	35	25	25	24	30	30
Fulchari Ghat, Gibanda (DS)	-	25	25	25	25	35	35	25	25	26	30	30
Fulchari Ghat, Gibanda (Avg)	-	25	25	25	25	35	35	25	25	25	30	30
Sharakandi Groin Badth (US)	-	30	25	35	25	25	25	30	30	32	32	32
Sharakandi Groin Badth (DS)	-	30	25	35	25	25	25	30	30	32	32	32
Sharakandi Groin Badth (Avg)	-	30	25	35	25	25	25	30	30	32	32	32
Near Bangabandhu Bridge (US)	-	30	30	30	30	30	30	25	25	30	32	32
Near Bangabandhu Bridge (DS)	-	30	25	25	25	25	25	25	25	30	28	28
Near Bangabandhu Bridge (Avg)	-	30	27.5	27.5	27.5	27.5	27.5	25	25	30	30	30
<b>EQS Industrial (150-600 mg/l)</b>												

**8.0 Meghna River (Table: 56-61)****Table-56. Level of pH of Meghna River Water in 2018**

Location of Meghna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhairab Bazar	7.43	-	7.32	-	-	-	-	-	-	-	-	-
Meghna Ghat	7.38	-	6.77	-	-	-	-	7.94	7.6	6.52	6.52	6.52
Near Shahjalal Paper Mills	7.23	-	6.96	-	-	-	-	7.46	7.13	6.56	6.56	6.56
<b>EQS Fisheries (6.5-8.5)</b>												
<b>EQS Industrial (6.0-9.0)</b>												

**Table-57. Level of DO (mg/l) of Meghna River Water in 2018**

Location of Meghna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhairab Bazar	7.2	-	6.8	-	-	-	-	-	-	-	-	-
Meghna Ghat	6.2	-	5.8	-	-	-	-	6.43	7.2	5.8	5.8	5.8
Near Shahjalal Paper Mills	6.8	-	5	-	-	-	-	4.76	5.4	5.1	5.1	5.1
<b>EQS Fisheries (5 mg/l<sub>2</sub>)</b>												
<b>EQS Industrial (4.5-8 mg/l)</b>												

**Table-58. Level of BOD (mg/l) of Meghna River Water in 2018**

Location of Meghna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhairab Bazar	1.2	-	1.2	-	-	-	-	-	-	-	-	-
Meghna Ghat	4.7	-	5.1	-	-	-	-	1.4	1.6	2.8	2.8	3.8
Near Shahjalal Paper Mills	4.8	-	6.4	-	-	-	-	3.2	4.4	5	5	5.6
<b>EQS Fisheries (≤6 mg/l )</b>												
<b>EQS Industrial (≤50 mg/l )</b>												

**Table-59. Level of TDS (mg/l) of Meghna River Water in 2018**

Location of Meghna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhairab Bazar	48.7	-	58	-	-	-	-	-	-	-	-	-
Meghna Ghat	79.9	-	73.2	-	-	-	-	16.52	28.1	31.5	31.5	42.2
Near Shahjalal Paper Mills	56.3	-	95.6	-	-	-	-	17.74	37.8	47.3	47.3	52.1
<b>EQS Industries (≤ 2100 mg/l)</b>												



Table-60. Level of SS (mg/l) of Meghna River Water in 2018

Location of Meghna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhairab Bazar	10	-	10	-	-	-	-	-	-	-	-	-
Meghna Ghat	21	-	7	-	-	-	-	84	32	24	24	24
Near Shahjalal Paper Mills	24	-	37	-	-	-	-	63	28	12	6	22
<b>EQS Industrial (150 mg/l)</b>												

Table-61. Level of Chloride (mg/l) of Meghna River Water in 2018

Location of Meghna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhairab Bazar	6	-	6	-	-	-	-	-	-	-	-	-
Meghna Ghat	7	-	7	-	-	-	-	7	2	9	9	9
Near Shahjalal Paper Mills	7	-	7	-	-	-	-	7	2	13	13	13
<b>EQS Industrial (150-600 mg/l)</b>												

## 9.0 Padma River (Table: 62-67)

Table-62. Level of pH of Padma River Water in 2018

Location of Padma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mawa Ghat	7.57	-	-	7.93	-	-	-	7.57	7.61	-	-	-
Shimulia Ghat	-	-	-	-	-	-	-	-	7.85	-	-	-
Pakshi Ghat (US)	-	7.4	7.66	7.66	7.66	7.6	7.58	7.32	7.38	7.36	7.36	7.36
Pakshi Ghat (DS)	-	7.4	7.65	7.65	7.65	7.6	7.57	7.3	7.36	7.34	7.34	7.38
<b>Pakshi Ghat (Avg.)</b>	-	7.4	7.655	7.655	7.655	7.6	7.575	7.31	7.37	7.35	7.35	7.37
Baro kuti Ghat (U.S)	-	7.44	7.54	7.54	7.54	7.51	7.56	7.58	7.56	7.32	7.32	7.38
Baro kuti Ghat (D.S)	-	7.44	7.53	7.53	7.53	7.5	7.55	7.57	7.56	7.42	7.42	7.4
<b>Bora Kuti GFhat (Avg.)</b>	-	7.44	7.535	7.535	7.535	7.505	7.555	7.575	7.56	7.37	7.37	7.39
<b>EQS Fisheries (6.5-8.5)</b>												
<b>EQS Industrial (6.0-9.0)</b>												

Table-63. Level of DO (mg/l) of Padma River Water in 2018

Location of Padma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mawa Ghat	8.2	-	-	6.8	-	-	-	6.4	8.2	-	-	-
Shimulia Ghat	-	-	-	-	-	-	-	-	7.6	-	-	-
Pakshi Ghat (US)	-	7	7.5	7.5	7.5	7.3	7.3	6.6	7.1	7	7	7
Pakshi Ghat (DS)	-	6.9	7.4	7.4	7.4	7.2	7.2	6.6	7.1	7.1	7.1	7.1
<b>Pakshi Ghat (Avg.)</b>	-	6.95	7.45	7.45	7.45	7.25	7.25	6.6	7.1	7.05	7.05	7.05
Baro kuti Ghat (U.S)	-	7.1	7.4	7.4	7.4	7.4	7.2	7.3	7	7.2	7.2	7.2
Baro kuti Ghat (D.S)	-	7	7.3	7.3	7.3	7.3	7.1	7	7	7.1	7.1	7.1
<b>Bora Kuti GFhat (Avg.)</b>	-	7.05	7.35	7.35	7.35	7.35	7.15	7.15	7	7.15	7.15	7.15
<b>EQS for Fisheries (5 mg/lz)</b>												
<b>EQS Industrial Discharge (4.5-8 mg/l)</b>												

Table-64. Level of BOD (mg/l) of Padma River Water in 2018

Location of Padma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mawa Ghat	2.2	-	-	1.2	-	-	-	2.2	0.4	-	-	-
Shimulia Ghat	-	-	-	-	-	-	-	-	0.6	-	-	-
Pakshi Ghat (US)	-	2.8	2.4	2.4	2.4	2.2	2.2	2.2	2.2	2.3	2.3	2.3
Pakshi Ghat (DS)	-	2.9	2.3	2.3	2.3	2.1	2.1	2.2	2.2	2.2	2.2	2.2
<b>Pakshi Ghat (Avg.)</b>	-	2.85	2.35	2.35	2.35	2.15	2.15	2.2	2.2	2.25	2.25	2.25
Baro kuti Ghat (U.S)	-	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.4	2.2	2.2	2.2
Baro kuti Ghat (D.S)	-	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.3	2.1	2.1	2.1
<b>Bora Kuti GFhat (Avg.)</b>	-	2.1	2.2	2.2	2.2	2.2	2.15	2.1	2.35	2.15	2.15	2.15
<b>EQS for Fisheries (≤6 mg/l )</b>												
<b>EQS Industrial Discharge (≤50 mg/l )</b>												



Table-65. Level of TDS (mg/l) of Padma River Water in 2018

Location of Padma river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mawa Ghat	106.8	-	-	72	-	-	-	106.8	69.7	-	-	-
Shimulia Ghat	-	-	-	-	-	-	-	-	71	-	-	-
Pakshi Ghat (US)	-	110	120	120	120	140	140	130	130	120	156	100
Pakshi Ghat (DS)	-	100	120	120	120	140	140	130	130	120	142	110
<b>Pakshi Ghat (Avg.)</b>	-	105	120	120	120	140	140	130	130	120	149	105
Baro kuti Ghat (U.S)	-	110	110	110	110	90	110	120	120	110	144	90
Baro kuti Ghat (D.S)	-	110	110	110	110	90	110	120	120	110	132	90
<b>Bora Kuti GFhat (Avg.)</b>	-	110	110	110	110	90	110	120	120	110	138	90
EQS for Industrial Discharge ( $\leq 2100\text{mg/l}$ )												

Table-66. Level of SS (mg/l) of Padma River Water in 2018

Location of Padma river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mawa Ghat	15	-	-	21	-	-	-	15	36	-	-	-
Shimulia Ghat	-	-	-	-	-	-	-	-	72	-	-	-
Pakshi Ghat (US)	-	50	70	70	70	60	60	60	60	60	60	60
Pakshi Ghat (DS)	-	60	60	60	60	60	60	60	60	70	70	70
<b>Pakshi Ghat (Avg.)</b>	-	55	65	65	65	60	60	60	60	65	65	65
Baro kuti Ghat (U.S)	-	70	60	60	60	50	60	60	60	60	60	60
Baro kuti Ghat (D.S)	-	60	60	60	60	50	60	60	60	70	70	70
<b>Bora Kuti GFhat (Avg.)</b>	-	65	60	60	60	50	60	60	60	65	65	65
EQS for Industrial Discharge ( $\leq 150\text{mg/l}$ )												

Table-67. Level of EC ( $\mu\text{mhos/cm}$ ) of Padma River Water in 2018

Location of Padma river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mawa Ghat	209	-	-	115.1	-	-	-	209	142.5	-	-	-
Shimulia Ghat	-	-	-	-	-	-	-	-	144.4	-	-	-
Pakshi Ghat (US)	-	200	240	240	240	280	280	260	260	240	316	200
Pakshi Ghat (DS)	-	210	240	240	240	280	280	260	260	240	298	210
<b>Pakshi Ghat (Avg.)</b>	-	205	240	240	240	280	280	260	260	240	307	205
Baro kuti Ghat (U.S)	-	220	220	220	220	180	220	230	230	220	320	180
Baro kuti Ghat (D.S)	-	220	220	220	220	180	220	230	230	220	316	180
<b>Bora Kuti GFhat (Avg.)</b>	-	220	220	220	220	180	220	230	230	220	318	180
EQS for Industrial Discharge ( $1200\mu\text{mhos/cm}$ )												



## 10.0 Korotoa River (Table: 68-73)

Table-68. Level of pH of Korotoa River Water in 2018

Location of Korotoa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Dutta Bari Bridge (U.S)	-	6.94	6.9	6.92	6.92	6.63	6.98	6.98	6.96	6.94	6.91	6.91
Near Dutta Bari Bridge (D.S)	-	6.93	6.9	6.92	6.92	6.62	6.97	6.98	6.96	6.94	6.92	6.92
Near Dutta Bari Bridge (Avg)	-	6.935	6.9	6.92	6.92	6.625	6.975	6.98	6.96	6.94	6.915	6.91
Near Foteh Ali Bridge (U.S)	-	6.88	6.92	6.94	6.94	6.6	6.96	6.98	6.94	6.9	6.88	6.89
Near Foteh Ali Bridge (D.S)	-	6.87	6.92	6.94	6.94	6.61	6.96	6.98	6.94	6.91	6.87	6.9
Near Foteh Ali Bridge (Avg.)	-	6.875	6.92	6.94	6.94	6.605	6.96	6.98	6.94	6.905	6.875	6.89
Near Matidali Bridge (U.S)	-	7	6.92	6.92	6.92	6.94	6.99	6.96	6.94	6.98	6.94	6.92
Near Matidali Bridge (D.S)	-	6.99	6.93	6.93	6.93	6.94	6.98	6.96	6.94	6.98	6.93	6.93
Near Matidali Bridge (Avg.)	-	6.995	6.925	6.925	6.925	6.94	6.985	6.96	6.94	6.98	6.935	6.92
Near S.P Bridge (U.P)	-	6.92	6.9	6.9	6.9	6.58	6.94	6.96	6.9	6.88	6.88	6.87
Near S.P Bridge (D.S)	-	6.91	6.9	6.9	6.9	6.58	6.93	6.96	6.9	6.88	6.87	6.88
Near S.P Bridge (Avg.)	-	6.915	6.9	6.9	6.9	6.58	6.935	6.96	6.9	6.88	6.875	6.87
Shahjadpur (U.S)	-	7.42	7.66	7.64	7.66	7.52	7.42	7.54	7.53	7.4	7.36	7.47
Shahjadpur (D.S)	-	7.41	7.65	7.63	7.65	7.52	7.41	7.54	7.53	7.38	7.34	7.48
Shahjadpur (Avg)	-	7.415	7.655	7.635	7.655	7.52	7.415	7.54	7.53	7.39	7.35	7.47
<b>EQS Fisheries (6.5-8.5)</b>												
<b>EQS Industrial (6.0-9.0)</b>												

Table-69. Level of DO (mg/l) of Korotoa River Water in 2018

Location of Korotoa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Dutta Bari Bridge (U.S)	-	3	3	3.1	3.1	4	3.4	3.5	3.4	3.1	2.8	2.7
Near Dutta Bari Bridge (D.S)	-	2.9	3	3	3	4	3.3	3.5	3.4	3.1	2.8	2.7
Near Dutta Bari Bridge (Avg)	-	2.95	3	3.05	3.05	4	3.35	3.5	3.4	3.1	2.8	2.7
Near Foteh Ali Bridge (U.S)	-	2.8	3.1	3.1	3.1	3.4	3.6	3.6	3.3	3	2.7	2.7
Near Foteh Ali Bridge (D.S)	-	2.8	3.1	3.1	3.1	3.3	3.5	3.6	3.3	3	2.8	2.8
Near Foteh Ali Bridge (Avg.)	-	2.8	3.1	3.1	3.1	3.35	3.55	3.6	3.3	3	2.75	2.75
Near Matidali Bridge (U.S)	-	3	3	3	3	4.8	3.8	3.8	3.7	3.6	3.1	3.1
Near Matidali Bridge (D.S)	-	3	3	3	3	4.8	3.8	3.8	3.6	3.6	3	3.1
Near Matidali Bridge (Avg.)	-	3	3	3	3	4.8	3.8	3.8	3.65	3.6	3.05	3.1
Near S.P Bridge (U.P)	-	3.2	2.8	2.8	2.8	2.8	3.2	3.2	3.1	3	3.1	3.1
Near S.P Bridge (D.S)	-	3.1	2.8	2.8	2.8	2.8	3.2	3.2	3.1	3	3	3
Near S.P Bridge (Avg.)	-	3.15	2.8	2.8	2.8	2.8	3.2	3.2	3.1	3	3.05	3.05
Shahjadpur (U.S)	-	6.8	7.5	7.3	7.5	7.4	6.7	7.1	7.2	7.4	7	7.1
Shahjadpur (D.S)	-	6.9	7.4	7.2	7.4	7.4	6.7	7.1	7.2	7.4	7.1	7.2
Shahjadpur (Avg)	-	6.85	7.45	7.25	7.45	7.4	6.7	7.1	7.2	7.4	7.05	7.15
<b>EQS Fisheries (5 mg/l±)</b>												
<b>EQS Industrial (4.5-8 mg/l)</b>												

**Table-70. Level of BOD (mg/l) of Korotoa River Water in 2018**

Location of Korotoa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Dutta Bari Bridge (U.S)	-	4.1	4.4	4.3	4.3	3.1	4.4	3	3	3.6	6.3	6.3
Near Dutta Bari Bridge (D.S)	-	4.1	4.4	4.2	4.2	3.1	4.3	3	3	3.6	6.2	6.2
Near Dutta Bari Bridge (Avg)	-	4.1	4.4	4.25	4.25	3.1	4.35	3	3	3.6	6.25	6.25
Near Foteh Ali Bridge (U.S)	-	4	4.3	4	4	3.1	4.2	3.1	3	3.6	6.2	6.2
Near Foteh Ali Bridge (D.S)	-	4	4.3	4	4	3	4.1	3.1	3	3.6	6.2	6.2
Near Foteh Ali Bridge (Avg.)	-	4	4.3	4	4	3.05	4.15	3.1	3	3.6	6.2	6.2
Near Matidali Bridge (U.S)	-	3.8	4.1	4.1	4.1	2.8	4.4	2.8	2.8	3.2	6.2	6.2
Near Matidali Bridge (D.S)	-	3.8	4.1	4.1	4.1	2.9	4.4	2.8	2.8	3.2	6	6
Near Matidali Bridge (Avg.)	-	3.8	4.1	4.1	4.1	2.85	4.4	2.8	2.8	3.2	6.1	6.1
Near S.P Bridge (U.P)	-	4	4.4	4.4	4.4	4.2	4.8	3	2.8	3.6	6.1	6.1
Near S.P Bridge D.S)	-	4	4.3	4.5	4.5	4.3	4.7	3	2.8	3.6	6	6
Near S.P Bridge (Avg.)	-	4	4.45	4.45	4.45	4.25	4.75	3	2.8	3.6	6.05	6.05
Shahjadpur (U.S)	-	2.5	2.4	2.2	2.4	2.4	2.1	2.1	2.1	2.1	2.1	2.1
Shahjadpur (D.S)	-	2.4	2.3	2.1	2.3	2.3	2.1	2.1	2.1	2.2	2.1	2.2
Shahjadpur (Avg)	-	2.45	2.35	2.15	2.35	2.35	2.1	2.1	2.1	2.15	2.05	2.15
EQS Fisheries ( $\leq 6$ mg/l )												
EQS Industrial ( $\leq 50$ mg/l )												

**Table-71. Level of TDS (mg/l) of Korotoa River Water in 2018**

Location of Korotoa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Dutta Bari Bridge (U.S)	-	160	160	160	160	120	170	150	160	170	350	320
Near Dutta Bari Bridge (D.S)	-	150	160	160	160	120	160	150	160	170	350	320
Near Dutta Bari Bridge (Avg)	-	155	160	160	160	120	165	150	160	170	350	320
Near Foteh Ali Bridge (U.S)	-	140	150	150	150	130	150	140	150	170	340	310
Near Foteh Ali Bridge (D.S)	-	150	140	140	140	130	140	140	150	170	340	310
Near Foteh Ali Bridge (Avg.)	-	145	145	145	145	130	145	140	150	170	340	310
Near Matidali Bridge (U.S)	-	150	150	150	150	140	150	130	130	140	330	290
Near Matidali Bridge (D.S)	-	160	150	150	150	150	150	130	130	140	320	290
Near Matidali Bridge (Avg.)	-	155	150	150	150	145	150	130	130	140	325	290
Near S.P Bridge (U.P)	-	130	150	150	150	150	150	140	150	160	320	280
Near S.P Bridge D.S)	-	130	140	140	140	150	140	140	150	160	320	280
Near S.P Bridge (Avg.)	-	130	145	145	145	150	145	140	150	160	320	280
Shahjadpur (U.S)	-	120	120	140	120	110	130	120	120	130	136	110
Shahjadpur (D.S)	-	110	120	140	120	100	130	120	120	130	135	110
Shahjadpur (Avg)	-	115	120	140	120	105	130	120	120	130	135.5	110
EQS Industrial ( $\leq 2100$ mg/l)												

**Table-72. Level of SS (mg/l) of Korotoa River Water in 2018**

Location of Korotoa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Dutta Bari Bridge (U.S)	-	60	100	100	100	50	80	90	90	110	110	110
Near Dutta Bari Bridge (D.S)	-	60	100	100	100	50	80	90	90	100	100	100
Near Dutta Bari Bridge (Avg)	-	60	100	100	100	50	80	90	90	105	105	105
Near Foteh Ali Bridge (U.S)	-	60	90	90	90	60	90	90	90	100	90	90
Near Foteh Ali Bridge (D.S)	-	60	80	80	80	60	80	80	80	100	80	80
Near Foteh Ali Bridge (Avg.)	-	60	85	85	85	60	85	85	85	100	85	85
Near Matidali Bridge (U.S)	-	50	80	80	80	60	80	80	80	90	100	100
Near Matidali Bridge (D.S)	-	60	80	80	80	70	80	80	80	90	90	90
Near Matidali Bridge (Avg.)	-	55	80	80	80	65	80	80	80	90	95	95
Near S.P Bridge (U.P)	-	50	80	80	80	80	80	80	80	100	100	100
Near S.P Bridge D.S)	-	60	80	80	80	70	80	80	80	100	90	90
Near S.P Bridge (Avg.)	-	55	80	80	80	75	80	80	80	100	95	95
Shahjadpur (U.S)	-	60	70	60	70	70	60	80	80	110	60	50
Shahjadpur (D.S)	-	60	60	60	60	60	60	80	80	110	60	50
Shahjadpur (Avg)	-	60	65	60	65	65	60	80	80	115	60	50
EQS Industrial ( $\leq 150$ mg/l)												

**Table-73. Level of EC ( $\mu\text{mhos/cm}$ ) of Korotoa River Water in 2018**

Location of Korotoa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Dutta Bari Bridge (U.S)	-	320	330	330	330	240	330	300	320	340	700	640
Near Dutta Bari Bridge (D.S)	-	310	320	320	320	240	320	300	320	340	700	640
Near Dutta Bari Bridge (Avg)	-	315	325	325	325	240	325	300	320	340	700	640
Near Foteh Ali Bridge (U.S)	-	280	310	310	310	250	310	290	300	340	680	620
Near Foteh Ali Bridge (D.S)	-	290	300	300	300	260	300	280	300	340	680	620
Near Foteh Ali Bridge (Avg.)	-	285	305	305	305	255	305	285	300	340	680	620
Near Matidali Bridge (U.S)	-	300	310	310	310	280	310	260	260	280	650	580
Near Matidali Bridge (D.S)	-	310	300	300	300	290	300	260	260	280	640	580
Near Matidali Bridge (Avg.)	-	305	305	305	305	285	305	260	260	280	645	580
Near S.P Bridge (U.P)	-	260	290	290	290	300	290	280	300	320	640	560
Near S.P Bridge D.S)	-	260	290	290	290	310	290	280	300	320	640	560
Near S.P Bridge (Avg.)	-	260	290	290	290	305	290	280	300	320	640	560
Shahjadpur (U.S)	-	230	240	280	240	220	260	240	240	260	272	220
Shahjadpur (D.S)	-	230	240	280	240	220	260	240	240	260	270	220
Shahjadpur (Avg)	-	230	240	280	240	220	260	240	240	260	271	220
<b>EQS Industrial (1200<math>\mu\text{mhos/cm}</math>)</b>												

**11.0 Teesta River (Table: 74-79)****Table-74. Level of pH of Teesta River Water in 2018**

Location of Teesta river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Tista Bridge (U.S)	-	7.38	7.58	7.58	7.58	7.61	7.52	7.64	7.6	7.35	7.44	7.46
Near Tista Bridge (D.S)	-	7.37	7.57	7.57	7.57	7.61	7.51	7.63	7.6	7.36	7.42	7.44
Teesta Bridge (Avg)	-	7.375	7.575	7.575	7.575	7.61	7.515	7.635	7.6	7.355	7.43	7.45
<b>EQS Fisheries (6.5-8.5)</b>												
<b>EQS Industrial (6.0-9.0)</b>												

**Table-75. Level of DO (mg/l) of Teesta River Water in 2018**

Location of Teesta river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Tista Bridge (U.S)	-	7.1	7.4	7.4	7.4	7.5	7.2	7.3	7	7.1	7.1	7.1
Near Tista Bridge (D.S)	-	7.1	7.4	7.4	7.4	7.4	7.1	7.2	7	7.2	7	7
Teesta Bridge (Avg)	-	7.1	7.4	7.4	7.4	7.45	7.15	7.25	7	7.15	7.05	7.05
<b>EQS Fisheries (5 mg/l<math>\geq</math>)</b>												
<b>EQS Industrial (4.5-8 mg/l)</b>												

**Table-76. Level of BOD (mg/l) of Teesta River Water in 2018**

Location of Teesta river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Tista Bridge (U.S)	-	2.2	2.4	2.4	2.4	2.4	2	2.2	2.2	2.2	2.2	2.2
Near Tista Bridge (D.S)	-	2.3	2.3	2.3	2.3	2.3	2	2.1	2.1	2.1	2.1	2.1
Teesta Bridge (Avg)	-	2.25	2.35	2.35	2.35	2.35	2	2.15	2.15	2.15	2.15	2.15
<b>EQS Fisheries (<math>\leq</math>6 mg/l)</b>												
<b>EQS Industrial (<math>\leq</math>50 mg/l )</b>												

**Table-77. Level of TDS (mg/l) of Teesta River Water in 2018**

Location of Teesta river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Tista Bridge (U.S)	-	100	110	110	110	120	110	140	140	100	142	100
Near Tista Bridge (D.S)	-	100	100	100	100	120	110	140	140	100	142	90
Teesta Bridge (Avg)	-	100	105	105	105	120	110	140	140	100	142	95
<b>EQS Industrial (<math>\leq</math>210mg/l)</b>												



Table-78. Level of SS (mg/l) of Teesta River Water in 2018

Location of Teesta river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Tista Bridge (U.S)	-	50	70	70	70	70	60	60	60	90	80	80
Near Tista Bridge (D.S)	-	50	60	60	60	60	60	60	60	90	80	80
Teesta Bridge (Avg)	-	50	65	65	65	65	60	60	60	90	80	80
EQS Industrial ( $\leq 2100$ mg/l)												

Table-79. Level of Turbidity (NTU) of Teesta River Water in 2018

Location of Teesta river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Tista Bridge (U.S)	-	14.3	13	13	13	12	12.4	12.2	12.2	14.2	13.1	13.1
Near Tista Bridge (D.S)	-	14	13	13	13	12	12.4	12.2	12.2	14.1	13	13
Teesta Bridge (Avg)	-	14.15	13	13	13	12	12.4	12.2	12.2	14.15	13.05	13.05
EQS for Industrial Discharge (10 NTU)												

## 12.0 Karnaphuli River (Table: 80-85)

Table-80. Level of pH of Karnaphuli River Water in 2018

Location of Karnaphuli river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
CUFL Side Anowara	8.6	7.8	7.1	7.2	8	7.8	7.8	7.5	6.5	7.1	7.9	7.7
TSP Side, Patenga	8.2	6.9	7.7	8.1	7.8	7.1	7.1	7.6	6.4	6.8	7.2	7.6
Chaktai Khal							7.4	7.7	8.1	8	7.7	7.5
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-81. Level of DO (mg/l) of Karnaphuli River Water in 2018

Location of Karnaphuli river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
CUFL Side Anowara	5.4	5.1	5.2	5.6	6.6	5.9	8.1	8.8	7.6	7.9	7.08	7.2
TSP Side, Patenga	5.9	5.8	6.7	5.1	7.1	6.3	7	6.9	7.5	7.4	7.7	7.1
Chaktai Khal							7.5	7.3	5.1	5	5.6	5.1
EQS Fisheries (5 mg/l $\pm$ )												
EQS Industries (4.5-8 mg/l)												

Table-82. Level of COD (mg/l) of Karnaphuli River Water in 2018

Location of Karnaphuli river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
CUFL Side Anowara	170	305	326	230	169	86	-	-	-	-	-	-
TSP Side, Patenga	196	262	310	276	173	69	-	-	-	-	-	-
Chaktai Khal	196	305	326	276	173	86	-	-	-	-	-	-
EQS Industries ( $\leq 200$ mg/l)												

Table-83. Level of TDS (mg/l) of Karnaphuli River Water in 2018

Location of Karnaphuli river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
CUFL Side Anowara	10338	12123	12570	12467	7054	1740	2099	3070	5620	6510	7890	12860
TSP Side, Patenga	9890	10865	13226	11156	5035	1586	1320	1811	5540	6628	7780	9550
Chaktai Khal							105	111	115.9	160	198	205
EQS Industries ( $\leq 200$ mg/l)												



Table-84. Level of SS (mg/l) of Karnaphuli River Water in 2018

Location of Karnaphuli river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
CUFL Side Anowara	178	210	347	201	211	268	246	263	257	287	270	323
TSP Side, Patenga	<b>166</b>	221	320	218	267	240	377	413	408	359	385	<b>582</b>
Chaktai Khal							257	389	375	319	354	342

EQS Industries ( $\leq 150$  mg/l)

Table-85. Level of EC (mg/l) of Karnaphuli River Water in 2018

Location of Karnaphuli river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
CUFL Side Anowara	29670	24241	24990	24923	14100	3442	4022	5880	11231	13029	15779	20090
TSP Side, Patenga	19776	21728	<b>26390</b>	22309	10070	3185	2644	3170	11063	13246	15568	15320
Chaktai Khal							217	<b>209</b>	242.8	328	386	402

EQS Industries (1200 $\mu$ mhos/cm)

## 13.0 Halda River (Table: 86-91)

Table-86. Level of pH of Halda River Water in 2018

Location of Halda river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
WASA LP Mohara	6.9	7	7.5	7.7	7.9	7.5	-	-	-	-	-	-
Modunaghat Side	7.1	<b>6.7</b>	6.8	7.4	7.1	7.4	-	-	-	-	-	-
Mohona	-	-	-	-	-	-	7.28	7.44	7.9	7.6	7.87	7.55
Khandakiya Khal	-	-	-	-	-	-	7.24	7.3	7.43	7.4	<b>7.52</b>	7.45
Madari Khal	-	-	-	-	-	-	7.18	7.1	7.21	7.31	7.28	7.1
Katakhali Khal	-	-	-	-	-	-	7.03	7	7.12	7.23	7.19	7.14
Krishna Khal	-	-	-	-	-	-	7.1	7.24	7.2	7.25	7.34	7.41

EQS Fisheries (6.5-8.5)

EQS Industrial (6.0-9.0)

Table-87. Level of DO (mg/l) of Halda River Water in 2018

Location of Halda river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
WASA LP Mohara	5.9	5.7	5.4	7.1	7.7	5.6	-	-	-	-	-	-
Modunaghat Side	6	5.5	5.1	7.6	7.5	5.9	-	-	-	-	-	-
Mohona	-	-	-	-	-	-	4.87	4.9	4.82	4.9	5.9	5.5
Khandakiya Khal	-	-	-	-	-	-	<b>3.8</b>	4.61	4.75	4.81	<b>4.98</b>	4.82
Madari Khal	-	-	-	-	-	-	4.94	5.12	5.1	5.6	5.37	5.18
Katakhali Khal	-	-	-	-	-	-	4.6	4.93	5.2	5.72	5.06	5.25
Krishna Khal	-	-	-	-	-	-	4.8	4.9	4.88	5.1	4.75	4.9

EQS Fisheries (5 mg/l $\geq$ )

EQS Industries (4.5-8 mg/l)

Table-88. Level of COD (mg/l) of Halda River Water in 2018

Location of Halda river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
WASA LP Mohara	44	89	58	36	27	34	-	-	-	-	-	-
Modunaghat Side	57	<b>113</b>	70	<b>23</b>	51	26	-	-	-	-	-	-
Mohona	-	-	-	-	-	-	-	-	-	-	-	-
Khandakiya Khal	-	-	-	-	-	-	-	-	-	-	-	-
Madari Khal	-	-	-	-	-	-	-	-	-	-	-	-
Katakhali Khal	57	113	70	36	51	34	-	-	-	-	-	-
Krishna Khal	44	89	58	23	27	26	-	-	-	-	-	-

EQS Industries ( $\leq 200$  mg/l)

**Table-89. Level of TDS (mg/l) of Halda River Water in 2018**

Location of Halda river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
WASA I.P Mohara	211	205	208	110	53	34	-	-	-	-	-	-
Modanaghat Side	220	240	230	157	136	48	-	-	-	-	-	-
Mohona	-	-	-	-	-	-	42.8	48.1	47.8	49	52	58
Khandakiya Khal	-	-	-	-	-	-	97	86	71	69	78	73
Madari Khal	-	-	-	-	-	-	59	61	60	65	69	65
Katakhal Khal	-	-	-	-	-	-	83	80	72	78	85	89
Krishna Khal	-	-	-	-	-	-	55.8	62	59	50	67	62
EQS Industries ( $\leq 200$ mg/l)												

**Table-90. Level of SS (mg/l) of Halda River Water in 2018**

Location of Halda river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
WASA I.P Mohara	70	61	113	105	142	210	-	-	-	-	-	-
Modanaghat Side	49	79	130	87	160	236	-	-	-	-	-	-
Mohona	-	-	-	-	-	-	62	71	77	70	71	60
Khandakiya Khal	-	-	-	-	-	-	46	49	40	37	52	47
Madari Khal	-	-	-	-	-	-	77	65	58	61	67	60
Katakhal Khal	-	-	-	-	-	-	29	32	41	47	37	40
Krishna Khal	-	-	-	-	-	-	15	18	24	20	29	25
EQS Industries ( $\leq 150$ mg/l)												

**Table-91. Level of EC (mg/l) of Halda River Water in 2018**

Location of Halda river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
WASA I.P Mohara	420	435	410	227	102	65	-	-	-	-	-	-
Modanaghat Side	447	488	455	310	272	90	-	-	-	-	-	-
Mohona	-	-	-	-	-	-	97.6	106.5	95.6	98	113	126
Khandakiya Khal	-	-	-	-	-	-	206	188	148	136	163	135
Madari Khal	-	-	-	-	-	-	132	115	117	132	142	128
Katakhal Khal	-	-	-	-	-	-	153.1	151	137	160	83	161
Krishna Khal	-	-	-	-	-	-	109.7	130.9	123	113	145	116
EQS Industries (1200 $\mu$ mhos/cm)												

**14.0 Moyuri River (Table: 92-99)****Table-92. Level of pH of Moyuri River Water in 2018**

Location of Moyuri river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Gallamari Bridge (S)	7.43	7.48	7.71	7.73	7.75	7.72	7.68	7.65	7.63	7.61	7.58	7.53
Gallamari Bridge (M)	7.45	7.49	7.73	7.75	7.76	7.73	7.69	7.67	7.61	7.62	7.69	7.56
Gallamari Bridge (O)	7.43	7.46	7.72	7.73	7.73	7.73	7.68	7.66	7.63	7.61	7.59	7.55
<b>Gallamari Bridge (Avg.)</b>	7.43	7.47	7.72	7.73	7.74	7.72	7.68	7.66	7.62	7.61	7.62	7.54
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

**Table-93. Level of DO (mg/l) of Moyuri River Water in 2018**

Location of Moyuri river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Gallamari Bridge (S)	1.4	1.5	1.5	1.6	1.5	1.4	1.4	1.2	1.1	0.7	0.3	0.4
Gallamari Bridge (M)	1.4	1.5	1.5	1.6	1.5	1.4	1.4	1.3	1.1	0.7	0.3	0.4
Gallamari Bridge (O)	1.4	1.5	1.5	1.6	1.6	1.2	1.2	1.2	1.2	0.8	0.3	0.5
<b>Gallamari Bridge (Avg.)</b>	1.4	1.5	1.5	1.6	1.53	1.33	1.33	1.23	1.13	0.73	0.3	0.43
EQS Fisheries (5 mg/l $\pm$ )												
EQS Industries (4.5-8 mg/l)												



Table-94. Level of TDS (mg/l) of Moyuri River Water in 2018

Location of Moyuri river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Gallamari Bridge (S)	764	782	1378	1406	1438	1084	624	606	604	578	524	492
Gallamari Bridge (M)	766	788	1377	1410	1440	1088	624	609	604	580	528	494
Gallamari Bridge (O)	764	784	1372	1408	1440	1082	626	610	606	580	522	492
<b>Gallamari Bridge (Avg.)</b>	<b>764.6</b>	<b>784.6</b>	<b>1375</b>	<b>1408</b>	<b>1439.3</b>	<b>1084.6</b>	<b>624.6</b>	<b>608.3</b>	<b>604.66</b>	<b>579.3</b>	<b>524.6</b>	<b>492.6</b>

EQS Industries ( $\leq 2100$ mg/l)

Table-95. Level of Chloride (mg/l) of Moyuri River Water in 2018

Location of Moyuri river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Gallamari Bridge (S)	296	304	804	816	824	426	208	208	208	198	124	120
Gallamari Bridge (M)	296	304	804	816	824	430	208	208	208	198	148	120
Gallamari Bridge (O)	296	304	804	816	824	426	208	208	208	198	142	120
<b>Gallamari Bridge (Avg.)</b>	<b>296</b>	<b>304</b>	<b>804</b>	<b>816</b>	<b>824</b>	<b>427.3</b>	<b>208</b>	<b>208</b>	<b>208</b>	<b>198</b>	<b>138</b>	<b>120</b>

EQS Industries (150-600 mg/l)

Table-96. Level of Turbidity (NTU) of Moyuri River Water in 2018

Location of Moyuri river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Gallamari Bridge (S)	44.2	46.2	47.3	48.3	52.3	48.3	44.3	42.3	41.3	38.2	38.2	37.2
Gallamari Bridge (M)	44.3	46.3	47.4	48.4	52.4	48.4	44.4	42.4	41.4	38.2	38.2	37.2
Gallamari Bridge (O)	44.4	46.4	47.3	48.3	52.3	48.4	44.4	42.4	41.4	38.3	38.3	37.3
<b>Gallamari Bridge (Avg.)</b>	<b>44.3</b>	<b>46.3</b>	<b>47.33</b>	<b>48.33</b>	<b>52.33</b>	<b>48.36</b>	<b>44.36</b>	<b>42.36</b>	<b>41.36</b>	<b>38.23</b>	<b>38.23</b>	<b>37.23</b>

EQS Industries ( $\leq 10$  NTU)

Table-97. Level of SS (mg/l) of Moyuri River Water in 2018

Location of Moyuri river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Gallamari Bridge (S)	50	68	68	78	84	82	76	52	50	50	52	50
Gallamari Bridge (M)	50	64	70	76	82	80	74	51	51	48	46	46
Gallamari Bridge (O)	50	62	72	74	80	82	76	55	53	52	52	52
<b>Gallamari Bridge (Avg.)</b>	<b>50</b>	<b>64.66</b>	<b>70</b>	<b>76</b>	<b>82</b>	<b>81.33</b>	<b>75.33</b>	<b>53.33</b>	<b>51.3</b>	<b>50</b>	<b>50</b>	<b>49.33</b>

EQS Industries (150 mg/l)

Table-98. Level of EC ( $\mu$ mhos/cm) of Moyuri River Water in 2018

Location of Moyuri river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Gallamari Bridge (S)	1524	1562	2746	2832	2878	2168	1246	1212	1202	1152	1046	980
Gallamari Bridge (M)	1532	1574	2748	2820	2878	2174	1244	1218	1202	1158	1049	984
Gallamari Bridge (O)	1527	1568	2740	2814	2877	2164	1248	1220	1208	1156	1044	982
<b>Gallamari Bridge (Avg.)</b>	<b>1527.6</b>	<b>1568</b>	<b>2744.6</b>	<b>2815.3</b>	<b>2877</b>	<b>2168.6</b>	<b>1246</b>	<b>1216.6</b>	<b>1204</b>	<b>1155.3</b>	<b>1046.3</b>	<b>982</b>

EQS Industries (1200  $\mu$ mhos/cm)

Table-99. Level of Total Alkalinity (mg/l) of Moyuri River Water in 2018

Location of Moyuri river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Gallamari Bridge (S)	34	34	34	34	34	34	34	34	34	34	32	32
Gallamari Bridge (M)	34	34	34	34	34	34	34	34	34	34	32	32
Gallamari Bridge (O)	34	34	34	34	34	34	34	34	34	34	32	32
<b>Gallamari Bridge (Avg.)</b>	<b>34</b>	<b>32</b>	<b>32</b>									

EQS Industries (150 mg/l)



## 15.0 Bhairab River (Table: 100-107)

Table-100. Level of pH of Bhairab River Water in 2018

Location of Bhairab river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Noapara Ghat (S)	7.7	7.7	7.81	7.83	7.82	7.78	7.72	7.71	7.72	7.71	7.64	7.61
Noapara Ghat (M)	7.8	7.8	7.82	7.84	7.85	7.81	7.74	7.73	7.73	7.73	7.63	7.62
Noapara Ghat (O)	7.7	7.7	7.81	7.84	7.84	7.82	7.76	7.74	7.73	7.73	7.63	7.61
<b>Noapara Ghat (Avg.)</b>	<b>7.73</b>	<b>7.73</b>	<b>7.81</b>	<b>7.83</b>	<b>7.83</b>	<b>7.80</b>	<b>7.74</b>	<b>7.72</b>	<b>7.72</b>	<b>7.72</b>	<b>7.63</b>	<b>7.61</b>
Fultala Ghat(S)	7.7	7.7	7.82	7.85	7.86	7.82	7.81	7.78	7.74	7.74	7.64	7.6
Fultala Ghat (M)	7.8	7.8	7.82	7.84	7.87	7.81	7.79	7.75	7.75	7.73	7.63	7.61
Fultala Ghat (O)	7.7	7.7	7.83	7.83	7.85	7.82	7.8	7.77	7.76	7.73	7.63	7.62
<b>Fultala Ghat (Avg.)</b>	<b>7.7</b>	<b>7.7</b>	<b>7.81</b>	<b>7.83</b>	<b>7.82</b>	<b>7.78</b>	<b>7.72</b>	<b>7.71</b>	<b>7.72</b>	<b>7.71</b>	<b>7.63</b>	<b>7.6</b>
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-101. Level of DO (mg/l) of Bhairab River Water in 2018

Location of Bhairab river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Noapara Ghat (S)	5.8	6.1	6.2	6.2	6.1	5.6	5.4	5.2	5.2	5.1	5.1	5.1
Noapara Ghat (M)	5.8	6.1	6.1	6.2	6.1	5.7	5.4	5.2	5.2	5.1	5.1	5.1
Noapara Ghat (O)	5.8	6.1	6.2	6.2	6.2	5.6	5.3	5.1	5.1	5.1	5.1	5.1
<b>Noapara Ghat (Avg.)</b>	<b>5.8</b>	<b>6.1</b>	<b>6.16</b>	<b>6.2</b>	<b>6.13</b>	<b>5.63</b>	<b>5.366</b>	<b>5.16</b>	<b>5.16</b>	<b>5.1</b>	<b>5.1</b>	<b>5.1</b>
Fultala Ghat(S)	6	6.2	6.3	6.4	6.4	5.7	5.6	5.3	5.3	5.2	5.2	5.2
Fultala Ghat (M)	6	6.2	6.3	6.4	6.5	5.8	5.5	5.4	5.3	5.2	5.2	5.2
Fultala Ghat (O)	6	6.2	6.4	6.4	6.4	5.8	5.5	5.4	5.4	5.2	5.2	5.2
<b>Fultala Ghat (Avg.)</b>	<b>6</b>	<b>6.2</b>	<b>6.33</b>	<b>6.4</b>	<b>6.43</b>	<b>5.76</b>	<b>5.53</b>	<b>5.36</b>	<b>5.33</b>	<b>5.2</b>	<b>5.2</b>	<b>5.2</b>
EQS Fisheries (5 mg/l <sub>2</sub> )												
EQS Industries (4.5-8 mg/l)												

Table-102. Level of BOD (mg/l) of Bhairab River Water in 2018

Location of Bhairab river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Noapara Ghat (S)	0.7	0.9	1.2	1.3	1.1	0.9	0.8	0.8	0.8	0.7	0.7	0.7
Noapara Ghat (M)	0.7	0.9	1.2	1.2	1.1	0.9	0.8	0.8	0.8	0.7	0.7	0.7
Noapara Ghat (O)	0.7	0.9	1.1	1.2	1.2	0.9	0.8	0.8	0.8	0.7	0.7	0.7
<b>Noapara Ghat (Avg.)</b>	<b>0.7</b>	<b>0.9</b>	<b>1.16</b>	<b>1.23</b>	<b>1.13</b>	<b>0.9</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.7</b>	<b>0.7</b>	<b>0.7</b>
Fultala Ghat(S)	0.8	1	1.3	1.6	1.3	1.1	1	0.8	0.8	0.8	0.8	0.8
Fultala Ghat (M)	0.8	1	1.2	1.2	1.3	1.2	1.1	0.8	0.8	0.8	0.8	0.8
Fultala Ghat (O)	0.8	1	1.2	1.1	1.1	1.2	1.1	0.8	0.8	0.8	0.8	0.8
<b>Fultala Ghat (Avg.)</b>	<b>0.8</b>	<b>1</b>	<b>1.23</b>	<b>1.3</b>	<b>1.23</b>	<b>1.16</b>	<b>1.06</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>
EQS Fisheries ( $\leq 6$ mg/l)												
EQS Industrial ( $\leq 50$ mg/l)												

Table-103. Level of TDS (mg/l) of Bhairab River Water in 2018

Location of Bhairab river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Noapara Ghat (S)	434	712	6968	10614	11004	8214	1138	926	812	256	130	102
Noapara Ghat (M)	436	714	6968	10620	11106	8216	1140	928	814	252	134	98
Noapara Ghat (O)	436	714	6970	10614	11102	8214	1136	928	818	256	134	98
<b>Noapara Ghat (Avg.)</b>	<b>435</b>	<b>713.3</b>	<b>6968</b>	<b>10616</b>	<b>11070</b>	<b>8214.6</b>	<b>1138</b>	<b>927</b>	<b>814.66</b>	<b>254.66</b>	<b>132.66</b>	<b>99.33</b>
	3	3	6		6	6		3				
Fultala Ghat(S)	404	722	7056	10634	11132	8298	1144	930	822	260	140	102
Fultala Ghat (M)	408	726	7056	10638	11140	8296	1148	934	824	264	140	100
Fultala Ghat (O)	404	722	7056	10628	11044	8296	1146	932	818	262	140	100
<b>Fultala Ghat (Avg.)</b>	<b>406</b>	<b>726</b>	<b>7056</b>	<b>10638</b>	<b>11140</b>	<b>8298</b>	<b>1146</b>	<b>934</b>	<b>824</b>	<b>264</b>	<b>140</b>	<b>102</b>
EQS Industries ( $\leq 2100$ mg/l)												

**Table-104. Level of Chloride (mg/l) of Bhairab River Water in 2018**

Location of Bhairab river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Noapara Ghat (S)	196	242	4228	7012	7024	4124	504	412	388	134	80	74
Noapara Ghat (M)	196	242	4228	7016	7028	4124	504	412	388	134	82	72
Noapara Ghat (O)	196	242	4228	7012	7028	4124	504	412	388	134	80	72
<b>Noapara Ghat (Avg.)</b>	196	242	4228	7013.3	7026.66	4124	504	412	388	134	80.667	72.66
Fultala Ghat(S)	178	252	4246	7023	7038	4128	508	416	392	138	84	76
Fultala Ghat (M)	178	252	4246	7028	7038	4128	508	416	392	138	88	72
Fultala Ghat (O)	178	252	4246	7024	7038	4128	508	416	392	138	84	72
<b>Fultala Ghat (Avg.)</b>	196	252	4246	7028	7038	4128	508	416	392	138	88	76

EQS Industries (150-600 mg/l)

**Table-105. Level of Turbidity (NTU) of Bhairab River Water in 2018**

Location of Bhairab river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Noapara Ghat (S)	47.3	50.3	82.1	85.3	86.3	80.6	76.6	66.2	55.6	50.2	48.2	46.2
Noapara Ghat (M)	47.8	50.8	82.2	85.6	86.6	80.7	76.5	66.3	55.7	50.3	48.3	46.3
Noapara Ghat (O)	47.9	50.9	82.3	85.3	86.3	80.7	76.7	66.3	55.8	50.4	48.4	46.4
<b>Noapara Ghat (Avg.)</b>	47.66	50.66	82.2	85.4	86.4	80.66	76.6	66.26	55.7	50.3	48.3	46.3
Fultala Ghat(S)	46.3	52.3	84.2	86.2	86.2	81.6	77.6	66.6	56.2	51.2	49.2	47.2
Fultala Ghat (M)	46.4	52.4	84.3	86.3	86.3	81.5	77.5	66.5	56.3	51.3	49.3	47.3
Fultala Ghat (O)	46.5	52.5	84.4	86.3	86.3	81.6	77.6	66.5	56.4	51.2	49.2	47.2
<b>Fultala Ghat (Avg.)</b>	47.9	52.5	84.4	86.3	86.6	81.6	77.6	66.6	56.4	51.3	49.3	47.3

EQS Industries (&lt;10 NTU)

**Table-106. Level of EC (µmhos/cm) of Bhairab River Water in 2018**

Location of Bhairab river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Noapara Ghat (S)	865	1420	13934	21224	22098	16428	2273	1850	1624	508	258	202
Noapara Ghat (M)	870	1428	13936	21236	22018	16432	2275	1856	1626	502	264	196
Noapara Ghat (O)	868	1426	13940	21226	22014	16424	2269	1853	1634	506	266	194
<b>Noapara Ghat (Avg.)</b>	867.6	1424	13936	21228	22013	16428	2272	1853	1628	505.3	262.66	197.3
Fultala Ghat(S)	804	1444	14112	21264	22082	16594	2286	1860	1642	518	274	204
Fultala Ghat (M)	810	1448	14112	21272	22088	16590	2288	1868	1648	524	278	198
Fultala Ghat (O)	804	1442	14112	21254	22086	16588	2288	1864	1634	520	276	198
<b>Fultala Ghat (Avg.)</b>	870	1448	14112	21272	22088	16594	2288	1868	1648	524	278	204

EQS Industries (µmhos/cm)

**Table-107. Level of Total Alkalinity (mg/l) of Bhairab River Water in 2018**

Location of Bhairab river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Noapara Ghat (S)	34	34	34	36	36	34	34	34	34	34	32	32
Noapara Ghat (M)	34	34	34	36	36	34	34	34	34	34	32	32
Noapara Ghat (O)	34	34	34	36	36	34	34	34	34	34	32	32
<b>Noapara Ghat (Avg.)</b>	34	34	34	36	36	34	34	34	34	34	32	32
Fultala Ghat(S)	34	34	34	36	36	34	34	34	34	34	32	32
Fultala Ghat (M)	34	34	34	36	36	34	34	34	34	34	32	32
Fultala Ghat (O)	34	34	34	36	36	34	34	34	34	34	32	32
<b>Fultala Ghat (Avg.)</b>	34	34	34	36	36	34	34	34	34	34	32	32

EQS Industries (150 mg/l)

**16.0 Rupsa River (Table: 108-115)****Table-108. Level of pH of Rupsa River Water in 2018**

Location of Rupsa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Rupsa Ghat (S)	7.82	7.86	7.86	7.91	7.92	7.89	7.81	7.77	7.75	7.68	7.61	7.6
Rupsa Ghat (M)	7.86	7.88	7.87	7.92	7.92	7.88	7.83	7.76	7.74	7.69	7.63	7.62
Rupsa Ghat (O)	7.83	7.84	7.85	7.93	7.93	7.87	7.82	7.76	7.76	7.67	7.63	7.61
<b>Rupsa Ghat (Avg.)</b>	7.83	7.86	7.86	7.92	7.92	7.88	7.82	7.76	7.75	7.68	7.62	7.61
Labanchara Ghat (S)	7.83	7.89	7.88	7.94	7.94	7.88	7.83	7.79	7.77	7.68	7.64	7.62
Labanchara Ghat (M)	7.88	7.91	7.89	7.91	7.92	7.91	7.85	7.79	7.77	7.69	7.64	7.64
Labanchara Ghat (O)	7.81	7.88	7.88	7.92	7.93	7.88	7.82	7.78	7.78	7.68	7.63	7.63
<b>Labanchara Ghat (Avg.)</b>	7.84	7.89	7.88	7.92	7.93	7.89	7.83	7.78	7.77	7.68	7.63	7.63
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

**Table-109. Level of DO (mg/l) of Rupsa River Water in 2018**

Location of Rupsa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Rupsa Ghat (S)	6.5	6.7	6.7	6.7	6.4	5.8	5.6	5.3	5.2	5.2	5.2	5.2
Rupsa Ghat (M)	6.5	6.7	6.8	6.8	6.5	5.8	5.5	5.3	5.3	5.3	5.3	5.3
Rupsa Ghat (O)	6.5	6.6	6.7	6.8	6.6	5.8	5.6	5.3	5.3	5.3	5.3	5.3
<b>Rupsa Ghat (Avg.)</b>	6.5	6.66	6.73	6.76	6.5	5.8	5.56	5.3	5.26	5.26	5.26	5.26
Labanchara Ghat (S)	6.4	6.4	6.9	6.8	6.7	5.9	5.7	5.2	5.2	5.2	5.2	5.3
Labanchara Ghat (M)	6.4	6.6	6.8	6.8	6.8	5.9	5.6	5.2	5.3	5.3	5.3	5.3
Labanchara Ghat (O)	6.4	6.4	6.6	6.7	6.7	5.9	5.5	5.2	5.2	5.2	5.2	5.2
<b>Labanchara Ghat (Avg.)</b>	6.4	6.46	6.76	6.76	6.73	5.9	5.6	5.2	5.23	5.23	5.23	5.26
EQS Fisheries (5 mg/l $\geq$ )												
EQS Industrial (4.5-8 mg/l)												

**Table-110. Level of BOD (mg/l) of Rupsa River Water in 2018**

Location of Rupsa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Rupsa Ghat (S)	0.8	1	1.2	1.4	1.2	0.9	0.9	0.9	0.9	0.8	0.8	0.8
Rupsa Ghat (M)	0.8	1	1.3	1.3	1.4	0.9	0.8	0.8	0.8	0.8	0.8	0.8
Rupsa Ghat (O)	0.8	1	1.2	1.2	1.2	0.9	0.8	0.8	0.8	0.8	0.8	0.8
<b>Rupsa Ghat (Avg.)</b>	0.8	1	1.23	1.3	1.26	0.9	0.83	0.83	0.83	0.8	0.8	0.8
Labanchara Ghat (S)	0.7	1.1	1.3	1.6	1.6	1	1.1	1.1	1	0.8	0.8	0.8
Labanchara Ghat (M)	0.7	1.1	1.2	1.5	1.3	1	1	1	1	0.8	0.8	0.8
Labanchara Ghat (O)	0.7	1.1	1.2	1.4	1.4	1	1	1	1	0.8	0.8	0.8
<b>Labanchara Ghat (Avg.)</b>	0.7	1.1	1.23	1.5	1.43	1	1.03	1.03	1	0.8	0.8	0.8
EQS Fisheries ( $\leq$ 6 mg/l )												
EQS Industrial ( $\leq$ 50 mg/l )												

**Table-111. Level of Chloride (mg/l) of Rupsa River Water in 2018**

Location of Rupsa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Rupsa Ghat (S)	212	312	5108	7118	7128	4188	510	434	410	140	88	82
Rupsa Ghat (M)	212	312	5108	7118	7128	4188	510	434	410	140	84	80
Rupsa Ghat (O)	212	312	5108	7118	7128	4188	510	434	410	142	84	82
<b>Rupsa Ghat (Avg.)</b>	212	312	5108	7118	7128	4188	510	434	410	140.66	85.33	81.33
Labanchara Ghat (S)	208	324	5110	7122	7130	4192	514	432	412	140	84	82
Labanchara Ghat (M)	208	324	5110	7122	7130	4192	514	432	412	142	88	82
Labanchara Ghat (O)	208	324	5110	7122	7130	4192	514	432	412	142	88	82
<b>Labanchara Ghat (Avg.)</b>	208	324	5110	7122	7130	4192	514	432	412	141	86.6	82
EQS Industrial (150-600 mg/l)												



Table-112. Level of SS (mg/l) of Rupsa River Water in 2018

Location of Rupsa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Rupsa Ghat (S)	54	74	92	96	108	86	76	68	60	54	51	52
Rupsa Ghat (M)	54	78	90	94	104	88	75	67	66	58	58	56
Rupsa Ghat (O)	54	74	90	92	102	89	77	68	64	56	56	54
<b>Rupsa Ghat (Avg.)</b>	54	75.3	90.66	94	104.6	87.6	76	67.66	63.33	56	56	54
Labanchara Ghat (S)	62	78	92	92	112	92	76	66	66	54	54	52
Labanchara Ghat (M)	62	74	92	97	108	88	78	68	66	56	56	54
Labanchara Ghat (O)	62	77	90	94	106	91	78	64	64	53	53	52
<b>Labanchara Ghat (Avg.)</b>	62	76.3	91.33	94.3	108.6	90.3	77.33	66	65.33	54.33	54.33	52.6

EQS Industrial (150 mg/l)

Table-113. Level of Turbidity (NTU) of Rupsa River Water in 2018

Location of Rupsa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Rupsa Ghat (S)	52.1	53.1	88.2	98.2	101.2	88.2	78.2	68.1	65.2	53.2	52.2	48.2
Rupsa Ghat (M)	52.2	53.2	88.3	98.3	101.3	88.3	78.3	68.2	65.2	53.2	52.2	48.2
Rupsa Ghat (O)	52.3	53.3	88.3	98.3	101.3	88.4	78.4	68.2	65.2	53.1	52.1	48.1
<b>Rupsa Ghat (Avg.)</b>	52.2	53.2	88.26	98.26	101.26	88.3	78.3	68.16	65.2	53.16	52.16	48.16
Labanchara Ghat (S)	51.6	54.6	88.7	101.2	102.2	89.6	78.6	68.2	65.2	54.2	52.2	48.2
Labanchara Ghat (M)	51.6	54.6	88.8	101.3	102.3	89.7	78.7	68.3	65.3	54.3	52.3	48.3
Labanchara Ghat (O)	51.7	54.7	88.6	101.4	102.4	89.8	78.8	68.4	65.4	54.2	52.2	48.2
<b>Labanchara Ghat (Avg.)</b>	51.63	54.63	88.7	101.3	102.3	89.7	78.7	68.3	65.3	54.23	52.23	48.23

EQS Industrial (&lt;10 NTU)

Table-114. Level of EC ( $\mu$ mhos/cm) of Rupsa River Water in 2018

Location of RupsaRupsa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
RupsaRupsa Ghat (S)	924	1518	15124	22078	22466	17108	2312	1888	1722	530	280	208
RupsaRupsa Ghat (M)	928	1524	15128	22072	22469	17102	2316	1893	1726	536	276	204
RupsaRupsa Ghat (O)	924	1524	15130	22076	22468	17106	2318	1890	1726	538	272	206
<b>RupsaRupsa Ghat (Avg.)</b>	923.33	1522	15127	22075	22467	17105	2315	1890	1722	534	276	206
Labanchara Ghat (S)	918	1528	15134	22096	22496	17138	2328	1888	1734	536	276	210
Labanchara Ghat (M)	920	1534	15140	22098	22502	17142	2326	1886	1732	538	283	208
Labanchara Ghat (O)	918	1528	15132	22094	22498	17136	2328	1889	1736	534	280	206
<b>Labanchara Ghat (Avg.)</b>	918.66	1530	15135	22096	22498	17139	2327	1887	1734	536	279.6	208

EQS (1200  $\mu$ mhos/cm)

Table-115. Level of Total Alkalinity (mg/l) of Rupsa River Water in 2018

Location of RupsaRupsa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
RupsaRupsa Ghat (S)	34	34	36	36	36	34	34	34	34	34	32	32
RupsaRupsa Ghat (M)	34	34	36	36	36	34	34	34	34	34	32	32
RupsaRupsa Ghat (O)	34	34	36	36	36	34	34	34	34	34	32	32
<b>RupsaRupsa Ghat (Avg.)</b>	34	34	36	36	36	34	34	34	34	34	32	32
Labanchara Ghat (S)	34	34	36	36	36	34	34	34	34	34	32	32
Labanchara Ghat (M)	34	34	36	36	36	34	34	34	34	34	32	32
Labanchara Ghat (O)	34	34	36	36	36	34	34	34	34	34	32	32
<b>Labanchara Ghat (Avg.)</b>	34	34	36	36	36	34	34	34	34	34	32	32

EQS Industrial (150 mg/l)

**17.0 Mathavanga River (Table: 116-123)****Table-116. Level of pH of Mathavanga River Water in 2018**

Location of Mathavanga river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Darshana	7.46	7.46	7.78	6.86	6.84	6.72	6.88	6.83	6.83	6.79	6.59	<b>6.52</b>
Pipe Ghat, (U.S)	7.47	7.48	7.75	6.92	6.86	6.72	6.88	6.8	6.86	6.76	6.58	6.52
PipeGhat, (D.S)	7.46	7.47	6.79	6.78	6.8	6.73	6.89	6.82	6.85	6.78	6.59	6.53
Pipe Ghat (Avg.)	7.46	7.47	7.44	6.85	6.83	6.72	6.88	6.81	6.84	6.77	6.58	6.52
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

**Table-117. Level of DO (mg/l) of Mathavanga River Water in 2018**

Location of Mathavanga river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Darshana	5	5	3	4.8	4.6	4.5	4.5	4.4	4.4	4.1	4.8	4.8
Pipe Ghat, (U.S)	5.2	5.2	5.3	4.4	4.4	4.3	4.3	4.2	4.3	4.1	4.8	4.8
PipeGhat, (D.S)	5.1	5.1	2.6	4.5	4.4	4.3	4.3	4.3	4.3	4.3	4.8	4.8
Pipe Ghat (Avg.)	5.1	5.1	3.63	4.56	4.46	4.36	4.36	4.3	4.33	4.16	4.8	4.8
EQS Fisheries (5 mg/l $\pm$ )												
EQS Industries (4.5-8 mg/l)												

**Table-118. Level of BOD (mg/l) of Mathavanga River Water in 2018**

Location of Mathavanga river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Darshana	1.3	1.3	-	-	-	-	-	0.7	0.7	0.7	0.6	0.6
Pipe Ghat, (U.S)	1	1	-	-	-	-	-	0.7	0.7	0.7	<b>0.6</b>	0.6
PipeGhat, (D.S)	1.8	1.8	-	-	-	-	-	0.7	0.7	0.7	0.6	0.6
Pipe Ghat (Avg.)	1.36	1.36	-	-	-	-	-	0.7	0.7	0.7	0.6	0.6
EQS Fisheries ( $\leq$ 6 mg/l )												
EQS Industries ( $\leq$ 50 mg/l )												

**Table-119. Level of TDS (mg/l) of Mathavanga River Water in 2018**

Location of Mathavanga river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Darshana	172	174	398	393	390	224	166	154	150	100	112	92
Pipe Ghat, (U.S)	172	174	340	372	370	220	168	152	148	98	110	94
PipeGhat, (D.S)	174	176	<b>440</b>	382	378	222	166	152	150	100	112	<b>90</b>
Pipe Ghat (Avg.)	172	174	392	382	379	222	166	152	149	99	111	92
EQS Industries ( $\leq$ 2100mg/l)												

**Table-120. Level of Chloride (mg/l) of Mathavanga River Water in 2018**

Location of Mathavanga river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Darshana	32	<b>40</b>	-	30	30	30	28	28	28	28	30	28
Pipe Ghat, (U.S)	32	32	-	32	28	28	28	28	28	28	30	28
PipeGhat, (D.S)	34	34	-	32	32	30	28	28	28	28	30	<b>26</b>
Pipe Ghat (Avg.)	32.66	35.3	-	31.3	30	29.3	28	28	28	28	30	27.33
EQS Industries (150-600 mg/l)												



Table-121. Level of Turbidity (NTU) of Mathavanga River Water in 2018

Location of Mathavanga river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Darshana	24	24	24	24	24	26	32	32	32	32	36.5	32.5
Pipe Ghat, (U.S)	24	24	24	24	24	26	32	32	32	32	36.3	32.3
PipeGhat, (D.S)	24	26	24	24	24	26	32	32	32	32	36.4	32.4
<b>Pipe Ghat (Avg.)</b>	24	24.66	24	24	24	26	32	32	32	32	36.4	32.4
EQS Industries ( $\leq 10$ NTU)												

Table-122. Level of EC ( $\mu$ mohos/cm) of Mathavanga River Water in 2018

Location of Mathavanga river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Darshana	344	348	792	784	780	446	326	308	296	198	220	180
Pipe Ghat, (U.S)	344	350	758	744	740	438	328	302	292	194	218	182
PipeGhat, (D.S)	346	348	876	762	756	440	324	302	296	198	220	178
<b>Pipe Ghat (Avg.)</b>	344.6	348	808	763	758	441	326	304	294	196	219	180
EQS Industries (1200 $\mu$ mohos/cm)												

Table-123. Level of Total Alkalinity (mg/l) of Mathavanga River Water in 2018

Location of Mathavanga river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Darshana	32	32	-	28	28	28	28	24	24	24	32	32
Pipe Ghat, (U.S)	32	32	-	28	28	28	28	24	24	24	32	32
PipeGhat, (D.S)	32	36	-	28	28	28	28	24	24	24	32	32
<b>Pipe Ghat (Avg.)</b>	32	33	-	28	28	28	28	24	24	24	32	32
EQS Industries (150 mg/l)												

## 18.0 Pashur River (Table: 124-131)

Table-124. Level of pH of Pashur River Water in 2018

Location of Pashur river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mongla Poart (S.P)	7.9	7.93	7.91	7.92	7.92	7.83	7.78	7.71	7.7	7.68	7.62	7.62
Mongla Poart (M.P)	7.9	7.94	7.92	7.93	7.93	7.82	7.79	7.73	7.72	7.69	7.65	7.63
Mongla Poart (O.P)	7.9	7.95	7.93	7.93	7.93	7.81	7.78	7.74	7.74	7.69	7.64	7.63
<b>Mongla Poart (Avg.)</b>	7.9	7.94	7.92	7.92	7.92	7.82	7.78	7.72	7.72	7.68	7.63	7.62
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-125 Level of DO (mg/l) of Pashur River Water in 2018

Location of Pashur river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mongla Poart (S.P)	6.7	7.1	7.3	7.3	7.1	6	5.5	5.5	5.4	5.3	5.3	5.2
Mongla Poart (M.P)	6.7	7.1	7.3	7.2	7.2	6	5.6	5.6	5.5	5.3	5.3	5.3
Mongla Poart (O.P)	6.7	7.1	7.3	7.2	7.1	6	5.4	5.4	5.4	5.4	5.4	5.4
<b>Mongla Poart (Avg.)</b>	6.7	7.1	7.3	7.23	7.13	6	5.5	5.5	5.43	5.33	5.33	5.3
EQS Fisheries (5 mg/l $\geq$ )												
EQS Industries (4.5-8 mg/l)												

Table-126. Level of BOD (mg/l) of Pashur River Water in 2018

Location of Pashur river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mongla Poart (S.P)	0.8	1.2	1.4	1.6	1.5	1	0.8	0.8	0.8	0.8	0.8	0.8
Mongla Poart (M.P)	0.8	1.2	1.4	1.5	1.5	1	0.8	0.8	0.8	0.8	0.8	0.8
Mongla Poart (O.P)	0.8	1.2	1.4	1.3	1.5	1	0.8	0.8	0.8	0.8	0.8	0.8
<b>Mongla Poart (Avg.)</b>	0.8	1.2	1.4	1.46	1.5	1	0.8	0.8	0.8	0.8	0.8	0.8
EQS Fisheries ( $\leq 6$ mg/l )												
EQS Industries ( $\leq 50$ mg/l )												



Table-127. Level of TDS (mg/l) of Pashur River Water in 2018

Location of Pashur river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mongla Poart (S.P)	1244	1606	10554	12710	14228	10660	1266	1076	976	416	232	182
Mongla Poart (M.P)	1248	1610	10650	12732	14230	10664	1267	1076	974	420	234	184
Mongla Poart (O.P)	1244	1612	10656	12728	14230	10662	1268	1078	972	418	232	182
<b>Mongla Poart (Avg.)</b>	1245	1609	10620	12723	14229	10662	1267	1076	974	418	232	182

EQS Industries ( $\leq 2100$ mg/l)

Table-128. Level of Chloride (mg/l) of Pashur River Water in 2018

Location of Pashur river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mongla Poart (S.P)	510	1022	7018	8106	8106	5130	546	488	424	216	118	92
Mongla Poart (M.P)	510	1022	7018	8116	8116	5130	546	488	424	216	118	98
Mongla Poart (O.P)	510	1024	7018	8112	8112	5130	546	488	424	216	118	92
<b>Mongla Poart (Avg.)</b>	510	1022	7018	8111	8111	5130	546	488	424	216	118	94

EQS Industries (150-600 mg/l)

Table-129. Level of Turbidity (NTU) of Pashur River Water in 2018

Location of Pashur river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mongla Poart (S.P)	62	63.2	108	110	109	88	77.6	68.2	66.2	60.2	58.2	54.2
Mongla Poart (M.P)	62	63.4	108	108	109	88	77.8	68.3	66.3	60.3	58.3	54.3
Mongla Poart (O.P)	62	63.4	108	108	109	88	77.5	68.4	66.4	60.4	58.4	54.4
<b>Mongla Poart (Avg.)</b>	62	63.3	108	108.6	109	88	77.6	68.3	66.3	60.3	58.3	54.3

EQS Industries ( $\leq 10$  NTU)Table-130. Level of EC ( $\mu$ mhos/cm) of Pashur River Water in 2018

Location of Pashur river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mongla Poart (S.P)	2486	3212	21108	25420	28454	21320	2570	2150	1952	828	460	364
Mongla Poart (M.P)	2494	3220	21114	25464	28458	21328	2534	2152	1946	836	462	366
Mongla Poart (O.P)	2484	3222	21118	25454	28456	21324	2536	2154	1942	834	460	364
<b>Mongla Poart (Avg.)</b>	2488	3218	21113	25446	28456	21324	2533	2152	1946	832	460	364

EQS Industries (1200  $\mu$ mhos/cm)

Table-131. Level of Total Alkalinity (mg/l) of Pashur River Water in 2018

Location of Pashur river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mongla Poart (S.P)	34	34	36	36	36	36	36	36	36	34	34	34
Mongla Poart (M.P)	34	34	36	36	36	36	36	36	36	34	34	34
Mongla Poart (O.P)	34	34	36	36	36	36	36	36	36	34	34	34
<b>Mongla Poart (Avg.)</b>	34	34	36	36	36	36	36	36	36	34	34	34

EQS Industries (150 mg/l)

## 19.0 Khakshiali River (Table: 132-139)

Table-132. Level of pH of Khakshiali River Water in 2018

Location of Khakshiali river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kaliganj (S.P)	7.5	7.5	7.71	7.71	7.73	7.69	7.62	7.52	7.5	7.5	7.49	7.48
Kaliganj (M.P)	7.4	7.4	7.69	7.69	7.69	7.68	7.63	7.58	7.52	7.52	7.49	7.49
Kaliganj (O.P)	7.5	7.5	7.68	7.68	7.68	7.68	7.63	7.56	7.53	7.53	7.5	7.49
<b>Kaliganj (Avg.)</b>	7.46	7.46	7.69	7.69	7.7	7.68	7.62	7.55	7.51	7.51	7.49	7.48

EQS Fisheries (6.5-8.5)

EQS Industrial (6.0-9.0)



Table-133 Level of DO (mg/l) of Khakshiali River Water in 2018

Location of Khakshiali river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kaliganj (S.P)	5.2	5.3	5.5	5.6	5.4	5.2	5.1	5.1	5.1	5.1	5.1	5.1
Kaliganj (M.P)	<b>5.1</b>	5.4	5.5	<b>5.6</b>	5.5	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Kaliganj (O.P)	5.2	5.3	5.4	5.6	5.6	5.2	5.2	5.1	5.1	5.1	5.1	5.1
Kaliganj (Avg.)	5.16	5.33	5.46	5.6	5.5	5.2	5.16	5.13	5.13	5.13	5.13	5.13
EQS Fisheries (5 mg/l <sub>2</sub> )												
EQS Industries (4.5-8 mg/l)												

Table-134. Level of BOD (mg/l) of Khakshiali River Water in 2018

Location of Khakshiali river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kaliganj (S.P)	0.8	1.1	1.2	1.5	1.5	<b>0.8</b>	0.8	0.8	0.8	0.8	0.8	0.8
Kaliganj (M.P)	0.8	1	1.3	1.5	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Kaliganj (O.P)	0.8	1	1.2	1.5	<b>1.6</b>	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Kaliganj (Avg.)	0.8	1.03	1.23	1.5	1.53	0.8	0.8	0.8	0.8	0.8	0.8	0.8
EQS Fisheries ( $\leq 6$ mg/l )												
EQS Industries ( $\leq 50$ mg/l )												

Table-135. Level of TDS (mg/l) of Khakshiali River Water in 2018

Location of Khakshiali river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kaliganj (S.P)	1564	1840	11612	15078	16122	12068	1376	1322	1214	824	494	<b>492</b>
Kaliganj (M.P)	1568	1842	11614	15078	<b>16124</b>	12068	1380	1324	1212	822	496	496
Kaliganj (O.P)	1564	1840	11618	15078	16124	12068	1378	1324	1214	820	496	496
Kaliganj (Avg.)	1565	1840	11614	15078	16123	12068	1378	1323	1213	822	495	494
EQS Industries ( $< 2100$ mg/l)												

Table-136. Level of Chloride (mg/l) of Khakshiali River Water in 2018

Location of Khakshiali river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kaliganj (S.P)	586	1108	706	8524	<b>8588</b>	6024	524	502	502	322	<b>104</b>	104
Kaliganj (M.P)	586	1108	706	8524	8588	6024	524	502	502	322	108	108
Kaliganj (O.P)	588	1108	706	8524	8588	6024	524	502	502	322	108	108
Kaliganj (Avg.)	586	1108	706	8524	8588	6024	524	502	502	322	106	106
EQS Industries (150-600 mg/l)												

Table-137. Level of Turbidity (NTU) of Khakshiali River Water in 2018

Location of Khakshiali river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kaliganj (S.P)	<b>56</b>	60	78.2	124	<b>128</b>	98	72.4	68.4	64.4	61.4	58.6	57.6
Kaliganj (M.P)	56	60	78.3	124	128	98	72.6	68.6	64.6	61.6	58.7	57.7
Kaliganj (O.P)	56	60	78.4	124	126	98	72.5	68.3	64.3	61.3	58.7	57.7
Kaliganj (Avg.)	56	60	78.3	124	127	98	72.5	68.4	64.4	61.4	58.6	57.66
EQS Industries ( $\leq 10$ NTU)												

Table-138. Level of EC ( $\mu$ mhos/cm) of Khakshiali River Water in 2018

Location of Khakshiali river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kaliganj (S.P)	3124	3678	23224	30154	32244	24134	2745	2644	2428	1644	988	<b>982</b>
Kaliganj (M.P)	3128	3682	23228	30154	<b>32248</b>	24136	2758	2646	2422	1642	992	990
Kaliganj (O.P)	3124	3680	23234	30154	32246	24130	2748	2648	2426	1638	992	990
Kaliganj (Avg.)	3125	3680	23228	30154	32246	24133	2750	2646	2425	1641	990	987
EQS Industries (1200 $\mu$ mhos/cm)												



Table-139. Level of SS (mg/l) of Khakshiali River Water in 2018

Location of Khakshiali river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kaliganj (S.P)	46	67	104	122	136	104	88	72	68	62	59	55
Kaliganj (M.P)	48	66	104	128	132	102	86	72	66	60	62	60
Kaliganj (O.P)	46	64	104	126	130	98	82	72	64	62	60	60
<b>Kaliganj (Avg.)</b>	46	65.6	104	125	132	101	85	72	66	61	60	58
EQS Industries (150 mg/l)												

## 20.0 Gorai River (Table: 140-147)

Table-140. Level of pH of Gorai River Water in 2018

Location of Gorai river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kustia (S.P)	7.88	7.89	7.88	7.82	7.81	7.72	7.64	7.62	7.62	7.55	7.52	7.5
Kustia (M.P)	7.83	7.88	7.85	7.84	7.83	7.73	7.65	7.63	7.63	7.56	7.53	7.52
Kustia (O.P)	7.84	7.89	7.84	7.84	7.84	7.73	7.66	7.62	7.62	7.54	7.53	7.53
<b>Kustia (Avg.)</b>	7.85	7.88	7.85	7.83	7.82	7.72	7.65	7.62	7.62	7.55	7.52	7.51
Magura (S.P)	7.83	7.88	7.83	7.83	7.82	7.76	7.71	7.68	7.68	7.52	7.51	7.5
Magura (M.P)	7.82	7.86	7.84	7.83	7.82	7.76	7.68	7.67	7.67	7.53	7.51	7.51
Magura (O.P)	7.85	7.87	7.83	7.83	7.83	7.77	7.67	7.67	7.67	7.53	7.52	7.52
<b>Magura (Avg.)</b>	7.82	7.86	7.83	7.82	7.81	7.72	7.64	7.62	7.62	7.52	7.51	7.5
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-141. Level of DO (mg/l) of Gorai River Water in 2018

Location of Gorai river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kustia (S.P)	5.2	5.6	5.7	5.7	5.6	5.5	5.1	5.1	5.1	5.1	5.2	5.2
Kustia (M.P)	5.2	5.7	5.8	5.7	5.7	5.5	5.2	5.1	5.1	5.1	5.2	5.2
Kustia (O.P)	5.1	5.6	5.7	5.7	5.7	5.5	5.2	5.1	5.1	5.1	5.2	5.2
<b>Kustia (Avg.)</b>	5.16	5.63	5.73	5.7	5.66	5.5	5.16	5.1	5.1	5.1	5.2	5.2
Magura (S.P)	5.1	5.5	5.6	5.6	5.6	5.6	5.1	5.1	5.1	5.1	5.1	5.1
Magura (M.P)	5.2	5.5	5.6	5.6	5.7	5.6	5.2	5.1	5.1	5.1	5.1	5.1
Magura (O.P)	5	5.4	5.8	5.8	5.7	5.6	5.2	5.1	5.1	5.1	5.1	5.1
<b>Magura (Avg.)</b>	5	5.4	5.6	5.6	5.6	5.5	5.1	5.1	5.1	5.1	5.1	5.1
EQS Fisheries (5 mg/l <sub>2</sub> )												
EQS Industries (4.5-8 mg/l)												

Table-142. Level of BOD (mg/l) of Gorai River Water in 2018

Location of Gorai river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kustia (S.P)	2.2	2.2	2.2	2.1	1.9	0.8	0.8	0.8	0.8	0.7	0.6	0.6
Kustia (M.P)	2.3	2.3	2.3	2.2	2	0.8	0.8	0.8	0.8	0.7	0.6	0.6
Kustia (O.P)	2.2	2.2	2.2	2.2	2	0.8	0.8	0.8	0.8	0.7	0.6	0.6
<b>Kustia (Avg.)</b>	2.23	2.23	2.23	2.16	1.96	0.8	0.8	0.8	0.8	0.7	0.6	0.6
Magura (S.P)	2.1	2.1	2.1	2.1	2.1	0.9	0.9	0.8	0.8	0.7	0.6	0.6
Magura (M.P)	2.2	2.2	2.2	2.1	2.1	0.9	0.9	0.8	0.8	0.7	0.7	0.7
Magura (O.P)	2.2	2.2	2.2	2.2	2.1	0.9	0.9	0.8	0.8	0.7	0.7	0.7
<b>Magura (Avg.)</b>	2.16	2.16	2.16	2.13	2.1	0.9	0.9	0.8	0.8	0.7	0.7	0.7
EQS Fisheries ( $\leq 6$ mg/l )												
EQS Industries ( $\leq 50$ mg/l )												



Table-143. Level of TDS (mg/l) of Gorai River Water in 2018

Location of Gorai river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kustia (S.P)	172	176	396	412	402	272	174	165	158	158	116	86
Kustia (M.P)	176	174	398	416	404	274	176	170	160	160	118	88
Kustia (O.P)	178	174	396	403	404	272	174	172	160	160	117	88
<b>Kustia (Avg.)</b>	175	174	396	410	403	272	174	169	159	159	114	90
Magura (S.P)	174	176	394	400	398	266	190	170	164	162	114	92
Magura (M.P)	173	175	396	398	398	266	192	172	164	158	114	92
Magura (O.P)	174	174	390	396	394	266	190	172	166	162	114	92
<b>Magura (Avg.)</b>	173	175	393	398	396	266	190	171	164	160	114	91
EQS Industries ( $\leq 2100$ mg/l)												

Table-144. Level of Chloride (mg/l) of Gorai River Water in 2018

Location of Gorai river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kustia (S.P)	34	34	32	36	36	34	28	28	28	28	30	28
Kustia (M.P)	36	36	32	36	36	34	28	28	28	28	32	28
Kustia (O.P)	34	34	32	36	36	34	28	28	28	28	31	28
<b>Kustia (Avg.)</b>	34	34	32	36	36	34	28	28	28	28	28	28
Magura (S.P)	32	32	32	34	34	34	28	28	28	28	28	28
Magura (M.P)	34	34	32	34	34	34	28	28	28	28	28	28
Magura (O.P)	36	36	32	34	34	34	28	28	28	28	28	28
<b>Magura (Avg.)</b>	36	36	32	36	36	34	28	28	28	28	32	28
EQS Industries (150-600 mg/l)												

Table-145. Level of Turbidity (NTU) of Gorai River Water in 2018

Location of Gorai river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kustia (S.P)	28	28	38	38	38	36	32	32	32	32	32.3	30.3
Kustia (M.P)	26	26	36	40	40	38	32	32	32	32	32.4	30.4
Kustia (O.P)	26	26	36	36	38	38	32	32	32	32	32.5	30.5
<b>Kustia (Avg.)</b>	26.66	26.66	36.6	38	38.66	37.33	32	32	32	32	31.8	31.1
Magura (S.P)	28	28	34	34	34	32	32	32	32	32	31.8	31.2
Magura (M.P)	28	28	36	34	34	34	34	34	34	34	31.8	31.2
Magura (O.P)	24	24	34	34	34	34	34	34	34	34	31.8	31.3
<b>Magura (Avg.)</b>	26.66	26.66	34.6	34	34	33.33	33.3	33.3	33.3	33.3	31.8	31.2
EQS Industries ( $\leq 10$ NTU)												

Table-146. Level of EC ( $\mu$ mhos/cm) of Gorai River Water in 2018

Location of Gorai river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kustia (S.P)	342	352	792	824	802	542	344	330	312	312	228	172
Kustia (M.P)	344	348	796	830	804	546	348	338	318	316	230	174
Kustia (O.P)	342	348	790	804	804	544	342	332	316	316	230	176
<b>Kustia (Avg.)</b>	342.6	349.3	792	819.33	803.3	544	344	333	315	314	229	174
Magura (S.P)	348	352	788	798	794	530	376	338	322	318	318	178
Magura (M.P)	346	350	792	794	794	532	378	342	320	312	312	180
Magura (O.P)	348	348	780	788	782	532	376	340	324	324	324	180
<b>Magura (Avg.)</b>	347.3	350	786	793.3	790	531.3	376	340	322	318	318	179.3
EQS Industries (1200 $\mu$ mhos/cm)												



Table-147. Level of SS (mg/l) of Gorai River Water in 2018

Location of Gorai river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kustia (S.P)	28	30	48	48	42	32	32	26	26	26	48	42
Kustia (M.P)	28	32	44	44	44	30	30	26	26	26	48	40
Kustia (O.P)	29	29	42	42	42	28	30	26	26	26	48	42
<b>Kustia (Avg.)</b>	<b>28.333</b>	<b>30.33</b>	<b>44.66</b>	<b>44.66</b>	<b>42.66</b>	<b>30</b>	<b>30.66</b>	<b>26</b>	<b>26</b>	<b>26</b>	<b>48</b>	<b>41.33</b>
Magura (S.P)	26	26	46	46	42	28	28	28	28	24	46	40
Magura (M.P)	24	30	48	48	40	32	28	28	28	24	46	42
Magura (O.P)	24	28	44	44	44	28	28	28	28	24	42	42
<b>Magura (Avg.)</b>	<b>29</b>	<b>32</b>	<b>48</b>	<b>48</b>	<b>44</b>	<b>32</b>	<b>32</b>	<b>28</b>	<b>28</b>	<b>26</b>	<b>48</b>	<b>42</b>
EQS Industries (150 mg/l)												

## 21.0 Modhumoti River (Table: 148-155)

Table-148. Level of pH of Modhumoti River Water in 2018

Location of Modhumoti river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bagerhat (O.S)	7.42	7.42	7.52	7.56	7.53	7.52	7.55	7.46	7.4	7.4	7.4	7.38
Bagerhat (M.S)	7.43	7.43	7.55	7.88	7.56	7.54	7.54	7.43	7.41	7.42	7.42	7.4
Bagerhat (O.S)	7.44	7.44	7.52	7.54	7.54	7.54	7.54	7.45	7.42	7.42	7.42	7.4
<b>Bagerhat (Avg.)</b>	<b>7.43</b>	<b>7.43</b>	<b>7.53</b>	<b>7.56</b>	<b>7.55</b>	<b>7.53</b>	<b>7.54</b>	<b>7.44</b>	<b>7.41</b>	<b>7.41</b>	<b>7.41</b>	<b>7.39</b>
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-149. Level of DO (mg/l) of Modhumoti River Water in 2018

Location of Modhumoti river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bagerhat (O.S)	5.1	5.2	5.4	5.5	5.4	5.2	4.9	4.9	4.8	4.8	4.8	4.6
Bagerhat (M.S)	5.2	5.2	5.4	5.5	5.5	5.2	5.1	4.9	4.8	4.8	4.8	4.7
Bagerhat (O.S)	5.1	5.1	5.4	5.4	5.4	5.2	5.1	4.9	4.8	4.8	4.8	4.8
<b>Bagerhat (Avg.)</b>	<b>5.13</b>	<b>5.16</b>	<b>5.4</b>	<b>5.46</b>	<b>5.43</b>	<b>5.2</b>	<b>5.03</b>	<b>4.9</b>	<b>4.8</b>	<b>4.8</b>	<b>4.8</b>	<b>4.7</b>
EQS Fisheries (5 mg/l <sub>2</sub> )												
EQS Industries (4.5-8 mg/l)												

Table-150. Level of BOD (mg/l) of Modhumoti River Water in 2018

Location of Modhumoti river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bagerhat (O.S)	0.9	1	0.9	0.9	0.9	0.8	0.6	0.6	0.6	0.6	0.6	0.6
Bagerhat (M.S)	0.8	0.9	0.8	0.8	0.8	0.8	0.6	0.6	0.6	0.6	0.6	0.6
Bagerhat (O.S)	0.8	0.9	0.8	0.8	0.8	0.8	0.6	0.6	0.6	0.6	0.6	0.6
<b>Bagerhat (Avg.)</b>	<b>0.83</b>	<b>0.93</b>	<b>0.83</b>	<b>0.83</b>	<b>0.83</b>	<b>0.8</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>
EQS Fisheries (<6 mg/l )												
EQS Industries (<50 mg/l )												

Table-151. Level of TDS (mg/l) of Modhumoti River Water in 2018

Location of Modhumoti river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bagerhat (O.S)		205	392	398	374	262	152	146	134	148	148	96
Bagerhat (M.S)		202	394	396	376	260	152	146	134	148	148	98
Bagerhat (O.S)		204	394	400	378	264	152	146	136	148	148	98
<b>Bagerhat (Avg.)</b>		<b>203</b>	<b>393</b>	<b>398</b>	<b>376</b>	<b>262</b>	<b>152</b>	<b>146</b>	<b>134</b>	<b>148</b>	<b>148</b>	<b>97</b>
EQS Industries (<2100mg/l)												

**Table-152. Level of Chloride (mg/l) of Modhumoti River Water in 2018**

Location of Modhumoti river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bagerhat (O.S)	36	42	36	42	36	34	28	28	28	28	28	26
Bagerhat (M.S)	36	42	36	42	36	34	28	28	28	28	28	28
Bagerhat (O.S)	36	42	36	42	36	34	28	28	28	28	28	28
<b>Bagerhat (Avg.)</b>	36	42	36	42	36	34	28	28	28	28	28	27.3

EQS Industries (150-600 mg/l)

**Table-153. Level of Turbidity (NTU) of Modhumoti River Water in 2018**

Location of Modhumoti river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bagerhat (O.S)	36.2	36.2	44.2	46.2	45.2	44.2	42.2	30.2	29.2	28.2	28.2	27.2
Bagerhat (M.S)	36.3	36.3	44.2	46.2	45.2	44.2	42.3	30.2	29.2	28.2	28.2	27.2
Bagerhat (O.S)	36.4	36.4	44.2	46.2	45.2	44.2	42.2	30.2	29.2	28.2	28.2	27.2
<b>Bagerhat (Avg.)</b>	36.3	36.3	44.2	46.2	45.2	44.2	42.23	30.2	29.2	28.2	28.2	27.2

EQS Industries ( $\leq 10$  NTU)**Table-154. Level of EC ( $\mu$ mhos/cm) of Modhumoti River Water in 2018**

Location of Modhumoti river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bagerhat (O.S)	396	410	784	796	748	524	302	290	266	290	290	192
Bagerhat (M.S)	398	402	788	792	750	520	302	290	268	290	290	194
Bagerhat (O.S)	398	406	786	798	756	528	302	290	269	290	290	194
<b>Bagerhat (Avg.)</b>	397	406	786	795	751	524	302	290	267	290	290	193

EQS Industries (1200  $\mu$ mhos/cm)**Table-155. Level of SS (mg/l) of Modhumoti River Water in 2018**

Location of Modhumoti river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bagerhat (O.S)	30	36	38	40	36	32	28	32	32	32	32	30
Bagerhat (M.S)	28	34	36	38	38	32	32	32	36	32	32	28
Bagerhat (O.S)	28	30	34	34	34	32	30	32	32	32	32	30
<b>Bagerhat (Avg.)</b>	28.66	33.3	36	37.3	36	32	30	32	33.3	32	32	29.33

EQS Industries (150 mg/l)

**22.0 Beel Dakatia River (Table: 156-163)****Table-156. Level of pH of Beel Dakatia River Water in 2018**

Location of Beel Dakatia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Khulna (O.S)	7.63	7.66	7.68	7.65	7.65	7.63	7.61	7.6	7.61	7.6	7.61	7.62
Khulna (M.S)	7.68	7.67	7.67	7.66	7.67	7.64	7.62	7.61	7.62	7.61	7.61	7.63
<b>Khulna (Avg.)</b>	7.68	7.67	7.68	7.66	7.67	7.64	7.62	7.61	7.62	7.61	7.61	7.63

EQS Fisheries (6.5-8.5)

EQS Industrial (6.0-9.0)

**Table-157. Level of DO (mg/l) of Beel Dakatia River Water in 2018**

Location of Beel Dakatia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Khulna (O.S)	5.6	5.9	5.9	5.9	5.8	5.4	5.2	5.1	5.1	4.9	4.8	4.8
Khulna (M.S)	5.6	5.9	5.8	5.9	5.8	5.5	5.52	5.2	5.1	4.8	4.8	4.8
<b>Khulna (Avg.)</b>	5.6	5.9	5.9	5.9	5.8	5.5	5.52	5.2	5.1	4.9	4.8	4.8

EQS Fisheries (5 mg/l<sub>2</sub>)

EQS Industries (4.5-8 mg/l)



Table-158. Level of BOD (mg/l) of Beel Dakatia River Water in 2018

Location of Beel Dakatia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Khulna (O.S)	0.7	1	1.1	1	1	-	-	-	-	-	-	-
Khulna (M.S)	0.7	1	1.1	1	1	-	-	-	-	-	-	-
<b>Khulna (Avg.)</b>	-	-	-	-	-	-	-	-	-	-	-	-
EQS Fisheries ( $\leq 6$ mg/l )												
EQS Industries ( $\leq 50$ mg/l )												

Table-159. Level of TDS (mg/l) of Beel Dakatia River Water in 2018

Location of Beel Dakatia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Khulna (O.S)	624	814	1662	1674	1704	1402	864	854	846	712	618	564
Khulna (M.S)	622	820	1664	1676	1714	1410	866	852	842	716	624	566
<b>Khulna (Avg.)</b>	624	820	1664	1676	1714	1410	866	854	846	716	624	566
EQS Industries ( $\leq 2100$ mg/l)												

Table-160. Level of Chloride (mg/l) of Beel Dakatia River Water in 2018

Location of Beel Dakatia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Khulna (O.S)	252	288	928	944	972	608	312	312	312	284	212	204
Khulna (M.S)	252	292	928	944	976	612	312	312	312	284	218	204
<b>Khulna (Avg.)</b>	252	292	928	944	976	612	312	312	312	284	218	204
EQS Industries (150-600 mg/l)												

Table-161. Level of Turbidity (NTU) of Beel Dakatia River Water in 2018

Location of Beel Dakatia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Khulna (O.S)	50.6	52.6	65.1	68.1	69.1	66.7	65.7	64.7	62.7	58.6	58.6	54.6
Khulna (M.S)	50.7	52.7	65.1	68.2	69.2	66.8	65.8	64.8	62.8	58.2	58.2	54.2
<b>Khulna (Avg.)</b>	50.7	52.7	65.1	68.2	69.2	66.8	65.8	64.8	62.8	58.6	58.6	54.6
EQS Industries ( $\leq 10$ NTU)												

Table-162. Level of EC ( $\mu$ mhos/cm) of Beel Dakatia River Water in 2018

Location of Beel Dakatia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Khulna (O.S)	1242	1626	3320	3346	3408	2804	1726	1708	1688	1422	1234	1126
Khulna (M.S)	1242	1638	3324	3349	3422	2818	1730	1702	1680	1428	1246	1128
<b>Khulna (Avg.)</b>	1242	1626	3320	3346	3408	2804	1726	1702	1680	1422	1234	1126
EQS Industries (1200 $\mu$ mhos/cm)												

Table-163. Level of SS (mg/l) of Beel Dakatia River Water in 2018

Location of Beel Dakatia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Khulna (O.S)	0.84	1	2.4	2.5	2.7	2.1	1.6	1.4	1.3	1.2	1.1	1
Khulna (M.S)	0.84	1	2.4	2.6	2.6	2.3	1.6	1.5	1.4	1.3	1.1	1
<b>Khulna (Avg.)</b>	0.84	1	2.4	2.5	2.6	2.1	1.6	1.4	1.3	1.2	1.1	1
EQS Industries (150 mg/l)												



## 23.0 Kirtankhola River (Table: 164-171)

Table-164. Level of pH of Kirtankhola River Water in 2018

Location of Kirtankhola river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Launch Ghat (S)	7.43	-	7.61	7.63	7.72	7.76	7.78	7.72	-	7.4	7.81	7.46
Launch Ghat (M)	7.41	-	7.59	7.6	7.7	7.74	7.77	7.74	-	7.5	7.79	7.55
Launch Ghat (Avg)	7.42	-	7.6	7.615	7.71	7.75	7.775	7.73	-	7.45	7.8	7.50
Dopdopia Kheyaghat (S)	7.58	-	7.71	7.73	7.7	7.72	7.76	7.76	-	7.6	7.78	7.68
Dopdopia Kheyaghat (M)	7.61	-	7.73	7.75	7.68	7.7	7.74	7.77	-	7.7	7.76	7.71
Dopdopia Kheyaghat (Avg)	7.595	-	7.72	7.74	7.69	7.71	7.75	7.765	-	7.65	7.77	7.69
Beltola Fery Gaht (S)	7.45	-	7.52	7.56	7.68	7.75	7.8	7.75	-	7.6	7.78	7.66
Beltola Fery Gaht (M)	7.46	-	7.48	7.52	7.65	7.71	7.7	7.73	-	7.7	7.8	7.64
Beltola Fery Gaht (Avg)	7.455	-	7.5	7.54	7.665	7.73	7.75	7.74	-	7.65	7.79	7.65
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-165. Level of DO (mg/l) of Kirtankhola River Water in 2018

Location of Kirtankhola river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Launch Ghat (S)	6.2	-	5.4	5.5	5.25	5.2	5.38	5.4	-	6.5	6	6.5
Launch Ghat (M)	6	-	5.5	5.5	5.3	5.26	5.36	5.3	-	6.6	5.8	6.6
Launch Ghat (Avg)	6.1	-	5.45	5.5	5.275	5.23	5.37	5.35	-	6.55	5.9	6.55
Dopdopia Kheyaghat (S)	6.4	-	5.8	5.28	5.28	5.24	5.4	5.35	-	6.3	6.1	6.3
Dopdopia Kheyaghat (M)	6.5	-	5.7	5.25	5.25	5.22	5.3	5.3	-	6.5	6	6.5
Dopdopia Kheyaghat (Avg)	6.45	-	5.75	5.265	5.265	5.23	5.35	5.325	-	6.4	6.05	6.4
Beltola Fery Gaht (S)	6	-	5.6	5.5	5.58	5.52	5.55	5.58	-	6.6	5.9	6.6
Beltola Fery Gaht (M)	6.1	-	5.5	5.48	5.5	5.5	5.5	5.5	-	6.5	6.1	6.5
Beltola Fery Gaht (Avg)	6.05	-	5.55	5.49	5.54	5.51	5.525	5.54	-	6.55	6	6.55
EQS Fisheries (5 mg/l±)												
EQS Industries (4.5-8 mg/l)												

Table-166. Level of BOD (mg/l) of Kirtankhola River Water in 2018

Location of Kirtankhola river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Launch Ghat (S)	2.1	-	2.1	2.1	2.3	2.3	2	2.1	-	2.2	2	2.2
Launch Ghat (M)	2.3	-	2	2	2	2.1	2.1	2.3	-	2.1	2.1	2
Launch Ghat (Avg)	2.2	-	2.05	2.05	2.15	2.2	2.05	2.2	-	2.15	2.05	2.1
Dopdopia Kheyaghat (S)	2.1	-	2	2.1	2.1	2.1	2	2.1	-	2.3	2	2.4
Dopdopia Kheyaghat (M)	2	-	2.1	2.3	2.4	2.2	2.1	2.2	-	2.1	2.1	2.1
Dopdopia Kheyaghat (Avg)	2.05	-	2.05	2.2	2.25	2.15	2.05	2.15	-	2.2	2.05	2.25
Beltola Fery Gaht (S)	2.15	-	2	2.2	2.1	2	1.8	2	-	2	1.8	2
Beltola Fery Gaht (M)	2.1	-	2.15	2.4	2.3	2.1	2.1	2.1	-	2.1	2.1	2.1
Beltola Fery Gaht (Avg)	2.125	-	2.075	2.3	2.2	2.05	1.95	2.05	-	2.05	1.95	2.05
EQS Fisheries (≤6 mg/l )												
EQS Industries (≤50 mg/l )												



Table-167. Level of TDS (mg/l) of Kirtankhola River Water in 2018

Location of Kirtankhola river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Launch Ghat (S)	78	-	80	79	110	117	121	128	-	130	126	133
Launch Ghat (M)	80	-	78	76	114	116	120	124	-	127	124	130
Launch Ghat (Avg)	79	-	79	77.5	112	116.5	120.5	126	-	128.5	125	131.5
Dopdopia Kheyaghat (S)	75	-	72	72	106	111	115	119	-	126	118	128
Dopdopia Kheyaghat (M)	72	-	71	73	105	110	118	120	-	125	120	127
Dopdopia Kheyaghat (Avg)	73.5	-	71.5	72.5	105.5	110.5	116.5	119.5	-	123.5	119	127.5
Beltola Fery Ghat (S)	92	-	88	90	98	109	111	115	-	123	116	130
Beltola Fery Ghat (M)	90	-	86	88	95	107	109	118	-	130	117	132
Beltola Fery Ghat (Avg)	91	-	87	89	96.5	108	110	116.5	-	129	116.5	131
EQS Industries ( $\leq 2100$ mg/l)												

Table-168. Level of TS (mg/l) of Kirtankhola River Water in 2018

Location of Kirtankhola river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Launch Ghat (S)	94	-	100	97	130	139	141	148	-	148	142	149
Launch Ghat (M)	96	-	94	92	132	136	138	144	-	143	138	144
Launch Ghat (Avg)	95	-	97	94.5	131	137.5	139.5	146	-	145.5	140	146.5
Dopdopia Kheyaghat (S)	89	-	94	92	126	131	137	137	-	144	136	142
Dopdopia Kheyaghat (M)	86	-	89	91	123	128	138	136	-	141	136	141
Dopdopia Kheyaghat (Avg)	87.5	-	91.5	91.5	124.5	129.5	137.5	136.5	-	142.5	136	141.5
Beltola Fery Ghat (S)	107	-	108	110	118	127	136	133	-	146	136	146
Beltola Fery Ghat (M)	105	-	104	106	113	125	131	136	-	150	135	150
Beltola Fery Ghat (Avg)	106	-	106	108	115.5	126	133.5	134.5	-	148	135.5	148
EQS Industries (2250 mg/l)												

Table-169. Level of EC ( $\mu$ mhos/cm) of Kirtankhola River Water in 2018

Location of Kirtankhola river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Launch Ghat (S)	151	-	161	158	220	238	242	256	-	260	251	264
Launch Ghat (M)	154	-	159	152	228	232	239	248	-	254	249	258
Launch Ghat (Avg)	152.5	-	160	155	224	235	240.5	252	-	257	250	261
Dopdopia Kheyaghat (S)	144	-	144	144	212	222	228	238	-	252	237	256
Dopdopia Kheyaghat (M)	142	-	142	146	210	219	231	239	-	250	241	254
Dopdopia Kheyaghat (Avg)	143	-	143	145	211	220.5	229.5	238.5	-	251	239	255
Beltola Fery Ghat (S)	181	-	176	181	198	210	221	230	-	254	229	260
Beltola Fery Ghat (M)	179	-	174	178	196	213	218	236	-	260	233	263
Beltola Fery Ghat (Avg)	180	-	175	179.5	197	211.5	219.5	233	-	257	231	261.5
EQS Industries ( $\leq 1200$ $\mu$ mhos/cm)												

#### 24.0 Tatulia River (Table: 170-175)

Table-170. Level of pH of Tatulia River Water in 2018

Location of Tatulia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Vadura Launch Ghat (S)	-	-	-	7.41	-	-	-	7.28	-	7.36	-	7.44
Vadura Launch Ghat (M)	-	-	-	7.38	-	-	-	7.32	-	7.34	-	7.39
Vadura Launch Ghat (Avg)	-	-	-	7.39	-	-	-	7.3	-	7.35	-	7.41
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-171. Level of DO (mg/l) of Tatulia River Water in 2018

Location of Tatulia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Vadura Launch Ghat (S)	-	-	-	5.4	-	-	-	5.8	-	6.2	-	6.4
Vadura Launch Ghat (M)	-	-	-	5.2	-	-	-	5.5	-	6	-	6.2
Vadura Launch Ghat (Avg)	-	-	-	5.3	-	-	-	5.65	-	6.1	-	6.3
EQS Fisheries (5 mg/l $\pm$ )												
EQS Industries (4.5-8 mg/l)												



Table-172. Level of BOD (mg/l) of Tatulia River Water in 2018

Location of Tatulia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Vadara Launch Ghat (S)	-	-	-	2	-	-	-	1.8	-	2	-	2
Vadara Launch Ghat (M)	-	-	-	2.2	-	-	-	2.1	-	2.3	-	2.3
Vadara Launch Ghat (Avg)	-	-	-	2.1	-	-	-	1.95	-	2.15	-	2.15
EQS Fisheries ( $\leq 6$ mg/l )												
EQS Industries ( $\leq 50$ mg/l )												

Table-173. Level of TDS (mg/l) of Tatulia River Water in 2018

Location of Tatulia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Vadara Launch Ghat (S)	-	-	-	93	-	-	-	89	-	92	-	101
Vadara Launch Ghat (M)	-	-	-	91	-	-	-	90	-	93	-	103
Vadara Launch Ghat (Avg)	-	-	-	92	-	-	-	89.5	-	92.5	-	102
EQS Industries ( $\leq 2100$ mg/l)												

Table-174. Level of EC ( $\mu$ mhos/cm) of Tatulia River Water in 2018

Location of Tatulia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Vadara Launch Ghat (S)	-	-	-	186	-	-	-	178	-	184	-	202
Vadara Launch Ghat (M)	-	-	-	181	-	-	-	180	-	186	-	206
Vadara Launch Ghat (Avg)	-	-	-	183.5	-	-	-	179	-	185	-	204
EQS Industries (1200 $\mu$ mhos/cm)												

Table-175. Level of TS (mg/l) of Tatulia River Water in 2018

Location of Tatulia river	Jan	Feb	Mar	Apl	Ma y	Jun	July	Aug	Sep	Oct	Nov	Dec
Vadara Launch Ghat (S)	-	-	-	113	-	-	-	109	-	110	-	118
Vadara Launch Ghat (M)	-	-	-	109	-	-	-	108	-	109	-	117
Vadara Launch Ghat (Avg)	-	-	-	111	-	-	-	108.5	-	109.5	-	117.5
EQS Industrial ( $\leq 2250$ mg/l)												

## 25.0 Sugandha River (Table: 176-181)

Table-176. Level of pH of Sugandha River Water in 2018

Location of Sugandha river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Jhalkathi Launch Ghat (S)	-	-	-	-	7.38	-	7.41	-	-	-	7.48	-
Jhalkathi Launch Ghat (M)	-	-	-	-	7.35	-	7.39	-	-	-	7.46	-
Jhalkathi Launch Ghat (Avg)	-	-	-	-	7.365	-	7.4	-	-	-	7.47	-
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-177. Level of DO (mg/l) of Sugandha River Water in 2018

Location of Sugandha river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Jhalkathi Launch Ghat (S)	-	-	-	-	5.5	-	5.4	-	-	-	6.3	-
Jhalkathi Launch Ghat (M)	-	-	-	-	5.38	-	5.2	-	-	-	6.1	-
Jhalkathi Launch Ghat (Avg)	-	-	-	-	5.44	-	5.3	-	-	-	6.2	-
EQS Fisheries (5 mg/l $\geq$ )												
EQS Industries (4.5-8 mg/l)												

Table-178. Level of BOD (mg/l) of Sugandha River Water in 2018

Location of Sugandha river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Jhalkathi Launch Ghat (S)	-	-	-	-	2.2	-	2.1	-	-	-	2	-
Jhalkathi Launch Ghat (M)	-	-	-	-	2.35	-	2.2	-	-	-	2.2	-
Jhalkathi Launch Ghat (Avg)	-	-	-	-	2.275	-	2.15	-	-	-	2.1	-
EQS Fisheries ( $\leq 6$ mg/l )												
EQS Industries ( $\leq 50$ mg/l )												



Table -179. Level of TDS (mg/l) of Sugandha River Water in 2018

Location of Sugandha river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Jhalkathi Launch Ghat (S)	-	-	-	-	98	-	105	-	-	-	111	-
Jhalkathi Launch Ghat (M)	-	-	-	-	95	-	100	-	-	-	106	-
Jhalkathi Launch Ghat (Avg)	-	-	-	-	96.5	-	102.5	-	-	-	108.5	-
EQS Industries ( $\leq 2100$ mg/l)												

Table -180. Level of EC ( $\mu$ mhos/cm) of Sugandha River Water in 2018

Location of Sugandha river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Jhalkathi Launch Ghat (S)	-	-	-	-	198	-	209	-	-	-	222	-
Jhalkathi Launch Ghat (M)	-	-	-	-	188	-	198	-	-	-	212	-
Jhalkathi Launch Ghat (Avg)	-	-	-	-	193	-	203.5	-	-	-	217	-
EQS Industries (1200 $\mu$ mhos/cm)												

Table -181. Level of TS (mg/l) of Sugandha River Water in 2018

Location of Sugandha river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Jhalkathi Launch Ghat (S)	-	-	-	-	120	-	125	-	-	-	129	-
Jhalkathi Launch Ghat (M)	-	-	-	-	115	-	118	-	-	-	122	-
Jhalkathi Launch Ghat (Avg)	-	-	-	-	117.5	-	121.5	-	-	-	125.5	-
EQS Industrial ( $\leq 2250$ mg/l)												

## 26.0 Lohalia River (Table: 182-187)

Table -182. Level of pH of Lohalia River Water in 2018

Location of Lohalia river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Patuakhali Launch Ghat (S)	7.41	-	-	7.37	-	7.35	-	7.34	-	7.42	-	7.47
Patuakhali Launch Ghat (M)	7.36	-	-	7.34	-	7.38	-	7.36	-	7.39	-	7.43
Patuakhali Lanh Gt. (Avg)	7.38	-	-	7.35	-	7.36	-	7.35	-	7.40	-	7.45
EQS Fisheries (6.5 -8.5)												
EQS Industrial (6.0 -9.0)												

Table -183. Level of DO (mg/l) of Lohalia River Water in 2018

Location of Lohalia river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Patuakhali Launch Ghat (S)	6.1	-	-	5.6	-	5.6	-	5.6	-	5.8	-	6
Patuakhali Launch Ghat (M)	6	-	-	5.45	-	5.45	-	5.45	-	5.6	-	5.8
Patuakhali Lanh Gt. (Avg)	6.05	-	-	5.52	-	5.52	-	5.52	-	5.7	-	5.9
EQS Fisheries (5 mg/l $\geq$ )												
EQS Industries (4.5 -8 mg/l)												

Table -184. Level of BOD (mg/l) of Lohalia River Water in 2018

Location of Lohalia river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Patuakhali Launch Ghat (S)	2.1	-	-	2	-	2	-	2	-	2	-	2
Patuakhali Launch Ghat (M)	2.2	-	-	2.2	-	2.2	-	2.2	-	2.2	-	2.2
Patuakhali Lanh Gt. (Avg)	2.15	-	-	2.1	-	2.1	-	2.1	-	2.1	-	2.1
EQS Fisheries ( $\leq 6$ mg/l )												
EQS Industries ( $\leq 50$ mg/l )												

Table -185. Level of TDS (mg/l) of Lohalia River Water in 2018

Location of Lohalia river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Patuakhali Launch Ghat (S)	69	-	-	69	-	72	-	86	-	94	-	106
Patuakhali Launch Ghat (M)	70	-	-	70	-	71	-	84	-	90	-	104
Patuakhali Lanh Gt. (Avg)	69.5	-	-	69.5	-	71.5	-	85	-	92	-	105
EQS Industries ( $\leq 2100$ mg/l)												

**Table-186. Level of TS (mg/l) of Lohalia River Water in 2018**

Location of Lohalia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Patuakhali Launch Ghat (S)	85	-	-	89	-	94	-	108	-	114	-	124
Patuakhali Launch Ghat (M)	85	-	-	90	-	91	-	104	-	108	-	122
Patuakhali Lanh Gt. (Avg)	85	-	-	89.5	-	92.5	-	106	-	111	-	123
EQS Industrial ( $\leq 2250$ mg/l)												

**Table-187. Level of EC ( $\mu$ mhos/cm) of Lohalia River Water in 2018**

Location of Lohalia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Patuakhali Launch Ghat (S)	138	-	-	137	-	144	-	172	-	188	-	211
Patuakhali Launch Ghat (M)	141	-	-	139	-	142	-	168	-	181	-	208
Patuakhali Lanh Gt. (Avg)	139.5	-	-	138	-	143	-	170	-	184.5	-	209.5
EQS Industries (1200 $\mu$ mhos/cm)												

**27.0 Surma River (Table: 188-193)****Table-188. Level of pH of Surma River Water in 2018**

Location of Surma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mendibag Point	8.6	7.4	7.79	8.5	8.48	7.7	8.14	8.2	8.4	8	7.9	7.5
Kin Bridge Point	8.7	7.7	-	8.4	8.84	7.6	8.1	8.22	8.2	-	7.8	-
Sheaik Ghat	-	7.8	7.98	8.2	8.8	7.8	7.9	8	8.1	7.9	8.2	7.9
Chhatak	8.2	-	-	-	7.9	-	-	8.22	8.3	7.8	-	-
Kazir Bazar	-	-	-	-	-	-	-	-	-	-	-	-
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

**Table-189. Level of DO (mg/l) of Surma River Water in 2018**

Location of Surma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mendibag Point	6.8	6.8	7.52	7.8	6.66	6.62	6.79	6.9	6.8	6.6	7	7.1
Kin Bridge Point	6.9	6.9	-	7.6	6.62	6.6	6.72	6.8	6.7	-	6.9	-
Sheaik Ghat	-	6.7	7.75	7.4	6.8	6.7	6.68	6.7	6.8	6.8	6.8	6.9
Chhatak	6.5	-	-	-	6.5	-	-	7	6.7	7.06	-	-
Kazir Bazar	-	-	-	-	-	-	-	-	-	-	-	-
EQS Fisheries (5 mg/l <sub>2</sub> )												
EQS Industries (4.5-8 mg/l)												

**Table-190. Level of BOD (mg/l) of Surma River Water in 2018**

Location of Surma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mendibag Point	2	2	1.9	2	2	1.9	2.1	2.2	2.3	2.1	2.1	2.1
Kin Bridge Point	1.9	1.9	-	2.1	1.9	2.1	2	2.1	2.4	-	2	-
Sheaik Ghat	-	2	2	2.3	2.1	2	1.9	1.9	2	2	2.1	2
Chhatak	2	-	-	-	2.3	-	-	2.7	2.1	1.9	-	-
Kazir Bazar	-	-	-	-	-	-	-	-	-	-	-	-
EQS Fisheries ( $\leq 6$ mg/l )												
EQS Industries ( $\leq 50$ mg/l )												

**Table-191. Level of COD (mg/l) of Surma River Water in 2018**

Location of Surma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mendibag Point	9	9	9	9	17	15	12	13	16	16	12	10
Kin Bridge Point	10	11	-	11	18	16	14	12	16	-	11	-
Sheaik Ghat	-	12	11	12	21	18	19	14	15	13	12	12
Chhatak	12	-	-	-	26	-	-	12	14	24	-	-
Kazir Bazar	-	-	-	-	-	-	-	-	-	-	-	-
EQS Industries ( $\leq 200$ mg/l)												

**Table-192. Level of TDS (mg/l) of Surma River Water in 2018**

Location of Surma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mendibag Point	509	561	813	438	267	263	26.6	38	42	49	83	79
Kin Bridge Point	481	565		437	262	260	27.2	37	36	-	84	-
Sheaik Ghat	-	571	854	431	320	298	27.9	36	38	48	60.2	78.3
Chhatak	356	-	-	-	262	-	-	59	41	39.5	-	-
Kazir Bazar	-	-	-	-	-	-	-	-	-	-	-	-
EQS Industries ( $\leq 2100$ mg/l)												

**Table-193. Level of EC ( $\mu$ mhos/cm) of Surma River Water in 2018**

Location of Surma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mendibag Point	908	1101	1677	876	599	586	64	72	78	108	179.3	158
Kin Bridge Point	859	1113		862	583	576	65.1	68	72	-	181	-
Sheaik Ghat	-	1117	1766	993	706	612	65.7	71	76	106	131.5	156
Chhatak	698	-	-	-	489	-	-	509	76	87	-	-
Kazir Bazar	-	-	-	-	-	-	-	-	-	-	-	-
EQS Industries ( $\leq 1200$ $\mu$ mhos/cm)												

**28.0 Kushiara River (Table: 194-199)****Table-194. Level of pH of Kushiara River Water in 2018**

Location of Kushiara river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
BSF Ghat	-	-	-	-	-	-	-	-	-	-	-	-
BDR Camp	-	-	-	-	-	-	-	-	-	-	-	-
Fenchuganj Point	8.3	7.9	7.9	-	-	7.7	-	7.9	8.3			7.8
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

**Table-195. Level of DO (mg/l) of Kushiara River Water in 2018**

Location of Kushiara river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
BSF Ghat	-	-	-	-	-	-	-	-	-	-	-	-
BDR Camp	-	-	-	-	-	-	-	-	-	-	-	-
Fenchuganj Point	6.7	6.8	6.8			6.67	-	6.8	7.9	-	-	6.8
EQS Fisheries (5 mg/l $\geq$ )												
EQS Industries (4.5-8 mg/l)												

**Table-196. Level of BOD (mg/l) of Kushiara River Water in 2018**

Location of Kushiara river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
BSF Ghat	-	-	-	-	-	-	-	-	-	-	-	-
BDR Camp	-	-	-	-	-	-	-	-	-	-	-	-
Fenchuganj Point	2.1	1.9	2.1	-	-	2	-	1.8	2.1		-	1.9
EQS Fisheries ( $\leq 6$ mg/l )												
EQS Industries ( $\leq 50$ mg/l )												

**Table-197. Level of COD (mg/l) of Kushiara River Water in 2018**

Location of Kushiara river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
BSF Ghat	-	-	-	-	-	-	-	-	-	-	-	-
BDR Camp	-	-	-	-	-	-	-	-	-	-	-	-
Fenchuganj Point	11	8	10	-	-	12	-	12	13	-		11
EQS Industries (200 mg/l)												

**Table-198. Level of TDS (mg/l) of Kushiara River Water in 2018**

Location of Kushiara river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
BSF Ghat	-	-	-	-	-	-	-	-	-	-	-	-
BDR Camp	-	-	-	-	-	-	-	-	-	-	-	-
Fenchuganj Point	498	182	486		-	267		52	28	-	-	81
<b>EQS Industries (2100 mg/l)</b>												

**Table-199. Level of EC ( $\mu$ mhos/cm) of Kushiara River Water in 2018**

Location of Kushiara river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
BSF Ghat	-	-	-	-	-	-	-	-	-	-	-	-
BDR Camp	-	-	-	-	-	-	-	-	-	-	-	-
Fenchuganj Point	758	207	912	-	-	496	-	96	72	-	-	162
<b>EQS Industries (1200 <math>\mu</math>mhos/cm)</b>												

**29.0 Balu River (Table: 200-209)****Table-200. Level of pH of Balu River Water in 2018**

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	-	7.29	7.41	-	7.83	-	-	7.78	8.28	-	8.43	7.47
Near Hossain Dyeing Ltd. Pagar, Tongi	7.08	6.89	7.16	-	7.75	-	7.75	7.75	7.75	-	7.19	7.4
Near Damra University College, Demra, Dhaka	7.24	-	-	-	7.83	-	7.86	7.8	7.8	-	7.2	7.7
Near Balu Bridge, 300 feet Road, Dhaka	-	7.12	-	-	-	-	-	7.64	7.29	-	-	7.7
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	7.83	-	-	-	-	-
South Side of Tongi Rail Bridge, Pagar, Tongi	7.24	7.29	7.41	-	7.83	-	7.86	7.8	8.28	-	8.43	7.7
<b>EQS Fisheries (6.5-8.5)</b>												
<b>EQS Industrial (6.0-9.0)</b>												

**Table-201. Level of DO (mg/l) of Balu River Water in 2018**

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	-	0.52	0.27	-	0.92	-	-	5.4	4.99	-	0	0.8
Near Hossain Dyeing Ltd. Pagar, Tongi	0	0.6	0		0.38	-	5.3	5.2	5.23	-	0.8	0.5
Near Damra University College, Demra, Dhaka	0.5	-	-	-	0.62	-	5.6	3.04	3.5	-	3.2	0.8
Near Balu Bridge, 300 feet Road, Dhaka	-	0.8	-	-	-	-	-	2.53	3.2	-	-	1
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	5.3	-	-	-	-	-
South Side of Tongi Rail Bridge, Pagar, Tongi	-	-	-	-	-	-	-	-	-	-	-	-
<b>EQS Fisheries (5 mg/l<math>\geq</math>)</b>												
<b>EQS Industrial (4.5-8 mg/l)</b>												



Table-202. Level of BOD (mg/l) of Balu River Water in 2018

Location of Balu river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	-	56	48	-	48	-	-	3.2	4.6	-	20	20
Near Hossain Dyeing Ltd. Pagar, Tongi	56	72	44	-	44	-	3.3	3.4	5.2	-	14.8	13.2
Near Damra University College, Demra, Dhaka	42.6	-	-	-	7.5	-	5.1	1	6.2	-	8.8	13.8
Near Balu Bridge, 300 feet Road, Dhaka	-	14.4	-	-	-	-	-	6.8	2.6	-	-	12.6
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	3.3	-	-	-	-	-
South Side of Tongi Rail Bridge, Pagar, Tongi	56	72	48	-	48	-	5.1	6.8	6.2	-	20	20
EQS Fisheries ( $\leq 6$ mg/l)												
EQS Industrial ( $\leq 50$ mg/l )												

Table-203. Level of COD (mg/l) of Balu River Water in 2018

Location of Balu river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	-	130	228	-	98	-	-	14	19	-	66	56
Near Hossain Dyeing Ltd. Pagar, Tongi	189	189	212	-	102	-	10	16	22	-	61	52
Near Damra University College, Demra, Dhaka	196	-	-	-	32	-	10	10	24	-	27	40
Near Balu Bridge, 300 feet Road, Dhaka	-	57	-	-	-	-	-	24	12	-	-	36
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	10	-	-	-	-	-
South Side of Tongi Rail Bridge, Pagar, Tongi	196	189	228	-	102	-	10	24	24	-	66	56
EQS Industrial ( $\leq 200$ mg/l)												

Table-204. Level of TDS (mg/l) of Balu River Water in 2018

Location of Balu river	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	-	850	610	-	325	-	-	67	73.7	-	466	435
Near Hossain Dyeing Ltd. Pagar, Tongi	475	860	650	-	218	-	55.6	63	47.7	-	632	488
Near Damra University College, Demra, Dhaka	431	-	-	-	132	-	54	45	45	-	240	245
Near Balu Bridge, 300 feet Road, Dhaka	-	485	-	-	-	-	-	41.3	96.3	-	-	242
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	61.8	-	-	-	-	-
South Side of Tongi Rail Bridge, Pagar, Tongi	475	860	650	-	325	-	61.8	67	96.3	-	632	488
EQS Industrial ( $\leq 200$ mg/l)												

**Table-205. Level of Chloride (mg/l) of Balu River Water in 2018**

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	-	84	130	-	35	-	-	10	8	-	48	52
Near Hossain Dyeing Ltd. Pagar, Tongi	82	85	82	-	40	-	11	9	7	-	52	52
Near Damra University College, Demra, Dhaka	82	-	-	-	12	-	12	12	9	-	35	24
Near Balu Bridge, 300 feet Road, Dhaka	-	56	-	-	-	-	-	8	8	-	-	25
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	12	-	-	-	-	-
South Side of Tongi Rail Bridge, Pagar, Tongi	82	85	130	-	40	-	12	12	9	-	52	52

EQS Industrial (150-600 mg/l)

**Table-206. Level of SS (mg/l) of Balu River Water in 2018**

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	-	136	106	-	72	-	-	66	10	-	56	48
Near Hossain Dyeing Ltd. Pagar, Tongi	166	75	166	-	73	-	76	56	15	-	73	20
Near Damra University College, Demra, Dhaka	156	-	-	-	30	-	82	82	82	-	15	22
Near Balu Bridge, 300 feet Road, Dhaka	-	66	-	-	-	-	-	45	22	-	-	24
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	89	-	-	-	-	-
South Side of Tongi Rail Bridge, Pagar, Tongi	156	66	106	-	30	-	76	45	10	-	15	20

EQS Industrial ( $\leq 150$  mg/l)**Table-207. Level of EC ( $\mu$ mhos/cm) of Balu River Water in 2018**

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	-	1430	1198	-	767	-	-	134	163	-	922	860
Near Hossain Dyeing Ltd. Pagar, Tongi	894	1501	1143	-	514	-	110	126	107.7	-	1176	960
Near Damra University College, Demra, Dhaka	817	-	-	-	310	-	108	105.2	105.2	-	480	480
Near Balu Bridge, 300 feet Road, Dhaka	-	943	-	-	-	-	-	97.7	196.1	-	-	475
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	120	-	-	-	-	-
South Side of Tongi Rail Bridge, Pagar, Tongi	894	1501	1198	-	767	-	120	134	196.1	-	1176	960

EQS (1200  $\mu$ mhos/cm)

**Table-208. Level of T.alkalinity (mg/l) of Balu River Water in 2018**

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	-	420	368	-	368	-	-	52	58	-	178	180
Near Hossain Dyeing Ltd. Pagar, Tongi	344	350	344	-	344	-	60	54	60	-	180	180
Near Damra University College, Demra, Dhaka	280	-	-	-	224	-	62	62	62	-	160	120
Near Balu Bridge, 300 feet Road, Dhaka	-	340	-	-	-	-	-	78	56	-	-	120
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	58	-	-	-	-	-
South Side of Tongi Rail Bridge, Pagar, Tongi	344	420	368	-	368	-	62	78	62	-	180	180
EQS (150 mg/l)												

**Table-209. Level of Turbidity (NTU) of Balu River Water in 2018**

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	-	46.2	166	-	21.2	-	-	66.4	14.1	-	33	12.7
Near Hossain Dyeing Ltd. Pagar, Tongi	59	33.8	59	-	25.2	-	78.2	68.4	15.2	-	65.3	31.1
Near Damra University College, Demra, Dhaka	106	-	-	-	20.1	-	77.4	77.4	77.4	-	20.9	10.2
Near Balu Bridge, 300 feet Road, Dhaka	-	46.2	-	-	-	-	-	56.2	7.34	-	-	10.2
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	76.6	-	-	-	-	-
South Side of Tongi Rail Bridge, Pagar, Tongi	106	46.2	166	-	25.2	-	78.2	77.4	77.4	-	65.3	31.1
EQS (10 NTU)												

## *Annex-2*

### *List of Tables for different parameters of Lake Water*

**I. Gulshan Lake (Table: 210-219)****Table-210. Level of pH of Gulshan Lake Water in 2018**

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	7.22	-	7.48	-	7.48	7.23	7.05	<b>8.39</b>	7.45	7.18	-	7.61
Near Housing, South Bridge	7.31	-	7.4	-	7.4	7.26	7.24	8.34	7.42	7.21	-	7.79
Near Lake View Clinic	7.12	-	7.54	-	7.54	7.27	7.12	8.35	7.12	7.21	-	7.44
North Side Gulshan Baridhara Lake	7.16	-	7.5	-	7.5	7.36	7.23	8	7.67	7.11	-	7.65
Taltola Shooting Complex, South Side	7.22	-	7.54	-	7.54	7.75	7.33	7.98	7.54	7.16	-	7.61
North Side of Gulshan-1, Gudara Ghat	<b>6.9</b>	-	7.53	-	7.53	7.47	7.21	7.21	7.38	6.94	-	-
South Side of Gulshan-1, Gudara Ghat	7.09	-	7.74	-	7.74	7.53	7.23	7.85	7.39	7.17	-	-
Gulshan-Bonani Connection Bridge	7.44	-	7.41	-	7.41	7.18	7.23	8.22	7.36	6.92	-	-
Bonani Bridge	7.3	-	-	-	-	7.12	7.32	7.96	7.6	6.98	-	-
<b>EQS for fisheries 6.5-8.5</b>												

**Table-211. Level of DO (mg/l) of Gulshan Lake Water in 2018**

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	2.1	-	1.25	-	1.25	4.25	1.25	8.55	0.5	6.8	-	2.2
Near Housing, South Bridge	2	-	10.1	-	10.1	3.57	10.1	6.8	0.6	7.6	-	2.4
Near Lake View Clinic	1.5	-	7.8	-	7.8	4.91	7.8	7.8	1	8.6	-	3.6
North Side Gulshan Baridhara Lake	2.3	-	4.8	-	4.8	4.75	4.8	7.6	<b>0.3</b>	10.5	-	0.5
Taltola Shooting Complex, South Side	2.3	-	7.11	-	7.11	7.08	7.11	9.05	0.6	12.2	-	2.9
North Side of Gulshan-1, Gudara Ghat	0	-	14.1	-	14.1	1.95	<b>14.1</b>	5.02	0.4	2.8	-	-
South Side of Gulshan-1, Gudara Ghat	0	-	10.4	-	10.4	2.26	10.4	10.59	1	3.2	-	-
Gulshan-Bonani Connection Bridge	5.3	-	6.8	-	6.8	5.4	6.8	6.31	1.1	1.2	-	-
Bonani Bridge	4.1	-	-	-	-	5.4	2.3	5.31	1.1	2.4	-	--
<b>EQS for fisheries <math>\geq 5</math> mg/l</b>												



Table-212. Level of BOD (mg/l) of Gulshan Lake Water in 2018

Location of Gulshan Lake	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	49	-	49	-	21	22	38	25	45	36	-	35
Near Housing, South Bridge	48	-	48	-	28	22	20	23	42	36.6	-	40
Near Lake View Clinic	40	-	40	-	21	17	22	22	44	35.6	-	32
North Side Gulshan Baridhara Lake	20	-	20	-	20	23	20	20	33	32.4	-	27
Taltola Shooting Complex, South Side	26	-	26	-	26	11	30	30	35	33	-	21
North Side of Gulshan-1, Gudara Ghat	62	-	62	-	28	16	28	16	28	36	-	-
South Side of Gulshan-1, Gudara Ghat	36	-	36	-	22	22	25	12	27	29.4	-	-
Gulshan-Bonani Connection Bridge	40	-	40	-	24	21	26	32	26	30	-	-
Bonani Bridge	36	-	-	-	-	25	23	31	28	32.4	-	-
EQS for fisheries $6 \leq \text{mg/l}$												

Table-213. Level of COD (mg/l) of Gulshan Lake Water in 2018

Location of Gulshan Lake	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	103	-	103	-	86	64	80	80	119	88	-	117
Near Housing, South Bridge	122	-	122	-	88	68	75	75	116	92	-	131
Near Lake View Clinic	143	-	143	-	95	55	68	68	117	98	-	95
North Side Gulshan Baridhara Lake	76	-	76	-	86	54	86	86	87	93	-	80
Taltola Shooting Complex, South Side	81	-	81	-	95	41	95	95	89	88	-	61
North Side of Gulshan-1, Gudara Ghat	170	-	170	-	110	89	86	46	86	81	-	-
South Side of Gulshan-1, Gudara Ghat	136	-	136	-	82	68	82	34	82	88	-	-
Gulshan-Bonani Connection Bridge	87	-	87	-	87	66	87	87	78	76	-	-
Bonani Bridge	114	-	-	-	-	72	92	92	88	90	-	-
EQS for wastewater after treatment from industrial units 200 mg/l												

**Table-214. Level of TDS (mg/l) of Gulshan Lake Water in 2018**

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	260	-	281	-	281	172	166.3	189.3	218.1	168.1	-	329
Near Housing, South Bridge	262	-	272	-	272	172.2	185.1	186.4	212	166.5	-	330
Near Lake View Clinic	262	-	315	-	315	173.1	176	184.2	214	<b>161.5</b>	-	335
North Side Gulshan Baridhara Lake	271	-	277	-	277	170.9	181	255	233	174.3	-	276
Taltola Shooting Complex, South Side	274	-	280	-	280	180.3	187	245	262	178.1	-	269
North Side of Gulshan-1, Gudara Ghat	338	-	287	-	287	174.7	181	232	296	207.6	-	-
South Side of Gulshan-1, Gudara Ghat	<b>475</b>	-	329	-	329	181	183	283	298	201.2	-	-
Gulshan-Bonani Connection Bridge	252	-	310	-	310	318	198	198	299	201.4	-	-
Bonani Bridge	189	-	-	-	-	258	211	211	211	207.1	-	-
<b>EQS for wastewater after treatment from industrial units 2100 mg/l</b>												

**Table-215. Level of Turbidity (NTU) of Gulshan Lake Water in 2018**

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	84.4	-	66.5	-	42.4	36.6	29.9	45.6	46.2	44.5	-	-
Near Housing, South Bridge	82	-	50.8	-	39.6	36.2	44.7	44.7	45.8	43.8	-	-
Near Lake View Clinic	98.9	-	48.7	-	36.7	38.2	84.2	46.2	46.2	44.2	-	-
North Side Gulshan Baridhara Lake	36.3	-	33.9	-	39.7	25.6	120	35.6	26.4	43.8	-	-
Taltola Shooting Complex, South Side	<b>153</b>	-	83.4	-	33.5	29.2	76.2	32.6	64	40.7	-	-
North Side of Gulshan-1, Gudara Ghat	59.3	-	78.6	-	42.6	41.6	65.4	32.4	64	38.8	-	-
South Side of Gulshan-1, Gudara Ghat	43.8	-	77.8	-	52.4	26.8	52.4	34.5	18.3	40.8	-	-
Gulshan-Bonani Connection Bridge	34.2	-	57.4	-	46.8	32.6	54.2	32.4	19.2	40.2	-	-
Bonani Bridge	21.5	-	-	-	-	34.6	52.4	33.9	<b>15.4</b>	41	-	-
<b>EQS for wastewater after treatment from industrial units 10 NTU</b>												



Table-216. Level of Chloride (mg/l) of Gulshan Lake Water in 2018

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	38	-	38	-	38	16	38	24	38	24	-	32
Near Housing, South Bridge	31	-	31	-	31	17	31	30	31	25	-	31
Near Lake View Clinic	34	-	34	-	34	20	34	28	34	25	-	32
North Side Gulshan Baridhara Lake	39	-	39	-	39	21	39	28	39	24	-	31
Taltola Shooting Complex, South Side	34	-	34	-	34	24	34	32	34	26	-	31
North Side of Gulshan-1, Gudara Ghat	32	-	32	-	32	24	32	32	32	27	-	-
South Side of Gulshan-1, Gudara Ghat	59	-	59	-	59	25	59	34	59	25	-	-
Gulshan-Bonani Connection Bridge	31	-	31	-	31	20	31	32	31	28	-	-
Bonani Bridge	23	-	-	-	-	22	32	32	32	27	-	-
<b>EQS for wastewater after treatment from industrial units 150-600 mg/l</b>												

Table-217. Level of SS (mg/l) of Gulshan Lake Water in 2018

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	175	-	139	-	65	86	35	167	137	118	-	112
Near Housing, South Bridge	174	-	117	-	76	105	82	165	134	121	-	140
Near Lake View Clinic	176	-	116	-	61	107	127	164	132	120	-	86
North Side Gulshan Baridhara Lake	102	-	66	-	50	74	110	110	75	121	-	74
Taltola Shooting Complex, South Side	211	-	88	-	41	30	86	86	88	110	-	43
North Side of Gulshan-1, Gudara Ghat	91	-	89	-	56	65	78	78	22	118	-	-
South Side of Gulshan-1, Gudara Ghat	154	-	78	-	68	52	74	76	22	120	-	-
Gulshan-Bonani Connection Bridge	43	-	86	-	62	55	64	74	22	118	-	-
Bonani Bridge	38	-	-	-	-	54	66	80	23	117	-	-
<b>EQS for wastewater after treatment from industrial units 150 mg/l</b>												



Table-218. Level of Total Alkalinity (mg/l) of Gulshan Lake Water in 2018

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	100	-	100	-	100	14	62	120	62	128	-	230
Near Housing, South Bridge	110	-	110	-	110	110	122	116	122	130	-	231
Near Lake View Clinic	108	-	108	-	108	112	116	122	116	132	-	229
North Side Gulshan Baridhara Lake	88	-	88	-	88	116	112	132	112	134	-	230
Taltola Shooting Complex, South Side	90	-	90	-	90	118	130	134	130	138	-	231
North Side of Gulshan-1, Gudara Ghat	166	-	166	-	166	120	122	142	122	132	-	-
South Side of Gulshan-1, Gudara Ghat	186	-	286	-	112	114	130	130	130	140	-	-
Gulshan-Bonani Connection Bridge	100	-	100	-	100	110	100	132	100	152	-	-
Bonani Bridge	120	-	-	-	-	118	120	134	120	150	-	-
EQS for wastewater after treatment from industrial units 150 mg/l												

Table-219. Level of EC ( $\mu$ mhos/cm) of Gulshan Lake Water in 2018

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	475	-	525	-	525	345	323	351	427	336	-	640
Near Housing, South Bridge	484	-	528	-	528	356	361	356	420	332	-	655
Near Lake View Clinic	484	-	509	-	509	349	341	354	425	305	-	554
North Side Gulshan Baridhara Lake	479	-	588	-	588	342	352	433	451	328	-	539
Taltola Shooting Complex, South Side	503	-	515	-	515	361	364	435	508	336	-	625
North Side of Gulshan-1, Gudara Ghat	618	-	520	-	520	351	352	431	574	391	-	-
South Side of Gulshan-1, Gudara Ghat	875	-	525	-	525	365	356	359	572	388	-	-
Gulshan-Bonani Connection Bridge	452	-	612	-	612	634	420	346	596	382	-	-
Bonani Bridge	389	-	-	-	-	514	423	398	420	389	-	-
EQS for wastewater after treatment from industrial units 1200 $\mu$ mhos/cm												

**II. Dhanmondi Lake (Table: 220-229)****Table-220. Level of pH of Dhanmondi Lake Water in 2018**

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	7.02	-	7.94	-	7.34	-	-	7.78	7.78	-	-	-
Near Gigatola Pilkhana More	6.98	-	7.67	-	7.47	-	-	7.96	7.96	-	-	-
Near Dhanmondi-32 Bangabandhu Jadughor	<b>6.8</b>	-	7.73	-	<b>8.45</b>	-	-	-	-	-	-	-
Near Dhanmondi-32 Bridge	6.96	-	7.81	-	7.75	-	-	7.62	7.62	-	-	-
EQS for fisheries 6.5-8.5												

**Table-221. Level of DO (mg/l) of Dhanmondi Lake Water in 2018**

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	6.2	-	8	-	6	-	-	5.2	5.5	-	-	-
Near Gigatola Pilkhana More	3.9	-	4.5	-	8.8	-	-	4.52	5.2	-	-	-
Near Dhanmondi-32 Bangabandhu Jadughor	3.2	-	5.2	-	<b>10.8</b>	-	-	-	-	-	-	-
Near Dhanmondi-32 Bridge	<b>2.6</b>	-	4.6	-	7	-	-	6.82	8.1	-	-	-
EQS for fisheries $\geq 5$ mg/l												

**Table-222. Level of BOD (mg/l) of Dhanmondi Lake Water in 2018**

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	4	-	4	-	4	-	-	4.1	<b>3.1</b>	-	-	-
Near Gigatola Pilkhana More	3.8	-	3.8	-	3.8	-	-	3.8	3.8	-	-	-
Near Dhanmondi-32 Bangabandhu Jadughor	4.4	-	4.4	-	<b>4.4</b>	-	-	-	-	-	-	-
Near Dhanmondi-32 Bridge	4.2	-	4.2	-	4.2	-	-	4.2	4.2	-	-	-
EQS for fisheries $6 \leq$ mg/l												

**Table-223. Level of COD (mg/l) of Dhanmondi Lake Water in 2018**

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	39	-	26	-	26	-	-	<b>14</b>	15	-	-	-
Near Gigatola Pilkhana More		-	22	-	27	-	-	27	17	-	-	-
Near Dhanmondi-32 Bangabandhu Jadughor		-	<b>43</b>	-	17	-	-	-	-	-	-	-
Near Dhanmondi-32 Bridge		-	28	-	28	-	-	28	17	-	-	-
EQS for wastewater after treatment from industrial units 200 mg/l												



Table-224. Level of TDS (mg/l) of Dhanmondi Lake Water in 2018

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	106.8	-	129	-	129	-	-	129	101	-	-	-
Near Gigatola Pilkhana More	112.2	-	131.1	-	131.1	-	-	99.3	99.3	-	-	-
Near Dhanmondi-32 Bangabandhu Jadughor	136.8	-	130	-	130	-	-	-	-	-	-	-
Near Dhanmondi-32 Bridge	128.7	-	134	-	134	-	-	114.2	114.2	-	-	-
EQS for wastewater after treatment from industrial units 2100 mg/l												

Table-225. Level of Turbidity (NTU) of Dhanmondi Lake Water in 2018

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	5.71	-	11.98	-	9	-	-	9	5.13	-	-	-
Near Gigatola Pilkhana More	4.71	-	14.17	-	6.5	-	-	6.5	3.99	-	-	-
Near Dhanmondi-32 Bangabandhu Jadughor	7.37	-	11.78	-	7.44	-	-	-	-	-	-	-
Near Dhanmondi-32 Bridge	7.37	-	10.11	-	5.27	-	-	5.27	7.9	-	-	-
EQS for wastewater after treatment from industrial units 10 NTU												

Table-226. Level of Chloride (mg/l) of Dhanmondi Lake Water in 2018

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	20	-	10	-	10	-	-	10	49	-	-	-
Near Gigatola Pilkhana More	19	-	11	-	11	-	-	11	35	-	-	-
Near Dhanmondi-32 Bangabandhu Jadughor	25	-	12	-	12	-	-	-	-	-	-	-
Near Dhanmondi-32 Bridge	24	-	10	-	10	-	-	10	42	-	-	-
EQS for wastewater after treatment from industrial units 150-600 mg/l												

Table-227. Level of SS (mg/l) of Dhanmondi Lake Water in 2018

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	41	-	24	-	20	-	-	20	48	-	-	-
Near Gigatola Pilkhana More	32	-	22	-	22	-	-	22	38	-	-	-
Near Dhanmondi-32 Bangabandhu Jadughor	34	-	20	-	25	-	-	-	-	-	-	-
Near Dhanmondi-32 Bridge	24	-	18	-	18	-	-	18	18	-	-	-
EQS for wastewater after treatment from industrial units 15 mg/l												



Table-228. Level of Total Alkalinity (mg/l) of Dhanmondi Lake Water in 2018

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	96	-	110	-	110	-	-	110	110	-	-	-
Near Gigatola Pilkhana More	<b>90</b>	-	116	-	116	-	-	116	116	-	-	-
Near Dhanmondi-32 Bangabandhu Jadughor	96	-	112	-	112	-	-	-	-	-	-	-
Near Dhanmondi-32 Bridge	110	-	118	-	<b>118</b>	-	-	118	118	-	-	-
EQS for wastewater after treatment from industrial units 150 mg/l												

Table-229. Level of EC ( $\mu$ mhos/cm) of Dhanmondi Lake Water in 2018

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	209.9	-	250	-	<b>209</b>	-	-	229	229	-	-	-
Near Gigatola Pilkhana More	216.3	-	225	-	225	-	-	237	237	-	-	-
Near Dhanmondi-32 Bangabandhu Jadughor	262	-	254	-	254	-	-	-	-	-	-	-
Near Dhanmondi-32 Bridge	246	-	251	-	251	-	-	273	273	-	-	-
EQS for wastewater after treatment from industrial units 1200 $\mu$ mhos/cm												

### III. Hatir Jheel Lake (Table: 230-239)

Table-230. Level of pH of Hatir Jheel Lake Water in 2018

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	7.37	-	7.48	-	7.67	-	-	7.04	7.04	-	-	-
Raampura Bridge	6.88	-	<b>7.8</b>	-	7.39	-	-	7.13	7.13	-	-	-
FDC More Bridge	7.65	-	7.57	-	7.61	-	-	<b>6.84</b>	6.84	-	-	-
EQS for fisheries 6.5-8.5												

Table-231. Level of DO (mg/l) of Hatir Jheel Lake Water in 2018

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	2.9	-	<b>1.3</b>	-	7	-	-	1.92	4.1	-	-	-
Raampura Bridge	1.6	-	6	-	2.4	-	-	0.53	5.2	-	-	-
FDC More Bridge	2.11	-	4.2	-	2.4	-	-	0.22	0	-	-	-
EQS for fisheries $\geq 5$ mg/l												

**Table-232. Level of BOD (mg/l) of Hatir Jheel Lake Water in 2018**

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	16	-	32	-	30	-	-	30	30	-	-	-
Raampura Bridge	18	-	38	-	24	-	-	30.6	28.2	-	-	-
FDC More Bridge	18.2	-	28	-	17	-	-	54	48	-	-	-
EQS for fisheries 6smg/l												

**Table-233. Level of COD (mg/l) of Hatir Jheel Lake Water in 2018**

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	63	-	192	-	87	-	-	106	89	-	-	-
Raampura Bridge	52	-	211	-	41	-	-	92	77	-	-	-
FDC More Bridge	66	-	123	-	36	-	-	108	107	-	-	-
EQS for wastewater after treatment from industrial units 200 mg/l												

**Table-234. Level of TDS (mg/l) of Hatir Jheel Lake Water in 2018**

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	308	-	344	-	256	-	-	271	271	-	-	-
Raampura Bridge	343	-	358	-	254	-	-	264	264	-	-	-
FDC More Bridge	297	-	347	-	189.2	-	-	284	284	-	-	-
EQS for wastewater after treatment from industrial units 2100 mg/l												

**Table-235. Level of Turbidity (NTU) of Hatir Jheel Lake Water in 2018**

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	88.5	-	17.2	-	68	-	-	46.4	32.2	-	-	-
Raampura Bridge	69.7	-	18.7	-	31	-	-	37	33.8	-	-	-
FDC More Bridge	53.1	-	16.8	-	29	-	-	39.4	18.6	-	-	-
EQS for wastewater after treatment from industrial units 10 NTU												

**Table-236. Level of Chloride (mg/l) of Hatir Jheel Lake Water in 2018**

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	46	-	40	-	40	-	-	33	110	-	-	-
Raampura Bridge	56	-	38	-	38	-	-	34	93	-	-	-
FDC More Bridge	50	-	40	-	40	-	-	36	132	-	-	-
EQS for wastewater after treatment from industrial units 150-600 mg/l												

**Table-237. Level of SS (mg/l) of Hatir Jheel Lake Water in 2018**

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	167	-	41	-	87	-	-	117	77	-	-	-
Raampura Bridge	107	-	42	-	64	-	-	112	70	-	-	-
FDC More Bridge	20	-	43	-	61	-	-	167	31	-	-	-
EQS for wastewater after treatment from industrial units 15 mg/l												

**Table-238. Level of Total Alkalinity (mg/l) of Hatir Jheel Lake Water in 2018**

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	282	-	210	-	210	-	-	388	388	-	-	-
Raampura Bridge	336	-	198	-	198	-	-	376	376	-	-	-
FDC More Bridge	214	-	210	-	210	-	-	451	451	-	-	-
EQS for wastewater after treatment from industrial units 150 mg/l												

**Table-239. Level of EC ( $\mu$ mhos/cm) of Hatir Jheel Lake Water in 2018**

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	583	-	656	-	485	-	-	636	636	-	-	-
Raampura Bridge	643	-	680	-	480	-	-	621	621	-	-	-
FDC More Bridge	540	-	659	-	358	-	-	666	666	-	-	-
EQS for wastewater after treatment from industrial units 1200 $\mu$ mhos/cm												

## *Annex-3*

### *List of Tables for different parameters of Ground Water*

**IV. Ground Water (Deep Tubewell) in Chittagong District (Table: 240-245)****Table-240. Level of pH of Ground Water at Chittagong District in 2018**

Location of Chittagong District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
MES College Area	7.7	6.2	6.5	7.1	7.5	7.7	8	8.1	8	8.6	8.2	8
USTC Area	6.9	7.3	7	7.6	7.2	7	8.1	8.3	8.1	8.4	8.5	8.3
Nsirabad 2 No. Gate Area	7.2	6.8	7.5	6.9	6.3	6.7	6.7	6.8	7	7.7	7.4	7.8
Chittagong Polytechnic Institute Area	7.1	6.5	7.1	7.4	7.9	7.2	7.1	7.4	7.1	7.5	7.9	7.6
Chadgaon Residential Area	7.8	7.9	6.8	7.7	7.1	7.6	7.6	7	7.7	7.3	7.5	7.1
City College Area	7.1	8	8.3	8	8.1	8	8.5	8.3	8.1	8.7	8.3	8.1
Agrabad Women College Area	6.6	7.7	6.6	7.8	7.7	7.4	7.7	7.9	7.5	7.2	7	7.2
CEPZ Area	7	8.1	7.9	8.2	8	8.2	6.9	6.7	7.3	7.8	7.6	7.9
<b>EQS for Drinking (6.5-8.5)</b>												

**Table-241. Level of TDS (mg/l) of Ground Water at Chittagong District in 2018**

Location of Chittagong District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
MES College Area	178	177	168	134	128	137	77.6	81.2	88	102	98	91
USTC Area	163	150	145	156	150	156	138	129	120	117	120	128
Nsirabad 2 No. Gate Area	134	108	76	110	123	120	120	127	117	126	118	109
Chittagong Polytechnic Institute Area	101	95	79	88	96	102	77.6	79	84	89	93	102
Chadgaon Residential Area	68	120	136	133	140	150	84.8	86.3	92.7	99	104	119
City College Area	120	146	169	178	169	172	120	125	116	123	115	126
Agrabad Women College Area	177	77	60	93	82	91	105	101	110	108	110	120
CEPZ Area	189	123	128	136	133	127	82.6	81.5	102.3	286	160	176
<b>EQS for Drinking (1000 mg/l)</b>												

**Table-242. Level of Chloride (mg/l) of Ground Water at Chittagong District in 2018**

Location of Chittagong District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
MES College Area	44	50	77	61	88	100	-	-	-	-	-	-
USTC Area	83	55	61	83	66	55	-	-	-	-	-	-
Nsirabad 2 No. Gate Area	55	50	44	55	105	83	-	-	-	-	-	-
Chittagong Polytechnic Institute Area	55	55	55	50	55	77	-	-	-	-	-	-
Chadgaon Residential Area	88	88	50	38	50	55	-	-	-	-	-	-
City College Area	44	61	88	94	100	111	-	-	-	-	-	-
Agrabad Women College Area	61	55	33	55	61	83	-	-	-	-	-	-
CEPZ Area	50	77	66	77	44	50	-	-	-	-	-	-
<b>EQS for Drinking (150-600 mg/l)</b>												

**Table-243. Level of EC ( $\mu\text{mhos/cm}$ ) of Ground Water at Chittagong District in 2018**

Location of Chittagong District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
MES College Area	340	350	338	269	267	261	163.3	160.5	187	207	204	172
USTC Area	290	304	294	292	313	330	276	251	254	226	254	266
Nsirabad 2 No. Gate Area	230	210	150	207	236	256	256	249	217	240	217	207
Chittagong Polytechnic Institute Area	150	194	162	168	185	235	157	156	178	164	175	218
Chadgaon Residential Area	<b>116</b>	236	277	256	272	293	167	167.6	187	186	210	240
City College Area	250	289	335	350	327	329	235	258	257	258	243	245
Agrabad Women College Area	310	157	125	176	173	180	207	199	235	210	245	264
CEPZ Area	345	240	260	264	278	263	175.2	165	218	<b>578</b>	340	330
<b>EQS for Industries (1200 <math>\mu\text{mhos/cm}</math>)</b>												

**Table-244. Level of Iron (mg/l) of Ground Water at Chittagong District in 2018**

Location of Chittagong District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
MES College Area	0.17	0.21	0.15	0.19	0.27	0.2	-	-	-	-	-	-
USTC Area	0.26	0.16	0.29	0.3	0.38	0.35	-	-	-	-	-	-
Nsirabad 2 No. Gate Area	<b>0.1</b>	0.28	0.23	0.2	0.23	0.21	-	-	-	-	-	-
Chittagong Polytechnic Institute Area	0.41	0.42	0.35	0.29	0.31	0.39	-	-	-	-	-	-
Chadgaon Residential Area	0.18	0.3	0.38	0.41	<b>0.48</b>	0.4	-	-	-	-	-	-
City College Area	0.09	0.19	0.16	0.28	0.2	0.18	-	-	-	-	-	-
Agrabad Women College Area	0.16	0.28	0.27	0.32	0.28	0.3	-	-	-	-	-	-
CEPZ Area	0.33	0.1	0.13	0.17	0.15	0.19	-	-	-	-	-	-
<b>EQS for Drinking (0.3-1 mg/l)</b>												

**Table-245. Level of Hardness (mg/l) of Ground Water at Chittagong District in 2018**

Location of Chittagong District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
MES College Area	156	155	126	130	133	140	-	-	-	-	-	-
USTC Area	162	139	154	165	156	148	-	-	-	-	-	-
Nsirabad 2 No. Gate Area	<b>187</b>	161	145	149	150	156	-	-	-	-	-	-
Chittagong Polytechnic Institute Area	133	147	160	151	149	141	-	-	-	-	-	-
Chadgaon Residential Area	172	135	142	153	158	162	-	-	-	-	-	-
City College Area	129	149	137	128	<b>122</b>	133	-	-	-	-	-	-
Agrabad Women College Area	167	156	149	144	138	145	-	-	-	-	-	-
CEPZ Area	180	<b>180</b>	177	170	168	161	-	-	-	-	-	-
<b>EQS for Drinking (200-500 mg/l)</b>												



## V. Ground Water (Deep Tubewell) in Khulna District (Table: 246-251)

Table-246. Level of pH of Ground Water at Khulna District in 2018

Locations of Khulna District	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Divisional Commissioner Office, Boyra	7.4	-	7.22	7.23	7.22	7.23	7.26	7.22	7.23	7.23	7.21	7.2
Govt. Girls College, Boyra	7.4	-	7.25	7.28	7.29	7.27	7.24	7.24	7.21	7.23	7.31	7.32
Khulna Public College, Boyra	7.4	-	7.42	7.42	7.41	7.42	7.4	7.41	7.4	7.33	7.3	7.3
Boyra Bazar More, Boyra	7.43	-	7.4	7.42	7.48	7.44	7.42	7.4	7.4	7.37	7.37	7.32
Aizer More, Boyra	7.29	-	7.32	7.35	7.39	7.36	7.34	7.31	7.31	7.33	7.33	7.3
RupsaRupsa Bus Stand, RupsaRupsa	7.3	-	7.3	7.39	7.32	7.34	7.3	7.3	7.3	7.28	7.26	7.22
Natun Bazar, RupsaRupsa	7.42	-	7.42	7.42	7.44	7.44	7.44	7.44	7.44	7.42	7.42	7.42
Govt. Commercial College, Sonadanga	7.4	-	7.4	7.46	7.44	7.43	7.41	7.41	7.41	7.38	7.38	7.38
Sonadanga Bus Stand, Sonadanga	7.44	-	7.44	7.44	7.46	7.43	7.46	7.44	7.44	7.41	7.41	7.39
Surgical Clinic, Sonadanga	7.42	-	7.43	7.42	7.44	7.42	7.43	7.42	7.42	7.4	7.4	7.4
Govt. B.L. College, Daulatpur	7.32	-	7.34	7.35	7.36	7.36	7.38	7.32	7.33	7.3	7.32	7.31
KUET University Main Gate, Fulbari Gate	7.36	-	7.16	7.16	7.19	7.18	7.22	7.23	7.23	7.21	7.2	7.2
Gollamari Bus Stand, Gollamari	7.46	-	7.46	7.46	7.46	7.48	7.48	7.48	7.48	7.42	7.42	7.4
Govt. Mohasin College, Khalishpur	7.3	-	7.31	7.31	7.31	7.3	7.35	7.31	7.3	7.32	7.23	7.26
Moylapota More	7.36	-	7.36	7.36	7.32	7.36	7.36	7.36	7.36	7.29	7.26	7.24
Nirala More	7.41	-	7.41	7.41	7.38	7.37	7.37	7.3	7.31	7.28	7.21	7.21
Islami Bank Hospital, Santidham Mor	7.34	-	7.34	7.32	7.38	7.37	7.36	7.31	7.31	7.28	7.28	7.22
Seba Clinic, Sher-E-Bangal Road	7.38	-	7.38	7.32	7.32	7.32	7.34	7.35	7.32	7.32	7.31	7.31
Jia Hall, Sib Bary	7.43	-	7.45	7.46	7.46	7.44	7.44	7.44	7.44	7.41	7.38	7.35
Khulna University, Vaskarja Chattar	7.42	-	7.42	7.42	7.44	7.44	7.44	7.42	7.42	7.4	7.4	7.4
Sarkit House	7.29	-	7.34	7.39	7.34	7.36	7.33	7.31	7.31	7.3	7.28	7.22
Govt. Khulna Gila School	7.28	-	7.36	7.36	7.36	7.38	7.36	7.31	7.31	7.28	7.28	7.24
D.C Office	7.29	-	7.33	7.32	7.34	7.39	7.35	7.35	7.3	7.31	7.31	7.31
Dak Banglo More	7.35	-	7.35	7.35	7.38	7.36	7.36	7.36	7.36	7.32	7.32	7.32
Govt. Azom Khan Commerce College	7.39	-	7.42	7.42	7.42	7.43	7.41	7.41	7.41	7.4	7.38	7.33
Govt. Majid Memorial City College	7.34	-	7.39	7.3	7.38	7.39	7.39	7.37	7.36	7.34	7.32	7.29

EQS (6.5-8.5) for drinking

Table-247. Level of EC ( $\mu\text{mhos/cm}$ ) of Ground Water at Khulna District in 2018

Locations of Khulna	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Divisional Comissioner Office, Boyra	2222	-	2302	2354	2362	2368	2360	2322	2320	2242	2204	2178
Govt. Girls College, Boyra	2114	-	2188	2188	2189	2184	2186	2181	2173	2172	2102	2088
Khulna Public College, Boyra	2128	-	2145	2164	2168	2163	2167	2155	2150	2134	2108	2108
Boyra Bazar More, Boyra	2032	-	2102	2102	2114	2118	2108	2102	2102	2076	2048	2022
Aizer More, Boyra	2238	-	2244	2248	2244	2249	2244	2218	2218	2202	2188	2180
RupsaRupsa Bus Stand, RupsaRupsa	2072	-	2125	2128	2120	2128	2103	2103	2103	2087	2084	2084
Natun Bazar, RupsaRupsa	1976	-	2029	2035	2039	2036	2036	2032	2030	2028	2002	2002
Govt. Comercial College, Sonadanga	2082	-	21822	21822	21822	2183	2177	2170	2170	2162	2140	2140
Sonadanga Bus Stand, Sonadanga	2052	-	2142	2144	2144	2148	2148	2148	2148	2140	2112	2104
Sarjical Clinic, Sonadanga	2028	-	2114	2130	2126	2129	2129	2115	2115	2102	2086	2086
Govt. B.L College, Daulatpur	2116	-	2214	2225	2232	2232	2239	2232	2230	2216	2208	2179
KUET University Main Gate, Fulbari Gate	2243	-	2316	2338	2348	2344	2340	2328	2322	2286	2226	2202
Gollamari Bus Stand, Gollamari	2014	-	2128	2128	2124	2129	2142	2136	2130	2132	2132	2132
Govt. Mohasin College, Khalishpur	2018	-	2124	2132	2138	2134	2148	2140	2140	2138	2142	2134
Moylapota More	2138	-	2188	2196	2192	2196	2188	2188	2188	2182	2176	2172
Nirala More	2038	-	2124	2124	2126	2123	2112	2112	2112	2110	2086	2080
Islami Bank Hospital, Santidham Mor	2029	-	2129	2145	2140	2148	2136	2130	2130	2123	2092	2076
Seba Clinic, Sher-E-Bangal Road	2088	-	2166	2168	2168	2167	2148	2142	2140	2140	2132	2132
Jia Hall, Sib Bary	2026	-	2124	2124	2128	2128	2128	2128	2128	2122	2084	2080
Khulna University, Vaskarja Chattar	2008	-	2102	2118	2118	2113	2108	2102	2102	2087	2080	2080
Sarkit House	1999	-	2048	2048	2036	2048	2036	2016	2016	1986	1982	1976
Govt. Khulna Gila School	1958	-	2046	2046	2046	2049	2037	2118	2110	2089	2080	2078
D.C Office	2065	-	2088	2088	2082	2082	2075	2075	2075	2070	2070	2076
Dak Banglo More	1986	-	2024	2028	2036	2038	2038	2030	2030	2017	2008	2008
Govt. Azom Khan Commerce College	1922	-	1989	1994	1998	2014	1975	1966	1960	1960	1950	1950
Govt. Majid Memorial City College	1928	-	1986	1992	1992	1992	1942	1946	1941	1938	1926	1926
<b>EQS for wastewater after treatment from industrial units 1200 <math>\mu\text{mhos/cm}</math></b>												



Table-248. Level of Chloride (mg/l) of Ground Water at Khulna District in 2018

Locations of Khulna	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Divisional Comissioner Office, Boyra	244	-	248	242	244	242	242	242	242	234	228	220
Govt. Girls College, Boyra	292	-	299	293	299	293	293	293	293	284	220	218
Khulna Public College, Boyra	224	-	220	220	220	224	224	224	224	220	220	220
Boyra Bazar More, Boyra	244	-	250	250	250	253	258	258	258	254	254	250
Aizer More, Boyra	212	-	226	228	228	224	224	224	224	220	220	220
RupsaRupsa Bus Stand, RupsaRupsa	270	-	279	272	272	278	270	270	270	269	257	250
Natun Bazar, RupsaRupsa	272	-	279	279	276	276	276	276	276	272	272	270
Govt. Comercial College, Sonadanga	222	-	228	228	224	226	229	229	229	224	224	220
Sonadanga Bus Stand, Sonadanga	260	-	266	266	264	268	262	262	262	255	255	252
Sarjical Clinic, Sonadanga	296	-	296	294	294	296	296	296	296	284	284	284
Govt. B.L College, Daulatpur	290	-	299	302	302	302	302	302	302	286	280	278
KUET University Main Gate, Fulbari Gate	288	-	289	289	289	284	284	284	284	280	276	270
Gollamari Bus Stand, Gollamari	289	-	296	296	296	296	296	296	296	292	292	290
Govt. Mohasin College, Khalishpur	276	-	289	289	289	284	284	284	284	280	282	276
Moylapota More	278	-	282	282	284	284	276	276	276	270	270	268
Nirala More	286	-	289	289	289	280	280	280	280	280	280	277
Islami Bank Hospital, Santidham Mor	244	-	246	246	246	242	242	242	242	238	238	238
Seba Clinic, Sher-E-Bangal Road	280	-	286	286	284	284	282	282	282	282	282	282
Jia Hall, Sib Bary	302	-	308	296	296	298	293	293	293	286	280	280
Khulna University, Vaskarja Chattar	276	-	278	278	294	270	270	270	270	270	270	270
Sarkit House	277	-	278	274	274	274	274	274	274	272	272	272
Govt. Khulna Gila School	282	-	286	286	286	286	286	286	286	280	280	280
D.C Office	286	-	288	280	284	288	280	280	280	277	277	277
Dak Banglo More	302	-	308	308	308	304	274	274	274	272	272	272
Govt. Azom Khan Commerce College	286	-	288	282	284	284	284	284	284	280	280	280
Govt. Majsd Memorial City College	294	-	294	294	294	299	285	285	285	282	282	282

EQS for wastewater after treatment from industrial units: 150-600 mg/l



Table-249. Level of Total Hardness (mg/l) of Ground Water at Khulna District in 2018

Locations of Khulna	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Divisional Comissioner Office, Boyra	280	-	286	284	288	280	280	280	280	272	268	260
Govt. Girls College, Boyra	280	-	280	280	282	282	277	277	277	272	274	272
Khulna Public College, Boyra	284	-	288	288	288	280	280	280	280	274	274	274
Boyra Bazar More, Boyra	294	-	292	292	294	290	285	280	280	272	272	270
Aizer More, Boyra	274	-	274	274	274	276	276	276	276	270	270	270
RupsaRupsa Bus Stand, RupsaRupsa	274	-	279	279	279	282	280	281	281	276	272	272
Natun Bazar, RupsaRupsa	262	-	266	266	268	268	268	261	261	258	256	250
Govt. Comercial College, Sonadanga	286	-	280	280	280	283	283	281	281	273	273	270
Sonadanga Bus Stand, Sonadanga	290	-	292	292	290	298	292	290	290	288	282	282
Sarjical Clinic, Sonadanga	280	-	280	280	280	287	287	282	282	276	270	270
Govt. B.L College, Daulatpur	292	-	298	290	296	296	290	290	290	282	280	280
KUET University Main Gate, Fulbari Gate	242	-	254	252	254	252	250	250	250	246	242	240
Gollamari Bus Stand, Gollamari	264	-	264	264	262	264	262	262	262	258	258	258
Govt. Mohasin College, Khalishpur	280	-	286	286	286	286	286	286	286	280	270	270
Moylapota More	294	-	294	294	294	296	296	290	290	282	282	282
Nirala More	290	-	295	294	295	295	295	292	292	292	288	282
Islami Bank Hospital, Santidham Mor	284	-	288	288	280	285	285	281	281	273	270	268
Seba Clinic, Sher-E-Bangal Road	276	-	276	276	270	270	264	264	264	264	260	258
Jia Hall, Sib Bary	288	-	288	288	284	286	281	281	281	274	272	272
Khulna University, Vaskarja Chattar	290	-	294	294	294	294	294	290	290	290	288	288
Sarkit House	246	-	243	244	244	242	242	242	242	236	230	230
Govt. Khulna Gila School	252	-	256	256	256	256	254	252	252	248	248	244
D.C Office	236	-	236	236	236	239	233	233	233	230	230	224
Dak Banglo More	286	-	288	284	284	249	249	240	240	240	240	240
Govt. Azom Khan Commerce College	280	-	280	286	286	288	281	281	281	267	262	258
Govt. Majid Memorial City College	282	-	282	282	282	282	282	283	283	280	280	280

(EQS for wastewater after treatment from industrial units 200-300 mg/l)



Table-250. Level of Iron (mg/l) of Ground Water at Khulna District in 2018

Locations of Khulna	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Divisional Commissioner Office, Boyra	0.44	-	0.46	0.46	0.42	0.42	0.42	0.42	0.42	0.36	0.39	0.46
Govt. Girls College, Boyra	0.42	-	0.44	0.44	0.42	0.42	0.42	0.42	0.42	0.38	0.42	0.42
Khulna Public College, Boyra	0.44	-	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.42	0.48	0.52
Boyra Bazar More, Boyra	0.44	-	0.34	0.34	0.36	0.32	0.36	0.36	0.36	0.32	0.36	0.38
Aizer More, Boyra	0.3	-	0.3	0.3	0.3	0.36	0.31	0.31	0.31	0.31	0.36	0.36
RupsaRupsa Bus Stand, RupsaRupsa	0.38	-	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.3	0.3	0.3
Natun Bazar, RupsaRupsa	0.56	-	0.56	0.56	0.56	0.54	0.54	0.54	0.47	0.52	<b>0.59</b>	0.59
Govt. Comercial College, Sonadanga	0.48	-	0.38	0.38	0.34	0.32	0.32	0.32	0.32	0.32	0.36	0.38
Sonadanga Bus Stand, Sonadanga	0.48	-	0.48	0.48	0.48	0.42	0.38	0.38	0.38	0.3	0.39	0.39
Sarjical Clinic, Sonadanga	0.42	--	0.42	0.42	0.42	0.46	0.46	0.46	0.46	0.42	0.46	0.47
Govt. B.L College, Daulatpur	0.42	-	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.42	0.46	0.48
KUET University Main Gate, Fulbari Gate	0.32	-	0.36	0.36	0.34	0.32	0.32	0.32	0.32	<b>0.3</b>	0.38	0.44
Gollamari Bus Stand, Gollamari	0.52	-	0.52	0.52	0.52	0.52	0.5	0.5	0.5	0.56	0.58	0.58
Govt. Mohasin College, Khalishpur	0.48	-	0.48	0.48	0.48	0.44	0.44	0.44	0.44	0.4	0.39	0.42
Moylapota More	0.58	-	0.4	0.4	0.42	0.46	0.42	0.42	0.42	0.42	0.43	0.42
Nirala More	0.52	-	0.44	0.44	0.4	0.4	0.4	0.4	0.4	0.46	0.48	0.44
Islami Bank Hospital, Santidham Mor	0.32	-	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.28	0.29	0.38
Seba Clinic, Sher-E-Bangal Road	0.3	-	0.3	0.3	0.3	0.32	0.32	0.32	0.32	0.32	0.38	0.38
Jia Hall, Sib Bary	0.54	-	0.54	0.54	0.52	0.52	0.52	0.52	0.52	0.52	0.53	0.53
Khulna University, Vaskarja Chattar	0.56	-	0.5	0.5	0.52	0.53	0.53	0.53	0.53	0.53	0.56	0.5
Sarkit House	0.29	-	0.32	0.32	0.36	0.36	0.36	0.36	0.36	0.32	0.32	0.36
Govt. Khulna Gila School	0.36	-	0.38	0.38	0.38	0.37	0.36	0.36	0.36	0.34	0.34	0.34
D.C Office	0.4	-	0.4	0.4	0.44	0.46	0.46	0.46	0.46	0.44	0.44	0.46
Dak Banglo More	0.48	-	0.48	0.48	0.48	0.49	0.41	0.41	0.41	0.41	0.41	0.45
Govt. Azom Khan Commerce College	0.46	-	0.48	0.48	0.44	0.44	0.44	0.44	0.44	0.42	0.43	0.43
Govt. Majid Memorial City College	0.52	-	0.58	0.58	0.58	0.53	0.53	0.53	0.53	0.52	0.56	0.58

EQS for wastewater after treatment from industrial units 0.3-1.0 mg/l

**Table-251. Level of Salinity of Ground Water at Khulna District in 2018**

Locations of Khulna	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Divisional Commissioner Office, Boyra	0.1	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Govt. Girls College, Boyra	0.1	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Khulna Public College, Boyra	0.2	-	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Boyra Bazar More, Boyra	0.1	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Aizer More, Boyra	0.1	-	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2
RupsaRupsa Bus Stand, RupsaRupsa	0.2	-	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Natun Bazar, RupsaRupsa	0.2	-	0.3	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Govt. Comercial College, Sonadanga	0.1	-	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sonadanga Bus Stand, Sonadanga	0.1	-	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Sarjical Clinic, Sonadanga	0.1	-	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Govt. B.L. College, Daulatpur	0.1	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
KUET University Main Gate, Fulbari Gate	0	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Gollamari Bus Stand, Gollamari	0.2	-	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Govt. Mohasin College, Khalishpur	0	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Moylapota More	0.2	-	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Nirala More	0.1	-	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Islami Bank Hospital, Santidham Mor	0.1	-	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Seba Clinic, Sher-E-Bangal Road	0	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Jia Hall, Sib Bary	0.1	-	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Khulna University, Vaskarja Chattar	0.1	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sarkit House	0.1	-	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Govt. Khulna Gila School	0.1	-	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
D.C Office	0.1	-	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1
Dak Banglo More	0.1	-	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Govt. Azom Khan Commerce College	0.1	-	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Govt. Majid Memorial City College	0.1	-	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<b>EQS for wastewater after treatment from industrial units 400 ppt</b>												

**VI. Ground Water (Deep Tubewell) in Barisal district (Table: 252-257)****Table-252: Level of pH of Ground Water at Barisal District in 2018**

Locations of Barisal District	Jan	Feb	Mar	Apr	May	July	June	Aug	Sep	Oct	Nov	Dec
Govt.Gournody Collage, Gournody	7.34	-	-	-	-	7.41	-	-	-	-	-	-
UNO Office, Gournody	7.29	-	-	-	-	-	-	-	-	-	-	-
Gournody Sadar Thana	7.24	-	-	-	-	-	-	-	-	-	-	-
Gournody Bes stand	7.2	-	-	-	-	-	-	-	-	-	-	-
Gournody Girls School and College	7.28	-	-	-	-	-	-	-	-	-	-	-
Upzilla Porisabd	7.27	-	-	-	-	-	-	-	-	-	-	-
Upzilla Animal Office	7.31	-	-	-	-	-	-	-	-	-	-	-
Gournody Pouroshava	7.2	-	-	-	-	-	-	-	-	-	-	-
Gournody Model Primary School	7.28	-	-	-	-	7.3	-	-	-	-	-	-
Dudhit bazar, Gournody bandar	7.27	-	-	-	-	-	-	-	-	-	-	-
Hatem Ali College Chowmahla Bazar, Sadar	-	-	7.38	-	-	-	-	-	-	-	-	7.36
Sadar Upzila Perishad, Sadar	-	-	7.36	-	-	-	-	7.38	-	-	-	-
Durany Zame Mosque	-	-	7.26	-	-	-	-	-	-	-	-	-
Nuria Secondary School, South Alekanda	-	-	7.29	-	-	-	-	-	-	-	-	-
Baitul Maman Zame Mosque, Bangla bazar	-	-	7.24	7.51	-	-	-	-	-	-	-	-
Police Line Zame Mosque	-	-	7.23	-	-	-	-	-	-	-	-	-
Sher-e- Bangla Medical College Hospital	-	-	7.21	-	-	-	-	-	-	-	-	-
B M College, Barisal sadar	-	-	7.24	-	-	-	-	7.32	-	7.33	7.31	7.33
Govt. Barisal College	-	-	7.26	-	-	-	-	-	-	-	-	-
Govt.Girls School, Bogra Road	-	-	7.24	-	-	-	-	-	-	-	-	-
Sharsaty Girls School, Kalibari Road	-	-	7.16	-	-	-	-	-	-	-	-	-
Fakir Bary Zame Mosque, Sadar	-	-	7.12	-	-	-	-	-	-	-	-	-
City Collage, Sadar Road	-	-	7.38	-	-	-	7.33	-	-	-	-	-
Amrita Laf Collage, Hospital Sadar	-	-	7.33	-	-	-	-	-	-	-	-	-
Munshy Grage, Barisal Sadar	-	-	7.27	-	-	-	-	-	-	7.31	7.3	-
Jamea Madani Haji Omar Shah Madrasa	-	-	-	7.51	-	-	-	-	-	-	-	-
Halima Khatun Secondary School	-	-	-	7.46	-	-	-	-	-	-	-	-
Adalat Para Zame Mosque, Sadar	-	-	-	7.40	-	-	-	-	-	-	-	-
Asmat Ali Khan Institution, Girza Moholla	-	-	-	7.42	-	-	-	-	-	-	-	-
Keramotia Zame Mosque, Port Road	-	-	-	7.33	-	-	-	-	-	-	-	-
Sheikh Afer Uddin Koumi Madrasa, Lh. Ghat	-	-	-	7.31	-	-	-	-	-	-	-	-
Launch Ghat, Barisal sadar	-	-	-	7.44	-	-	7.28	7.27	-	-	-	-
1st Floor Launchghat, Sadar	-	-	-	7.26	-	-	-	-	-	-	-	-
Labourghat Tubewel, S sadar	-	-	-	7.24	-	-	-	-	-	-	-	-
Zaikhunaget Tubewel, Sadar	-	-	-	7.46	-	-	-	-	-	-	-	-
Civil Surgeon Office, Sadar	-	-	-	7.32	-	-	-	-	-	-	-	-



Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
PWD, Sadar, Barisal	-	-	-	7.38	-	-	-	-	-	-	-	-
Deputy Commissioner Office	-	-	-	7.33	-	-	7.36	-	-	-	-	-
City Market DC Ghat, Sadar	-	-	-	7.28	-	-	-	-	-	-	-	-
Tubewell water of Gorshan More, Sadar	-	-	-	-	7.26	-	-	-	-	-	-	-
Tubewell water, Hatem Ali College, Sadar	-	-	-	-	7.32	-	-	-	-	-	-	-
Tubewell water, Choumaha Bazar	-	-	-	-	7.41	7.31	-	-	-	-	-	-
Tubewell water, Jameya Madaria Utor Madrasa	-	-	-	-	7.35	-	-	-	-	-	-	-
Tubewell water, Stoshi Mistarno Vander, Sadar	-	-	-	-	7.28	-	-	-	-	-	-	-
Tubewell water, Canton Exs ize & VAT Off.	-	-	-	-	7.38	-	-	-	-	-	-	-
Tubewell water, Halima Khasan Girl's High Sc.	-	-	-	-	7.22	-	-	-	-	-	-	-
Tubewell water, City Market	-	-	-	-	7.19	-	-	-	-	-	-	-
Tubewell water, Bakar Math	-	-	-	-	7.46	-	-	-	-	-	-	-
Tubewell water, Channari	-	-	-	-	7.44	-	-	-	-	-	-	-
Tubewell water, Port Road More	-	-	-	-	7.38	-	-	-	-	-	-	-
Tubewell water, Model Thana	-	-	-	-	7.36	-	-	-	-	-	-	-
Tubewell water, Zai Khans Gate	-	-	-	-	7.4	-	-	-	-	-	-	-
Tubewell water, Bibir Pukur	-	-	-	-	7.42	-	-	-	-	-	-	-
Gourmadi Girl's School, Gourmadi	-	-	-	-	-	7.38	-	-	-	-	-	-
Upzilla Settlement Office	-	-	-	-	-	7.32	-	-	-	-	-	-
Beside the North Side of Gourmadi Upzilla	-	-	-	-	-	7.36	-	-	-	-	-	-
Upzillah Livestock Office, Gourmadi	-	-	-	-	-	7.33	-	-	-	-	-	-
Gourmadi Municipality, Gourmadi	-	-	-	-	-	7.34	-	-	-	-	-	-
Gourmadi Model Thana, Gourmadi	-	-	-	-	-	7.39	-	-	-	-	-	-
Sub-Register Office, Gourmadi	-	-	-	-	-	7.4	-	-	-	-	-	-
Mondir Moore, Gourmadi	-	-	-	-	-	7.41	-	-	-	-	-	-
Zilla Perishad Dak Banglo	-	-	-	-	-	7.46	-	-	-	-	-	-
Sufi Ahmad Madrasa & Mosque	-	-	-	-	-	7.45	-	-	-	-	-	-
Upzillah Health Complex, Gourmadi	-	-	-	-	-	7.33	-	-	-	-	-	-
Agricultural Exention Office	-	-	-	-	-	7.37	-	-	-	-	-	-
Udayon Secondary School, Sadar	-	-	-	-	-	-	7.33	7.32	-	-	-	-
T & T Colony Jame Mosque, Sadar	-	-	-	-	-	-	7.31	-	-	-	-	-
Divisional Controler Of Accounts	-	-	-	-	-	-	7.29	-	-	-	-	-
Principal Post Office, Sadar	-	-	-	-	-	-	7.28	-	-	-	-	-
Divisional Museum, Sadar	-	-	-	-	-	-	7.3	-	-	-	-	-
Steamerghat Police Fan, Sadar	-	-	-	-	-	-	7.34	7.28	-	-	-	-
BIWTA Office, Sadar	-	-	-	-	-	-	7.27	-	-	-	-	-
Shoroshi Girl's School, Sadar	-	-	-	-	-	-	7.51	7.3	-	-	-	-
Barisal College	-	-	-	-	-	-	7.35	7.24	-	-	-	-
Bonala Bazar Market, Sadar	-	-	-	-	-	-	7.33	-	-	-	-	-
B.M School, Kalibari Road	-	-	-	-	-	-	7.37	7.29	-	7.27	7.28	-



Locations of Barisal District	Jan	Feb	Mar	Apr	May	July	June	Aug	Sep	Oct	Nov	Dec
Ambia Hospital More, Bogra Road	-	-	-	-	-	-	7.31	-	-	-	-	-
Amrito Lal Dey College	-	-	-	-	-	-	-	7.38	-	-	-	-
Zailkhanget, Sadar	-	-	-	-	-	-	-	7.31	-	-	-	-
Model Thana, Sadar	-	-	-	-	-	-	-	7.31	-	7.29	7.32	-
Kashipur High School	-	-	-	-	-	-	-	7.35	-	-	-	-
Kashipur Choumtha, Sadar	-	-	-	-	-	-	-	7.33	-	-	-	-
Munshi Garage, West Bogra Road	-	-	-	-	-	-	-	7.32	-	-	-	-
Choumtha Bazar, Sadar	-	-	-	-	-	-	-	7.35	-	7.27	7.32	-
Poshim Gorsthan	-	-	-	-	-	-	-	-	-	7.32	7.29	7.32
Baitul Fala Mosque, Nathullabad	-	-	-	-	-	-	-	-	-	7.36	7.32	-
49 Bogra Nothullabad Gov. Primary School,	-	-	-	-	-	-	-	-	-	7.29	7.24	7.28
Sadar Hospital Mosque, Sadar	-	-	-	-	-	-	-	-	-	7.36	7.27	-
Law College Govt. Primary School	-	-	-	-	-	-	-	-	-	7.29	7.31	-
Zailkhana Mosque, Sadar	-	-	-	-	-	-	-	-	-	7.3	7.35	-
Govt. Wemen College, Sadar.	-	-	-	-	-	-	-	-	-	7.37	7.38	-
Govt. Girl's School, Sadar	-	-	-	-	-	-	-	-	-	7.32	7.32	-
Mohshin School, Sadar	-	-	-	-	-	-	-	-	-	7.31	7.35	-
Fishery Road More, Sadar	-	-	-	-	-	-	-	-	-	-	-	7.34
Sher-e- Bangla Govt. Primary School	-	-	-	-	-	-	-	-	-	-	-	7.41
Munshi Garage, Sadar	-	-	-	-	-	-	-	-	-	-	-	7.35
City College, Sadar	-	-	-	-	-	-	-	-	-	7.32	7.33	7.36
Sher-e Bangla Hospital, Sadar	-	-	-	-	-	-	-	-	-	-	-	7.37
Shagordi Bazar, Sadar	-	-	-	-	-	-	-	-	-	-	-	7.34
Upozillah Sadar Complex, Sadar	-	-	-	-	-	-	-	-	-	-	-	7.39
City Market, Sadar	-	-	-	-	-	-	-	-	-	-	-	7.4
Collegiate Secondary School	-	-	-	-	-	-	-	-	-	-	-	7.44
Halima Khatun Govt. Girl's School	-	-	-	-	-	-	-	-	-	-	-	7.37
Band Road, Sadar	-	-	-	-	-	-	-	-	-	-	-	7.32
<b>Barisal District (Avg.)</b>	<b>7.26</b>		<b>7.26</b>	<b>7.38</b>	<b>7.34</b>	<b>7.36</b>	<b>7.31</b>	<b>7.31</b>		<b>7.32</b>	<b>7.31</b>	<b>7.35</b>
<b>EQS (6.5-8.5) for drinking</b>												



Table-253: Level of EC of Ground Water at Barisal District in 2018

Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
Govt.Gournody College, Gournody	624	-	-	-	-	419	-	-	-	-	-	-
UNO Office, Gournody	630	-	-	-	-	-	-	-	-	-	-	-
Gournody Sadar Thana	627	-	-	-	-	-	-	-	-	-	-	-
Gournody Bus stand	623	-	-	-	-	-	-	-	-	-	-	-
Gournody Girls School and College	627	-	-	-	-	-	-	-	-	-	-	-
Upzila Porisadd	626	-	-	-	-	-	-	-	-	-	-	-
Upzila Animal Office	636	-	-	-	-	-	-	-	-	-	-	-
Gournody Pouroshava	642	-	-	-	-	-	-	-	-	-	-	-
Gournody Model Primary School	638	-	-	-	-	419	-	-	-	-	-	-
Dudht hazar, Gournody bandar	628	-	-	-	-	-	-	-	-	-	-	-
Hatem Ali College Chowmutha Bazar, Sadar	-	-	488	-	-	-	-	-	-	-	-	396
Sadar Upzila Porisadd, Sadar	-	-	511	-	-	-	-	389	-	-	-	-
Dummy Zame Mosque	-	-	496	-	-	-	-	-	-	-	-	-
Nuria Secondary School, South Alekanda	-	-	508	-	-	-	-	-	-	-	-	-
Baril Mamun Zame Mosque, Bangla bazar	-	-	502	580	-	-	-	-	-	-	-	-
Police Line Zame Mosque	-	-	500	-	-	-	-	-	-	-	-	-
Sher-e Bangla Medical College Hospital	-	-	494	-	-	-	-	-	-	-	-	-
B M College, Barisal sadar	-	-	512	-	-	-	-	392	-	542	395	394
Govt. Barisal College	-	-	516	-	-	-	-	-	-	-	-	-
Govt.Girls School, Begra Road	-	-	498	-	-	-	-	-	-	-	-	-
Shirsaty Girls School, Kalibari Road	-	-	508	-	-	-	-	393	-	-	-	-
Fakir Bory Zame Mosque, Sadar	-	-	510	-	-	-	-	-	-	-	-	-
City College, Sadar Road	-	-	522	-	-	-	400	-	-	-	-	-
Amirita Lal College, Hospital Sadar	-	-	518	-	-	-	-	-	-	-	-	-
Munshy Gunge, Barisal Sadar	-	-	514	-	-	-	-	-	-	538	393	393
James Madani Haji Omar Shah Madrasha	-	-	-	388	-	-	-	-	-	-	-	-
Hilima Khatun Secondary School	-	-	-	621	-	-	-	-	-	-	-	-
Adalat Para Zame Mosque, Sadar	-	-	-	600	-	-	-	-	-	-	-	-
Asmat Ali Khan Institution, Girza Meholia	-	-	-	618	-	-	-	-	-	-	-	-
Keramotia Zame Mosque, Port Road	-	-	-	576	-	-	-	-	-	-	-	-
Sheikh Afar Uddin Kosmi Madrasha, Lh. Ghat	-	-	-	574	-	-	-	-	-	-	-	-
Launch Ghat, Barisal sadar	-	-	-	559	-	-	388	378	-	-	-	-
1st Floor Launchghat, Sadar	-	-	-	568	-	-	-	-	-	-	-	-
Labourghat Tubewell, Sadar	-	-	-	562	-	-	-	-	-	-	-	-
Zaikhmaget Tubewell, Sadar	-	-	-	569	-	-	-	-	-	-	-	-
Civil Surgeon Office, Sadar	-	-	-	606	-	-	-	-	-	-	-	-
PWD, Sadar, Barisal	-	-	-	608	-	-	-	-	-	-	-	-
Deputy Commissioner Office	-	-	-	622	-	-	394	-	-	-	-	-



Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
City Market DC Ghat, Sadar	-	-	-	318	-	-	-	-	-	-	-	-
Tubewell water of Gursthan More, Sadar	-	-	-	-	455	-	-	-	-	-	-	-
Tubewell water, Hatem Ali College, Sadar	-	-	-	-	461	-	-	-	-	-	-	-
Tubewell water, Choumaha Bazar	-	-	-	-	481	388	-	-	-	-	-	-
Tubewell water, Jameya Madania Utor Madrasa	-	-	-	-	466	-	-	-	-	-	-	-
Tubewell water, Shoshi Mistanno Vander, Sadar	-	-	-	-	468	-	-	-	-	-	-	-
Tubewell water, Custom Exs ize & VAT Off.	-	-	-	-	461	-	-	-	-	-	-	-
Tubewell water, Halima Khatun Girl's High Sc.	-	-	-	-	474	-	-	-	-	-	-	-
Tubewell water, City Market	-	-	-	-	477	-	-	-	-	-	-	-
Tubewell water, Balar Math	-	-	-	-	464	-	-	-	-	-	-	-
Tubewell water, Channari	-	-	-	-	458	-	-	-	-	-	-	-
Tubewell water, Port Road More	-	-	-	-	459	-	-	-	-	-	-	-
Tubewell water, Model Thana	-	-	-	-	462	-	-	-	-	-	-	-
Tubewell water, Zai Khana Gate	-	-	-	-	466	-	-	-	-	-	-	-
Tubewell water, Bibir Fukur	-	-	-	-	460	-	-	-	-	-	-	-
Gournadi Girl's School, Gournadi	-	-	-	-	-	390	-	-	-	-	-	-
Upizilla Settlement Office	-	-	-	-	-	420	-	-	-	-	-	-
Beside the North Side of Gournadi Upizilla	-	-	-	-	-	400	-	-	-	-	-	-
Upizillah Livestock Office, Gournadi	-	-	-	-	-	430	-	-	-	-	-	-
Gournadi Municipality, Gournadi	-	-	-	-	-	424	-	-	-	-	-	-
Gournadi Model Thana, Gournadi	-	-	-	-	-	418	-	-	-	-	-	-
Sub-Register Office, Gournadi	-	-	-	-	-	426	-	-	-	-	-	-
Mondir Moore, Gournadi	-	-	-	-	-	423	-	-	-	-	-	-
Zilla Parishad Dak Bangla	-	-	-	-	-	422	-	-	-	-	-	-
Sufi Ahmad Madrasa & Mosque	-	-	-	-	-	431	-	-	-	-	-	-
Upizillah Health Complex, Gournadi	-	-	-	-	-	397	-	-	-	-	-	-
Agricultural Extension Office	-	-	-	-	-	428	-	-	-	-	-	-
Udayon Secondary School, Sadar	-	-	-	-	-	-	400	390	-	-	-	-
T & T Colony Jame Mosque, Sadar	-	-	-	-	-	-	408	-	-	-	-	-
Divisional Controller Of Accounts	-	-	-	-	-	-	398	-	-	-	-	-
Principal Post Office, Sadar	-	-	-	-	-	-	392	-	-	-	-	-
Divisional Museum, Sadar	-	-	-	-	-	-	395	-	-	-	-	-
Steamerghat Police Far, Sadar	-	-	-	-	-	-	393	388	-	-	-	-
BIWTA Office, Sadar	-	-	-	-	-	-	378	-	-	-	-	-
Shoroshoti Girl's School, Sadar	-	-	-	-	-	-	382	-	-	-	-	-
Barisal College	-	-	-	-	-	-	390	392	-	-	-	-
Buttala Bazar Market, Sadar	-	-	-	-	-	-	386	-	-	-	-	-
B.M School, Kalibari Road	-	-	-	-	-	-	389	394	-	346	388	-
Ambia Hospital More, Dogura Road	-	-	-	-	-	-	385	-	-	-	-	-
Anrita Lal Dey College	-	-	-	-	-	-	-	388	-	-	-	-



Locations of Barisal District	Jan	Feb	Mar	Apr	May	July	June	Aug	Sep	Oct	Nov	Dec
Zailkhanget, Sadar	-	-	-	-	-	-	-	395	-	-	-	-
Model Thana, Sadar	-	-	-	-	-	-	-	382	-	554	390	-
Kashipur High School	-	-	-	-	-	-	-	390	-	-	-	-
Kashipur Chourmutha, Sadar	-	-	-	-	-	-	-	386	-	-	-	-
Munshy Garage, West Bogra Road	-	-	-	-	-	-	-	385	-	-	-	-
Chourmutha Bazar, Sadar	-	-	-	-	-	-	-	400	-	555	392	-
Poshim Gersthan	-	-	-	-	-	-	-	-	-	544	394	399
Baitul Fala Mosque, Nathullabad	-	-	-	-	-	-	-	-	-	548	390	-
99 Bogra Nathullabad Gov. Primary School,	-	-	-	-	-	-	-	-	-	540	392	390
Sadar Hospital Mosque, Sadar	-	-	-	-	-	-	-	-	-	551	378	-
Law College Govt. Primary School	-	-	-	-	-	-	-	-	-	547	382	-
Zailkhan Mosque, Sadar	-	-	-	-	-	-	-	-	-	542	390	-
Govt. Women College, Sadar	-	-	-	-	-	-	-	-	-	556	389	-
Govt. Girl's School, Sadar	-	-	-	-	-	-	-	-	-	550	385	-
Mohsin School, Sadar	-	-	-	-	-	-	-	-	-	552	400	-
Fishery Road More, Sadar	-	-	-	-	-	-	-	-	-	-	-	392
Sher-e- Bangla Govt. Primary School	-	-	-	-	-	-	-	-	-	-	-	399
Munshi Garage, Sadar	-	-	-	-	-	-	-	-	-	-	-	-
City College, Sadar	-	-	-	-	-	-	-	-	-	544	386	388
Sher-e Bangla Hospital, Sadar	-	-	-	-	-	-	-	-	-	-	-	378
Shagerdi Bazar, Sadar	-	-	-	-	-	-	-	-	-	-	-	382
Upozillah Sadar Complex, Sadar	-	-	-	-	-	-	-	-	-	-	-	390
City Market, Sadar	-	-	-	-	-	-	-	-	-	-	-	388
Collegiate Secondary School	-	-	-	-	-	-	-	-	-	-	-	386
Halima Khatun Govt. Girl's School	-	-	-	-	-	-	-	-	-	-	-	385
Band Road, Sadar	-	-	-	-	-	-	-	-	-	-	-	382
<b>Barisal District (Avg.)</b>	<b>630</b>		<b>506</b>	<b>571</b>	<b>465</b>	<b>415</b>	<b>391</b>	<b>389</b>		<b>547</b>	<b>389</b>	<b>363</b>
<b>EQS for wastewater after treatment from industrial units 1200 <math>\mu</math>mhos/cm</b>												



Table-254: Level of TDS of Ground Water at Barisal District in 2018

Locations of Barisal District	Jan	Feb	Mar	Apr	May	July	June	Aug	Sep	Oct	Nov	Dec
Govt Gournody College, Gournody	312	-	-	-	-	205	-	-	-	-	-	-
UNO Office, Gournody	315	-	-	-	-	-	-	-	-	-	-	-
Gournody Sadar Thana	314	-	-	-	-	-	-	-	-	-	-	-
Gournody Bus stand	312	-	-	-	-	-	-	-	-	-	-	-
Gournody Girls School and College	315	-	-	-	-	-	-	-	-	-	-	-
Upzila Parishad	313	-	-	-	-	-	-	-	-	-	-	-
Upzila Animal Office	318	-	-	-	-	-	-	-	-	-	-	-
Gournody Pouroshova	321	-	-	-	-	-	-	-	-	-	-	-
Gournody Model Primary School	319	-	-	-	-	210	-	-	-	-	-	-
Dudhi bazar, Gournody bandar	314	-	-	-	-	-	-	-	-	-	-	-
Hatan Ali College Chowmutha Bazar, Sadar	-	-	244	-	-	-	-	-	-	-	-	199
Sadar Upzila Parishad, Sadar	-	-	255	-	-	-	-	-	-	-	-	-
Durany Zame Mosque	-	-	249	-	-	-	-	-	-	-	-	-
Nuria Secondary School, South Alskanda	-	-	254	-	-	-	-	-	-	-	-	-
Baital Maman Zame Mosque, Bangla bazar	-	-	252	290	-	-	-	-	-	-	-	-
Police Line Zame Mosque	-	-	250	-	-	-	-	-	-	-	-	-
Sher-e-Bangla Medical College Hospital	-	-	248	-	-	-	-	-	-	-	-	-
B M College, Barisal sadar	-	-	256	-	-	-	-	196	-	271	196	197
Govt. Barisal College	-	-	258	-	-	-	-	-	-	-	-	-
Govt. Girls School, Bogra Road	-	-	250	-	-	-	-	-	-	-	-	-
Sharsaty Girls School, Kalburi Road	-	-	254	-	-	-	-	195	-	-	-	-
Fakir Bary Zame Mosque, Sadar	-	-	255	-	-	-	-	-	-	-	-	-
City College, Sadar Road	-	-	262	-	-	-	200	-	-	-	-	-
Amirita Lal College, Hospital Sadar	-	-	259	-	-	-	-	-	-	-	-	-
Munshy Ganga, Barisal Sadar	-	-	257	-	-	-	-	-	-	267	195	-
Jamea Madani Haji Omar Shah Madrasa	-	-	-	294	-	-	-	-	-	-	-	-
Halima Khatun Secondary School	-	-	-	312	-	-	-	-	-	-	-	-
Adalat Para Zame Mosque, Sadar	-	-	-	300	-	-	-	-	-	-	-	-
Astnet Ali Khan Institution, Garza Moholla	-	-	-	308	-	-	-	-	-	-	-	-
Keramonia Zame Mosque, Port Road	-	-	-	288	-	-	-	-	-	-	-	-
Sheikh Afsar Uddin Koumi Madrasa, Lh. Ghat	-	-	-	287	-	-	-	-	-	-	-	-
Launch Ghat, Barisal sadar	-	-	-	278	-	-	194	189	-	-	-	-
1st Floor Launchghat, Sadar	-	-	-	275	-	-	-	-	-	-	-	-
Labourghat Tubewell, Sadar	-	-	-	284	-	-	-	-	-	-	-	-
Zaikhanaget Tubewell, Sadar	-	-	-	287	-	-	-	-	-	-	-	-
Civil Surgeons Office, Sadar	-	-	-	303	-	-	-	-	-	-	-	-
PWD, Sadar, Barisal	-	-	-	304	-	-	-	-	-	-	-	-
Deputy Commissioner Office	-	-	-	311	-	-	197	-	-	-	-	-



Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
City Market DC Ghat, Sadar	-	-	-	309	-	-	-	-	-	-	-	-
Tubewell water of Gresthan More, Sadar	-	-	-	-	227	-	-	-	-	-	-	-
Tubewell water, Hatem Ali College, Sadar	-	-	-	-	230	-	-	-	-	-	-	-
Tubewell water, Chozmatha Bazar	-	-	-	-	240	195	-	-	-	-	-	-
Tubewell water, Jameya Madania Uttar Madrasa	-	-	-	-	234	-	-	-	-	-	-	-
Tubewell water, Shoshi Mistanno Vunder, Sadar	-	-	-	-	234	-	-	-	-	-	-	-
Tubewell water, Custom Exs ize & VAT Off.	-	-	-	-	230	-	-	-	-	-	-	-
Tubewell water, Halima Khatun Girl's High Sc.	-	-	-	-	256	-	-	-	-	-	-	-
Tubewell water, City Market	-	-	-	-	238	-	-	-	-	-	-	-
Tubewell water, Balur Math	-	-	-	-	232	-	-	-	-	-	-	-
Tubewell water, Chamari	-	-	-	-	229	-	-	-	-	-	-	-
Tubewell w ater, Port Road More	-	-	-	-	237	-	-	-	-	-	-	-
Tubewell w ater, Model Thana	-	-	-	-	231	-	-	-	-	-	-	-
Tubewell water, Zai Khana Gate	-	-	-	-	233	-	-	-	-	-	-	-
Tubewell water, Ribir Pukur	-	-	-	-	230	-	-	-	-	-	-	-
Gourmadi Girl's School, Gourmadi	-	-	-	-	-	195	-	-	-	-	-	-
Upazilla Settlement Office	-	-	-	-	-	210	-	-	-	-	-	-
Beside the North Side of Gourmadi Upazilla	-	-	-	-	-	200	-	-	-	-	-	-
Upazillah Livestock Office, Gourmadi	-	-	-	-	-	215	-	-	-	-	-	-
Gourmadi Municipality, Gourmadi	-	-	-	-	-	212	-	-	-	-	-	-
Gourmadi Model Thana, Gourmadi	-	-	-	-	-	209	-	-	-	-	-	-
Sub-Register Office, Gourmadi	-	-	-	-	-	213	-	-	-	-	-	-
Mondir Moore, Gourmadi	-	-	-	-	-	212	-	-	-	-	-	-
Zilla Parishad Dak Banglo	-	-	-	-	-	211	-	-	-	-	-	-
Safi Ahmad Madrasa & Mosque	-	-	-	-	-	216	-	-	-	-	-	-
Upazillah Health Complex, Gourmadi	-	-	-	-	-	199	-	-	-	-	-	-
Agricultural Extension Office	-	-	-	-	-	214	-	-	-	-	-	-
Udoyon Secondary School, Sadar	-	-	-	-	-	-	200	195	-	-	-	-
T & T Colony Jame Mosque, Sadar	-	-	-	-	-	-	204	-	-	-	-	-
Divisional Controller Of Accounts	-	-	-	-	-	-	199	-	-	-	-	-
Principal Post Office, Sadar	-	-	-	-	-	-	195	-	-	-	-	-
Divisional Museum, Sadar	-	-	-	-	-	-	196	-	-	-	-	-
Swarnghat Police Fari, Sadar	-	-	-	-	-	-	195	194	-	-	-	-
BIWTA Office, Sadar	-	-	-	-	-	-	189	-	-	-	-	-
Sherooboti Girl's School, Sadar	-	-	-	-	-	-	191	-	-	-	-	-
Barisal College	-	-	-	-	-	-	195	196	-	-	-	-
Bottala Bazar Market, Sadar	-	-	-	-	-	-	193	-	-	-	-	-
BM School, Kalbari Road	-	-	-	-	-	-	195	195	-	273	194	-
Amba Hospital More, Bogura Road	-	-	-	-	-	-	193	-	-	-	-	-
Amrio Lal Dey College	-	-	-	-	-	-	-	194	-	-	-	-



Locations of Barisal District	Jan	Feb	Mar	Apr	May	July	June	Aug	Sep	Oct	Nov	Dec
Zaikhanaget, Sadar	-	-	-	-	-	-	-	196	-	-	-	-
Model Thana, Sadar	-	-	-	-	-	-	-	191	-	279	195	-
Kashipur High School	-	-	-	-	-	-	-	195	-	-	-	-
Kashipur Choumaha, Sadar	-	-	-	-	-	-	-	193	-	-	-	-
Munshi Garage, West Bogra Road	-	-	-	-	-	-	-	193	-	-	-	-
Choumaha Bazar, Sadar	-	-	-	-	-	-	-	200	-	278	196	-
Poshim Gersthan	-	-	-	-	-	-	-	-	-	272	197	200
Baitul Fala Mosque, Nathalabad	-	-	-	-	-	-	-	-	-	274	195	-
99 Bogra Nothallahad Gov. Primary School.	-	-	-	-	-	-	-	-	-	270	196	194
Sadar Hospital Mosque, Sadar	-	-	-	-	-	-	-	-	-	276	189	-
Law College Govt. Primary School	-	-	-	-	-	-	-	-	-	273	191	-
Zaikhana Mosque, Sadar	-	-	-	-	-	-	-	-	-	271	195	-
Govt. Women College, Sadar	-	-	-	-	-	-	-	-	-	279	195	-
Govt. Girl's School, Sadar	-	-	-	-	-	-	-	-	-	275	193	-
Mohsin School, Sadar	-	-	-	-	-	-	-	-	-	276	200	-
Fishery Road More, Sadar	-	-	-	-	-	-	-	-	-	-	-	196
Sher-e Bangla Govt. Primary School	-	-	-	-	-	-	-	-	-	-	-	201
Munshi Garage, Sadar	-	-	-	-	-	-	-	-	-	-	-	194
City College, Sadar	-	-	-	-	-	-	-	-	-	272	193	195
Sher-e Bangla Hospital, Sadar	-	-	-	-	-	-	-	-	-	-	-	184
Shagordi Bazar, Sadar	-	-	-	-	-	-	-	-	-	-	-	186
Upozillah Sadar Complex, Sadar	-	-	-	-	-	-	-	-	-	-	-	195
City Market, Sadar	-	-	-	-	-	-	-	-	-	-	-	192
Collegiate Secondary School	-	-	-	-	-	-	-	-	-	-	-	193
Halima Khatun Govt. Girl's School	-	-	-	-	-	-	-	-	-	-	-	192
Band Road, Sadar	-	-	-	-	-	-	-	-	-	-	-	191
<b>Barisal District (Avg.)</b>	<b>315</b>		<b>253</b>	<b>295</b>	<b>232</b>	<b>207</b>	<b>195</b>	<b>194</b>		<b>273</b>	<b>194</b>	<b>193</b>
<b>EQS for wastewater after treatment from industrial units 2100 mg/l</b>												

**Table-255: Level of Iron of Ground Water at Barisal District in 2018**

Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
Govt.Goumody College, Goumody	0.18	-	-	-	-	0.23	-	-	-	-	-	-
UNO Office, Goumody	0.12	-	-	-	-	-	-	-	-	-	-	-
Goumody Sadar Thana	0.21	-	-	-	-	-	-	-	-	-	-	-
Goumody Bus stand	0.22	-	-	-	-	-	-	-	-	-	-	-
Goumody Girls School and College	0.15	-	-	-	-	-	-	-	-	-	-	-
Upzila Perisshad	0.12	-	-	-	-	-	-	-	-	-	-	-
Upzila Animal Office	0.21	-	-	-	-	-	-	-	-	-	-	-
Goumody Pournalava	0.22	-	-	-	-	-	-	-	-	-	-	-
Goumody Model Primary School	0.15	-	-	-	-	0.28	-	-	-	-	-	-
Dudht bazar, Goumody bandar	0.19	-	-	-	-	-	-	-	-	-	-	-
Hazem Ali College Chowmatha Bazar, Sadar	-	-	0.26	-	-	-	-	-	-	-	-	0.24
Sadar Upzila Perisshad, Sadar	-	-	0.2	-	-	-	-	0.28	-	-	-	-
Durany Zame Mosque	-	-	0.21	-	-	-	-	-	-	-	-	-
Nuria Secondary School, South Alekunda	-	-	0.22	-	-	-	-	-	-	-	-	-
Baitul Manun Zame Mosque, Bangla bazar	-	-	0.19	0.19	-	-	-	-	-	-	-	-
Police Line Zame Mosque	-	-	0.14	-	-	-	-	-	-	-	-	-
Sher-e- Bangla Medical College Hospital	-	-	0.2	-	-	-	-	-	-	-	-	-
B M College, Barisal sadar	-	-	0.23	-	-	-	-	0.27	-	0.19	0.21	0.24
Govt. Barisal College	-	-	0.16	-	-	-	-	-	-	-	-	-
Govt.Girls School, Bogra Road	-	-	0.18	-	-	-	-	-	-	-	-	-
Sharsaty Girls School, Kalibari Road	-	-	0.26	-	-	-	-	-	-	-	-	-
Fakir Bary Zame Mosque, Sadar	-	-	0.19	-	-	-	-	-	-	-	-	-
City College, Sadar Road	-	-	0.38	-	-	-	0.28	-	-	0.12	-	-
Amirita Lal College, Hospital Sadar	-	-	0.24	-	-	-	-	-	-	-	-	-
Munshy Grage, Barisal Sadar	-	-	0.27	-	-	-	-	-	-	0.12	0.24	-
James Madani Haji Omar Shah Madrasha	-	-	-	0.28	-	-	-	-	-	-	-	-
Halima Khatun Secondary School	-	-	-	0.24	-	-	-	-	-	-	-	-
Adalat Para Zame Mosque, Sadar	-	-	-	0.21	-	-	-	-	-	-	-	-
Asmot Ali Khan Institution, Girza Meholla	-	-	-	0.26	-	-	-	-	-	-	-	-
Keramotta Zame Mosque, Port Road	-	-	-	0.14	-	-	-	-	-	-	-	-
Sheikh Afsar Uddin Koumi Madrasha, Lh. Ghat	-	-	-	0.2	-	-	-	-	-	-	-	-
Launch Ghat, Barisal sadar	-	-	-	0.23	-	-	0.23	0.2	-	-	-	-
1st Floor Launchghat, Sadar	-	-	-	0.31	-	-	-	-	-	-	-	-
Labourghat Tubewell, Sadar	-	-	-	0.28	-	-	-	-	-	-	-	-
Zaikhannagat Tubewell, Sadar	-	-	-	0.26	-	-	-	-	-	-	-	-
Civil Surgeon Office, Sadar	-	-	-	0.29	-	-	-	-	-	-	-	-
PWD, Sadar, Barisal	-	-	-	0.33	-	-	-	-	-	-	-	-
Deputy Commissioner Office	-	-	-	0.24	-	-	0.26	-	-	-	-	-



Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
City Market DC Ghat, Sadar	-	-	-	0.27	-	-	-	-	-	-	-	-
Tubewell water of Gorsthan More, Sadar	-	-	-	-	0.21	-	-	-	-	-	-	-
Tubewell water, Hatem Ali College, Sadar	-	-	-	-	0.14	-	-	-	-	-	-	-
Tubewell water, Choumaha Bazar	-	-	-	-	0.2	0.29	-	-	-	-	-	-
Tubewell water, Jameya Madania Uttar Madrasha	-	-	-	-	0.23	-	-	-	-	-	-	-
Tubewell water, Shoshi Mistanno Vaader, Sadar	-	-	-	-	0.31	-	-	-	-	-	-	-
Tubewell water, Custom Excise & VAT Off.	-	-	-	-	0.28	-	-	-	-	-	-	-
Tubewell water, Halima Khatun Girl's High Sc.	-	-	-	-	0.26	-	-	-	-	-	-	-
Tubewell water, City Market	-	-	-	-	0.19	-	-	-	-	-	-	-
Tubewell water, Balur Math	-	-	-	-	0.31	-	-	-	-	-	-	-
Tubewell water, Chamari	-	-	-	-	0.28	-	-	-	-	-	-	-
Tubewell water, Port Road More	-	-	-	-	0.26	-	-	-	-	-	-	-
Tubewell water, Model Thana	-	-	-	-	0.29	-	-	-	-	-	-	-
Tubewell water, Zai Khana Gate	-	-	-	-	0.32	-	-	-	-	-	-	-
Tubewell water, Bibir Pakur	-	-	-	-	0.24	-	-	-	-	-	-	-
Gournadi Girl's School, Gournadi	-	-	-	-	-	0.21	-	-	-	-	-	-
Upzilla Settlement Office	-	-	-	-	-	0.28	-	-	-	-	-	-
Beside the North Side of Gournadi Upzilla	-	-	-	-	-	0.29	-	-	-	-	-	-
Upzillah Livestock Office, Gournadi	-	-	-	-	-	0.32	-	-	-	-	-	-
Gournadi Municipality, Gournadi	-	-	-	-	-	0.23	-	-	-	-	-	-
Gournadi Model Thana, Gournadi	-	-	-	-	-	0.35	-	-	-	-	-	-
Sub-Register Office, Gournadi	-	-	-	-	-	0.24	-	-	-	-	-	-
Mondir Moore, Gournadi	-	-	-	-	-	0.29	-	-	-	-	-	-
Zilla Parishad Dak Banglo	-	-	-	-	-	0.26	-	-	-	-	-	-
Sufi Ahmmad Madrasha & Mosque	-	-	-	-	-	0.24	-	-	-	-	-	-
Upzillah Health Complex, Gournadi	-	-	-	-	-	0.2	-	-	-	-	-	-
Agricultural Extension Office	-	-	-	-	-	0.31	-	-	-	-	-	-
Udayon Secondary School, Sadar	-	-	-	-	-	-	0.28	0.24	-	-	-	-
T & T Colony Jame Mosque, Sadar	-	-	-	-	-	-	0.29	-	-	-	-	-
Divisional Controller Of Accounts	-	-	-	-	-	-	0.27	-	-	-	-	-
Principal Post Office, Sadar	-	-	-	-	-	-	0.28	-	-	-	-	-
Divisional Museum, Sadar	-	-	-	-	-	-	0.24	-	-	-	-	-
Steamerghat Police Fari, Sadar	-	-	-	-	-	-	0.21	0.23	-	-	-	-
BIWTA Office, Sadar	-	-	-	-	-	-	0.2	-	-	-	-	-
Shorshoti Girl's School, Sadar	-	-	-	-	-	-	0.18	0.24	-	-	-	-
Barisal College	-	-	-	-	-	-	0.23	0.23	-	-	-	-
Bottala Bazar Market, Sadar	-	-	-	-	-	-	0.26	-	-	-	-	-
B.M School, Kalibari Road	-	-	-	-	-	-	0.28	0.26	-	0.21	0.23	-
Ambia Hospital More, Begura Road	-	-	-	-	-	-	0.32	-	-	-	-	-
Amrito Lal Dey Collage	-	-	-	-	-	-	-	0.26	-	-	-	-



Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
Zailkhanget, Sadar	-	-	-	-	-	-	-	0.21	-	-	-	-
Model Thana, Sadar	-	-	-	-	-	-	-	0.18	-	0.2	0.24	-
Kashipur High School	-	-	-	-	-	-	-	0.23	-	-	-	-
Kashipur Choumatha, Sadar	-	-	-	-	-	-	-	0.26	-	-	-	-
Munshy Garage, West Bogra Road	-	-	-	-	-	-	-	0.32	-	-	-	-
Choumatha Bazar, Sadar	-	-	-	-	-	-	-	0.28	-	0.14	0.27	-
Poshim Gorsthan	-	-	-	-	-	-	-	-	-	0.16	0.26	0.26
Baitul Faki Mosque, Nathullabad	-	-	-	-	-	-	-	-	-	0.18	0.24	-
99 Bogra Nathullabad Gov.Primary School,	-	-	-	-	-	-	-	-	-	0.15	0.23	0.23
Sadar Hospital Mosque, Sadar	-	-	-	-	-	-	-	-	-	0.22	0.2	-
Law College Govt. Primary School	-	-	-	-	-	-	-	-	-	0.15	0.18	-
Zailkhan Mosque, Sadar	-	-	-	-	-	-	-	-	-	0.19	0.23	-
Govt.Women College, Sadar	-	-	-	-	-	-	-	-	-	0.2	0.28	-
Govt.Girl's School, Sadar	-	-	-	-	-	-	-	-	-	0.21	0.32	-
Mohsin School, Sadar	-	-	-	-	-	-	-	-	-	0.16	0.28	-
Fishery Road More, Sadar	-	-	-	-	-	-	-	-	-	-	-	0.26
Sher-e- Bangla Govt. Primary School	-	-	-	-	-	-	-	-	-	-	-	0.26
Munshi Garage, Sadar	-	-	-	-	-	-	-	-	-	-	-	0.24
City College, Sadar	-	-	-	-	-	-	-	-	-	-	0.26	0.26
Sher-e Bangla Hospital, Sadar	-	-	-	-	-	-	-	-	-	-	-	0.2
Shagordi Bazar, Sadar	-	-	-	-	-	-	-	-	-	-	-	0.19
Upozillah Sadar Complex, Sadar	-	-	-	-	-	-	-	-	-	-	-	0.27
City Market, Sadar	-	-	-	-	-	-	-	-	-	-	-	0.23
Collegiate Secondary School	-	-	-	-	-	-	-	-	-	-	-	0.28
Halima Khatun Govt.Girl's School	-	-	-	-	-	-	-	-	-	-	-	0.31
Band Road, Sadar	-	-	-	-	-	-	-	-	-	-	-	0.18
<b>Barisal District (Avg.)</b>	<b>0.17</b>		<b>0.22</b>	<b>0.24</b>	<b>0.25</b>	<b>0.26</b>	<b>0.25</b>	<b>0.24</b>		<b>0.17</b>	<b>0.24</b>	<b>0.24</b>
<b>EQS For Drinking (0.3-1 mg/l)</b>												

**Table-256: Level of Total Alkalinity of Ground Water at Barisal District in 2018**

Locations of Barisal District	Jan	Feb	Mar	Apr	May	July	June	Aug	Sep	Oct	Nov	Dec
Govt.Gournody College, Gournody	22	-	-	-	-	34	-	-	-	-	-	-
UNO Office, Gournody	20	-	-	-	-	-	-	-	-	-	-	-
Gournody Sacker Thana	24	-	-	-	-	-	-	-	-	-	-	-
Gournody Bus stand	26	-	-	-	-	-	-	-	-	-	-	-
Gournody Girls School and College	22	-	-	-	-	-	-	-	-	-	-	-
Upzilla Porisadd	20	-	-	-	-	-	-	-	-	-	-	-
Upzilla Animal Office	24	-	-	-	-	-	-	-	-	-	-	-
Gournody Prureshava	26	-	-	-	-	-	-	-	-	-	-	-
Gournody Model Primary School	22	-	-	-	-	26	-	-	-	-	-	-
Dudht bazar, Gournody bandar	24	-	-	-	-	-	-	-	-	-	-	-
Harem Ali College Chowmatha Bazar, Sadar	-	-	20	-	-	-	-	-	-	-	-	32
Sadar Upozila Porisadd, Sadar	-	-	22	-	-	-	-	22	-	-	-	-
Dumny Zama Mosque	-	-	28	-	-	-	-	-	-	-	-	-
Nurin Secondary School, South Alekanda	-	-	26	-	-	-	-	-	-	-	-	-
Bainal Mamun Zama Mosque, Bangla bazar	-	-	24	32	-	-	-	-	-	-	-	-
Police Line Zama Mosque	-	-	22	-	-	-	-	-	-	-	-	-
Sher-e- Bangla Medical College Hospital	-	-	25	-	-	-	-	-	-	-	-	-
B M College, Barisal sadar	-	-	30	-	-	-	-	30	-	20	28	28
Govt. Barisal College	-	-	22	-	-	-	-	-	-	-	-	-
Govt.Girls School, Bogra Road	-	-	24	-	-	-	-	-	-	-	-	-
Shansaty Girls School, Kabbari Road	-	-	26	-	-	-	-	-	-	-	-	-
Fakir Bary Zama Mosque, Sadar	-	-	28	-	-	-	-	-	-	-	-	-
City College, Sadar Road	-	-	22	-	-	-	25	-	-	22	-	-
Amirita Lal College, Hospital Sadar	-	-	20	-	-	-	-	-	-	-	-	-
Munshy Grage, Barisal Sadar	-	-	30	-	-	-	-	-	-	24	24	-
James Madani Haji Omar Shah Madrasa	-	-	-	26	-	-	-	-	-	-	-	-
Halima Khatun Secondary School	-	-	-	28	-	-	-	-	-	-	-	-
Abdlot Para Zama Mosque, Sadar	-	-	-	30	-	-	-	-	-	-	-	-
Asmat Ali Khan Institution, Girza Moholla	-	-	-	26	-	-	-	-	-	-	-	-
Keramotia Zama Mosque, Port Road	-	-	-	24	-	-	-	-	-	-	-	-
Sheikh Afjar Uddin Kumi Madrasa, L.h. Ghat	-	-	-	25	-	-	-	-	-	-	-	-
Launch Ghat, Barisal sadar	-	-	-	30	-	-	26	28	-	-	-	-
1st Floor Launchghat, Sadar	-	-	-	22	-	-	-	-	-	-	-	-
Labourghat Tubewell, Sadar	-	-	-	24	-	-	-	-	-	-	-	-
Zaikhunagat Tubewell, Sadar	-	-	-	26	-	-	-	-	-	-	-	-
Civil Sergeant Office, Sadar	-	-	-	28	-	-	-	-	-	-	-	-
PWD, Sadar, Barisal	-	-	-	24	-	-	-	-	-	-	-	-
Deputy Commissioner Office	-	-	-	28	-	-	24	-	-	-	-	-



Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
City Market DC Ghat, Sadar	-	-	-	35	-	-	-	-	-	-	-	-
Tubewell water of Gerdhan Mori, Sadar	-	-	-	-	28	-	-	-	-	-	-	-
Tubewell water, Hatem Ali College, Sadar	-	-	-	-	26	-	-	-	-	-	-	-
Tubewell water, Choumaha Bazar	-	-	-	-	30	28	-	-	-	-	-	-
Tubewell water, Jameya Madania Uter Madrasha	-	-	-	-	26	-	-	-	-	-	-	-
Tubewell water, Shoshi Mistanno Vaader, Sadar	-	-	-	-	32	-	-	-	-	-	-	-
Tubewell water, Custom Excise & VAT Off.	-	-	-	-	24	-	-	-	-	-	-	-
Tubewell water, Halima Khatun Girl's High Sc.	-	-	-	-	34	-	-	-	-	-	-	-
Tubewell water, City Market	-	-	-	-	30	-	-	-	-	-	-	-
Tubewell water, Bahur Math	-	-	-	-	26	-	-	-	-	-	-	-
Tubewell water, Chamari	-	-	-	-	24	-	-	-	-	-	-	-
Tubewell water, Port Road More	-	-	-	-	26	-	-	-	-	-	-	-
Tubewell water, Model Thana	-	-	-	-	28	-	-	-	-	-	-	-
Tubewell water, Zai Khana Gate	-	-	-	-	24	-	-	-	-	-	-	-
Tubewell water, Bibir Pokur	-	-	-	-	26	-	-	-	-	-	-	-
Gournadi Girl's School, Gournadi	-	-	-	-	-	32	-	-	-	-	-	-
Upazilla Settlement Office	-	-	-	-	-	30	-	-	-	-	-	-
Beside the North Side of Gournadi Upazilla	-	-	-	-	-	28	-	-	-	-	-	-
Upazillah Livestock Office, Gournadi	-	-	-	-	-	26	-	-	-	-	-	-
Gournadi Municipality, Gournadi	-	-	-	-	-	24	-	-	-	-	-	-
Gournadi Model Thana, Gournadi	-	-	-	-	-	32	-	-	-	-	-	-
Sub-Register Office, Gournadi	-	-	-	-	-	24	-	-	-	-	-	-
Mendir Moore, Gournadi	-	-	-	-	-	22	-	-	-	-	-	-
Zilla Parishad Dak Banglo	-	-	-	-	-	20	-	-	-	-	-	-
Safi Ahmad Madrasha & Mosque	-	-	-	-	-	24	-	-	-	-	-	-
Upazillah Health Complex, Gournadi	-	-	-	-	-	30	-	-	-	-	-	-
Agricultural Extension Office	-	-	-	-	-	32	-	-	-	-	-	-
Udayon Secondary School, Sadar	-	-	-	-	-	-	34	24	-	-	-	-
T & T Colony Jame Mosque, Sadar	-	-	-	-	-	-	30	-	-	-	-	-
Divisional Controller Of Accounts	-	-	-	-	-	-	26	-	-	-	-	-
Principal Post Office, Sadar	-	-	-	-	-	-	26	-	-	-	-	-
Divisional Museum, Sadar	-	-	-	-	-	-	28	-	-	-	-	-
Steinberghat Police Fari, Sadar	-	-	-	-	-	-	24	26	-	-	-	-
BIWTA Office, Sadar	-	-	-	-	-	-	28	-	-	-	-	-
Shorshoti Girl's School, Sadar	-	-	-	-	-	-	35	24	-	-	-	-
Barisal College	-	-	-	-	-	-	32	26	-	-	-	-
Bonala Bazar Market, Sadar	-	-	-	-	-	-	28	-	-	-	-	-
B.M School, Kalibari Road	-	-	-	-	-	-	24	28	-	26	26	-
Ambia Hospital More, Bogara Road	-	-	-	-	-	-	22	-	-	-	-	-
Amiso Lal Doy College	-	-	-	-	-	-	-	32	-	-	-	-



Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
Zaikhmaget, Sadar	-	-	-	-	-	-	-	28	-	-	-	-
Model Thana, Sadar	-	-	-	-	-	-	-	32	-	20	25	-
Kashipur High School	-	-	-	-	-	-	-	30	-	-	-	-
Kashipur Choumaha, Sadar	-	-	-	-	-	-	-	26	-	-	-	-
Munshy Garage, West Bogra Road	-	-	-	-	-	-	-	20	-	-	-	-
Choumaha Bazar, Sadar	-	-	-	-	-	-	-	22	-	22	30	-
Poshies Gorsthan	-	-	-	-	-	-	-	-	-	28	28	28
Baitul Fala Mosque, Nathullabad	-	-	-	-	-	-	-	-	-	26	24	-
99 Bogra Notnullabad Gov. Primary School	-	-	-	-	-	-	-	-	-	22	26	26
Sadar Hospital Mosque, Sadar	-	-	-	-	-	-	-	-	-	22	28	-
Law College Govt. Primary School	-	-	-	-	-	-	-	-	-	20	32	-
Zaikhana Mosque, Sadar	-	-	-	-	-	-	-	-	-	24	30	-
Govt. Women College, Sadar	-	-	-	-	-	-	-	-	-	28	22	-
Govt. Girl's School, Sadar	-	-	-	-	-	-	-	-	-	26	20	-
Mohshin School, Sadar	-	-	-	-	-	-	-	-	-	22	22	-
Fishery Road More, Sadar	-	-	-	-	-	-	-	-	-	-	-	24
Sher-e- Bangla Govt. Primery School	-	-	-	-	-	-	-	-	-	-	-	28
Munshi Garage, Sadar	-	-	-	-	-	-	-	-	-	-	-	24
City College, Sadar	-	-	-	-	-	-	-	-	-	-	26	26
Sher-e Bangla Hospital, Sadar	-	-	-	-	-	-	-	-	-	-	-	28
Shagordi Bazar, Sadar	-	-	-	-	-	-	-	-	-	-	-	32
Upozilbah Sadar Complex, Sadar	-	-	-	-	-	-	-	-	-	-	-	30
City Market, Sadar	-	-	-	-	-	-	-	-	-	-	-	26
Collegiate Secondary School	-	-	-	-	-	-	-	-	-	-	-	26
Halima Khatun Govt. Girl's School	-	-	-	-	-	-	-	-	-	-	-	20
Band Road, Sadar	-	-	-	-	-	-	-	-	-	-	-	32
<b>Barisal District (Avg.)</b>	<b>23</b>	<b>-</b>	<b>24.6</b>	<b>27.06</b>	<b>27.4</b>	<b>27.4</b>	<b>27.46</b>	<b>26.5</b>	<b>-</b>	<b>23.4</b>	<b>26.0</b>	<b>27.3</b>
<b>EQS for wastewater after treatment from industrial units 150 mg/l</b>												



Table-257: Level of Total Hardness of Ground Water at Barisal District in 2018

Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
Govt.Gournody College, Gournody	110	-	-	-	-	220	-	-	-	-	-	-
UND Office, Gournody	120	-	-	-	-	-	-	-	-	-	-	-
Gournody Sadar Thana	100	-	-	-	-	-	-	-	-	-	-	-
Gournody Bus stand	130	-	-	-	-	-	-	-	-	-	-	-
Gournody Girls School and College	110	-	-	-	-	-	-	-	-	-	-	-
Upzila Parishad	120	-	-	-	-	-	-	-	-	-	-	-
Upzila Animal Office	140	-	-	-	-	-	-	-	-	-	-	-
Gournody Fouroshava	120	-	-	-	-	-	-	-	-	-	-	-
Gournody Model Primary School	100	-	-	-	-	210	-	-	-	-	-	-
Dudht bazar, Gournody bandar	110	-	-	-	-	-	-	-	-	-	-	-
Hatem Ali College Chermatha Bazar, Sadar	-	-	140	-	-	-	-	-	-	-	-	160
Sadar Upozila Parishad, Sadar	-	-	120	-	-	-	-	130	-	-	-	-
Durany Zame Mosque	-	-	120	-	-	-	-	-	-	-	-	-
Nuria Secondary School, South Alekanda	-	-	130	-	-	-	-	-	-	-	-	-
Baral Mamun Zame Mosque, Bangla bazar	-	-	110	140	-	-	-	-	-	-	-	-
Police Line Zame Mosque	-	-	100	-	-	-	-	-	-	-	-	-
Sher-e- Bangla Medical College Hospital	-	-	120	-	-	-	-	-	-	-	-	-
B M College, Barisal sadar	-	-	110	-	-	-	-	140	-	130	100	100
Govt. Barisal College	-	-	130	-	-	-	-	-	-	-	-	-
Govt.Girls School, Dogra Road	-	-	110	-	-	-	-	-	-	-	-	-
Shaesaty Girls School, Kalibari Road	-	-	140	-	-	-	-	-	-	-	-	-
Fakir Bary Zame Mosque, Sadar	-	-	120	-	-	-	-	-	-	-	-	-
City College, Sadar Road	-	-	100	-	-	-	140	-	-	120	-	-
Amirita Lal College, Hospital Sadar	-	-	110	-	-	-	-	-	-	-	-	-
Manshy Gage, Barisal Sadar	-	-	150	-	-	-	-	-	-	120	110	-
Jameo Madani Haji Omar Shah Madrasha	-	-	-	150	-	-	-	-	-	-	-	-
Halima Khatun Secondary School	-	-	-	130	-	-	-	-	-	-	-	-
Adiloi Pasa Zame Mosque, Sadar	-	-	-	120	-	-	-	-	-	-	-	-
Assnot Ali Khan Institution, Girza Moholla	-	-	-	110	-	-	-	-	-	-	-	-
Keramoia Zame Mosque, Port Road	-	-	-	120	-	-	-	-	-	-	-	-
Sheikh Afzar Uddin Koumi Madrasha, Lh. Ghat	-	-	-	110	-	-	-	-	-	-	-	-
Lanch Ghat, Barisal sadar	-	-	-	100	-	-	140	120	-	-	-	-
1st Floor Lanchghat, Sadar	-	-	-	160	-	-	-	-	-	-	-	-
Labourhat Tubewell, Sadar	-	-	-	120	-	-	-	-	-	-	-	-
Zafkhanget Tubewell, Sadar	-	-	-	110	-	-	-	-	-	-	-	-
Civil Surgeon Office, Sadar	-	-	-	120	-	-	-	-	-	-	-	-
PWD, Sadar, Barisal	-	-	-	100	-	-	-	-	-	-	-	-
Deputy Commissioner Office	-	-	-	110	-	-	110	-	-	-	-	-



Locations of Barisal District	Jan	Feb	Mar	Apr	May	July	June	Aug	Sep	Oct	Nov	Dec
City Market DC Ghat, Sadar	-	-	-	130	-	-	-	-	-	-	-	-
Tubewal water of Gonthon More, Sadar	-	-	-	-	130	-	-	-	-	-	-	-
Tubewal water, Husein Ali College, Sadar	-	-	-	-	120	-	-	-	-	-	-	-
Tubewal water, Choumaha Bazar	-	-	-	-	110	140	-	-	-	-	-	-
Tubewal water, Jameya Madania Uter Madrasa	-	-	-	-	140	-	-	-	-	-	-	-
Tubewal water, Shoshi Mistanno Vander, Sadar	-	-	-	-	120	-	-	-	-	-	-	-
Tubewal water, Custom Exs ise & VAT Off.	-	-	-	-	110	-	-	-	-	-	-	-
Tubewal water, Halima Khatun Girl's High Sc.	-	-	-	-	100	-	-	-	-	-	-	-
Tubewal water, City Market	-	-	-	-	120	-	-	-	-	-	-	-
Tubewal water, Bahur Math	-	-	-	-	160	-	-	-	-	-	-	-
Tubewal water, Chanmari	-	-	-	-	120	-	-	-	-	-	-	-
Tubewal water, Port Road More	-	-	-	-	110	-	-	-	-	-	-	-
Tubewal water, Model Thana	-	-	-	-	120	-	-	-	-	-	-	-
Tubewal water, Zai Khana Gate	-	-	-	-	100	-	-	-	-	-	-	-
Tubewal water, Bibir Pakur	-	-	-	-	110	-	-	-	-	-	-	-
Gournadi Girl's School, Gournadi	-	-	-	-	-	240	-	-	-	-	-	-
Upizilla Settlement Office	-	-	-	-	-	240	-	-	-	-	-	-
Beside the North Side of Gournadi Upizilla	-	-	-	-	-	260	-	-	-	-	-	-
Upizillah Livestock Office, Gournadi	-	-	-	-	-	210	-	-	-	-	-	-
Gournadi Municipality, Gournadi	-	-	-	-	-	200	-	-	-	-	-	-
Gournadi Model Thana, Gournadi	-	-	-	-	-	240	-	-	-	-	-	-
Sub-Register Office, Gournadi	-	-	-	-	-	220	-	-	-	-	-	-
Mondir Moore, Gournadi	-	-	-	-	-	250	-	-	-	-	-	-
Zilla Poriband Dak Bangle	-	-	-	-	-	210	-	-	-	-	-	-
Sufi Ahmad Madrasa & Mosque	-	-	-	-	-	200	-	-	-	-	-	-
Upizillah Health Complex, Gournadi	-	-	-	-	-	210	-	-	-	-	-	-
Agricultural Extension Office	-	-	-	-	-	220	-	-	-	-	-	-
Udoyen Secondary School, Sadar	-	-	-	-	-	-	120	110	-	-	-	-
T & T Colony Jamir Mosque, Sadar	-	-	-	-	-	-	160	-	-	-	-	-
Divisional Controller Of Accounts	-	-	-	-	-	-	120	-	-	-	-	-
Principal Post Office, Sadar	-	-	-	-	-	-	120	-	-	-	-	-
Divisional Museum, Sadar	-	-	-	-	-	-	100	-	-	-	-	-
Steamerghat Police Fari, Sadar	-	-	-	-	-	-	110	140	-	-	-	-
BIWTA Office, Sadar	-	-	-	-	-	-	120	-	-	-	-	-
Shorshohi Girl's School, Sadar	-	-	-	-	-	-	160	110	-	-	-	-
Barisal College	-	-	-	-	-	-	120	120	-	-	-	-
Bettala Bazar Market, Sadar	-	-	-	-	-	-	110	-	-	-	-	-
B.M School, Kalibari Road	-	-	-	-	-	-	130	120	-	100	140	-
Ambia Hospital More, Bogura Road	-	-	-	-	-	-	110	-	-	-	-	-
Amrita Lal Dey College	-	-	-	-	-	-	-	100	-	-	-	-



Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
Zaikhazagat, Sadar	-	-	-	-	-	-	-	100	-	-	-	-
Model Thana, Sadar	-	-	-	-	-	-	-	160	-	120	120	-
Kashipur High School	-	-	-	-	-	-	-	120	-	-	-	-
Kashipur Choumaha, Sadar	-	-	-	-	-	-	-	110	-	-	-	-
Munshi Garage, West Bogra Road	-	-	-	-	-	-	-	110	-	-	-	-
Choumaha Bazar, Sadar	-	-	-	-	-	-	-	130	-	140	140	-
Poshim Gurshan	-	-	-	-	-	-	-	-	-	120	120	140
Batal Fala Mosque, Natullabad	-	-	-	-	-	-	-	-	-	100	110	-
99 Bogra Natullabad Gov. Primary School,	-	-	-	-	-	-	-	-	-	110	120	110
Sadar Hospital Mosque, Sadar	-	-	-	-	-	-	-	-	-	140	120	-
Law College Govt. Primary School	-	-	-	-	-	-	-	-	-	110	160	-
Zaikhana Mosque, Sadar	-	-	-	-	-	-	-	-	-	130	120	-
Govt. Women College, Sadar	-	-	-	-	-	-	-	-	-	100	130	-
Govt. Girl's School, Sadar	-	-	-	-	-	-	-	-	-	130	110	-
Mobshin School, Sadar	-	-	-	-	-	-	-	-	-	110	130	-
Fishery Road More, Sadar	-	-	-	-	-	-	-	-	-	-	-	120
Sher-e-Bangla Govt. Primary School	-	-	-	-	-	-	-	-	-	-	-	120
Munshi Garage, Sadar	-	-	-	-	-	-	-	-	-	-	-	110
City College, Sadar	-	-	-	-	-	-	-	-	-	-	110	140
Sher-e-Bangla Hospital, Sadar	-	-	-	-	-	-	-	-	-	-	-	120
Shagordi Bazar, Sadar	-	-	-	-	-	-	-	-	-	-	-	140
Upozilah Sadar Complex, Sadar	-	-	-	-	-	-	-	-	-	-	-	130
City Market, Sadar	-	-	-	-	-	-	-	-	-	-	-	140
Collegiate Secondary School	-	-	-	-	-	-	-	-	-	-	-	110
Halima Khatun Govt. Girl's School	-	-	-	-	-	-	-	-	-	-	-	120
Band Road, Sadar	-	-	-	-	-	-	-	-	-	-	-	160
<b>Barisal District (Avg.)</b>	<b>116</b>	<b>-</b>	<b>120</b>	<b>122</b>	<b>119</b>	<b>218</b>	<b>124</b>	<b>121</b>	<b>-</b>	<b>118</b>	<b>122</b>	<b>128</b>
<b>EQS For Drinking (200-500 mg/l)</b>												



## VII. Ground water (Deep Tubewell) in Bogura District (Table: 258-262)

**Table-258. Level of pH of Ground Water at Bogura District in 2018**

Locations of Bogura District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bogra Zilla School	-	-	-	7.28	-	-	7.28	-	7.28	-	-	-
VM School, Sadar	-	-	-	7.26	-	-	7.26	-	7.26	-	-	-
Zilla Parishad	-	-	-	7.35	-	-	7.35	-	7.35	-	-	-
Office of the Duputy Commissioner	-	-	-	7.27	-	-	7.27	-	7.27	-	-	-
Office of the Bogra Municipality	-	-	-	7.26	-	-	7.26	-	7.26	-	-	-
Yakubiya Girls High School	-	-	-	7.28	-	-	7.28	-	7.28	-	-	-
Head Post Office	-	-	-	7.35	-	-	7.35	-	7.35	-	-	-
Biddut Office	-	-	-	7.28	-	-	7.28	-	7.28	-	-	-
T & T Office	-	-	-	7.24	-	-	7.24	-	7.24	-	-	-
Commercial College	-	-	-	7.35	-	-	7.35	-	7.35	-	-	-
Office of the Police Super	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bogura District (Avg.)</b>	-	-	-	7.29	-	-	7.29	-	7.29	-	-	-

EQS (6.5-8.5) for drinking

**Table-259. Level of EC of Ground Water at Bogura District in 2018**

Locations of Bogura District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bogra Zilla School	-	-	-	345	-	-	345	-	345	-	-	-
VM School, Sadar	-	-	-	360	-	-	360	-	360	-	-	-
Zilla Parishad	-	-	-	340	-	-	340	-	340	-	-	-
Office of the Duputy Commissioner	-	-	-	360	-	-	360	-	360	-	-	-
Office of the Bogra Municipality	-	-	-	325	-	-	325	-	325	-	-	-
Yakubiya Girls High School	-	-	-	345	-	-	345	-	345	-	-	-
Head Post Office	-	-	-	340	-	-	340	-	340	-	-	-
Biddut Office	-	-	-	360	-	-	360	-	360	-	-	-
T & T Office	-	-	-	325	-	-	325	-	325	-	-	-
Commercial College	-	-	-	330	-	-	330	-	330	-	-	-
Office of the Police Super	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bogura District (Avg.)</b>	-	-	-	343	-	-	343	-	343	-	-	-

EQS For Industries (1200  $\mu$ mohos/cm)

**Table-260. Level of Iron of Ground Water at Bogura District in 2018**

Locations of Bogura District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bogra Zilla School	-	-	-	0.34	-	-	0.34	-	0.34	-	-	-
VM School, Sadar	-	-	-	0.32	-	-	0.32	-	0.32	-	-	-
Zilla Parishad	-	-	-	0.36	-	-	0.36	-	0.36	-	-	-
Office of the Duputy Commissioner	-	-	-	0.38	-	-	0.38	-	0.38	-	-	-
Office of the Bogra Municipality	-	-	-	0.34	-	-	0.34	-	0.34	-	-	-
Yakubiya Girls High School	-	-	-	0.34	-	-	0.34	-	0.34	-	-	-
Head Post Office	-	-	-	0.38	-	-	0.38	-	0.38	-	-	-
Biddut Office	-	-	-	0.38	-	-	0.38	-	0.38	-	-	-
T & T Office	-	-	-	0.34	-	-	0.34	-	0.34	-	-	-
Commercial College	-	-	-	0.38	-	-	0.38	-	0.38	-	-	-
Office of the Police Super	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bogura District (Avg.)</b>	-	-	-	0.35	-	-	0.35	-	0.35	-	-	-

EQS For Drinking (0.3-1 mg/l)



Locations of Bogura District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bogra Zilla School	-	-	-	30	-	-	30	-	30	-	-	-
VM School, Sadar	-	-	-	28	-	-	28	-	28	-	-	-
Zilla Parishad	-	-	-	32	-	-	32	-	32	-	-	-
Office of the Duputy Commissioner	-	-	-	34	-	-	34	-	34	-	-	-
Office of the Bogra Municipality	-	-	-	30	-	-	30	-	30	-	-	-
Yakubiya Girls High School	-	-	-	32	-	-	32	-	32	-	-	-
Head Post Office	-	-	-	28	-	-	28	-	28	-	-	-
Biddut Office	-	-	-	32	-	-	32	-	32	-	-	-
T & T Office	-	-	-	32	-	-	32	-	32	-	-	-
Commercial College	-	-	-	34	-	-	34	-	34	-	-	-
Office of the Police Super	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bogura District (Avg.)</b>	-	-	-	<b>31.2</b>	-	-	<b>31.2</b>	-	<b>31.2</b>	-	-	-
<b>EQS For Industries (150 mg/l)</b>												

Locations of Bogura District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bogra Zilla School	-	-	-	210	-	-	210	-	210	-	-	-
VM School, Sadar	-	-	-	220	-	-	220	-	220	-	-	-
Zilla Parishad	-	-	-	220	-	-	220	-	220	-	-	-
Office of the Duputy Commissioner	-	-	-	210	-	-	210	-	210	-	-	-
Office of the Bogra Municipality	-	-	-	210	-	-	210	-	210	-	-	-
Yakubiya Girls High School	-	-	-	220	-	-	220	-	220	-	-	-
Head Post Office	-	-	-	210	-	-	210	-	210	-	-	-
Biddut Office	-	-	-	220	-	-	220	-	220	-	-	-
T & T Office	-	-	-	210	-	-	210	-	210	-	-	-
Commercial College	-	-	-	220	-	-	220	-	220	-	-	-
Office of the Police Super	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bogura District (Avg.)</b>	-	-	-	<b>215</b>	-	-	<b>215</b>	-	<b>215</b>	-	-	-
<b>EQS For Industries (150 mg/l)</b>												

**VIII. Ground water (Deep Tubewell) in Sylhet district (Table: 263-267)****Table-263. Level of pH of Ground Water at Sylhet District in 2018**

Locations of Sylhet Dist.	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
MC College, Tilagar	-	-	-	-	7.3	-	-	-	7.2	7.3	-	7.9
Kadamtoli Bus Terminal	-	-	-	-	7.4	-	-	-	7.3	7.2	-	7.2
Sylhet Railway Station	-	-	-	-	-	-	-	-	-	-	-	-
Durgakumar Govt. Primary School	-	-	-	-	7.3	-	-	-	7.4	7.5	-	7.3
Agrogami Girls High School	-	-	-	-	7.1	-	-	-	7.2	7.3	-	7.4
Sylhet Govt. Girls High School	-	-	-	-	-	-	-	-	-	-	-	-
Osmani Medical College	-	-	-	-	6.9	-	-	-	7	7.1	-	7.5
Kadamtoli Primary School	-	-	-	-	-	-	-	-	-	-	-	-
Shahjalal Darga, Sadar	-	-	-	-	-	-	-	-	-	-	-	-
Shahporan Darga, Khadinnagar	-	-	-	-	-	-	-	-	-	-	-	-
Lal Bazar/ Bandar Bazar, Sylhet	-	-	-	-	7.4	-	-	-	7.3	7.4	-	8.2
<b>Sylhet District (Avg.)</b>	-	-	-	-	<b>7.23</b>	-	-	-	<b>7.23</b>	<b>7.3</b>	-	<b>7.58</b>

EQS (6.5-8.5) for drinking

**Table-264. Level of EC of Ground Water at Sylhet District in 2018**

Locations of Sylhet Dist.	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
MC College, Tilagar	-	-	-	-	7.3	-	-	-	7.2	7.3	-	7.9
Kadamtoli Bus Terminal	-	-	-	-	7.4	-	-	-	7.3	7.2	-	7.2
Sylhet Railway Station	-	-	-	-	-	-	-	-	-	-	-	-
Durgakumar Govt. Primary School	-	-	-	-	7.3	-	-	-	7.4	7.5	-	7.3
Agrogami Girls High School	-	-	-	-	7.1	-	-	-	7.2	7.3	-	7.4
Sylhet Govt. Girls High School	-	-	-	-	-	-	-	-	-	-	-	-
Osmani Medical College	-	-	-	-	6.9	-	-	-	7	7.1	-	7.5
Kadamtoli Primary School	-	-	-	-	-	-	-	-	-	-	-	-
Shahjalal Darga, Sadar	-	-	-	-	-	-	-	-	-	-	-	-
Shahporan Darga, Khadinnagar	-	-	-	-	-	-	-	-	-	-	-	-
Lal Bazar/ Bandar Bazar, Sylhet	-	-	-	-	7.4	-	-	-	7.3	7.4	-	8.2
<b>Sylhet District (Avg.)</b>	-	-	-	-	<b>7.23</b>	-	-	-	<b>7.23</b>	<b>7.3</b>	-	<b>7.58</b>

EQS for wastewater after treatment from industrial units 1200 µmhos/cm

**Table-265. Level of Chloride of Ground Water at Sylhet District in 2018**

Locations of Sylhet Dist.	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
MC College, Tilagar	-	-	-	-	14	-	-	-	13	14	-	22
Kadamtoli Bus Terminal	-	-	-	-	13	-	-	-	14	13	-	25
Sylhet Railway Station	-	-	-	-	-	-	-	-	-	-	-	-
Durgakumar Govt. Primary School	-	-	-	-	14	-	-	-	12	13	-	26
Agrogami Girls High School	-	-	-	-	14	-	-	-	13	12	-	18
Sylhet Govt. Girls High School	-	-	-	-	-	-	-	-	-	-	-	-
Osmani Medical College	-	-	-	-	16	-	-	-	14	14	-	16
Kadamtoli Primary School	-	-	-	-	-	-	-	-	-	-	-	-
Shahjalal Darga, Sadar	-	-	-	-	-	-	-	-	-	-	-	-
Shahporan Darga, Khadinnagar	-	-	-	-	-	-	-	-	-	-	-	-
Lal Bazar/ Bandar Bazar, Sylhet	-	-	-	-	16	-	-	-	15	14	-	24
<b>Sylhet District (Avg.)</b>	-	-	-	-	<b>14.5</b>	-	-	-	<b>13.5</b>	<b>13.3</b>	-	<b>21.8</b>

EQS for wastewater after treatment from industrial units 150-600 mg/l

**Table-266. Level of Alkalinity of Ground Water at Sylhet District in 2018**

Locations of Sylhet Dist.	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
MC College, Tilagar	-	-	-	-	20	-	-	-	22	24	-	30
Kadamtoli Bus Terminal	-	-	-	-	22	-	-	-	20	22	-	76
Sylhet Railway Station	-	-	-	-	-	-	-	-	-	-	-	-
Durgakumar Govt. Primary School	-	-	-	-	22	-	-	-	20	18	-	44
Agrogami Girls High School	-	-	-	-	24	-	-	-	24	20	-	60
Sylhet Govt. Girls High School	-	-	-	-	-	-	-	-	-	-	-	-
Osmani Medical College	-	-	-	-	20	-	-	-	20	24	-	28
Kadamtoli Primary School	-	-	-	-	-	-	-	-	-	-	-	-
Shahjalal Darga, Sadar	-	-	-	-	-	-	-	-	-	-	-	-
Shahporan Darga, Khadinnagar	-	-	-	-	-	-	-	-	-	-	-	-
Lal Bazar/ Bandar Bazar, Sylhet	-	-	-	-	20	-	-	-	22	20	-	60
<b>Sylhet District (Avg.)</b>	-	-	-	-	<b>21.3</b>	-	-	-	<b>21.3</b>	<b>21.3</b>	-	<b>49.6</b>
<b>EQS for wastewater after treatment from industrial units 150 mg/l</b>												

**Table-267. Level Iron of Ground Water at Sylhet District in 2018**

Locations of Sylhet Dist.	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
MC College, Tilagar	-	-	-	-	0.73	-	-	-	0.72	0.74	-	0.45
Kadamtoli Bus Terminal	-	-	-	-	0.72	-	-	-	0.68	0.7	-	1.22
Sylhet Railway Station	-	-	-	-	-	-	-	-	-	-	-	-
Durgakumar Govt. Primary School	-	-	-	-	0.82	-	-	-	0.78	0.76	-	0.65
Agrogami Girls High School	-	-	-	-	0.83	-	-	-	0.82	0.83	-	2.33
Sylhet Govt. Girls High School	-	-	-	-	-	-	-	-	-	-	-	-
Osmani Medical College	-	-	-	-	0.68	-	-	-	0.72	0.76	-	0.89
Kadamtoli Primary School	-	-	-	-	-	-	-	-	-	-	-	-
Shahjalal Darga, Sadar	-	-	-	-	-	-	-	-	-	-	-	-
Shahporan Darga, Khadinnagar	-	-	-	-	-	-	-	-	-	-	-	-
Lal Bazar/ Bandar Bazar, Sylhet	-	-	-	-	0.78	-	-	-	0.76	0.78	-	1.23
<b>Sylhet District (Avg.)</b>	-	-	-	-	<b>0.76</b>	-	-	-	<b>0.74</b>	<b>0.76</b>	-	<b>1.12</b>
<b>EQS For Drinking (0.3-1 mg/l)</b>												

## ***Annex-4***

### ***List of Tables for Trend Analysis of Water Quality of Major Rivers***



Table-268. Trend of pH, DO and BOD of Buriganga river from 2010 to 2018.

Sampling Location	Year	Season	pH	DO	BOD
Buriganga river	2010	Dry	7.25	0.47	26.44
		Wet	7.31	3.83	8.23
	2011	Dry	7.27	1.35	26.06
		Wet	7.03	2.24	22.48
	2012	Dry	7.42	0.54	18.748
		Wet	7.19	2.55	15.90
	2013	Dry	7.38	2.3	21.18
		Wet	6.84	2.56	9.17
	2014	Dry	7.24	0.61	24.97
		Wet	7.27	2.58	10.29
	2015	Dry	7.54	0.14	17.09
		Wet	7.22	2.96	7.42
	2016	Dry	7.54	0.17	17.09
		Wet	7.05	2.98	6.53
	2017	Dry	7.34	0.78	14.58
		Wet	7.29	2.64	5.69
	2018	Dry	7.42	1.28	12.14
		Wet	7.47	2.82	5.98
EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

Table-269. Trend of pH, DO and BOD of Shitalakhya river from 2010 to 2018.

Sampling Location	Year	Season	pH	DO	BOD
Shitalakhya River	2010	Dry	7.22	3.77	9.58
		Wet	7.05	5.53	4.67
	2011	Dry	7.14	3.80	10.62
		Wet	7.22	5.63	3.983
	2012	Dry	7.22	2.18	11.17
		Wet	7.37	3.56	5.21
	2013	Dry	7.7	2.69	22.83
		Wet	7.11	4.10	5.75
	2014	Dry	7.19	0.66	16.8
		Wet	7.43	3.86	6.64
	2015	Dry	7.51	3.84	6.46
		Wet	6.93	3.53	3.78
	2016	Dry	7.26	4.25	19.99
		Wet	7.22	4.14	5.49
	2017	Dry	7.56	2.41	17.74
		Wet	7.36	4.92	6.94
	2018	Dry	7.5	2.66	12.28
		Wet	7.86	4.96	3.89
EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

**Table-270. Trend of pH, DO and BOD of Turag river from 2010 to 2018.**

Sampling Location	Year	Season	pH	DO	BOD
Turag River	2010	Dry	7.49	0	30.91
		Wet	6.39	3.73	9.5
	2011	Dry	7.74	0.47	22.33
		Wet	7.52	3.94	9.12
	2012	Dry	7.6	0.65	24.87
		Wet	7.48	2.67	12.95
	2013	Dry	7.46	0.742	31.96
		Wet	7.31	2.93	4.58
	2014	Dry	7.67	0.69	35.44
		Wet	7.36	2.75	7.21
	2015	Dry	7.67	0.11	35.70
		Wet	6.79	3.63	7.45
	2016	Dry	7.18	0.4	30.48
		Wet	7.31	4.51	4.84
	2017	Dry	7.57	1.20	21.98
		Wet	7.36	4.09	7.03
	2018	Dry	7.53	1.6	25.72
		Wet	7.5	4.52	6.31
EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

**Table-271. Trend of pH, DO and BOD of Dhaleshwari river from 2010 to 2018.**

Sampling Location	Year	Season	pH	DO	BOD
Dhaleshwari River	2010	Dry	7.03	5.36	2.85
		Wet	6.86	6.15	3.42
	2011	Dry	7.17	6.01	3.91
		Wet	6.86	6.00	2.52
	2012	Dry	7.57	4.50	6.61
		Wet	7.82	6.0	8.64
	2013	Dry	7.81	4.15	14.37
		Wet	7.25	4.91	4.28
	2014	Dry	7.48	2.87	11.55
		Wet	7.16	4.475	6.65
	2015	Dry	7.15	1.4	7.2
		Wet	6.90	5.35	1.38
	2016	Dry	7.21	2.75	4.98
		Wet	7.56	6.05	2.41
	2017	Dry	7.60	2.71	8.25
		Wet	7.48	4.25	5.01
	2018	Dry	7.88	1.38	17.39
		Wet	7.8	4.89	17.38
EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l



Table-272. Trend of pH, DO and BOD of Brahmaputra river from 2010 to 2018.

Sampling Location	Year	Season	pH	DO	BOD	
Brahmaputra River	2010	Dry	7.14	5.44	4.5	
		Wet	6.97	5.62	2.42	
	2011	Dry	7.08	5.85	2.86	
		Wet	6.74	6.35	2.36	
	2012	Dry	7.31	6.9	3.1	
		Wet	7.28	6.25	2.6	
	2013	Dry	8.22	11.36	16	
		Wet	7.69	5.9	0	
	2014	Dry	7.89	9.7	5.1	
		Wet	-	-	-	
	2015	Dry	7.08	7.5	1.5	
		Wet	7.56	6.55	0.55	
	2016	Dry	7.19	7.06	1.66	
		Wet	7.48	6.4	1.58	
	2017	Dry	7.35	7.3	2.25	
		Wet	8.05	6.8	1.2	
	2018	Dry	-	-	-	
		Wet	7.83	6.04	2.2	
	EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

Table-273. Trend of pH, DO and BOD of Halda River from 2010 to 2018.

Sampling Location	Year	Season	pH	DO	BOD	
Halda River	2010	Dry	7.13	-	-	
		Wet	7	-	-	
	2011	Dry	7.13	5.71	1.12	
		Wet	7.16	5.65	1.13	
	2012	Dry	7.22	5.31	0.77	
		Wet	7.15	4.54	0.78	
	2013	Dry	7.19	5.34	0.41	
		Wet	7.12	5.31	0.32	
	2014	Dry	7.22	5.26	0.37	
		Wet	7.186	5.44	0.24	
	2015	Dry	7.49	6.03	-	
		Wet	7.37	6.69	-	
	2016	Dry	7.22	6.68	-	
		Wet	6.95	7.15	-	
	2017	Dry	7.3	6.24	-	
		Wet	7.45	7.00	-	
	2018	Dry	7.22	5.75	-	
		Wet	7.34	5.5	-	
	EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l



Table-274. Trend of pH, DO and BOD of Moyuri River from 2010 to 2018.

Sampling Location	Year	Season	pH	DO	BOD
Moyuri River	2010	Dry	7.6	0.36	26.6
		Wet	7.52	2.33	5.66
	2011	Dry	7.40	0.69	19.5
		Wet	7.59	2.7	9.73
	2012	Dry	7.59	0.93	16.0
		Wet	7.53	0.5	9.2
	2013	Dry	7.63	0.06	21.5
		Wet	7.63	-	13
	2014	Dry	7.67	-	-
		Wet	7.75	-	-
	2015	Dry	7.66	1.2	-
		Wet	7.49	2.46	-
	2016	Dry	7.68	1.55	-
		Wet	7.65	1.98	-
	2017	Dry	7.54	0.84	-
		Wet	7.52	0.68	-
	2018	Dry	7.54	0.84	-
		Wet	7.52	0.68	-
EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

Table-275. Trend of pH, DO and BOD of Surma River from 2010 to 2018.

Sampling Location	Year	Season	pH	DO	BOD
Surma River	2010	Dry	7.48	6.3	1.2
		Wet	7.45	6.76	1.16
	2011	Dry	7.63	7.39	1.17
		Wet	7.63	7.24	1.23
	2012	Dry	7.66	5.88	1.12
		Wet	7.35	5.8	1.21
	2013	Dry	6.89	6.4	1.30
		Wet	6.63	6.54	0.9
	2014	Dry	6.95	5.02	32.37
		Wet	6.76	5.49	36.12
	2015	Dry	7.055	5.85	15.03
		Wet	7.1	6.23	17.87
	2016	Dry	7.22	6.07	26.54
		Wet	7.14	6.58	26.88
	2017	Dry	7.60	6.57	2.4
		Wet	6.85	6.66	2.26
	2018	Dry	8.01	7.11	2.02
		Wet	8.09	6.74	2.08
EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

**Table-276. Trend of pH, DO and BOD of Korotoa River from 2010 to 2018.**

Sampling Location	Year	Season	pH	DO	BOD	
Korotoa River	2011	Dry	7.22	5.54	20.70	
		Wet	7.07	5.80	16.22	
	2012	Dry	6.91	5.74	13.44	
		Wet	6.79	6.38	2.51	
	2013	Dry	7.27	5.17	2.67	
		Wet	7.13	4.87	4.31	
	2014	Dry	7.37	4.58	3.57	
		Wet	7.33	4.38	2.79	
	2015	Dry	7.42	1.78	11.85	
		Wet	7.24	5.36	4.05	
	2016	Dry	6.77	2.57	5.74	
		Wet	7.39	2.56	6.09	
	2017	Dry	7.03	3.33	4.57	
		Wet	7.01	3.37	4.81	
	2018	Dry	7.03	3.79	4.41	
		Wet	7.02	4.14	3.27	
	EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

**Table-277. Trend of pH, DO and BOD of Mathavanga River Water from 2010 to 2018.**

Sampling Location	Year	Season	pH	DO	BOD	
Mathavanga River	2010	Dry	7.46	2.11	144.08	
		Wet	7.62	3.6	82.85	
	2011	Dry	7.50	5.03	11.69	
		Wet	7.65	4.83	15.40	
	2012	Dry	7.71	6.53	17.61	
		Wet	7.85	6.7	0.53	
	2013	Dry	7.62	6.83	0.9	
		Wet	7.62	5.8	0.8	
	2014	Dry	7.62	5.4	0.6	
		Wet	7.465	5.67	0.69	
	2015	Dry	7.67	5.16	0.8	
		Wet	7.67	5.32	0.76	
	2016	Dry	7.67	5.16	0.8	
		Wet	7.47	5.21	0.8	
	2017	Dry	7.65	5.46	1.05	
		Wet	7.71	5.82	1.01	
	2018	Dry	7.05	4.66	0.905	
		Wet	6.8	4.34	0.7	
	EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

*Annex-5*

*List of Tables for Sea Water Quality Data*



Table-278. Level pH of Sea Water Water in July'18 to June'19.

Locations of Sea Water Sampling Point	July, 18	Aug, 18	Sep, 18	Oct, 18	Nov, 18	Dec, 18	Jan, 19	Feb, 19	Mar, 19	Apr, 19	May, 19	June, 19
Mohona	7.7	7.9	7.3	7.7	7.7	7.5	7.5	8	8.4	7.4	7.1	7.6
Staight Patenga	8.5	8	8.1	8.2	7.7	7.6	7.7	8.1	<b>8.6</b>	7.4	7.5	7.7
Charpara	7.3	7.6	7.2	7.7	7.8	7.5	7.8	7.9	7.5	7.3	7.6	7.3
Straight to CEPZ	7.4	7.8	7	7.9	7.8	7.7	7.8	8.2	8	7.2	7.4	7.8

EQS Fisheries (6.5-8.5)

Table-279. Level DO of Sea Water Water in July'18 to June'19.

Locations of Sea Water Sampling Point	July, 18	Aug, 18	Sep, 18	Oct, 18	Nov, 18	Dec, 18	Jan, 19	Feb, 19	Mar, 19	Apr, 19	May, 19	June, 19
Mohona	7.1	7.7	7.4	7.2	8	7.9	8.2	8.1	8.4	7.83	7.6	8.2
Staight Patenga	7.3	7.9	7.7	7.9	7.8	7.7	7.9	7.8	7.5	8	8.1	7.9
Charpara	7.6	8	8.1	7.8	<b>8.5</b>	8.2	7.8	7.7	7.1	7.2	7.5	7.7
Straight to CEPZ	7.8	7.8	7.5	8.2	7.9	7.5	8.4	8.2	8.1	7.5	7.3	7

EQS Fisheries (5 mg/l<sub>2</sub>)

Table-280. Level TDS of Sea Water Water in July'18 to June'19.

Locations of Sea Water Sampling Point	July, 18	Aug, 18	Sep, 18	Oct, 18	Nov, 18	Dec, 18	Jan, 19	Feb, 19	Mar, 19	Apr, 19	May, 19	June, 19
Mohona	4030	4190	5300	8310	14910	18940	17720	18730	16720	13220	13435	11010
Staight Patenga	4118	4167	5270	7720	13130	18870	18010	18956	16990	13090	12189	10659
Charpara	4260	4289	5289	7500	13970	18790	17870	<b>19130</b>	17138	12130	12290	10781
Straight to CEPZ	4151	4308	5310	8010	14020	18825	18125	18643	17587	12480	12510	11115

EQS Industrial (&lt;2100 mg/l)

Table-281. Level SS of Sea Water Water in July'18 to June'19.

Locations of Sea Water Sampling Point	July, 18	Aug, 18	Sep, 18	Oct, 18	Nov, 18	Dec, 18	Jan, 19	Feb, 19	Mar, 19	Apr, 19	May, 19	June, 19
Mohona	226	316	302	314	428	305	408	238	247	268	235	372
Staight Patenga	317	330	342	355	456	310	481	121	142	270	256	220
Charpara	289	310	329	310	<b>488</b>	381	392	314	306	<b>90</b>	113	137
Straight to CEPZ	271	275	263	289	390	337	441	263	258	199	185	148

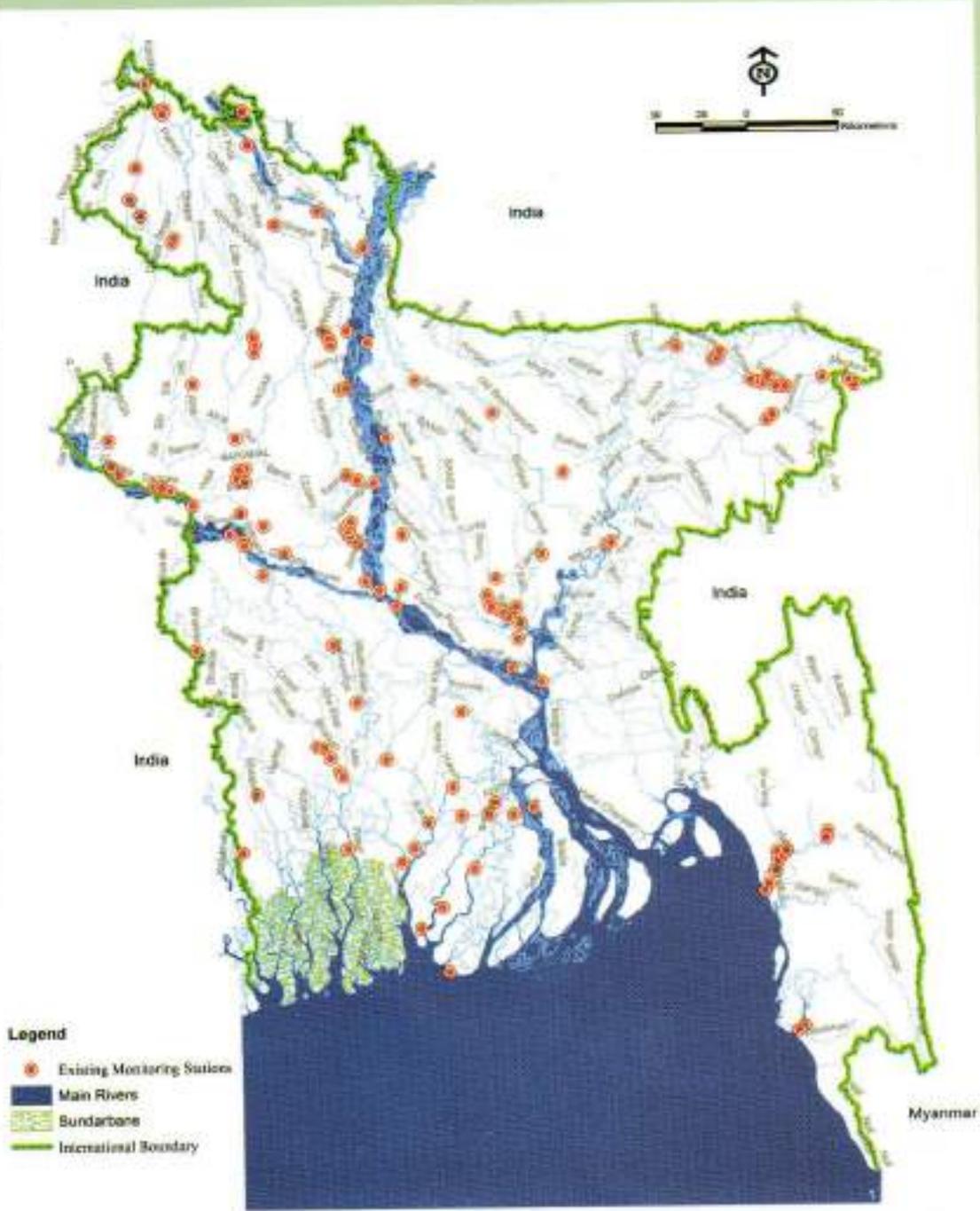
EQS Industrial (150 mg/l)

Table-282. Level EC of Sea Water Water in July'18 to June'19.

Locations of Sea Water Sampling Point	July, 18	Aug, 18	Sep, 18	Oct, 18	Nov, 18	Dec, 18	Jan, 19	Feb, 19	Mar, 19	Apr, 19	May, 19	June, 19
Mohona	<b>8069</b>	8380	10628	16612	29838	29901	24300	31600	31290	21320	20154	21541
Staight Patenga	8236	8334	10530	15430	26250	28000	24790	32400	31649	21070	20125	19743
Charpara	8520	8578	10562	14892	27947	28500	24600	<b>32800</b>	32380	19780	21376	20149
Straight to CEPZ	8302	8616	10640	16002	28930	28270	24810	32790	32690	20190	21280	21310

EQS Industrial (1200 µmhos/cm)

\*\*\*\*\* End \*\*\*\*\*



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