

SURFACE AND GROUND WATERQUALITY REPORT 2020



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Surface and Ground Water Quality Report 2020

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MESSAGE

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. 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.

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 2020 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), and 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 especially in the dry season. In addition, this report includes the water quality of three lakes (namely Dhanmondi, Gulshan and Hatir Jheel), 5 stations of marine water and 83 ground water stations of four 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 Abdul Hamid
Director General
Department of Environment

FOREWORD

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 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 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 2020 contains data and some basic statistical analysis of a number of water quality parameters 124 points of 29 rivers, 12 points of 03 lakes, 5 stations of sea water and 83 stations of 04 districts of ground water for the period from January to December 2020. 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 was 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 2020. The report does not include biological indicators for monitoring.

In 2020, the monitoring program covered sampling of 186 points/stations of 11 district (Barisal Dist.-41 points, Bhola Dist.-13 points, Jhalokathi Dist.-15 points, Khulna Dist.-34 points, Natore Dist.-10 points, Pabna Dist.-10 points, Patuakhjali Dist.-19 points, Pirojpur Dist.-14 points, Rajshahi Dist.-10 points, Rangour Dist.-10 points, Sirajgonj Dist.-10 points) for analysis of drinking water quality.

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.

Syeda Masuma Khanam
Director (Joint Secretary)
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EDITORIAL NOTES

Water quality refers to the chemical, physical, biological, and radiological characteristics of water. Water is an essential element for industrial as well as agricultural development. 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 2020. 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)

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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

GLOSSARY

pH:

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. 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 (O₂) 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. 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 (BOD₅):

Biochemical Oxygen Demand (BOD₅), 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. There are two commonly recognized methods for the measurement of BOD. Dilution method & Manometric method.

Chemical Oxygen Demand (COD):

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 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).

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. Total dissolved solids are normally discussed only for freshwater systems, as salinity includes some of the ions constituting the definition of TDS.

Electrical Conductivity (EC):

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

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.

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.

Chloride:

The chloride ion is the anion (negatively charged ion) 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. 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. 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° 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.

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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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 2020, Water quality-monitoring programme of DoE covered sampling from 124 points of 29 rivers, 12 points of 3 Lakes (Gulshan, Dhanmondi and Hatir Jheel lakes) of Dhaka and 83 groundwater points of 4 districts, 5 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.

In 2020, the monitoring program covered sampling of 186 points/stations of 11 district (Barisal Dist.-41 points, Bhola Dist.-13 points, Jhalokathi Dist.-15 points, Khulna Dist.-34 points, Natore Dist.-10 points, Pabna Dist.-10 points, Patuakhjali Dist.-19 points, Pirojpur Dist.-14 points, Rajshahi Dist.-10 points, Rangour Dist.-10 points, Sirajgonj Dist.-10 points) for analysis of drinking water quality.

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 2020. In the Meghna River DO and BOD level were found within the EQS which varied from 2.8 mg/l to 7.8 mg/l and 1.2 mg/l to 28 mg/l, respectively. In the Jamuna River, DO and BOD levels were found from 6.7 mg/l to 12.9 mg/l and 2.0 to 12 mg/l, respectively. On the other hand, rivers around greater Dhaka were highly polluted specially in the first five months of 2020 in terms of DO, BOD

and COD values. High levels of Turbidity (285 NTU), TDS (597 mg/l), BOD (56 mg/l) and COD (207 mg/l) were found in the Buriganga River from January to December in 2020. High BOD (76 mg/l), COD (356 mg/l) and Turbidity (111 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 (1828 mg/l) and TDS (3162 mg/l) were also very high in the Pashur River. Highest value of Turbidity (87.8 NTU) and EC (32850 μ mhos/cm) was found in the Kakshiali River. High COD (1490 mg/l) 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 Eighty Three (83) different locations of four districts of the country. Depending on continuity of measurements and spatio-temporal context, 6 parameters viz. pH, EC, TDS, Iron, T. 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 2020.

This report also included a trend of quality of water of 11 rivers from 2010 to 2020. 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 (≥ 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.

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”. As 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 flow 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 2020, the monitoring program covered sampling of 124 points of 29 rivers, 12 points of 3 Lakes (Gulshan, Dhanmondi and Hatir Jheel lakes) of Dhaka and 83 points (Khulna Dist.-30 points, Barisal Dist.-38 points Stations, Sylhet Dist.-05 points, Bogura Dist.-10 points) of ground water of 4 districts, 5 points of marine water in Bangladesh.

1.2 Major objectives of the report

Major objectives of this report are -

- 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 2020. 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: AN OVERVIEW OF RIVERS OF BANGLADESH

2.1 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 river 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 3,960 m 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 Kushiya.

Between the Surma and the Kushiya, 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.

2.2 Groundwater

Groundwater is the main source of water for drinking and irrigation in Bangladesh. The sediments underlying most of Bangladesh provide good aquifers which are widely exploited to supply domestic and irrigation water, except in the hilly areas. In most of the areas except major city areas like Dhaka and Barind Tract, aquifers are mostly recharged every year by rainfall, seasonal flooding and percolation of water through river beds. Due to abstraction of groundwater, serious depletion of groundwater table around major cities, particularly in Dhaka has reached at an alarming situation. Similar situation is reported for the Barind areas (due to excessive withdrawal of groundwater for irrigation purposes. Currently, 35,322 deep tube wells, 1,523,322 shallow tube wells and 170,570 low lift pumps are working in Bangladesh to provide water for irrigation. About 79% of the total cultivated area in Bangladesh is irrigated by groundwater, whereas the remaining is irrigated by surface water. The Arsenic contamination in groundwater is increasing at an alarming rate. Today, in Bangladesh, an estimated 35–77 million people have been chronically exposed to Arsenic via drinking water. An estimated 25% of the wells exceed Arsenic levels according to the Bangladesh standard. (CSISA-MI, 2015)

In the last two decades, increased groundwater accessibility resulting from the expansion of deep and shallow tube wells helped Bangladesh attain near self-sufficiency in rice. This has resulted in serious problems, most notably excessive drawdown in intensively irrigated areas, and the deterioration of groundwater quality. As such, Government has decided not to expand further deep tube wells in irrigated areas. Increasing energy prices are also threatening the sustainability of Bangladesh's groundwater irrigated economy.

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 areas of the Madhupur Tract (Brammer, 2012).

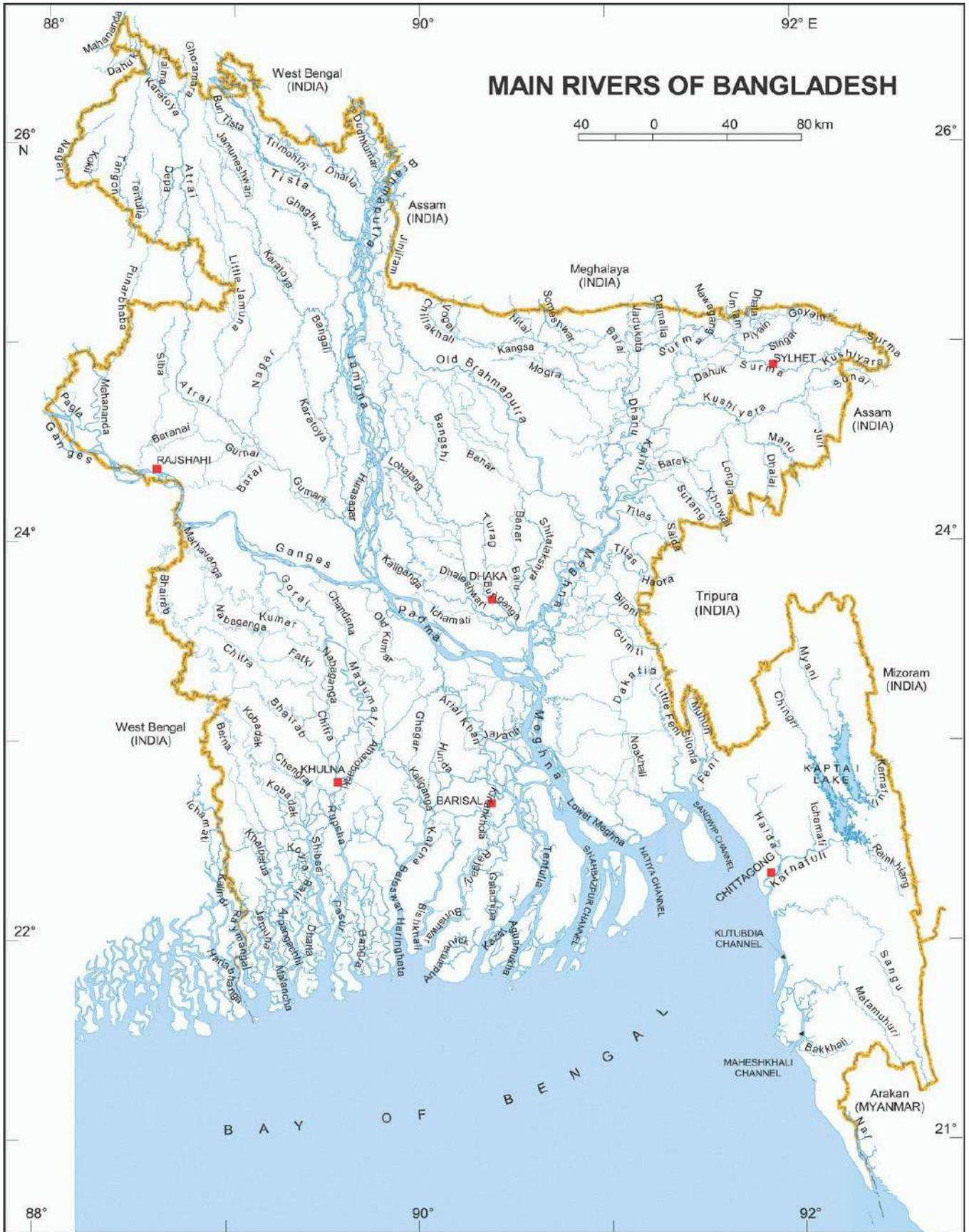


Figure-A: River system of Bangladesh (Source: BWDB, 2011)

CHAPTER 3: METHODS FOR MEASUREMENT AND ANALYSIS OF WATER QUALITY

3.1 Water Quality Parameters

Water quality monitoring can help researchers to predict and learn from natural processes at the environment and determine human impacts on an ecosystem. The measurement efforts of the quality can 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, also to studies of groundwater and monitoring the 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) and Chemical Oxygen Demand (COD), Chloride and Salinity were measured to assess the inland surface water quality in Bangladesh.

3.2 Sampling Locations

In 2020, the monitoring program covered sampling of 124 points of 29 rivers, 12 points of 03 Lakes (Gulshan, Dhanmondi and Hatir Jheel lakes) of Dhaka and 83 stations (Khulna Dist.-30 points, Barisal Dist.-38 points Stations, Sylhet Dist.-05 points, Bogura Dist.-10 points) of 4 districts, 05 points of sea water in Bangladesh (Figure B).

In 2020, the monitoring program covered sampling of 186 points/stations of 11 district (Barisal Dist.-41 points, Bhola Dist.-13 points, Jhalokathi Dist.-15 points, Khulna Dist.-34 points, Natore Dist.-10 points, Pabna Dist.-10 points, Patuakhjali Dist.-19 points, Pirojpur Dist.-14 points, Rajshahi Dist.-10 points, Rangour Dist.-10 points, Sirajgonj Dist.-10 points) for analysis of drinking water quality.

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 the water quality.
- Bacteriological tests show the presence of bacteria, characteristic of faecal pollution. This report only covered the physio-chemical analysis. The following methods are followed for analysis:

Parameters	Methods
Dissolved Oxygen (DO)	Modified Winkler's Method/Titrimetric Method
Biochemical Oxygen Demand (BOD ₅)	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

3.4 Surface Water Monitoring Stations

Table- A: Water Quality Monitoring Stations of DoE for Selected 29 Rivers

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 Kachpur 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	Balu	Near Jaber & Jubair Fabrics Ltd., Near Hossain Dyeing Ltd., Near Damra University College, Near Balu Bridge, 300 feet Road, Near Fulpukuria Dyeing Ltd. Pagar, Tongi.	05
5	Dhaleshwari	Mukhtarapur Bridge	01
6	Brahmaputra	Mymensingh	01
7	Kaliganga	Veuta Ghat, Manikgonj	01
8	Jamuna	Near Jamuna Fertilizer Factory, Fulchari Ghat, Gibanda (UP & Down Steam), Shariakandi Groin Badth, Bogra (UP & Down Steam), Near Bangabandhu Bridge (UP & Down Steam).	07
9	Meghna	Bhairab Bazar, Meghna Ghat and Shahajalal Paper Mills	03
10	Padma	Mawa Ghat, Shimulia Ghat, Pakshi Ghat (Up and Down Steam), Pabna and Baro Kutli Ghat (Up and Down Steam), Rajshahi.	06
11	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
12	Teesta	Tista Bridge (Up Stream and Down stream)	02
13	Karnaphuli	CUFL Side Anowara, TSP Side, KAFCO side, Karnafully River Chaktai Khal, 15 no, Karnafully Mohona, 1km Straight from patenga sea beach, Patenga charpara, 1km Straight from CEPZ, Vatiyari Shipyard Area	10
14	Halda	Mohona, Khandakiya Khal, Madari Khal, Katakhal Khal, Krishna Khal, Boraikhal, Madarikhali (Breeding Point), Noya Khal (outside), Noya Khal.	09
15	Moyuri	Gallamari Bridge (Bank, Middle and Oposite)	03
16	Bhairab	Noapara Ghat (Bank, Middle and Oposite), Fultala Ghat (Bank, Middle and Oposite)	06
17	Rupsa	Rupsa Ghat (Bank, Middle and Oposite), Labanchara Ghat (Bank, Middle and Oposite)	06
18	Mathavanga	Pipeghat (200M Upstream, Downstream and Middle Stream), Darshana.	03
19	Passur	Mongla Port (Bank, Middle and Oposite)	03
20	Kankshiali	Kaliganj (Bank, Middle and Oposite), Satkhira	03
21	Gorai	Kamarkhali Ghat (Bank, Middle and Oposite), Kustia and Magura Bank, Middle and Oposite)	06
22	Modhumoti	Mollarhat (Bank, Middle and Oposite), Bagarhat.	03
23	Beel Dakatia	Khulna (Bank and Middle)	02
24	Kirtankhola	Launch ghat (Bank and Middle), Dopdopia Kheyaghat (Bank and Middle), Beltola Fery Gaht (Bank and Middle)	06
25	Tetulia	Vedhoria Feri Ghat (Bank and Middle), Bhola.	02
26	Sugandha	Jhalkathi Launch Ghat (Bank and Middle)	02
27	Lohalia	Patuakhali Launch Ghat, (Bank and Middle)	02
28	Surma	Mendibag Point, Kin Bridge, Shak Ghat, Chattak	04
29	Kushiara	Kushiara Point	01

Map of Existing Monitoring Station of DoE

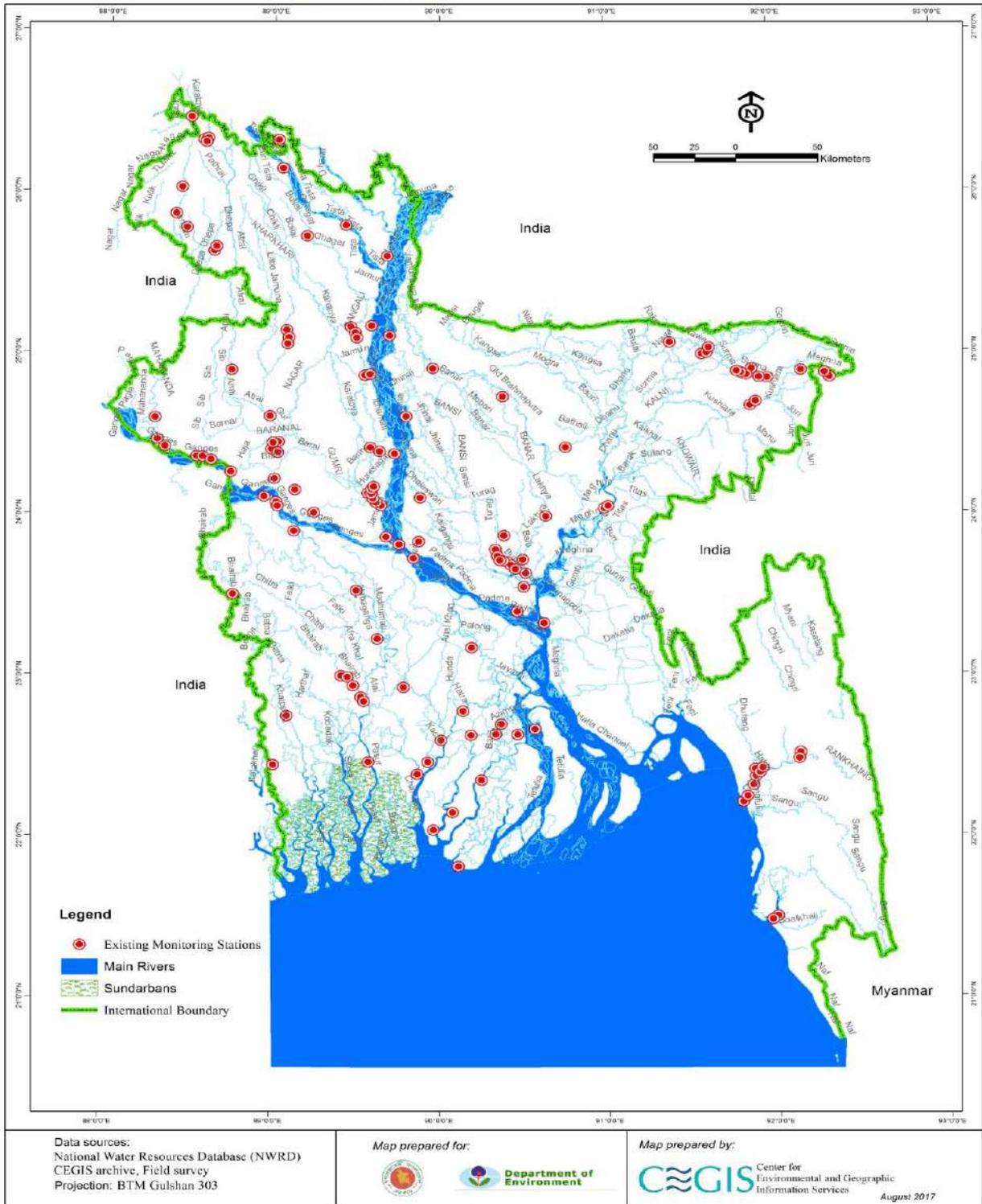


Figure-B: Location of Surface Water Monitoring Stations

CHAPTER 4: DATA ANALYSIS ALONG WITH GRAPHICAL REPRESENTATION OF RIVER WATER QUALITY IN 2020

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), Hajaribag (Hg), Kamrangir Char (K.C), Chadni 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 2020, standard pH range for inland surface water for fisheries is 6.5 to 8.5. The maximum pH was 7.79 in January and the minimum 6.5 in July (Fig.1a). In 2019, pH range varied from 6.71 to 8.31. In 2020, the maximum DO 5.79 mg/l in September and the minimum 0.0 mg/l in January to March (Fig.1b). In 2019, DO range varied from 0.2 mg/l to 5.00 mg/l. In 2020, BOD of Buriganga river water was higher than EQS (≤ 6 mg/l). In 2020, The maximum BOD 56 mg/l in March at Hajaribag and the minimum 3 mg/l in June (Fig.1c). In 2019, BOD range varied from 0.6 mg/l to 34.0 mg/l. In 2020, 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 207 mg/l in March at Hajaribag and 6 mg/l in June at Dholaikhal point (Fig.1d). In 2019, COD range varied from 2.4 mg/l to 160.0 mg/l. In 2020, The maximum and the minimum TDS was 597 mg/l in March and 61.6 mg/l in October (Fig.1e). The EQS of 2100 mg/l for industrial wastewater after treatment. In 2019, TDS range varied from 67.3 mg/l to 707 mg/l.

In 2020, Chloride concentration of the Buriganga river was below the EQS for industrial wastewater after treatment. The maximum concentration was 40.5 mg/l in December at Kamrangir Char and the minimum 5.5 mg/l in August at Chandni Ghat point (Fig.1f). In 2019, Chloride range varied from 10.0 mg/l to 94 mg/l. In 2020, SS of Buriganga river water at different locations was below the EQS (150 mg/l) for wastewater after treatment from industrial units. In 2020, The maximum SS was 76 mg/l in February and March and the minimum 3 mg/l in November (Fig.1g). In 2019, SS range varied from 4.0 mg/l to 183 mg/l. In 2020, the maximum and the minimum Total Alkalinity of Buriganga river water was 324 mg/l in February and 37 mg/l in September (Fig.1h). In 2019, Total Alkalinity range varied from 19 mg/l to 614 mg/l. In 2020, the maximum EC of Buriganga river water is 1171 $\mu\text{mhos/cm}$ in March at Kamrangir Char Point and the minimum 114.7 $\mu\text{mhos/cm}$ in October at Mirpur Bridge (Fig.1i). In 2019, EC range varied from 151.6 $\mu\text{mhos/cm}$ to 1124 $\mu\text{mhos/cm}$. In 2020, the maximum and the minimum Turbidity of Buriganga river water was 285 NTU in November at Kamrangir Char and 6.83 NTU in August at Dholaikhal point while EQS is 10 NTU (Fig.1j). In 2019, Turbidity range varied from 4.31 NTU to 27.9 NTU.

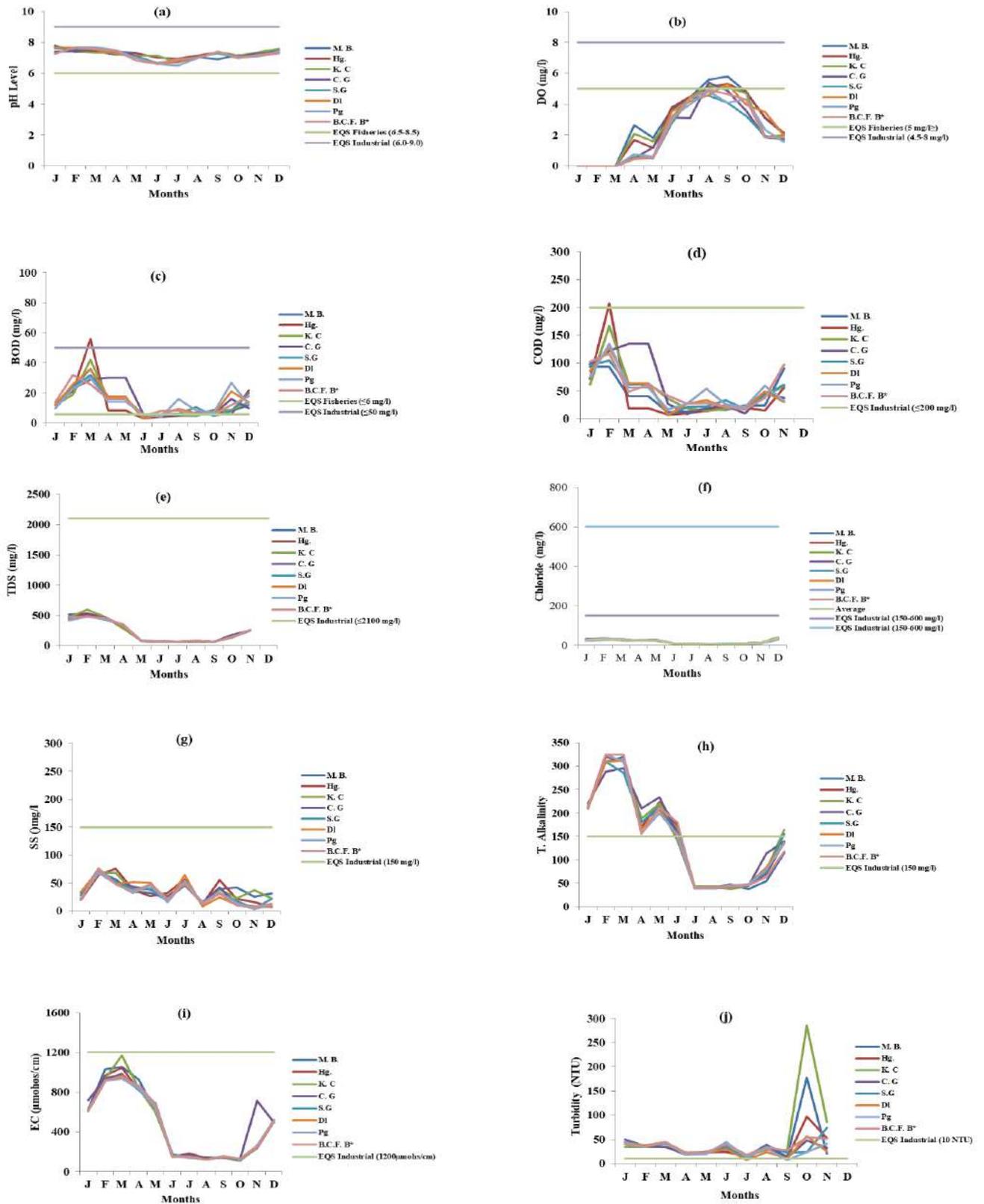


Fig. 1 : Status of pH, DO, BOD, COD, TDS , Chloride, SS, T.Alkalinity, EC and Turbidity of Buriganga River in 2020

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 2020, pH of Shitalakhya river water was within the EQS (6.5-8.5) range for inland surface water. The maximum pH was 7.82 in January and the minimum pH was 6.88 in June (Fig.2a). In 2019, pH range varied from 3.32 to 7.92. In 2020, the maximum DO 4.8 mg/l and the minimum 0.0 mg/l (Fig.2b). In 2019, DO range varied from 0.6 mg/l to 6.5 mg/l. In 2020, Highest value of BOD 49 mg/l in March at Demra Ghat point and lowest 6 mg/l in January at G.F.F point (Fig.2c). In 2019, BOD range varied from 0.4 mg/l to 30 mg/l. In 2020, COD level was within the EQS (200 mg/l) for wastewater after treatment from industrial units at all locations of Shitalakhya river. In 2020, The maximum COD 146 mg/l in March at Near ACI Factory point and the minimum COD 10.0 mg/l in July at Near ACI Factory point (Fig.2d). In 2019, COD range varied from 8.0 mg/l to 112 mg/l. In 2020, TDS of Shitalakhya river water EQS (2100 mg/l) for wastewater after treatment from industrial units. In 2020, maximum TDS 452 mg/l in March at Near ACI Factory point and the minimum 88 mg/l in October at G.F.F point (Fig.2e). In 2019, TDS range varied from 56.7 mg/l to 436 mg/l. In 2020, Chloride concentration of the Shitalakhya river water was below the EQS (600 mg/l) for wastewater after treatment from industrial units. In 2020, The maximum Chloride 77.5 mg/l in December at near ACI Factory and the minimum is 12.5 mg/l in November at Demra Ghat point (Fig.2f). In 2019, Chloride range varied from 5 mg/l to 121 mg/l. In 2020, SS of Shitalakhya river water at different sampling locations is within the EQS (150 mg/l). In 2020, Maximum SS concentration of Shitalakhya river was 249 mg/l in November at near ACI Factory and the minimum is 8.0 mg/l in November at Ghorashal F.F point (Fig.2g). In 2019, SS range varied from 1.0 mg/l to 187 mg/l. In 2020, EC of Shitalakhya river at different locations was mostly within the EQS (1200 μ mhoms/cm) for treated wastewater from industrial units (Fig.2h). The maximum EC 865 μ mhoms/cm in March at near ACI Factory point and the minimum EC 169 μ mhoms/cm in October at G.F.F point. In 2019, EC range varied from 108.6 μ mhoms/cm to 827 μ mhoms/cm. In 2020, Maximum Total Alkalinity 288 mg/l in March at Demra Ghat point and minimum was 42 mg/l in October at near ACI Factory point (Fig.2i). In 2019, Total Alkalinity range varied from 24 mg/l to 221 mg/l.

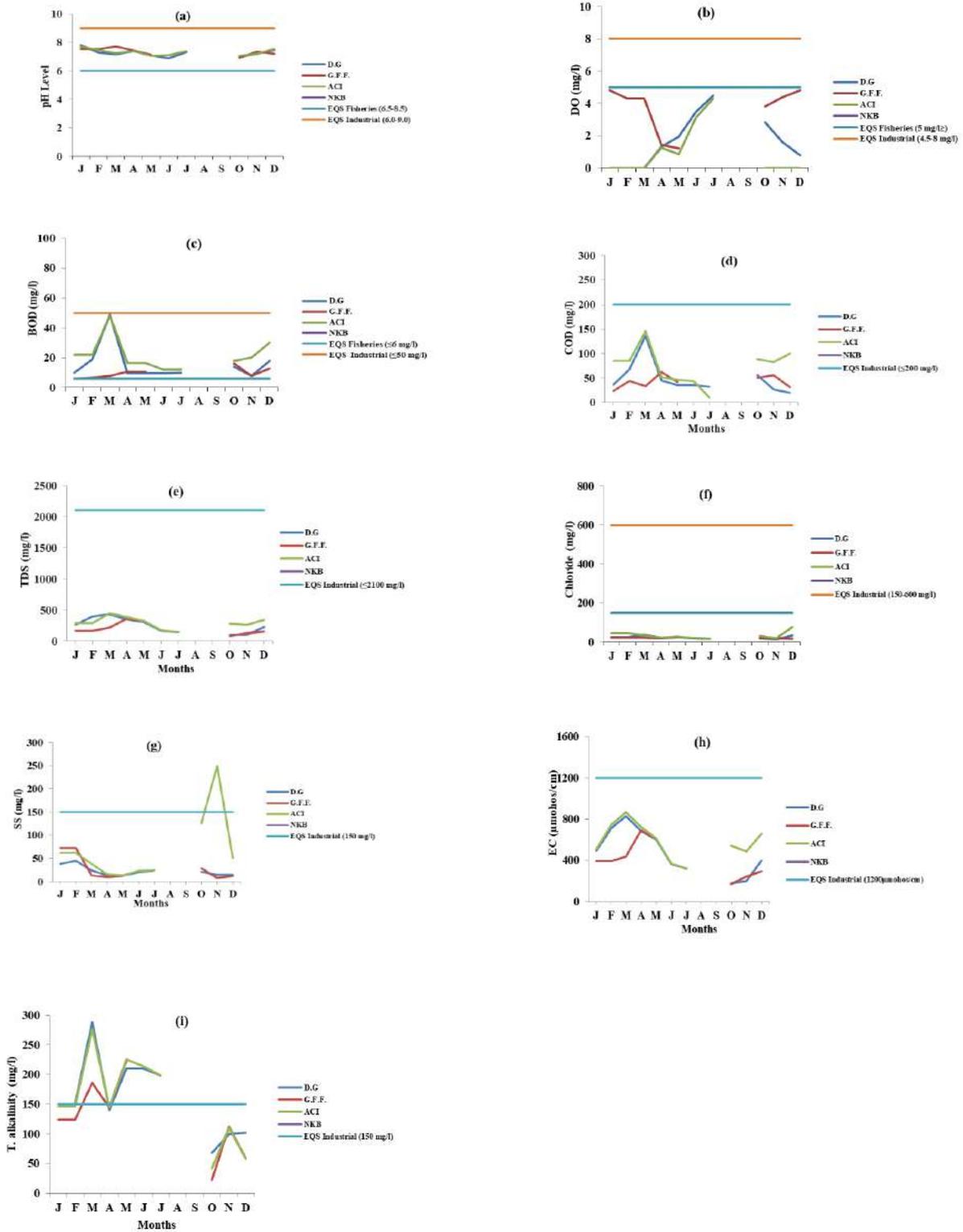


Fig.2: Status of pH, DO, BOD, COD, TDS , Chloride, SS, EC and T.Alakinity of Shitalakhya River in 2020

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 2020, water samples were collected from five locations such as New Gabtoli Bridge (N.G.B), Mirpur Diabary BIWTA Landing Station (M.D.L.S), Ashulia BIWTA Landing Station (A.L.S), Tongi Istima Mat and (T.I.M), North Side of Tongi Bridge (N.S.T.B). Detail data is attached Annex-1 (Table: 20-28).

In 2020, the pH of Turag river was within EQS (6.5 -8.5). The maximum pH 7.79 in December and the minimum pH 6.88 in July (Fig.3a). In 2019, pH range varied from 6.75 to 8.39. In 2020, The maximum DO 6.65 mg/l in August at N.S.T.B point and the minimum DO 0.0 mg/l in January to March (Fig.3b). In 2019, DO range varied from 0.0 mg/l to 6.2 mg/l. In 2020, The maximum BOD was 62.0 mg/l in April at N.S.T.B.P point and the minimum is 4.4 mg/l in August at T.I.M point (Fig.3c). In 2019, BOD varied from 0.6 mg/l to 62.4 mg/l. COD at almost all locations of Turag river was below the EQS (200 mg/l) for waste water after treatment from industrial units. In 2020, The maximum and the minimum COD content of Turag river water was 263 mg/l in April at A. BIWTA.L.S point and 13 mg/l in August at T.I.M point (Fig.3d). In 2019, COD range varied from 8.0 mg/l to 238 mg/l. TDS was below the EQS (2100 mg/l) for wastewater after treatment from industrial units (Fig.3e) at all the sampling points. In 2020, The maximum TDS was 708 mg/l in March at A. BIWTA.L.S point and minimum was 58.5 in August at A. BIWTA.L.S point. In 2019, TDS range varied from 61 mg/l to 457 mg/l. In 2020, The maximum Turbidity was 201 NTU in November at M.D.BIWTA L.S and minimum was 0.0 in May (Fig.3f). In 2019, Turbidity range varied from 0.05 to 111 NTU. In 2020, The maximum Chloride was 55 mg/l in January to March and the minimum Chloride was 3.0 mg/l in November at M.D.BIWTA L.S (Fig.3g). In 2019, Chloride range varied from 6 mg/l to 99 mg/l. In 2020, The maximum SS 78 mg/l in March at T.I.M point and the minimum 1.0 mg/l in August at T.I.M (Fig.3h). In 2019, SS range varied from 1.0 mg/l to 179 mg/l. In 2020 The maximum EC 1387 μ mhos/cm in March at M.D.L.S and the minimum 118.8 μ mhos/cm in October at A. BIWTA.L.S point (Fig.3i). In 2019, EC range varied from 125.3 μ mhos/cm to 954 μ mhos/cm. In 2020, The maximum Total Alkalinity 326 mg/l in March at T.I.M and the minimum 35 mg/l in September T.I.M point (Fig.3j). In 2019, Total Alkalinity range varied from 42 mg/l to 274 mg/l.

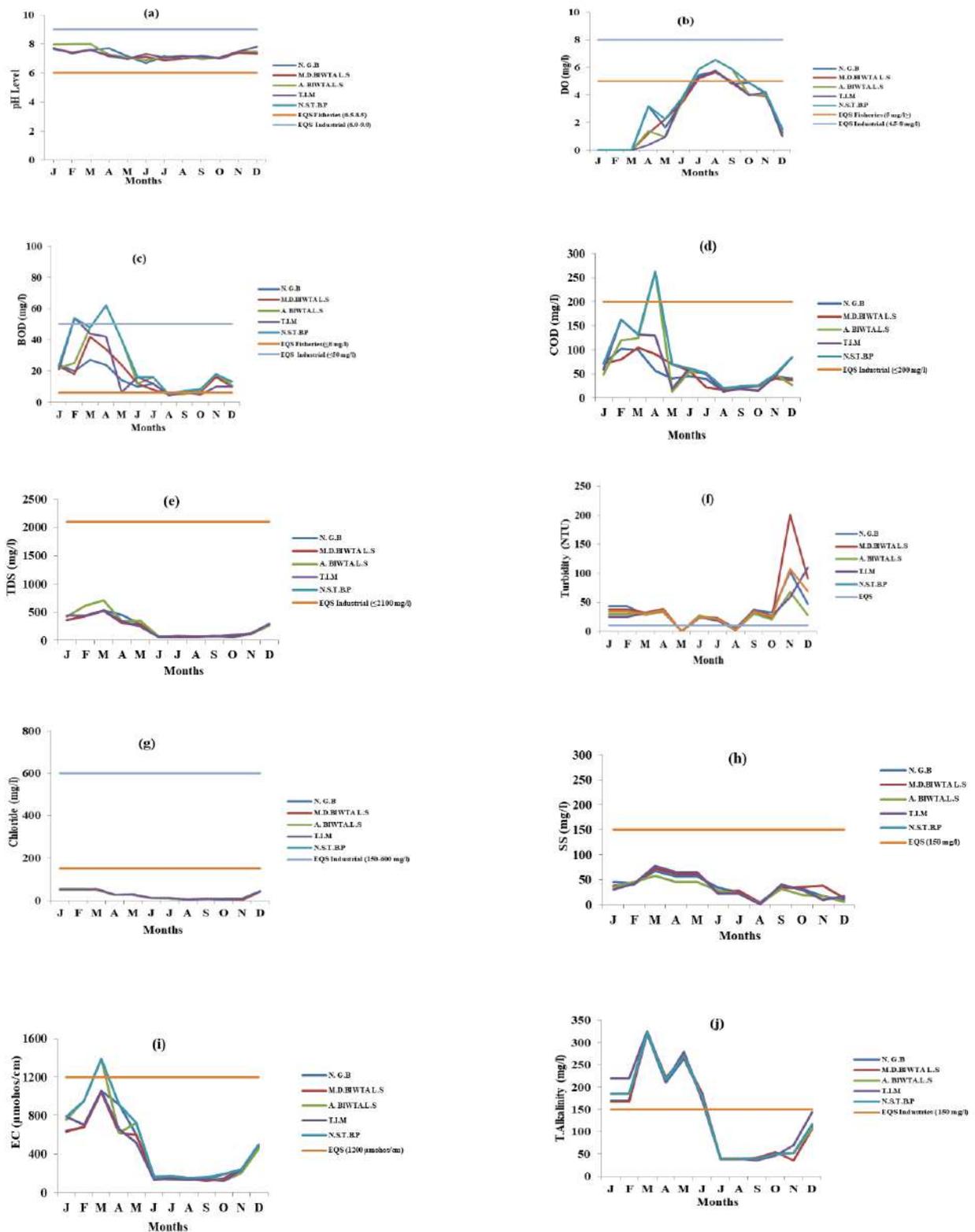


Fig.3. Status of pH, DO, BOD, COD, TDS , Turbidity, Chloride, SS, EC and T. Alkalinity of Turag River in 2020

4.4 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 2020, water samples were collected from Five locations such as Near Jaber & Jubair Fabrics Ltd. Tongi (N.J&J F.L), Near Hossain Dyeing Ltd. Pagar, Tongi (N.H.D.L), 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). Detail data is attached Annex-1 (Table: 29-38).

In 2020, the pH of Balu river was within EQS (6.5 -8.5). The maximum pH 8.61 in January & February and the minimum pH 6.96 in October (Fig.4a). In 2019, pH range varied from 6.73 to 8.53. In 2020, The maximum DO 6.32 mg/l in August at N.B.B.D point at and the minimum DO 0.0 mg/l (Fig.4b). In 2019, DO range varied from 0.0 mg/l to 5.3 mg/l. In 2020, the maximum BOD was 76 mg/l in February at N.H.D.L.T and the minimum was 2 mg/l in October at N.H.D.L.T point (Fig.4c). In 2019, BOD range varied from 4.2 mg/l to 60 mg/l. In 2020, COD of Balu river was over the EQS (200 mg/l). In 2020, The maximum COD content of Balu river water was 356 mg/l in February at N.H.D.L.T and the minimum COD content 14 mg/l in October at N.J & J F.L.T point (Fig.4d). In 2019, COD range varied from 17 mg/l to 224 mg/l. TDS was below the EQS (2100 mg/l) for wastewater after treatment from industrial units (Fig.4e) at all the sampling points. In 2020, The maximum TDS was 767 mg/l in February at N.H.D.L.T point while that of minimum was 55.9 in July at N.D.U.C.D pint. In 2019, TDS range varied from 75.1 mg/l to 1089 mg/l. In 2020, the maximum Turbidity of Balu river was 111 NTU) in December at N.J&J F.L and the minimum 7.54 NTU in August at N.H.D.L.T point (Fig.4f). In 2019, Turbidity range varied from 7.54 NTU to 111 NTU. In 2020, The maximum Chloride was 83.8 mg/l found in July at N.J&J F.L.T point and the minimum Chloride was 5.0 mg/l in August at N.D.U.C.D point (Fig.4g). In 2019, Chloride range varied from 7.0 mg/l to 115 mg/l. In 2020, The maximum SS 136 mg/l in January at N.H.D.L and the minimum 1.0 mg/l in August at N.D.U.C.D (Fig.4h). In 2019, SS range varied from 5 mg/l to 390 mg/l. In 2020, the maximum Total Alkalinity 364 mg/l in February at N.J&J F.L.T point and the minimum 32 mg/l in July at N.B.B.D (Fig.4i). In 2019, Total Alkalinity range varied from 51 mg/l to 365 mg/l. In 2020, The maximum EC 1399 μ mhos/cm in March at N.H.D.L.T and the minimum 120.4 μ mhos/cm in October at N.H.D.L.T point (Fig.4j). In 2019, EC range varied from 144 μ mhos/cm to 2165 μ mhos/cm.

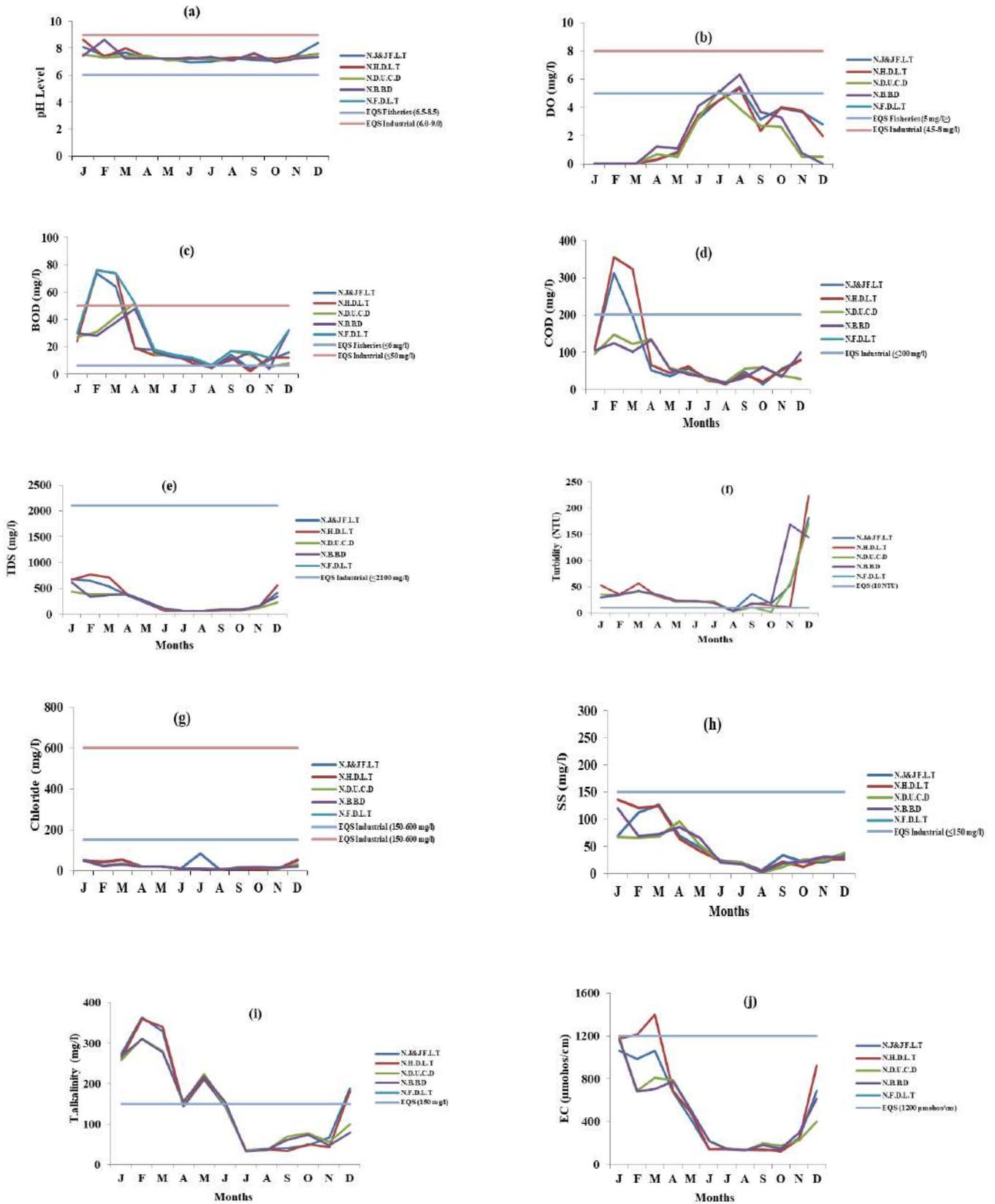


Fig 4. Status of pH, DO, BOD, COD, TDS, Turbidity, Chloride, SS, T.alkalinity and EC of Balu River in 2020

4.5 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 2019, water samples were collected from One location namely Muktarpur Bridge for analyses. Data was not available in the months of April to November. Detail data is attached Annex-1 (Table: 39-44).

In 2020, Dhaleshwari river water maximum pH 7.86 and minimum 7.32 (Fig.5a). In 2019, pH range varied from 6.94 mg/l to 7.46 mg/l. In 2020, the maximum DO concentration 5.7 mg/l in December and the minimum 2.1 mg/l in March (Fig.5b). In 2019, DO range varied from 2.2 mg/l to 5.6 mg/l. In 2020, The maximum BOD was 9 mg/l in December and the minimum BOD was 0.4.9 mg/l in January (Fig.5c). In 2019, BOD range varied from 0.9 mg/l to 12.6 mg/l. Level of COD of Dhaleshwari river water was within the EQS. In 2020, The maximum COD of Dhaleshwari river water 39 mg/l in December and the minimum was 15 mg/l in January (Fig.5d) against the EQS (200 mg/l) for wastewater after treatment from industrial units. In 2019, COD range varied from 10 mg/l to 46 mg/l. In 2020, TDS while standard level was 2100 mg/l for wastewater after treatment from industrial units. In 2020, The maximum TDS 421 mg/l in November at Dropping Point of CETP and the minimum TDS was 73.7 mg/l in August at Down Point of CETP (Fig.5e). In 2019, TDS range varied from 73.7 mg/l to 421 mg/l. In 2020, Electrical Conductivity (EC) of Dhaleshwari river water at different locations was mostly within the EQS (1200 μ mhos/cm). In 2020, The maximum and the minimum EC of Dhaleshwari river water was 315 μ mhos/cm and 227 μ mhos/cm (Fig.5f). In 2019, EC range varied from 159.4 μ mhos/cm to 786 μ mhos/cm.

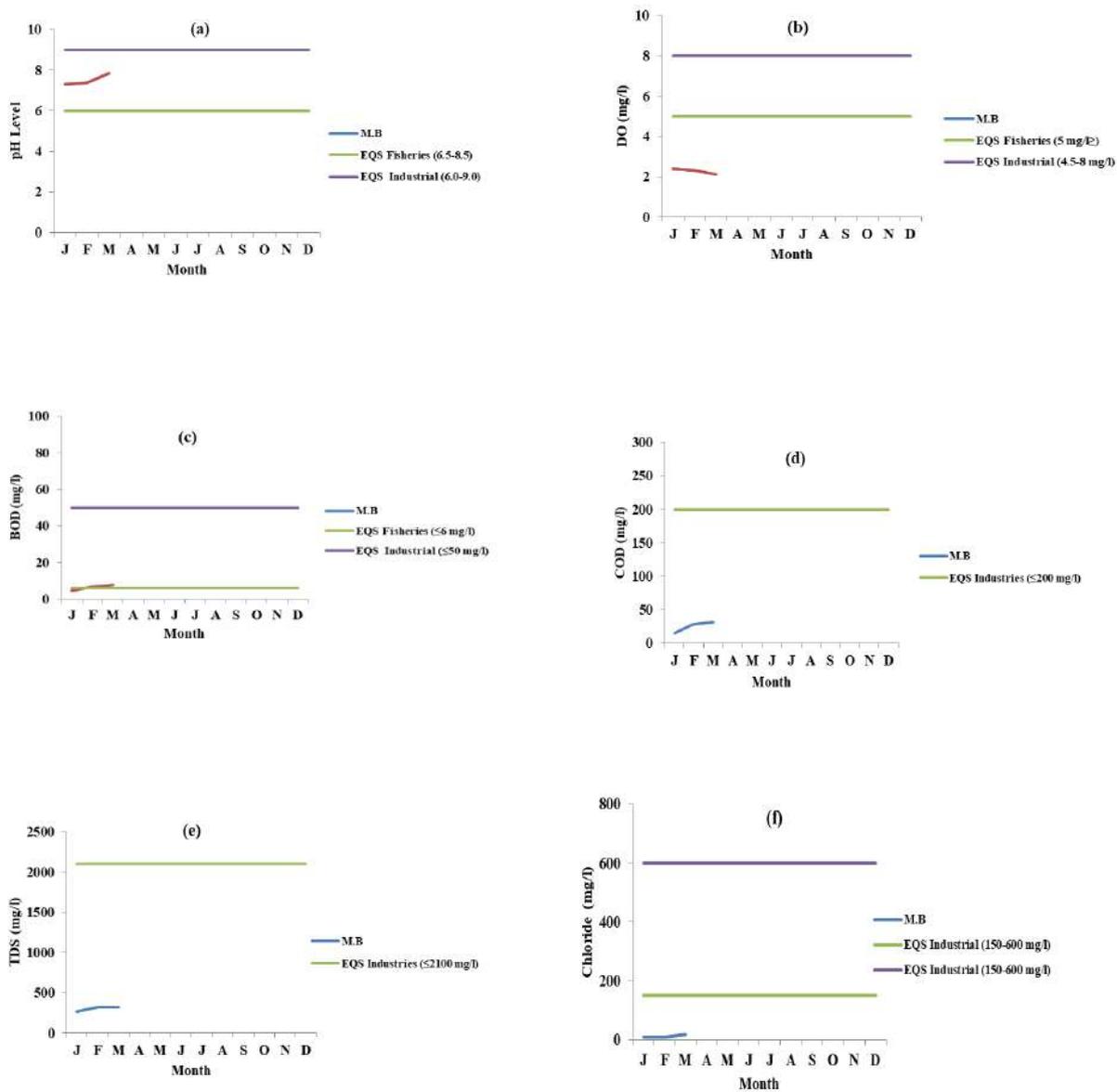


Fig.5. Status of pH, DO, BOD, COD, TDS and EC of Dhaleshwari River in 2020

4.6 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. Data was not available for the months of April & May of the river. Detail data is attached Annex-1 (Table: 45-50).

In 2020, Brahmaputra river water pH level Maximum 8.03 in November and minimum 7.83 December (Fig.6a), while standard range for fisheries was 6.5 to 8.5. In 2019, pH range varied from 7.62 mg/l to 8.25 mg/l. In 2020, The highest and the lowest DO was 8.9 mg/l in December and 8.6 mg/l on November (Fig.6b), while EQS for DO for fisheries was ≥ 5 mg/l. In 2019, DO range varied from 5.8 mg/l to 7.3 mg/l. In 2020, Maximum BOD was 14 mg/l in November and minimum was 7 mg/l in December (Fig.6c) while EQS for fisheries is ≤ 6 mg/l. In 2019, BOD range varied from 1.8 mg/l to 3.1 mg/l. In 2020, Maximum SS level was 23 mg/l in November and minimum is 18 mg/l in December (Fig.6d). In 2019, SS range varied from 23 mg/l to 125 mg/l. In 2020, Maximum Chloride level was 19.5 mg/l in December and minimum was 14 mg/l in November (Fig.6e) and which was less than EQS (600 mg/l) for treated wastewater from industrial units. In 2019, Chloride range varied from 7 mg/l to 37 mg/l. In 2020, The highest and the lowest TDS was 156.2 mg/l in December and 141 mg/l in November (Fig.6f), within the EQS (2100 mg/l). In 2019, TDS range varied from 45.3 mg/l to 153 mg/l. In 2020, The highest and the lowest COD was 20 mg/l in December and 14 mg/l on November (Fig.6g). In 2019, COD range varied from 10 mg/l to 46 mg/l. Electrical Conductivity (EC) of Brahmaputra river water at different locations was mostly within the EQS (1200 μ mhos/cm). In 2020, The maximum and the minimum EC of Brahmaputra river water was 292 μ mhos/cm in December and 286 μ mhos/cm in November (Fig.6h). In 2019, EC range varied from 86.5 μ mhos/cm to 390 μ mhos/cm. In 2020, Maximum T.Alkalinity level was 118 mg/l in December and minimum is 114 mg/l in November (Fig.6i). In 2019, T.Alkalinity range varied from 39 mg/l to 121 mg/l.

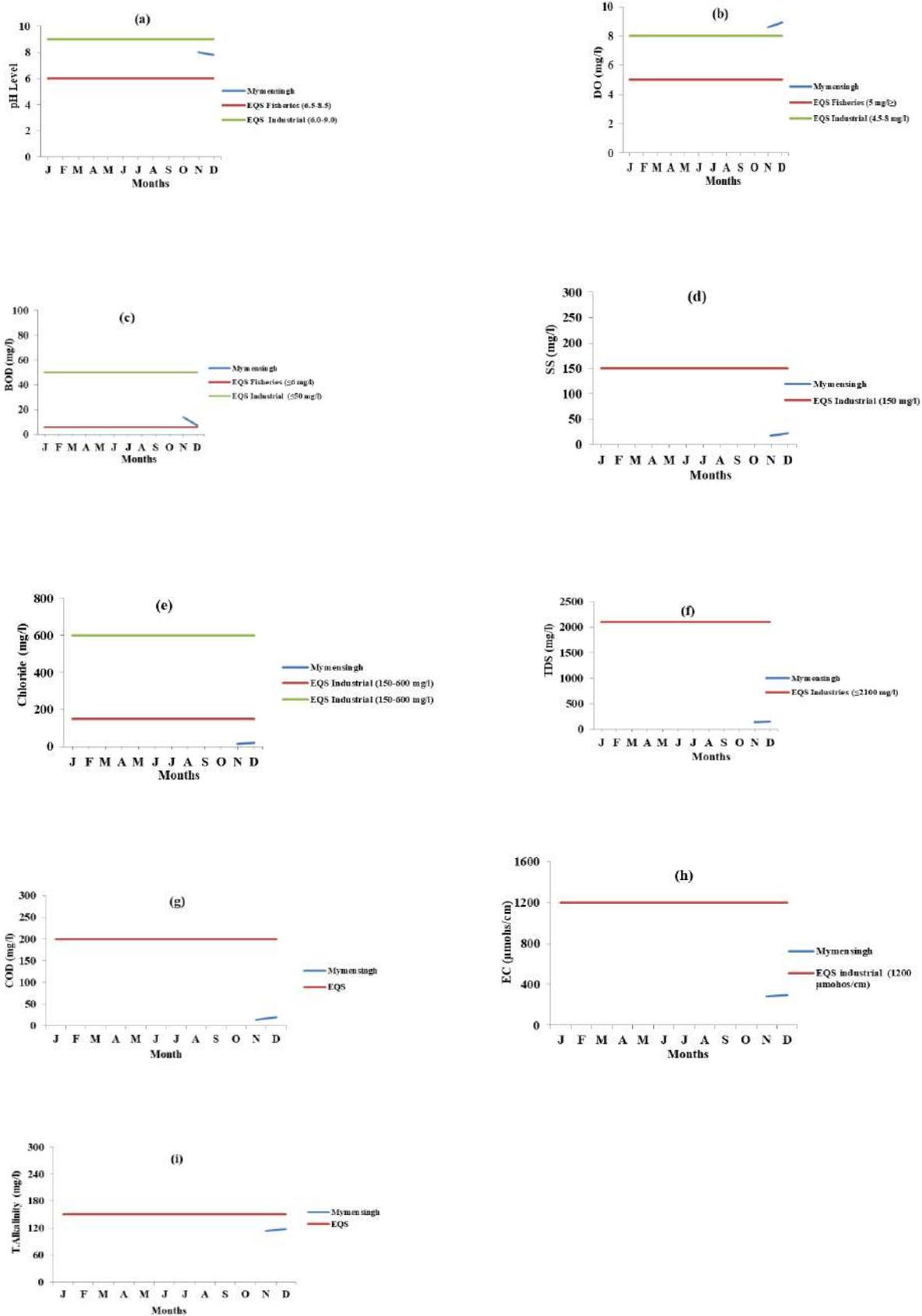


Fig.6. Status of pH, DO, BOD, SS , Chloride, TDS, COD, EC and T. Alkalinity of Brahmaputra River in 2020

4.7 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. Detail data is attached Annex-1 (Table: 51-56). Data was not available for the months of April to October the river.

In 2020, The maximum and the minimum pH was 8.09 in December and 6.89 in January (Fig.7a). pH standard range for fisheries was 6.5 to 8.5. In 2019, pH range varied from 7.31 mg/l to 7.71 mg/l. In 2020, The highest and the lowest DO was 9.4 mg/l in December and 6.2 mg/l in March (Fig.7b), while EQS for DO for fisheries is ≥ 5 mg/l. In 2019, DO range varied from 5.6 mg/l to 6.8 mg/l. In 2020, Maximum BOD was 7 mg/l in December and minimum was 4.4 mg/l in January (Fig.7c), while EQS for fisheries was ≤ 6 mg/l. In 2019, BOD range varied from 1.0 mg/l to 12.0 mg/l. In 2020, The highest and the lowest COD was 24 mg/l in December and 12 mg/l on November (Fig.7d). In 2019, COD range varied from 8 mg/l to 17 mg/l. In 2020, The highest and the lowest TDS is 308 mg/l in January and 216.5 mg/l on November (Fig.7e), within the EQS (2100 mg/l). In 2019, TDS range varied from 98 mg/l to 276 mg/l. In 2020, Maximum Chloride level was 26 mg/l and minimum was 14 mg/l (Fig.7f) and which was less than EQS (600 mg/l) for treated wastewater from industrial units. In 2019, Chloride range varied from 7 mg/l to 29 mg/l.

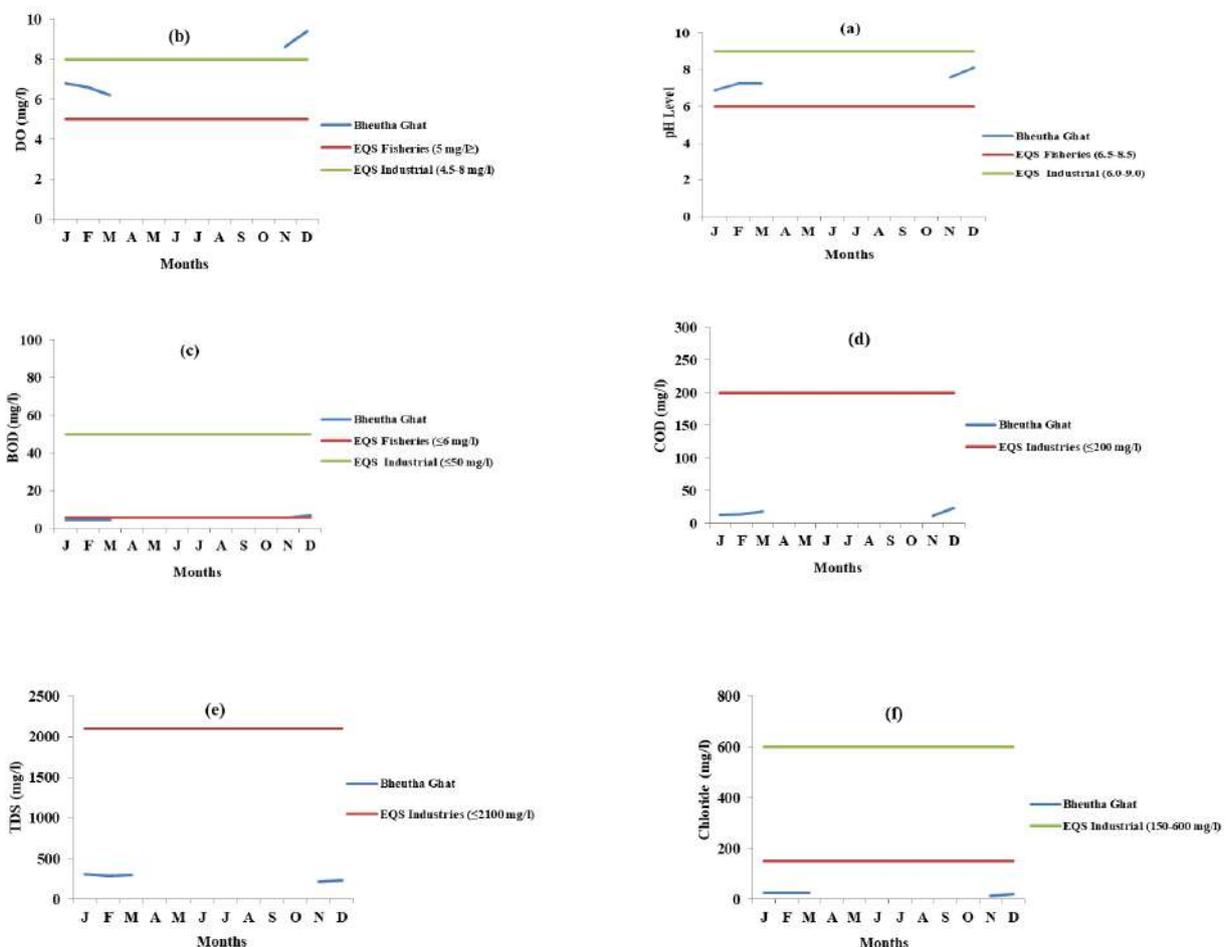


Fig.7. Status of pH, DO, BOD, COD, TDS and Chloride of Kaliganga River in 2020

4.8 Jamuna River

To monitor water quality, samples were collected only from Seven locations e.g. Near Jamuna Fertilizer Factory (N.J.F.F), Near Bangabandhu Bridge (U), Near Bangabandhu Bridge (D), Fulchari Ghat (U), Fulchari Ghat (D), Shariakandi Groin badth (U), Shariakandi Groin badth (D). Detail data is attached Annex-1 (Table: 57-62). Data was not available for the months of March to May the river.

In 2020, The maximum and the minimum pH was 8.0 and 6.85 (Fig.8a). pH standard range for fisheries was 6.5 to 8.5. In 2019, pH range varied from 7.44 to 8.27. In 2020, The highest and the lowest DO is 12.9 mg/l and 6.7 mg/l (Fig.8b), while EQS for DO for fisheries was ≥ 5 mg/l. In 2019, DO range varied from 5.6 mg/l to 7.4 mg/l. In 2020, The Maximum BOD was 12.0 mg/l and minimum was 2.0 mg/l (Fig.8c), while EQS for fisheries is ≤ 6 mg/l. In 2019, BOD range varied from 2 mg/l to 3 mg/l. In 2020, The highest and the lowest SS was 80 mg/l at Shariakandi Groin badth (U) Point and 15 mg/l at Bahadurabad Ghat Point (Fig.8d). In 2019, SS range varied from 18 mg/l to 80 mg/l. In 2020, The highest and the lowest TDS was 162 mg/l and 90 mg/l (Fig.8e), within the EQS (2100 mg/l). In 2019, TDS range varied from 118.6 mg/l to 192.8 mg/l. In 2020, Maximum Chloride level was 32 mg/l at Shariakandi Groin badth (U) Point and minimum was 12 mg/l at Near Jamuna Fertilizer Factory (N.J.F.F) Point (Fig.8f) and which was less than EQS (600 mg/l) for treated wastewater from industrial units. In 2019, Chloride range varied from 12 mg/l to 32 mg/l.

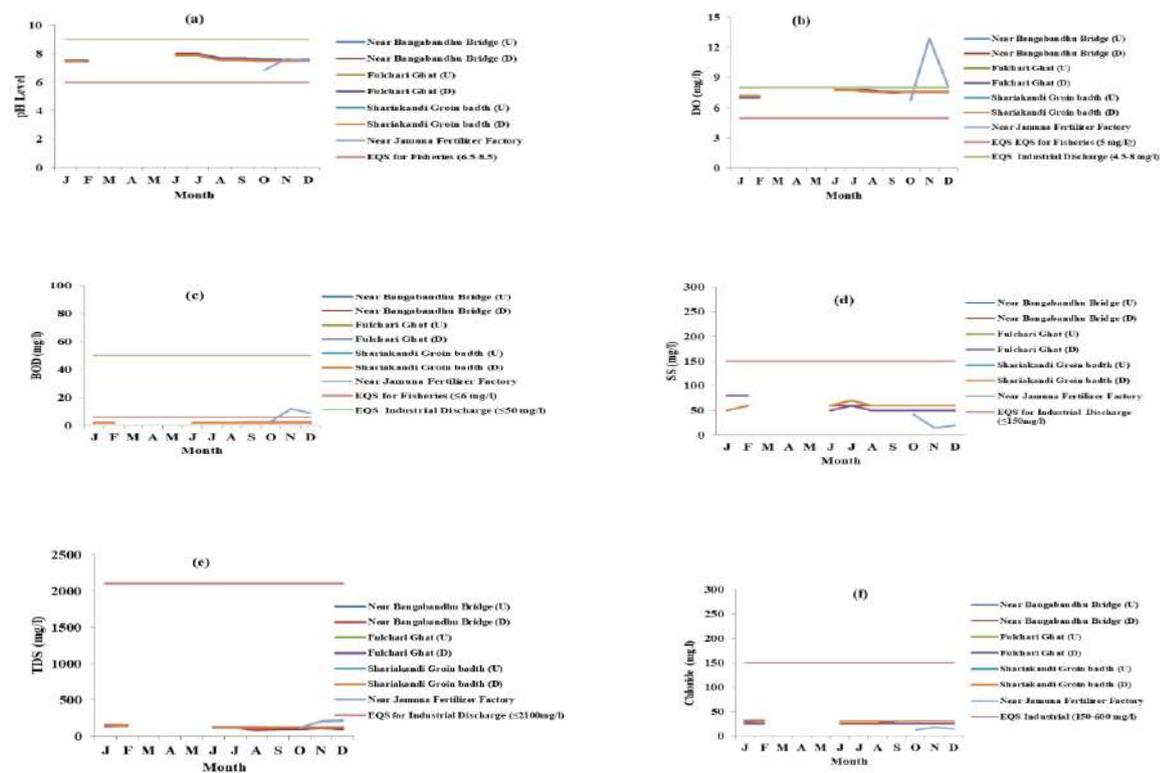


Fig.8. Status of pH, DO, BOD, SS, TDS and Chloride of Jamuna River in 2020

4.9 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: 63-68). Data was not available the month of April to July and September.

In 2020, The maximum and the minimum pH was 9.6 in August at NSPM Point and 7.01 in October at Bhairab Bazar (B.B) (Fig.9a). pH standard range for fisheries was 6.5 to 8.5. In 2019, pH range varied from 6.24 to 8.65. In 2020, The highest and the lowest DO was 7.8 mg/l in December at Meghna Ghat (M.G) Point and 2.8 mg/l in October & November at B.B & Near Shahjalal Paper Mills (N.S.P.M) Point (Fig.9b), while EQS for DO for fisheries was ≥ 5 mg/l. In 2019, DO range varied from 3.1 mg/l to 6.9 mg/l. In 2020 Maximum BOD was 28 mg/l in November at Near Shahjalal Paper Mills (N.S.P.M) Point and minimum was 1.2 mg/l in January at Bhairab Bazar (B.B) Point (Fig.9c), while EQS for fisheries was ≤ 6 mg/l. In 2019, BOD range varied from 2 mg/l to 31 mg/l. In 2020, The highest and the lowest COD was 95 mg/l in November at Near Shahjalal Paper Mills (N.S.P.M) Point and 7 mg/l in August at Bhairab Bazar (B.B) Point (Fig.9d). In 2019, COD range varied from 5 mg/l to 40 mg/l. In 2020, The highest and the lowest TDS was 98.17 mg/l in March at Near Shahjalal Paper Mills (N.S.P.M) Point and 29.8 mg/l in October at Meghna Ghat Point (Fig.9e), within the EQS (2100 mg/l). In 2019, TDS range varied from 32.4 mg/l to 267 mg/l. In 2020, Maximum Chloride level was 40 mg/l in December at Bhairab Bazar (B.B) Point and minimum was 6 mg/l at Bhairab Bazar (B.B) Point (Fig.9f) and which was less than EQS (600 mg/l) for treated wastewater from industrial units. In 2019, Chloride range varied from 4.0 mg/l to 48 mg/l.

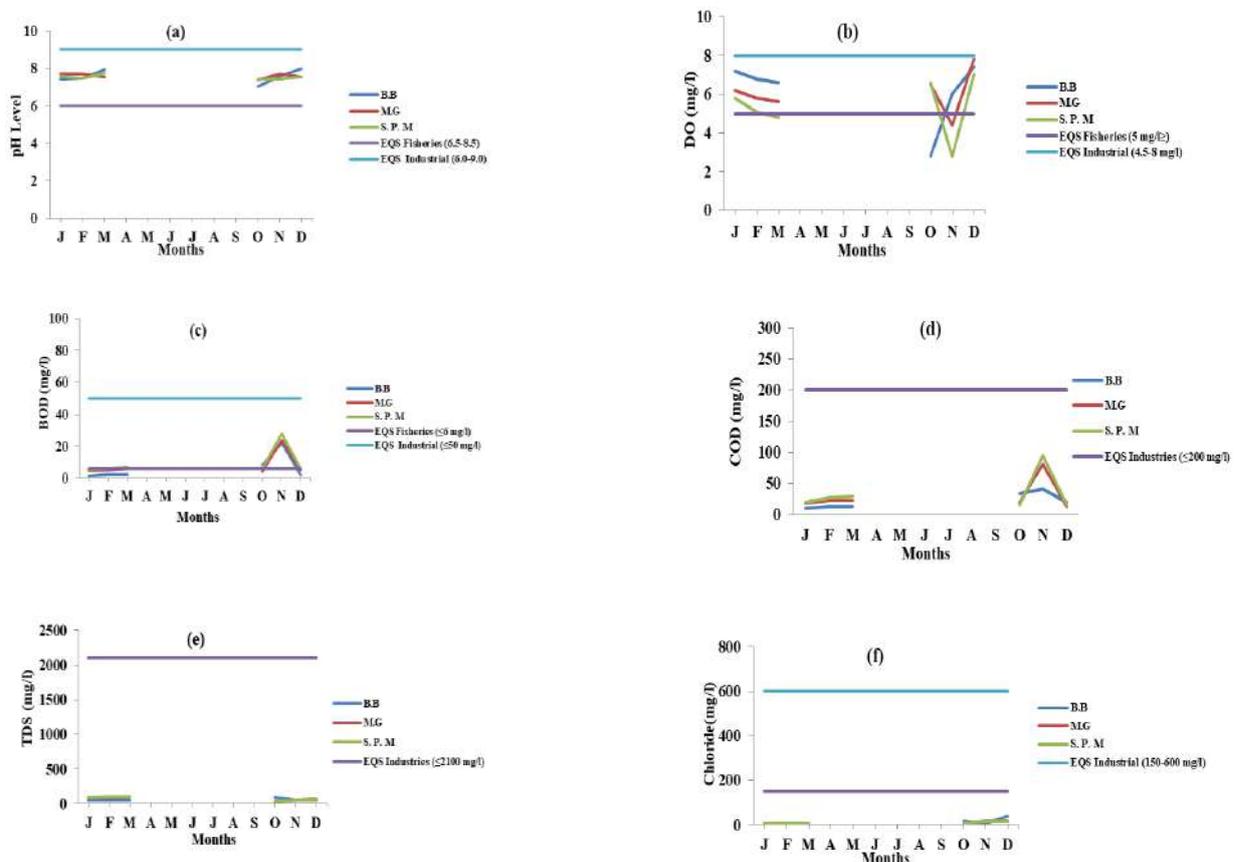


Fig.9. Status of pH, DO, BOD, COD, TDS and Chloride of Meghna River in 2020

4.10 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 (U), Pakshi Ghat (D), Baro kuti Ghat (U) , Baro kuti Ghat (D) points were used in the analysis. Detail data is attached Annex-1 (Table: 69-74).

Standard pH for fisheries is 6.5 to 8.5. In 2020 The maximum pH was 7.99 and the minimum pH level was 7.51 (Fig.10a). In 2019, pH range varied from 6.91 to 8.2. In 2020, DO level above EQS (≥ 5 mg/l) for fisheries (Fig.10b). In 2020, The maximum DO was 9.4 mg/l in December and the minimum 6.7 mg/l in March. In 2019, DO range varied from 6.5 mg/l to 8.0 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD was 13 mg/l in November and the minimum is 2.1 mg/l in February (Fig.10c). In 2019, BOD range varied from 1.1 mg/l to 4.2 mg/l. In 2020, TDS Maximum level of Padma river water was 160 mg/l in February & the Minimum is 83.1 mg/l in November (Fig.10d). In 2019, TDS range varied from 54.6 mg/l to 156 mg/l. In 2020, the maximum and the minimum EC of Padma river water was 320 μ mhos/cm in January and 130 μ mhos/cm in October (Fig.10e), while EQS was 1200 μ mhos/cm wastewater after treatment from industrial units. In 2019, EC range varied from 95 μ mhos/cm to 320 μ mhos/cm. In 2020, The maximum SS was 118 mg/l in November and the minimum is 36 mg/l in March (Fig.10f). In 2019, SS range varied from 15 mg/l to 134 mg/l.

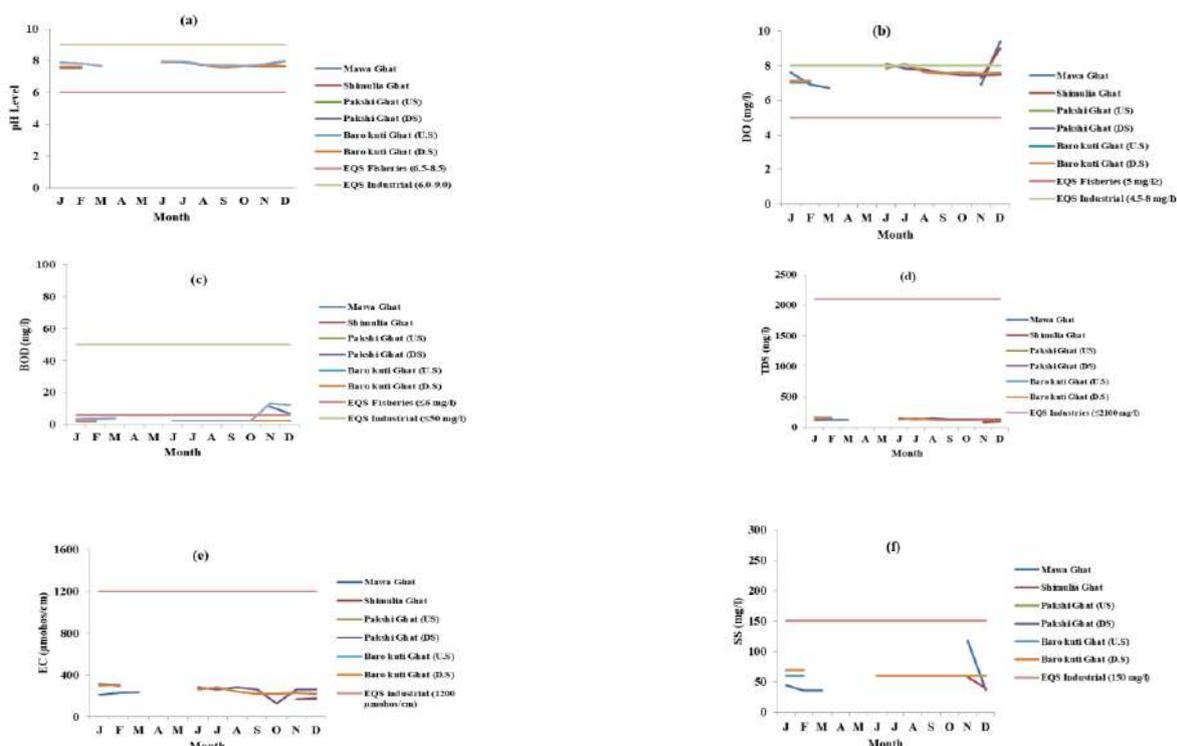


Fig.10. Status of pH, DO, BOD, TDS, EC and SS of Padma River in 2020

4.11 Korotoa River

To monitor water quality of Korotoa river in 2020, water samples were collected from ten locations of the river e.g. Near Fateh Ali Bridge (Up an Down Steam), Near Dutta Bari Bridge (Up an Down Steam), Near Matidali Bridge (Up an Down Steam), Near S.P Bridge (Up an Down Steam) and Shahjadpur (Up an Down Steam). Detail data is attached Annex-1 (Table: 75-80). Data was not available the month of March to May.

Standard pH for fisheries was 6.5 to 8.5. In 2020 The maximum pH was 7.66 and the minimum pH level was 6.9 (Fig.11a). In 2019, pH range varied from 6.87 to 7.62. In 2020, DO level above EQS (≥ 5 mg/l) for fisheries (Fig.11b). In 2020, The maximum DO was 7.2 mg/l and the minimum 2.7 mg/l. In 2019, DO range varied from 2.9 mg/l to 7.82 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD was 6.3 mg/l and the minimum was 2.0 mg/l (Fig.11c). In 2019, BOD range varied from 2.1 mg/l to 6.7 mg/l. In 2020, TDS Maximum level was 360 mg/l & the Minimum was 110 (Fig.11d). In 2019, TDS range varied from 130 mg/l to 370 mg/l. In 2020, The maximum SS was 110 mg/l and the minimum was 12 mg/l (Fig.11e). In 2019, SS range varied from 70 mg/l to 110 mg/l. 2020, the maximum and the minimum EC of water was 720 μ mhos/cm and 220 μ mhos/cm, while EQS was 1200 μ mhos/cm wastewater after treatment from industrial units. (Fig.11f). In 2019, EC range varied from 220 μ mhos/cm to 740 μ mhos/cm.

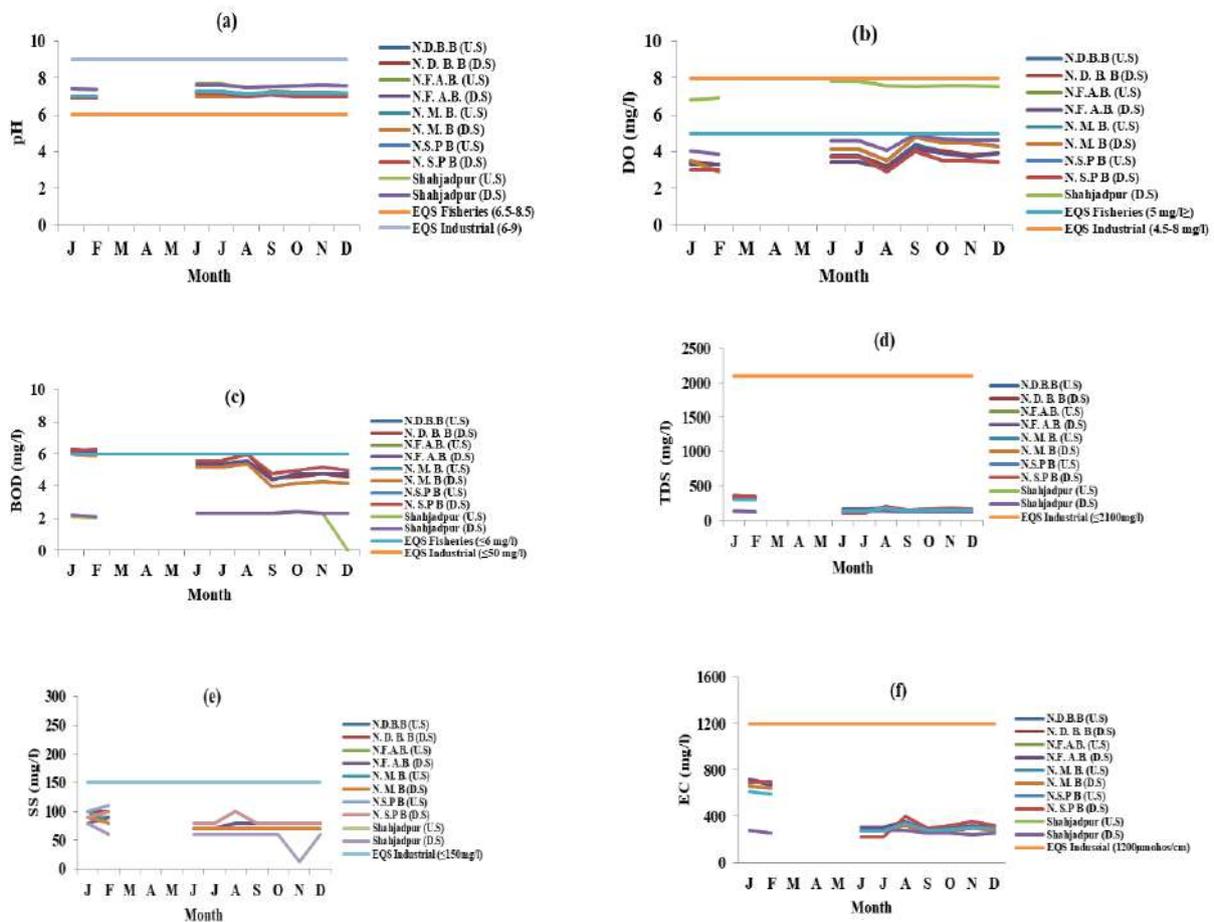


Fig.11. Status of pH, DO, BOD, TDS, SS and EC of Korotoa River in 2020

4.12 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 km². It forms the border between Sikkim and West Bengal. Water samples were collected from two locations near Teesta Bridge (up Stream and down stream) of Teesta river for monitoring of water quality in 2020. Detail data is attached Annex-1 (Table: 81-86). Data was not available the month of March to May.

In 2020, Standard pH for fisheries is 6.5 to 8.5. In 2019, The maximum pH is 7.88 and the minimum pH level is 7.54 (Fig.12a). In 2019, pH range varied from 7.56 to 7.58. In 2020, DO level above EQS (≥ 5 mg/l) for fisheries (Fig.12b). In 2020, The maximum DO is 7.842 mg/l and the minimum 7.1 mg/l. In 2019, DO range varied from 6.8 mg/l to 7.2 mg/l. In 2019, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD is 2.3 mg/l and the minimum is 2.1 mg/l (Fig.12c). In 2019, BOD range varied from 2.1 mg/l to 2.2 mg/l. In 2020, TDS Maximum level is 190 mg/l & the Minimum is 110 (Fig.12d). In 2019, TDS range varied from 98 mg/l to 230 mg/l. In 2020, The maximum SS is 90 mg/l and the minimum is 60 mg/l (Fig.12e). In 2019, SS range varied from 70 mg/l to 90 mg/l. In 2020, the maximum and the minimum Chloride of water is 35 NTU and 28 NTU (Fig.12f). In 2019, Chloride range varied from 28 NTU to 35 NTU.

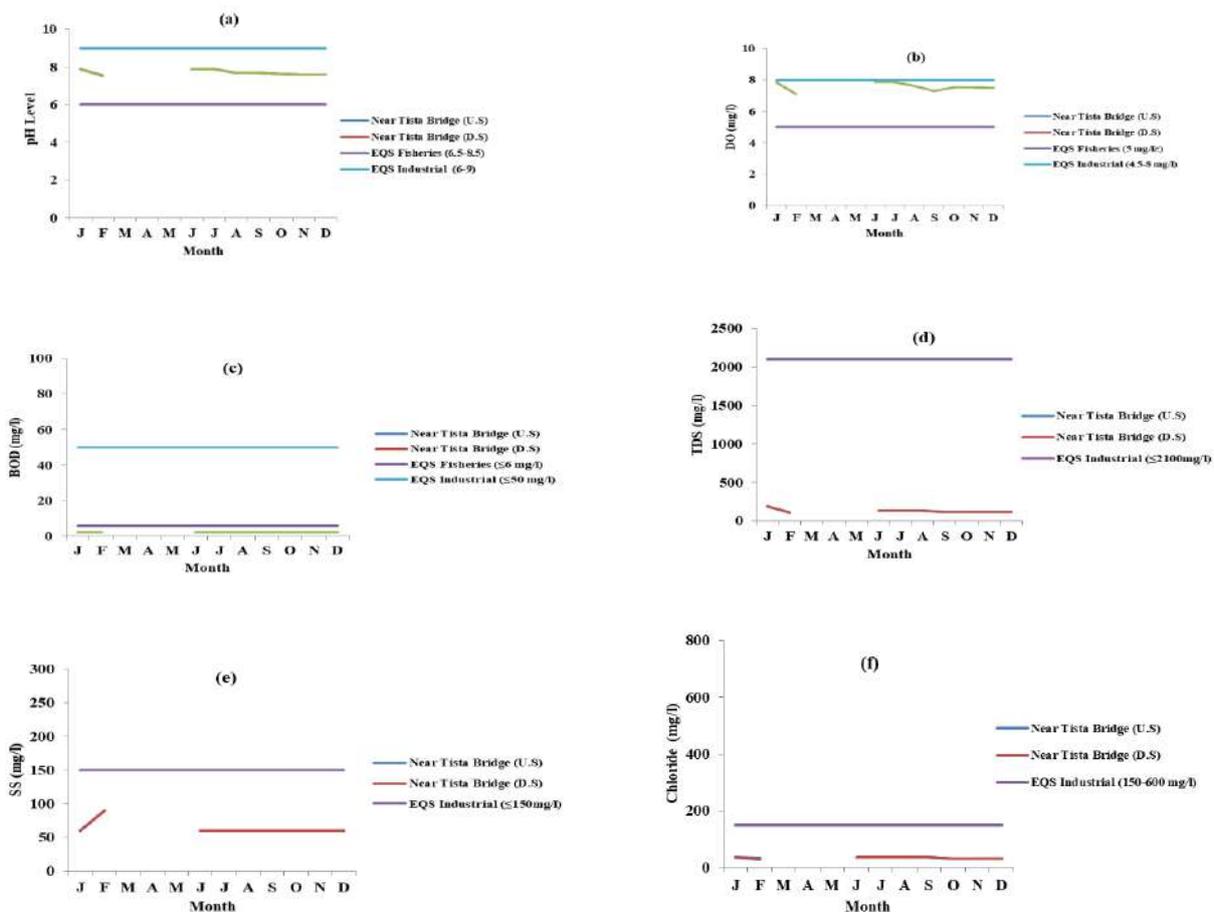


Fig.12. Status of pH, DO, BOD, TDS, SS and Chloride of Teesta River in 2020

4.13 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 Ten locations (e.g. CUFL Side Anowara, TSP Side, KAFCO side, Karnafully River Chaktai Khal, 15 no, Karnafully Mohona, 1km Straight from patenga sea beach, Patenga charpara, 1km Straight from CEPZ, Vatiyari Shipyard Area of Karnaphuli river for monitoring of water quality in 2020. Detail data is attached Annex-1 (Table: 87-92).

In 2020, Standard pH for fisheries is 6.5 to 8.5. In 2020, The maximum pH is 8.37 and the minimum pH level is 6.54 (Fig.13a). In 2019, pH range varied from 6.8 to 8.8. In 2020, DO level above EQS (≥ 5 mg/l) for fisheries (Fig.13b). In 2020, The maximum DO is 8.69 mg/l in April at 1km Straight from CEPZ point and the minimum 0.78 mg/l in May at Karnafully River Chaktai Khal point. In 2019, DO range varied from 3.27 mg/l to 8.74 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD is 50 mg/l in September at Vatiyari Shipyard Area point and the minimum is 4.0 mg/l in October (Fig.13c). In 2019, BOD range varied from 4.8 mg/l to 40 mg/l. In 2020, COD Maximum level is 1490 mg/l in January at Karnafully Mohona point & the Minimum is 79 in October at Patenga charpara point (Fig.13d). In 2019, COD range varied from 12 mg/l to 1490 mg/l. In 2020, The maximum SS is 1652 mg/l in September at Karnafully Mohona point and the minimum is 64 mg/l in October at Karnafully Mohona point (Fig.13e). In 2019, SS range varied from 66 mg/l to 920 mg/l. In 2020, the maximum and the minimum EC of water is 37560 μ mhos/cm in February at Karnafully Mohona point and 510 μ mhos/cm in July at Chaktai Khal point, while EQS is 1200 μ mhos/cm wastewater after treatment from industrial units. (Fig.13f). In 2019, EC range varied from 97.6 μ mhos/cm to 33512 μ mhos/cm.

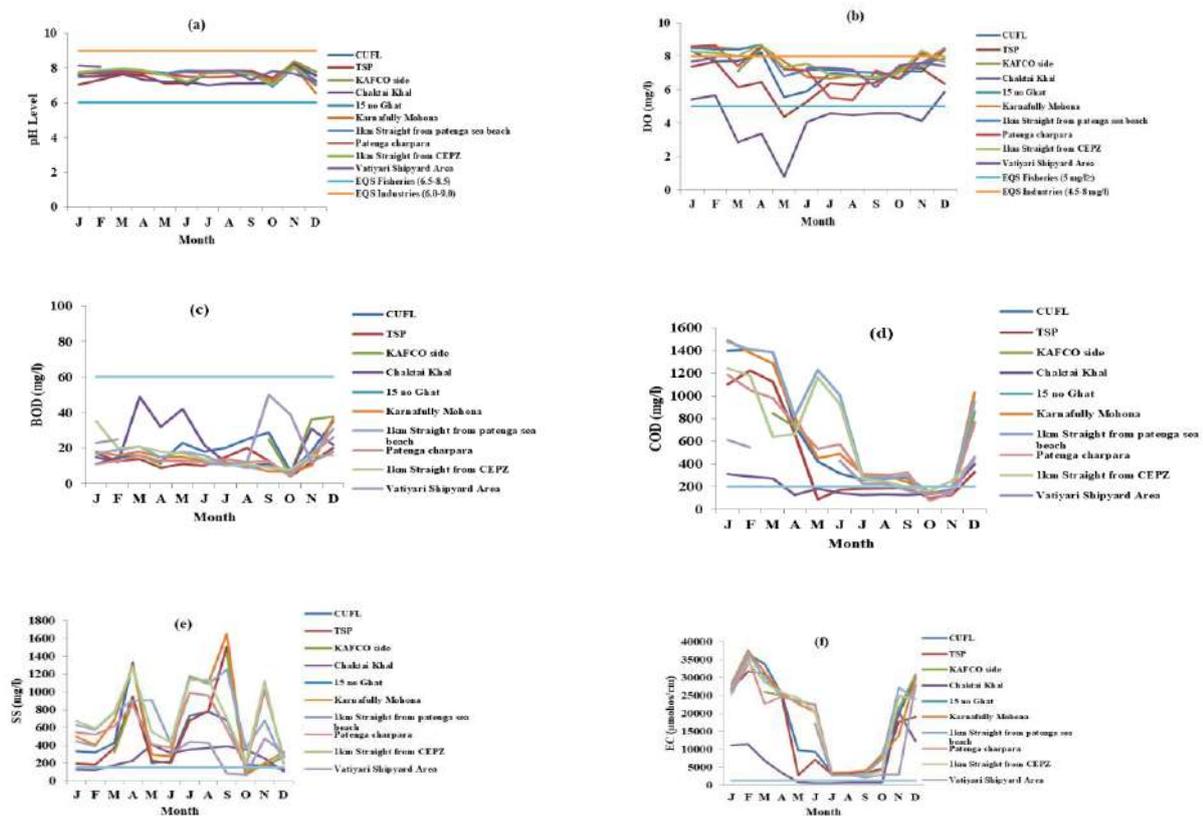


Fig.13. Status of pH, DO, BOD, COD, SS and EC of Karnaphuli River in 2020

4.14 Halda River

The Halda river passes through the South-Eastern part of Bangladesh. Water sampling Nine locations were Mohona, Khandakiya Khal, Madari Khal, Katakhal Khal and Krishna Khal, Boraikhal, Madarikhal (Breeding Point), Noya Khal (Outside), Noya Khal of Halda River. Detail data is attached Annex-1 (Table: 93-98).

In 2020, Standard pH for fisheries is 6.5 to 8.5. In 2020, The maximum pH is 8.55 in May and the minimum pH level is 6.36 in May (Fig.14a). In 2019, pH range varied from 6.87 to 9.17. In 2020, DO level above EQS (≥ 5 mg/l) for fisheries (Fig.14b). In 2020, The maximum DO is 9.79 mg/l in November at Madari Khal point and the minimum 0.31 mg/l in December Noya Khal point. In 2019, DO range varied from 4.35 mg/l to 8.74 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD is 39 mg/l in December at Noya Khal point and the minimum is 1 mg/l in June at Krishna Khal Point (Fig.14c). In 2019, BOD range varied from 8 mg/l to 29 mg/l. In 2020, COD Maximum level is 180 mg/l in January at Krishna Khal point & the Minimum is 6 (Fig.14d) in June at Krishna Khal Point. In 2019, COD range varied from 11 mg/l to 51 mg/l. In 2020, The maximum SS is 518 mg/l in January at Krishna Khal Point and the minimum is 23 mg/l in November at Krishna Khal Point (Fig.14e). In 2019, SS range varied from 21 mg/l to 233 mg/l. In 2020, the maximum and the minimum EC of water is 517.3 μ mhos/cm in March at Khandakiya Khal Point and 15.7 μ mhos/cm in December at Katakhal Khal point, while EQS is 1200 μ mhos/cm wastewater after treatment from industrial units. (Fig.14f). In 2019, EC range varied from 76.2 μ mhos/cm to 839 μ mhos/cm.

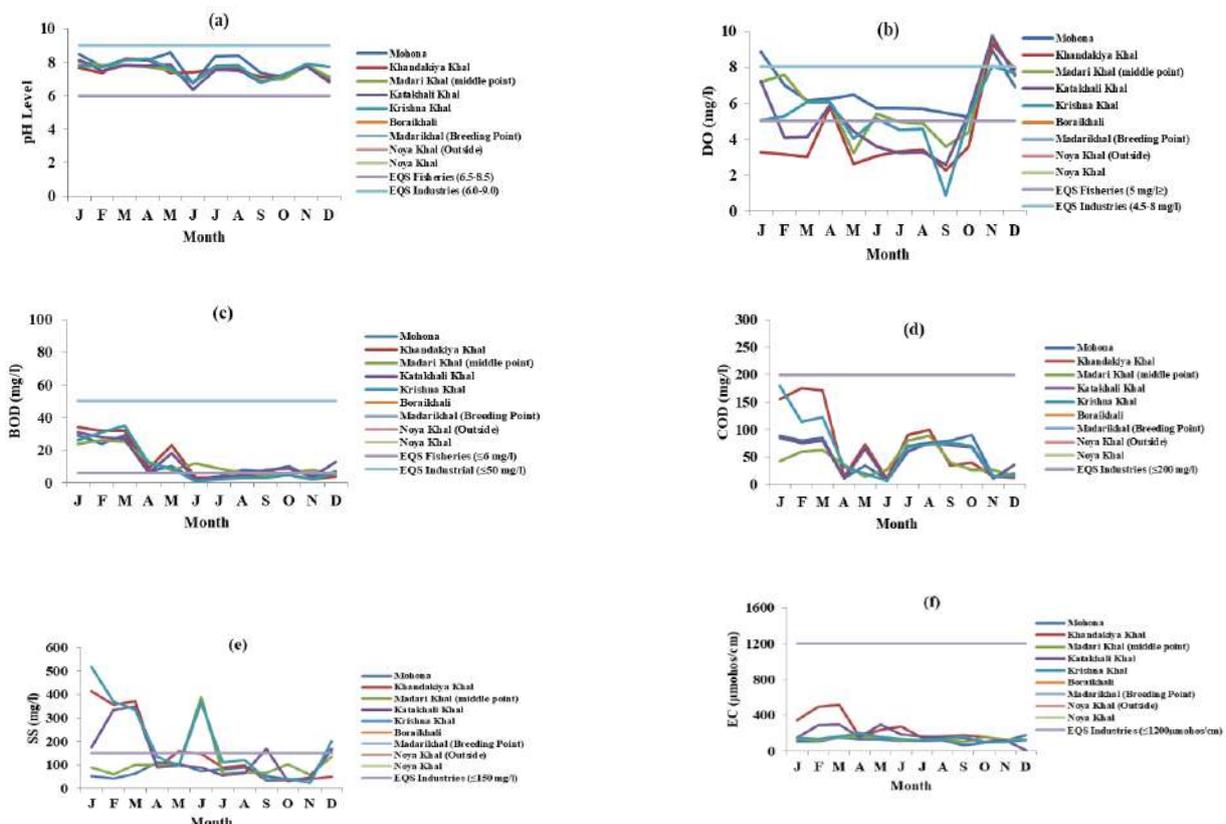


Fig.14. Status of pH, DO, BOD, COD, SS and EC of Halda River in 2020

4.15 Moyuri River

The Moyuri river is situated at the back swamp of the Bhairab-Rupsa river. For monitoring water samples were collected from three locations 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: 99-106). Data was not available the month of January, April to July, October.

In 2020, pH of Moyuri river water is within the EQS (6.5-8.5) range for inland surface water. In 2020, The maximum pH is 8 and the minimum P^H is 7.28 (Fig.15a). In 2019, pH range varied from 7.56 to 7.74. In 2020, the maximum DO 4.8 mg/l and the minimum 0.26 mg/l (Fig.15b). In 2019, DO range varied from 0.4 mg/l to 4.47 mg/l. In 2020, TDS of Moyuri river water EQS (2100 mg/l) for wastewater after treatment from industrial units. In 2020, maximum TDS 666 mg/l and the minimum 312 mg/l (Fig.15c). In 2019, TDS range varied from 388 mg/l to 1412 mg/l. In 2020, Chloride concentration of the Moyuri river water is below the EQS (600 mg/l) for wastewater after treatment from industrial units. In 2020, The maximum Chloride 328 mg/l and the minimum is 82 mg/l (Fig.15d). In 2019, Chloride range varied from 116 mg/l to 802 mg/l. In 2020, The maximum Turbidity 78.3 NTU and the minimum is 30.3 NTU (Fig.15e). In 2019, Turbidity range varied from 34.3 NTU to 48.4 NTU. The EQS for drinking water is 10 NTU. In 2020, The maximum EC 1340 $\mu\text{mho}/\text{cm}$ and the minimum EC 626 $\mu\text{mho}/\text{cm}$ (Fig.15f). In 2019, EC range varied from 746 $\mu\text{mho}/\text{cm}$ to 2824 $\mu\text{mho}/\text{cm}$. In 2020, Maximum Salinity 1.91 ppt and minimum is 0.3 ppt (Fig.15g). In 2019, Salinity range varied from 0.2 ppt to 2.1 ppt. In 2020, SS of Moyuri river water at different sampling locations is within the EQS 150 mg/l. In 2020, Maximum SS concentration of Moyuri river is 68 mg/l and the minimum is 48 mg/l (Fig.15h). In 2019, SS range varied from 46 mg/l to 75 mg/l. In 2020, Maximum Total Alkalinity 34 mg/l and minimum is 34mg/l (Fig.15i). In 2019, Total Alkalinity range varied from 32 mg/l to 34 mg/l.

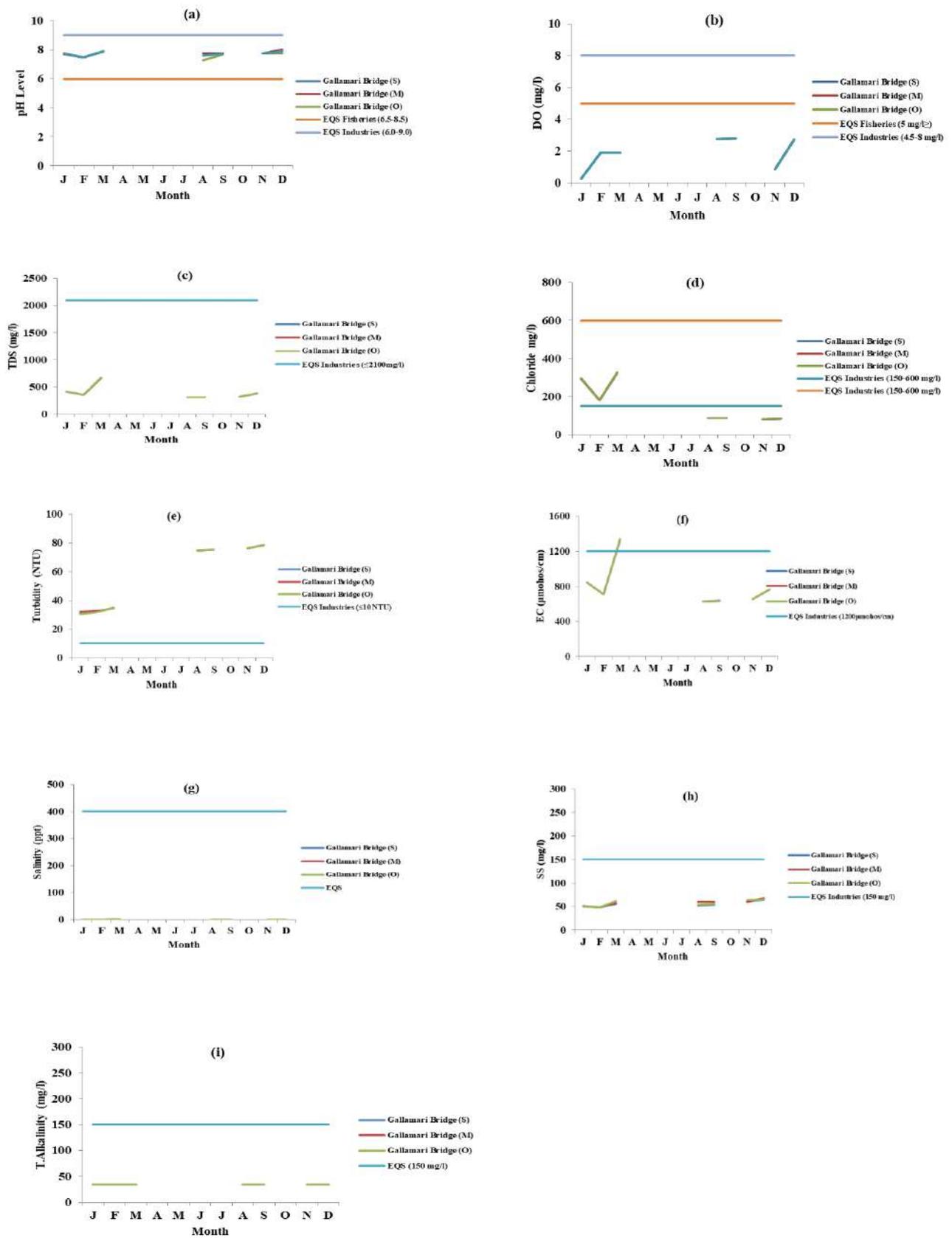


Fig.15. Status of pH, DO, TDS, Chloride, Turbidity, EC , Salinity, SS and T. Alkalinity of Moyuri River in 2020

4.16 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 2020. Detail data is attached Annex-1 (Table: 107-114). Data was not available the month of January, April to July, October.

In 2020, pH of Bhairab river water is within the EQS (6.5-8.5) range for inland surface water. In 2020, The maximum pH is 8.36 and the minimum P^H is 7.74 (Fig.16a). In 2019, pH range varied from 7.56 to 8.82. In 2019, the maximum DO 7.35 mg/l and the minimum 3.68 mg/l (Fig.16b). In 2018, DO range varied from 5.1 mg/l to 6.9 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD is 2.5 mg/l and the minimum is 0.2 mg/l (Fig.16c). In 2019, BOD range varied from 0.2 mg/l to 1.6 mg/l. In 2020, TDS of Bhairab river water EQS (2100 mg/l) for wastewater after treatment from industrial units. In 2020, maximum TDS 1160 mg/l and the minimum 66 mg/l (Fig.16d). In 2019, TDS range varied from 88 mg/l to 11070 mg/l. In 2020, Chloride concentration of the Bhairab river water is below the EQS (600 mg/l) for wastewater after treatment from industrial units. In 2019, The maximum Chloride 732 mg/l and the minimum is 48 mg/l (Fig.16e). In 2019, Chloride range varied from 72 mg/l to 7048 mg/l. In 2020, The maximum Turbidity 85.5 NTU and the minimum is 55.2 NTU (Fig.16f). In 2019, Turbidity range varied from 46.2 NTU to 89.7 NTU. The EQS for drinking water is 10 NTU. In 2020, The maximum EC 2330 $\mu\text{mhoms/cm}$ and the minimum EC 133.7 $\mu\text{mho/cm}$ EC of Bhairab river at different locations is mostly within the EQS (1200 $\mu\text{mhoms/cm}$) for treated wastewater from industrial units (Fig.16f). In 2019, EC range varied from 174 $\mu\text{mhoms/cm}$ to 22138 $\mu\text{mhoms/cm}$. In 2020, Maximum Salinity 4.2 ppt and minimum is 0.06 ppt (Fig.16g). In 2019, Salinity range varied from 0.1 ppt to 13.9 ppt. In 2020, SS of Bhairab river water at different sampling locations is within the EQS (150 mg/l). In 2019, Maximum SS concentration of Moyuri river is 74 mg/l and the minimum is 58 mg/l (Fig.16h). In 2019, SS range varied from 50 mg/l to 98 mg/l. In 2019, Maximum Total Alkalinity 34 mg/l and minimum is 34 mg/l (Fig.16i). In 2019, Total Alkalinity range varied from 32 mg/l to 36 mg/l.

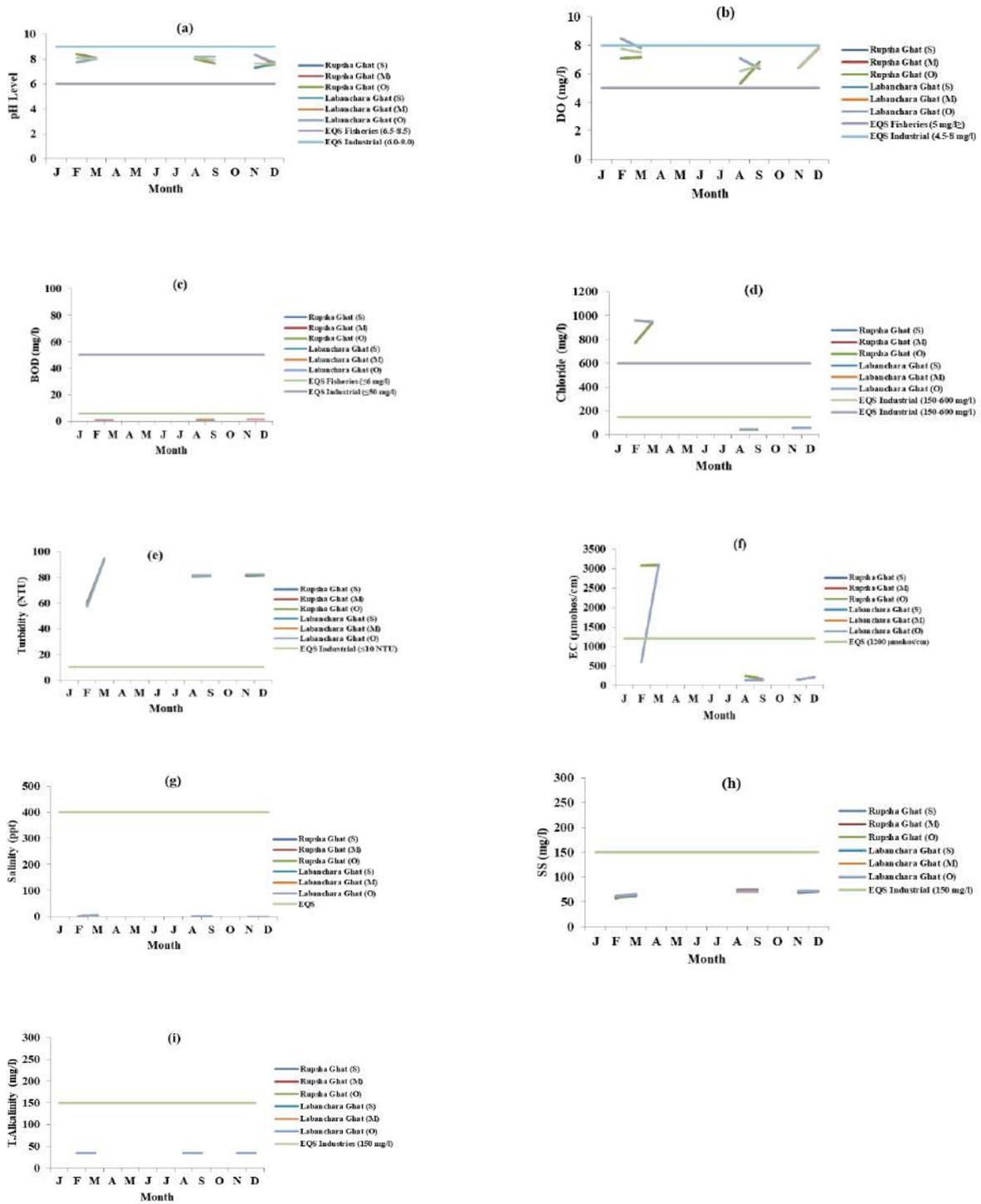


Fig.16. Status of pH, DO, BOD, TDS, Chloride, Turbidity, EC , Salinity , SS and T.alkalinity of Bhairab River in 2020

4.17 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 2020. Detail data is attached Annex-1 (Table: 115-122). Data was not available the month of January, April to July, October.

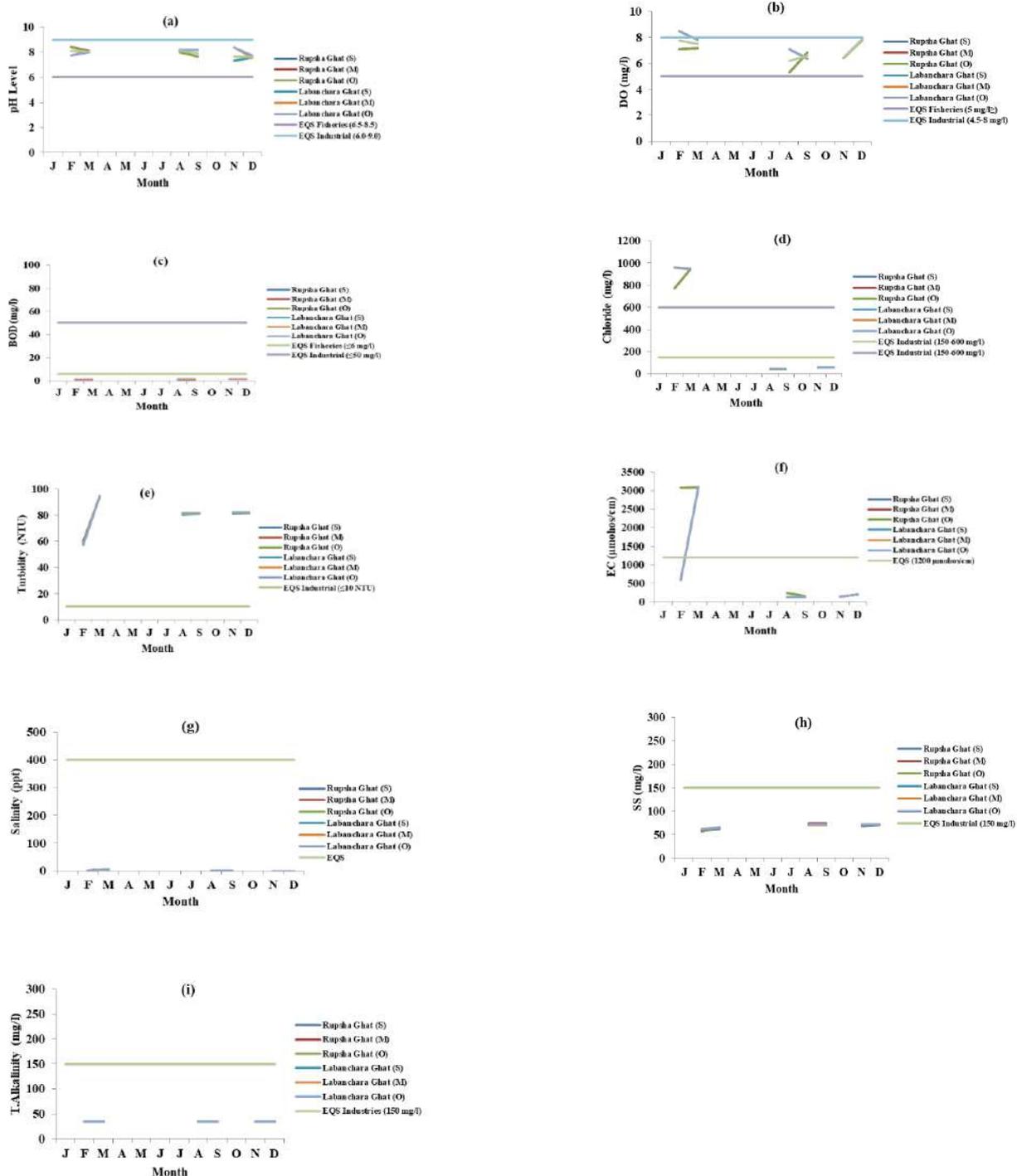


Fig.17. Status of pH, DO, BOD, Chloride, SS, Turbidity, EC , Salinity and SS of Rupsa River in 2020

In 2020, pH of Rupsa river water is within the EQS (6.5-8.5) range for inland surface water. In 2020, The maximum pH is 8.42 and the minimum P^H is 7.29 (Fig.17a). In 2019, pH range varied from 7.62 to 9.92. In 2020, the maximum DO 8.47 mg/l and the minimum 5.28 mg/l (Fig.17b). In 2019, DO range varied from 5.2 mg/l to 7.4 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD is 1.6 mg/l and the minimum is 1.0 mg/l (Fig.17c). In 2019, BOD range varied from 0.8 mg/l to 1.7 mg/l. In 2020, Chloride concentration of the Rupsa river water is below the EQS (600 mg/l) for wastewater after treatment from industrial units. In 2020, The maximum Chloride 960 mg/l and the minimum is 40 mg/l (Fig.17d). In 2019, Chloride range varied from 80 mg/l to 7142 mg/l. In 2020, The maximum Turbidity 94.8 NTU and the minimum is 57.35 NTU (Fig.17e). In 2019, Turbidity range varied from 48.1 NTU to 107.2 NTU. The EQS for drinking water is 10 NTU. In 2020, The maximum EC 3098 $\mu\text{mhoms/cm}$ and the minimum EC 131 $\mu\text{mho/cm}$ EC of Rupsa river at different locations is mostly within the EQS (1200 $\mu\text{mhoms/cm}$) for treated wastewater from industrial units (Fig.17f). In 2019, EC range varied from 184 $\mu\text{mhoms/cm}$ to 22536 $\mu\text{mhoms/cm}$. In 2020, Maximum Salinity 4.9 ppt and minimum is 0.06 ppt (Fig.17g). In 2019, Salinity range varied from 0.1 ppt to 14.5 ppt . In 2020, Maximum SS concentration of Rupsa river is 74 mg/l and the minimum is 57 mg/l (Fig.17h). In 2019, SS range varied from 52 mg/l to 104 mg/l. In 2020, Maximum Total Alkalinity 36 mg/l and minimum is 36 mg/l (Fig.17i). In 2019, Total Alkalinity range varied from 32 mg/l to 36 mg/l.

4.18 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. Detail data is attached Annex-1 (Table: 123-130). Data was not available the month of January, March to July, October.

In 2020, pH of Mathavanga river water is within the EQS (6.5-8.5) range for inland surface water. In 2020, The maximum pH is 8.26 and the minimum P^H is 7.92 (Fig.18a). In 2019, pH range varied from 6.57 to 8.28. In 2020, the maximum DO 9.95 mg/l and the minimum 0.16mg/l (Fig.18b). In 2018, DO range varied from 4.1 mg/l to 7.21 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD is 0.9 mg/l and the minimum is 0 mg/l (Fig.18c). In 2019, BOD range varied from 0.2 mg/l to 0.9 mg/l. In 2020, The maximum TDS is 153 mg/l and the minimum is 58 mg/l (Fig.18d). In 2019, TDS range varied from 86 mg/l to 380 mg/l. In 2020, Chloride concentration of the Mathavanga river water is below the EQS (600 mg/l) for wastewater after treatment from industrial units. In 2020, The maximum Chloride 76 mg/l and the minimum is 20 mg/l (Fig.18e). In 2019, Chloride range varied from 26 mg/l to 34 mg/l. In 2020, The maximum Turbidity 48.3 NTU and the minimum is 26.7 NTU (Fig.18f). In 2019, Turbidity range varied from 32.3 NTU to 47.2 NTU. The EQS for drinking water is 10 NTU. In 2020, The maximum EC 305 $\mu\text{mhoms/cm}$ and the minimum EC 122 $\mu\text{mho/cm}$ (Fig.18g). In 2019, EC range varied from 170 $\mu\text{mhoms/cm}$ to 758 $\mu\text{mhoms/cm}$. In 2020, EC of Mathavanga river at different locations is mostly within the EQS (1200 $\mu\text{mhoms/cm}$) for treated wastewater from industrial units. In 2020, Maximum Salinity 0.43 ppt and minimum is 0.05 ppt (Fig.18h). In 2019, Salinity range varied from 0.1 ppt to 0.4 ppt. In 2020, Maximum SS concentration of Mathavanga river is 30 mg/l and the minimum is 20 mg/l (Fig.18i). In 2018, Total Alkalinity range varied from 40 mg/l to 78 mg/l. In 2020, Maximum Total Alkalinity 32 mg/l and minimum is 24.2 mg/l (Fig.18j). In 2019, Total Alkalinity range varied from 32 mg/l to 32 mg/l.

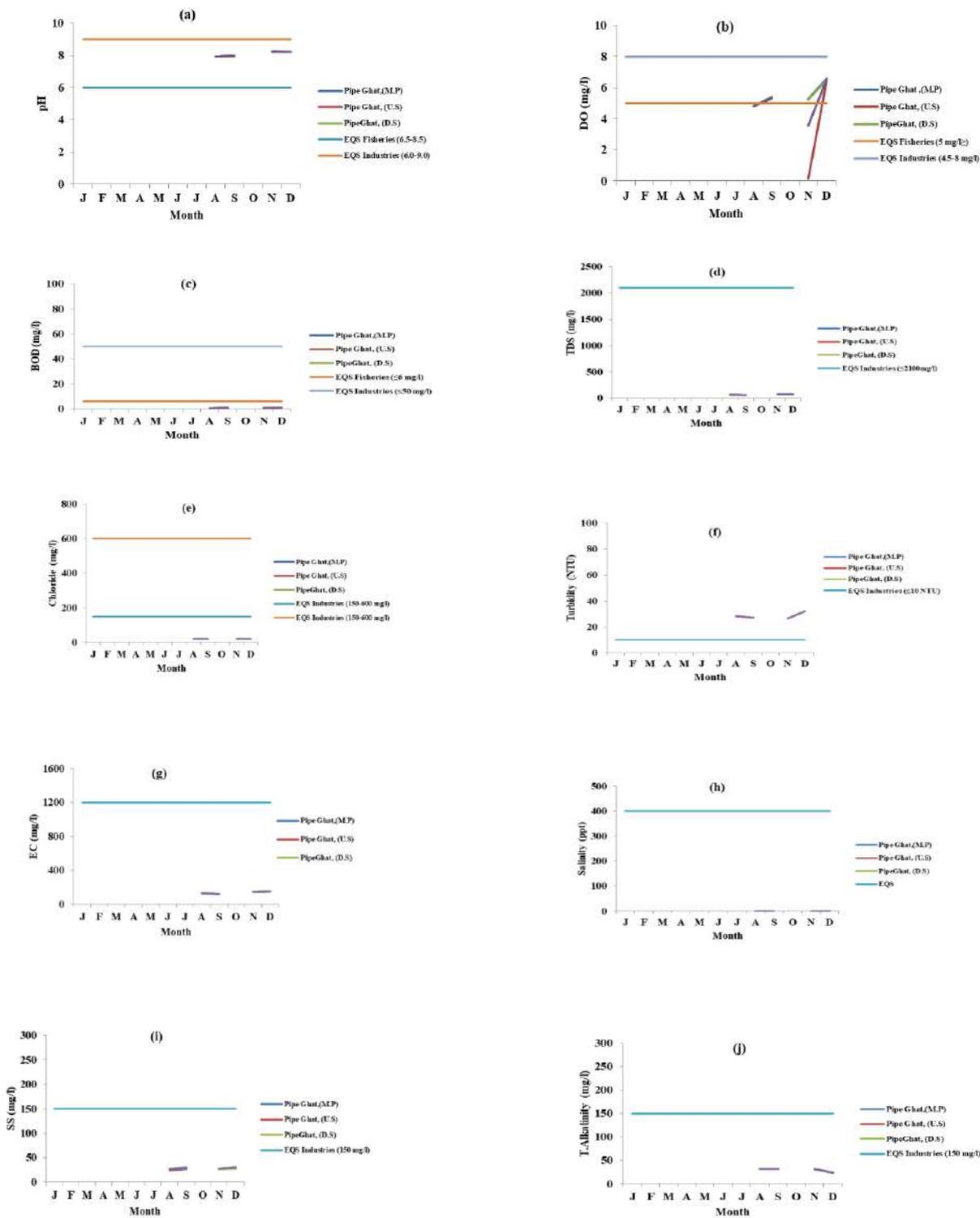


Fig.18. Status of pH, DO, BOD, TDS, Chloride, Turbidity, EC , Salinity, SS and T.alkalinity of Mathavanga River in 2020

4.19 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: 131-138). Data was not available the month of January, April to July, October.

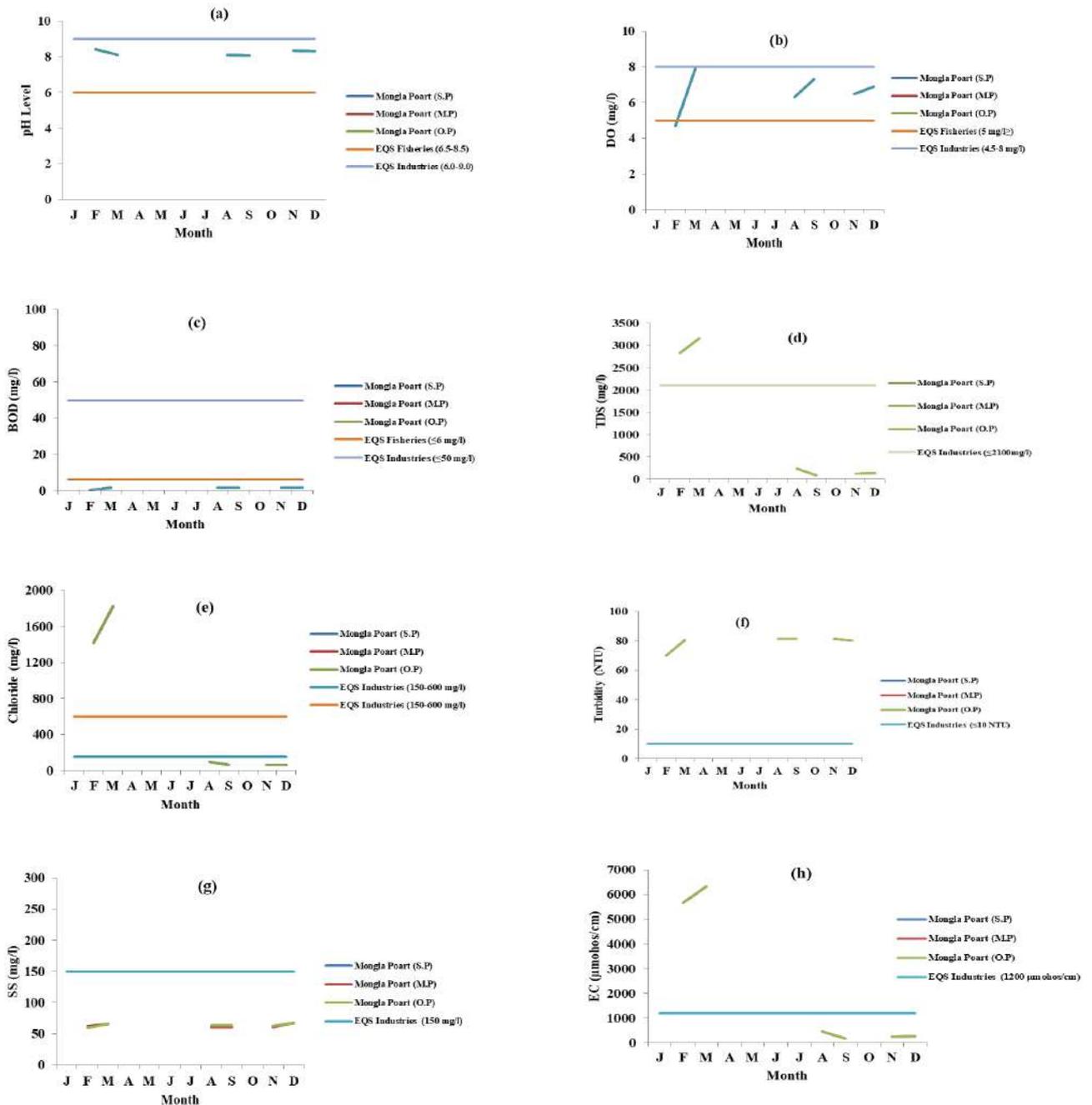


Fig.19. Status of pH, DO, BOD, TDS, Chloride, Turbidity, SS and EC of Pashur River in 2020

In 2020, pH of Pashur river water is within the EQS (6.5-8.5) range for inland surface water. In 2020, The maximum pH is 8.43 and the minimum P^H is 8.08 (Fig.19a). In 2019, pH range varied from 7.62 to 8.38. In 2020, the maximum DO 7.9 mg/l and the minimum 4.7 mg/l (Fig.19b). In 2019, DO range varied from 5.2 mg/l to 7.7 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD is 1.8 mg/l and the minimum is 0.4 mg/l (Fig.19c). In 2019, BOD range varied from 0.4 mg/l to 1.67 mg/l. In 2020, The maximum TDS is 3162 mg/l and the minimum is 84 mg/l (Fig.19d). In 2019, TDS range varied from 166 mg/l to 14460 mg/l. In 2020, Chloride concentration of the Pashur river water is below the EQS (600 mg/l) for wastewater after treatment from industrial units. In 2020, The maximum Chloride 1828 mg/l and the minimum is 60 mg/l (Fig.19e). In 2019, Chloride range varied from 92 mg/l to 8150 mg/l. In 2020, The maximum Turbidity 81.4 NTU and the minimum is 69.8 NTU (Fig.19f). In 2019, Turbidity range varied from 54.2 NTU to 110.4 NTU . The EQS for drinking water is 10 NTU. In 2020, Maximum SS concentration of Pashur river is 68 mg/l and the minimum is 59 mg/l (Fig.19g). In 2019, SS range varied from 58 mg/l to 116 mg/l. In 2020, The maximum EC 6324 $\mu\text{mhoms/cm}$ and the minimum EC 170 $\mu\text{mho/cm}$ (Fig.19h). In 2019, EC range varied from 326 $\mu\text{mhoms/cm}$ to 28920 $\mu\text{mhoms/cm}$. In 2020, EC of Pashur river at different locations is mostly within the EQS 1200 $\mu\text{mhoms/cm}$ for treated wastewater from industrial units.

4.20 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 2020. For analysis, average values of three points were considered. Detail data is attached Annex-1 (Table: 139-146). Data was not available the month of January, March to July, October.

In 2020, pH of Khakshiali river water is within the EQS (6.5-8.5) range for inland surface water. In 2020, The maximum pH is 8.27 and the minimum P^H is 8.05 (Fig.20a). In 2019, pH range varied from 7.49 to 8.15. In 2020, the maximum DO 7.65 mg/l and the minimum 6.16 mg/l (Fig.20b). In 2019, DO range varied from 3.25 mg/l to 8.65 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD is 1.6 mg/l and the minimum is 1 mg/l (Fig.20c). In 2019, BOD range varied from 0.8 mg/l to 1.5 mg/l. In 2020, The maximum TDS is 978 mg/l and the minimum is 262 mg/l (Fig.20d). In 2019, TDS range varied from 476 mg/l to 16426 mg/l. In 2020, Chloride concentration of the Khakshiali river water is below the EQS (600 mg/l) for wastewater after treatment from industrial units. In 2020, The maximum Chloride 489 mg/l and the minimum is 64 mg/l (Fig.20e). In 2019, Chloride range varied from 104 mg/l to 8728 mg/l. In 2020, The maximum Turbidity 87.8 NTU and the minimum is 72.4 NTU (Fig. 20f). The EQS for drinking water is 10 NTU. In 2019, Turbidity range varied from 57.6 NTU to 129.3 NTU. In 2020, The maximum EC 1956 $\mu\text{mhoms/cm}$ and the minimum EC 526 $\mu\text{mho/cm}$ (Fig.20g). In 2019, EC range varied from 984 $\mu\text{mhoms/cm}$ to 32850 $\mu\text{mhoms/cm}$. In 2020, EC of Khakshiali river at different locations is mostly within the EQS (1200 $\mu\text{mhoms/cm}$) for treated wastewater from industrial units . In 2020, Maximum Salinity 1.8 ppt and minimum is 0.7 ppt (Fig. 20h). In 2019, Salinity range varied from 0.6 ppt to 17.8 ppt. In 2020, Maximum Total Alkalinity 34 mg/l and minimum is 32 mg/l (Fig. 20i). In 2019, Total Alkalinity range varied from 32 mg/l to 38 mg/l. In 2020, Maximum SS concentration of Khakshiali river is 69 mg/l and the minimum is 50 mg/l (Fig. 20j). In 2019, SS range varied from 55 mg/l to 124 mg/l.

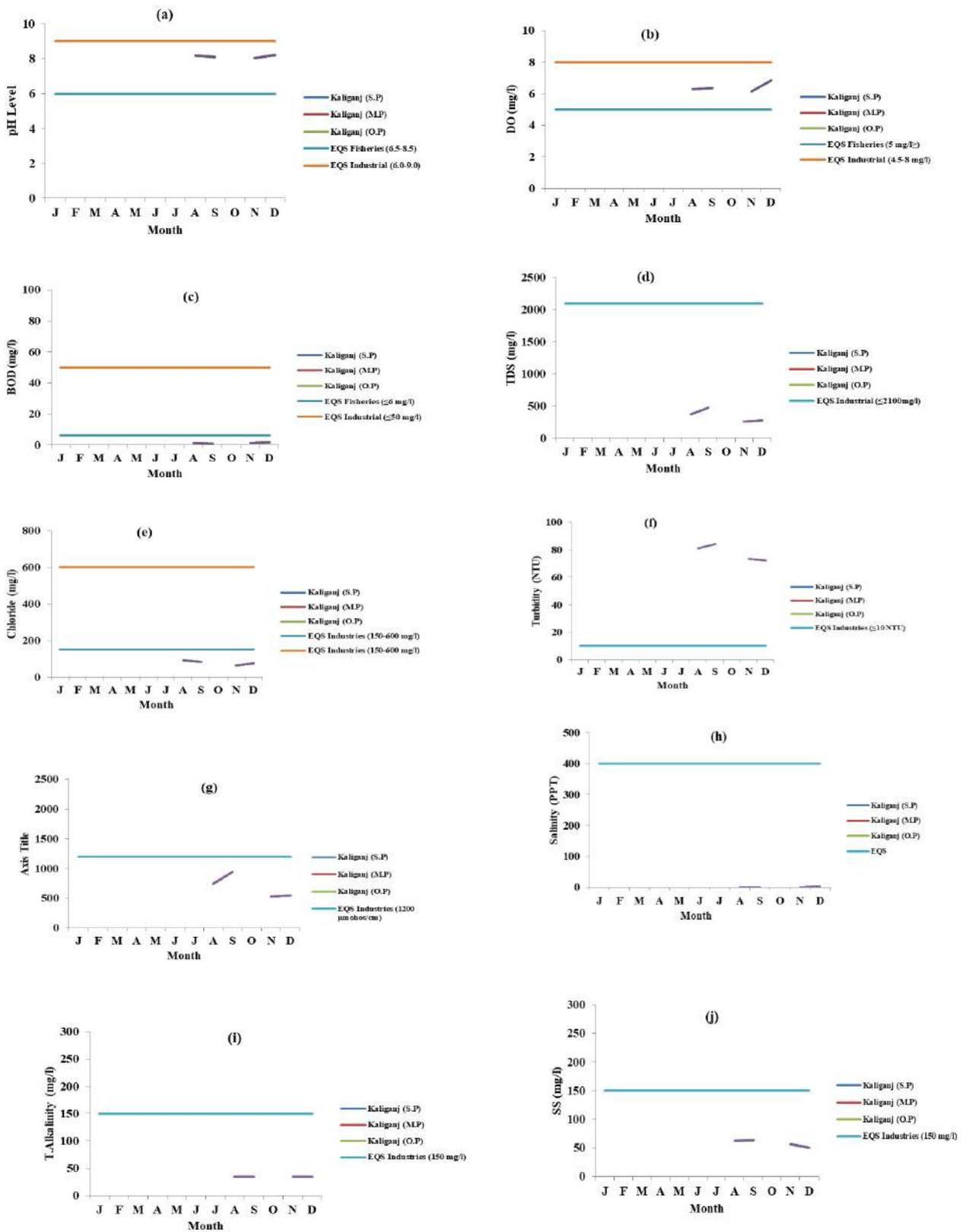


Fig.20. Status of pH, DO, BOD, TDS, Chloride, Turbidity, EC, Salinity, T.Alkalinity and SS of Khakshiali River in 2020

4.21 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:147-154). Data was not available the month of January, March to July, October.

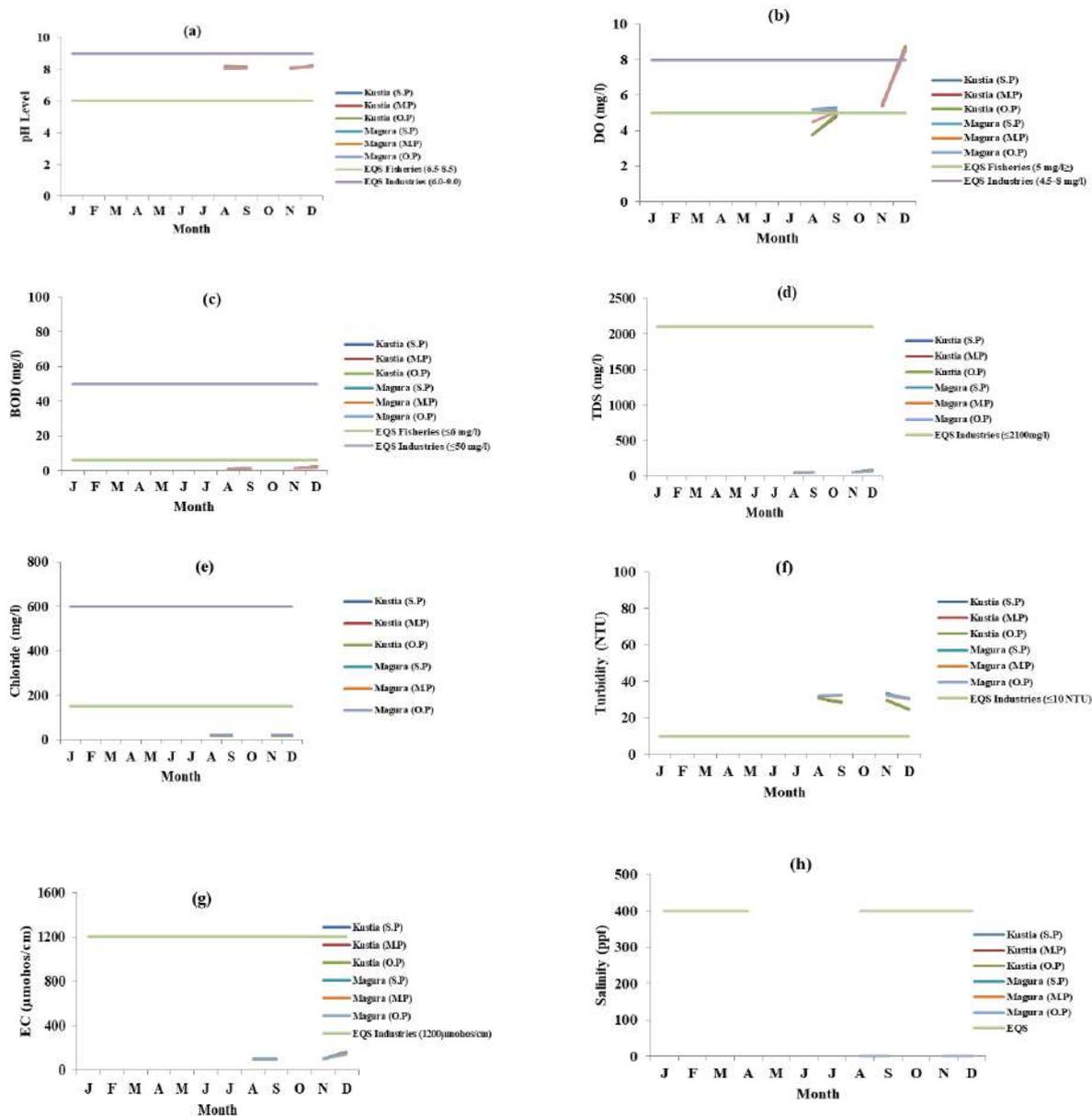


Fig.21. Status of pH, DO BOD, TDS, Chloride, Turbidity, EC and Salinity of Gorai River in 2020

In 2020, pH of Gorai river water is within the EQS (6.5-8.5) range for inland surface water. In 2020, The maximum pH is 8.26 and the minimum P^H is 7.38 (Fig.21a). In 2019, pH range varied from 6.95 to 7.88. In 2020, the maximum DO 9.25 mg/l and the minimum 3.77 mg/l (Fig.21b). In 2019, DO range varied from 5.1 mg/l to 7.2 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD is 2.1 mg/l and the minimum is 0.4 mg/l (Fig. 21c). In 2019, BOD range varied from 0.4 mg/l to 1.9 mg/l. In 2020, The maximum TDS is 506 mg/l and the minimum is 46 mg/l (Fig. 21d). In 2019, TDS range varied from 74 mg/l to 564 mg/l. In 2020, Chloride concentration of the Gorai river water is below the EQS (600 mg/l) for wastewater after treatment from industrial units. In 2020, The maximum Chloride 253 mg/l and the minimum is 18 mg/l (Fig. 21e). In 2019, Chloride range varied from 28 mg/l to 44 mg/l. In 2020, The maximum Turbidity 33.4 NTU and the minimum is 24.6 NTU (Fig. 21f). In 2019, Turbidity range varied from 28 NTU to 49.4 NTU. The EQS for drinking water is 10 NTU. In 2020, The maximum EC 1012 $\mu\text{mhoms/cm}$ and the minimum EC 93.9 $\mu\text{mho/cm}$ (Fig. 21g). In 2019, EC range varied from 144 $\mu\text{mhoms/cm}$ to 1123 $\mu\text{mhoms/cm}$. In 2020, EC of Gorai river at different locations is mostly within the EQS (1200 $\mu\text{mhoms/cm}$) for treated wastewater from industrial units . In 2019, Maximum Salinity 0.8 ppt and minimum is 0.5 ppt (Fig. 21h). In 2019, Salinity range varied from 0.1 ppt to 0.9 ppt.

4. 22 Madhumati 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 2020, samples were collected from three location comprising three different points (Mollarhat side, middle and opposite) of Bagerhat. Detail data is attached Annex-1 (Table: 155-162). Data was not available the month of January, March to July, October.

In 2020, pH of Madhumati river water is within the EQS (6.5-8.5) range for inland surface water. In 2020, The maximum pH is 8.09 and the minimum P^H is 7.41 (Fig. 22a). In 2019, pH range varied from 6.71 to 8.37. In 2020, the maximum DO 9.58 mg/l and the minimum 5.5 mg/l (Fig. 22b). In 2019, DO range varied from 4.6 mg/l to 7.95 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD is 1.9 mg/l and the minimum is 0.3 mg/l (Fig. 22c). In 2019, BOD range varied from 0.4 mg/l to 0.9 mg/l. In 2020, The maximum TDS is 100 mg/l and the minimum is 42 mg/l (Fig. 22d). In 2019, TDS range varied from 82 mg/l to 380 mg/l. In 2020, Chloride concentration of the Madhumati river water is below the EQS (600 mg/l) for wastewater after treatment from industrial units. In 2020, The maximum Chloride 50 mg/l and the minimum is 24 mg/l (Fig. 22e). In 2019, Chloride range varied from 23 mg/l to 52 mg/l. In 2020, The maximum Turbidity 34.8 NTU and the minimum is 24.6 NTU (Fig. 22f). In 2019, Turbidity range varied from 27.2 NTU to 45.8 NTU. The EQS for drinking water is 10 NTU. In 2020, The maximum EC 200 $\mu\text{mhoms/cm}$ and the minimum EC 86.8 $\mu\text{mhoms/cm}$ (Fig. 22g). In 2019, EC range varied from 27.2 $\mu\text{mhoms/cm}$ to 46.2 $\mu\text{mhoms/cm}$. In 2020, EC of Madhumati river at different locations is mostly within the EQS (1200 $\mu\text{mhoms/cm}$) for treated wastewater from industrial units. In 2020, Maximum Salinity 0.09 ppt and minimum is 0.02 ppt (Fig.22h). In 2019, Salinity range varied from 0 ppt to 0.6 ppt.

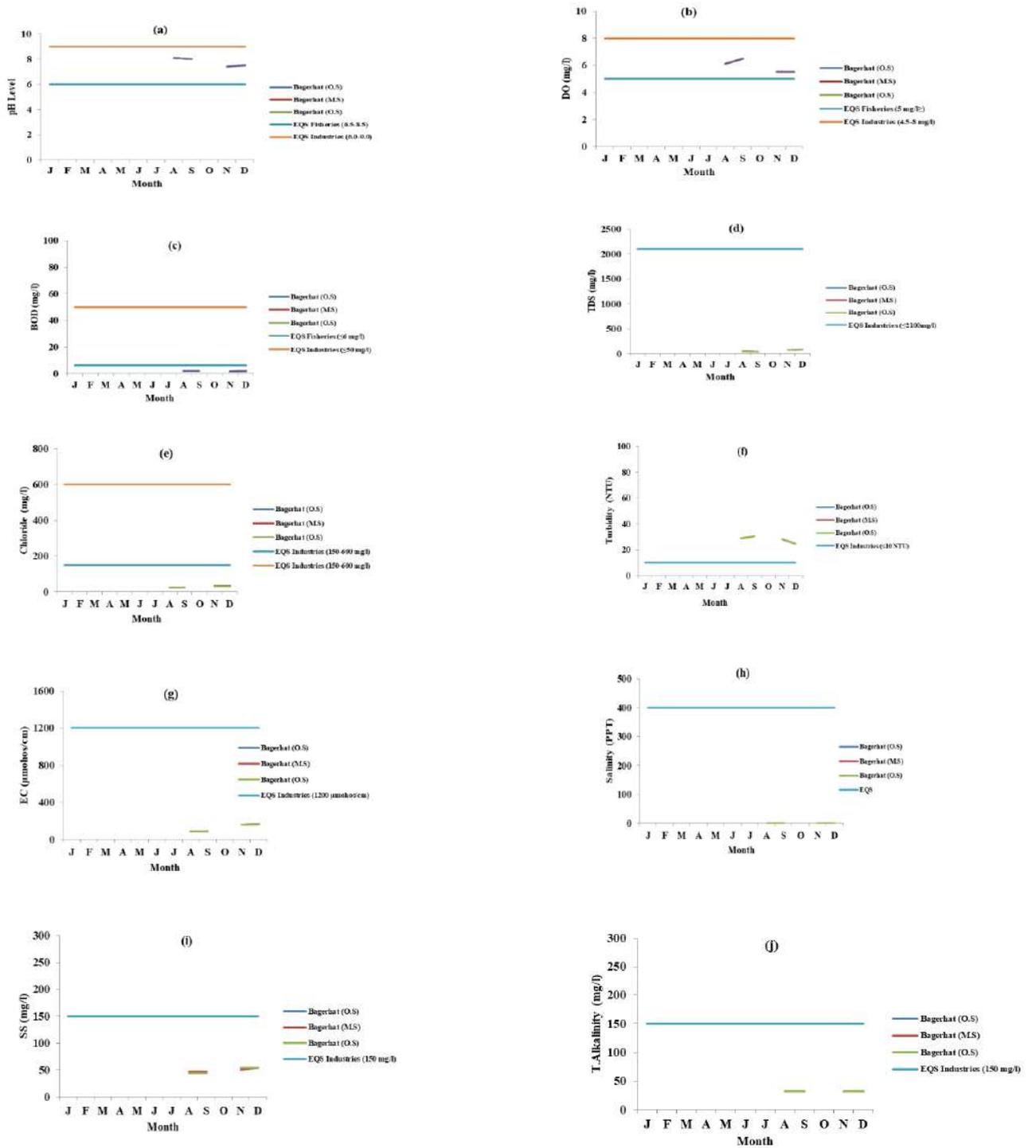


Fig.22. Status of pH, DO, BOD, TDS, Chloride, Turbidity, EC and Salinity of Modhumoti River in 2020

4.23 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 2020, 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: 163-169). Data was not available the month of August.

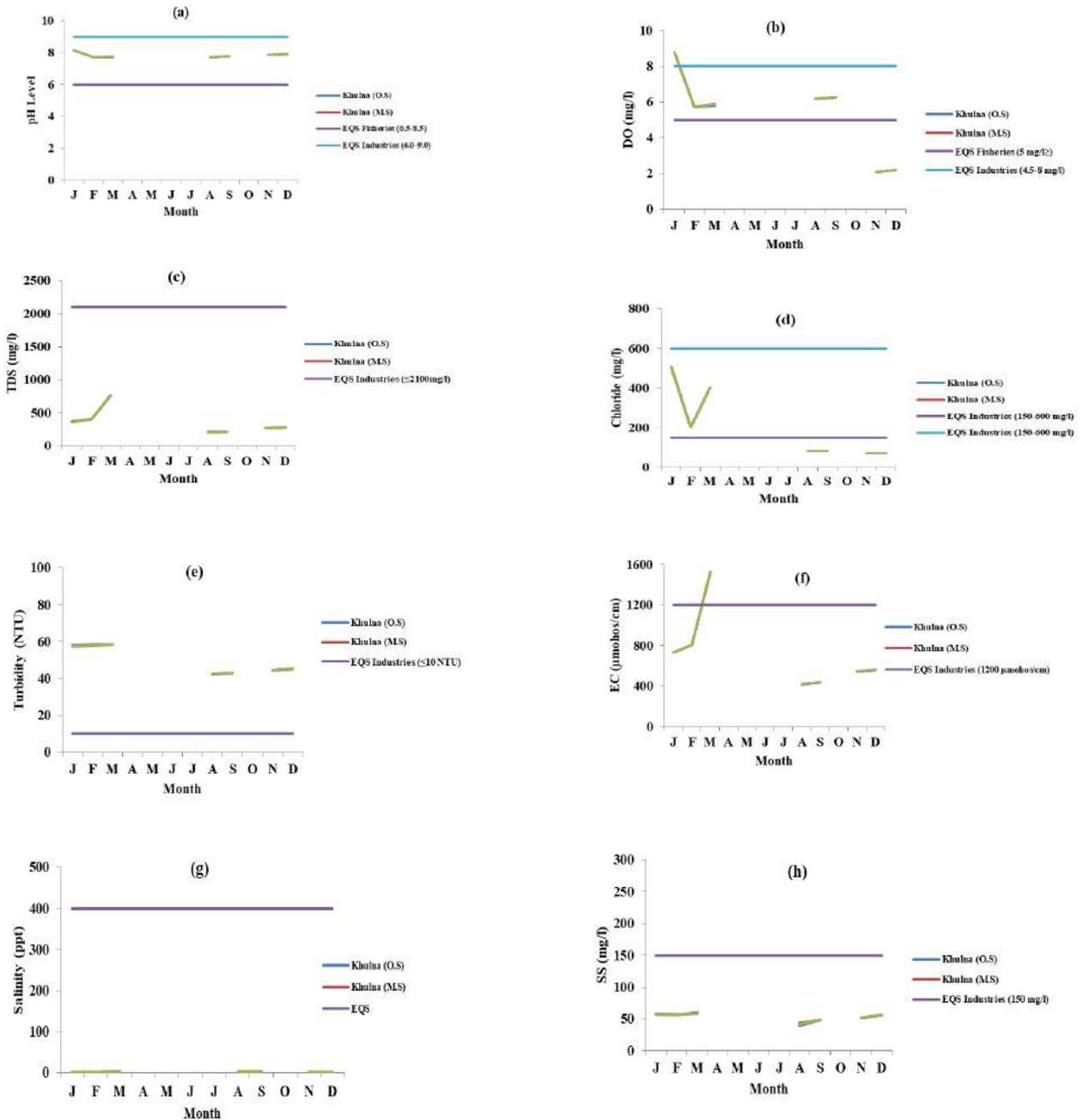


Fig.23. Status of pH, DO, TDS, Chloride, Turbidity, EC, Salinity and SS of Beel Dakatia River in 2020

In 2020, pH of Beel Dakatia river water is within the EQS (6.5-8.5) range for inland surface water. In 2020, The maximum pH is 8.14 and the minimum P^H is 7.7 (Fig. 23a). In 2019, pH range varied from 7.37 to 8.17. In 2020, the maximum DO 8.77 mg/l and the minimum 2.1 mg/l (Fig. 23b). In 2019, DO range varied from 4.9 mg/l to 8.77 mg/l. In 2020, The maximum TDS is 762 mg/l and the minimum is 208 mg/l (Fig. 23c). In 2019, TDS range varied from 366 mg/l to 1736 mg/l. In 2020, Chloride concentration of the Beel Dakatia river water is below the EQS (600 mg/l) for wastewater after treatment from industrial units. In 2020, The maximum Chloride 508 mg/l and the minimum is 72 mg/l (Fig. 23d). In 2019, Chloride range varied from 204 mg/l to 966 mg/l. In 2020, The maximum Turbidity 58.6 NTU and the minimum is 42.4 NTU (Fig. 23e). In 2019, Turbidity range varied from 50.4 NTU to 68.9 NTU. The EQS for drinking water is 10 NTU. In 2020, The maximum EC 1522 $\mu\text{mhoms/cm}$ and the minimum EC 417 $\mu\text{mho/cm}$ (Fig. 23f). In 2019, EC range varied from 732 $\mu\text{mhoms/cm}$ to 3472 $\mu\text{mhoms/cm}$. In 2020, EC of Beel Dakatia river at different locations is mostly within the EQS (1200 $\mu\text{mhoms/cm}$) for treated wastewater from industrial units. In 2020, Maximum Salinity 2.4 ppt and minimum is 0.26 ppt (Fig.23g). In 2019, Salinity range varied from 1 ppt to 3.4 ppt. In 2020, The maximum SS is 60 mg/l and the minimum is 40 mg/l (Fig. 23h). In 2019, SS range varied from 52 mg/l to 78 mg/l.

4.24 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 Six 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. Detail data is attached Annex-1 (Table:170-175). Data was not available the month of March to June.

In 2020, pH of Kirtankhola river water is within the EQS (6.5-8.5) range for inland surface water. In 2020, The maximum pH is 8 and the minimum P^H is 6.3 (Fig. 24a). In 2019, pH range varied from 7.4 to 7.79. In 2020, the maximum DO 8.5 mg/l and the minimum 5.0 mg/l (Fig. 24b). In 2019, DO range varied from 5.2 mg/l to 7.6 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD is 3.6 mg/l and the minimum is 2 mg/l (Fig. 24c). In 2019, BOD range varied from 1.5 mg/l to 2.4 mg/l. In 2020, The maximum TDS is 157 mg/l and the minimum is 94 mg/l (Fig. 24d). In 2019, TDS range varied from 84 mg/l to 218 mg/l. In 2020, The maximum TS 175 mg/l and the minimum is 117 mg/l (Fig. 24e). In 2019, TS range varied from 102 mg/l to 243 mg/l. In 2020, The maximum EC 334 $\mu\text{mhoms/cm}$ and the minimum EC 5.1 $\mu\text{mho/cm}$ (Fig. 24f). In 2019, EC range varied from 168 $\mu\text{mhoms/cm}$ to 436 $\mu\text{mhoms/cm}$.

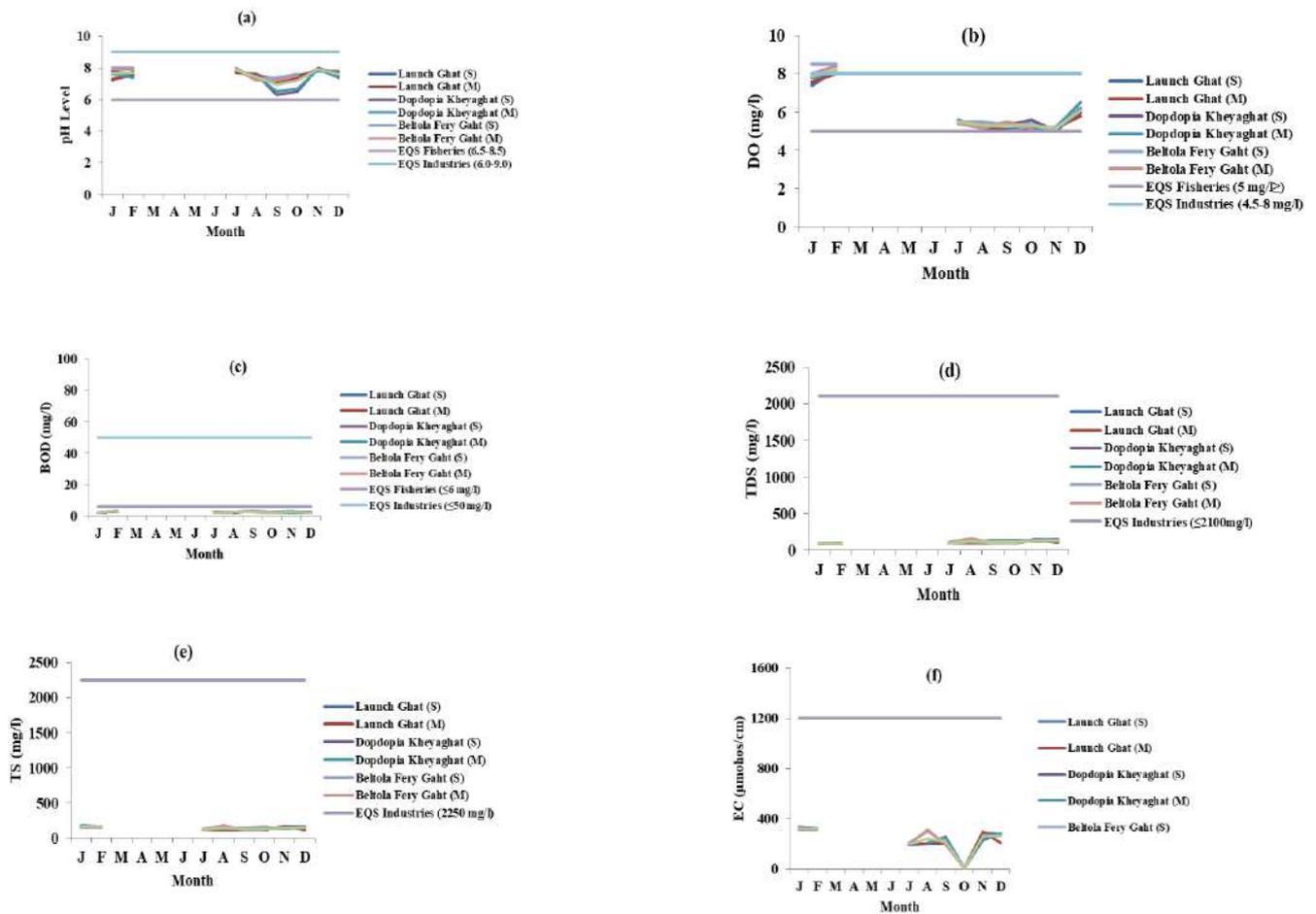


Fig.24. Status of pH, DO, BOD, TDS, TS and EC of Kirtankhola River in 2020

4.25 Tatulia River

For monitoring of water quality of Tatulia river water samples was collated from Vedhoria Fery Ghat (VFG) location (bank and middle point). For analysis, average of two points were used. Detail data is attached Annex-1 (Table: 176-181). Data was not available the month of January, March to July, September, October, December.

In 2020, pH of Tatulia river water is within the EQS (6.5-8.5) range for inland surface water. In 2020, The maximum pH is 7.9 and the minimum P^H is 7.4 (Fig. 25a). In 2019, pH range varied from 7.3 to 7.65. In 2020, the maximum DO 8.1 mg/l and the minimum 5 mg/l (Fig. 25b). In 2019, DO range varied from 2.1 mg/l to 6.9 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD is 3.5 mg/l and the minimum is 2.2 mg/l (Fig. 25c). In 2019, BOD range varied from 1.4 mg/l to 2.3 mg/l. In 2020, The maximum TDS is 111 mg/l and the minimum is 84 mg/l (Fig. 25d). In 2019, TDS range varied from 88 mg/l to 136 mg/l. In 2020, The maximum TS 158 mg/l and the minimum is 113 mg/l (Fig. 25e). In 2019, TS range varied from 106 mg/l to 153 mg/l. In 2019, The maximum SS 74 mg/l and the minimum is 12 mg/l (Fig. 25f). In 2019, SS range varied from 14 mg/l to 21 mg/l.

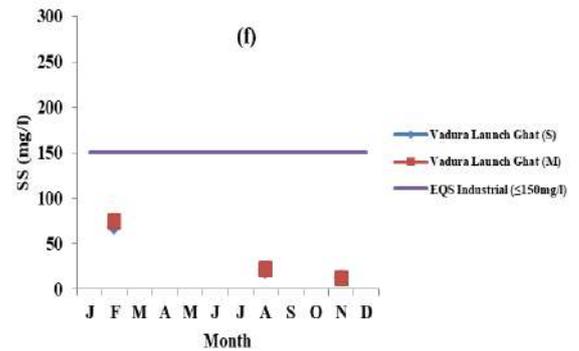
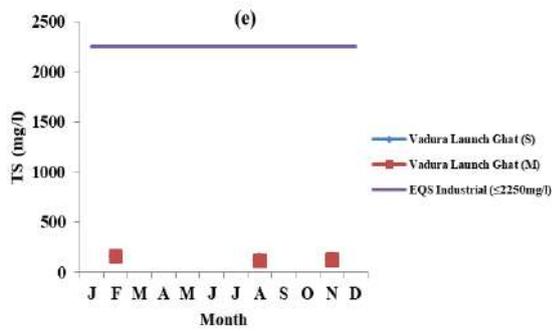
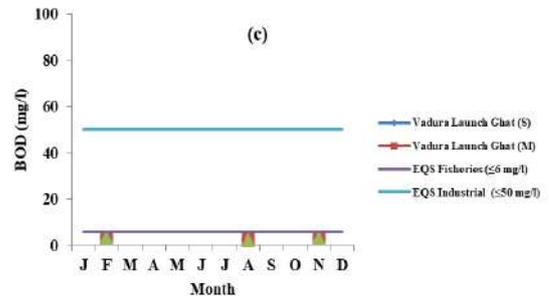
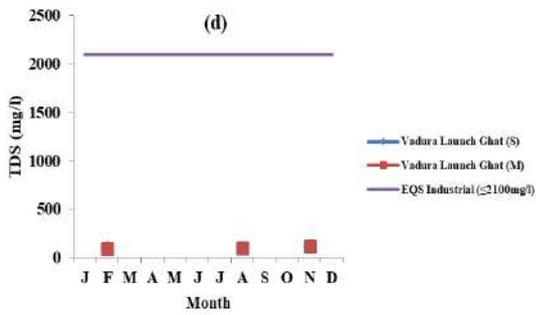
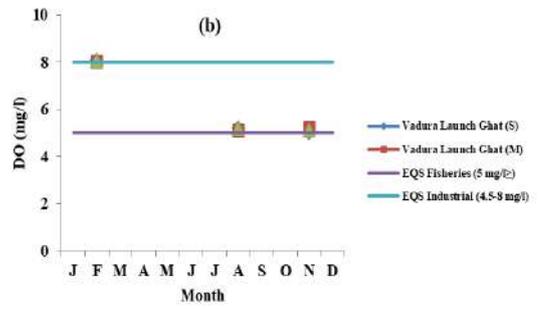
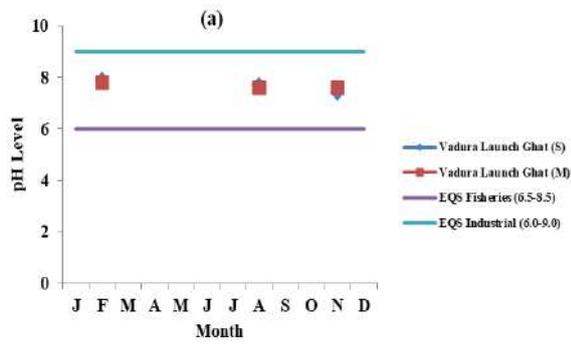


Fig.25. Status of pH, DO, BOD, TDS, TS and SS of Tatulia River in 2020

4.26 Sugandha 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. Detail data is attached Annex-1 (Table: 182-187). Data was not available the month of February to September, November, December.

In 2020, pH of Sugandha river water is within the EQS (6.5-8.5) range for inland surface water. In 2020, The maximum pH is 7.8 and the minimum P^H is 7.1 (Fig. 26a). In 2019, pH range varied from 7.2 to 8. In 2020, the maximum DO 8 mg/l and the minimum 6.2 mg/l (Fig. 26b). In 2019, DO range varied from 5.5 mg/l to 6.4 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD is 2.2 mg/l and the minimum is 1.8 mg/l (Fig. 26c). In 2019, BOD range varied from 1.8 mg/l to 2.3 mg/l. In 2020, The maximum TDS is 156 mg/l and the minimum is 87 mg/l (Fig. 26d). In 2019, TDS range varied from 108 mg/l to 206 mg/l. In 2020, The maximum TS 174 mg/l and the minimum is 162 mg/l (Fig. 26e). In 2019, TS range varied from 122 mg/l to 226 mg/l. In 2019, The maximum SS 75 mg/l and the minimum is 16 mg/l (Fig. 26f). In 2019, SS range varied from 15 mg/l to 20 mg/l.

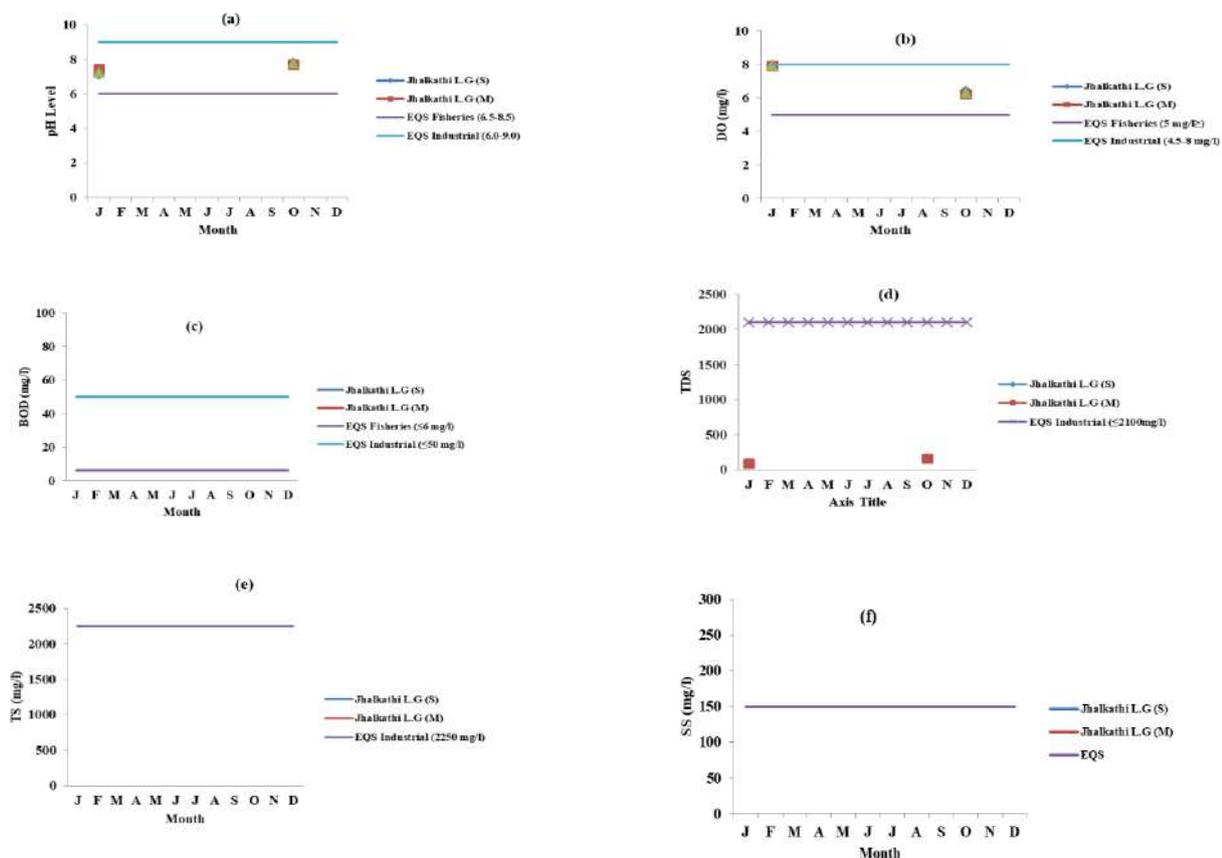


Fig.26. Status of pH, DO, BOD, TDS , TS and SS of Sugandha River in 2020

4.27 Lohalia 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. Detail data is attached Annex-1 (Table: 188-193). Data was not available the month of January, March to July, September, October, December.

In 2020, pH of Lohalia river water is within the EQS (6.5-8.5) range for inland surface water. In 2020, The maximum pH is 7.9 and the minimum P^H is 7.3 (Fig. 27a). In 2019, pH range varied from 7.47 to 7.8. In 2020, the maximum DO 7.9mg/l and the minimum 5.6 mg/l (Fig. 27b). In 2019, DO range varied from 5.8 mg/l to 7.2 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD is 3.6 mg/l and the minimum is 1.6 mg/l (Fig. 27c). In 2019, BOD range varied from 1.5 mg/l to 2.2 mg/l. In 2020, The maximum TDS is 214 mg/l and the minimum is 90 mg/l (Fig. 27d). In 2019, TDS range varied from 107 mg/l to 372 mg/l. In 2020, The maximum TS 200 mg/l and the minimum is 166 mg/l (Fig. 27e). In 2019, TS range varied from 121 mg/l to 386 mg/l. In 2020, The maximum SS 80 mg/l and the minimum is 12 mg/l (Fig. 27f). In 2019, SS range varied from 14 mg/l to 22 mg/l.

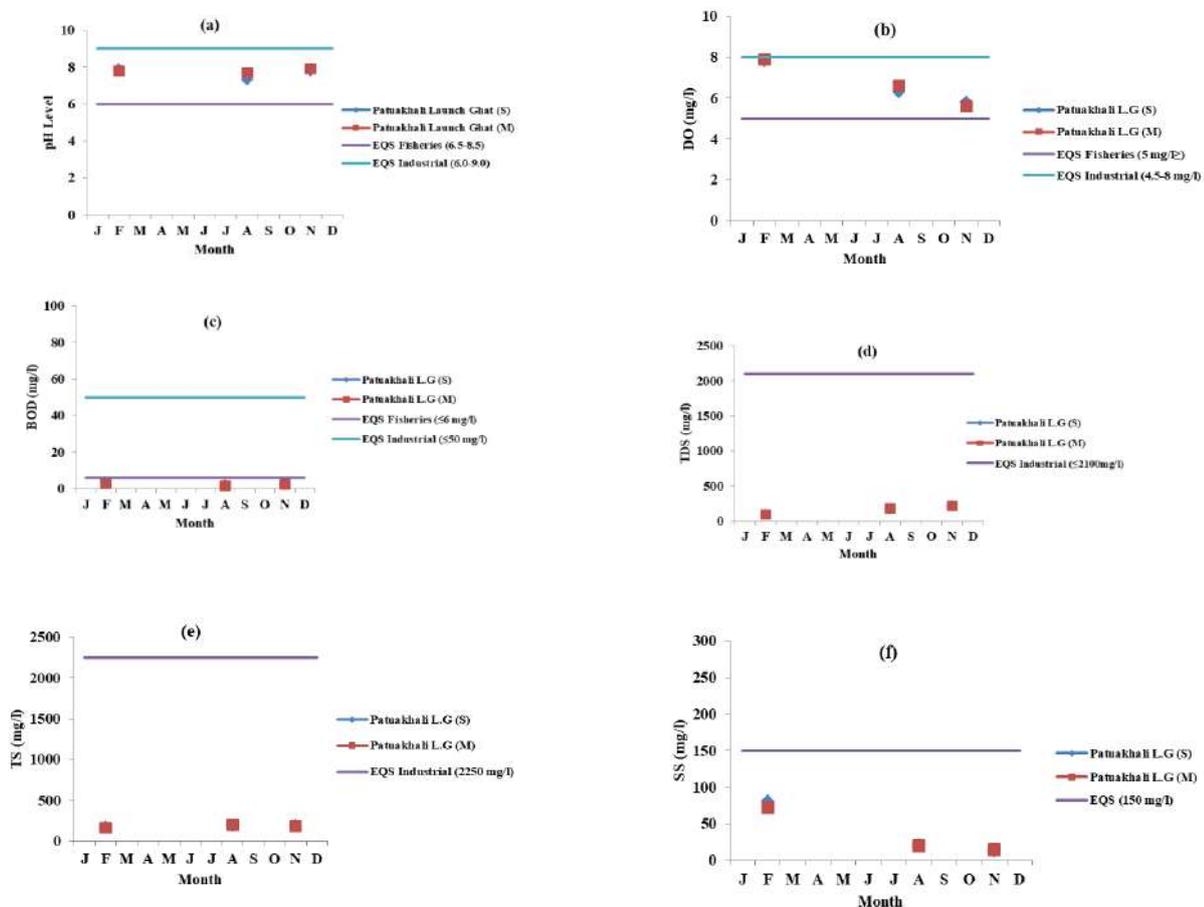


Fig.27. Status of pH, DO, BOD, TDS, TS and SS of Lohalia River in 2020

4.28 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 Kushiyara 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 Four different locations of the river namely Mendibag Point (MP), Kin Bridge (KB), Shak Ghat (SG), Chattak . Detail data is attached Annex-1 (Table: 194-199). Data was not available the month of December.

In 2020, pH of Surma river water is within the EQS (6.5-8.5) range for inland surface water. In 2020, The maximum pH is 9.5 and the minimum P^H is 5.8 (Fig. 28a). In 2019, pH range varied from 6.8 to 8.9. In 2020, the maximum DO 8.94 mg/l and the minimum 6.6 mg/l (Fig. 28b). In 2019, DO range varied from 4.5 mg/l to 8.2 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. In 2020, The maximum BOD is 4 mg/l and the minimum is 1.4 mg/l (Fig. 28c). In 2019, BOD range varied from 1.9 mg/l to 6.2 mg/l. In 2020, The maximum TDS is 267 mg/l and the minimum is 33.2 mg/l (Fig. 28d). In 2019, TDS range varied from 39 mg/l to 153 mg/l. In 2020, The maximum SS 146 mg/l and the minimum is 9 mg/l (Fig. 28e). In 2019, SS range varied from 13 mg/l to 84 mg/l. In 2020, The maximum COD 18 mg/l and the minimum is 5 mg/l (Fig. 28f). In 2019, COD range varied from 9 mg/l to 21 mg/l.

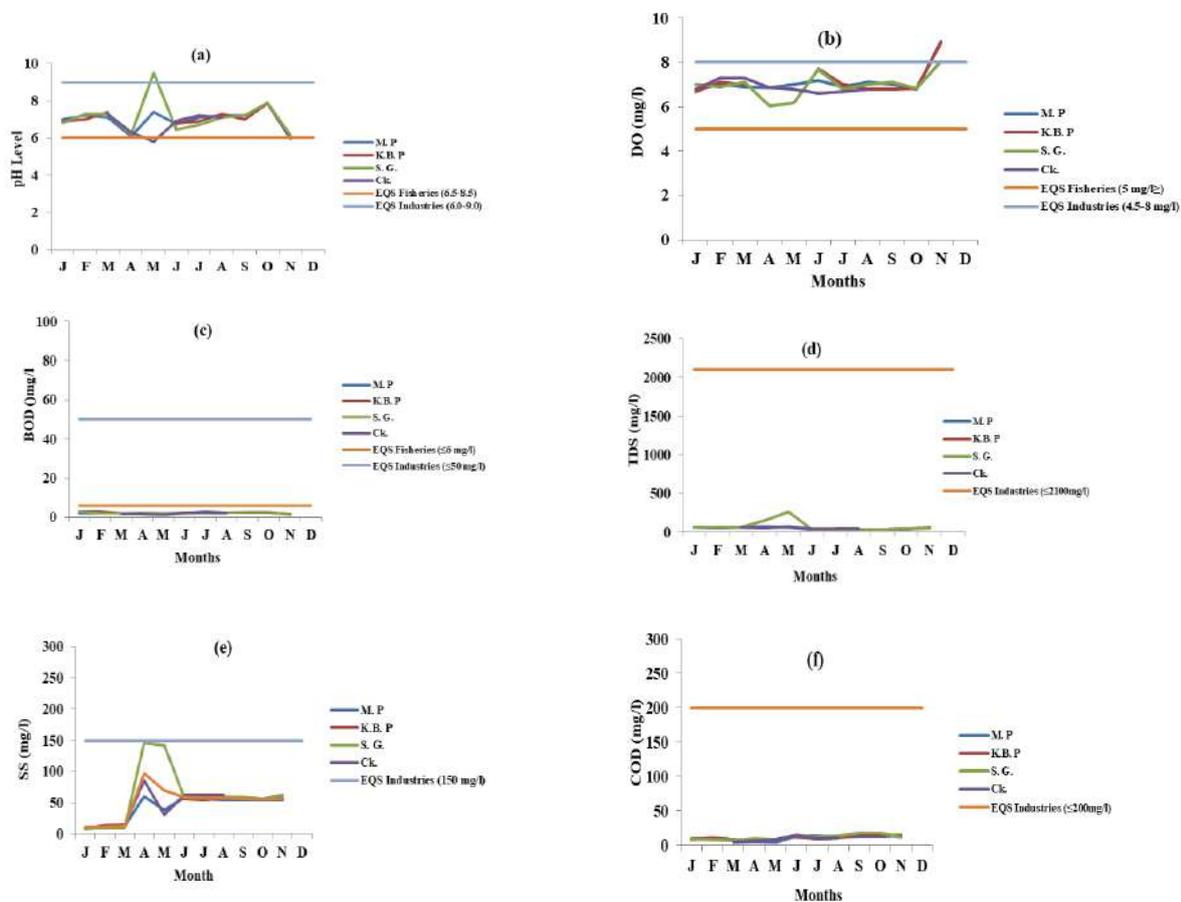


Fig.28. Status of pH, DO, BOD, TDS, SS and COD of Surma River in 2020

4.29 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 Kushiara Point. Detail data is attached Annex-1 (Table: 200-205). Data was not available the month January to March & November to December.

In 2020, pH of Kushiara river water is within the EQS (6.5-8.5) range for inland surface water. In 2020, The maximum pH is 7.3 and the minimum pH is 6.4 (Fig. 29a). In 2019, pH range varied from 7.3 to 8.2 mg/l. In 2020, the maximum DO 7.51 mg/l and the minimum 6.4 mg/l (Fig. 29b). In 2019, DO range varied from 6.3 mg/l to 7.1 mg/l. In 2020, BOD load was within the EQS (≤ 6 mg/l) for fisheries at all locations. The maximum BOD is 6.14 mg/l and the minimum is 1.2 mg/l (Fig. 29c). In 2019, BOD range varied from 2.1 mg/l to 3.4 mg/l. In 2020, The maximum TDS is 62.6 mg/l and the minimum is 26 mg/l (Fig. 28d). In 2019, TDS range varied from 82 mg/l to 143 mg/l. In 2020, The maximum SS 66 mg/l and the minimum is 16 mg/l (Fig. 29e). In 2019, SS range varied from 18 mg/l to 21 mg/l. In 2020, The maximum COD 16 mg/l and the minimum is 5 mg/l (Fig. 29f). In 2019, COD range varied from 12 mg/l to 18 mg/l.

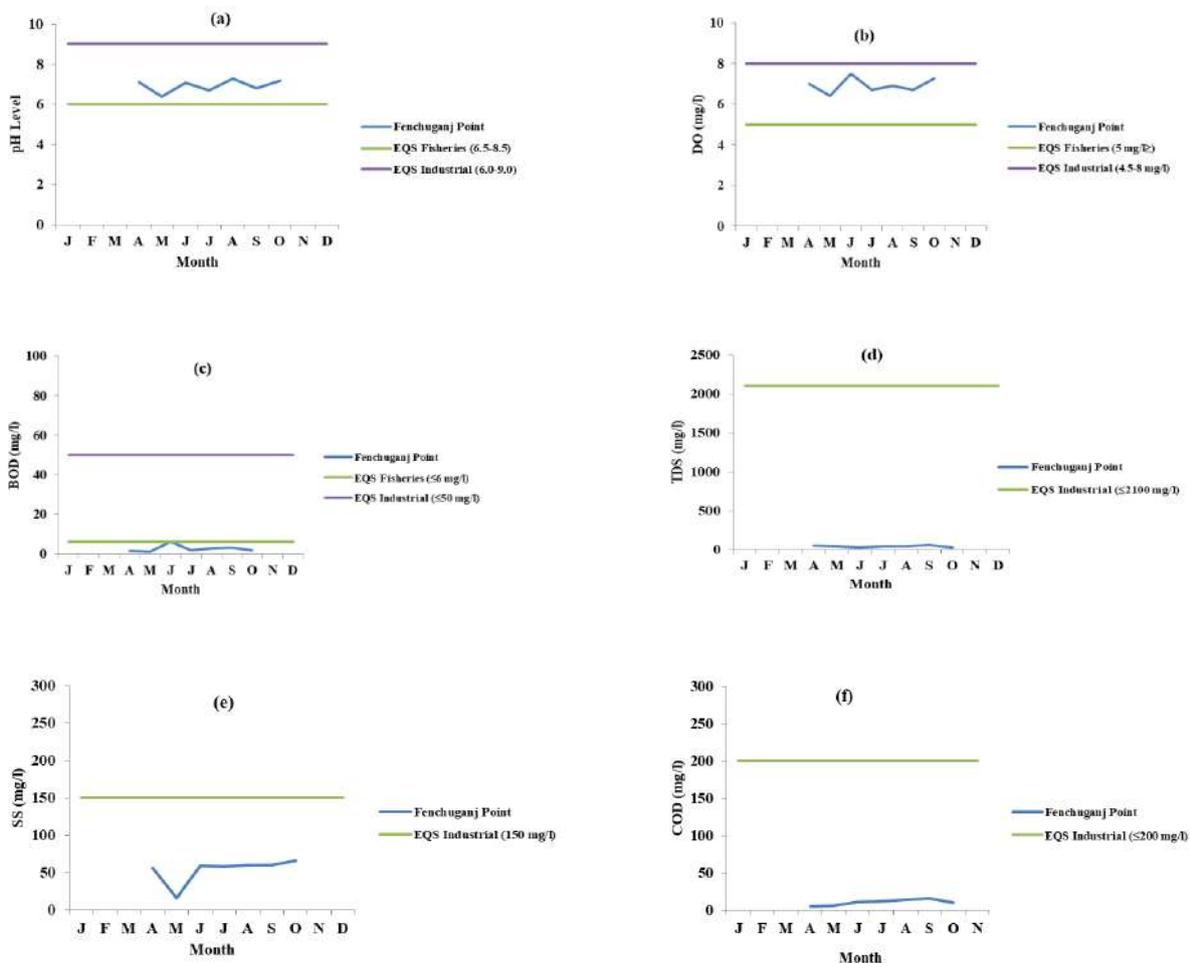


Fig 29. Status of pH, DO, BOD, TDS, COD and SS of Kushiara River in 2020

CHAPTER 5: DATA ANALYSIS ALONG WITH GRAPHICAL REPRESENTATION OF LAKE AND GROUND WATER QUALITY IN 2020

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 Five 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 of the lake in 2020 for analysis of water quality. Detail data is attached Annex-2 (Table : 206-214).

In 2020, pH of Gulshan Lake water varied from 6.69 to 9.35 (Fig. 30a). In 2019, pH range varied from 6.69 to 9.35. In 2020, DO of Gulshan Lake water varied from 0.0 to 18.81 mg/l (Fig. 30b). In 2019, DO range varied from 0.4 mg/l to 18.8 mg/l. In 2020, BOD of Gulshan Lake water varied from 4.9 to 58 mg/l (Fig. 30c). In 2019, BOD range varied from 12 mg/l to 48 mg/l. In 2020, The maximum COD 227 mg/l and the minimum COD 15 mg/l (Fig. 30d). In 2019, COD range varied from 19 mg/l to 194 mg/l. In 2020, TDS of Gulshan Lake water varied from 148 to 297 mg/l. (Fig. 30e). In 2019, TDS range varied from 94.7 to 333 mg/l. In 2020, Turbidity of Gulshan Lake water varied from 3.59 to 172 NTU (Fig. 30f). In 2019, Turbidity range varied from 13.1 to 77.1 NTU. In 2020, Chloride of Gulshan Lake water varied from 15 to 88.5 mg/l (Fig. 30g). In 2019, Chloride range varied from 17 to 48 mg/l. In 2020, The maximum SS 186 mg/l and the minimum SS 6 mg/l (Fig. 30h). In 2019, SS range varied from 36 mg/l to 441.1 mg/l. In 2020, Total Alkalinity of Gulshan Lake water varied from 62 mg/l to 265 mg/l (Fig. 30i). In 2019, Total Alkalinity range varied from 112 mg/l to 352 mg/l. In 2020, the maximum EC 588 $\mu\text{mohos/cm}$ and the minimum EC 248 $\mu\text{mohos/cm}$ (Fig. 30j). In 2019, EC range varied from 230 $\mu\text{mohos/cm}$ to 638 $\mu\text{mohos/cm}$.

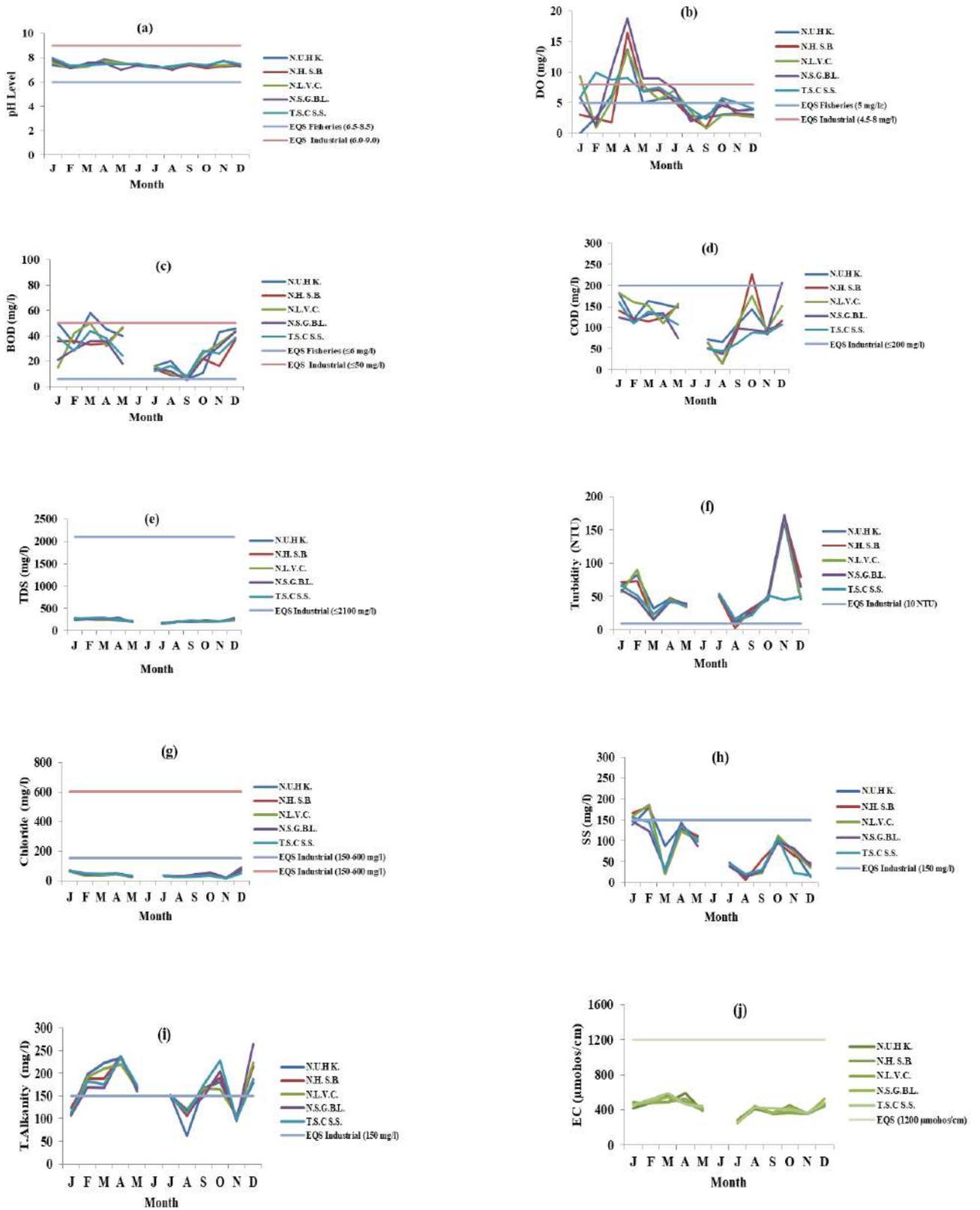


Fig 30. Status of pH, DO, BOD, COD, TDS, Turbidity, Chloride, SS, T. Alkalinity and EC of Gulshan Lake in 2020

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. Detail data is attached Annex-2 (Table: 215-224).

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 2020 for analysis of water quality.

In 2020, pH level of Dhanmondi Lake water was within the EQS (6.5-8.5) for fisheries. It varied from 6.87 to 8.82 (Fig. 31a). In 2019, pH range varied from 6.87 to 8.3. In 2020, DO was varied from 2.4 to 12.1 mg/l (Fig. 31b). In 2019, DO range varied from 2.2 to 12.4 mg/l. In 2020, BOD was varied from 4 to 21 mg/l (Fig. 31c). In 2019, BOD range varied from 2.8 to 29 mg/l. In 2020, COD was varied from 14 to 90 mg/l COD was within the EQS (Fig. 31d). In 2019, COD range varied from 7 to 79 mg/l. In 2020, TDS was varied from 113.2 to 306 mg/l and was within the EQS (Fig. 31e). In 2019, TDS range varied from 90.4 mg/l to 330 mg/l. In 2020, Turbidity was varied from 2.62 to 39.2 NTU (Fig. 31f). In 2019, Turbidity was varied from 3 to 68 NTU. In 2020, Chloride was varied from 14 to 84 mg/l and was within the EQS (Fig. 31g). In 2019, Chloride was varied from 5.5 to 49 mg/l. In 2020, SS was varied from 3 to 40 mg/l and was within the EQS (Fig. 31h). In 2019, SS was varied from 5 to 180 mg/l. In 2020, Total Alkalinity was within the EQS (150 mg/l) and varied from 42 to 168 mg/l (Fig. 31i). In 2019, Total Alkalinity varied from 15 to 304 mg/l. In 2020, EC was within the EQS (1200 μ mhos/cm) limit and it was varied 214.2 to 511 μ mhos/cm (Fig. 31j). In 2019, EC was varied μ mhos/cm 7.91 to 639 μ mhos/cm.

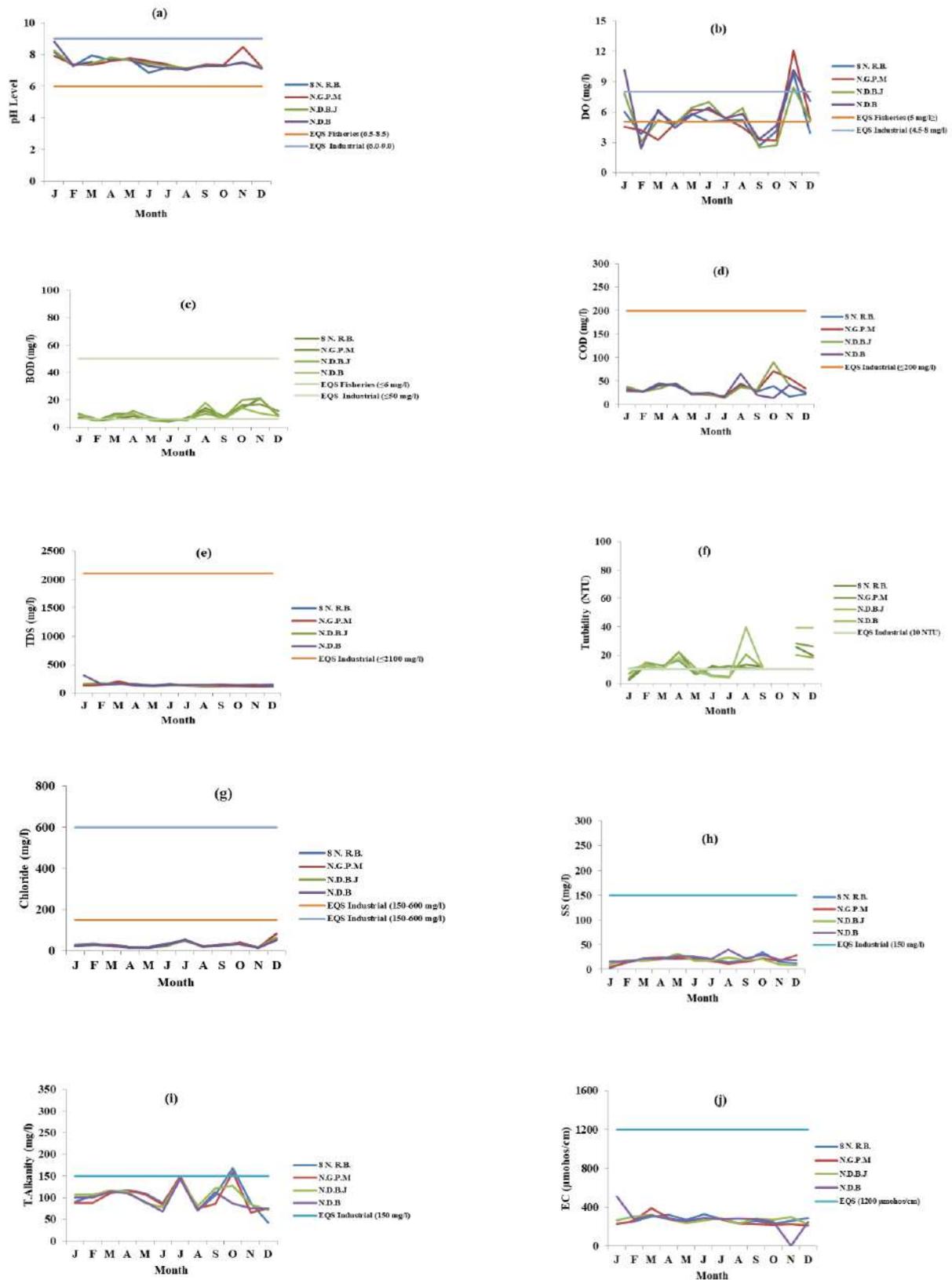


Fig 31. Status of pH, DO, BOD, COD, TDS, Turbidity , Chloride, SS, T. Alkalinity and EC of Dhamnondi Lake in 2020

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 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 2020 for analysis of water quality. Detail data is attached Annex-2 (Table: 225-234).

In 2020, pH level of Hatir Jheel Lake water was within the EQS (6.5-8.5) for fisheries. It varied from 6.78 to 8.3 (Fig.32a). In 2019, pH level varied from 6.87 to 7.86. In 2020, DO was varied from 0.0 to 9.2 mg/l (Fig.32b). In 2019, DO was varied from 0.4 to 16.4 mg/l. In 2020, BOD was varied from 10.2 to 43.2 mg/l (Fig.32c). In 2019, BOD was varied from 6 to 66 mg/l. In 2020, COD of Hatir Jheel water varied from 37 to 161 mg/l (Fig.32d). In 2019, COD of Hatir Jheel water varied from 18 to 201 mg/l. In 2020, TDS was varied from 210 to 340 mg/l (Fig.32e). In 2019, TDS was varied from 47 to 444 mg/l. In 2020, Turbidity was varied from 6.38 to 84.4 NTU and was above the EQS (Fig.32f). In 2019, Turbidity was varied from 6.11 to 160 NTU. In 2020, Chloride of Hatir Jheel Lake water varied from 13 to 78 mg/l (Fig.32g). In 2019, Chloride of Hatir Jheel Lake water varied from 7 to 65 mg/l. In 2020, SS was varied from 5 to 131 mg/l (Fig.32h). In 2019, SS was varied from 21 to 367 mg/l. In 2020, Total Alkalinity was above the EQS (150 mg/l) and varied from 74 to 330 mg/l (Fig. 32i). In 2019, Total Alkalinity varied from 129 to 352 mg/l. In 2020, EC was within the EQS (1200 μ mohos/cm) limit and it varied from 375 to 680 μ mohos/cm (Fig. 32j). In 2019, EC varied from 288 to 855 μ mohos/cm.

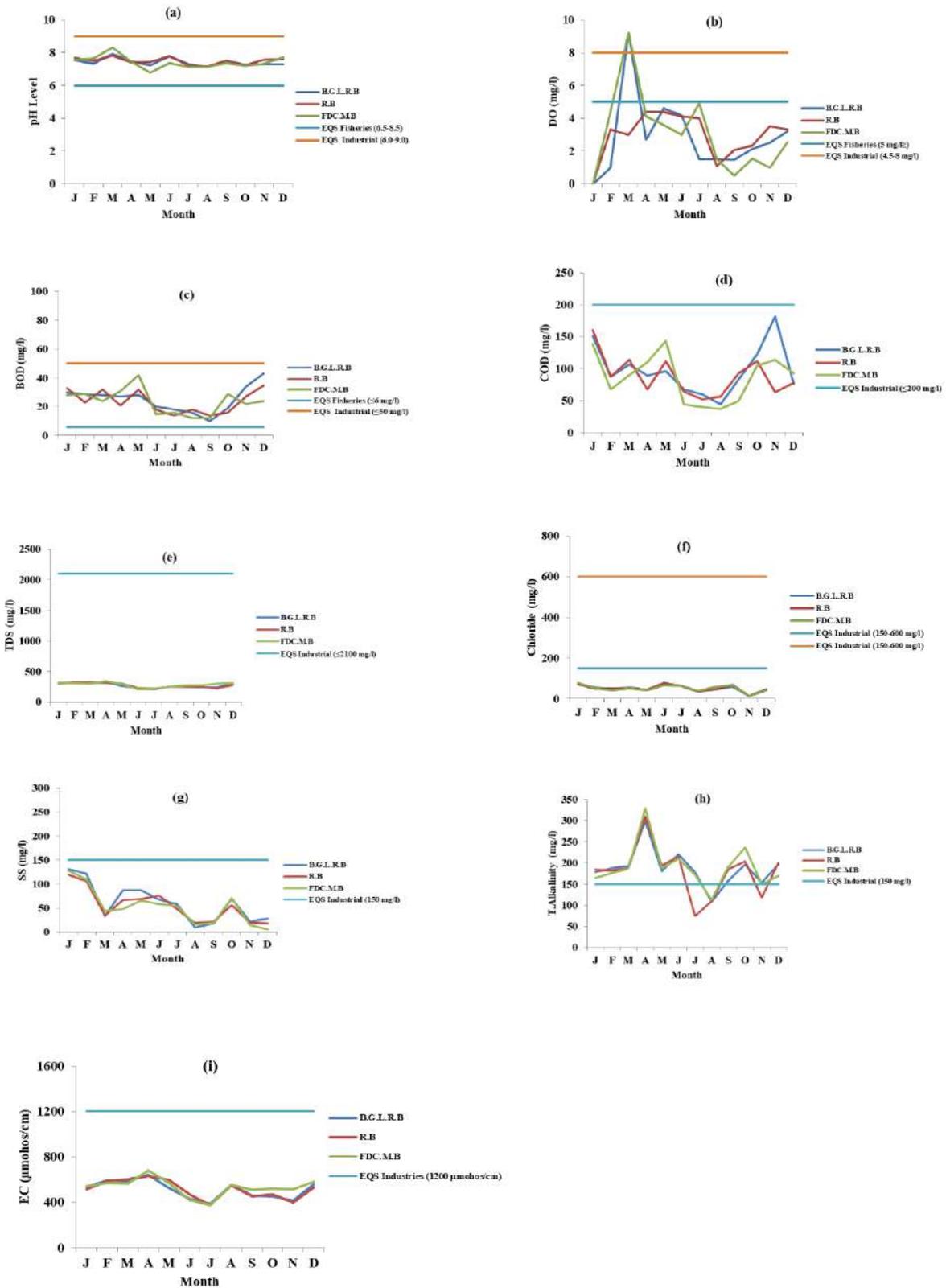


Fig 32. Status of pH, DO, BOD, COD, TDS, Turbidity, Chloride, SS, T. Alkalinity and EC of Hatir Jheel Lake in 2020

5.4 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 30 different locations viz. Divisional Commissioner office, Boyra , KUET University Main Gate, Fulbari Gate, Govt. B.L College, Daulatpur, Govt. Mohasin College, Khalishpur, Govt. Girls College, Boyra, Khulna Public College, Boyra, Boyra Bazar More, Boyra, Aizer More, Boyra, Govt. Comercial College, Sonadanga, Sonadanga Bus Stand, Sonadanga, Hazi Mohasin College, Khulna Medical College, Ad-din Medical College and Hospital, Khulna, Natun Bazar, Rupsha, Sarkit House, Govt. Khulna Gila School, D.C Office, Dak Banglo More, Govt.Azom Khan Commerce College, Govt. Majid Memorial City CollegSarjical Clinic, Sonadanga, Jia Hall, Sib Bary, Islami Bank Hospital, Santidham Mor, Moylapota More, Seba Clinic, Sher-E-Bangal Road, Nirala More, Gollamari Bus Stand, Gollamari, Khulna University, Vaskarja Chattar, Rupsha Bus Stand, Rupsha, Sundarban Adorso College, Khulna, e. Data was not available in the months of January to September & November. Details data is attached annexure -3 (Table: 235-240).

In 2020, pH of Khulna district ground water was within the EQS (6.5-8.5). It varied from 7.04 to 7.53 (Fig. 33a). In 2019, pH varied from 7.28 to 7.39. In 2020, EC of Khulna district ground water mostly was above the EQS (1200 $\mu\text{mohos/cm}$). It varied from 1702 to 2240 $\mu\text{mohos/cm}$ (Fig. 33b). In 2019, EC level varied from 2086.93 to 2132.76 $\mu\text{mohos/cm}$. In 2020, the maximum Chloride was 212 mg/l and the minimum Chloride concentration was 540 mg/l (Fig. 33c) where the EQS is (150-600 mg/l). In 2019, Chloride level varied from 248.5 to 270.56 mg/l. In 2020, Total Hardness of Khulna district ground water within the EQS (200-500 mg/l). It varied from 204 to 272 mg/l (Fig. 33d). In 2019, Total Hardness varied from 256.2 to 278.2. In 2020, Iron of Khulna district ground water was within EQS (0.3-1.0 mg/l). It varied from 0.3 to 0.44 mg/l (Fig. 33e). In 2019, Iron level varied from 0.1 to 0.5 mg/l. In 2020, Salinity of Khulna district ground water was within EQS (400 ppt). It varied from 0.13 to 0.21 ppt (Fig. 33f). In 2019, Salinity varied from 0.13 to 0.21 ppt.

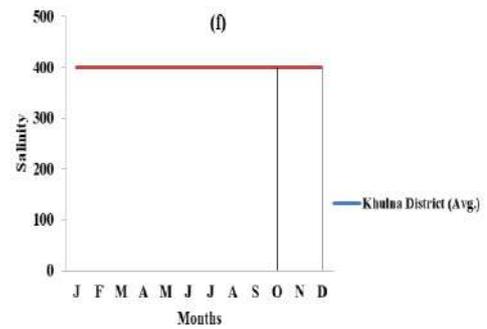
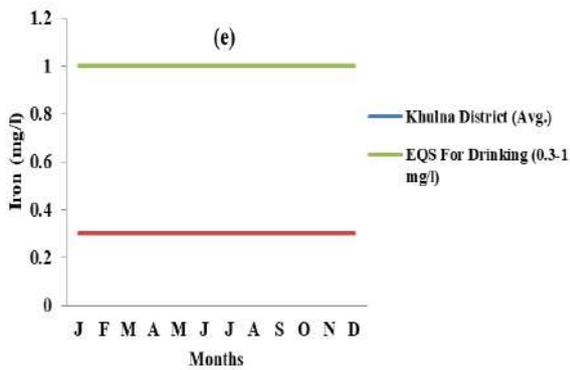
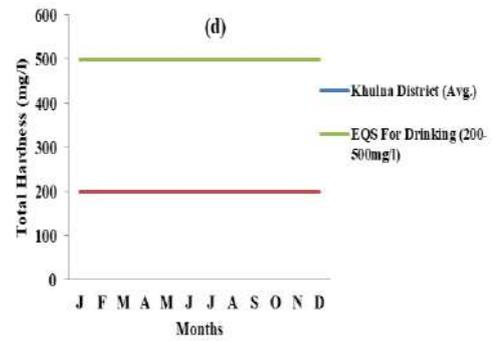
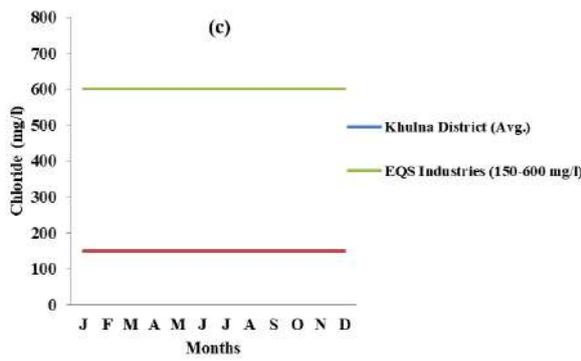
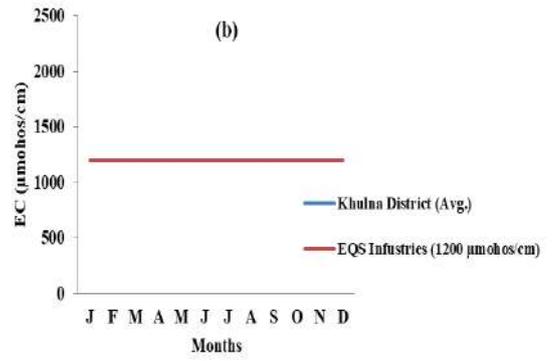
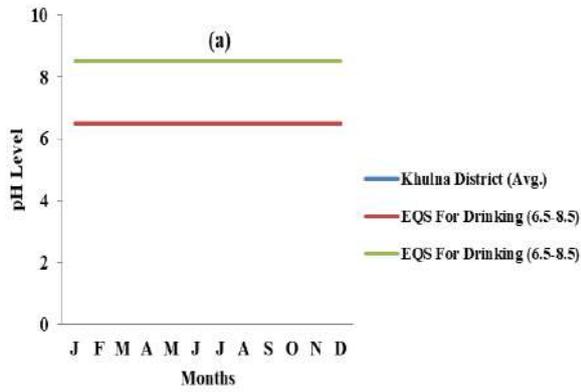


Fig 33. Status of pH, EC, Chloride, Total Hardness, Iron and Salinity of Khulna District area ground water in 2020

5.5 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 Thirty Eight different locations viz. Dopdopia kheyaghat Gasterbsine chowmatha, Kalizira bazar, Notun hat ali madrasha, Govt board primary school, Ruptoly Bus stand, Ruptoly Alia madrasha, Ruptoly jagua secondary school, Karitas office, Sadar upzila poishad, Amtolar mour, Khan bari mosque, Sher-E-Bangla medical college, Water development board, Barisal mission boyes school, Chowmatha bazar, Police hospital police line, Terminal, launch ghat, Police outpost, Head post office, City Market, Vatar khal, Office of the civil surgeon, Govt. Barisal college, Govt. B M college, Govt Halima Khatun Secondary school, Jamea madania madrasha, Markas Mosque, Municipal Super Market, under the bridge, sadar, Muladi, East Market, sadar, Muladi, Middle Market, sadar, Muladi, Public health office, sadar, Muladi, Dam Road, sadar, Muladi, Old Bus-stand, sadar, Muladi, Baily bridge, sadar, Muladi, Nawaber hat, sadar, Muladi, Paddar hat, sadar, Muladi, Kadam talar mosque, sadar, Muladi, Mirgonj ferry ghat, sadar, Muladi. Detail data is attached Annex-3 (Table: 241-246). Data was not available the month of January, March to September.

In 2020, pH level of Barisal district ground water was within EQS (6.5-8.5). It varied from 7.0 to 7.6 (Fig.34a). In 2019, pH was varied from 7.12 to 7.51. In 2020, EC was within the EQS (1200 $\mu\text{mhos/cm}$) limit and it varied from 326 to 630 $\mu\text{mhos/cm}$ (Fig.34b). In 2019, EC was varied from 325 to 416 $\mu\text{mhos/cm}$. In 2020, TDS level of Barisal district ground water was within EQS (1000 mg/l). It varied from 197.7 mg/l to 314.13 mg/l (Fig.34c). In 2019, TDS was varied from 168 mg/l to 320 mg/l. In 2020, Iron level of Barisal district ground water was within EQS (0.3-1.0 mg/l). It varied from 0.16 mg/l to 0.5 mg/l (Fig.34d). In 2019, Iron was varied from 0.12 mg/l to 0.38 mg/l. In 2020, T.alkalinity was within the EQS (150 mg/l) limit and it varied from 20 to 32 mg/l ((Fig.34e). In 2019, T.alkalinity varied from 20 to 35mg/l. In 2020, Hardness was within the EQS (200-500 mg/l) limit and it varied from 80 to 160mg/l (Fig.34f). In 2019, Hardness was varied from 100 to 250 mg/l.

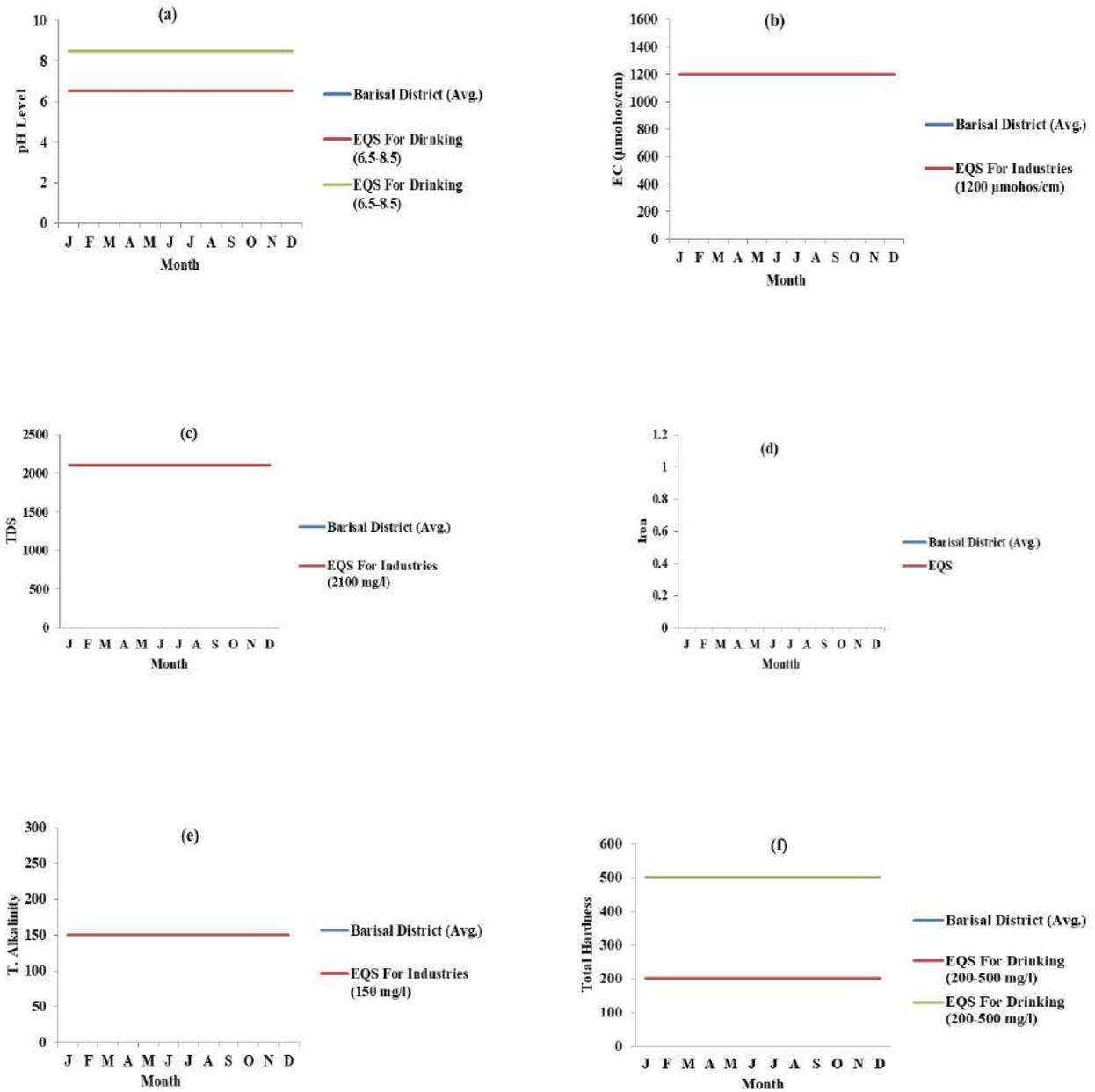


Fig 34. Status of pH, EC, TDS, Iron, T. alkalinity and Total Hardness of Barisal District area ground water in 2020

5.6 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 ten different locations viz. Bogra Zilla School ,VM School, Sadar, Zilla Parishad, Office of the Duputy Commissioner, Office of the Bogra Municipality, Head Post Office, Biddut Office, T & T Office, Commercial College, Bogra sadar thana. Data was not available in the months of March to December. Detail data is attached Annex-3 (Table: 247-251).

In 2020, pH level of Bogura district ground water is within EQS (6.5-8.5) for drinking water. In 2020, It varied from 7.21 to 7.78 (Fig. 35a). In 2019, pH was varied from 7.21 to 7.78. In 2020, EC was within the EQS (1200 μ mohos/cm) limit and it varied from 320 to 422 μ mohos/cm (Fig. 35b). In 2019, EC was varied from 320 μ mohos/cm to 422 μ mohos/cm. In 2020, Iron was within the EQS (0.3-1.0 mg/l) and it varied from 0.26 to 0.42 mg/l (Fig. 35c). In 2019, Iron was varied from 0.26 to 0.42 mg/l. In 2020, Total Alkalinity was also within the EQS (150 mg/l) and varied from 26 to 34 mg/l (Fig. 35d). In 2019, Total Alkalinity was varied from 26 mg/l to 34 mg/l. In 2020, Total Hardness varied from 200 to 240 mg/l while EQS for Total Hardness (200-500 mg/l) (Fig. 35e). In 2019, Total Hardness was varied from 200 mg/l to 240 mg/l.

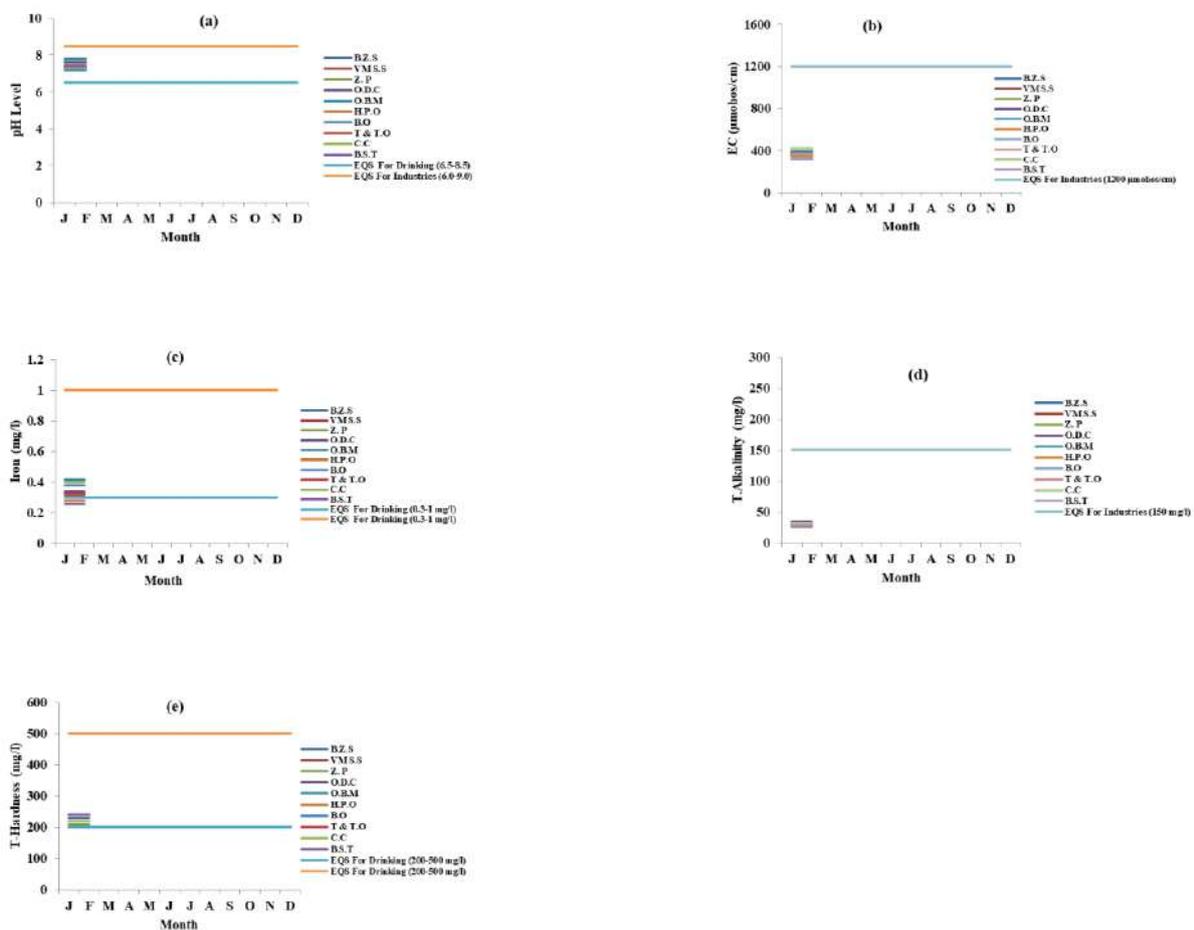


Fig 35. Status of pH, EC, Chloride, Iron, T. alkalinity and T.Hardness of Bogura District area ground water in 2020

5.7 Different Water Quality Parameters of Ground Water in Sylhet District

Sylhet is the northeastern division of Bangladesh. For monitoring ground water quality, samples were collected from Five different locations viz. MC College, Tilagor (MC. C.T), Kadamtoli Bus Terminal (K.B.T), Durgakumar Govt. Primary School (D.G.P.S), Agrogami Girls High School (A.G.H.S), Lal Bazar. Data was not available in the months of January to July, September to December. Detail data is attached Annex-3 (Table: 252-256).

In 2020, pH level of Sylhet district ground water is within EQS (6.5-8.5). In 2020, Maximum pH is 7.2 and Minimum 7.05 (Fig.36a). In 2019, pH was varied from 6.9 to 7.8. In 2020, EC is within the EQS (1200 μ mohos/cm) limit and it varied from 281 to 312 μ mohos/cm (Fig.36b). In 2019, EC was varied from 72 μ mohos/cm to 200 μ mohos/cm. In 2020, Chloride is within the EQS (150-600 mg/l) and it varied from 9 to 14 mg/l (Fig.36c). In 2019, Chloride was varied from 12 to 25 mg/l. In 2020, T.Alkalinity varied from 11 to 14 mg/l (Fig.36d). In 2019, T.Alkalinity was varied from 25 to 98 mg/l. In 2019, Iron is within the EQS (150 mg/l) and it varied from 0.29 to 0.56 mg/l (Fig.36e). In 2019, Iron was varied from 0.1 mg/l to 1.07 mg/l.

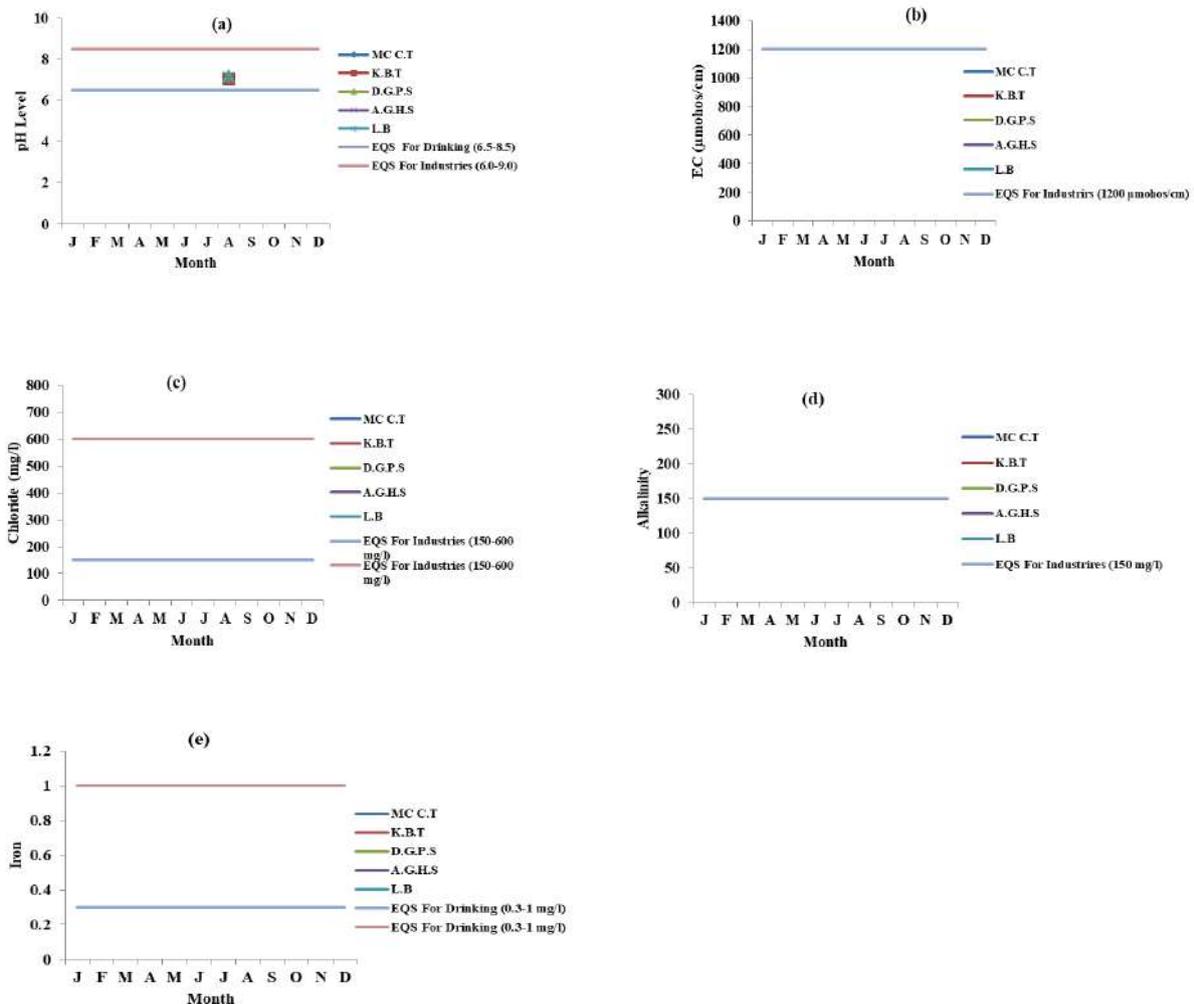


Fig 36. Status of pH, EC, Chloride, T. alkalinity and Iron of Sylhet District area ground water in 2020

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: 257).

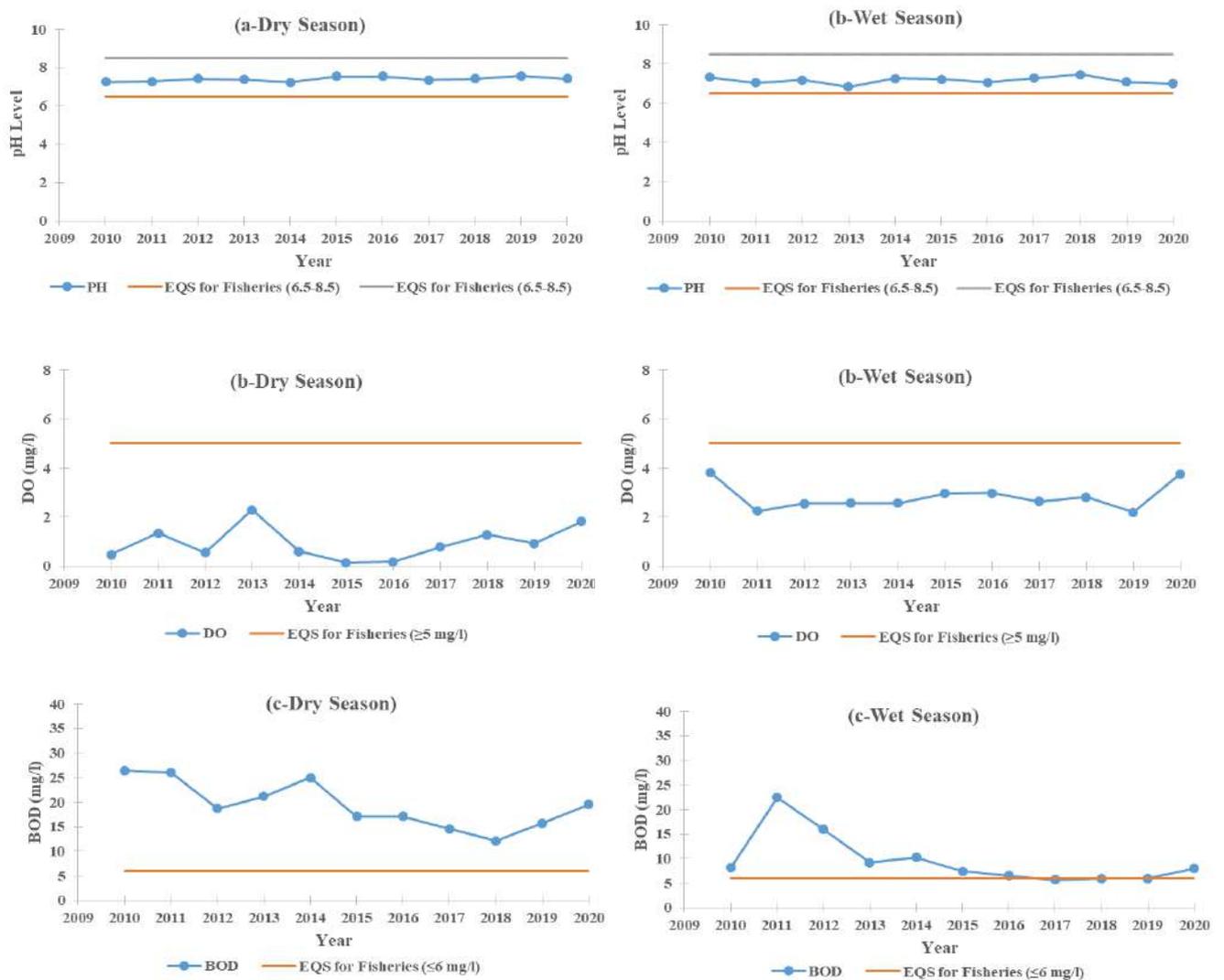


Fig 37. Trend of pH, DO and BOD of Buriganga river water from 2010 to 2020

During 2010-2020, 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. But in 2020, DO level was slightly higher in dry and wet season. BOD content was higher than EQS (≤ 6 mg/l) irrespective of dry season (Fig.37).

With the passage of time tremendous human pressure on Buriganga river (interms 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. The river is about 110 kilometres long and at its 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). 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: 258).

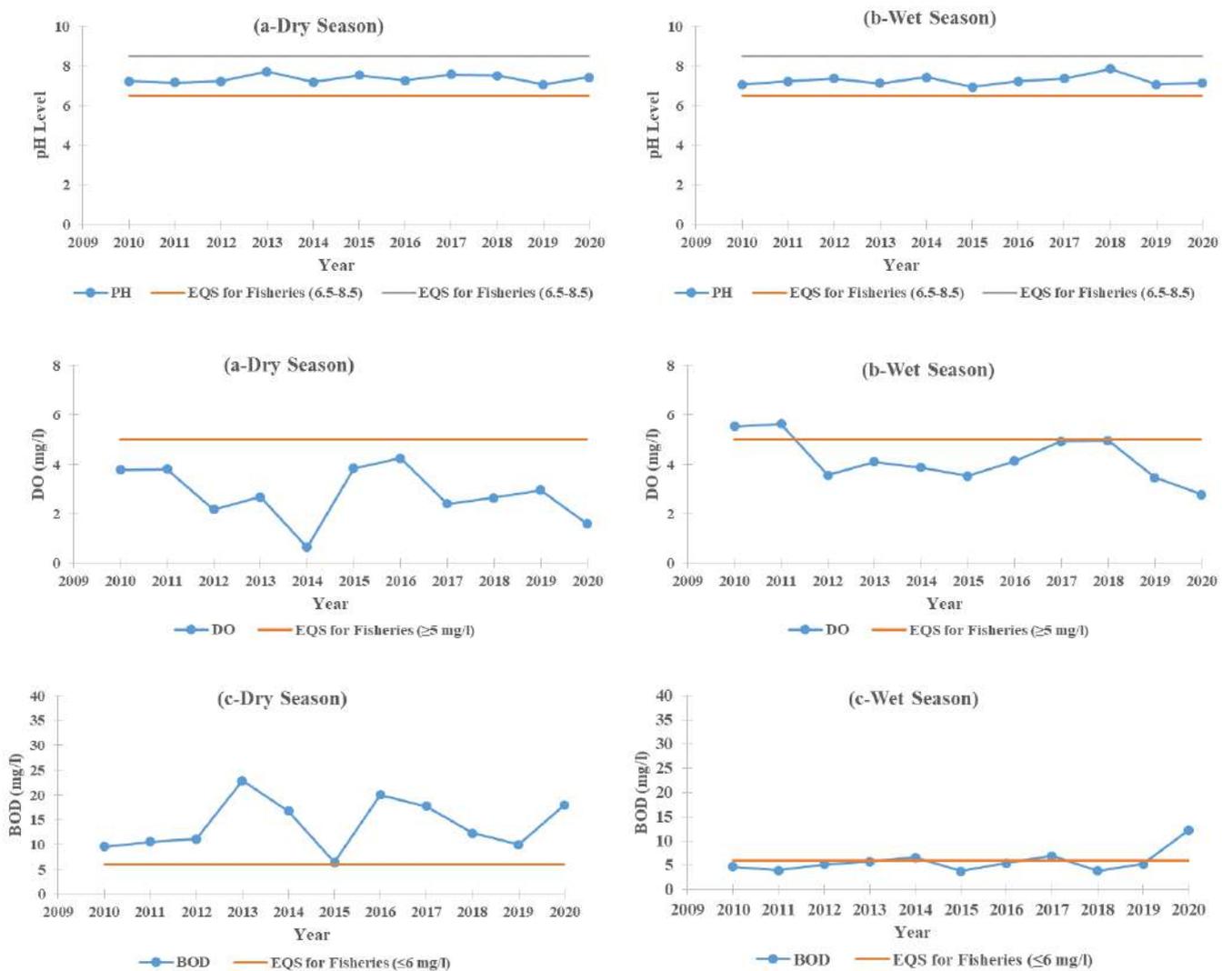


Fig 38. Trend of pH, DO and BOD of Sitalakhya river water from 2010 to 2020

During 2010-2020, 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 (≤ 5 mg/l). In 2020, DO content has decrease at dry and wet season. 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. In 2020, BOD content heigherwas than EQS (≤ 6 mg/l) irrespective in 2019 (Fig.38).

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: 259).

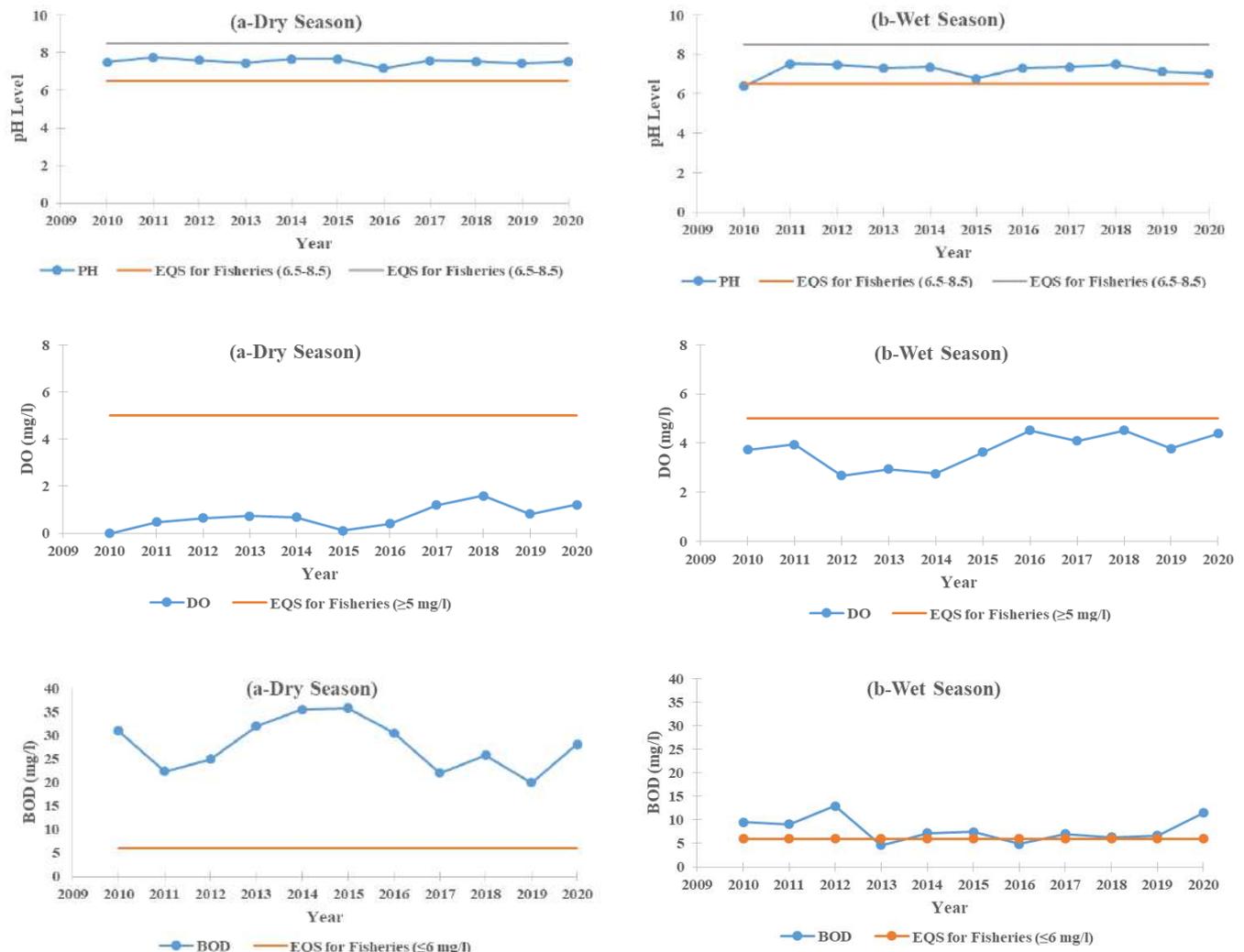


Fig 39. Trend of pH, DO and BOD of Turag river water from 2010 to 2020

During 2010-2020, 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. In 2020, BOD content 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.39).

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: 260).

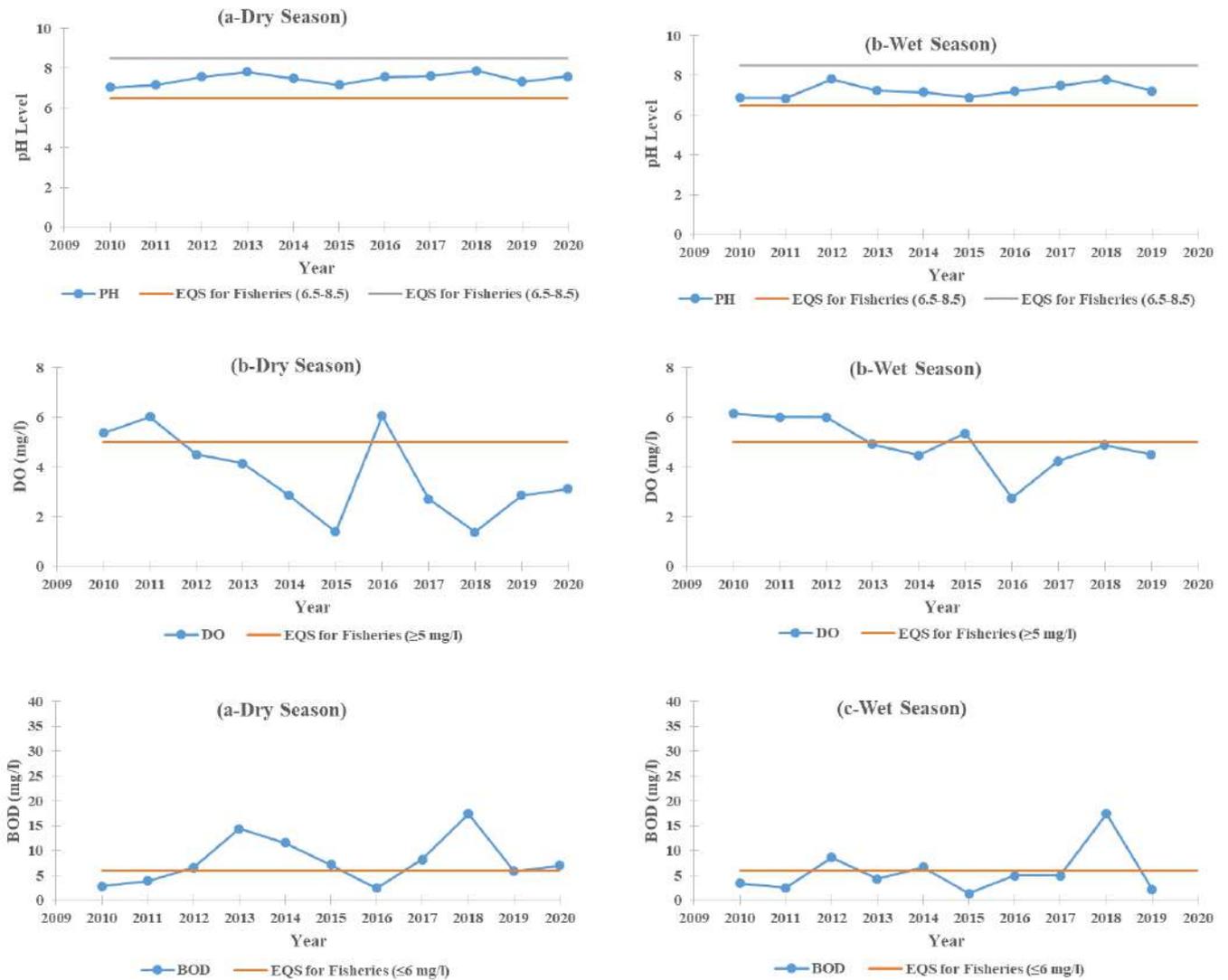


Fig 40. Trend of pH, DO and BOD of Dhaleshwari river water from 2010 to 2020

During 2010-2020, pH of Padma river water was within the EQS for inland surface water for fisheries. In 2020, DO content was below the EQS (≤ 5 mg/l). And BOD content of Dhaleshwari river water was within the EQS in wet season. (Fig.40).

6.5 Brahmaputra River

The Brahmaputra, a trans-boundary river that originates from Manossarobar near Mount Kailash in the Himalayas and flows via Tibbet, 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: 261).

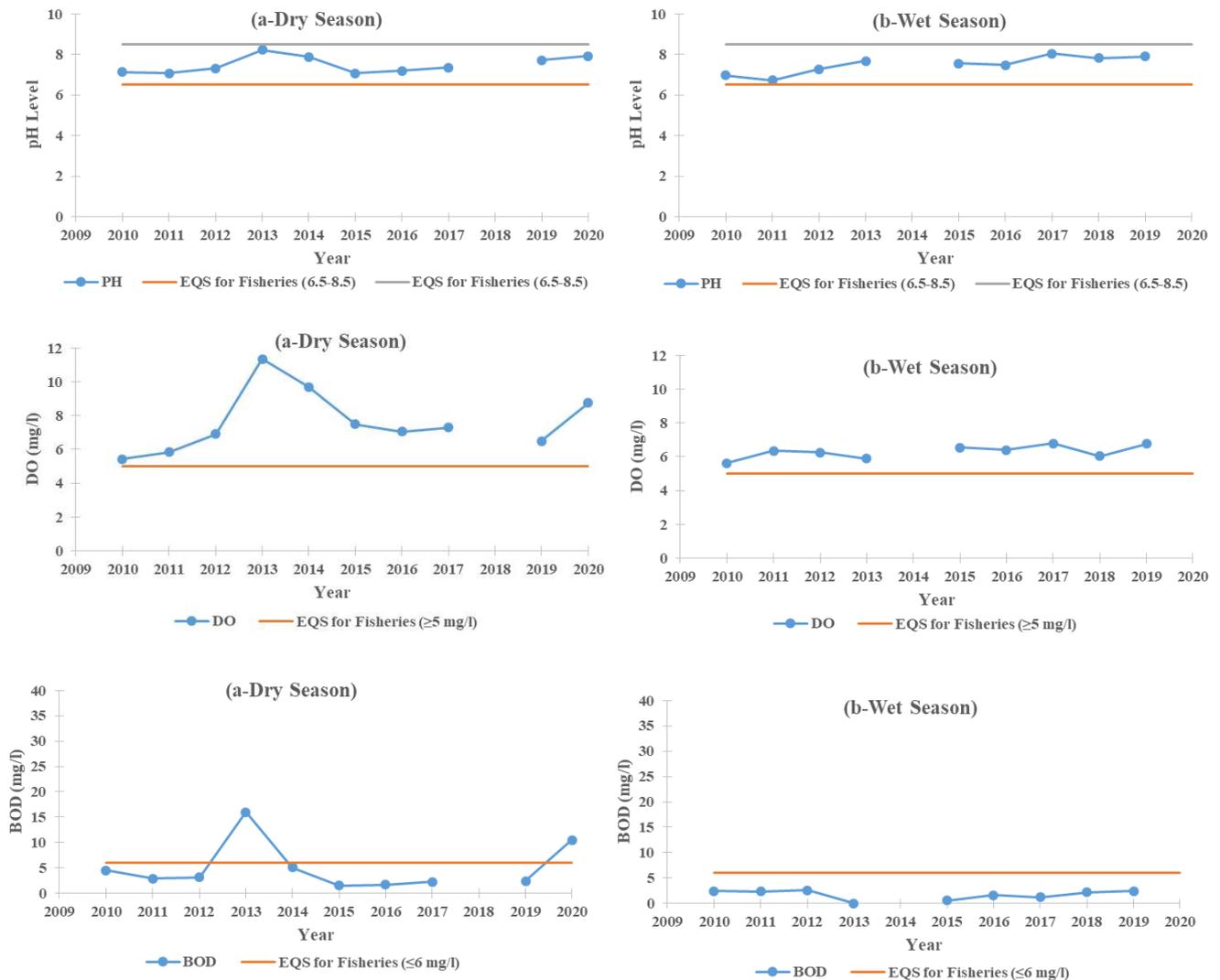


Fig 41. Trend of pH, DO and BOD of Brahmaputra river water from 2010 to 2020

During 2010-2020, pH of Brahmaputra river water was within the EQS for inland surface water for fisheries. DO content was within the EQS in the wet and dry season. BOD content of Brahmaputra river water was higher than the EQS in the year 2013 in Dry Season. In 2020, BOD content of Brahmaputra river water was slightly heigher in dry season (Fig.41).

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 81.00 kilometre long river has a very turbulent tributary, the Dhurung River, which joins Purba Dhalai about 48 kilometres 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: 262).

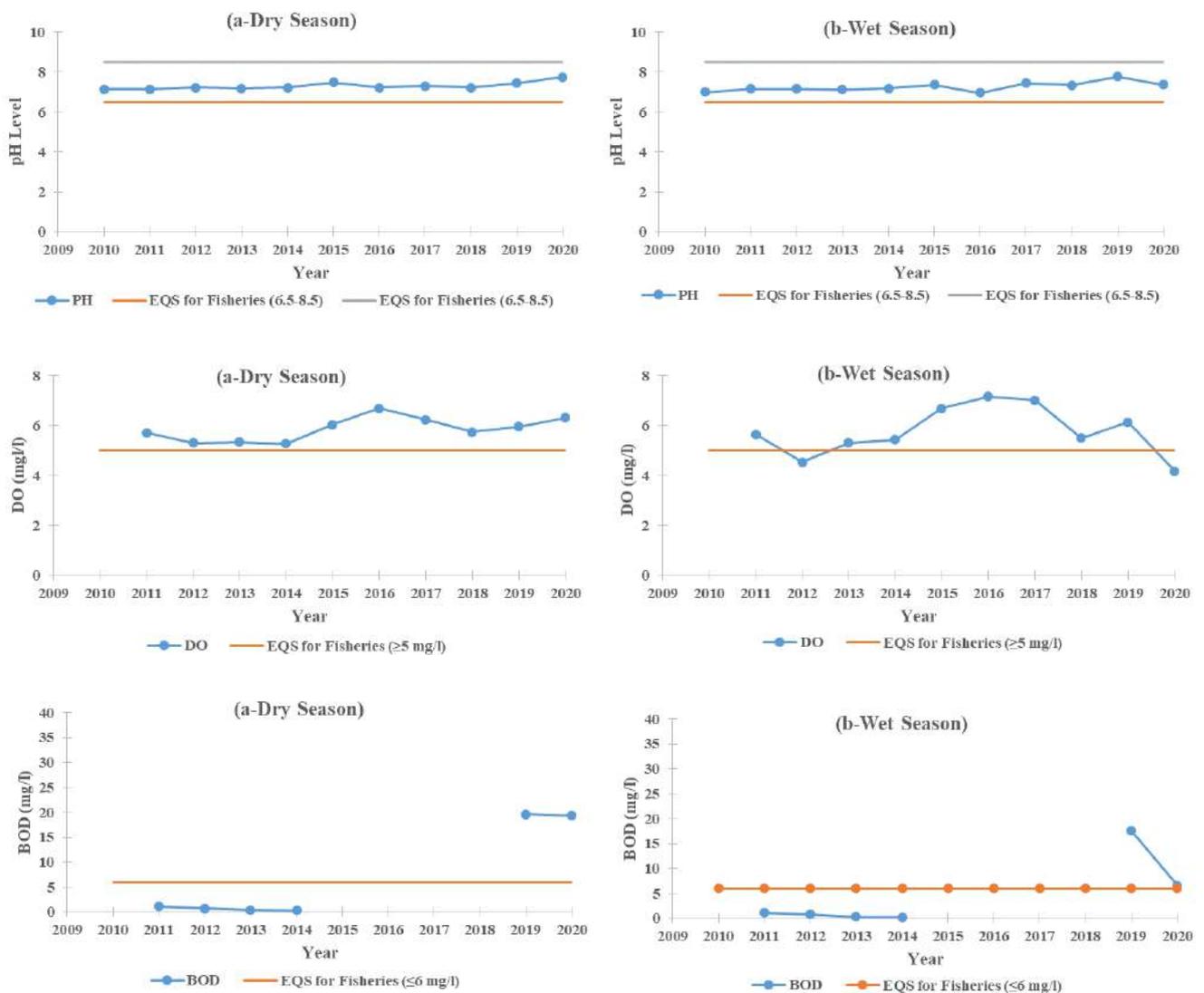


Fig 42. Trend of pH, DO and BOD of Halda river water from 2010 to 2020

During 2010-2020, pH of Halda river water was within the EQS for inland surface water for fisheries. DO content was within the the EQS(≤ 5 mg/l) for inland surface water for fisheries, but in 2020 DO content was below the EQS in wet season. In 2015-2018, BOD data was not available. Considering pH, DO and BOD, water quality of Halda is good. But BOD content of Halda river water was above the EQS (Fig.42).

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: 263).

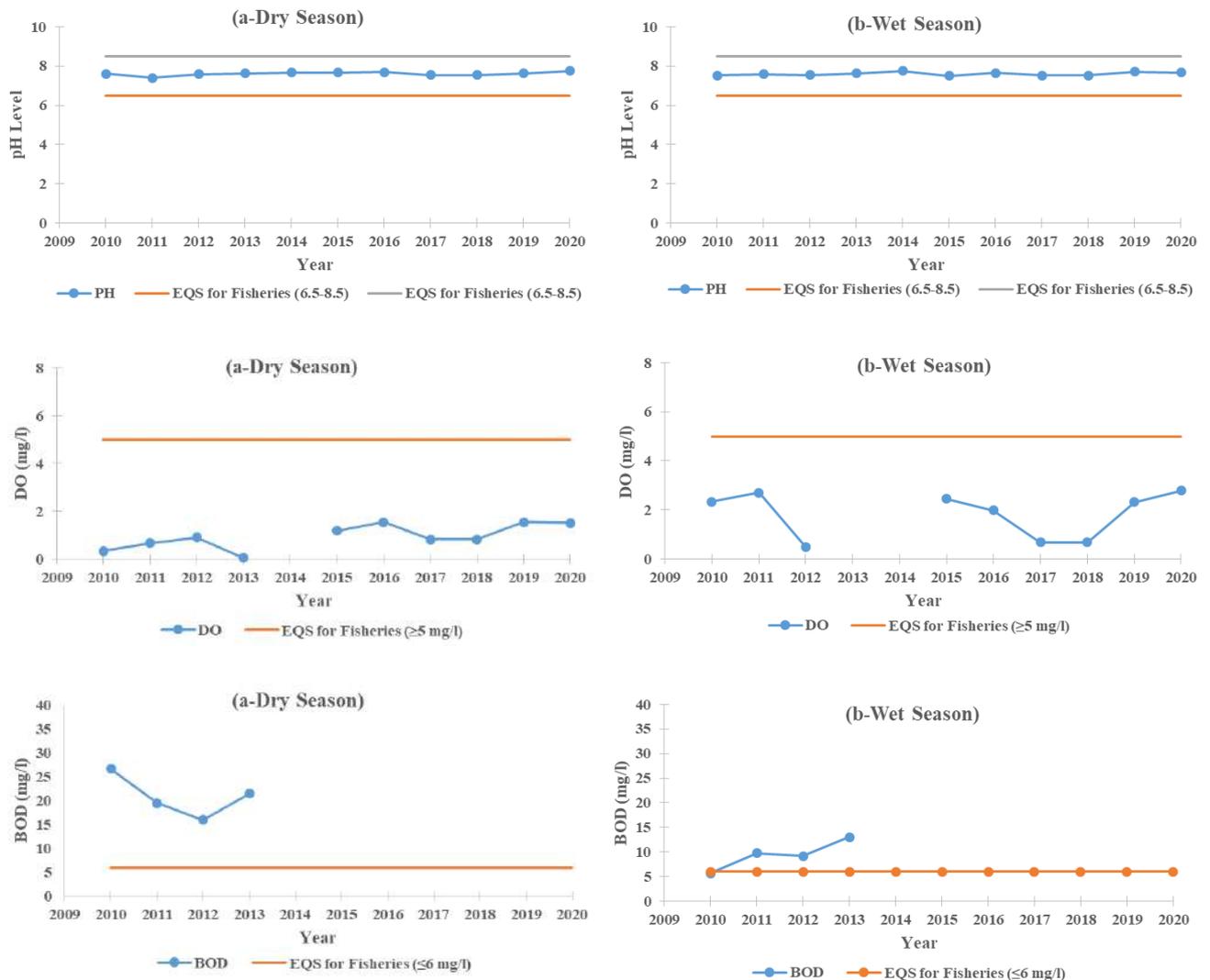


Fig 43. Trend of pH, DO and BOD of Moyuri river water from 2010 to 2020

During 2010-2020, 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.43).

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 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. 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: 264).

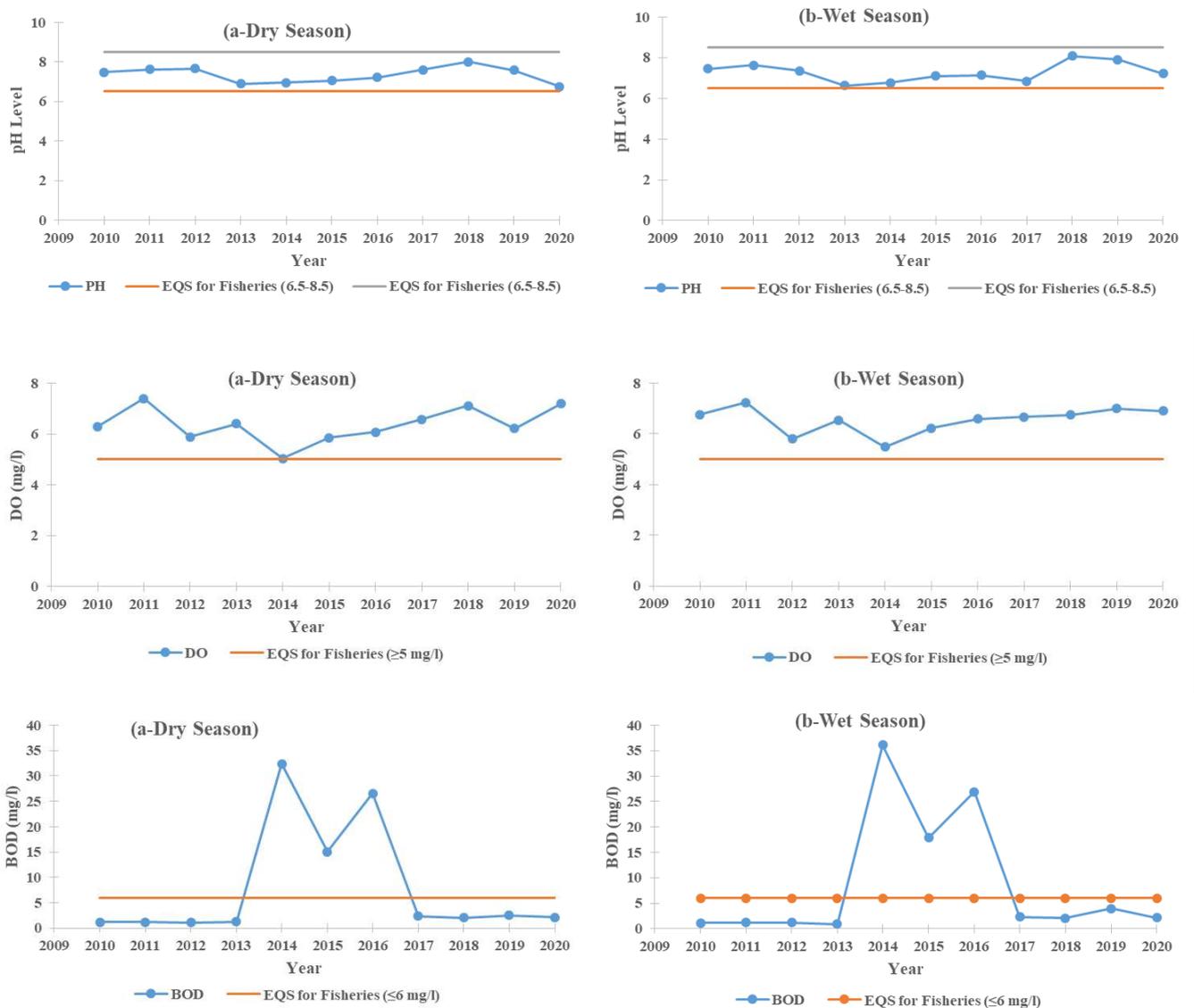


Fig 44. Trend of pH, DO and BOD of Surma river water from 2010 to 2020

During 2010-2020, 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 2017 to 2020 (Fig.44).

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: 265).

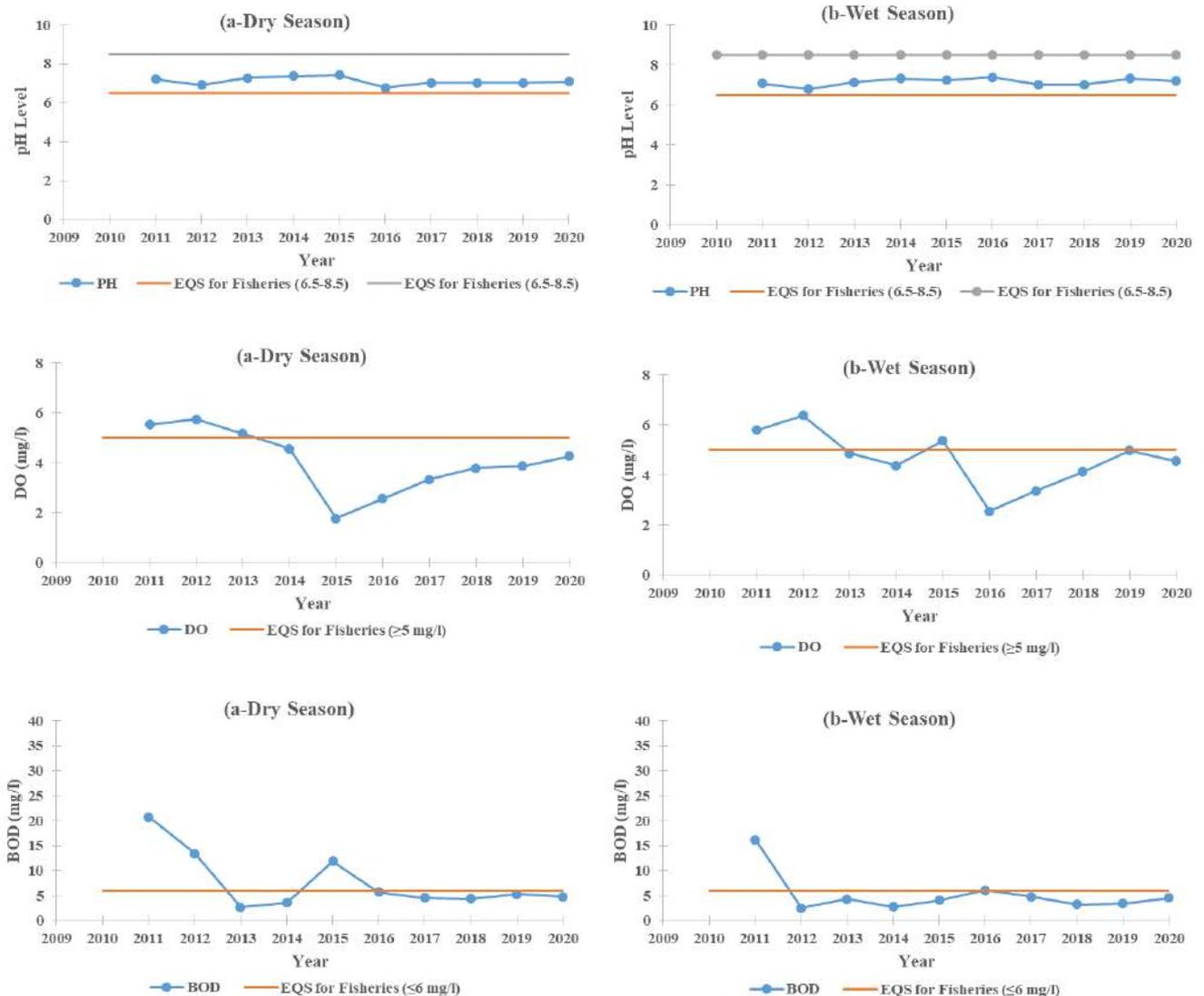


Fig 45. Trend of pH, DO and BOD of Korotoa river water from 2010 to 2020

During 2011-2020, 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 2020. 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 2020. It is assumed that the high level of BOD at certain points influenced the average results (Fig.45).

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 Churni 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: 266).

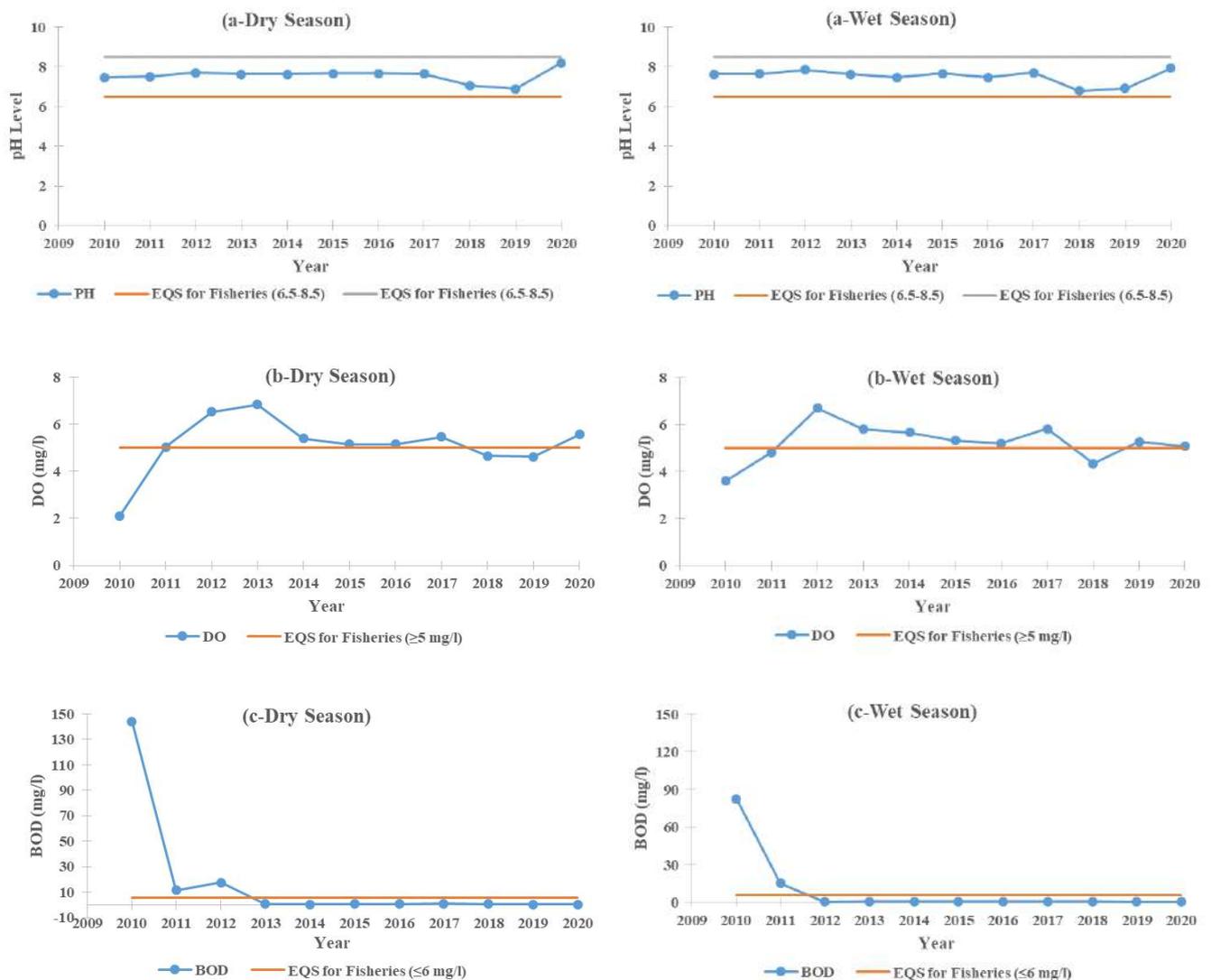


Fig 46. Trend of pH, DO and BOD of Mathavanga river water from 2010 to 2020

During 2010-2020, 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 2020 (Fig.46).

6.11 Pashur River

The Pashur River is a river in southwestern Bangladesh and a distributary of the Ganges. It continues the Rupsa River. All its distributaries are tidal. The Pashur River meets the Shibsa River within the Sundarbans, and near to the sea the river becomes the Kunga River. The Pashur River is the deepest river in Bangladesh [Masud Hasan Chowdhury (2012)] and 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: 267).

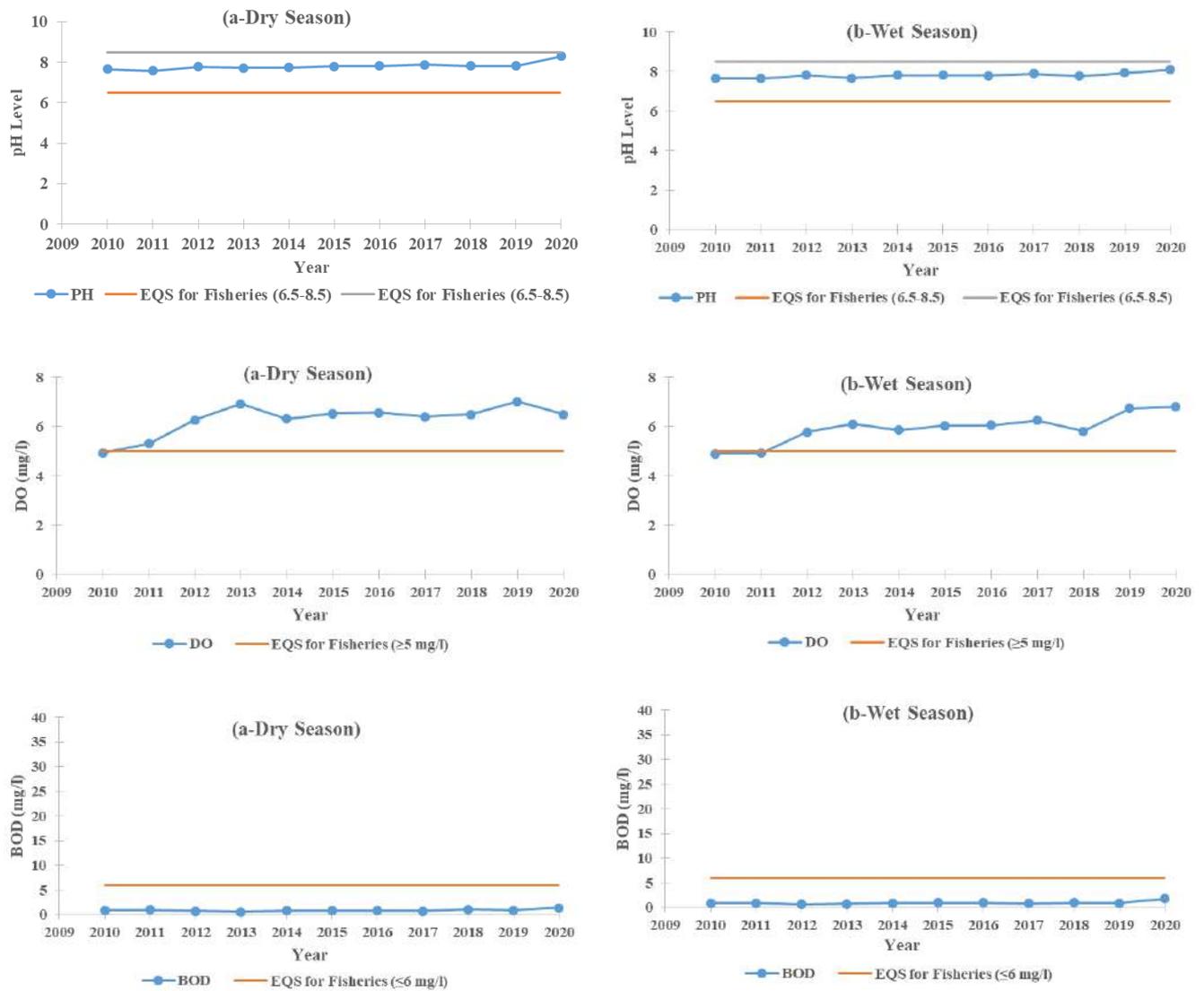


Fig 47. Trend of pH, DO and BOD of Pashur river water from 2010 to 2020

During 2010-2020, pH of Pashur 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 Pashur river water was within the EQS in the year of 2010, 2011 and 2012 (Dry Season). BOD content of Pashur river water was the EQS in the year of 2010-2020 (Fig.47).

CHAPTER 7: MARINE WATER QUALITY

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-

- Crude Petroleum- (PAHs)
- Antifouling Agents- (TBT)
- Volatile Organic Compound (VOC)- PCBs, DDTs, Dioxins, Furans
- Oil Spill, Bilge from Ship, Boats □ Dumping of Wastes
- 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:

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

- Nutrient Pollution
- Oil Pollution and Oil Spill, Refinery Waste Water and Offshore Operations
- Heavy Metals
- Persistent Organic pollutants (POPs)
- Municipal Waste
- Industrial Pollution
- Agriculture and Aquaculture Pollution
- Ship Breaking Activities
- 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 for the month of January to December in 2020. Water samples were collected from Five locations of the sea e.g. Karnaphuli Mohona, 1.0 km straight from Patenga Sea Beach, Charpara and 1.0 km straight from CEPZ, Vatiyari Shipyard Area. Detail data is attached Annex-5 (Table: 268-272).

In 2020, pH level of sea water was within EQS (6.5-8.5) for inland surface water. It varied from 6.54 to 8.12 (Fig. 48a). In 2019, pH varied from 7.06 to 8.6. In 2020, The maximum DO (8.7 mg/l) was found at 1.0 km straight from Patenga Sea Beach in April and the minimum DO (6.17 mg/l) was found in September at Vatiyari Shipyard Area (Fig. 48b). In 2019, DO varied from 6.3 mg/l to 8.74 mg/l. In 2020, The maximum TDS (20690 mg/l) was found at Karnaphuli Mohona in December and the minimum TDS (1049 mg/l) was found at Vatiyari Shipyard Area in September (Fig. 48c). In 2019, TDS varied from 1272 mg/l to 196200 mg/l. In 2020, The maximum SS (1652 mg/l) was found in September at Karnaphuli Mohona in the EQS (≤ 150 mg/l) and the minimum SS (64 mg/l) was found at Karnaphuli Mohona point in October (Fig. 48d). In 2019, SS varied from 90 mg/l to 835 mg/l. The

maximum EC (37560 $\mu\text{mhos/cm}$) was found in February at Karnafully Mohona and the minimum EC (2080 $\mu\text{mhos/cm}$) was found at Vatiyari Shipyard Area from Patenga Sea Beach in September (Fig. 48e). In 2018, EC varied from 2250 $\mu\text{mhos/cm}$ to 32380 $\mu\text{mhos/cm}$.

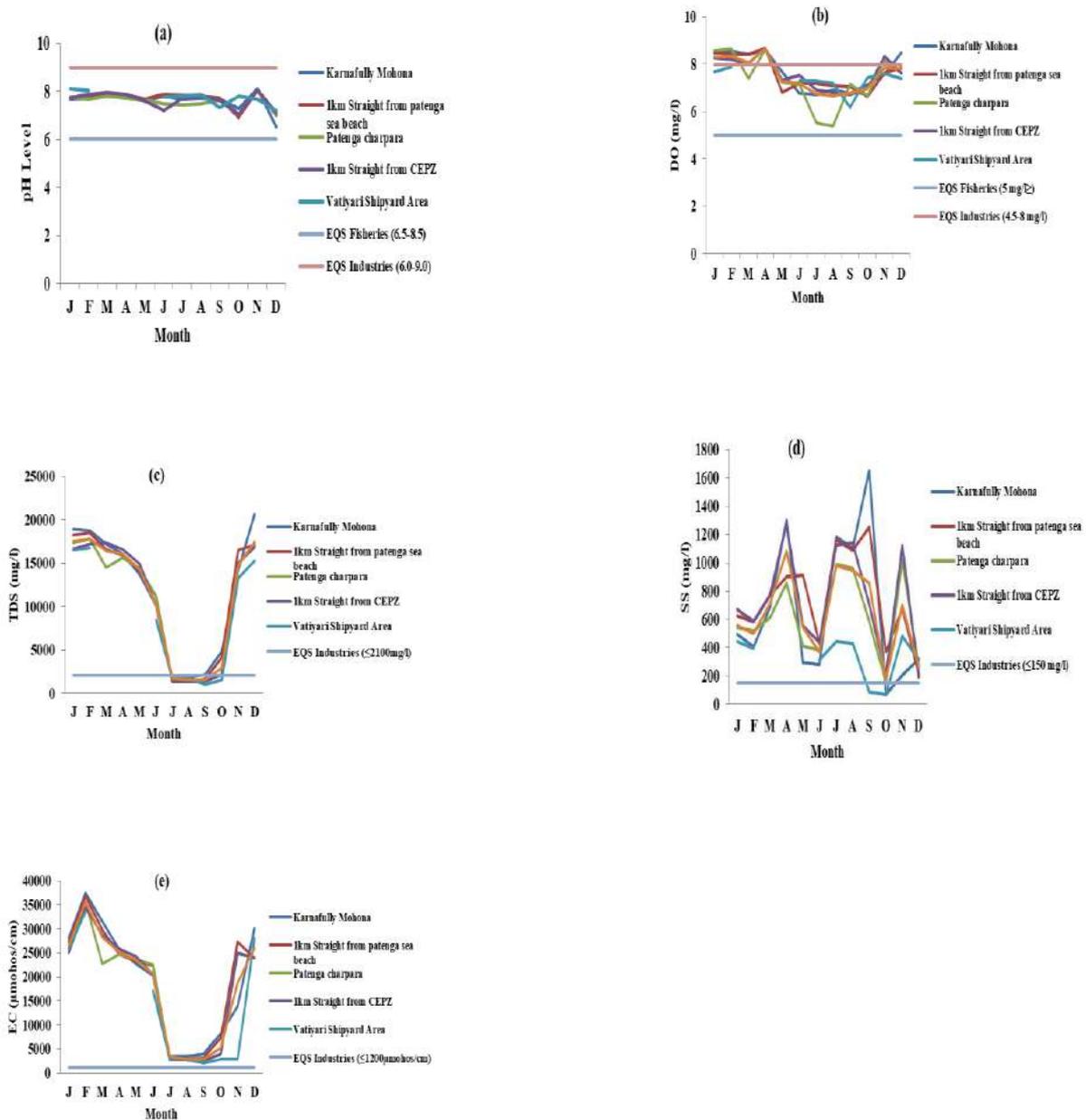


Fig 48. Status of pH, DO, TDS, SS, and EC of Sea Water .

CHAPTER 8: A COMPARATIVE ANALYSIS OF RIVER WATER QUALITY DATA FROM 2019-2020 DUE TO COVID 19 SITUATION

8.1 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 (April'19-May'19 and April'20-May'20) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Detail data is attached Annex-6 (Table 273-278).

In 2019, pH among different locations varied from 7.37 to 8.31 (Fig.49a) while standard pH range for inland surface water for fisheries is 6.5 to 8.5. In 2020, pH range varied from 6.81 to 7.49. In 2019, the maximum DO (0.89 mg/l) was found at Pagla in May and the minimum (0.2 mg/l) was at Hajaribag in April (Fig.49b). In 2020, DO level varied from 0.5 mg/l to 2.67 mg/l. In 2019, BOD of Buriganga river water was higher than EQS (≤ 6 mg/l). The maximum BOD (25 mg/l) was found at Dholaikhal Point in April and the minimum (8.0 mg/l) was in May (Fig.49c). In 2020, BOD range was 8.4 to 24 mg/l. In 2019, the maximum and the minimum COD concentration of Buriganga river was 160 mg/l and 58 mg/l in May (Fig.49d). In 2020, COD varied from 19 mg/l to 134 mg/l. In 2019, TDS of Buriganga river varied from 243 to 380 mg/l (Fig.49e) against the EQS of 2100 mg/l for industrial wastewater after treatment. In 2020, TDS concentration varied from 287 to 472 mg/l. In 2019, SS concentration of the Buriganga river was below the EQS for industrial wastewater after treatment. The maximum concentration was 78 mg/l at Dholaikhal point and the minimum 22 mg/l at Kamrangir Char in May (Fig.1f). In 2020, SS concentration varied from 26 mg/l to 52 mg/l.

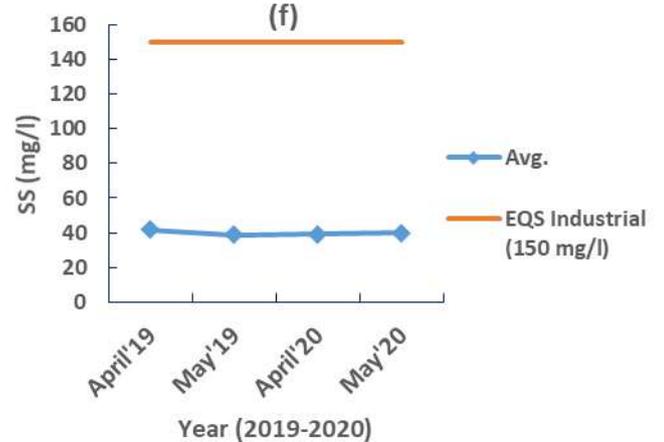
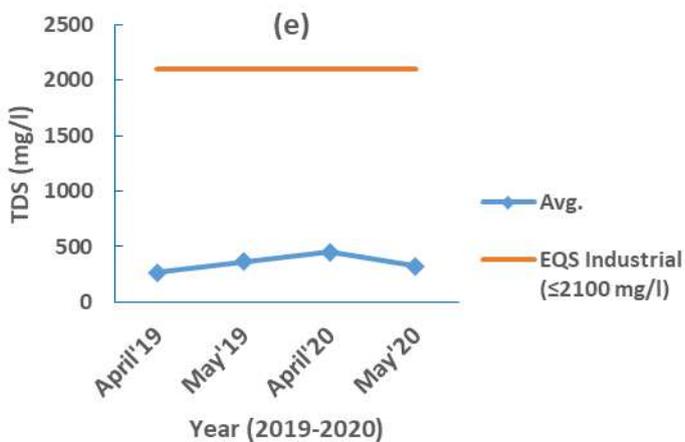
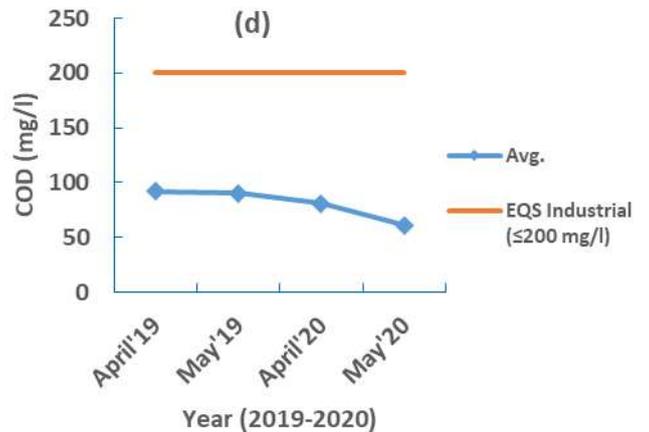
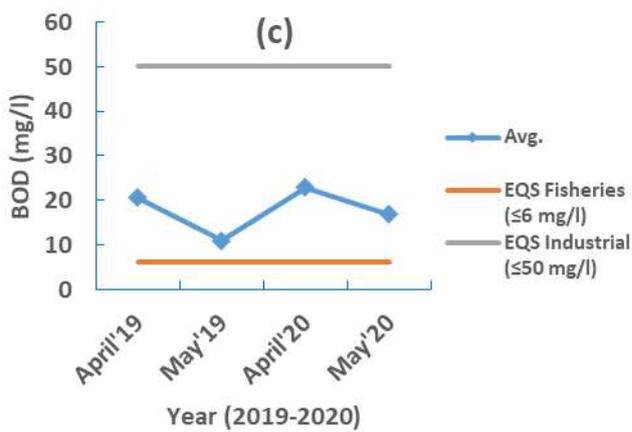
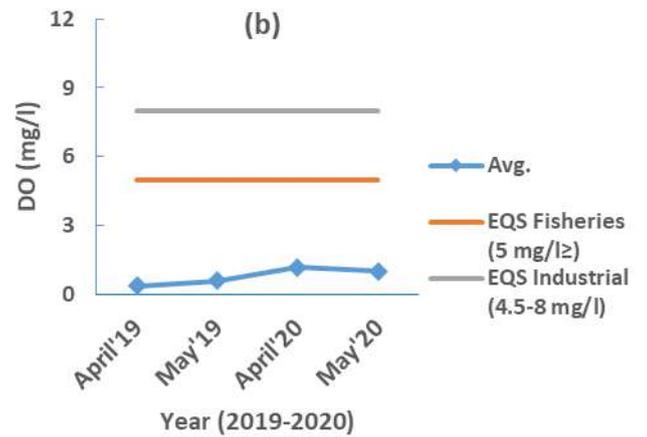
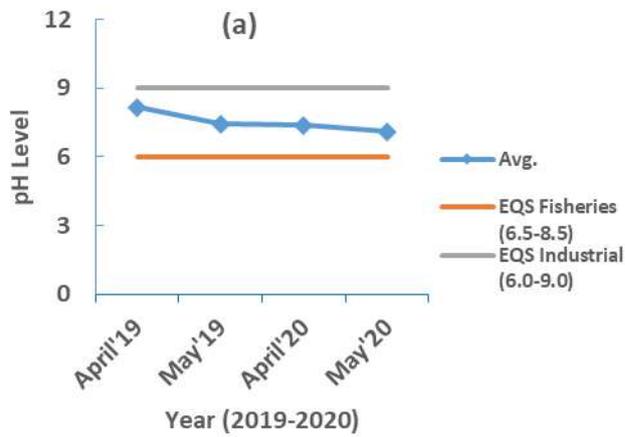


Fig.49: Status of pH, DO, BOD, COD, TDS and SS of Buriganga River water from 2019 to 2020

8.2 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. Value in each cell is seasonal (April'19-May'19 and April'20-May'20) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Detail data is attached Annex-6 (Table 279-283).

In 2019, pH among different locations varied from 6.3 to 7.8 (Fig.50a) while standard pH range for inland surface water for fisheries is 6.5 to 8.5. In 2020, pH range varied from 7.08 to 7.42. In 2019, the maximum DO (5.6 mg/l) was found at Ghorashal Fertilizer Factory in May and the minimum (1.0 mg/l) was at Demra Ghat in April (Fig.50b). In 2020, DO level varied from 0.84 mg/l to 1.92 mg/l. In 2019, BOD of Shitalakhya river water was almost higher than EQS (≤ 6 mg/l). The maximum BOD (12 mg/l) was found at Demra Ghat Point in April and the minimum (3.2 mg/l) at Ghorashal Fertilizer Factory in April (Fig.50c). In 2020, BOD range was 9.6 to 24 mg/l. In 2019, the maximum and the minimum COD concentration of Shitalakhya river was 40 mg/l and 8 mg/l in April (Fig.50d). In 2020, COD varied from 36 mg/l to 62 mg/l. In 2019, TDS of Shitalakhya river varied from 154 to 412 mg/l (Fig.50e) against the EQS of 2100 mg/l for industrial wastewater after treatment. In 2020, TDS concentration varied from 311 to 387 mg/l. In 2019, SS concentration of the Shitalakhya river was below the EQS for industrial wastewater after treatment. The maximum concentration was 18 mg/l at near ACI Factory in April and the minimum 5 mg/l at near ACI Factory in May (Fig.50f). In 2020, SS concentration varied from 26 mg/l to 52 mg/l.

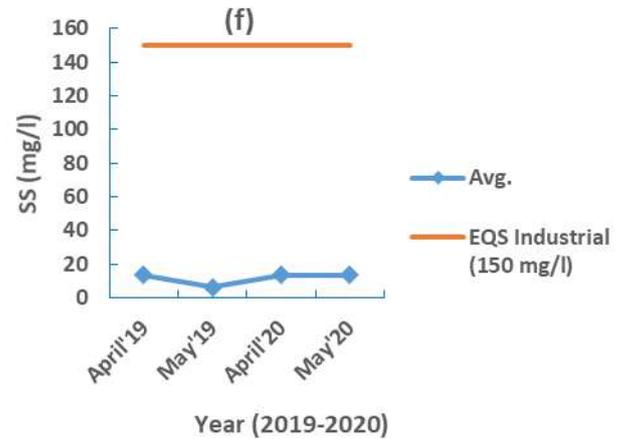
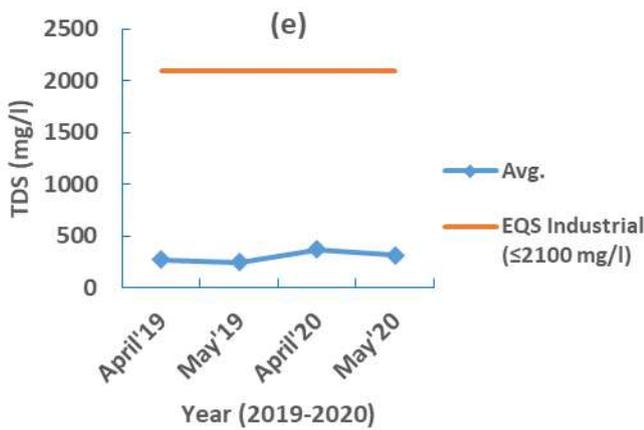
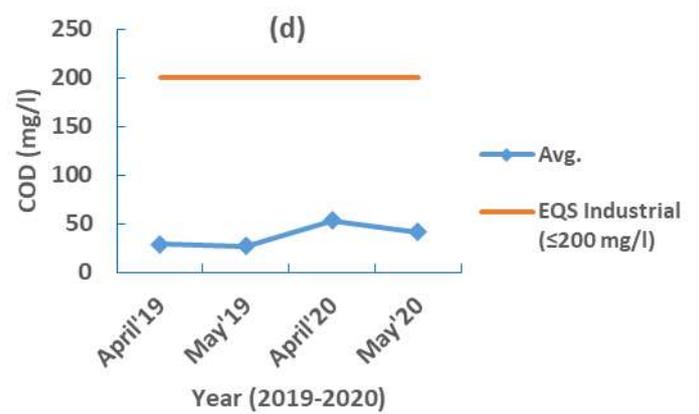
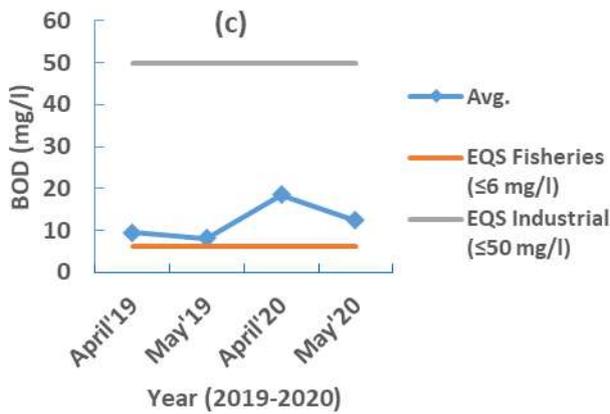
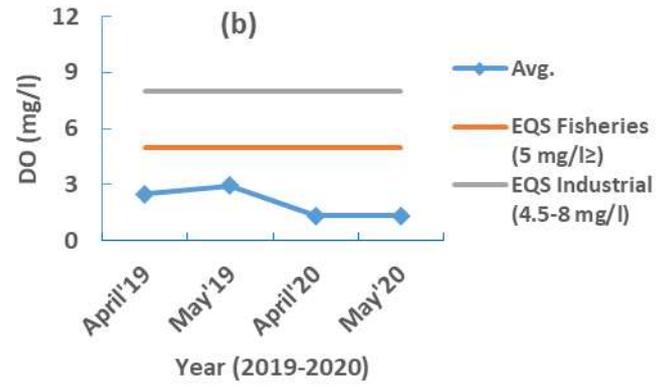
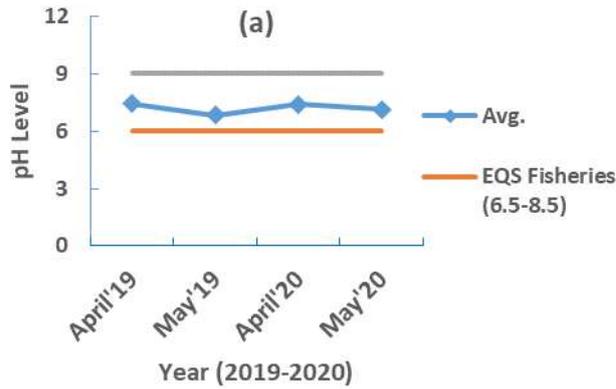


Fig.50: Status of pH, DO, BOD, COD, TDS and SS of Shitalakhya River water from 2019 to 2020

8.3 Turag River

The Turag river is the upper tributary of the Buriganga. To monitor water quality in 2019-2020, 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). Value in each cell is seasonal (April'19-May'19 and April'20-May'20) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Detail data is attached Annex-6 (Table 284-289).

In 2019, pH among different locations varied from 7.02 to 7.43 (Fig.51a) while standard pH range for inland surface water for fisheries is 6.5 to 8.5. In 2020, pH range varied from 6.94 to 7.69. In 2019, the maximum DO (3.0 mg/l) was found at Tongi Istima Mat in May and the minimum (0.0 mg/l) was almost all point in April (Fig.51b). In 2020, DO level varied from 0.39 mg/l to 2.24 mg/l. In 2019, BOD of Turag river water was almost higher than EQS (≤ 6 mg/l). The maximum BOD (62.4 mg/l) was found at Tongi Istima Mat Point in April and the minimum (11 mg/l) at Mirpur Diabary BIWTA Landing Station in April (Fig.51c). In 2020, BOD range was 6 to 62 mg/l. In 2019, the maximum and the minimum COD concentration of Turag river was 238 mg/l and 83 mg/l in May (Fig.51d). In 2020, COD varied from 19 mg/l to 263 mg/l. In 2019, TDS of Turag river varied from 282 to 457 mg/l (Fig.51e) against the EQS of 2100 mg/l for industrial wastewater after treatment. In 2020, TDS concentration varied from 244 to 448 mg/l. In 2019, the maximum SS concentration was 179 mg/l at Tongi Istima Mat in April and the minimum 5 mg/l at Mirpur Diabary BIWTA Landing Station in May (Fig.51f). In 2020, SS concentration varied from 45 mg/l to 65 mg/l.

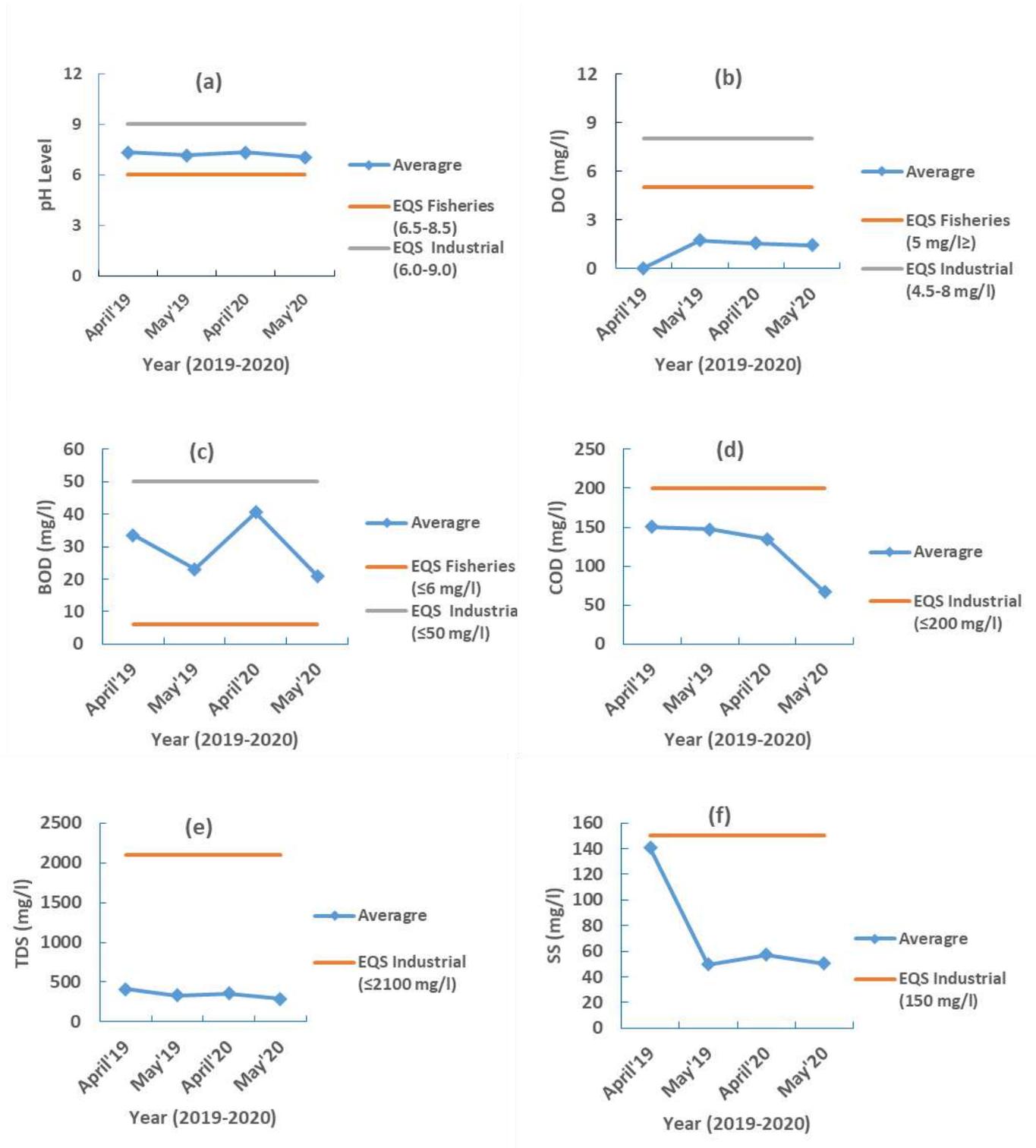


Fig.51: Status of pH, DO, BOD, COD, TDS and SS of Turag River water from 2019 to 2020

8.4 Dhaleshwari River

The Dhaleshwari river is a 160 km long distributary of the Jamuna river flowing through central part of Bangladesh. In 2019-2020, water samples were collected from five locations namely 200 m up of CETP, Dropping Point of CETP, 200 m Down of CETP, Muktarpur Bridge (M.B), Munshiganj and Harindhara, Hemayetpur, Savar, Dhaka for analyses. Value in each cell is seasonal (April'19-May'19 and April'20-May'20) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Data was not available in the month of May'19. Detail data is attached Annex-6 (Table 290-295).

In 2019, pH among different locations varied from 7.34 to 7.61 (Fig.52a) while standard pH range for inland surface water for fisheries is 6.5 to 8.5. In 2020, pH range varied from 7.53 to 8.1. In 2019, the maximum DO (2.4 mg/l) was found at 200m up of CETP in April and the minimum (2.0 mg/l) was at 200m Down of CETP in April (Fig.52b). In 2020, DO level varied from 4.78 mg/l to 7.2 mg/l. In 2019, BOD of Dhaleshwari river water was almost higher than EQS (≤ 6 mg/l). The maximum BOD (14 mg/l) was found at 200m Down of CETP Point in April and the minimum (10 mg/l) at 200m up of CETP in April (Fig.52c). In 2020, BOD range was 9.2 to 10.8 mg/l. In 2019, the maximum and the minimum COD concentration of Dhaleshwari river was 62 mg/l and 40 mg/l in April (Fig.52d). In 2020, COD varied from 32 mg/l to 46 mg/l. In 2019, TDS of Turag river varied from 504 to 714 mg/l (Fig.52e) against the EQS of 2100 mg/l for industrial wastewater after treatment. In 2020, TDS concentration varied from 586 to 677 mg/l. In 2019, the maximum SS concentration was 72 mg/l at 200m down of CETP in April and the minimum 70 mg/l at 200m up of CETP in April (Fig.52f). In 2020, SS concentration varied from 20 mg/l to 56 mg/l.

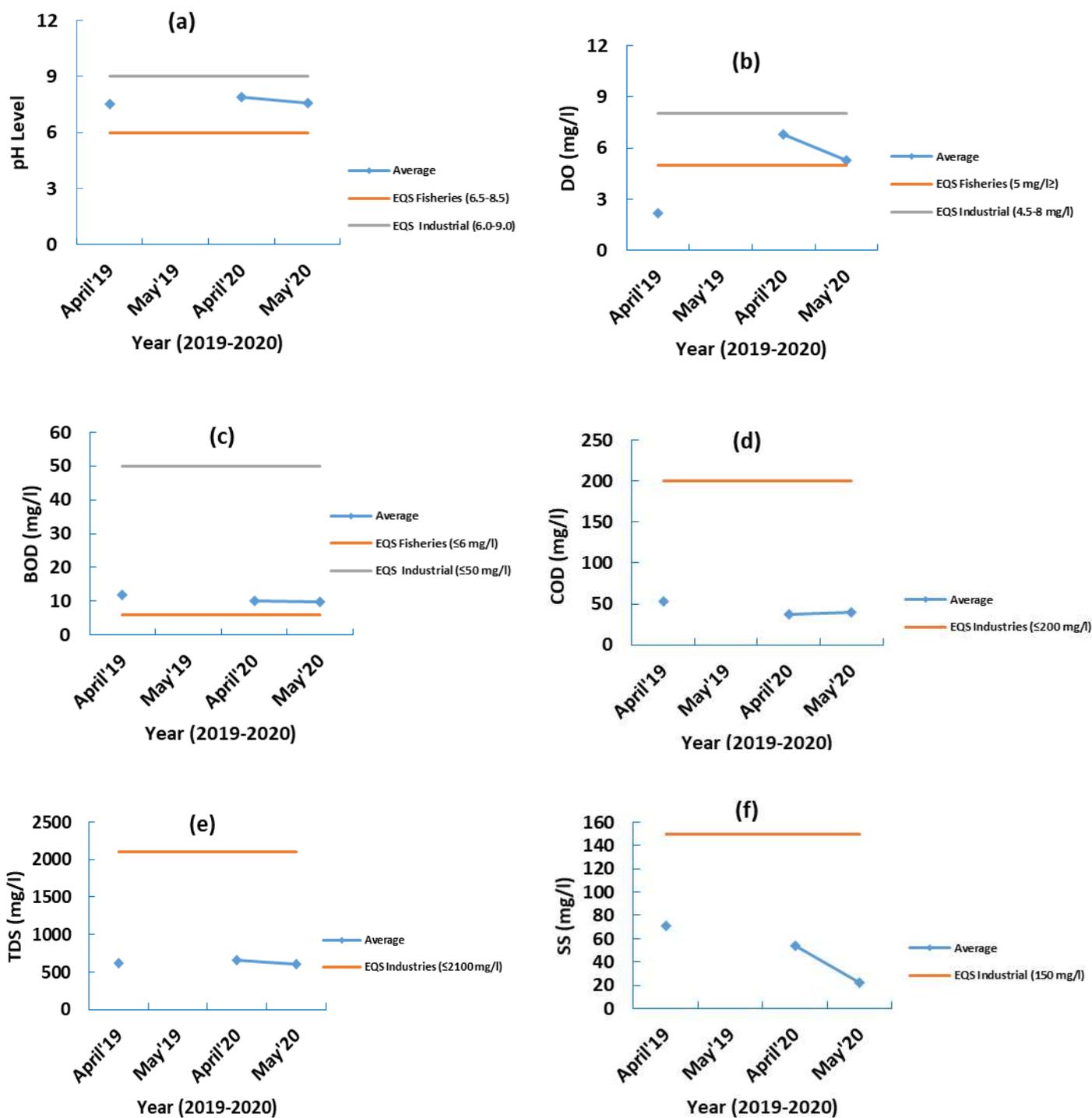


Fig.52: Status of pH, DO, BOD, COD, TDS and SS of Dhaleshwari river water from 2019 to 2020

8.5 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 2019-2020, water samples were collected from four 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). Value in each cell is seasonal (April'19-May'19 and April'20-May'20) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Detail data is attached Annex-6 (Table 296-301).

In 2019, pH among different locations varied from 6.94 to 8.40 (Fig.53a) while standard pH range for inland surface water for fisheries is 6.5 to 8.5. In 2020, pH range varied from 7.08 to 7.44. In 2019, the maximum DO (2.3 mg/l) was found at Near Hossain Dyeing Ltd. Pagar, Tongi in May and the minimum (0.0 mg/l) was at Near Jaber & Jubair Fabrics Ltd. Tongi in April (Fig.53b). In 2020, DO level varied from 0.28 mg/l to 1.22 mg/l. In 2019, BOD of Balu river water was almost higher than EQS (≤ 6 mg/l). The maximum BOD (60 mg/l) was found at Near Balu Bridge, 300 feet Road, Dhaka in April and the minimum (7.0 mg/l) at the same location in May (Fig.53c). In 2020, BOD range was 13.6 to 52 mg/l. In 2019, the maximum and the minimum COD concentration of Balu river was 224 mg/l at Near Damra University College in April and 53 mg/l at 300 feet Road, Dhaka in May (Fig.5 d). In 2020, COD varied from 36 mg/l to 136 mg/l. In 2019, TDS of Balu river varied from 178 to 1089 mg/l (Fig.53e) against the EQS of 2100 mg/l for industrial wastewater after treatment. In 2020, TDS concentration varied from 215 to 378 mg/l. In 2019, the maximum SS concentration was 390 mg/l at Near Balu Bridge, 300 feet Road in April and the minimum 11 mg/l at Near Damra University College in May (Fig.53f). In 2020, SS concentration varied from 42 mg/l to 96 mg/l.

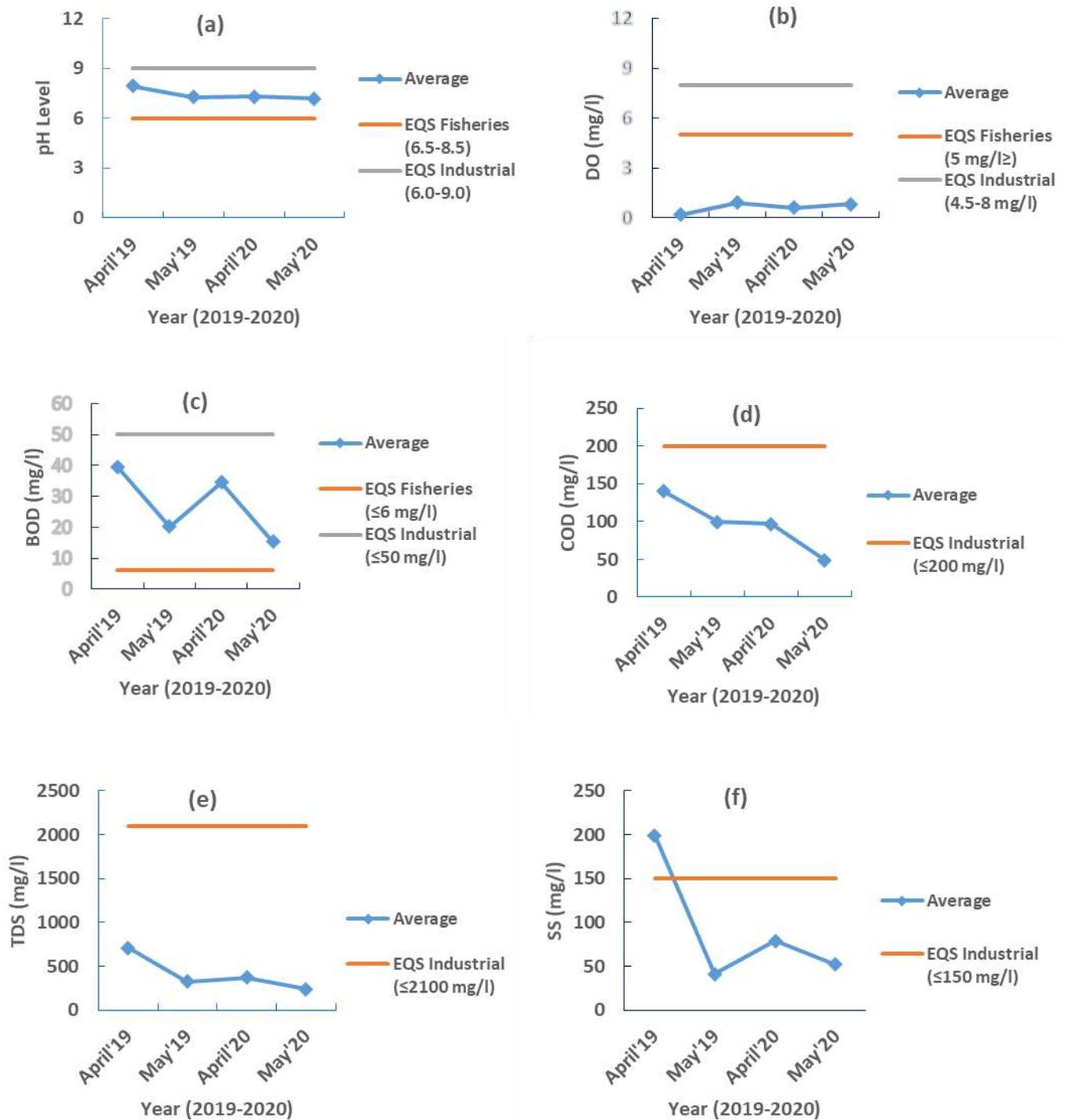


Fig.53: Status of pH, DO, BOD, COD, TDS and SS of Balu river water from 2019 to 2020

8.6 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 Four locations e.g. TSP Side, Patenga, Chaktai Khal, KAFCO Side and CUFL Side, Anowara of Karnaphuli river for monitoring of water quality in 2019-2020. Value in each cell is seasonal (April'19-May'19 and April'20-May'20) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Detail data is attached Annex-6 (Table 302-307).

In 2019, pH among different locations varied from 6.8 to 7.3 (Fig.54a) while standard pH range for inland surface water for fisheries is 6.5 to 8.5. In 2020, pH range varied from 7.1 to 7.9. In 2019, the maximum DO (6.5 mg/l) was found at CUFL Side in April and the minimum (4.5 mg/l) was at Chaktai Khal in April (Fig.54b). In 2020, DO level varied from 0.78 mg/l to 8.48 mg/l. In 2019, the maximum SS (353 mg/l) was found at Chaktai Khal in April and the minimum (182 mg/l) was at CUFL Side in May (Fig.54c). In 2020, SS of Karnaphuli river water data varied from 203 mg/l to 1330 mg/l. In 2019, the maximum and the minimum EC concentration of Karnaphuli river was 21510 μ mhos/cm at CUFL Side in May and 768 μ mhos/cm at Chaktai Khal in April (Fig.54d). In 2020, the maximum and the minimum EC concentration of Karnaphuli river was 25500 μ mhos/cm at CUFL Side in April and 766 μ mhos/cm at Chaktai Khal in May. In 2019, TDS of Karnaphuli river varied from 405 to 13080 mg/l (Fig.54e) against the EQS of 2100 mg/l for industrial wastewater after treatment. In 2020, TDS concentration varied from 309 to 16340 mg/l. In 2019, the maximum TS concentration was 13273 mg/l at CUFL Side in April and the minimum 496 mg/l at Chaktai Khal in April (Fig.54f). In 2020, TS concentration varied from 798 mg/l to 17670 mg/l.

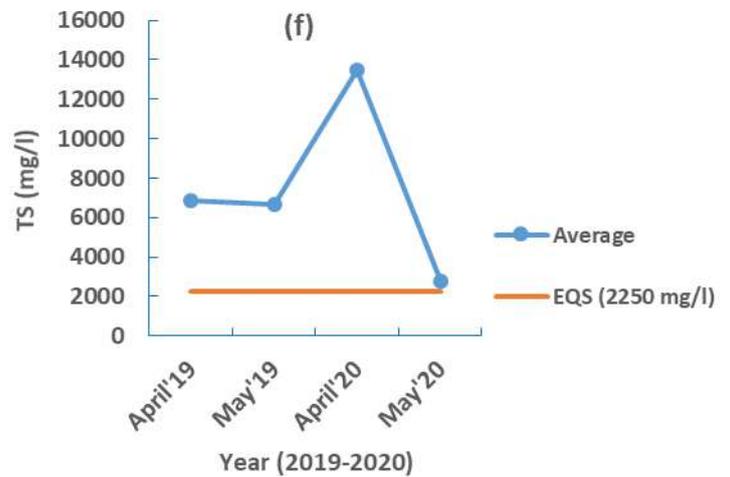
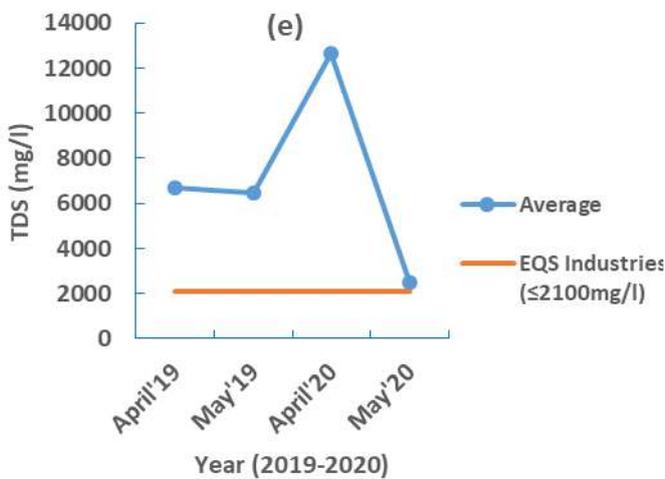
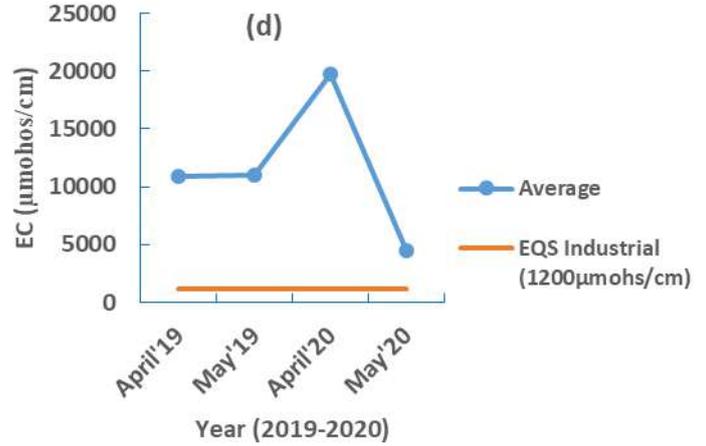
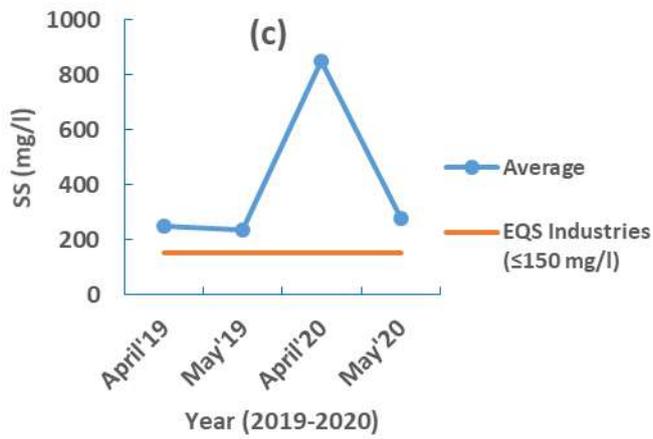
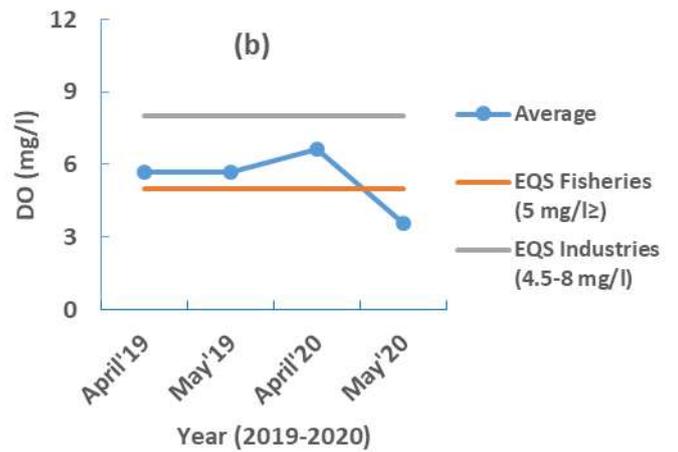
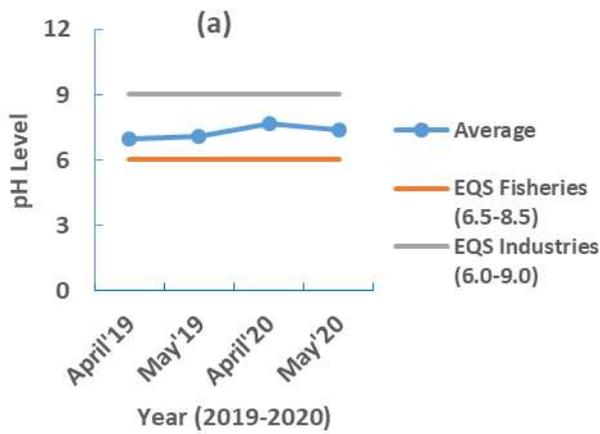


Fig.54: Status of pH, DO, BOD, COD, TDS and SS of Karnaphuli river water from 2019 to 2020

8.7 Halda River

The Halda river passes through the South-Eastern part of Bangladesh. Water sampling five locations were Mohona, Khandakiya Khal, Madari Khal, Katakhal Khal and Krishna Khal of Halda River. Value in each cell is seasonal (April'19-May'19 and April'20-May'20) as well as average of sampling locations. EQS of pH, DO, BOD is for fisheries, as per ECR, 1997. Detail data is attached Annex-6 (Table 308-313).

In 2019, pH among different locations varied from 6.87 to 7.43 (Fig.55a) while standard pH range for inland surface water for fisheries is 6.5 to 8.5. In 2020, pH range varied from 7.36 to 8.21. In 2019, the maximum DO (5.23 mg/l) was found at Mohona in May and the minimum (3.61 mg/l) was at Khandakiya Khal in April (Fig.55b). In 2020, DO level varied from 2.59 mg/l to 6.25 mg/l. In 2019, the maximum SS (233 mg/l) was found at Khandakiya Khal in April and the minimum (40 mg/l) was at Madari Khal in April (Fig.55c). In 2020, SS of Halda river water data varied from 89 mg/l to 158 mg/l. In 2019, the maximum and the minimum EC concentration of Halda river was 445 μ mhos/cm at Khandakiya Khal in May and 161 μ mhos/cm at Mohona in May (Fig.55d). In 2020, the maximum and the minimum EC concentration of Halda river was 299 μ mhos/cm at Katakhal Khal in May and 134.1 μ mhos/cm at Mohona in April (Fig.55d). In 2019, TDS of Karnaphuli river varied from 78 to 217 mg/l (Fig.55e) against the EQS of 2100 mg/l for industrial wastewater after treatment. In 2020, TDS concentration varied from 64.5 to 147.8 mg/l. In 2019, the maximum TS concentration was 441 mg/l at Khandakiya Khal in May and the minimum 101 mg/l at Khandakiya Khal in April (Fig.55f). In 2020, TS concentration varied from 169.5 mg/l to 276.3 mg/l.

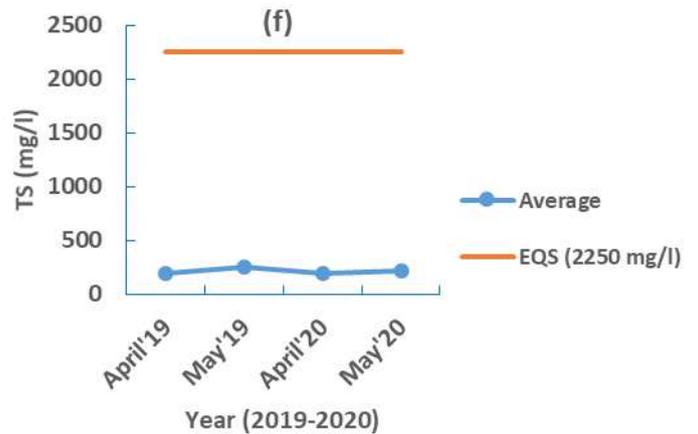
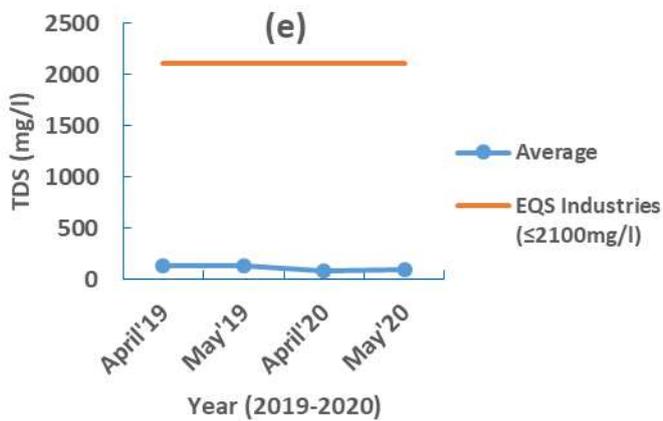
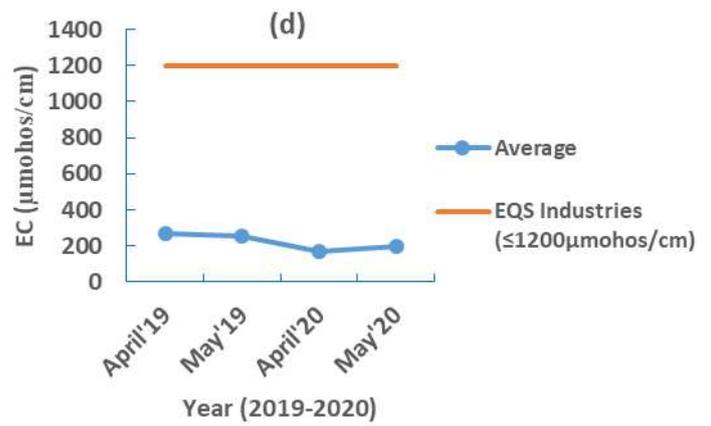
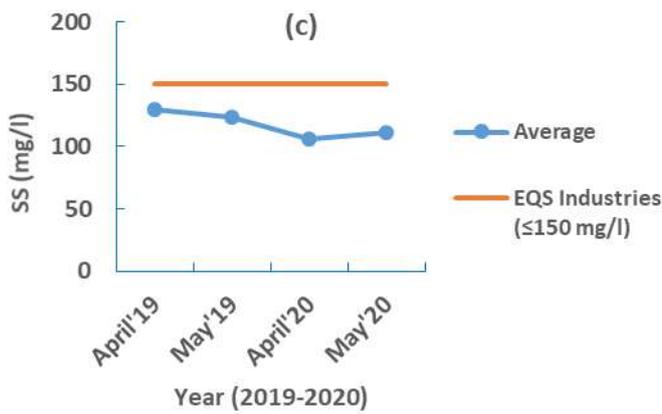
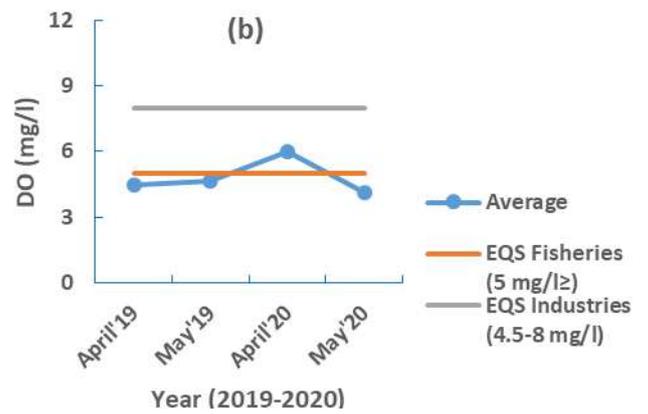
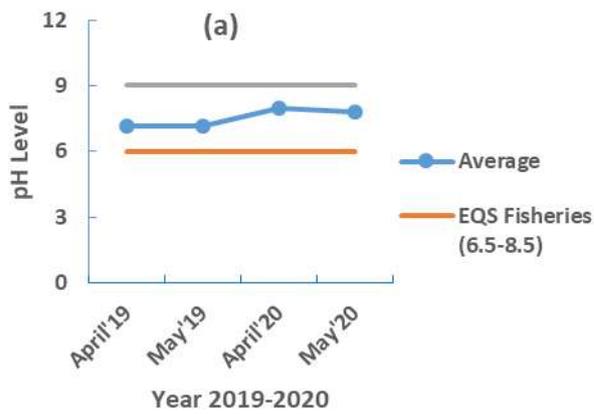


Fig.55: Status of pH, DO, BOD, COD, SS, EC and TS of Halda river water from 2019 to 2020

CHAPTER 9: TREND ANALYSIS OF LAKE WATER QUALITY

9.1 Gulshan Lake

Gulshan Lake is a lake in Dhaka, Bangladesh, that borders Gulshan Thana, Shahjadpur, and Baridhara Diplomatic Zone. 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.

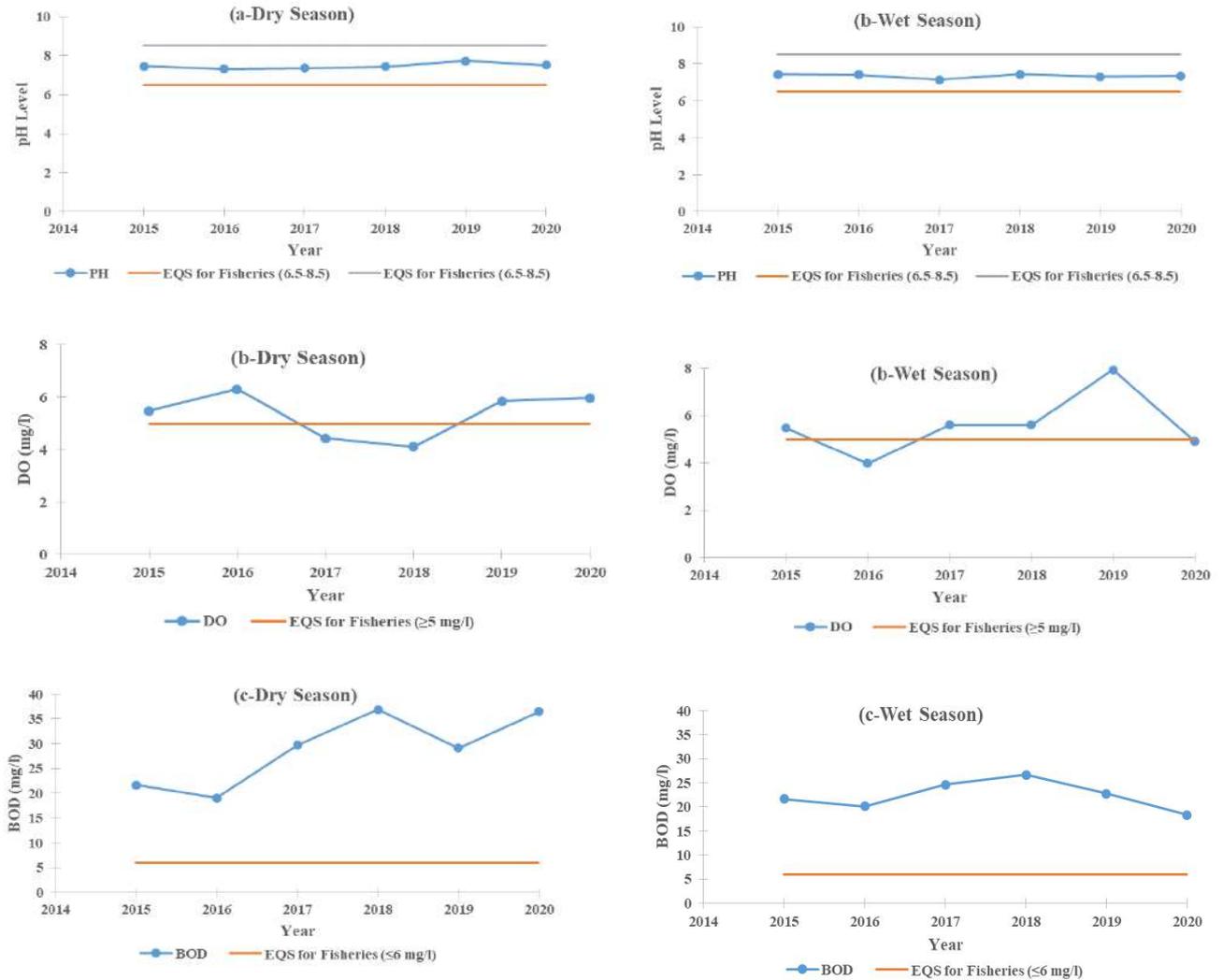


Fig 56. Trend of pH, DO and BOD of Gulshan Lake water from 2015 to 2020

During 2015-2020, pH of Gulshan Lake water was within the EQS (6.5-8.5) for inland surface water for fisheries. In 2017 to 2018, DO of Gulshan lake water was below the EQS (≥ 5 mg/l) in dry season. In 2015 to 2020, BOD content was higher than EQS (≤ 6 mg/l) irrespective of dry and wet season. Direct discharge of untreated effluent from domestic wastes into the lake and reduced flow of water are the proximate causes for increase of BOD in dry and wet season (Fig.56).

9.2 Dhanmondi Lake

Dhanmondi Lake is in the Dhanmondi residential area in Dhaka, Bangladesh. The lake has become a well visited tourist spot, with cultural hubs such as the Rabindra-Sarobar located along its side. 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.

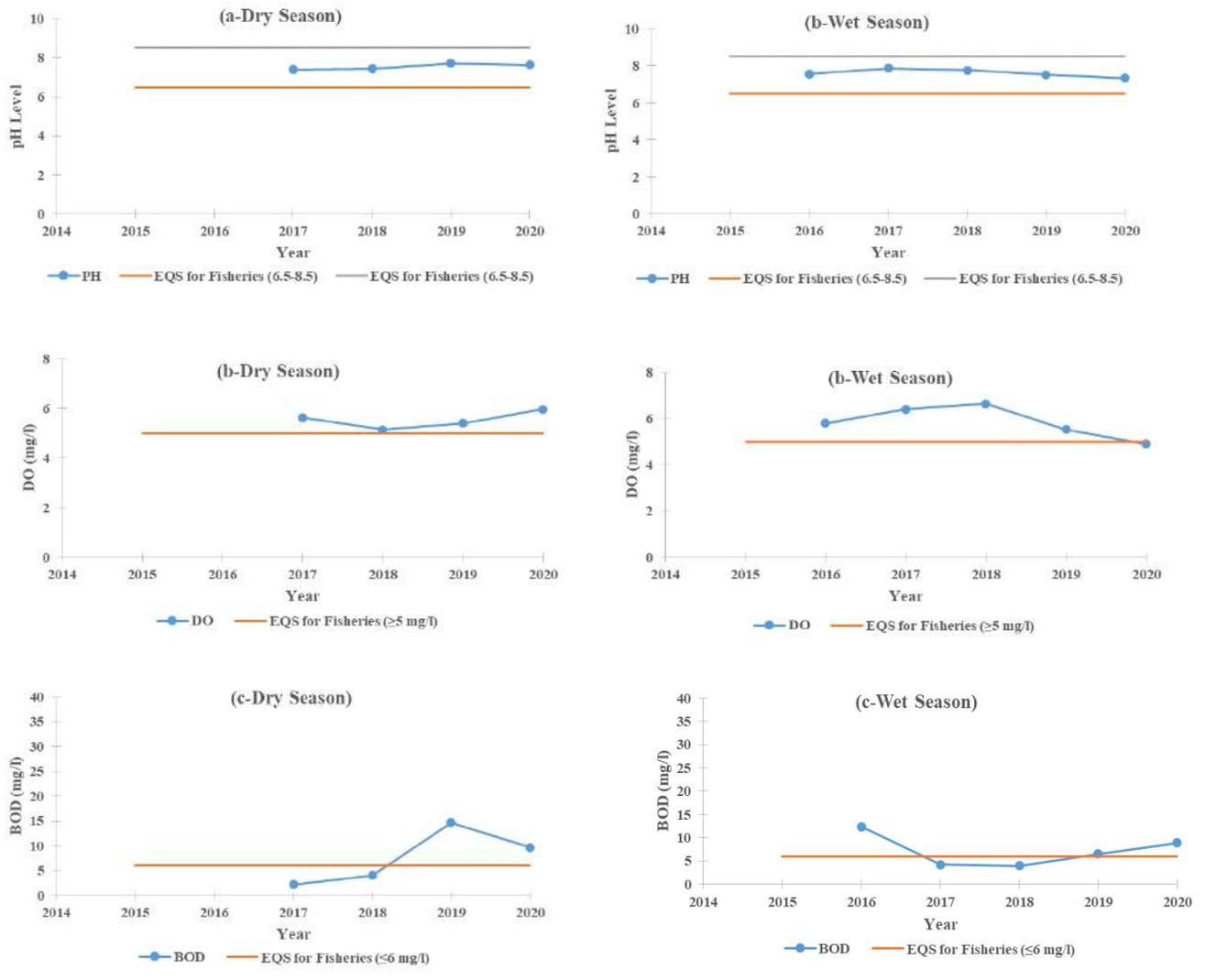


Fig 57. Trend of pH, DO and BOD of Dhanmondi Lake water from 2015 to 2020

In 2017-2020, pH of Dhanmondi lake water was within the EQS (6.5-8.5) for inland surface water for fisheries. Data were not available in 2015. In 2017 to 2020, DO of Dhanmondi lake water was higher than the EQS (≥ 5 mg/l) in dry and wet season. In 2019-2020, BOD content was higher than EQS (≤ 6 mg/l) irrespective of dry season. But in 2017-2018, BOD content was within the EQS (Fig.57).

9.3 Hatirjheel Lake

Hatir-Jheel is a lake front in Dhaka. Hatir Jheel, the new projects of beautification Dhaka city. It has already become an attractive location to visit in Dhaka City. 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. 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.

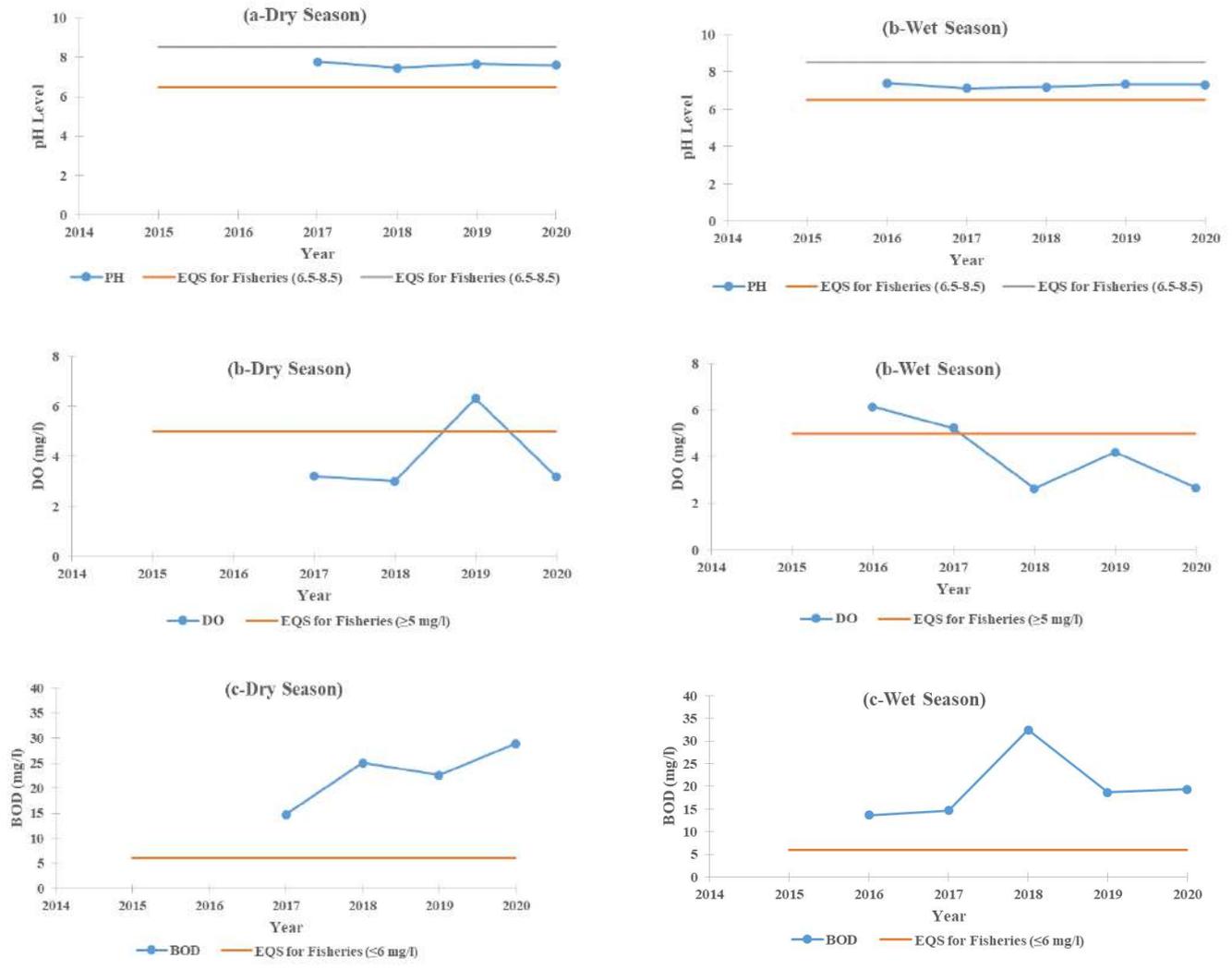


Fig 58. Trend of pH, DO and BOD of Hatirjheel Lake water from 2015 to 2020

In 2016-2020, pH of Hatirjheel lake water was within the EQS (6.5-8.5) for inland surface water for fisheries. Data were not available in 2015. In 2018 to 2020, DO level of Hatirjheel lake water was lower the EQS (≥ 5 mg/l) in wet season. In 2017-2020, BOD content was higher than EQS (≤ 6 mg/l) irrespective of dry season. (Fig.58).

CHAPTER 10: DATA ANALYSIS ALONG WITH GRAPHICAL REPRESENTATION OF HOTEL, MOTEL & RESTAURANT IN 2020

10.1 Water Quality Parameters of Hotel, Motel & Restaurant

Water is a transparent and nearly colorless chemical substance that is the main constituent of Earth's streams, lakes, and oceans, and the fluids of most living organisms. Water is an excellent solvent for a wide variety of chemical substances; as such it is widely used in industrial processes, and in cooking and washing. Hotels, Motels & Restaurants are one of the major users of water and part of the management duty is to maintain water's cleanliness and safety, for attaining this hotels use water filtration system to filtrate and purify the water that came from the water sources which they will become safe to the guests.

10.2 Analysis of Drinking Water Quality of Hotel, Motel & Restaurant

In 2020, the monitoring program covered sampling of 186 points/stations of 11 district (Barisal Dist.-41 points, Bhola Dist.-13 points, Jhalokathi Dist.-15 points, Khulna Dist.-34 points, Natore Dist.-10 points, Pabna Dist.-10 points, Patuakhjali Dist.-19 points, Pirojpur Dist.-14 points, Rajshahi Dist.-10 points, Rangour Dist.-10 points, Sirajgonj Dist.-10 points) for analysis of drinking water quality. Detail data is attached Annex-7 (Table : 314-314).

In 2020, the maximum Coliform Bacteria 110 CFU/100ml against the EQS of 0/100 ml for Drinking water at Ononno Vandar, Muladi, Barisal in November.

In 2020, the maximum Coliform Bacteria 140 CFU/100ml against the EQS of 0/100 ml for Drinking water at Jaher Hotel, Char fashion, Bhola in November.

In 2020, the maximum Coliform Bacteria 70 CFU/100ml against the EQS of 0/100 ml for Drinking water at Kismot Hotel, Kumarpotti, Jhalokathi, Bonkoli Muslim Sweemet and Restaurent, Chaumatha, Jhalokathi and Desi Voj, Sadar, Jhalokathi in December.

In 2020, the maximum Coliform Bacteria 500 CFU/100ml against the EQS of 0/100 ml for Drinking water at Hotel Chuknagar, Zero Point, Khulna, Mayer Doa Hotel and Biriani House, Zero Point, Khulna and Rasana Bilas Restaurant, Zero Point, Khulna in October.

In 2020, the maximum Coliform Bacteria 130 CFU/100ml against the EQS of 0/100 ml for Drinking water at M/S Sukurer Hotel, Valaipur, Natore in October and December.

In 2020, the maximum Coliform Bacteria 70 CFU/100ml against the EQS of 0/100 ml for Drinking water at M/S Shapla Adorso Hotel, Hamid Road, Pabna and Tripti Hotel and Biriani House, Rupkotha Road, Pabna in August, October and November.

In 2020, the maximum Coliform Bacteria 200 CFU/100ml against the EQS of 0/100 ml for Drinking water at Nondini Sweets, Notun Bazar, Patuakhali and International Payra Residensial Hotel, Sadar Road, Patuakhali in October.

In 2020, the maximum Coliform Bacteria 120 CFU/100ml against the EQS of 0/100 ml for Drinking water at Al amin Hotel, Post Office oad, Pirojpur in February.

In 2020, the maximum Coliform Bacteria 120 CFU/100ml against the EQS of 0/100 ml for Drinking water at Al amin Hotel, Post Office oad, Pirojpur in February.

In 2020, the maximum Coliform Bacteria 130 CFU/100ml against the EQS of 0/100 ml for Drinking water at Kisan Hotel and Restaurant, Saheb bazar, Rajshahi in September and November.

In 2020, the maximum Coliform Bacteria 120 CFU/100ml against the EQS of 0/100 ml for Drinking water at Boisakhi Restaurent, Dhap Jail Road, Rangpur in September.

In 2020, the maximum Coliform Bacteria 120 CFU/100ml against the EQS of 0/100 ml for Drinking water at Nur a Arafat Hotel and Doi Miste Ghor, Hatikumrul, Sirajgonj in September and December.



11.1 Conclusion

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. 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. An impact 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.

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. 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.

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.

11.2 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. More rivers can be included in the monitoring programme;
- b. Other wetlands such as hopes and baor could be included;
- c. Introduction of online water quality monitoring system is essential to avoid the discontinuity of data.
- d. Review and updating of surface water monitoring network is essential. Pollution hot-spots could be identified and monitoring stations should include those hotspots.
- e. 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.
- f. Monitoring of ETP outlets of major industrial zones should be intensified and data should be collected more frequently.
- g. Biological indicators should be included in the monitoring programme.
- 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. Enforcement programme should be increased to stop all illegal discharges to surface water.
- k. Existing parameters should be revisited and new parameters should be included for a comprehensive groundwater monitoring.
- l. Programmes could be initiated to develop River Health Card and establish Water Quality Index (WQI) for each river to guide the policy makers.
- 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. Take a comprehensive assessment of water management issues, participate in learning processes and exchange knowledge and information on better water management practices.
- 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 sitting, 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 take immediate measures to develop legislation for regulating with-drawl of ground water on a sustainable basis.
- r. To initiate program for spreading awareness about scarcity of water and introduce better management practices in agriculture, urban and industrial use.

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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 2020

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	7.79	7.45	7.61	7.4	7.33	0	6.94	7.04	6.91	7.17	7.2	7.48
Hajaribag	7.74	7.37	7.42	7.21	7.29	7.01	6.95	7.13	7.36	7.06	7.16	7.4
Kamrangir Char	7.68	7.38	7.33	7.32	7.14	7.13	6.7	7.01	7.39	7.12	7.35	7.6
Chadnighat	7.38	7.42	7.56	7.42	7.1	6.66	6.7	7	7.36	7.08	7.28	7.32
Sadar Ghat	7.63	7.56	7.55	7.23	7.07	6.66	6.88	7.03	7.3	6.98	7.17	7.29
Dlolaikhal	7.67	7.65	7.52	7.3	7	6.6	6.75	6.99	7.35	6.99	7.11	7.28
Pagla	7.25	7.69	7.68	7.49	6.96	6.63	6.5	6.97	7.37	7.05	7.11	7.43
Bangladesh China Frp. Brg.	7.25	7.68	7.54	7.46	6.81	6.62	6.91	6.99	7.4	7.01	7.2	7.3
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-2. Level of DO (mg/l) of Buriganga River Water in 2020

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	0	0	0	2.67	1.83	3.69	4.42	5.6	5.79	4.8	3.1	2.11
Hajaribag	0	0	0	1.7	1.17	3.8	4.5	5.1	5.31	4.78	3.15	2.15
Kamrangir Char	0	0	0	2.09	1.6	3.19	4.45	5.2	5.1	4.69	1.91	1.99
Chadnighat	0	0	0	0.5	1.2	3.16	3.1	5.4	4.87	3.57	1.86	1.77
Sadar Ghat	0	0	0	0.6	0.5	2.8	4.41	4.58	4.1	3.26	1.95	1.68
Dlolaikhal	0	0	0	0.52	0.54	3.54	4.2	4.6	5.3	3.97	3.5	2
Pagla	0	0	0	0.78	0.62	3.16	4	4.83	4.1	4.35	2.35	1.57
Bangladesh China Frp. Brg.	0	0	0	0.45	0.56	2.96	4.4	4.9	4.65	4.29	1.88	1.87
EQS Fisheries (5 mg/l)												
EQS Industrial (4.5-8 mg/l)												

Table-3. Level of BOD (mg/l) of Buriganga River Water in 2020

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	12	24	36	16	16	4	4	5.2	4.8	9	8	12
Hajaribag	14	21	56	8.4	8.4	3	4	4.8	6.8	8	6	22
Kamrangir Char	12	19	42	16	16	6	6	4.8	5.2	8	9	14
Chadnighat	10	23	29	30	30	5.8	4	5.4	7.2	6	16	10
Sadar Ghat	12	24	32	16.8	16.8	3	6	6.4	10.8	5	8	20
Dlolaikhal	12	26	36	17.6	17.6	3	6	9.6	6.8	6	21	14
Pagla	10	23	30	14.2	14.2	6	4	16	8.4	7	27	12
Bangladesh China Frp. Brg.	14	32	26	16	16	5	8	8.4	6.2	6	12	18
EQS Fisheries (≤ 6 mg/l)												
EQS Industrial (≤ 50 mg/l)												

Table-4. Level of COD (mg/l) of Buriganga River Water in 2020

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	38	93	93	41	41	12	13	18	16	24	24	90
Hajaribag	40	71	207	19	19	7	10	15	20	20	15	56
Kamrangir Char	36	61	166	63	63	36	19	14	18	22	41	59
Chadnighat	30	98	122	134	134	27	9	19	24	10	46	37
Sadar Ghat	42	96	105	61	61	7	21	22	33	18	43	61
Dlolaikhal	38	86	127	63	63	6	27	33	21	20	49	30
Pagla	36	75	134	56	56	17	27	54	26	21	59	32
Bangladesh China Frp. Brg.	48	102	117	49	61	42	27	28	22	17	37	97
EQS Industrial (≤ 200 mg/l)												

Table-5. Level of TDS (mg/l) of Buriganga River Water in 2020

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	360	515	536	460	289	85.1	65.4	62.9	76.1	61.6	133.2	251
Hajaribag	356	480	528	456	319	75.4	63.1	67.3	70.2	67.4	131.2	257
Kamrangir Char	355	466	597	472	287	84.3	73.4	63.4	72.7	63.7	132.3	260
Chadnighat	418	451	501	465	327	76.2	77	64.3	72.5	68.7	177	253
Sadar Ghat	356	430	486	430	343	85.2	67	63.7	75.9	69	148.3	255
Dlolaikhal	354	421	488	437	327	73.7	69.4	63.1	75.9	68	146	260
Pagla	357	420	475	438	344	78.9	70.4	63.7	79.2	65	145.2	257
Bangladesh China Frp. Brg.	358	473	483	456	344	77.8	64.8	63	78.5	68	136	259
EQS Industrial (≤ 2100 mg/l)												

Table-6. Level of Turbidity (NTU) of Buriganga River Water in 2020

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	22	49.7	36.2	34.7	18.6	23.1	25	15.3	39.5	14	178	20.2
Hajaribag	13	44	35.4	35.1	19.2	24.5	23.4	14.7	34.9	11.5	97.1	52.4
Kamrangir Char	14	34.9	34.6	35.1	18.8	23.6	29.9	16.4	27.7	28.2	285	84.9
Chadnighat	12	45	35.7	34.8	20.4	22.4	31.9	10.4	34.5	12.1	47.9	32.5
Sadar Ghat	10	44.5	36.1	41.6	22.3	23.4	35.5	9.2	35.6	22.6	23.2	74
Dlolaikhal	28	43.1	38.2	44.2	22.4	21.2	30.5	6.83	24	10.2	56.9	24.3
Pagla	27	40	35.2	43.2	18.6	19.5	44.6	13.2	31	7.57	23.6	40.7
Bangladesh China Frp. Brg.	12	43.4	36.3	44	21.4	24.1	40.6	18.6	33.2	26.6	54.8	50.9
EQS Industrial (10 NTU)												

Table-7. Level of Chloride (mg/l) of Buriganga River Water in 2020

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	28	36	25	23	26	10	8	6.5	8	7	10.5	39.2
Hajaribag	22	34	27	23	25	9	9	6.5	7.5	9	11.5	40
Kamrangir Char	24	32	28	24	24	11	8	6	9	7	12	40.5
Chadnighat	30	30	29	25	28	10	9	5.5	8	9	12.5	34.5
Sadar Ghat	24	29	30	23	26	10	8	7	9.5	9	13	32.2
Dlolaikhal	26	28	27	23	28	8	9	6.5	8	10	11.5	34.1
Pagla	24	27	30	22	29	9	9	7	8.5	8	11	29.2
Bangladesh China Frp. Brg.	28	34	28	24	27	9	8	6.5	8.5	8	12	33.1
EQS Industrial (150-600 mg/l)												

Table-8. Level of SS (mg/l) of Buriganga River Water in 2020

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	32	69	56	34	32	21	46	15	39	42	25	31
Hajaribag	20	64	76	38	26	32	56	12	55	21	16	7
Kamrangir Char	28	68	68	36	40	26	49	15	39	22	37	22
Chadnighat	22	72	51	44	38	25	50	16	42	12	8	8
Sadar Ghat	28	76	52	40	39	18	51	13	32	18	4	21
Dlolaikhal	34	72	49	52	51	16	64	8	24	11	6	8
Pagla	22	68	49	32	46	16	54	15	33	14	3	12
Bangladesh China Frp. Brg.	20	76	48	36	48	21	49	12	31	10	7	13
EQS Industrial (150 mg/l)												

Table-9. Level of Total Alkalinity (mg/l) of Buriganga River Water in 2020

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	210	310	320	180	210	160	40	40	48	38	54	115
Hajaribag	212	320	312	170	224	174	43	43	42	46	70	138
Kamrangir Char	210	324	310	188	220	164	43	43	37	44	78	165
Chadnighat	220	288	296	210	234	158	39	39	43	44	114	140
Sadar Ghat	214	310	286	180	214	142	40	40	43.5	48	74	156
Dlolaikhal	210	310	312	166	208	146	39	39	44	48	84	137
Pagla	212	324	310	158	200	154	39	39	45	48	80	135
Bangladesh China Frp. Brg.	212	324	324	156	212	180	41	41	43	46	64	118
EQS Industrial (150 mg/l)												

Table-10. Level of EC ($\mu\text{mohs/cm}$) of Buriganga River Water in 2020

Location of Buriganga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mirpur Bridge	625	1033	1057	925	600	177	145.1	142.4	140.8	114.7	244	502
Hajaribag	617	970	1046	821	682	150	187	131.6	139.6	125	237	506
Kamrangir Char	614	937	1171	839	601	168.9	156	123.6	145.1	118.7	240	520
Chadnighat	720	940	986	821	686	152.1	169	124.5	144.8	129	712	494
Sadar Ghat	621	921	955	821	665	172.1	140	124.4	151.5	129	256	502
Dlolaikhal	612	912	967	839	661	147.5	152	121.3	151.1	126	261	517
Pagla	616	916	936	840	649	158.7	153	123.9	158	124	261	513
Bangladesh China Frp. Brg.	620	920	954	866	685	154.4	142	122.5	156.1	127	247	505
EQS Industrial (1200$\mu\text{mohs/cm}$)												

2.0 Shitalakhya River (Table: 11-19)**Table-11. Level of pH of Shitalakhya River Water in 2020**

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	7.82	7.29	7.19	7.4	7.12	6.88	7.32	-	-	6.99	7.23	7.48
Ghorashal F.F.	7.53	7.53	7.72	7.42	7.13	-	7.5	-	-	6.92	7.37	7.22
Near ACI Factory	7.72	7.46	7.24	7.38	7.08	7.12	7.41	-	-	7.06	7.2	7.52
Near Kanchpur Bridge	-	-	-	-	-	7.23	-	-	-	-	-	-
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-12. Level of DO (mg/l) of Shitalakhya River Water in 2020

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	0	0	0	1.31	1.92	3.48	4.5	-	-	2.85	1.6	0.8
Ghorashal F.F.	4.8	4.3	4.3	1.45	1.2	-	4	-	-	3.8	4.4	4.8
Near ACI Factory	0	0	0	1.24	0.84	3.12	4.3	-	-	0	0	0
Near Kanchpur Bridge	-	-	-	-	-	3.56	-	-	-	-	-	-
EQS Fisheries (5 mg/l\geq)												
EQS Industrial (4.5-8 mg/l)												

Table-13. Level of BOD (mg/l) of Shitalakhya River Water in 2020

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	10	19	49	9.6	9.6	9.6	10	-	-	14	8	18
Ghorashal F.F.	6	6.6	8	10.8	10.8	-	8	-	-	16	8	13
Near ACI Factory	22	22	48	16.4	16.4	12	12	-	-	18	20	30
Near Kanchpur Bridge	-	-	-	-	-	10.8	-	-	-	-	-	-
EQS Fisheries (≤ 6 mg/l)												
EQS Industrial (≤ 50 mg/l)												

Table-14. Level of COD (mg/l) of Shitalakhya River Water in 2020

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	37	68	136	45	36	36	33	-	-	56	27	20
Ghorashal F.F.	24	44	34	62	42	-	24	-	-	51	56	32
Near ACI Factory	85	85	146	52	46	44	10	-	-	88	83	100
Near Kanchpur Bridge	-	-	-	-	-	46	-	-	-	-	-	-
EQS Industrial (≤ 200 mg/l)												

Table-15. Level of TDS (mg/l) of Shitalakhya River Water in 2020

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	267	397	438	357	311	169.1	150	-	-	99.6	105.3	226
Ghorashal F.F.	165	165	221	362	323	-	145	-	-	88	128	157
Near ACI Factory	289	289	452	387	325	171.3	148	-	-	286	265	345
Near Kanchpur Bridge	-	-	-	-	-	170.3	-	-	-	-	-	-
EQS Industrial (≤ 2100 mg/l)												

Table-16. Level of Chloride (mg/l) of Shitalakhya River Water in 2020

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	26	26	35	21	24	18	15	-	-	19	12.5	32.5
Ghorashal F.F.	22	22	21	20	26	-	14	-	-	18	19.5	15.5
Near ACI Factory	44	44	34	21	27	18	15	-	-	32	18.5	77.5
Near Kanchpur Bridge	-	-	-	-	-	17	-	-	-	-	-	-
EQS Industrial (150-600 mg/l)												

Table-17. Level of SS (mg/l) of Shitalakhya River Water in 2020

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	38	45	24	14	14	20	24	-	-	21	15	15
Ghorashal F.F.	72	72	13	10	12	-	22	-	-	28	8	12
Near ACI Factory	62	62	38	16	14	23	24	-	-	126	249	51
Near Kanchpur Bridge	-	-	-	-	-	21	-	-	-	-	-	-
EQS Industrial (150 mg/l)												

Table-18. Level of EC (μ mhos/cm) of Shitalakhya River Water in 2020

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	490	710	828	682	604	367	320	-	-	179.3	198.4	400
Ghorashal F.F.	390	390	436	688	610	-	280	-	-	169	242	292
Near ACI Factory	506	743	865	723	614	368	318	-	-	539	487	657
Near Kanchpur Bridge	-	-	-	-	-	366	-	-	-	-	-	-
EQS Industrial (1200μmhos/cm)												

Table-19. Level of Total Alkalinity (mg/l) of Shitalakhya River Water in 2020

Location of Shitalakhya river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Demra Ghat	150	150	288	140	210	210	198	-	-	68	100	102
Ghorashal F.F.	124	124	186	144	224	-	190	-	-	22	112	59
Near ACI Factory	146	146	276	145	226	214	198	-	-	42	110	58
Near Kanchpur Bridge	-	-	-	-	-	-	-	-	-	-	-	-
EQS Industrial (150 mg/l)												

3.0 Turagh River (Table: 20-28)

Table-20. Level of pH of Turagh River Water in 2020

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	7.63	7.41	7.56	7.69	7.15	6.71	7.15	7	7.18	7.03	7.4	7.32
Mirpur Diabary BIWTA L.S	7.71	7.42	7.6	7.14	7.04	7.12	6.88	6.98	7.12	7	7.39	7.34
Ashulia BIWTA L.S	7.95	8	7.98	7.29	7.05	6.89	7.08	7.19	6.97	7.04	7.48	7.47
Tongi Istima Mat	7.71	7.33	7.56	7.23	6.94	7.31	7.04	7.15	7.13	7.06	7.46	7.79
North Side of Tongi Bridge	-	-	-	-	-	-	-	-	-	-	-	-
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-21. Level of DO (mg/l) of Turagh River Water in 2020

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	0	0	0	3.2	1.65	3.47	5.46	5.7	4.79	4.9	4.1	1.2
Mirpur Diabary BIWTA L.S	0	0	0	1.22	2.24	3.4	5.18	5.65	4.95	4.07	3.9	1.5
Ashulia BIWTA L.S	0	0	0	1.39	0.95	3.55	5.87	6.56	5.86	4.04	4	1.3
Tongi Istima Mat	0	0	0	0.39	0.96	3.78	5.28	5.76	4.86	3.98	4.2	1
North Side of Tongi Bridge	0	0	0	3.2	2.24	3.78	5.87	6.56	5.86	4.9	4.2	1.5
EQS Fisheries (5 mg/l\geq)												
EQS Industrial (4.5-8 mg/l)												

Table-22. Level of BOD (mg/l) of Turagh River Water in 2020

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	24	20	27	24	14	10	12	4.8	6.8	8.2	16	13
Mirpur Diabary BIWTA L.S	23	18	42	34	24	12	8	5.2	7.2	6.2	16	10
Ashulia BIWTA L.S	22	25	48	62	40	12	16	4.8	5.2	7.2	18	11
Tongi Istima Mat	21	54	44	42	6.2	16	12	4.4	6	4.8	10	10
North Side of Tongi Bridge	24	54	48	62	40	16	16	5.2	7.2	8.2	18	13
EQS Fisheries (5 mg/l\geq)												
EQS Industrial (6.0-9.0)												

Table-23. Level of COD (mg/l) of Turagh River Water in 2020

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	71	102	100	56	41	46	39	14	24	26	46	41
Mirpur Diabary BIWTA L.S	71	80	105	91	70	56	22	17	22	24	41	37
Ashulia BIWTA L.S	49	119	124	263	13.6	54	51	21	18	16	49	27
Tongi Istima Mat	59	163	132	130	19	62	49	13	20	14	46	85
North Side of Tongi Bridge	71	163	132	263	70	62	51	21	24	26	49	85
EQS Industrial (\leq200 mg/l)												

Table-24. Level of Turbidity (mg/l) of Turagh River Water in 2020

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	42.8	42.8	28.3	36.5	0	23.2	22	5.3	36.6	32.5	103	46.4
Mirpur Diabary BIWTA L.S	37.8	37.8	32.2	38.2	0	24.6	23	2.09	31.6	22	201	91
Ashulia BIWTA L.S	29.8	29.8	29.6	33.4	0	27.1	20	2.01	30.5	20.1	67.8	27.5
Tongi Istima Mat	24.8	24.8	31.5	35.1	0	23.6	18	3	37.8	26.6	58.3	110
North Side of Tongi Bridge	-	-	-	-	-	-	-	-	-	-	-	-
EQS Industrial (\leq2100 mg/l)												

Table-25. Level of Chloride (mg/l) of Turagh River Water in 2020

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	55	55	53	28	28	12	10	5	7.5	11	10.5	43
Mirpur Diabary BIWTA L.S	52	52	52	26	27	13	12	4.5	9.5	8	3	41.5
Ashulia BIWTA L.S	55	55	54	27	26	12	10	5	9	7	10	41.5
Tongi Istima Mat	51	51	55	26	29	12	12	4.5	7.5	6	8	45
North Side of Tongi Bridge	-	-	-	-	-	-	-	-	-	-	-	-
EQS Industrial (150-600 mg/l)												

Table-26. Level of SS (mg/l) of Turagh River Water in 2020

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	46	43	68	56	56	34	24	5	36	32	17	9
Mirpur Diabary BIWTA L.S	38	41	72	62	62	26	28	3	33	35	38	13
Ashulia BIWTA L.S	36	45	58	45	45	28	22	2	32	19	17	6
Tongi Istima Mat	30	42	78	65	65	22	22	1	40	29	10	17
North Side of Tongi Bridge	-	-	-	-	-	-	-	-	-	-	-	-
EQS for Industrial Discharge (150 mg/l)												

Table-27. Level of EC (µmhos/cm) of Turagh River Water in 2020

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	636	683	1055	918	600	163.9	144.3	149.7	131	191.2	228.3	486
Mirpur Diabary BIWTA L.S	639	680	1046	620	602	136.8	169.9	146.6	121.1	147.5	240	480
Ashulia BIWTA L.S	752	955	1387	618	723	149.2	129.7	132.4	155.5	118.8	201.9	456
Tongi Istima Mat	786	705	1055	660	515	135.4	142.8	130.6	138	120.4	234.1	497
North Side of Tongi Bridge	786	955	1387	918	723	163.9	169.9	149.7	155.5	191.2	240	497
EQS for Industrial Discharge (1200 µmhos/cm)												

Table-28. Level of Total Alkalinity (mg/l) of Turagh River Water in 2020

Location of Turagh river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Gabtoli Bridge	170	170	320	210	264	180	40	40	40	52	52	112
Mirpur Diabary BIWTA L.S	168	168	324	222	266	188	38	38	41	54	36	106
Ashulia BIWTA L.S	184	184	322	218	272	176	40	40	39	48	52	108
Tongi Istima Mat	220	220	326	214	280	172	39	39	35	46	70	144
North Side of Tongi Bridge	185.5	185.5	323	216	270.5	179	39.25	39.25	38.75	50	52.5	117.5
EQS for Industrial Discharge (150 mg/l)												

4.0 Balu River (Table: 29-38)**Table-29. Level of pH of Balu River Water in 2020**

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	8.1	7.46	7.66	7.22	7.22	6.98	7.01	7.21	7.13	7.06	7.48	8.42
Near Hossain Dyeing Ltd. Pagar, Tongi	8.61	7.38	8.01	7.32	7.17	7.32	7.18	7.34	7.31	7.25	7.36	7.6
Near Damra University College, Demra, Dhaka	7.55	7.31	7.43	7.44	7.08	7.18	7.2	7.1	7.59	7.05	7.28	7.61
Near Balu Bridge, 300 feet Road, Dhaka	7.44	8.61	7.24	7.23	7.24	7.23	7.35	7.11	7.64	6.96	7.23	7.35
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	-	-	-	-	-	-
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-30. Level of DO (mg/l) of Balu River Water in 2020

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	0	0	0	0.28	0.88	3.18	4.5	5.45	3.14	3.97	3.7	2.8
Near Hossain Dyeing Ltd. Pagar, Tongi	0	0	0	0.32	0.78	3.46	4.5	5.33	2.36	4	3.8	2
Near Damra University College, Demra, Dhaka	0	0	0	0.68	0.53	3.24	5.2	3.9	2.69	2.63	0.5	0.5
Near Balu Bridge, 300 feet Road, Dhaka	0	0	0	1.22	1.1	4.1	5.1	6.32	3.7	3.29	0.8	0
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	-	-	-	-	-	-
EQS Fisheries (5 mg/l)≥												
EQS Industrial (4.5-8 mg/l)												

Table-31. Level of BOD (mg/l) of Balu River Water in 2020

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	30	74	64	18.6	18	14	12	4.4	14	4	10	16
Near Hossain Dyeing Ltd. Pagar, Tongi	24	76	74	19.2	13.6	14.4	8	4.8	12	2	12	12
Near Damra University College, Demra, Dhaka	27	31	42	52	14	13.2	10	6.6	17	14	5	8
Near Balu Bridge, 300 feet Road, Dhaka	30	28	38	48	16	12.4	10	5.6	10	16	4	32
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	30	76	74	52	18	14.4	12	6.6	17	16	12	32
EQS Fisheries (≤6 mg/l)												
EQS Industrial (≤50 mg/l)												

Table-32. Level of COD (mg/l) of Balu River Water in 2020

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	112	312	197	52	36	58	30	14	48	14	56	80
Near Hossain Dyeing Ltd. Pagar, Tongi	110	356	324	66	45	62	26	16	40	22	52	78
Near Damra University College, Demra, Dhaka	96	147	122	136	58	46	29	20	56	61	38	28
Near Balu Bridge, 300 feet Road, Dhaka	105	124	102	133	56	42	32	18	33	61	34	100
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	-	-	-	-	-	-
EQS Industrial (≤200 mg/l)												

Table-33. Level of TDS (mg/l) of Balu River Water in 2020

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	678	641	538	355	215	63.4	63.8	56.1	73.5	71.2	125.4	410
Near Hossain Dyeing Ltd. Pagar, Tongi	668	767	714	365	248	63.4	64.2	55.9	76	70.6	121.4	557
Near Damra University College, Demra, Dhaka	440	386	385	378	243	98.4	63.8	58.9	97.2	99	121	225
Near Balu Bridge, 300 feet Road, Dhaka	610	340	370	376	237	104	62.3	57.5	87.9	81.1	165.4	336
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	-	-	-	-	-	-
EQS Industrial (≤200 mg/l)												

Table-34. Level of Chloride (mg/l) of Balu River Water in 2020

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	51.2	40	54	22	22	11	83.8	7.5	8.5	8	11	56
Near Hossain Dyeing Ltd. Pagar, Tongi	51.5	45	56	21	21	12	12	7.7	10	7	10	50.9
Near Damra University College, Demra, Dhaka	52.1	25	35	23	23	12	10	5	17	18	11.5	31.5
Near Balu Bridge, 300 feet Road, Dhaka	50.4	26	32	21	21	13	12	6.3	14	17.5	14	20.5
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	-	-	-	-	-	-
EQS Industrial (150-600 mg/l)												

Table-35. Level of SS (mg/l) of Balu River Water in 2020

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	70	112	127	70	48	24	20	6	33	21	20	35
Near Hossain Dyeing Ltd. Pagar, Tongi	136	121	124	64	42	23	20	4	22	12	26	26
Near Damra University College, Demra, Dhaka	67	65	68	96	52	22	20	1	12	25	24	37
Near Balu Bridge, 300 feet Road, Dhaka	120	70	72	85	66	20	18	3	19	22	31	29
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	-	-	-	-	-	-
EQS Industrial (≤ 150 mg/l)												

Table-36. Level of EC (μ mhos/cm) of Balu River Water in 2020

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	1060	986	1063	675	421	140.2	140.8	138.4	134.2	137.7	246	689
Near Hossain Dyeing Ltd. Pagar, Tongi	1178	1211	1399	687	486	140.3	150.2	136.2	144.3	120.4	237	925
Near Damra University College, Demra, Dhaka	1184	690	810	786	512	218.5	148.3	132.8	199.3	176.5	226	400
Near Balu Bridge, 300 feet Road, Dhaka	1170	680	705	778	507	220.1	142.3	133.1	180.3	146.3	297	617
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	-	-	-	-	-	-
EQS (1200 μmhos/cm)												

Table-37. Level of T.alkalinity (mg/l) of Balu River Water in 2020

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	274	364	330	144	210	144	35	39	40	48	66	189
Near Hossain Dyeing Ltd. Pagar, Tongi	262	360	340	148	214	148	34	38	34	50	44	182
Near Damra University College, Demra, Dhaka	258	312	280	152	224	146	35	35	69	78	56	99
Near Balu Bridge, 300 feet Road, Dhaka	268	310	278	156	218	154	32	36	61	74	48	79
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	-	-	-	-	-	-
EQS (150 mg/l)												

Table-38. Level of Turbidity (NTU) of Balu River Water in 2020

Location of Balu river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Jaber & Jubair Fabrics Ltd. Tongi	29.6	34.4	42.6	33.2	21.4	22.8	19.7	5.02	36.8	18.5	52.8	181
Near Hossain Dyeing Ltd. Pagar, Tongi	52.4	35.6	56.2	32.6	22.4	23.6	18.7	2.69	18.6	15	10.6	223
Near Damra University College, Demra, Dhaka	35.6	34.6	41.3	35.2	23.6	21.4	22.8	3.2	10.8	1.8	56.5	171
Near Balu Bridge, 300 feet Road, Dhaka	30.3	36.2	42.4	35.7	24.1	22.5	20.1	4.33	17.4	20.5	169	144
Near Fulpukuria Dyeing Ltd. Pagar, Tongi	-	-	-	-	-	-	-	-	-	-	-	-
EQS (10 NTU)												

5.0 Dhalaeswari River (Table: 39-44)**Table-39. Level of pH of Dhaleshwari River Water in 2020**

Location of Dhaleshwari river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Muktarpur Bridge	7.32	7.38	7.86	-	-	-	-	-	-	-	-	7.8
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-40. Level of DO (mg/l) of Dhaleshwari River Water in 2020

Location of Dhaleshwari river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Muktarpur Bridge	2.4	2.3	2.1	-	-	-	-	-	-	-	-	5.7
EQS Fisheries (5 mg/l\geq)												
EQS Industrial (4.5-8 mg/l)												

Table-41. Level of BOD (mg/l) of Dhaleshwari River Water in 2020

Location of Dhaleshwari river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Muktarpur Bridge	4.6	6.8	7.6	-	-	-	-	-	-	-	-	9
EQS Fisheries (\leq6 mg/l)												
EQS Industrial (\leq50 mg/l)												

Table-42. Level of COD (mg/l) of Dhaleshwari River Water in 2020

Location of Dhaleshwari river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Muktarpur Bridge	15	28	31	-	-	-	-	-	-	-	-	39
EQS Industries (\leq200 mg/l)												

Table-43. Level of TDS (mg/l) of Dhaleshwari River Water in 2020

Location of Dhaleshwari river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Muktarpur Bridge	265	315	315	-	-	-	-	-	-	-	-	227
EQS Industries (\leq2100 mg/l)												

Table-44. Level of EC (1200 μ mhos/cm) of Dhaleshwari River Water in 2020

Location of Dhaleshwari river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Muktarpur Bridge	518	623	623	-	-	-	-	-	-	-	-	401
EQS industrial (1200 μmhos/cm)												

6.0 Brahmaputra River (Table: 45-50)

Table-45. Level of pH of Brahmaputra River Water in 2020

Location of Brahmaputra river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mymensingh	-	-	-	-	-	-	-	-	-	-	8.03	7.83
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-46. Level of DO (mg/l) of Brahmaputra River Water in 2020

Location of Brahmaputra river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mymensingh	-	-	-	-	-	-	-	-	-	-	8.6	8.9
EQS Fisheries (5 mg/l \geq)												
EQS Industrial (4.5-8 mg/l)												

Table-47. Level of BOD (mg/l) of Brahmaputra River Water in 2020

Location of Brahmaputra river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mymensingh	-	-	-	-	-	-	-	-	-	-	14	7
EQS Fisheries (\leq 6 mg/l)												
EQS Industrial (\leq 50 mg/l)												

Table-48. Level of TDS (mg/l) of Brahmaputra River Water in 2020

Location of Brahmaputra river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mymensingh	-	-	-	-	-	-	-	-	-	-	141	156.2
EQS Industries (\leq 2100 mg/l)												

Table-49. Level of SS (mg/l) of Brahmaputra River Water in 2020

Location of Brahmaputra river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mymensingh	-	-	-	-	-	-	-	-	-	-	18	23
EQS Industrial (150 mg/l)												

Table-50. Level of Chloride (mg/l) of Brahmaputra River Water in 2020

Location of Brahmaputra river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Mymensingh	-	-	-	-	-	-	-	-	-	-	14	19.5
EQS Industrial (150-600 mg/l)												

7.0 Kaligonga River (Table: 51-56)

Table-51. Level of pH of Kaligonga River Water in 2020

Location of Kaligonga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bheutha Ghat	6.89	7.23	7.23	-	-	-	-	-	-	-	7.58	8.09
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-52. Level of DO (mg/l) of Kaligonga River Water in 2020

Location of Kaligonga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bheutha Ghat	6.8	6.6	6.2	-	-	-	-	-	-	-	8.6	9.4
EQS Fisheries (5 mg/l \geq)												
EQS Industrial (4.5-8 mg/l)												

Table-53. Level of BOD (mg/l) of Kaligonga River Water in 2020

Location of Kaligonga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bheutha Ghat	4.4	4.6	4.5	-	-	-	-	-	-	-	6	7
EQS Fisheries (≤ 6 mg/l)												
EQS Industrial (≤ 50 mg/l)												

Table-54. Level of TDS (mg/l) of Kaligonga River Water in 2020

Location of Kaligonga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bheutha Ghat	308	285	293	-	-	-	-	-	-	-	216.5	237
EQS Industries (≤ 2100 mg/l)												

Table-55. Level of SS (mg/l) of Kaligonga River Water in 2020

Location of Kaligonga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bheutha Ghat	16	14	13	-	-	-	-	-	-	-	32	6
EQS Industrial (150 mg/l)												

Table-56. Level of Chloride (mg/l) of Kaligonga River Water in 2020

Location of Kaligonga river	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bheutha Ghat	25	26	26	-	-	-	-	-	-	-	14	19.5
EQS Industrial (150-600 mg/l)												

8.0 Jamuna River (Table: 57-62)**Table-57. Level of pH of Jamuna River Water in 2020**

Location of Jamuna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Bangabandhu Bridge (US)	7.47	7.46	-	-	-	8	8	7.68	7.66	7.54	7.56	7.56
Near Bangabandhu Bridge (US)	7.46	7.45	-	-	-	7.99	7.99	7.68	7.66	7.54	7.56	7.56
Fulchari Ghat, Gibanda (US)	7.52	7.51	-	-	-	7.89	7.89	7.68	7.7	7.6	7.58	7.58
Fulchari Ghat, Gibanda (DS)	7.51	7.5	-	-	-	7.88	7.88	7.68	7.7	7.6	7.58	7.58
Shariakandi Groin Badth (US)	7.46	7.44	-	-	-	7.87	7.87	7.56	7.54	7.48	7.46	7.52
Shariakandi Groin Badth (DS)	7.46	7.43	-	-	-	7.88	7.88	7.56	7.54	7.48	7.46	7.52
Near Jamuna Fertilizer Factory	-	-	-	-	-	-	-	-	-	6.85	7.64	7.48
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-58. Level of DO (mg/l) of Jamuna River Water in 2020

Location of Jamuna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Bangabandhu Bridge (US)	7.1	7.1	-	-	-	8	8	7.7	7.44	7.62	7.62	7.6
Near Bangabandhu Bridge (US)	7.1	7.1	-	-	-	8	8	7.7	7.44	7.62	7.62	7.6
Fulchari Ghat, Gibanda (US)	7.1	7.1	-	-	-	7.9	7.99	7.6	7.62	7.58	7.58	7.54
Fulchari Ghat, Gibanda (DS)	7	7	-	-	-	7.9	7.99	7.6	7.62	7.58	7.58	7.54
Shariakandi Groin Badth (US)	7.1	7.1	-	-	-	7.78	7.78	7.58	7.54	7.6	7.6	7.6
Shariakandi Groin Badth (DS)	7.2	7.2	-	-	-	7.77	7.77	7.58	7.54	7.6	7.6	7.6
Near Jamuna Fertilizer Factory	-	-	-	-	-	-	-	-	-	6.7	12.9	8.1
EQS Fisheries (5 mg/l \geq)												
EQS Industrial (4.5-8 mg/l)												

Table-59. Level of BOD (mg/l) of Jamuna River Water in 2020

Location of Jamuna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Bangabandhu Bridge (US)	2.1	2.1	-	-	-	2.3	2.3	2.3	2.4	2.4	2.4	2.4
Near Bangabandhu Bridge (US)	2	2	-	-	-	2.3	2.3	2.3	2.4	2.4	2.4	2.4
Fulchari Ghat, Gibanda (US)	2.2	2.2	-	-	-	2.2	2.2	2.2	2.3	2.3	2.3	2.3
Fulchari Ghat, Gibanda (DS)	2.1	2.1	-	-	-	2.2	2.2	2.2	2.3	2.3	2.3	2.3
Shariakandi Groin Badth (US)	2.1	2.2	-	-	-	2.2	2.2	2.2	2.3	2.3	2.3	2.3
Shariakandi Groin Badth (DS)	2.2	2.2	-	-	-	2.2	2.2	2.2	2.3	2.3	2.3	2.3
Near Jamuna Fertilizer Factory	-	-	-	-	-	-	-	-	-	3	12	9
EQS Fisheries (≤ 6 mg/l)												
EQS Industrial (≤ 50 mg/l)												

Table-60. Level of SS of Jamuna River Water in 2020

Location of Jamuna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Bangabandhu Bridge (US)	80	80	-	-	-	60	60	60	60	60	60	60
Near Bangabandhu Bridge (US)	80	80	-	-	-	60	60	60	60	60	60	60
Fulchari Ghat, Gibanda (US)	80	80	-	-	-	50	60	50	50	50	50	50
Fulchari Ghat, Gibanda (DS)	80	80	-	-	-	50	60	50	50	50	50	50
Shariakandi Groin Badth (US)	50	60	-	-	-	60	70	60	60	60	60	60
Shariakandi Groin Badth (DS)	50	60	-	-	-	60	70	60	60	60	60	60
Near Jamuna Fertilizer Factory	-	-	-	-	-	-	-	-	-	42	15	19
EQS Industrial (150 mg/l)												

Table-61. Level of TDS (mg/l) of Jamuna River Water in 2020

Location of Jamuna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Bangabandhu Bridge (US)	142	150	-	-	-	130	130	90	100	100	120	100
Near Bangabandhu Bridge (US)	132	150	-	-	-	130	130	90	100	100	120	100
Fulchari Ghat, Gibanda (US)	142	140	-	-	-	130	130	130	120	120	130	120
Fulchari Ghat, Gibanda (DS)	142	140	-	-	-	130	130	130	120	120	130	120
Shariakandi Groin Badth (US)	162	150	-	-	-	120	120	120	130	130	130	130
Shariakandi Groin Badth (DS)	160	150	-	-	-	120	120	120	130	130	130	130
Near Jamuna Fertilizer Factory	-	-	-	-	-	-	-	-	-	120.7	210.4	216.2
EQS Industries (≤ 2100 mg/l)												

Table-62. Level of Chloride (mg/l) of Jamuna River Water in 2020

Location of Jamuna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Bangabandhu Bridge (US)	30	30	-	-	-	25	25	25	25	25	25	25
Near Bangabandhu Bridge (US)	30	30	-	-	-	25	25	25	25	25	25	25
Fulchari Ghat, Gibanda (US)	24	25	-	-	-	30	30	30	25	25	25	25
Fulchari Ghat, Gibanda (DS)	26	25	-	-	-	30	30	30	25	25	25	25
Shariakandi Groin Badth (US)	32	32	-	-	-	30	30	30	30	30	30	30
Shariakandi Groin Badth (DS)	32	32	-	-	-	30	30	30	30	30	30	30
Near Jamuna Fertilizer Factory	-	-	-	-	-	-	-	-	-	12	17	14
EQS Industrial (150-600 mg/l)												

9.0 Meghna River (Table: 63-68)**Table-63. Level of pH of Meghna River Water in 2020**

Location of Meghna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhairob Bazar	7.43	7.46	7.95	-	-	-	-	8.56	-	7.01	7.6	7.99
Meghna Ghat	7.69	7.72	7.56	-	-	-	-	8.76	-	7.4	7.7	7.53
Near Shahjalal Paper Mills	7.57	7.47	7.75	-	-	-	-	9.6	-	7.42	7.42	7.53
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-64. Level of DO (mg/l) of Meghna River Water in 2020

Location of Meghna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhairob Bazar	7.2	6.8	6.6	-	-	-	-	6.8	-	2.8	6	7.4
Meghna Ghat	6.2	5.8	5.6	-	-	-	-	7.2	-	6.5	4.4	7.8
Near Shahjalal Paper Mills	5.8	5.1	4.8	-	-	-	-	5.8	-	6.6	2.8	7
EQS Fisheries (5 mg/l\geq)												
EQS Industrial (4.5-8 mg/l)												

Table-65. Level of BOD (mg/l) of Meghna River Water in 2020

Location of Meghna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhairob Bazar	1.2	2.1	2.4	-	-	-	-	3	-	8	22	2
Meghna Ghat	4.7	5.1	5.9	-	-	-	-	4	-	4	24	5
Near Shahjalal Paper Mills	5.1	6	6.8	-	-	-	-	3	-	6	28	6
EQS Fisheries (≤ 6 mg/l)												
EQS Industrial (≤ 50 mg/l)												

Table-66. Level of TDS (mg/l) of Meghna River Water in 2020

Location of Meghna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhairob Bazar	48.7	54.2	56.4	-	-	-	-	74	-	85.8	52.6	50.4
Meghna Ghat	83.2	93.4	96.2	-	-	-	-	52	-	29.8	53.4	60.6
Near Shahjalal Paper Mills	88.5	96.4	98.1	-	-	-	-	76	-	30.4	51.9	64.5
EQS Industries (≤ 2100 mg/l)												

Table-67. Level of SS (mg/l) of Meghna River Water in 2020

Location of Meghna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhairob Bazar	10	12	12	-	-	-	-	16	-	9	62	16
Meghna Ghat	18	21	21	-	-	-	-	40	-	11	18	10
Near Shahjalal Paper Mills	24	28	28	-	-	-	-	14	-	7	20	14
EQS Industrial (150 mg/l)												

Table-68. Level of Chloride (mg/l) of Meghna River Water in 2020

Location of Meghna river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bhairob Bazar	6	6	7	-	-	-	-	7	-	19	8	40
Meghna Ghat	7	7	8	-	-	-	-	8	-	8	16	15.5
Near Shahjalal Paper Mills	7	7	8	-	-	-	-	7	-	7	18	16
EQS Industrial (150-600 mg/l)												

10.0 Padma River (Table: 69-74)**Table-69. Level of pH of Padma River Water in 2020**

Location of Padma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mawa Ghat	7.87	7.81	7.68	-	-	-	-	-	-	-	7.67	7.97
Shimulia Ghat	-	-	-	-	-	-	-	-	-	-	7.78	7.99
Pakshi Ghat (US)	7.51	7.51	-	-	-	7.96	7.91	7.72	7.72	7.66	7.68	7.64
Pakshi Ghat (DS)	7.52	7.52	-	-	-	7.95	7.9	7.72	7.72	7.66	7.68	7.64
Baro kuti Ghat (U.S)	7.61	7.61	-	-	-	7.91	7.96	7.74	7.54	7.68	7.64	7.64
Baro kuti Ghat (D.S)	7.6	7.6	-	-	-	7.9	7.95	7.74	7.54	7.68	7.64	7.64
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-70. Level of DO (mg/l) of Padma River Water in 2020

Location of Padma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mawa Ghat	7.6	6.9	6.7	-	-	-	-	-	-	-	6.9	9.4
Shimulia Ghat	-	-	-	-	-	-	-	-	-	-	7.3	9
Pakshi Ghat (US)	7.1	7.1	-	-	-	8.1	7.82	7.76	7.56	7.44	7.44	7.48
Pakshi Ghat (DS)	7.1	7.1	-	-	-	8.1	7.82	7.76	7.56	7.44	7.44	7.48
Baro kuti Ghat (U.S)	7	7	-	-	-	7.82	8.1	7.62	7.54	7.6	7.54	7.58
Baro kuti Ghat (D.S)	7.1	7.1	-	-	-	7.82	8.1	7.62	7.54	7.6	7.54	7.58
EQS for Fisheries (5 mg/l \geq)												
EQS Industrial Discharge (4.5-8 mg/l)												

Table-71. Level of BOD (mg/l) of Padma River Water in 2020

Location of Padma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mawa Ghat	3.2	3.8	4.1	-	-	-	-	-	-	-	11	7
Shimulia Ghat	-	-	-	-	-	-	-	-	-	-	13	12
Pakshi Ghat (US)	2.2	2.2	-	-	-	2.2	2.3	2.2	2.3	2.3	2.3	2.3
Pakshi Ghat (DS)	2.1	2.1	-	-	-	2.2	2.3	2.2	2.3	2.3	2.3	2.3
Baro kuti Ghat (U.S)	2.3	2.3	-	-	-	2.3	2.2	2.3	2.4	2.4	2.4	2.4
Baro kuti Ghat (D.S)	2.2	2.2	-	-	-	2.3	2.2	2.3	2.4	2.4	2.4	2.4
EQS for Fisheries (≤ 6 mg/l)												
EQS Industrial Discharge (≤ 50 mg/l)												

Table-72. Level of TDS (mg/l) of Padma River Water in 2020

Location of Padma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mawa Ghat	110.2	118.2	119.2	-	-	-	-	-	-	-	84.8	98.4
Shimulia Ghat	-	-	-	-	-	-	-	-	-	-	83.1	92.9
Pakshi Ghat (US)	144	150	-	-	-	140	130	140	130	130	130	130
Pakshi Ghat (DS)	132	150	-	-	-	140	130	140	130	130	130	130
Baro kuti Ghat (U.S)	156	160	-	-	-	130	140	120	110	110	120	110
Baro kuti Ghat (D.S)	142	160	-	-	-	130	140	120	110	110	120	110
EQS for Industrial Discharge (≤ 2100mg/l)												

Table-73. Level of SS (mg/l) of Padma River Water in 2020

Location of Padma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mawa Ghat	45	36	36	-	-	-	-	-	-	-	118	37
Shimulia Ghat	-	-	-	-	-	-	-	-	-	-	58	40
Pakshi Ghat (US)	60	60	-	-	-	60	60	60	60	60	60	60
Pakshi Ghat (DS)	70	70	-	-	-	60	60	60	60	60	60	60
Baro kuti Ghat (U.S)	60	60	-	-	-	60	60	60	60	60	60	60
Baro kuti Ghat (D.S)	70	70	-	-	-	60	60	60	60	60	60	60
EQS for Industrial Discharge (≤ 150mg/l)												

Table-74. Level of EC (μ mhos/cm) of Padma River Water in 2020

Location of Padma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mawa Ghat	210	232	236	-	-	-	-	-	-	-	171.5	179.7
Shimulia Ghat	-	-	-	-	-	-	-	-	-	-	169	170.1
Pakshi Ghat (US)	320	300	-	-	-	280	260	280	260	130	260	260
Pakshi Ghat (DS)	316	300	-	-	-	280	260	280	260	130	260	260
Baro kuti Ghat (U.S)	316	310	-	-	-	260	280	240	220	220	230	220
Baro kuti Ghat (D.S)	298	310	-	-	-	260	280	240	220	220	230	220
EQS for Industrial Discharge (1200μmhos/cm)												

11.0 Korotoa River (Table: 75-80)**Table-75. Level of pH of Korotoa River Water in 2020**

Location of Korotoa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Dutta Bari Bridge (U.S)	6.95	6.95	-	-	-	7.24	7.24	7.1	7.1	7.02	6.98	7
Near Dutta Bari Bridge (D.S)	6.95	6.94	-	-	-	7.24	7.24	7.1	7.1	7.02	6.98	7
Near Foteh Ali Bridge (U.S)	6.93	6.95	-	-	-	7.28	7.28	7.08	7.2	7.08	7.01	7.1
Near Foteh Ali Bridge (D.S)	6.93	6.95	-	-	-	7.27	7.27	7.08	7.2	7.08	7.01	7.1
Near Matidali Bridge (U.S)	6.97	6.92	-	-	-	6.98	6.98	7.04	7.28	7.22	7.24	7.18
Near Matidali Bridge (D.S)	6.97	6.92	-	-	-	6.98	6.98	7.04	7.28	7.22	7.24	7.18
Near S.P Bridge (U.P)	6.9	6.93	-	-	-	7.2	7.2	6.98	7.1	6.98	6.97	6.96
Near S.P Bridge (D.S)	6.91	6.93	-	-	-	7.2	7.2	6.98	7.1	6.98	6.97	6.97
Shahjadpur (U.S)	7.41	7.4	-	-	-	7.66	7.66	7.46	7.52	7.56	7.62	7.58
Shahjadpur (D.S)	7.41	7.4	-	-	-	7.65	7.65	7.46	7.52	7.56	7.62	7.58
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-76. Level of DO (mg/l) of Korotoa River Water in 2020

Location of Korotoa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Dutta Bari Bridge (U.S)	3.4	3.3	-	-	-	3.77	3.77	3.2	4.4	4	3.8	3.9
Near Dutta Bari Bridge (D.S)	3.4	3.3	-	-	-	3.74	3.74	3.2	4.2	4	3.8	3.9
Near Foteh Ali Bridge (U.S)	3.3	3.3	-	-	-	3.42	3.42	3.1	4.1	3.9	3.7	3.9
Near Foteh Ali Bridge (D.S)	3.3	3.3	-	-	-	3.42	3.42	3.1	4.1	3.9	3.7	3.9
Near Matidali Bridge (U.S)	3.5	2.9	-	-	-	4.1	4.1	3.5	4.8	4.5	4.5	4.3
Near Matidali Bridge (D.S)	3.5	2.9	-	-	-	4.12	4.12	3.5	4.8	4.5	4.5	4.3
Near S.P Bridge (U.P)	3	3	-	-	-	3.7	3.7	2.9	4	3.5	3.5	3.4
Near S.P Bridge (D.S)	3	3	-	-	-	3.7	3.7	2.9	4	3.5	3.5	3.4
Shahjadpur (U.S)	6.8	6.9	-	-	-	7.82	7.82	7.58	7.52	7.56	7.58	7.54
Shahjadpur (D.S)	6.8	6.9	-	-	-	7.82	7.82	7.58	7.52	7.56	7.58	7.54
EQS Fisheries (5 mg/l\geq)												
EQS Industrial (4.5-8 mg/l)												

Table-77. Level of BOD (mg/l) of Korotoa River Water in 2020

Location of Korotoa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Dutta Bari Bridge (U.S)	6.3	6.2	-	-	-	5.6	5.6	6	4.5	4.6	4.8	4.6
Near Dutta Bari Bridge (D.S)	6.3	6.2	-	-	-	5.6	5.6	6	4.5	4.6	4.8	4.6
Near Foteh Ali Bridge (U.S)	6.1	6.1	-	-	-	5.4	5.4	5.6	4.4	4.8	4.8	4.8
Near Foteh Ali Bridge (D.S)	6.1	6.1	-	-	-	5.4	5.4	5.6	4.4	4.8	4.8	4.8
Near Matidali Bridge (U.S)	6	5.9	-	-	-	5.2	5.2	5.4	4	4.2	4.3	4.2
Near Matidali Bridge (D.S)	6	5.9	-	-	-	5.2	5.2	5.4	4	4.2	4.3	4.2
Near S.P Bridge (U.P)	6.2	6.3	-	-	-	5.6	5.6	6	4.8	5	5.2	5
Near S.P Bridge (D.S)	6.2	6.3	-	-	-	5.6	5.6	6	4.8	5	5.2	5
Shahjadpur (U.S)	2.1	2	-	-	-	2.3	2.3	2.3	2.3	2.4	2.3	2.3
Shahjadpur (D.S)	2.2	2.1	-	-	-	2.3	2.3	2.3	2.3	2.4	2.3	2.3
EQS Fisheries (≤ 6 mg/l)												
EQS Industrial (≤ 50 mg/l)												

Table-78. Level of TDS (mg/l) of Korotoa River Water in 2020

Location of Korotoa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Dutta Bari Bridge (U.S)	360	340	-	-	-	140	140	170	140	140	150	150
Near Dutta Bari Bridge (D.S)	360	340	-	-	-	140	140	170	140	140	150	150
Near Foteh Ali Bridge (U.S)	320	340	-	-	-	160	160	180	140	150	160	150
Near Foteh Ali Bridge (D.S)	320	340	-	-	-	160	160	180	140	150	160	150
Near Matidali Bridge (U.S)	330	320	-	-	-	140	140	160	130	140	150	140
Near Matidali Bridge (D.S)	330	320	-	-	-	140	140	160	130	140	150	140
Near S.P Bridge (U.P)	350	350	-	-	-	110	110	200	150	160	180	160
Near S.P Bridge (D.S)	350	350	-	-	-	110	110	200	150	160	180	160
Shahjadpur (U.S)	140	130	-	-	-	140	140	140	130	130	120	130
Shahjadpur (D.S)	140	130	-	-	-	140	140	140	130	130	120	130
EQS Industrial (≤ 2100mg/l)												

Table-79. Level of SS (mg/l) of Korotoa River Water in 2020

Location of Korotoa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Dutta Bari Bridge (U.S)	90	100	-	-	-	70	70	80	80	80	80	80
Near Dutta Bari Bridge (D.S)	100	100	-	-	-	70	70	80	80	80	80	80
Near Foteh Ali Bridge (U.S)	90	90	-	-	-	70	70	80	80	80	80	80
Near Foteh Ali Bridge (D.S)	80	90	-	-	-	70	70	80	80	80	80	80
Near Matidali Bridge (U.S)	100	80	-	-	-	70	70	70	70	70	70	70
Near Matidali Bridge (D.S)	90	80	-	-	-	70	70	70	70	70	70	70
Near S.P Bridge (U.P)	100	110	-	-	-	80	80	100	80	80	80	80
Near S.P Bridge (D.S)	90	100	-	-	-	80	80	100	80	80	80	80
Shahjadpur (U.S)	80	60	-	-	-	60	60	60	60	60	12	60
Shahjadpur (D.S)	80	60	-	-	-	60	60	60	60	60	12	60
EQS Industrial (≤ 150mg/l)												

Table-80. Level of EC (μ mhos/cm) of Korotoa River Water in 2020

Location of Korotoa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Dutta Bari Bridge (U.S)	720	680	-	-	-	280	280	340	280	280	300	300
Near Dutta Bari Bridge (D.S)	720	680	-	-	-	280	280	340	280	280	300	300
Near Foteh Ali Bridge (U.S)	710	670	-	-	-	310	310	360	280	300	320	300
Near Foteh Ali Bridge (D.S)	710	670	-	-	-	310	310	360	280	300	320	300
Near Matidali Bridge (U.S)	660	640	-	-	-	280	280	320	260	280	300	280
Near Matidali Bridge (D.S)	660	640	-	-	-	280	280	320	260	280	300	280
Near S.P Bridge (U.P)	690	700	-	-	-	220	220	400	300	320	360	320
Near S.P Bridge (D.S)	690	700	-	-	-	220	220	400	300	320	360	320
Shahjadpur (U.S)	280	260	-	-	-	280	280	280	260	260	240	260
Shahjadpur (D.S)	280	260	-	-	-	280	280	280	260	260	240	260
EQS Induseial (1200μmhos/cm)												

12.0 Teesta River (Table: 81-86)

Table-81. Level of pH of Teesta River Water in 2020

Location of Teesta river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Tista Bridge (U.S)	7.88	7.55	-	-	-	7.88	7.88	7.7	7.7	7.64	7.6	7.6
Near Tista Bridge (D.S)	7.88	7.54	-	-	-	7.88	7.88	7.7	7.7	7.64	7.6	7.6
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-82. Level of DO (mg/l) of Teesta River Water in 2020

Location of Teesta river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Tista Bridge (U.S)	7.84	7.1	-	-	-	7.84	7.84	7.64	7.3	7.52	7.52	7.5
Near Tista Bridge (D.S)	7.84	7.1	-	-	-	7.84	7.84	7.64	7.3	7.52	7.52	7.5
EQS Fisheries (5 mg/l \geq)												
EQS Industrial (4.5-8 mg/l)												

Table-83. Level of BOD (mg/l) of Teesta River Water in 2020

Location of Teesta river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Tista Bridge (U.S)	2.2	2.2	-	-	-	2.2	2.2	2.3	2.3	2.3	2.3	2.3
Near Tista Bridge (D.S)	2.2	2.1	-	-	-	2.2	2.2	2.3	2.3	2.3	2.3	2.3
EQS Fisheries (\leq 6 mg/l)												
EQS Industrial (\leq 50 mg/l)												

Table-84. Level of TDS (mg/l) of Teesta River Water in 2020

Location of Teesta river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Tista Bridge (U.S)	190	110	-	-	-	130	130	130	120	120	120	120
Near Tista Bridge (D.S)	190	110	-	-	-	130	130	130	120	120	120	120
EQS Industrial (\leq 2100mg/l)												

Table-85. Level of SS (mg/l) of Teesta River Water in 2020

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

Table-86. Level of Turbidity (NTU) of Teesta River Water in 2020

Location of Teesta river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Near Tista Bridge (U.S)	23.2	14.2	-	-	-	23.2	23.2	12.4	12.5	12.5	12.5	12
Near Tista Bridge (D.S)	23.2	14.1	-	-	-	23.2	23.2	12.4	12.5	12.5	12.5	12
EQS for Industrial Discharge (10 NTU)												

13.0 Karnaphuli River (Table: 87-92)

Table-87. Level of pH of Karnaphuli River Water in 2020

Location of Karnaphuli river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
CUFL Side Anowara	7.6	7.86	7.88	7.78	7.72	7.01	7.73	7.79	7.76	7.26	8.17	7.25
TSP Side, Patenga	7.02	7.32	7.64	7.58	7.1	7.16	7.78	7.84	7.83	7.42	8.24	7.58
KAFCO side	-	-	7.96	7.9	-	-	-	-	7.7	7.24	8.37	7.78
Chaktai Khal	7.49	7.55	7.69	7.33	7.22	7.2	7	7.1	7.1	7.12	8.11	7.57
15 no Ghat	-	-	-	-	-	-	-	-	7.64	-	8.19	-
Karnafully Mohona	7.68	7.7	7.88	7.76	7.65	7.79	7.69	7.73	7.69	7.28	8.11	6.54
1km Straight from patenga sea beach	7.72	7.82	7.89	7.82	7.69	7.86	7.82	7.8	7.7	6.94	8.03	7.01
Patenga charpara	7.75	7.67	7.78	7.7	7.64	7.5	7.46	7.48	7.65	7.05	8.09	7.04
1km Straight from CEPZ	7.73	7.89	7.96	7.86	7.6	7.2	7.72	7.78	7.64	7.03	8.06	7.14
Vatiyari Shipyard Area	8.12	8.05	-	-	-	7.77	7.8	7.86	7.31	7.8	7.68	7.2
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-88. Level of DO (mg/l) of Karnaphuli River Water in 2020

Location of Karnaphuli river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
CUFL Side Anowara	8.3	7.67	7.73	8.2	5.56	5.9	6.99	6.88	6.62	7.13	7.1	8.38
TSP Side, Patenga	7.38	7.7	6.17	6.45	4.39	5.29	6.38	6.3	6.44	7.35	7.28	6.37
KAFCO side	-	-	7.12	8.48	-	-	-	-	6.61	7.27	7.36	8.48
Chaktai Khal	5.43	5.68	2.86	3.38	0.78	4.07	4.59	4.5	4.58	4.6	4.14	5.86
15 no Ghat	-	-	-	-	-	-	-	-	6.48	-	5.49	-
Karnafully Mohona	8.49	8.56	8.42	8.61	7.69	6.79	6.69	6.9	6.76	7.12	7.59	8.47
1km Straight from patenga sea beach	8.53	8.4	8.41	8.7	6.8	7.2	7.2	7.1	7.04	6.65	7.63	7.87
Patenga charpara	8.59	8.67	7.41	8.62	7.22	7.15	5.53	5.39	7.16	6.68	8.16	7.65
1km Straight from CEPZ	8.26	8.2	8.02	8.69	7.35	7.55	6.93	6.8	6.72	6.99	8.33	7.65
Vatiyari Shipyard Area	7.67	7.89	-	-	-	7.31	7.3	7.2	6.17	7.45	7.6	7.39
EQS Fisheries (5 mg/l\geq)												
EQS Industries (4.5-8 mg/l)												

Table-89. Level of COD (mg/l) of Karnaphuli River Water in 2020

Location of Karnaphuli river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
CUFL Side Anowara	1395	1405	1388	740	420	317	260	270	278	157	141	770
TSP Side, Patenga	1101	1223	1125	668	89	170	182	190	190	98	128	330
KAFCO side	-	-	848	730	-	-	-	-	268	139	180	860
Chaktai Khal	310	289	272	125	181	145	130	135	128	140	170	400
15 no Ghat	-	-	-	-	-	-	-	-	170	-	140	-
Karnafully Mohona	1490	1380	1284	810	450	490	310	308	236	156	132	1030
1km Straight from patenga sea beach	1477	1410	1384	816	1230	1009	290	280	296	132	160	950
Patenga charpara	1187	1050	978	748	532	570	305	298	320	79	142	760
1km Straight from CEPZ	1241	1179	641	664	1163	930	264	250	192	169	250	440
Vatiyari Shipyard Area	610	545	-	-	-	427	227	230	168	132	152	460
EQS Industries (\leq200 mg/l)												

Table-90. Level of TDS (mg/l) of Karnaphuli River Water in 2020

Location of Karnaphuli river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
CUFL Side Anowara	17820	18327	18642	16340	5530	4630	1784	1800	2011	4720	11700	19630
TSP Side, Patenga	14520	15677	17614	16260	1478	3528	1465	1509	1770	2570	9660	11570
KAFCO side	-	-	16142	16000	-	-	-	-	2012	4560	13670	19660
Chaktai Khal	6810	5640	4982	1976	390	290	275	320	310	340	13210	7170
15 no Ghat	-	-	-	-	-	-	-	-	1863	-	12660	-
Karnafully Mohona	18960	18780	17242	16100	13750	10170	1717	1808	2129	4810	14250	20690
1km Straight from patenga sea beach	18240	18478	16582	15870	14140	11200	1342	1370	1651	4120	16480	17080
Patenga charpara	17400	17780	14480	15630	14445	11230	1330	1350	1364	2170	14930	17290
1km Straight from CEPZ	16690	17230	17412	16600	14930	10189	1336	1348	1353	2105	15000	16856
Vatiyari Shipyard Area	16530	16770	-	-	-	8510	1709	1700	1049	1509	13250	15255
EQS Industries (\leq200 mg/l)												

Table-91. Level of SS (mg/l) of Karnaphuli River Water in 2020

Location of Karnaphuli river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
CUFL Side Anowara	333	318	425	1330	203	220	734	780	682	183	170	273
TSP Side, Patenga	198	182	368	946	228	205	676	790	1508	83	190	128
KAFCO side	-	-	319	896	-	-	-	-	1430	117	165	280
Chaktai Khal	125	120	176	224	408	313	350	370	390	350	250	110
15 no Ghat	-	-	-	-	-	-	-	-	1070	-	241	-
Karnafully Mohona	493	405	686	1304	295	280	1180	1100	1652	64	204	320
1km Straight from patenga sea beach	627	578	768	900	910	428	1162	1090	1254	367	675	211
Patenga charpara	545	520	612	854	410	378	988	960	585	157	1018	262
1km Straight from CEPZ	669	590	776	1274	555	436	1128	1139	705	203	1120	191
Vatiyari Shipyard Area	445	390	-	-	-	310	442	430	86	70	480	314
EQS Industries (≤ 150 mg/l)												

Table-92. Level of EC (mg/l) of Karnaphuli River Water in 2020

Location of Karnaphuli river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
CUFL Side Anowara	26700	36630	33756	25500	9770	9310	3480	3509	3740	8070	19940	30080
TSP Side, Patenga	26780	31670	31121	25200	2780	7042	2980	3160	3340	4550	17650	19030
KAFCO side	-	-	25963	25000	-	-	-	-	3770	8610	21390	30900
Chaktai Khal	11110	11458	6810	3510	766	574	510	640	628	690	20245	12260
15 no Ghat	-	-	-	-	-	-	-	-	3510	-	21380	-
Karnafully Mohona	28100	37560	31452	25700	22700	20379	3430	3560	3990	8200	13900	30070
1km Straight from patenga sea beach	27200	36900	29802	24800	23200	22417	2710	2819	3130	7200	27300	23900
Patenga charpara	26200	35540	22712	24715	23650	22538	2680	2650	2600	3930	24900	23900
1km Straight from CEPZ	25100	34510	28623	25800	24300	20560	2690	2660	2580	3970	25000	23900
Vatiyari Shipyard Area	25866	33627	-	-	-	17119	2830	2900	2080	2840	2910	28100
EQS Industries (1200μmhos/cm)												

14.0 Halda River (Table: 93-98)**Table-93. Level of pH of Halda River Water in 2020**

Location of Halda river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mohona	8.46	7.69	8.17	8.12	8.55	6.73	8.34	8.4	7.35	7.12	7.77	7.03
Khandakiya Khal	7.66	7.33	8.21	8.17	7.36	7.4	7.57	7.49	7.13	7.08	7.84	6.9
Madari Khal (middle point)	8.04	7.81	7.78	7.73	7.53	6.74	7.67	7.7	6.91	6.98	7.79	7.12
Katakhali Khal	8.13	7.49	7.79	7.74	7.83	6.36	7.55	7.59	6.74	7.27	7.77	6.8
Krishna Khal	7.8	7.71	8.11	8.21	7.63	6.74	7.74	7.79	6.8	7.23	7.87	7.71
Boraikhali	-	-	-	-	-	-	-	-	-	-	-	7.02
Madarikhal (Breeding Point)	-	-	-	-	-	-	-	-	-	-	-	6.48
Noya Khal (Outside)	-	-	-	-	-	-	-	-	-	-	-	7.1
Noya Khal	-	-	-	-	-	-	-	-	-	-	-	7.18
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-94. Level of DO (mg/l) of Halda River Water in 2020

Location of Halda river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mohona	8.86	7.02	6.18	6.25	6.45	5.7	5.7	5.69	5.46	5.23	8.96	6.92
Khandakiya Khal	3.28	3.13	3.02	5.8	2.59	3.05	3.32	3.39	2.25	3.58	9.33	7.88
Madari Khal (middle point)	7.17	7.56	6.01	6.01	3.25	5.39	4.95	4.89	3.57	4.4	9.79	7.47
Katakhali Khal	7.21	4.09	4.12	5.88	4.41	3.6	3.24	3.28	2.58	5.44	9.65	7.6
Krishna Khal	5.07	5.25	6.08	6.08	4.03	5.15	4.5	4.58	0.9	5.26	8.08	7.66
Boraikhali	-	-	-	-	-	-	-	-	-	-	-	7.79
Madarikhali (Breeding Point)	-	-	-	-	-	-	-	-	-	-	-	7.63
Noya Khal (Outside)	-	-	-	-	-	-	-	-	-	-	-	0.66
Noya Khal	-	-	-	-	-	-	-	-	-	-	-	0.31
EQS Fisheries (5 mg/l\geq)												
EQS Industries (4.5-8 mg/l)												

Table-95. Level of COD (mg/l) of Halda River Water in 2020

Location of Halda river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mohona	89	80	85	12	34	9	70	75	79	90	15	20
Khandakiya Khal	156	176	172	15	73	11	90	99	35	40	14	12
Madari Khal (middle point)	42	60	62	36	14	27	80	89	40	26	26	16
Katakhali Khal	85	76	79	10	65	7	60	76	71	68	10	36
Krishna Khal	180	114	122	32	20	6	67	73	75	70	14	16
Boraikhali	-	-	-	-	-	-	-	-	-	-	-	88
Madarikhali (Breeding Point)	-	-	-	-	-	-	-	-	-	-	-	56
Noya Khal (Outside)	-	-	-	-	-	-	-	-	-	-	-	108
Noya Khal	-	-	-	-	-	-	-	-	-	-	-	140
EQS Industries (\leq200 mg/l)												

Table-96. Level of TDS (mg/l) of Halda River Water in 2020

Location of Halda river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mohona	55.9	56.2	78	69.7	64.5	55.6	51	60	37.5	44.2	55.8	88.5
Khandakiya Khal	171.8	252	264	83.9	118.3	125.9	67.5	72.5	94.9	71.2	56.4	80.5
Madari Khal (middle point)	67.4	60.5	89.2	85.4	79.5	54.8	52.9	50.8	54.9	72	63	65.3
Katakhali Khal	73.8	147.3	156.3	86.3	147.8	87.9	73.1	73	76.5	46.8	58.8	72.6
Krishna Khal	74.4	70.4	86.2	106.2	79.8	64.6	55.2	59	89.1	44.4	49.4	60.3
Boraikhali	-	-	-	-	-	-	-	-	-	-	-	80.3
Madarikhali (Breeding Point)	-	-	-	-	-	-	-	-	-	-	-	63.4
Noya Khal (Outside)	-	-	-	-	-	-	-	-	-	-	-	391
Noya Khal	-	-	-	-	-	-	-	-	-	-	-	667
Mohona	55.9	56.2	78	69.7	64.5	55.6	51	60	37.5	44.2	55.8	88.5
EQS Industries (\leq200 mg/l)												

Table-97. Level of SS (mg/l) of Halda River Water in 2020

Location of Halda river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mohona	52	43	63	112	105	73	82	89	54	39	42	171
Khandakiya Khal	415	356	372	89	158	148	91	99	34	37	40	49
Madari Khal (middle point)	90	60	101	101	98	389	64	68	67	102	57	135
Katakhali Khal	174	334	348	91	99	91	55	65	169	32	47	165
Krishna Khal	518	370	334	134	97	368	112	123	38	43	23	201
Boraikhali	-	-	-	-	-	-	-	-	-	-	-	163
Madarikhali (Breeding Point)	-	-	-	-	-	-	-	-	-	-	-	324
Noya Khal (Outside)	-	-	-	-	-	-	-	-	-	-	-	224
Noya Khal	-	-	-	-	-	-	-	-	-	-	-	168
EQS Industries (\leq150 mg/l)												

Table-98. Level of EC (mg/l) of Halda River Water in 2020

Location of Halda river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mohona	115.5	111.9	152.1	134.1	135.1	121.8	117.1	123	73.1	99.8	117	183
Khandakiya Khal	349	494	517.3	160.7	238	276	157.4	165.6	180.3	160.2	118.4	131.8
Madari Khal (middle point)	139.3	121.4	161.3	163.3	161.5	120.6	123.6	139.5	105	162.4	132.2	135.7
Katakhali Khal	152.3	289	298.2	165.2	299	192.4	168.5	164.5	145.1	106.2	123.4	15.7
Krishna Khal	154.4	139.5	171	203	161.7	141.4	129.3	140.6	169.3	100.6	103.8	125.5
Boraikhali	-	-	-	-	-	-	-	-	-	-	-	131.8
Madarikhal (Breeding Point)	-	-	-	-	-	-	-	-	-	-	-	132.8
Noya Khal (Outside)	-	-	-	-	-	-	-	-	-	-	-	78.5
Noya Khal	-	-	-	-	-	-	-	-	-	-	-	132.8
EQS Industries (1200µmhos/cm)												

15.0 Moyuri River (Table: 99-106)**Table-99. Level of pH of Moyuri River Water in 2020**

Location of Moyuri river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Gallamari Bridge (S)	7.73	7.49	7.89	-	-	-	-	7.74	7.75	-	7.76	8
Gallamari Bridge (M)	7.73	7.49	7.9	-	-	-	-	7.76	7.76	-	7.74	8
Gallamari Bridge (O)	7.74	7.49	7.88	-	-	-	-	7.28	7.69	-	7.76	7.76
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-100. Level of DO (mg/l) of Moyuri River Water in 2020

Location of Moyuri river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Gallamari Bridge (S)	0.26	1.9	1.9	-	-	-	-	2.77	2.8	-	0.84	2.73
Gallamari Bridge (M)	0.26	1.9	1.9	-	-	-	-	2.77	2.8	-	0.84	2.73
Gallamari Bridge (O)	0.26	1.9	1.9	-	-	-	-	2.77	2.8	-	0.84	2.73
EQS Fisheries (5 mg/l\geq)												
EQS Industries (4.5-8 mg/l)												

Table-101. Level of TDS (mg/l) of Moyuri River Water in 2020

Location of Moyuri river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Gallamari Bridge (S)	422	356	662	-	-	-	-	312	318	-	327	380
Gallamari Bridge (M)	422	356	664	-	-	-	-	312	316	-	327	380
Gallamari Bridge (O)	422	356	666	-	-	-	-	312	316	-	326	380
EQS Industries (\leq2100mg/l)												

Table-102. Level of Chloride (mg/l) of Moyuri River Water in 2020

Location of Moyuri river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Gallamari Bridge (S)	295	180	324	-	-	-	-	88	88	-	82	84
Gallamari Bridge (M)	294	180	328	-	-	-	-	88	88	-	82	84
Gallamari Bridge (O)	293	180	324	-	-	-	-	88	88	-	82	84
EQS Industries (150-600 mg/l)												

Table-103. Level of Turbidity (NTU) of Moyuri River Water in 2020

Location of Moyuri river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Gallamari Bridge (S)	31.2	32.3	34.6	-	-	-	-	74.7	75.2	-	76.2	78.3
Gallamari Bridge (M)	32.3	32.5	34.7	-	-	-	-	74.8	75.3	-	76.3	78.3
Gallamari Bridge (O)	30.3	31.9	34.8	-	-	-	-	74.6	75.3	-	76.4	78.3
EQS Industries (\leq10 NTU)												

Table-104. Level of SS (mg/l) of Moyuri River Water in 2020

Location of Moyuri river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Gallamari Bridge (S)	52	48	56	-	-	-	-	52	54	-	62	64
Gallamari Bridge (M)	51	48	58	-	-	-	-	60	60	-	60	68
Gallamari Bridge (O)	50	48	62	-	-	-	-	54	56	-	64	65
EQS Industries (150 mg/l)												

Table-105. Level of EC (µmhos/cm) of Moyuri River Water in 2020

Location of Moyuri river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Gallamari Bridge (S)	844	712	1328	-	-	-	-	626	636	-	657	763
Gallamari Bridge (M)	844	712	1340	-	-	-	-	626	634	-	657	763
Gallamari Bridge (O)	844	712	1332	-	-	-	-	626	634	-	654	763
EQS Industries (1200 µmhos/cm)												

Table-106. Level of Total Alkalinity (mg/l) of Moyuri River Water in 2020

Location of Moyuri river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Gallamari Bridge (S)	34	34	34	-	-	-	-	34	34	-	34	34
Gallamari Bridge (M)	34	34	34	-	-	-	-	34	34	-	34	34
Gallamari Bridge (O)	34	34	34	-	-	-	-	34	34	-	34	34
EQS Industries (150 mg/l)												

16.0 Bhairab River (Table: 107-114)**Table-107. Level of pH of Bhairab River Water in 2020**

Location of Bhairab river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Noapara Ghat (S)	-	7.75	7.82	-	-	-	-	8.2	8.13	-	8.32	8.32
Noapara Ghat (M)	-	7.74	7.81	-	-	-	-	8.2	8.11	-	8.33	8.32
Noapara Ghat (O)	-	7.74	7.82	-	-	-	-	8.2	8.13	-	8.32	8.35
Fultala Ghat(S)	-	8.2	8.1	-	-	-	-	8.35	8.35	-	8.32	8.13
Fultala Ghat (M)	-	8.2	8.1	-	-	-	-	8.35	8.35	-	8.36	8.13
Fultala Ghat (O)	-	8.2	8.1	-	-	-	-	8.35	8.35	-	8.35	8.14
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-108. Level of DO (mg/l) of Bhairab River Water in 2020

Location of Bhairab river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Noapara Ghat (S)	-	4.7	5.3	-	-	-	-	4.62	3.68	-	4.75	5.5
Noapara Ghat (M)	-	4.7	5.3	-	-	-	-	4.62	3.68	-	4.75	5.5
Noapara Ghat (O)	-	4.7	5.3	-	-	-	-	4.62	3.68	-	4.75	5.5
Fultala Ghat(S)	-	5.27	6.6	-	-	-	-	7.35	7.32	-	7.3	7.3
Fultala Ghat (M)	-	5.27	6.6	-	-	-	-	7.35	7.32	-	7.3	7.3
Fultala Ghat (O)	-	5.27	6.6	-	-	-	-	7.35	7.32	-	7.3	7.3
EQS Fisheries (5 mg/l≥)												
EQS Industries (4.5-8 mg/l)												

Table-109. Level of BOD (mg/l) of Bhairab River Water in 2020

Location of Bhairab river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Noapara Ghat (S)	-	0.2	0.5	-	-	-	-	1.8	1.8	-	2.2	2.5
Noapara Ghat (M)	-	0.2	0.5	-	-	-	-	1.8	1.8	-	2.2	2.5
Noapara Ghat (O)	-	0.2	0.5	-	-	-	-	1.8	1.8	-	2.2	2.5
Fultala Ghat(S)	-	0.3	0.8	-	-	-	-	1.8	1.8	-	2.2	2.5
Fultala Ghat (M)	-	0.3	0.8	-	-	-	-	1.8	1.8	-	2.2	2.5
Fultala Ghat (O)	-	0.3	0.8	-	-	-	-	1.8	1.8	-	2.2	2.5
EQS Fisheries (≤6 mg/l)												
EQS Industrial (≤50 mg/l)												

Table-110. Level of TDS (mg/l) of Bhairab River Water in 2020

Location of Bhairab river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Noapara Ghat (S)	-	458	1162	-	-	-	-	66	84	-	92	82
Noapara Ghat (M)	-	459	1166	-	-	-	-	66	84	-	92	82
Noapara Ghat (O)	-	458	1160	-	-	-	-	66	84	-	92	82
Fultala Ghat(S)	-	400	1154	-	-	-	-	66	74	-	86	92
Fultala Ghat (M)	-	400	1156	-	-	-	-	66	74	-	86	92
Fultala Ghat (O)	-	400	1156	-	-	-	-	66	74	-	86	92

EQS Industries (≤ 2100 mg/l)**Table-111. Level of Chloride (mg/l) of Bhairab River Water in 2020**

Location of Bhairab river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Noapara Ghat (S)	-	228	732	-	-	-	-	48	52	-	52	60
Noapara Ghat (M)	-	228	732	-	-	-	-	48	52	-	52	60
Noapara Ghat (O)	-	228	730	-	-	-	-	48	52	-	52	62
Fultala Ghat(S)	-	200	714	-	-	-	-	48	48	-	48	50
Fultala Ghat (M)	-	200	718	-	-	-	-	48	48	-	48	50
Fultala Ghat (O)	-	200	718	-	-	-	-	48	48	-	48	50

EQS Industries (150-600 mg/l)

Table-112. Level of Turbidity (NTU) of Bhairab River Water in 2020

Location of Bhairab river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Noapara Ghat (S)	-	58.5	60.3	-	-	-	-	84.2	84.2	-	83.2	85.2
Noapara Ghat (M)	-	58.5	60.4	-	-	-	-	84.3	84.3	-	83.3	85.3
Noapara Ghat (O)	-	58.4	60.5	-	-	-	-	84.4	84.4	-	83.2	85.2
Fultala Ghat(S)	-	55.2	58.3	-	-	-	-	85.3	85.3	-	83.2	80.5
Fultala Ghat (M)	-	55.4	58.4	-	-	-	-	85.4	85.4	-	83.6	80.6
Fultala Ghat (O)	-	54.2	58.6	-	-	-	-	85.5	85.5	-	83.5	80.7

EQS Industries (≤ 10 NTU)**Table-113. Level of EC (μ mhos/cm) of Bhairab River Water in 2020**

Location of Bhairab river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Noapara Ghat (S)	-	914	2322	-	-	-	-	135.4	169.6	-	185.2	567
Noapara Ghat (M)	-	916	2330	-	-	-	-	135.4	169.6	-	185.3	567
Noapara Ghat (O)	-	914	2318	-	-	-	-	135.4	168.2	-	184.6	567
Fultala Ghat(S)	-	798	2308	-	-	-	-	133.7	148.2	-	173.5	186.5
Fultala Ghat (M)	-	798	2312	-	-	-	-	133.7	148.3	-	173.3	186.5
Fultala Ghat (O)	-	798	2312	-	-	-	-	133.7	148.2	-	172.2	186.5

EQS Industries (μ mhos/cm)**Table-114. Level of Total Alkalinity (mg/l) of Bhairab River Water in 2020**

Location of Bhairab river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Noapara Ghat (S)	-	34	34	-	-	-	-	34	34	-	34	34
Noapara Ghat (M)	-	34	34	-	-	-	-	34	34	-	34	34
Noapara Ghat (O)	-	34	34	-	-	-	-	34	34	-	34	34
Fultala Ghat(S)	-	34	34	-	-	-	-	34	34	-	34	34
Fultala Ghat (M)	-	34	34	-	-	-	-	34	34	-	34	34
Fultala Ghat (O)	-	34	34	-	-	-	-	34	34	-	34	34

EQS Industries (150 mg/l)

17.0 Rupsa River (Table: 115-122)

Table-115. Level of pH of Rupsa River Water in 2020

Location of Rupsa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Rupsa Ghat (S)	-	8.42	8.1	-	-	-	-	8.01	7.67	-	7.3	7.6
Rupsa Ghat (M)	-	8.42	8.1	-	-	-	-	8.01	7.67	-	7.29	7.6
Rupsa Ghat (O)	-	8.42	8	-	-	-	-	8.01	7.67	-	7.29	7.6
Labanchara Ghat (S)	-	7.76	8	-	-	-	-	8.19	8.18	-	7.35	7.55
Labanchara Ghat (M)	-	7.76	8.1	-	-	-	-	8.19	8.18	-	8.36	7.56
Labanchara Ghat (O)	-	7.76	8	-	-	-	-	8.19	8.18	-	8.35	7.75
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-116. Level of DO (mg/l) of Rupsa River Water in 2020

Location of Rupsa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Rupsa Ghat (S)	-	7.1	7.2	-	-	-	-	5.28	6.8	-	6.41	7.81
Rupsa Ghat (M)	-	7.1	7.2	-	-	-	-	5.28	6.8	-	6.41	7.81
Rupsa Ghat (O)	-	7.1	7.2	-	-	-	-	5.28	6.8	-	6.41	7.81
Labanchara Ghat (S)	-	8.47	7.8	-	-	-	-	7.1	6.37	-	6.4	7.87
Labanchara Ghat (M)	-	8.47	7.8	-	-	-	-	7.1	6.37	-	6.4	7.87
Labanchara Ghat (O)	-	8.47	7.8	-	-	-	-	7.1	6.37	-	6.4	7.87
EQS Fisheries (5 mg/l \geq)												
EQS Industrial (4.5-8 mg/l)												

Table-117. Level of BOD (mg/l) of Rupsa River Water in 2020

Location of Rupsa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Rupsa Ghat (S)	-	1.1	1.2	-	-	-	-	1.2	1.2	-	1.5	1.6
Rupsa Ghat (M)	-	1.2	1.2	-	-	-	-	1.2	1.2	-	1.5	1.6
Rupsa Ghat (O)	-	1	1.2	-	-	-	-	1.2	1.2	-	1.5	1.6
Labanchara Ghat (S)	-	1.2	1.2	-	-	-	-	1.6	1.6	-	1.6	1.6
Labanchara Ghat (M)	-	1.2	1.2	-	-	-	-	1.6	1.6	-	1.6	1.6
Labanchara Ghat (O)	-	1.1	1.2	-	-	-	-	1.6	1.6	-	1.6	1.6
EQS Fisheries (\leq 6 mg/l)												
EQS Industrial (\leq 50 mg/l)												

Table-118. Level of Chloride (mg/l) of Rupsa River Water in 2020

Location of Rupsa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Rupsa Ghat (S)	-	770	942	-	-	-	-	40	40	-	54	54
Rupsa Ghat (M)	-	770	944	-	-	-	-	40	40	-	54	54
Rupsa Ghat (O)	-	770	944	-	-	-	-	40	40	-	54	54
Labanchara Ghat (S)	-	959	948	-	-	-	-	48	48	-	56	56
Labanchara Ghat (M)	-	959	948	-	-	-	-	48	48	-	56	56
Labanchara Ghat (O)	-	960	944	-	-	-	-	48	48	-	56	56
EQS Industrial (150-600 mg/l)												

Table-119. Level of SS (mg/l) of Rupsa River Water in 2020

Location of Rupsa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Rupsa Ghat (S)	-	58	62	-	-	-	-	70	70	-	68	70
Rupsa Ghat (M)	-	57	64	-	-	-	-	74	74	-	70	70
Rupsa Ghat (O)	-	57	64	-	-	-	-	72	72	-	70	70
Labanchara Ghat (S)	-	60	66	-	-	-	-	72	72	-	72	72
Labanchara Ghat (M)	-	61	66	-	-	-	-	70	70	-	72	72
Labanchara Ghat (O)	-	62	66	-	-	-	-	72	72	-	72	72
EQS Industrial (150 mg/l)												

Table-120. Level of Turbidity (NTU) of Rupsa River Water in 2020

Location of Rupsa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Rupsa Ghat (S)	-	59.8	94.2	-	-	-	-	81.2	81.3	-	81.2	81.5
Rupsa Ghat (M)	-	59.7	94.4	-	-	-	-	81.3	81.4	-	81.3	81.5
Rupsa Ghat (O)	-	58.7	94.4	-	-	-	-	81.4	81.4	-	81.3	81.5
Labanchara Ghat (S)	-	57.4	94.8	-	-	-	-	80.4	80.9	-	82.2	82.2
Labanchara Ghat (M)	-	57.4	94.8	-	-	-	-	80.5	80.9	-	82.2	82.2
Labanchara Ghat (O)	-	57.35	94.4	-	-	-	-	80.6	80.9	-	82.3	82.3

EQS Industrial (≤ 10 NTU)

Table-121. Level of EC (μ mhos/cm) of Rupsa River Water in 2020

Location of RupsaRupsa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
RupsaRupsa Ghat (S)	-	3080	3088	-	-	-	-	245	153.4	-	140.6	191.7
RupsaRupsa Ghat (M)	-	3080	3094	-	-	-	-	245	153.4	-	140.6	191.7
RupsaRupsa Ghat (O)	-	3080	3094	-	-	-	-	245	153.2	-	140.6	191.7
Labanchara Ghat (S)	-	584	3098	-	-	-	-	131	132.8	-	146.2	196.2
Labanchara Ghat (M)	-	584	3098	-	-	-	-	131	132.6	-	146.2	196.2
Labanchara Ghat (O)	-	584	3094	-	-	-	-	131	132.6	-	146.6	196.2

EQS (1200 μ mhos/cm)

Table-122. Level of Total Alkalinity (mg/l) of Rupsa River Water in 2020

Location of RupsaRupsa river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
RupsaRupsa Ghat (S)	-	34	34	-	-	-	-	34	34	-	34	34
RupsaRupsa Ghat (M)	-	34	34	-	-	-	-	34	34	-	34	34
RupsaRupsa Ghat (O)	-	34	34	-	-	-	-	34	34	-	34	34
Labanchara Ghat (S)	-	34	34	-	-	-	-	34	34	-	34	34
Labanchara Ghat (M)	-	34	34	-	-	-	-	34	34	-	34	34
Labanchara Ghat (O)	-	34	34	-	-	-	-	34	34	-	34	34

EQS Industrial (150 mg/l)

18.0 Mathavanga River (Table: 126-130)

Table-123. Level of pH of Mathavanga River Water in 2020

Location of Mathavanga river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Pipe Ghat,(M.P)	-	8.26	-	-	-	-	-	7.92	7.96	-	8.23	8.2
Pipe Ghat, (U.S)	-	8.17	-	-	-	-	-	7.92	7.97	-	8.24	8.21
PipeGhat, (D.S)	-	8.03	-	-	-	-	-	7.92	7.95	-	8.23	8.22

EQS Fisheries (6.5-8.5)

EQS Industrial (6.0-9.0)

Table-124. Level of DO (mg/l) of Mathavanga River Water in 2020

Location of Mathavanga river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Pipe Ghat,(M.P)	-	9.95	-	-	-	-	-	4.8	5.4	-	5.26	6.58
Pipe Ghat, (U.S)	-	8.25	-	-	-	-	-	4.8	5.3	-	0.16	6.51
PipeGhat, (D.S)	-	1.61	-	-	-	-	-	4.8	5.4	-	5.24	6.54

EQS Fisheries (5 mg/l \geq)

EQS Industries (4.5-8 mg/l)

Table-125. Level of BOD (mg/l) of Mathavanga River Water in 2020

Location of Mathavanga river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Pipe Ghat,(M.P)	-	0.5	-	-	-	-	-	0.5	0.8	-	0.9	0.8
Pipe Ghat, (U.S)	-	0.2	-	-	-	-	-	0.4	0.8	-	0	0.8
PipeGhat, (D.S)	-	0.2	-	-	-	-	-	0.4	0.8	-	0.7	0.7

EQS Fisheries (≤ 6 mg/l)

EQS Industries (≤ 50 mg/l)

Table-126. Level of TDS (mg/l) of Mathavanga River Water in 2020

Location of Mathavanga river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Pipe Ghat,(M.P)	-	145	-	-	-	-	-	64	58	-	72	76
Pipe Ghat, (U.S)	-	150	-	-	-	-	-	64	60	-	74	76
PipeGhat, (D.S)	-	153	-	-	-	-	-	64	60	-	72	76
EQS Industries (≤ 2100 mg/l)												

Table-127. Level of Chloride (mg/l) of Mathavanga River Water in 2020

Location of Mathavanga river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Pipe Ghat,(M.P)	-	73	-	-	-	-	-	20	20	-	20	20
Pipe Ghat, (U.S)	-	75	-	-	-	-	-	20	20	-	20	20
PipeGhat, (D.S)	-	76	-	-	-	-	-	20	20	-	20	20
EQS Industries (150-600 mg/l)												

Table-128. Level of Turbidity (NTU) of Mathavanga River Water in 2020

Location of Mathavanga river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Pipe Ghat,(M.P)	-	33.4	-	-	-	-	-	28.3	27.1	-	26.5	32
Pipe Ghat, (U.S)	-	48.3	-	-	-	-	-	28.3	27.2	-	26.6	32
PipeGhat, (D.S)	-	42.1	-	-	-	-	-	28.3	27.3	-	26.7	32
EQS Industries (≤ 10 NTU)												

Table-129. Level of EC (μ mhos/cm) of Mathavanga River Water in 2020

Location of Mathavanga river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Pipe Ghat,(M.P)	-	290	-	-	-	-	-	128	118	-	146.6	152.4
Pipe Ghat, (U.S)	-	299	-	-	-	-	-	128	122	-	148.6	152.2
PipeGhat, (D.S)	-	305	-	-	-	-	-	128	122	-	146.6	152.3
EQS Industries (1200 μ mhos/cm)												

Table-130. Level of Total Alkalinity (mg/l) of Mathavanga River Water in 2020

Location of Mathavanga river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Pipe Ghat,(M.P)	-	32	-	-	-	-	-	32	32	-	32	24.5
Pipe Ghat, (U.S)	-	32	-	-	-	-	-	32	32	-	32	24.2
PipeGhat, (D.S)	-	32	-	-	-	-	-	32	32	-	32	24.5
EQS Industries (150 mg/l)												

19.0 Pashur River (Table: 131-138)

Table-131. Level of pH of Pashur River Water in 2020

Location of Pashur river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mongla Poart (S.P)	-	8.43	8.1	-	-	-	-	8.1	8.08	-	8.36	8.3
Mongla Poart (M.P)	-	8.43	8.1	-	-	-	-	8.1	8.08	-	8.36	8.3
Mongla Poart (O.P)	-	8.43	8.1	-	-	-	-	8.1	8.08	-	8.34	8.32
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-132 Level of DO (mg/l) of Pashur River Water in 2020

Location of Pashur river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mongla Poart (S.P)	-	4.7	7.9	-	-	-	-	6.3	7.3	-	6.46	6.9
Mongla Poart (M.P)	-	4.7	7.9	-	-	-	-	6.3	7.3	-	6.46	6.9
Mongla Poart (O.P)	-	4.7	7.9	-	-	-	-	6.3	7.3	-	6.46	6.9
EQS Fisheries (5 mg/l \geq)												
EQS Industries (4.5-8 mg/l)												

Table-133. Level of BOD (mg/l) of Pashur River Water in 2020

Location of Pashur river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mongla Poart (S.P)	-	0.4	1.5	-	-	-	-	1.8	1.8	-	1.8	1.8
Mongla Poart (M.P)	-	0.4	1.5	-	-	-	-	1.8	1.8	-	1.8	1.8
Mongla Poart (O.P)	-	0.4	1.5	-	-	-	-	1.8	1.8	-	1.8	1.8
EQS Fisheries (≤ 6 mg/l)												
EQS Industries (≤ 50 mg/l)												

Table-134. Level of TDS (mg/l) of Pashur River Water in 2020

Location of Pashur river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mongla Poart (S.P)	-	2840	3160	-	-	-	-	234	84	-	124	130
Mongla Poart (M.P)	-	2840	3160	-	-	-	-	234	84	-	124	130
Mongla Poart (O.P)	-	2840	3162	-	-	-	-	234	84	-	124	130
EQS Industries (≤ 2100 mg/l)												

Table-135. Level of Chloride (mg/l) of Pashur River Water in 2020

Location of Pashur river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mongla Poart (S.P)	-	1420	1824	-	-	-	-	96	60	-	64	64
Mongla Poart (M.P)	-	1420	1824	-	-	-	-	96	60	-	64	64
Mongla Poart (O.P)	-	1420	1828	-	-	-	-	96	60	-	64	64
EQS Industries (150-600 mg/l)												

Table-136. Level of Turbidity (NTU) of Pashur River Water in 2020

Location of Pashur river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mongla Poart (S.P)	-	69.9	80.6	-	-	-	-	81.2	81.2	-	81.2	80.2
Mongla Poart (M.P)	-	69.8	80.7	-	-	-	-	81.3	81.3	-	81.3	80.3
Mongla Poart (O.P)	-	69.8	80.8	-	-	-	-	81.3	81.3	-	81.4	80.4
EQS Industries (≤ 10 NTU)												

Table-137. Level of EC (μ mhos/cm) of Pashur River Water in 2020

Location of Pashur river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mongla Poart (S.P)	-	5680	6320	-	-	-	-	468	170	-	249	260
Mongla Poart (M.P)	-	5680	6320	-	-	-	-	468	170	-	249	260
Mongla Poart (O.P)	-	5680	6324	-	-	-	-	468	170	-	249	260
EQS Industries (1200 μ mhos/cm)												

Table-138. Level of Total Alkalinity (mg/l) of Pashur River Water in 2020

Location of Pashur river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mongla Poart (S.P)	-	34	36	-	-	-	-	34	34	-	34	34
Mongla Poart (M.P)	-	34	36	-	-	-	-	34	34	-	34	34
Mongla Poart (O.P)	-	34	36	-	-	-	-	34	34	-	34	34
EQS Industries (150 mg/l)												

20.0 Khakshiali River (Table: 139-146)

Table-139. Level of pH of Khakshiali River Water in 2020

Location of Khakshiali river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kaliganj (S.P)	-	8.26	-	-	-	-	-	8.2	8.11	-	8.05	8.24
Kaliganj (M.P)	-	8.26	-	-	-	-	-	8.2	8.11	-	8.05	8.24
Kaliganj (O.P)	-	8.27	-	-	-	-	-	8.2	8.1	-	8.06	8.23
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-140 Level of DO (mg/l) of Khakshiali River Water in 2020

Location of Khakshiali river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kaliganj (S.P)	-	7.65	-	-	-	-	-	6.3	6.36	-	6.16	6.84
Kaliganj (M.P)	-	7.65	-	-	-	-	-	6.3	6.36	-	6.16	6.84
Kaliganj (O.P)	-	7.65	-	-	-	-	-	6.3	6.36	-	6.16	6.84
EQS Fisheries (5 mg/l \geq)												
EQS Industries (4.5-8 mg/l)												

Table-141. Level of BOD (mg/l) of Khakshiali River Water in 2020

Location of Khakshiali river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kaliganj (S.P)	-	1.1	-	-	-	-	-	1.2	1.1	-	1.2	1.6
Kaliganj (M.P)	-	1	-	-	-	-	-	1.2	1.1	-	1.2	1.6
Kaliganj (O.P)	-	1.1	-	-	-	-	-	1.2	1.1	-	1.2	1.6
EQS Fisheries (\leq 6 mg/l)												
EQS Industries (\leq 50 mg/l)												

Table-142. Level of TDS (mg/l) of Khakshiali River Water in 2020

Location of Khakshiali river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kaliganj (S.P)	-	978	-	-	-	-	-	370	472	-	262	274
Kaliganj (M.P)	-	978	-	-	-	-	-	370	472	-	262	274
Kaliganj (O.P)	-	978	-	-	-	-	-	372	472	-	262	274
EQS Industries (\leq 2100mg/l)												

Table-143. Level of Chloride (mg/l) of Khakshiali River Water in 2020

Location of Khakshiali river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kaliganj (S.P)	-	488	-	-	-	-	-	94	84	-	64	76
Kaliganj (M.P)	-	489	-	-	-	-	-	94	84	-	64	76
Kaliganj (O.P)	-	489	-	-	-	-	-	94	84	-	64	76
EQS Industries (150-600 mg/l)												

Table-144. Level of Turbidity (NTU) of Khakshiali River Water in 2020

Location of Khakshiali river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kaliganj (S.P)	-	87.6	-	-	-	-	-	81.1	84.1	-	73.4	72.4
Kaliganj (M.P)	-	87.8	-	-	-	-	-	81.2	84.2	-	73.5	72.5
Kaliganj (O.P)	-	87.6	-	-	-	-	-	81.2	84.2	-	73.6	72.6
EQS Industries (\leq 10 NTU)												

Table-145. Level of EC (μ mhos/cm) of Khakshiali River Water in 2020

Location of Khakshiali river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kaliganj (S.P)	-	1954	-	-	-	-	-	740	947	-	526	544
Kaliganj (M.P)	-	1956	-	-	-	-	-	740	947	-	528	544
Kaliganj (O.P)	-	1956	-	-	-	-	-	746	947	-	528	546
EQS Industries (1200 μ mhos/cm)												

Table-146. Level of SS (mg/l) of Khakshiali River Water in 2020

Location of Khakshiali river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kaliganj (S.P)	-	69	-	-	-	-	-	62	64	-	56	50
Kaliganj (M.P)	-	68	-	-	-	-	-	62	64	-	56	50
Kaliganj (O.P)	-	68	-	-	-	-	-	62	62	-	56	50
EQS Industries (150 mg/l)												

21.0 Gorai River (Table: 147-154)

Table-147. Level of pH of Gorai River Water in 2020

Location of Gorai river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kustia (S.P)	-	7.39	-	-	-	-	-	8.2	8.15	-	8.02	8.26
Kustia (M.P)	-	7.38	-	-	-	-	-	8.2	8.18	-	8.02	8.26
Kustia (O.P)	-	7.38	-	-	-	-	-	8.2	8.16	-	8.02	8.26
Magura (S.P)	-	8.22	-	-	-	-	-	8.01	8.06	-	8.1	8.18
Magura (M.P)	-	8.22	-	-	-	-	-	8.01	8.07	-	8.1	8.18
Magura (O.P)	-	8.22	-	-	-	-	-	8.01	8.07	-	8.1	8.18
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-148. Level of DO (mg/l) of Gorai River Water in 2020

Location of Gorai river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kustia (S.P)	-	7.07	-	-	-	-	-	3.77	4.9	-	5.4	8.74
Kustia (M.P)	-	7.06	-	-	-	-	-	3.77	4.8	-	5.4	8.74
Kustia (O.P)	-	7.04	-	-	-	-	-	3.77	4.9	-	5.4	8.74
Magura (S.P)	-	9.25	-	-	-	-	-	5.2	5.3	-	5.5	8.52
Magura (M.P)	-	9.25	-	-	-	-	-	5.2	5.1	-	5.5	8.52
Magura (O.P)	-	9.25	-	-	-	-	-	5.2	5.2	-	5.5	8.52
EQS Fisheries (5 mg/l \geq)												
EQS Industries (4.5-8 mg/l)												

Table-149. Level of BOD (mg/l) of Gorai River Water in 2020

Location of Gorai river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kustia (S.P)	-	1.2	-	-	-	-	-	1.2	1.4	-	1.7	2.1
Kustia (M.P)	-	1.2	-	-	-	-	-	1.2	1.4	-	1.7	2.1
Kustia (O.P)	-	1.2	-	-	-	-	-	1.2	1.4	-	1.7	2.1
Magura (S.P)	-	0.4	-	-	-	-	-	1	1.3	-	1.6	1.8
Magura (M.P)	-	0.4	-	-	-	-	-	1	1.2	-	1.6	1.8
Magura (O.P)	-	0.4	-	-	-	-	-	1	1.3	-	1.6	1.8
EQS Fisheries (\leq 6 mg/l)												
EQS Industries (\leq 50 mg/l)												

Table-150. Level of TDS (mg/l) of Gorai River Water in 2020

Location of Gorai river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kustia (S.P)	-	502	-	-	-	-	-	46	48	-	52	80
Kustia (M.P)	-	502	-	-	-	-	-	46	48	-	52	80
Kustia (O.P)	-	502	-	-	-	-	-	46	48	-	52	80
Magura (S.P)	-	501	-	-	-	-	-	52	50	-	50	74
Magura (M.P)	-	506	-	-	-	-	-	52	50	-	50	74
Magura (O.P)	-	506	-	-	-	-	-	52	50	-	50	74
EQS Industries (\leq 2100mg/l)												

Table-151. Level of Chloride (mg/l) of Gorai River Water in 2020

Location of Gorai river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kustia (S.P)	-	251	-	-	-	-	-	18	18	-	18	18
Kustia (M.P)	-	252	-	-	-	-	-	18	18	-	18	18
Kustia (O.P)	-	251	-	-	-	-	-	18	18	-	18	18
Magura (S.P)	-	250	-	-	-	-	-	22	22	-	22	22
Magura (M.P)	-	253	-	-	-	-	-	22	22	-	22	22
Magura (O.P)	-	253	-	-	-	-	-	22	22	-	22	22
EQS Industries (150-600 mg/l)												

Table-152. Level of Turbidity (NTU) of Gorai River Water in 2020

Location of Gorai river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kustia (S.P)	-	32.8	-	-	-	-	-	30.9	28.6	-	29.6	24.6
Kustia (M.P)	-	32.9	-	-	-	-	-	30.9	28.6	-	29.6	24.6
Kustia (O.P)	-	32.8	-	-	-	-	-	30.8	28.7	-	29.6	24.6
Magura (S.P)	-	29.6	-	-	-	-	-	32.1	32.5	-	33.4	30.4
Magura (M.P)	-	29.5	-	-	-	-	-	32.1	32.6	-	32.5	30.5
Magura (O.P)	-	29.4	-	-	-	-	-	32.2	32.7	-	32.6	30.6
EQS Industries (≤ 10 NTU)												

Table-153. Level of EC ($\mu\text{mohos/cm}$) of Gorai River Water in 2020

Location of Gorai river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kustia (S.P)	-	1004	-	-	-	-	-	93.9	98.2	-	104	162.4
Kustia (M.P)	-	1004	-	-	-	-	-	93.9	98.24	-	104	162.4
Kustia (O.P)	-	1004	-	-	-	-	-	93.9	98.24	-	104	162.4
Magura (S.P)	-	1002	-	-	-	-	-	104.2	102.5	-	102	148.2
Magura (M.P)	-	1012	-	-	-	-	-	104.2	102.58	-	102	148.2
Magura (O.P)	-	1012	-	-	-	-	-	104.2	102.55	-	102	148.2
EQS Industries ($1200\mu\text{mohos/cm}$)												

Table-154. Level of SS (mg/l) of Gorai River Water in 2020

Location of Gorai river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kustia (S.P)	-	42	-	-	-	-	-	46	44	-	50	48
Kustia (M.P)	-	42	-	-	-	-	-	46	46	-	48	48
Kustia (O.P)	-	43	-	-	-	-	-	48	46	-	48	48
Magura (S.P)	-	35	-	-	-	-	-	40	44	-	54	54
Magura (M.P)	-	36	-	-	-	-	-	44	48	-	54	54
Magura (O.P)	-	38	-	-	-	-	-	40	40	-	54	54
EQS Industries (150 mg/l)												

22.0 Modhumoti River (Table: 155-162)**Table-155. Level of pH of Modhumoti River Water in 2020**

Location of Modhumoti river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bagerhat (O.S)	-	7.83	-	-	-	-	-	8.09	8.02	-	7.43	7.52
Bagerhat (M.S)	-	7.83	-	-	-	-	-	8.09	8.02	-	7.41	7.54
Bagerhat (O.S)	-	7.83	-	-	-	-	-	8.09	8.02	-	7.41	7.53
EQS Fisheries ($6.5-8.5$)												
EQS Industrial ($6.0-9.0$)												

Table-156. Level of DO (mg/l) of Modhumoti River Water in 2020

Location of Modhumoti river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bagerhat (O.S)	-	9.58	-	-	-	-	-	6.1	6.5	-	5.5	5.5
Bagerhat (M.S)	-	9.58	-	-	-	-	-	6.1	6.5	-	5.5	5.5
Bagerhat (O.S)	-	9.58	-	-	-	-	-	6.1	6.5	-	5.5	5.5
EQS Fisheries ($5\text{ mg/l} \geq$)												
EQS Industries ($4.5-8\text{ mg/l}$)												

Table-157. Level of BOD (mg/l) of Modhumoti River Water in 2020

Location of Modhumoti river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bagerhat (O.S)	-	0.4	-	-	-	-	-	1.9	1.9	-	1.7	1.9
Bagerhat (M.S)	-	0.5	-	-	-	-	-	1.9	1.9	-	1.7	1.9
Bagerhat (O.S)	-	0.3	-	-	-	-	-	1.9	1.9	-	1.7	1.9
EQS Fisheries ($\leq 6\text{ mg/l}$)												
EQS Industries ($\leq 50\text{ mg/l}$)												

Table-158. Level of TDS (mg/l) of Modhumoti River Water in 2020

Location of Modhumoti river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bagerhat (O.S)	-	100	-	-	-	-	-	46	42	-	78	82
Bagerhat (M.S)	-	100	-	-	-	-	-	46	42	-	78	82
Bagerhat (O.S)	-	100	-	-	-	-	-	46	42	-	78	82
EQS Industries (≤ 2100 mg/l)												

Table-159. Level of Chloride (mg/l) of Modhumoti River Water in 2020

Location of Modhumoti river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bagerhat (O.S)	-	50	-	-	-	-	-	24	24	-	32	32
Bagerhat (M.S)	-	50	-	-	-	-	-	24	24	-	32	32
Bagerhat (O.S)	-	50	-	-	-	-	-	24	24	-	32	32
EQS Industries (150-600 mg/l)												

Table-160. Level of Turbidity (NTU) of Modhumoti River Water in 2020

Location of Modhumoti river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bagerhat (O.S)	-	34.8	-	-	-	-	-	28.6	30.6	-	28.1	24.6
Bagerhat (M.S)	-	32.9	-	-	-	-	-	28.6	30.6	-	28.2	24.7
Bagerhat (O.S)	-	33.8	-	-	-	-	-	28.6	30.7	-	28.3	24.6
EQS Industries (≤ 10 NTU)												

Table-161. Level of EC (μ mhos/cm) of Modhumoti River Water in 2020

Location of Modhumoti river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bagerhat (O.S)	-	200	-	-	-	-	-	90.2	86.8	-	159.5	164
Bagerhat (M.S)	-	200	-	-	-	-	-	90.2	86.8	-	159.5	164
Bagerhat (O.S)	-	200	-	-	-	-	-	90.2	86.8	-	159.5	164
EQS Industries (1200 μ mhos/cm)												

Table-162. Level of SS (mg/l) of Modhumoti River Water in 2020

Location of Modhumoti river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Bagerhat (O.S)	-	42	-	-	-	-	-	46	46	-	50	54
Bagerhat (M.S)	-	41	-	-	-	-	-	46	46	-	50	54
Bagerhat (O.S)	-	40	-	-	-	-	-	44	44	-	54	54
EQS Industries (150 mg/l)												

23.0 Beel Dakatia River (Table: 163-169)**Table-163. Level of pH of Beel Dakatia River Water in 2020**

Location of Beel Dakatia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Khulna (O.S)	8.14	7.72	7.72	-	-	-	-	7.7	7.77	-	7.85	7.89
Khulna (M.S)	8.14	7.72	7.75	-	-	-	-	7.7	7.78	-	7.86	7.88
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-164. Level of DO (mg/l) of Beel Dakatia River Water in 2020

Location of Beel Dakatia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Khulna (O.S)	8.77	5.71	5.8	-	-	-	-	6.19	6.25	-	2.1	2.18
Khulna (M.S)	8.77	5.71	5.9	-	-	-	-	6.19	6.25	-	2.1	2.19
EQS Fisheries (5 mg/l \geq)												
EQS Industries (4.5-8 mg/l)												

Table-165. Level of TDS (mg/l) of Beel Dakatia River Water in 2020

Location of Beel Dakatia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Khulna (O.S)	365	403	756	-	-	-	-	208	218	-	272	280
Khulna (M.S)	366	404	762	-	-	-	-	210	216	-	272	280
EQS Industries (≤ 2100 mg/l)												

Table-166. Level of Chloride (mg/l) of Beel Dakatia River Water in 2020

Location of Beel Dakatia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Khulna (O.S)	508	203	402	-	-	-	-	82	82	-	72	72
Khulna (M.S)	504	202	402	-	-	-	-	82	82	-	72	72
EQS Industries (150-600 mg/l)												

Table-167. Level of Turbidity (NTU) of Beel Dakatia River Water in 2020

Location of Beel Dakatia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Khulna (O.S)	58.2	58.6	58.6	-	-	-	-	42.4	42.8	-	44.3	45.1
Khulna (M.S)	57.2	57.9	58.5	-	-	-	-	42.6	42.8	-	44.4	45.2
EQS Industries (≤ 10 NTU)												

Table-168. Level of EC (μ mhos/cm) of Beel Dakatia River Water in 2020

Location of Beel Dakatia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Khulna (O.S)	730	806	1512	-	-	-	-	417	438	-	545	560
Khulna (M.S)	732	808	1522	-	-	-	-	420	432	-	544	562
EQS Industries (1200 μ mhos/cm)												

Table-169. Level of SS (mg/l) of Beel Dakatia River Water in 2020

Location of Beel Dakatia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Khulna (O.S)	58	57	58	-	-	-	-	40	48	-	52	56
Khulna (M.S)	57	56	60	-	-	-	-	44	48	-	52	56
EQS Industries (150 mg/l)												

24.0 Kirtankhola River (Table: 170-175)**Table-170. Level of pH of Kirtankhola River Water in 2020**

Location of Kirtankhola river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Launch Ghat (S)	7.2	7.8	-	-	-	-	7.8	7.5	7.3	7.5	7.8	7.8
Launch Ghat (M)	7.3	7.5	-	-	-	-	7.7	7.6	7.1	7.4	7.9	7.7
Dopdopia Kheyaghat (S)	7.8	7.6	-	-	-	-	-	7.6	6.3	6.5	8	7.5
Dopdopia Kheyaghat (M)	7.6	7.4	-	-	-	-	-	7.5	6.5	6.7	7.9	7.4
Beltola Fery Gaht (S)	8	8	-	-	-	-	8	7.3	7.4	7.6	-	-
Beltola Fery Gaht (M)	7.9	7.9	-	-	-	-	7.9	7.2	7.2	7.5	-	-
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-171. Level of DO (mg/l) of Kirtankhola River Water in 2020

Location of Kirtankhola river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Launch Ghat (S)	7.4	8.2	-	-	-	-	5.6	5.2	5.2	5.3	5.1	6
Launch Ghat (M)	7.6	8	-	-	-	-	5.4	5.3	5	5.1	5.2	5.8
Dopdopia Kheyaghat (S)	7.9	8.1	-	-	-	-	-	5.4	5.3	5.6	5	6.2
Dopdopia Kheyaghat (M)	7.8	8.1	-	-	-	-	-	5.3	5.4	5.2	5.2	6.5
Beltola Fery Gaht (S)	8.5	8.5	-	-	-	-	5.5	5.5	5.3	5.4	-	-
Beltola Fery Gaht (M)	8	8.4	-	-	-	-	5.4	5.2	5.5	5.2	-	-
EQS Fisheries (5 mg/l \geq)												
EQS Industries (4.5-8 mg/l)												

Table-172. Level of BOD (mg/l) of Kirtankhola River Water in 2020

Location of Kirtankhola river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Launch Ghat (S)	2.2	3.2	-	-	-	-	2.1	2.6	3	2.4	2.8	2.2
Launch Ghat (M)	2	3	-	-	-	-	2.4	2.4	3.2	2.6	2.6	2.4
Dopdopia Kheyaghat (S)	2.3	3	-	-	-	-	-	2.2	2.8	2	2.4	2.3
Dopdopia Kheyaghat (M)	2.1	3.3	-	-	-	-	-	2.5	2.6	2.4	2	2
Beltola Fery Gaht (S)	2.1	3.4	-	-	-	-	2.2	2.4	2.6	2.2	-	-
Beltola Fery Gaht (M)	2	3.6	-	-	-	-	2.3	2.6	2.4	2.4	-	-
EQS Fisheries (≤ 6 mg/l)												
EQS Industries (≤ 50 mg/l)												

Table-173. Level of TDS (mg/l) of Kirtankhola River Water in 2020

Location of Kirtankhola river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Launch Ghat (S)	90	94	-	-	-	-	95	102	105	104	145	140
Launch Ghat (M)	86	88	-	-	-	-	101	102	101	103	147	105
Dopdopia Kheyaghat (S)	92	92	-	-	-	-	-	105	129	132	115	143
Dopdopia Kheyaghat (M)	98	84	-	-	-	-	-	105	125	129	116	141
Beltola Fery Gaht (S)	95	92	-	-	-	-	105	150	103	100	-	-
Beltola Fery Gaht (M)	92	86	-	-	-	-	100	157	100	99	-	-
EQS Industries (≤ 2100 mg/l)												

Table-174. Level of TS (mg/l) of Kirtankhola River Water in 2020

Location of Kirtankhola river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Launch Ghat (S)	170	160	-	-	-	-	117	122	127	124	160	161
Launch Ghat (M)	166	156	-	-	-	-	121	120	125	123	159	124
Dopdopia Kheyaghat (S)	168	162	-	-	-	-	-	127	147	148	129	159
Dopdopia Kheyaghat (M)	172	158	-	-	-	-	-	127	145	147	128	155
Beltola Fery Gaht (S)	150	157	-	-	-	-	129	170	119	122	-	-
Beltola Fery Gaht (M)	152	164	-	-	-	-	122	175	118	119	-	-
EQS Industries (2250 mg/l)												

Table-175. Level of EC (μ mhos/cm) of Kirtankhola River Water in 2020

Location of Kirtankhola river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Launch Ghat (S)	330	318	-	-	-	-	188	202	210	5.3	290	279
Launch Ghat (M)	332	320	-	-	-	-	200	200	200	5.1	294	208
Dopdopia Kheyaghat (S)	332	322	-	-	-	-	-	206	258	5.6	230	286
Dopdopia Kheyaghat (M)	334	324	-	-	-	-	-	208	250	5.2	232	283
Beltola Fery Gaht (S)	310	313	-	-	-	-	207	300	206	5.4	-	-
Beltola Fery Gaht (M)	312	316	-	-	-	-	198	312	198	5.2	-	-
EQS Industries ($\leq 1200\mu$ mhos/cm)												

25.0 Tatulia River (Table: 176-181)**Table-176. Level of pH of Tatulia River Water in 2020**

Location of Tatulia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Vadura Launch Ghat (S)	-	7.9	-	-	-	-	-	7.7	-	-	7.4	-
Vadura Launch Ghat (M)	-	7.8	-	-	-	-	-	7.6	-	-	7.6	-
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-177. Level of DO (mg/l) of Tatulia River Water in 2020

Location of Tatulia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Vadura Launch Ghat (S)	-	8.1	-	-	-	-	-	5.2	-	-	5	-
Vadura Launch Ghat (M)	-	8	-	-	-	-	-	5.1	-	-	5.2	-
EQS Fisheries (5 mg/l \geq)												
EQS Industries (4.5-8 mg/l)												

Table-178. Level of BOD (mg/l) of Tatulia River Water in 2020

Location of Tatulia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Vadura Launch Ghat (S)	-	3.3	-	-	-	-	-	2.2	-	-	3.1	-
Vadura Launch Ghat (M)	-	3.5	-	-	-	-	-	2.4	-	-	3.2	-
EQS Fisheries (≤ 6 mg/l)												
EQS Industries (≤ 50 mg/l)												

Table-179. Level of TDS (mg/l) of Tatulia River Water in 2020

Location of Tatulia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Vadura Launch Ghat (S)	-	88	-	-	-	-	-	93	-	-	111	-
Vadura Launch Ghat (M)	-	84	-	-	-	-	-	92	-	-	110	-
EQS Industries (≤ 2100 mg/l)												

Table-180. Level of EC (μ mohos/cm) of Tatulia River Water in 2020

Location of Tatulia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Vadura Launch Ghat (S)	-	312	-	-	-	-	-	183	-	-	221	-
Vadura Launch Ghat (M)	-	310	-	-	-	-	-	182	-	-	220	-
EQS Industries (1200 μ mohos/cm)												

Table-181. Level of TS (mg/l) of Tatulia River Water in 2020

Location of Tatulia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Vadura Launch Ghat (S)	-	156	-	-	-	-	-	113	-	-	123	-
Vadura Launch Ghat (M)	-	158	-	-	-	-	-	114	-	-	122	-
EQS Industrial (≤ 2250 mg/l)												

26.0 Sugandha River (Table: 182-187)**Table-182. Level of pH of Sugandha River Water in 2020**

Location of Sugandha river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Jhalkathi Launch Ghat (S)	7.1	-	-	-	-	-	-	-	-	7.8	-	-
Jhalkathi Launch Ghat (M)	7.4	-	-	-	-	-	-	-	-	7.7	-	-
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-183. Level of DO (mg/l) of Sugandha River Water in 2020

Location of Sugandha river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Jhalkathi Launch Ghat (S)	8	-	-	-	-	-	-	-	-	6.4	-	-
Jhalkathi Launch Ghat (M)	7.9	-	-	-	-	-	-	-	-	6.2	-	-
EQS Fisheries (5 mg/l \geq)												
EQS Industries (4.5-8 mg/l)												

Table-184. Level of BOD (mg/l) of Sugandha River Water in 2020

Location of Sugandha river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Jhalkathi Launch Ghat (S)	2.2	-	-	-	-	-	-	-	-	2	-	-
Jhalkathi Launch Ghat (M)	2.1	-	-	-	-	-	-	-	-	1.8	-	-
EQS Fisheries (≤ 6 mg/l)												
EQS Industries (≤ 50 mg/l)												

Table-185. Level of TDS (mg/l) of Sugandha River River Water in 2020

Location of Sugandha river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Jhalkathi Launch Ghat (S)	90	-	-	-	-	-	-	-	-	156	-	-
Jhalkathi Launch Ghat (M)	87	-	-	-	-	-	-	-	-	153	-	-
EQS Industries (≤ 2100 mg/l)												

Table-186. Level of EC ($\mu\text{mhos/cm}$) of Sugandha River Water in 2020

Location of Sugandha river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Jhalkathi Launch Ghat (S)	325	-	-	-	-	-	-	-	-	312	-	-
Jhalkathi Launch Ghat (M)	322	-	-	-	-	-	-	-	-	306	-	-
EQS Industries (1200 $\mu\text{mhos/cm}$)												

Table-187. Level of TS (mg/l) of Sugandha River Water in 2020

Location of Sugandha river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Jhalkathi Launch Ghat (S)	74	-	-	-	-	-	-	-	-	18	-	-
Jhalkathi Launch Ghat (M)	75	-	-	-	-	-	-	-	-	16	-	-
EQS Industrial ($\leq 2250\text{mg/l}$)												

27.0 Lohalia River (Table: 188-193)**Table-188. Level of pH of Lohalia River Water in 2020**

Location of Lohalia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Patuakhali Launch Ghat (S)	-	7.9	-	-	-	-	-	7.3	-	-	7.8	-
Patuakhali Launch Ghat (M)	-	7.8	-	-	-	-	-	7.7	-	-	7.9	-
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-189. Level of DO (mg/l) of Lohalia River Water in 2020

Location of Lohalia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Patuakhali Launch Ghat (S)	-	7.8	-	-	-	-	6.3	-	-	5.8	-	-
Patuakhali Launch Ghat (M)	-	7.9	-	-	-	-	6.6	-	-	5.6	-	-
EQS Fisheries (5 mg/l \geq)												
EQS Industries (4.5-8 mg/l)												

Table-190. Level of BOD (mg/l) of Lohalia River Water in 2020

Location of Lohalia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Patuakhali Launch Ghat (S)	-	3.6	-	-	-	-	-	2	-	-	2.2	-
Patuakhali Launch Ghat (M)	-	3.2	-	-	-	-	-	1.6	-	-	2.4	-
EQS Fisheries ($\leq 6\text{ mg/l}$)												
EQS Industries ($\leq 50\text{ mg/l}$)												

Table-191. Level of TDS (mg/l) of Lohalia River River Water in 2020

Location of Lohalia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Patuakhali Launch Ghat (S)	-	90	-	-	-	-	-	171	-	-	213	-
Patuakhali Launch Ghat (M)	-	94	-	-	-	-	-	180	-	-	214	-
EQS Industries ($\leq 2100\text{mg/l}$)												

Table-192. Level of TS (mg/l) of Lohalia River Water in 2020

Location of Lohalia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Patuakhali Launch Ghat (S)	-	170	-	-	-	-	-	191	-	-	188	-
Patuakhali Launch Ghat (M)	-	166	-	-	-	-	-	200	-	-	184	-
EQS Industrial ($\leq 2250\text{mg/l}$)												

Table-193. Level of EC ($\mu\text{mhos/cm}$) of Lohalia River Water in 2020

Location of Lohalia river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Patuakhali Launch Ghat (S)	-	336	-	-	-	-	-	342	-	-	426	-
Patuakhali Launch Ghat (M)	-	331	-	-	-	-	-	360	-	-	428	-
EQS Industries (1200 $\mu\text{mhos/cm}$)												

28.0 Surma River (Table: 194-199)

Table-194. Level of pH of Surma River Water in 2020

Location of Surma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mendibag Point	7	7.2	7.1	6.1	7.4	6.73	7.1	7.2	7.2	7.87	5.94	-
Kin Bridge Point	6.9	7	7.4	-	-	6.82	6.9	7.3	7	7.85	6.04	-
Sheaik Ghat	6.8	7.3	7.3	6.2	9.5	6.44	6.7	7.1	7.2	7.89	6.12	-
Chhatak	7.3	-	7.3	6.3	5.8	6.91	7.2	7.1	-	-	6.7	-
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-195. Level of DO (mg/l) of Surma River Water in 2020

	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mendibag Point	6.8	7	6.9	6.86	7	7.19	6.9	7.1	7	6.8	8.94	-
Kin Bridge Point	6.7	7.1	7	-	-	7.72	7	6.8	6.8	6.84	8.91	-
Sheaik Ghat	7	6.9	7.1	6.03	6.2	7.69	6.8	7	7.1	6.82	8.06	-
Chhatak	6.8	7.3	7.3	6.85	6.8	6.6	6.7	6.8	-	-	7.84	-
EQS Fisheries (5 mg/l\geq)												
EQS Industries (4.5-8 mg/l)												

Table-196. Level of BOD (mg/l) of Surma River Water in 2020

Location of Surma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mendibag Point	2	2	1.9	1.5	1.4	1.9	2.9	2.3	2.3	2.2	1.8	-
Kin Bridge Point	3	3	2	-	-	2	2	2.2	2.4	2.4	1.5	-
Sheaik Ghat	3	2	2.1	2.5	2.1	2.2	2.1	2.4	2.6	2.6	1.4	-
Chhatak	4	-	1.6	1.6	1.4	2.4	2.4	2.1	-	-	1.6	-
EQS Fisheries (\leq6 mg/l)												
EQS Industries (\leq50 mg/l)												

Table-197. Level of COD (mg/l) of Surma River Water in 2020

Location of Surma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mendibag Point	9	9	8	6	5	13	13	12	13	13	14	-
Kin Bridge Point	8	11	8	-	-	12	10	11	16	15	14	-
Sheaik Ghat	10	8	7	9	8	14	12	13	18	18	12	-
Chhatak	14	-	5	6	8	14	10	11	-	-	10	-
EQS Industries (\leq200mg/l)												

Table-198. Level of TDS (mg/l) of Surma River Water in 2020

Location of Surma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mendibag Point	62	60	61	74	68	33.2	34.3	35.2	34.6	40.7	60.5	-
Kin Bridge Point	64	62	62	-	-	33.2	33.9	37.3	36.2	41.2	58	-
Sheaik Ghat	67	64	64	148	267	36.3	37.2	38.2	36.8	41.6	60	-
Chhatak	66	-	62	60	74	42.2	44.3	42.5	-	-	36.8	-
EQS Industries (\leq2100mg/l)												

Table-199. Level of EC (μ mhos/cm) of Surma River Water in 2020

Location of Surma river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mendibag Point	126	124	122	301	151	76.2	72.2	70.9	71.2	91.5	119.2	-
Kin Bridge Point	130	126	121	-	-	78	71.9	72.3	70.9	92.3	121.3	-
Sheaik Ghat	132	131	118	317	584	79.3	70.3	71.2	72.1	94.5	122	-
Chhatak	134	--	126	160	139	81.2	88.2	89.3	-	-	78.9	-
EQS Industries (\leq1200μmhos/cm)												

29.0 Kushiara River (Table: 200-205)

Table-200. Level of pH of Kushiara River Water in 2020

Location of Kushiara river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Fenchuganj Point	-	-	-	7.1	6.4	7.07	6.7	7.3	6.8	7.2	-	-
EQS Fisheries (6.5-8.5)												
EQS Industrial (6.0-9.0)												

Table-201. Level of DO (mg/l) of Kushiara River Water in 2020

Location of Kushiara river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Fenchuganj Point	-	-	-	7.02	6.4	7.51	6.7	6.9	6.7	7.28	-	-
EQS Fisheries (5 mg/l \geq)												
EQS Industries (4.5-8 mg/l)												

Table-202. Level of BOD (mg/l) of Kushiara River Water in 2020

Location of Kushiara river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Kushiyara Point	-	-	-	1.4	1.2	6.1	1.9	2.6	3	1.8	-	-
EQS Fisheries (\leq 6 mg/l)												
EQS Industries (\leq 50 mg/l)												

Table-203. Level of COD (mg/l) of Kushiara River Water in 2020

Location of Kushiara river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Fenchuganj Point	-	-	-	5	6	11	12	14	16	10	-	-
EQS Industries (200 mg/l)												

Table-204. Level of TDS (mg/l) of Kushiara River Water in 2020

Location of Kushiara river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Fenchuganj Point	-	-	-	52	43	26	40.2	41.2	62.6	27.2	-	-
EQS Industries (2100 mg/l)												

Table-205. Level of EC (μ mhos/cm) of Kushiara River Water in 2020

Location of Kushiara river	Jan	Feb	Mar	Apl	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Fenchuganj Point	-	-	-	108	83	55.7	81.4	42.4	84.3	62.7	-	-
EQS Industries (1200 μ mhos/cm)												

Annex-2

List of Tables for different parameters of Lake Water

I. Gulshazn Lake (Table: 206-214)

Table-206. Level of pH of Gulshan Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	7.39	7.17	7.25	7.87	7.56	7.36	7.18	7.16	7.44	7.32	7.25	7.37
Near Housing, South Bridge	7.74	7.16	7.47	7.54	7.44	7.45	7.3	7.1	7.42	7.15	7.32	7.42
Near Lake View Clinic	7.59	7.12	7.26	7.76	7.58	7.44	7.18	7.22	7.47	7.26	7.39	7.42
North Side Gulshan Baridhara Lake	7.93	7.13	7.57	7.56	6.99	7.39	7.3	6.99	7.55	7.26	7.76	7.28
Taltola Shooting Complex, South Side	7.97	7.37	7.38	7.45	7.43	7.54	7.18	7.31	7.53	7.42	7.69	7.49
EQS for fisheries 6.5-8.5												

Table-207. Level of DO (mg/l) of Gulshan Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	0	2.5	6.1	13.73	5	5.6	5.8	2.84	2.5	3.07	3.2	3
Near Housing, South Bridge	3	2.4	1.8	16.43	6.8	7.1	5.2	2.5	0.98	5.45	3	2.9
Near Lake View Clinic	9.3	0.9	5.3	13.41	7.8	5.6	7	3.62	0.79	2.95	2.9	2.6
North Side Gulshan Baridhara Lake	5.8	1.3	10.5	18.81	9	9	7.2	2	2.86	4.55	3.7	3.87
Taltola Shooting Complex, South Side	5.8	9.9	8.8	9.02	6.9	7.5	5.8	3.96	2.33	5.73	4.94	3.96
EQS for fisheries ≥ 5 mg/l												

Table-207. Level of BOD (mg/l) of Gulshan Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	50	34	58	45	40	-	16	20	6	11	43	45.6
Near Housing, South Bridge	36	36	33	34	46	-	14	9	8.2	22	16	37.2
Near Lake View Clinic	15	42	50	32	47	-	16	10	7.2	26	34	43.2
North Side Gulshan Baridhara Lake	21	29	36	36	18	-	14	12	4.9	22	32	43.2
Taltola Shooting Complex, South Side	39	28	44	38	24	-	12	16	8.2	28	26	38.4
EQS for fisheries $6 \leq$ mg/l												

Table-208. Level of COD (mg/l) of Gulshan Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	183	119	163	156	148	-	72	66	107	144	95	107
Near Housing, South Bridge	141	122	115	123	153	-	64	15	92	227	85	117
Near Lake View Clinic	183	161	153	110	157	-	66	16	110	176	95	151
North Side Gulshan Baridhara Lake	124	115	131	134	75	-	52	37	98	95	90	207
Taltola Shooting Complex, South Side	161	110	138	128	107	-	50	44	63	88	87	107
EQS for wastewater after treatment from industrial units 200 mg/l												

Table-209. Level of TDS (mg/l) of Gulshan Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	239	260	249	297	194	-	178	186	195.9	235	204.6	241
Near Housing, South Bridge	283	253	290	244	199	-	164	197	195.3	194	202	254
Near Lake View Clinic	266	259	249	263	192	-	150	188	195.2	197	204	238
North Side Gulshan Baridhara Lake	267	262	276	238	210	-	162	201	196.5	230	199	283
Taltola Shooting Complex, South Side	267	280	296	234	220	-	148	193	229	212	209	260
EQS for wastewater after treatment from industrial units 2100 mg/l												

Table-210. Level of Turbidity (NTU) of Gulshan Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	65.9	82.5	32.4	47	38.4	-	51	16.3	32.6	45.4	162	46.1
Near Housing, South Bridge	71.9	73.6	15	47.9	34.6	-	50	3.59	31	48.6	170	80.2
Near Lake View Clinic	57.2	90.3	16.5	45.9	33.8	-	52	10.6	22.8	49	169	48.9
North Side Gulshan Baridhara Lake	60	46.4	15.8	42.3	39.6	-	53	12	25.6	50.1	172	65.2
Taltola Shooting Complex, South Side	66.3	52.2	23.8	44.5	35.6	-	55	16.5	22.1	52	45.4	49.8
EQS for wastewater after treatment from industrial units 10 NTU												

Table-211. Level of Chloride (mg/l) of Gulshan Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	63	38.5	34	45	25	-	32	22.5	25.5	51	16	88.5
Near Housing, South Bridge	64	34.5	47	48	28	-	34	27.5	28	37.5	16.5	78
Near Lake View Clinic	65	34	36	46	24	-	32	23.3	29	39	17	68
North Side Gulshan Baridhara Lake	66	39.5	45	47	26	-	30	24.5	39.5	56	19.5	72.5
Taltola Shooting Complex, South Side	67	50	46	46	32	-	32	24	28.5	32.5	15	51.5
EQS for wastewater after treatment from industrial units 150-600 mg/l												

Table-212. Level of SS (mg/l) of Gulshan Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	139	180	87	134	108	-	42	17	28	105	74	15
Near Housing, South Bridge	167	182	21	128	112	-	48	6	55	95	65	46
Near Lake View Clinic	159	186	20	123	102	-	40	16	24	112	74	35
North Side Gulshan Baridhara Lake	147	123	31	144	88	-	38	15	28	98	81	42
Taltola Shooting Complex, South Side	156	145	28	136	98	-	46	21	31	106	24	18
EQS for wastewater after treatment from industrial units 150 mg/l												

Table-213. Level of Total Alkalinity (mg/l) of Gulshan Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	112	198	224	234	160	-	150	62	168	180	104	179
Near Housing, South Bridge	124	188	188	238	168	-	152	106	162	190	102	216
Near Lake View Clinic	106	192	210	220	166	-	150	120	167	164	106	224
North Side Gulshan Baridhara Lake	108	170	168	238	164	-	152	117	149	204	96	265
Taltola Shooting Complex, South Side	114	182	176	236	172	-	150	112	175	228	98	187
EQS for wastewater after treatment from industrial units 150 mg/l												

Table-214. Level of EC (μ mhos/cm) of Gulshan Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Near United Hospital, Kalachadpur	418	484	488	588	388	-	264	415	365	449	360	449
Near Housing, South Bridge	492	475	570	488	396	-	288	439	361	369	358	473
Near Lake View Clinic	462	486	491	526	394	-	256	443	362	376	356	446
North Side Gulshan Baridhara Lake	461	491	541	476	420	-	248	446	364	436	360	528
Taltola Shooting Complex, South Side	462	524	588	466	440	-	254	430	423	403	365	484

II. Dhanmondi Lake (Table: 215-224)**Table-215. Level of pH of Dhanmondi Lake Water in 2020**

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	8.15	7.3	7.96	7.64	7.72	6.87	7.17	7.1	7.29	7.29	7.51	7.14
Near Gigatola Pilkhana More	7.92	7.38	7.34	7.58	7.78	7.59	7.38	7.03	7.37	7.35	8.48	7.18
Near Dhanmondi-32 Bangabandhu Jadughor	8.25	7.31	7.45	7.82	7.65	7.44	7.3	7.15	7.33	7.3	7.48	7.19
Near Dhanmondi-32 Bridge	8.82	7.32	7.56		7.64	7.28	7.13	7.09	7.28	7.3	7.5	7.12
EQS for fisheries 6.5-8.5												

Table-216. Level of DO (mg/l) of Dhanmondi Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	6	3.8	6	4.8	5.8	5	5.2	5.2	2.65	4.09	9.8	3.9
Near Gigatola Pilkhana More	4.5	4.2	3.2	4.8	6.2	6.2	5.4	4.46	3.2	3.17	12.1	5.3
Near Dhanmondi-32 Bangabandhu Jadughor	7.8	3	5.2	4.7	6.4	7	5.3	6.37	2.5	2.69	8.4	5.2
Near Dhanmondi-32 Bridge	10.2	2.4	6.2	4.4	5.7	6.4	5.4	5.8	3.27	4.65	10.2	7.1
EQS for fisheries ≥ 5 mg/l												

Table-217. Level of BOD (mg/l) of Dhanmondi Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	7	5	6	8	6	5	6	14	8	14	21	8
Near Gigatola Pilkhana More	10	5	10	10	5	4	7	12	7.2	16	17	12
Near Dhanmondi-32 Bangabandhu Jadughor	10	6	6	12	7	5	6	10	6.8	20	21	9
Near Dhanmondi-32 Bridge	9	5	8	10	5	6	5	18	6	14	10.2	8
EQS for fisheries $6 \leq$ mg/l												

Table-218. Level of COD (mg/l) of Dhanmondi Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	29	28	46	39	24	23	16	44	28	39	17	22
Near Gigatola Pilkhana More	34	26	41	43	22	20	18	41	30	71	56	34
Near Dhanmondi-32 Bangabandhu Jadughor	38	28	34	46	23	22	14	37	32	90	41	26
Near Dhanmondi-32 Bridge	30	27	40	44	21	25	16	66	20	14	41	24
EQS for wastewater after treatment from industrial units 200 mg/l												

Table-219. Level of TDS (mg/l) of Dhanmondi Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	137.9	145.6	156.1	163	134	164	142	121	142.7	127	149	154
Near Gigatola Pilkhana More	136.3	146.5	198.2	148	123	144	138	114	122.3	122.9	113.2	115.2
Near Dhanmondi-32 Bangabandhu Jadughor	161.7	173.3	168.2	139	119	134	145	116	154.3	151.1	153.6	120.6
Near Dhanmondi-32 Bridge	306	156.9	163.6	140	129	146	143	143	151.8	137	151.2	131.9
EQS for wastewater after treatment from industrial units 2100 mg/l												

Table-220. Level of Turbidity (NTU) of Dhanmondi Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	2.62	12.17	10.8	22.1	6.89	12.3	10.2	13.4	12	-	25.7	19.8
Near Gigatola Pilkhana More	3.79	14.87	12.4	16.3	6.52	10.8	12.1	11	10	-	28.3	26.2
Near Dhanmondi-32 Bangabandhu Jadughor	6.85	14.3	9.87	22.2	10.8	5.89	4.8	20.4	11	-	20.1	18.1
Near Dhanmondi-32 Bridge	10.6	12.58	10.8	18.3	8.81	4.98	4.2	39.6	11.6	-	39.2	39.2
EQS for wastewater after treatment from industrial units 10 NTU												

Table-221. Level of Chloride (mg/l) of Dhanmondi Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	28	35	23	16	17	34	50	20	27.5	36	16	57
Near Gigatola Pilkhana More	24.5	30	28	18	16	26	53	21	27	40	15	84
Near Dhanmondi-32 Bangabandhu Jadughor	27	31	24	17	14	24	51	19	31	32.5	19	62.5
Near Dhanmondi-32 Bridge	24	30	25	18	15	28	54	21.5	28	32.5	15.5	51
EQS for wastewater after treatment from industrial units 150-600 mg/l												

Table-222. Level of SS (mg/l) of Dhanmondi Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	3	15	21	22	21	23	20	15	18	35	16	12.8
Near Gigatola Pilkhana More	5	14	22	24	23	21	17	12	16	22	18	28.2
Near Dhanmondi-32 Bangabandhu Jadughor	11	19	18	20	32	18	18	24	19	21	10	8.1
Near Dhanmondi-32 Bridge	16	16	22	21	27	26	21	40	22	30	20	19.2
EQS for wastewater after treatment from industrial units 15 mg/l												

Table-223. Level of Total Alkalinity (mg/l) of Dhanmondi Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	90	104	112	118	110	88	145	70	105	168	88	42
Near Gigatola Pilkhana More	88	88	110	116	108	84	150	76	85	158	66	75
Near Dhanmondi-32 Bangabandhu Jadughor	106	107	116	114	88	78	143	80	121	128	84	72
Near Dhanmondi-32 Bridge	100	100	114	110	90	68	144	71	112	86	76	76
EQS for wastewater after treatment from industrial units 150 mg/l												

Table-224. Level of EC ($\mu\text{mhos/cm}$) of Dhanmondi Lake Water in 2020

Location of Gulshan Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
8 No. Road Bridge	227	254	304	320	268	324	280	238	259	229	260.2	284
Near Gigatola Pilkhana More	223	256	389	288	245	284	278	227	224	220	223	214.2
Near Dhanmondi-32 Bangabandhu Jadughor	266	302	322	276	236	266	288	232	281	268	298	224
Near Dhanmondi-32 Bridge	511	274	316	278	258	287	275	283	276	244		244
EQS for wastewater after treatment from industrial units 1200 $\mu\text{mhos/cm}$												

III. Hatir Jheel Lake (Table: 225-234)**Table-225. Level of pH of Hatir Jheel Lake Water in 2020**

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	7.55	7.34	7.92	7.47	7.23	7.79	7.3	7.14	7.5	7.27	7.32	7.31
Raampura Bridge	7.68	7.52	7.84	7.42	7.45	7.78	7.23	7.15	7.51	7.23	7.59	7.61
FDC More Bridge	7.59	7.66	8.3	7.43	6.78	7.37	7.13	7.12	7.36	7.19	7.33	7.73
EQS for fisheries 6.5-8.5												

Table-226. Level of DO (mg/l) of Hatir Jheel Lake Water in 2020

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	0	1	9.2	2.7	4.6	4.2	1.5	1.5	1.47	2.15	2.5	3.21
Raampura Bridge	0	3.3	3	4.4	4.4	4.1	4	1.09	2.05	2.35	3.54	3.3
FDC More Bridge	0	4.4	9.2	4.1	3.6	3	4.9	1.5	0.5	1.55	1	2.54
EQS for fisheries $\geq 5 \text{ mg/l}$												

Table-227. Level of BOD (mg/l) of Hatir Jheel Lake Water in 2020

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	30	29	28	27	28	20	18	16	10.2	19	34	43.2
Raampura Bridge	33	23	32	21	32	18	14	18	14	16	27	34.8
FDC More Bridge	28	29	24	31	42	15	16	12	12	29	22	24
EQS for fisheries $6 \leq \text{mg/l}$												

Table-228. Level of COD (mg/l) of Hatir Jheel Lake Water in 2020

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	151	88	107	89	96	68	60	44	83	122	182	76
Raampura Bridge	161	88	114	68	112	64	52	56	93	112	63	78
FDC More Bridge	138	68	90	110	143	44	40	37	49	105	114	93
EQS for wastewater after treatment from industrial units 200 mg/l												

Table-229. Level of TDS (mg/l) of Hatir Jheel Lake Water in 2020

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	311	318	310	320	263	218	210	249	249	236	238	300
Raampura Bridge	297	321	320	315	299	232	217	248	246	247	220	283
FDC More Bridge	313	305	297	340	285	212	220	245	276	275	295	310
EQS for wastewater after treatment from industrial units 2100 mg/l												

Table-230. Level of Turbidity (NTU) of Hatir Jheel Lake Water in 2020

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	75.2	50.1	23.4	38.2	68.6	34.5	34.2	10.9	72	40.2	84.4	48.9
Raampura Bridge	44.6	41.5	42.3	44.6	31.4	32.8	32.1	17.6	52.3	37.5	63.5	32.6
FDC More Bridge	73.4	13.8	38.6	34.2	29.8	21.6	30	6.38	66.2	70.1	64.2	25.5
EQS for wastewater after treatment from industrial units 10 NTU												

Table-231. Level of Chloride (mg/l) of Hatir Jheel Lake Water in 2020

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	72	56	43	55	44	68	64	35	46	59	13	46
Raampura Bridge	71	50	49	52	45	78	64	36	47	70	14	43
FDC More Bridge	78	53	42	53	42	66	62	39	58	66	13.5	42
EQS for wastewater after treatment from industrial units 150-600 mg/l												

Table-232. Level of SS (mg/l) of Hatir Jheel Lake Water in 2020

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	131	122	34	88	87	68	58	10	18	70	22	28
Raampura Bridge	120	106	35	67	69	76	48	19	22	56	20	18
FDC More Bridge	128	110	44	48	66	58	54	16	19	71	15	5
EQS for wastewater after treatment from industrial units 15 mg/l												

Table-233. Level of Total Alkalinity (mg/l) of Hatir Jheel Lake Water in 2020

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	178	188	192	299	180	220	178	109	159	196	154	196
Raampura Bridge	184	182	188	310	194	216	74	110	185	204	118	200
FDC More Bridge	164	176	186	330	188	210	172	113	191	236	150	169
EQS for wastewater after treatment from industrial units 150 mg/l												

Table-234. Level of EC (μ mohos/cm) of Hatir Jheel Lake Water in 2020

Location of Hatir Jheel Lake	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Badda-Gulshan Link Road Bridge	536	591	587	640	523	432	388	551	460	451	415	558
Raampura Bridge	512	584	604	630	598	467	375	549	453	468	395	531
FDC More Bridge	539	567	565	680	568	422	378	550	509.5	519	516	580
EQS for wastewater after treatment from industrial units 1200 μmohos/cm												

Annex-3

List of Tables for different parameters of Ground Water

IV. Ground Water (Deep Tubewell) in Khulna District (Table: 235-240)

Table-235. Level of pH of Ground Water at Khulna District in 2020

Locations of Khulna District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Divisional Comissioner office	-	-	-	-	-	-	-	-	-	7.41	-	7.21
KUET University Main Gate, Fulbari Gate	-	-	-	-	-	-	-	-	-	7.42	-	7.4
Govt. B.L College, Daulatpur	-	-	-	-	-	-	-	-	-	7.47	-	7.44
Govt. Mohasin College, Khalishpur	-	-	-	-	-	-	-	-	-	7.49	-	7.4
Govt. Girls College, Boyra	-	-	-	-	-	-	-	-	-	7.42	-	7.41
Khulna Public College, Boyra	-	-	-	-	-	-	-	-	-	7.5	-	7.5
Boyra Bazar More, Boyra	-	-	-	-	-	-	-	-	-	7.51	-	7.42
Aizer More, Boyra	-	-	-	-	-	-	-	-	-	7.52	-	7.45
Govt. Comercial College, Sonadanga	-	-	-	-	-	-	-	-	-	7.53	-	7.51
Sonadanga Bus Stand, Sonadanga	-	-	-	-	-	-	-	-	-	7.43	-	7.45
Hazi Mohasin College, Khulna	-	-	-	-	-	-	-	-	-	7.24	-	7.21
Khulna Medical College	-	-	-	-	-	-	-	-	-	7.14	-	7.18
Ad-din Medical College and Hospital	-	-	-	-	-	-	-	-	-	7.11	-	7.11
Natun Bazar, Rupsha	-	-	-	-	-	-	-	-	-	7.18	-	7.14
Sarkit House	-	-	-	-	-	-	-	-	-	7.19	-	7.14
Govt. Khulna Gila School	-	-	-	-	-	-	-	-	-	7.21	-	7.21
D.C Office	-	-	-	-	-	-	-	-	-	7.22	-	7.22
Dak Banglo More	-	-	-	-	-	-	-	-	-	7.24	-	7.2
Govt. Azom Khan Commerce College	-	-	-	-	-	-	-	-	-	7.26	-	7.22
Govt. Majid Memorial City College	-	-	-	-	-	-	-	-	-	7.24	-	7.24
Sarjical Clinic, Sonadanga	-	-	-	-	-	-	-	-	-	7.24	-	7.2
Jia Hall, Sib Bary	-	-	-	-	-	-	-	-	-	7.11	-	7.06
Islami Bank Hospital, Santidham Mor	-	-	-	-	-	-	-	-	-	7.23	-	7.14
Moylapota More	-	-	-	-	-	-	-	-	-	7.13	-	7.13
Seba Clinic, Sher-E-Bangal Road	-	-	-	-	-	-	-	-	-	7.04	-	7.04
Nirala More	-	-	-	-	-	-	-	-	-	7.25	-	7.21
Gollamari Bus Stand, Gollamari	-	-	-	-	-	-	-	-	-	7.19	-	7.22
Khulna University, Vaskarja Chattar	-	-	-	-	-	-	-	-	-	7.16	-	7.14
Rupsha Bus Stand, Rupsha	-	-	-	-	-	-	-	-	-	7.14	-	7.14
Govt. Sundarban Adorso College	-	-	-	-	-	-	-	-	-	7.17	-	7.12
EQS (6.5-8.5) for drinking												

Table-236. Level of EC ($\mu\text{mhos/cm}$) of Ground Water at Khulna District in 2020

Locations of Khulna	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Divisional Comissioner office	-	-	-	-	-	-	-	-	-	2008	-	1842
KUET University Main Gate, Fulbari Gate	-	-	-	-	-	-	-	-	-	2140	-	2016
Govt. B.L College, Daulatpur	-	-	-	-	-	-	-	-	-	2011	-	1942
Govt. Mohasin College, Khalishpur	-	-	-	-	-	-	-	-	-	1839	-	1788
Govt. Girls College, Boyra	-	-	-	-	-	-	-	-	-	1741	-	1702
Khulna Public College, Boyra	-	-	-	-	-	-	-	-	-	1931	-	1846
Boyra Bazar More, Boyra	-	-	-	-	-	-	-	-	-	1921	-	1836
Aizer More, Boyra	-	-	-	-	-	-	-	-	-	1965	-	1902
Govt. Comercial College, Sonadanga	-	-	-	-	-	-	-	-	-	1854	-	1814
Sonadanga Bus Stand, Sonadanga	-	-	-	-	-	-	-	-	-	1954	-	1816
Hazi Mohasin College, Khulna	-	-	-	-	-	-	-	-	-	2022	-	1986
Khulna Medical College	-	-	-	-	-	-	-	-	-	2012	-	1972
Ad-din Medical College and Hospital	-	-	-	-	-	-	-	-	-	2040	-	1982
Natun Bazar, Rupsha	-	-	-	-	-	-	-	-	-	1934	-	1902
Sarkit House	-	-	-	-	-	-	-	-	-	1816	-	1904
Govt. Khulna Gila School	-	-	-	-	-	-	-	-	-	2240	-	2006
D.C Office	-	-	-	-	-	-	-	-	-	2036	-	1988
Dak Banglo More	-	-	-	-	-	-	-	-	-	2026	-	1976
Govt.Azom Khan Commerce College	-	-	-	-	-	-	-	-	-	2014	-	1924
Govt. Majid Memorial City College	-	-	-	-	-	-	-	-	-	1914	-	1904
Sarjical Clinic, Sonadanga	-	-	-	-	-	-	-	-	-	1824	-	1802
Jia Hall, Sib Bary	-	-	-	-	-	-	-	-	-	1840	-	1806
Islami Bank Hospital, Santidham Mor	-	-	-	-	-	-	-	-	-	1956	-	1891
Moypota More	-	-	-	-	-	-	-	-	-	2104	-	2088
Seba Clinic, Sher-E-Bangal Road	-	-	-	-	-	-	-	-	-	2112	-	2076
Nirala More	-	-	-	-	-	-	-	-	-	2122	-	2014
Gollamari Bus Stand, Gollamari	-	-	-	-	-	-	-	-	-	2134	-	2053
Khulna University, Vaskarja Chattar	-	-	-	-	-	-	-	-	-	2140	-	2104
Rupsha Bus Stand, Rupsha	-	-	-	-	-	-	-	-	-	2130	-	2086
Govt. Sundarban Adorso College	-	-	-	-	-	-	-	-	-	2004	-	2004
EQS for wastewater after treatment from industrial units 1200 $\mu\text{mhos/cm}$												

Table-237. Level of Chloride (mg/l) of Ground Water at Khulna District in 2020

Locations of Khulna	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Divisional Comissioner office	-	-	-	-	-	-	-	-	-	510	-	426
KUET University Main Gate, Fulbari Gate	-	-	-	-	-	-	-	-	-	540	-	472
Govt. B.L College, Daulatpur	-	-	-	-	-	-	-	-	-	488	-	406
Govt. Mohasin College, Khalishpur	-	-	-	-	-	-	-	-	-	420	-	402
Govt. Girls College, Boyra	-	-	-	-	-	-	-	-	-	421	-	400
Khulna Public College, Boyra	-	-	-	-	-	-	-	-	-	418	-	406
Boyra Bazar More, Boyra	-	-	-	-	-	-	-	-	-	432	-	410
Aizer More, Boyra	-	-	-	-	-	-	-	-	-	442	-	414
Govt. Comercial College, Sonadanga	-	-	-	-	-	-	-	-	-	510	-	476
Sonadanga Bus Stand, Sonadanga	-	-	-	-	-	-	-	-	-	508	-	464
Hazi Mohasin College, Khulna	-	-	-	-	-	-	-	-	-	260	-	260
Khulna Medical College	-	-	-	-	-	-	-	-	-	252	-	252
Ad-din Medical College and Hospital	-	-	-	-	-	-	-	-	-	260	-	252
Natun Bazar, Rupsha	-	-	-	-	-	-	-	-	-	248	-	240
Sarkit House	-	-	-	-	-	-	-	-	-	244	-	244
Govt. Khulna Gila School	-	-	-	-	-	-	-	-	-	230	-	230
D.C Office	-	-	-	-	-	-	-	-	-	252	-	246
Dak Banglo More	-	-	-	-	-	-	-	-	-	248	-	248
Govt. Azom Khan Commerce College	-	-	-	-	-	-	-	-	-	262	-	262
Govt. Majid Memorial City College	-	-	-	-	-	-	-	-	-	238	-	238
Sarjical Clinic, Sonadanga	-	-	-	-	-	-	-	-	-	228	-	220
Jia Hall, Sib Bary	-	-	-	-	-	-	-	-	-	216	-	202
Islami Bank Hospital, Santidham Mor	-	-	-	-	-	-	-	-	-	224	-	212
Moylapota More	-	-	-	-	-	-	-	-	-	232	-	224
Seba Clinic, Sher-E-Bangal Road	-	-	-	-	-	-	-	-	-	234	-	234
Nirala More	-	-	-	-	-	-	-	-	-	254	-	244
Gollamari Bus Stand, Gollamari	-	-	-	-	-	-	-	-	-	244	-	244
Khulna University, Vaskarja Chattar	-	-	-	-	-	-	-	-	-	263	-	246
Rupsha Bus Stand, Rupsha	-	-	-	-	-	-	-	-	-	244	-	244
Govt. Sundarban Adorso College	-	-	-	-	-	-	-	-	-	246	-	240
EQS for wastewater after treatment from industrial units 150-600 mg/l												

Table-238. Level of Total Hardness (mg/l) of Ground Water at Khulna District in 2020

Locations of Khulna	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Divisional Comissioner office	-	-	-	-	-	-	-	-	-	222	-	228
KUET University Main Gate, Fulbari Gate	-	-	-	-	-	-	-	-	-	212	-	234
Govt. B.L College, Daulatpur	-	-	-	-	-	-	-	-	-	230	-	238
Govt. Mohasin College, Khalishpur	-	-	-	-	-	-	-	-	-	244	-	250
Govt. Girls College, Boyra	-	-	-	-	-	-	-	-	-	232	-	238
Khulna Public College, Boyra	-	-	-	-	-	-	-	-	-	204	-	218
Boyra Bazar More, Boyra	-	-	-	-	-	-	-	-	-	240	-	246
Aizer More, Boyra	-	-	-	-	-	-	-	-	-	264	-	264
Govt. Comercial College, Sonadanga	-	-	-	-	-	-	-	-	-	260	-	264
Sonadanga Bus Stand, Sonadanga	-	-	-	-	-	-	-	-	-	260	-	260
Hazi Mohasin College, Khulna	-	-	-	-	-	-	-	-	-	242	-	246
Khulna Medical College	-	-	-	-	-	-	-	-	-	232	-	236
Ad-din Medical College and Hospital	-	-	-	-	-	-	-	-	-	244	-	248
Natun Bazar, Rupsha	-	-	-	-	-	-	-	-	-	240	-	240
Sarkit House	-	-	-	-	-	-	-	-	-	242	-	242
Govt. Khulna Gila School	-	-	-	-	-	-	-	-	-	260	-	260
D.C Office	-	-	-	-	-	-	-	-	-	239	-	239
Dak Banglo More	-	-	-	-	-	-	-	-	-	272	-	272
Govt.Azom Khan Commerce College	-	-	-	-	-	-	-	-	-	248	-	248
Govt. Majid Memorial City College	-	-	-	-	-	-	-	-	-	264	-	264
Sarjical Clinic, Sonadanga	-	-	-	-	-	-	-	-	-	244	-	240
Jia Hall, Sib Bary	-	-	-	-	-	-	-	-	-	248	-	248
Islami Bank Hospital, Santidham Mor	-	-	-	-	-	-	-	-	-	260	-	252
Moylapota More	-	-	-	-	-	-	-	-	-	249	-	249
Seba Clinic, Sher-E-Bangal Road	-	-	-	-	-	-	-	-	-	230	-	230
Nirala More	-	-	-	-	-	-	-	-	-	260	-	252
Gollamari Bus Stand, Gollamari	-	-	-	-	-	-	-	-	-	247	-	247
Khulna University, Vaskarja Chattar	-	-	-	-	-	-	-	-	-	250	-	250
Rupsha Bus Stand, Rupsha	-	-	-	-	-	-	-	-	-	248	-	248
Govt. Sundarban Adorso College	-	-	-	-	-	-	-	-	-	254	-	254
EQS for wastewater after treatment from industrial units 200-500 mg/l												

Table-239. Level of Iron (mg/l) of Ground Water at Khulna District in 2020

Locations of Khulna	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Divisional Comissioner office	-	-	-	-	-	-	-	-	-	0.3	-	0.34
KUET University Main Gate, Fulbari Gate	-	-	-	-	-	-	-	-	-	0.28	-	0.28
Govt. B.L College, Daulatpur	-	-	-	-	-	-	-	-	-	0.3	-	0.3
Govt. Mohasin College, Khalishpur	-	-	-	-	-	-	-	-	-	0.36	-	0.36
Govt. Girls College, Boyra	-	-	-	-	-	-	-	-	-	0.4	-	0.38
Khulna Public College, Boyra	-	-	-	-	-	-	-	-	-	0.34	-	0.34
Boyra Bazar More, Boyra	-	-	-	-	-	-	-	-	-	0.32	-	0.32
Aizer More, Boyra	-	-	-	-	-	-	-	-	-	0.34	-	0.34
Govt. Comercial College, Sonadanga	-	-	-	-	-	-	-	-	-	0.32	-	0.36
Sonadanga Bus Stand, Sonadanga	-	-	-	-	-	-	-	-	-	0.34	-	0.34
Hazi Mohasin College, Khulna	-	-	-	-	-	-	-	-	-	0.32	-	0.36
Khulna Medical College	-	-	-	-	-	-	-	-	-	0.28	-	0.34
Ad-din Medical College and Hospital	-	-	-	-	-	-	-	-	-	0.26	-	0.26
Natun Bazar, Rupsha	-	-	-	-	-	-	-	-	-	0.34	-	0.34
Sarkit House	-	-	-	-	-	-	-	-	-	0.28	-	0.3
Govt. Khulna Gila School	-	-	-	-	-	-	-	-	-	0.24	-	0.24
D.C Office	-	-	-	-	-	-	-	-	-	0.36	-	0.36
Dak Banglo More	-	-	-	-	-	-	-	-	-	0.38	-	0.42
Govt. Azom Khan Commerce College	-	-	-	-	-	-	-	-	-	0.36	-	0.36
Govt. Majid Memorial City College	-	-	-	-	-	-	-	-	-	0.44	-	0.44
Sarjical Clinic, Sonadanga	-	-	-	-	-	-	-	-	-	0.28	-	0.34
Jia Hall, Sib Bary	-	-	-	-	-	-	-	-	-	0.3	-	0.36
Islami Bank Hospital, Santidham Mor	-	-	-	-	-	-	-	-	-	0.34	-	0.34
Moylapota More	-	-	-	-	-	-	-	-	-	0.31	-	0.34
Seba Clinic, Sher-E-Bangal Road	-	-	-	-	-	-	-	-	-	0.3	-	0.3
Nirala More	-	-	-	-	-	-	-	-	-	0.34	-	0.34
Gollamari Bus Stand, Gollamari	-	-	-	-	-	-	-	-	-	0.42	-	0.44
Khulna University, Vaskarja Chattar	-	-	-	-	-	-	-	-	-	0.46	-	0.46
Rupsha Bus Stand, Rupsha	-	-	-	-	-	-	-	-	-	0.36	-	0.36
Govt. Sundarban Adorso College	-	-	-	-	-	-	-	-	-	0.34	-	0.34
EQS for wastewater after treatment from industrial units 0.3-1.0 mg/l												

Table-240. Level of Salinity of Ground Water at Khulna District in 2020

Locations of Khulna	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Divisional Comissioner office	-	-	-	-	-	-	-	-	-	0.3	-	0.3
KUET University Main Gate, Fulbari Gate	-	-	-	-	-	-	-	-	-	0.1	-	0.1
Govt. B.L College, Daulatpur	-	-	-	-	-	-	-	-	-	0.1	-	0.1
Govt. Mohasin College, Khalishpur	-	-	-	-	-	-	-	-	-	0.3	-	0.3
Govt. Girls College, Boyra	-	-	-	-	-	-	-	-	-	0.3	-	0.3
Khulna Public College, Boyra	-	-	-	-	-	-	-	-	-	0.2	-	0.2
Boyra Bazar More, Boyra	-	-	-	-	-	-	-	-	-	0.3	-	0.3
Aizer More, Boyra	-	-	-	-	-	-	-	-	-	0.2	-	0.2
Govt. Comercial College, Sonadanga	-	-	-	-	-	-	-	-	-	0.3	-	0.3
Sonadanga Bus Stand, Sonadanga	-	-	-	-	-	-	-	-	-	0.2	-	0.2
Hazi Mohasin College, Khulna	-	-	-	-	-	-	-	-	-	0.3	-	0.3
Khulna Medical College	-	-	-	-	-	-	-	-	-	0.2	-	0.2
Ad-din Medical College and Hospital	-	-	-	-	-	-	-	-	-	0.2	-	0.2
Natun Bazar, Rupsha	-	-	-	-	-	-	-	-	-	0.4	-	0.4
Sarkit House	-	-	-	-	-	-	-	-	-	0.2	-	0.2
Govt. Khulna Gila School	-	-	-	-	-	-	-	-	-	0.4	-	0.4
D.C Office	-	-	-	-	-	-	-	-	-	0.3	-	0.3
Dak Banglo More	-	-	-	-	-	-	-	-	-	0.4	-	0.4
Govt. Azom Khan Commerce College	-	-	-	-	-	-	-	-	-	0.2	-	0.2
Govt. Majid Memorial City College	-	-	-	-	-	-	-	-	-	0.4	-	0.4
Sarjical Clinic, Sonadanga	-	-	-	-	-	-	-	-	-	0.3	-	0.3
Jia Hall, Sib Bary	-	-	-	-	-	-	-	-	-	0.2	-	0.2
Islami Bank Hospital, Santidham Mor	-	-	-	-	-	-	-	-	-	0.3	-	0.3
Moylapota More	-	-	-	-	-	-	-	-	-	0.5	-	0.5
Seba Clinic, Sher-E-Bangal Road	-	-	-	-	-	-	-	-	-	0.2	-	0.2
Nirala More	-	-	-	-	-	-	-	-	-	0.4	-	0.4
Gollamari Bus Stand, Gollamari	-	-	-	-	-	-	-	-	-	0.4	-	0.4
Khulna University, Vaskarja Chattar	-	-	-	-	-	-	-	-	-	0.5	-	0.5
Rupsha Bus Stand, Rupsha	-	-	-	-	-	-	-	-	-	0.4	-	0.4
Govt. Sundarban Adorso College	-	-	-	-	-	-	-	-	-	0.2	-	0.2
EQS for wastewater after treatment from industrial units 400 ppt												

V. Ground Water (Deep Tubewell) in Barisal district (Table: 241-246)

Table-241: Level of pH of Ground Water at Barisal District in 2020

Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
Dopdopia kheyaghat	-	7.24	-	-	-	-	-	-	-	-	-	7.5
Gasterbsine chowmatha	-	7	-	-	-	-	-	-	-	-	-	7.4
Kalizira bazar	-	7.22	-	-	-	-	-	-	-	-	-	7.7
Notun hat ali madrasha	-	7.26	-	-	-	-	-	-	-	-	-	7.5
Govt board primary school	-	7.26	-	-	-	-	-	-	-	-	-	7.4
Rupatoly Bus stand	-	7.32	-	-	-	-	-	-	-	-	-	7.3
Rupatoly Alia madrasha	-	7.34	-	-	-	-	-	-	-	-	-	7.5
Rupatoly jagua secondary school	-	7.29	-	-	-	-	-	-	-	-	-	7.4
Karitas office	-	7.26	-	-	-	-	-	-	-	-	-	7.4
Sadar upzila poishad	-	7.26	-	-	-	-	-	-	-	7.26	-	7.6
Amtolar mour	-	7.22	-	-	-	-	-	-	-	7.22	-	-
Khan bari mosque	-	7.26	-	-	-	-	-	-	-	7.26	-	-
Sher-E-Bangla medical college	-	7.24	-	-	-	-	-	-	-	-	-	-
Water development board	-	7.2	-	-	-	-	-	-	-	-	-	-
Barisal mission boyes school	-	7.2	-	-	-	-	-	-	-	-	-	-
Chowmatha bazar	-	-	-	-	-	-	-	-	-	-	-	7.1
Police hospital police line	-	-	-	-	-	-	-	-	-	-	-	7.4
Terminal , launch ghat	-	-	-	-	-	-	-	-	-	7.22	-	7.3
Police outpost	-	-	-	-	-	-	-	-	-	7.26	-	7.5
Head post office	-	-	-	-	-	-	-	-	-	-	-	7.4
City Market, Vatar khal	-	-	-	-	-	-	-	-	-	7.24	-	-
Office of the civil surgeon	-	-	-	-	-	-	-	-	-	7	-	-
Govt. Barisal college	-	-	-	-	-	-	-	-	-	7.26	-	-
Govt.B M college	-	-	-	-	-	-	-	-	-	7.32	-	-
Govt Halima Khatun Secondary school	-	-	-	-	-	-	-	-	-	7.34	-	-
Jamea madania madrasha	-	-	-	-	-	-	-	-	-	7.29	-	-
Markas Mosque	-	-	-	-	-	-	-	-	-	7.26	-	-
Municipal Super Market, under the bridge, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	7.24	-
East Market, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	7	-
Middle Market, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	7.22	-
Public health office, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	7.26	-
Dam Road, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	7.26	-
Old Bus-stand, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	7.32	-
Baily bridge, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	7.34	-
Nawaber hat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	7.29	-
Paddar hat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	7.26	-
Kadam talar mosque, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	7.26	-
Mirgonj ferry ghat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	7.22	-
EQS (6.5-8.5) for drinking												

Table-242: Level of EC of Ground Water at Barisal District in 2020

Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
Dopdopia kheyaghat	-	624	-	-	-	-	-	-	-	-	-	344
Gasterbsine chowmatha	-	628	-	-	-	-	-	-	-	-	-	348
Kalizira bazar	-	628	-	-	-	-	-	-	-	-	-	352
Notun hat ali madrasha	-	626	-	-	-	-	-	-	-	-	-	340
Govt board primary school	-	626	-	-	-	-	-	-	-	-	-	346
Rupatoly Bus stand	-	630	-	-	-	-	-	-	-	-	-	342
Rupatoly Alia madrasha	-	625	-	-	-	-	-	-	-	-	-	340
Rupatoly jagua secondary school	-	627	-	-	-	-	-	-	-	-	-	344
Karitas office	-	626	-	-	-	-	-	-	-	-	-	336
Sadar upzila poishad	-	626	-	-	-	-	-	-	-	336	-	338
Amtolar mour	-	628	-	-	-	-	-	-	-	342	-	-
Khan bari mosque	-	626	-	-	-	-	-	-	-	344	-	-
Sher-E-Bangla medical college	-	621	-	-	-	-	-	-	-	-	-	-
Water development board	-	628	-	-	-	-	-	-	-	-	-	-
Barisal mission boyes school	-	641	-	-	-	-	-	-	-	-	-	-
Chowmatha bazar	-	-	-	-	-	-	-	-	-	-	-	348
Police hospital police line	-	-	-	-	-	-	-	-	-	-	-	352
Terminal , launch ghat	-	-	-	-	-	-	-	-	-	336	-	348
Police outpost	-	-	-	-	-	-	-	-	-	332	-	352
Head post office	-	-	-	-	-	-	-	-	-	-	-	340
City Market, Vatar khal	-	-	-	-	-	-	-	-	-	334	-	-
Office of the civil surgeon	-	-	-	-	-	-	-	-	-	328	-	-
Govt. Barisal college	-	-	-	-	-	-	-	-	-	328	-	-
Govt.B M college	-	-	-	-	-	-	-	-	-	330	-	-
Govt Halima Khatun Secondary school	-	-	-	-	-	-	-	-	-	326	-	-
Jamea madania madrasha	-	-	-	-	-	-	-	-	-	340	-	-
Markas Mosque	-	-	-	-	-	-	-	-	-	342	-	-
Municipal Super Market, under the bridge, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	534	-
East Market, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	532	-
Middle Market, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	530	-
Public health office, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	534	-
Dam Road, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	526	-
Old Bus-stand, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	530	-
Baily bridge, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	536	-
Nawaber hat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	540	-
Paddar hat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	542	-
Kadam talar mosque, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	544	-
Mirgonj ferry ghat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	538	-
EQS for wastewater after treatment from industrial units 1200 μmhos/cm												

Table-243: Level of TDS of Ground Water at Barisal District in 2020

Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
Dopdopia kheyaghat	-	312	-	-	-	-	-	-	-	-	-	172
Gasterbsine chowmatha	-	314	-	-	-	-	-	-	-	-	-	174
Kalizira bazar	-	314	-	-	-	-	-	-	-	-	-	176
Notun hat ali madrasha	-	313	-	-	-	-	-	-	-	-	-	170
Govt board primary school	-	313	-	-	-	-	-	-	-	-	-	173
Rupatoly Bus stand	-	315	-	-	-	-	-	-	-	-	-	171
Rupatoly Alia madrasha	-	312	-	-	-	-	-	-	-	-	-	170
Rupatoly jagua secondary school	-	313	-	-	-	-	-	-	-	-	-	172
Karitas office	-	313	-	-	-	-	-	-	-	-	-	168
Sadar upzila poishad	-	313	-	-	-	-	-	-	-	168	-	169
Amtolar mour	-	314	-	-	-	-	-	-	-	172	-	-
Khan bari mosque	-	313	-	-	-	-	-	-	-	174	-	-
Sher-E-Bangla medical college	-	311	-	-	-	-	-	-	-	-	-	-
Water development board	-	314	-	-	-	-	-	-	-	-	-	-
Barisal mission boyes school	-	320	-	-	-	-	-	-	-	-	-	-
Chowmatha bazar	-	-	-	-	-	-	-	-	-	-	-	174
Police hospital police line	-	-	-	-	-	-	-	-	-	-	-	176
Terminal , launch ghat	-	-	-	-	-	-	-	-	-	168	-	174
Police outpost	-	-	-	-	-	-	-	-	-	166	-	176
Head post office	-	-	-	-	-	-	-	-	-	-	-	170
City Market, Vatar khal	-	-	-	-	-	-	-	-	-	-	-	-
Office of the civil surgeon	-	-	-	-	-	-	-	-	-	-	-	-
Govt. Barisal college	-	-	-	-	-	-	-	-	-	-	-	-
Govt.B M college	-	-	-	-	-	-	-	-	-	-	-	-
Govt Halima Khatun Secondary school	-	-	-	-	-	-	-	-	-	163	-	-
Jamea madania madrasha	-	-	-	-	-	-	-	-	-	170	-	-
Markas Mosque	-	-	-	-	-	-	-	-	-	172	-	-
Municipal Super Market, under the bridge, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	268	-
East Market, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	266	-
Middle Market, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	265	-
Public health office, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	267	-
Dam Road, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	263	-
Old Bus-stand, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	266	-
Baily bridge, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	268	-
Nawaber hat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	270	-
Paddar hat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	271	-
Kadam talar mosque, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	272	-
Mirgonj ferry ghat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	269	-
EQS for wastewater after treatment from industrial units 2100 mg/l												

Table-244: Level of Iron of Ground Water at Barisal District in 2020

Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
Dopdopia kheyaghat	-	0.18	-	-	-	-	-	-	-	-	-	0.4
Gasterbsine chowmatha	-	0.23	-	-	-	-	-	-	-	-	-	0.3
Kalizira bazar	-	0.23	-	-	-	-	-	-	-	-	-	0.3
Notun hat ali madrasha	-	0.16	-	-	-	-	-	-	-	-	-	0.4
Govt board primary school	-	0.16	-	-	-	-	-	-	-	-	-	0.3
Rupatoly Bus stand	-	0.16	-	-	-	-	-	-	-	-	-	0.4
Rupatoly Alia madrasha	-	0.18	-	-	-	-	-	-	-	-	-	0.3
Rupatoly jagua secondary school	-	0.21	-	-	-	-	-	-	-	-	-	0.4
Karitas office	-	0.16	-	-	-	-	-	-	-	-	-	0.4
Sadar upzila poishad	-	0.16	-	-	-	-	-	-	-	0.16	-	0.5
Amtolar mour	-	0.23	-	-	-	-	-	-	-	0.23	-	-
Khan bari mosque	-	0.16	-	-	-	-	-	-	-	0.16	-	-
Sher-E-Bangla medical college	-	0.22	-	-	-	-	-	-	-	-	-	-
Water development board	-	0.19	-	-	-	-	-	-	-	-	-	-
Barisal mission boyes school	-	0.2	-	-	-	-	-	-	-	-	-	-
Chowmatha bazar	-	-	-	-	-	-	-	-	-	-	-	0.3
Police hospital police line	-	-	-	-	-	-	-	-	-	-	-	0.2
Terminal , launch ghat	-	-	-	-	-	-	-	-	-	0.21	-	0.4
Police outpost	-	-	-	-	-	-	-	-	-	0.16	-	0.4
Head post office	-	-	-	-	-	-	-	-	-	-	-	0.3
City Market, Vatar khal	-	-	-	-	-	-	-	-	-	0.2	-	-
Office of the civil surgeon	-	-	-	-	-	-	-	-	-	0.23	-	-
Govt. Barisal college	-	-	-	-	-	-	-	-	-	0.16	-	-
Govt.B M college	-	-	-	-	-	-	-	-	-	0.16	-	-
Govt Halima Khatun Secondary school	-	-	-	-	-	-	-	-	-	0.18	-	-
Jamea madania madrasha	-	-	-	-	-	-	-	-	-	0.21	-	-
Markas Mosque	-	-	-	-	-	-	-	-	-	0.16	-	-
Municipal Super Market, under the bridge, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	0.21	-
East Market, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	0.23	-
Middle Market, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	0.23	-
Public health office, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	0.16	-
Dam Road, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	0.16	-
Old Bus-stand, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	0.16	-
Baily bridge, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	0.18	-
Nawaber hat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	0.21	-
Paddar hat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	0.16	-
Kadam talar mosque, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	0.16	-
Mirgonj ferry ghat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	0.23	-
EQS For Drinking (0.3-1 mg/l)												

Table-245: Level of Total Alkalinity of Ground Water at Barisal District in 2020

Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
Dopdopia kheyaghat	-	24	-	-	-	-	-	-	-	-	-	24
Gasterbsine chowmatha	-	30	-	-	-	-	-	-	-	-	-	30
Kalizira bazar	-	30	-	-	-	-	-	-	-	-	-	32
Notun hat ali madrasha	-	22	-	-	-	-	-	-	-	-	-	22
Govt board primary school	-	22	-	-	-	-	-	-	-	-	-	22
Rupatoly Bus stand	-	20	-	-	-	-	-	-	-	-	-	20
Rupatoly Alia madrasha	-	22	-	-	-	-	-	-	-	-	-	22
Rupatoly jagua secondary school	-	28	-	-	-	-	-	-	-	-	-	26
Karitas office	-	22	-	-	-	-	-	-	-	-	-	22
Sadar upzila poishad	-	22	-	-	-	-	-	-	-	22	-	24
Amtolar mour	-	30	-	-	-	-	-	-	-	30	-	-
Khan bari mosque	-	22	-	-	-	-	-	-	-	22	-	-
Sher-E-Bangla medical college	-	26	-	-	-	-	-	-	-	-	-	-
Water development board	-	24	-	-	-	-	-	-	-	-	-	-
Barisal mission boyes school	-	25	-	-	-	-	-	-	-	-	-	-
Chowmatha bazar	-	-	-	-	-	-	-	-	-	-	-	22
Police hospital police line	-	-	-	-	-	-	-	-	-	-	-	24
Terminal , launch ghat	-	-	-	-	-	-	-	-	-	30	-	28
Police outpost	-	-	-	-	-	-	-	-	-	22	-	26
Head post office	-	-	-	-	-	-	-	-	-	-	-	22
City Market, Vatar khal	-	-	-	-	-	-	-	-	-	24	-	-
Office of the civil surgeon	-	-	-	-	-	-	-	-	-	30	-	-
Govt. Barisal college	-	-	-	-	-	-	-	-	-	22	-	-
Govt.B M college	-	-	-	-	-	-	-	-	-	20	-	-
Govt Halima Khatun Secondary school	-	-	-	-	-	-	-	-	-	22	-	-
Jamea madania madrasha	-	-	-	-	-	-	-	-	-	28	-	-
Markas Mosque	-	-	-	-	-	-	-	-	-	22	-	-
Municipal Super Market, under the bridge, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	24	-
East Market, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	30	-
Middle Market, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	30	-
Public health office, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	22	-
Dam Road, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	22	-
Old Bus-stand, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	20	-
Baily bridge, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	22	-
Nawaber hat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	28	-
Paddar hat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	22	-
Kadam talar mosque, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	22	-
Mirgonj ferry ghat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	30	-
EQS for wastewater after treatment from industrial units 150 mg/l												

Table-246: Level of Total Hardness of Ground Water at Barisal District in 2020

Locations of Barisal District	Jan	Feb	Mar	Apl	May	July	June	Aug	Sep	Oct	Nov	Dec
Dopdopia kheyaghat	-	110	-	-	-	-	-	-	-	-	-	120
Gasterbsine chowmatha	-	110	-	-	-	-	-	-	-	-	-	100
Kalizira bazar	-	110	-	-	-	-	-	-	-	-	-	140
Notun hat ali madrasha	-	130	-	-	-	-	-	-	-	-	-	120
Govt board primary school	-	130	-	-	-	-	-	-	-	-	-	80
Rupatoly Bus stand	-	140	-	-	-	-	-	-	-	-	-	100
Rupatoly Alia madrasha	-	120	-	-	-	-	-	-	-	-	-	110
Rupatoly jagua secondary school	-	120	-	-	-	-	-	-	-	-	-	120
Karitas office	-	130	-	-	-	-	-	-	-	-	-	160
Sadar upzila poishad	-	130	-	-	-	-	-	-	-	130	-	140
Amtolar mour	-	110	-	-	-	-	-	-	-	110	-	-
Khan bari mosque	-	130	-	-	-	-	-	-	-	130	-	-
Sher-E-Bangla medical college	-	130	-	-	-	-	-	-	-	-	-	-
Water development board	-	110	-	-	-	-	-	-	-	-	-	-
Barisal mission boyes school	-	120	-	-	-	-	-	-	-	-	-	-
Chowmatha bazar	-	-	-	-	-	-	-	-	-	-	-	100
Police hospital police line	-	-	-	-	-	-	-	-	-	-	-	120
Terminal , launch ghat	-	-	-	-	-	-	-	-	-	110	-	140
Police outpost	-	-	-	-	-	-	-	-	-	130	-	110
Head post office	-	-	-	-	-	-	-	-	-	-	-	160
City Market, Vatar khal	-	-	-	-	-	-	-	-	-	110	-	-
Office of the civil surgeon	-	-	-	-	-	-	-	-	-	110	-	-
Govt. Barisal college	-	-	-	-	-	-	-	-	-	130	-	-
Govt.B M college	-	-	-	-	-	-	-	-	-	140	-	-
Govt Halima Khatun Secondary school	-	-	-	-	-	-	-	-	-	120	-	-
Jamea madania madrasha	-	-	-	-	-	-	-	-	-	120	-	-
Markas Mosque	-	-	-	-	-	-	-	-	-	130	-	-
Municipal Super Market, under the bridge, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	120	-
East Market, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	110	-
Middle Market, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	110	-
Public health office, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	130	-
Dam Road, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	130	-
Old Bus-stand, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	140	-
Baily bridge, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	120	-
Nawaber hat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	120	-
Paddar hat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	130	-
Kadam talar mosque, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	130	-
Mirgonj ferry ghat, sadar, Muladi	-	-	-	-	-	-	-	-	-	-	100	-
EQS For Drinking (200-500 mg/l)												

VI. Ground water (Deep Tubewell) in Bogura District (Table: 247-251)

Table-247. Level of pH of Ground Water at Bogura District in 2020

Locations of Bogura District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bogra Zilla School	7.42	7.42	-	-	-	-	-	-	-	-	-	-
VM School, Sadar	7.46	7.46	-	-	-	-	-	-	-	-	-	-
Zilla Parishad	7.35	7.35	-	-	-	-	-	-	-	-	-	-
Office of the Duputy Commissioner	7.62	7.62	-	-	-	-	-	-	-	-	-	-
Office of the Bogra Municipality	7.78	7.78	-	-	-	-	-	-	-	-	-	-
Head Post Office	7.38	7.38	-	-	-	-	-	-	-	-	-	-
Biddut Office	7.21	7.21	-	-	-	-	-	-	-	-	-	-
T & T Office	7.38	7.38	-	-	-	-	-	-	-	-	-	-
Commercial College	7.31	7.31	-	-	-	-	-	-	-	-	-	-
Bogra sadar thana	7.42	7.42	-	-	-	-	-	-	-	-	-	-
EQS (6.5-8.5) for drinking												

Table-248. Level of EC of Ground Water at Bogura District in 2020

Locations of Bogura District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bogra Zilla School	374	374	-	-	-	-	-	-	-	-	-	-
VM School, Sadar	359	359	-	-	-	-	-	-	-	-	-	-
Zilla Parishad	420	420	-	-	-	-	-	-	-	-	-	-
Office of the Duputy Commissioner	392	392	-	-	-	-	-	-	-	-	-	-
Office of the Bogra Municipality	390	390	-	-	-	-	-	-	-	-	-	-
Head Post Office	354	354	-	-	-	-	-	-	-	-	-	-
Biddut Office	320	320	-	-	-	-	-	-	-	-	-	-
T & T Office	368	368	-	-	-	-	-	-	-	-	-	-
Commercial College	422	422	-	-	-	-	-	-	-	-	-	-
Bogra sadar thana	330	330	-	-	-	-	-	-	-	-	-	-
EQS For Industries (1200 µmohos/cm)												

Table-249. Level of Iron of Ground Water at Bogura District in 2020

Locations of Bogura District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bogra Zilla School	0.28	0.28	-	-	-	-	-	-	-	-	-	-
VM School, Sadar	0.34	0.34	-	-	-	-	-	-	-	-	-	-
Zilla Parishad	0.42	0.42	-	-	-	-	-	-	-	-	-	-
Office of the Duputy Commissioner	0.33	0.33	-	-	-	-	-	-	-	-	-	-
Office of the Bogra Municipality	0.42	0.42	-	-	-	-	-	-	-	-	-	-
Head Post Office	0.28	0.28	-	-	-	-	-	-	-	-	-	-
Biddut Office	0.38	0.38	-	-	-	-	-	-	-	-	-	-
T & T Office	0.32	0.32	-	-	-	-	-	-	-	-	-	-
Commercial College	0.4	0.4	-	-	-	-	-	-	-	-	-	-
Bogra sadar thana	0.26	0.26	-	-	-	-	-	-	-	-	-	-
EQS For Drinking (0.3-1 mg/l)												

Table-250. Level of T. Alkalinity of Ground Water at Bogura District in 2020

Locations of Bogura District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bogra Zilla School	32	32	-	-	-	-	-	-	-	-	-	-
VM School, Sadar	26	26	-	-	-	-	-	-	-	-	-	-
Zilla Parishad	28	28	-	-	-	-	-	-	-	-	-	-
Office of the Duputy Commissioner	34	34	-	-	-	-	-	-	-	-	-	-
Office of the Bogra Municipality	28	28	-	-	-	-	-	-	-	-	-	-
Head Post Office	30	30	-	-	-	-	-	-	-	-	-	-
Biddut Office	32	32	-	-	-	-	-	-	-	-	-	-
T & T Office	28	28	-	-	-	-	-	-	-	-	-	-
Commercial College	32	32	-	-	-	-	-	-	-	-	-	-
Bogra sadar thana	28	28	-	-	-	-	-	-	-	-	-	-
EQS For Industries (150 mg/l)												

Table-251. Level of T. Hardness of Ground Water at Bogura District in 2020

Locations of Bogura District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bogra Zilla School	230	230	-	-	-	-	-	-	-	-	-	-
VM School, Sadar	220	220	-	-	-	-	-	-	-	-	-	-
Zilla Parishad	210	210	-	-	-	-	-	-	-	-	-	-
Office of the Duputy Commissioner	200	200	-	-	-	-	-	-	-	-	-	-
Office of the Bogra Municipality	240	240	-	-	-	-	-	-	-	-	-	-
Head Post Office	240	240	-	-	-	-	-	-	-	-	-	-
Biddut Office	220	220	-	-	-	-	-	-	-	-	-	-
T & T Office	200	200	-	-	-	-	-	-	-	-	-	-
Commercial College	220	220	-	-	-	-	-	-	-	-	-	-
Bogra sadar thana	240	240	-	-	-	-	-	-	-	-	-	-
EQS For Drinking (200-500 mg/l)												
EQS For Drinking (200-500 mg/l)												

VII. Ground water (Deep Tubewell) in Sylhet district (Table: 252-256)**Table-252. Level of pH of Ground Water at Sylhet District in 2020**

Locations of Sylhet Dist.	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
MC College, Tilagor	-	-	-	-	-	-	-	7.12	-	-	-	-
Kadamtoli Bus Terminal	-	-	-	-	-	-	-	7.06	-	-	-	-
Durgakumar Govt. Primary School	-	-	-	-	-	-	-	7.2	-	-	-	-
Agrogami Girls High School	-	-	-	-	-	-	-	7.05	-	-	-	-
Lalbazar, Bandarabazar	-	-	-	-	-	-	-	7.09	-	-	-	-
EQS (6.5-8.5) for drinking												

Table-253. Level of EC of Ground Water at Sylhet District in 2020

Locations of Sylhet Dist.	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
MC College, Tilagor	-	-	-	-	-	-	-	308	-	-	-	-
Kadamtoli Bus Terminal	-	-	-	-	-	-	-	312	-	-	-	-
Durgakumar Govt. Primary School	-	-	-	-	-	-	-	292	-	-	-	-
Agrogami Girls High School	-	-	-	-	-	-	-	281	-	-	-	-
Lalbazar, Bandarabazar	-	-	-	-	-	-	-	301	-	-	-	-
EQS for wastewater after treatment from industrial units 1200 μmohos/cm												

Table-254. Level of Chloride of Ground Water at Sylhet District in 2020

Locations of Sylhet Dist.	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
MC College, Tilagor	-	-	-	-	-	-	-	9	-	-	-	-
Kadamtoli Bus Terminal	-	-	-	-	-	-	-	13	-	-	-	-
Durgakumar Govt. Primary School	-	-	-	-	-	-	-	14	-	-	-	-
Agrogami Girls High School	-	-	-	-	-	-	-	11	-	-	-	-
Lalbazar, Bandarabazar	-	-	-	-	-	-	-	10	-	-	-	-
EQS for wastewater after treatment from industrial units 150-600 mg/l												

Table-255. Level of Alkalinity of Ground Water at Sylhet District in 2020

Locations of Sylhet Dist.	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
MC College, Tilagor	-	-	-	-	-	-	-	11	-	-	-	-
Kadamtoli Bus Terminal	-	-	-	-	-	-	-	12	-	-	-	-
Durgakumar Govt. Primary School	-	-	-	-	-	-	-	14	-	-	-	-
Agrogami Girls High School	-	-	-	-	-	-	-	11	-	-	-	-
Lalbazar, Bandarabazar	-	-	-	-	-	-	-	14	-	-	-	-
EQS for wastewater after treatment from industrial units 150 mg/l												

Table-256. Level Iron of Ground Water at Sylhet District in 2020

Locations of Sylhet Dist.	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
MC College, Tilagor	-	-	-	-	-	-	-	0.29	-	-	-	-
Kadamtoli Bus Terminal	-	-	-	-	-	-	-	0.36	-	-	-	-
Durgakumar Govt. Primary School	-	-	-	-	-	-	-	0.41	-	-	-	-
Agrogami Girls High School	-	-	-	-	-	-	-	0.34	-	-	-	-
Lalbazar, Bandarabazar	-	-	-	-	-	-	-	0.56	-	-	-	-
EQS For Drinking (0.3-1 mg/l)												

Annex-4

List of Tables for Trend Analysis of Water Quality of Major Rivers

Table-257. Trend of pH, DO and BOD of Buriganga river from 2010 to 2020.

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	
	2019	Dry	7.56	0.93	15.67	
		Wet	7.07	2.2	5.98	
	2020	Dry	7.41	1.83	19.56	
		Wet	6.99	3.76	8	
	EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

Table-258. Trend of pH, DO and BOD of Shitalakhya river from 2010 to 2020.

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	
	2019	Dry	7.05	2.97	10.03	
		Wet	7.06	3.46	5.26	
	2020	Dry	7.42	1.6	18.02	
		Wet	7.14	2.79	12.26	
	EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

Table-259. Trend of pH, DO and BOD of Turag river from 2010 to 2020.

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
	2019	Dry	7.43	0.82	19.91
		Wet	7.14	3.78	9.69
2020	Dry	7.53	1.21	28.1	
	Wet	7.04	4.39	11.52	
EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

Table-260. Trend of pH, DO and BOD of Dhaleshwari river from 2010 to 2020.

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	
	2019	Dry	7.32	2.86	5.9	
		Wet	7.23	4.51	2.17	
	2020	Dry	7.59	3.12	7	
		Wet	-	-	-	
	EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

Table-261. Trend of pH, DO and BOD of Brahmaputra river from 2010 to 2020.

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
	2019	Dry	14.32	15.1	2.4
		Wet	7.9	6.76	2.45
2020	Dry	7.93	8.75	10.5	
	Wet	-	-	-	
EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

Table-262. Trend of pH, DO and BOD of Halda River from 2010 to 2020.

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	-	
	2019	Dry	7.44	5.96	19.6	
		Wet	7.78	6.13	17.6	
	2020	Dry	7.74	6.32	19.36	
		Wet	7.37	4.19	6.56	
	EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

Table-263. Trend of pH, DO and BOD of Moyuri River from 2010 to 2020.

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	-	
	2019	Dry	7.63	1.55	-	
		Wet	7.70	2.31	-	
	2020	Dry	7.75	1.52	-	
		Wet	7.66	2.78	-	
	EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

Table-264. Trend of pH, DO and BOD of Surma River from 2010 to 2020.

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
	2019	Dry	7.57	6.21	2.50
		Wet	7.9	7	3.95
2020	Dry	6.76	7.19	2.13	
	Wet	7.22	6.91	2.19	
EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

Table-265. Trend of pH, DO and BOD of Korotoa River from 2010 to 2020.

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
	2019	Dry	7.02	3.87	5.53
		Wet	7.33	4.98	3.40
	2020	Dry	7.09	4.27	4.83
		Wet	7.21	4.56	4.58
EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

Table-266. Trend of pH, DO and BOD of Mathavanga River Water from 2010 to 2020.

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
	2019	Dry	6.9	4.626	0.586
		Wet	6.92	5.275	0.625
2020	Dry	8.19	5.56	0.52	
	Wet	7.94	5.08	0.6	
EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

Table-267. Trend of pH, DO and BOD of Pashur River Water from 2010 to 2020.

Sampling Location	Year	Season	pH	DO	BOD
Pashur River	2010	Dry	7.65	4.93	0.9
		Wet	7.65	4.9	0.9
	2011	Dry	7.57	5.31	0.96
		Wet	7.64	4.91	0.88
	2012	Dry	7.78	6.26	0.78
		Wet	7.82	5.78	0.66
	2013	Dry	7.71	6.92	0.6
		Wet	7.67	6.1	0.73
	2014	Dry	7.74	6.32	0.82
		Wet	7.81	5.85	0.88
	2015	Dry	7.8	6.52	0.86
		Wet	7.82	6.04	0.96
	2016	Dry	7.81	6.56	0.86
		Wet	7.8	6.05	1
	2017	Dry	7.87	6.4	0.76
		Wet	7.9	6.25	0.8
	2018	Dry	7.82	6.49	1.07
		Wet	7.77	5.81	0.95
	2019	Dry	7.82	7.02	0.91
		Wet	7.94	6.73	0.94
2020	Dry	8.29	6.49	1.37	
	Wet	8.09	6.8	1.8	
EQS for fisheries			6.5-8.5	≥5 mg/l	≤6 mg/l

Annex-5

List of Tables for Sea Water Quality Data

Table-268. pH Level of Sea Water in January'20 to December'20.

Locations of Sea Water Sampling Point	Jan, 20	Feb, 20	Mar, 20	Apr, 20	May, 20	June, 20	July, 20	Aug, 20	Sep, 20	Oct, 20	Nov, 20	Dec, 20
Karnafully Mohona	7.68	7.7	7.88	7.76	7.65	7.79	7.69	7.73	7.69	7.28	8.11	6.54
1km Straight from patenga sea beach	7.72	7.82	7.89	7.82	7.69	7.86	7.82	7.8	7.7	6.94	8.03	7.01
Patenga charpara	7.75	7.67	7.78	7.7	7.64	7.5	7.46	7.48	7.65	7.05	8.09	7.04
1km Straight from CEPZ	7.73	7.89	7.96	7.86	7.6	7.2	7.72	7.78	7.64	7.03	8.06	7.14
Vatiyari Ship yard Area	8.12	8.05				7.77	7.8	7.86	7.31	7.8	7.68	7.2
EQS Fisheries (6.5-8.5)												

Table-269. DO Level of Sea Water in January'20 to December'20.

Locations of Sea Water Sampling Point	Jan, 20	Feb, 20	Mar, 20	Apr, 20	May, 20	June, 20	July, 20	Aug, 20	Sep, 20	Oct, 20	Nov, 20	Dec, 20
Karnafully Mohona	8.49	8.56	8.42	8.61	7.69	6.79	6.69	6.9	6.76	7.12	7.59	8.47
1km Straight from patenga sea beach	8.53	8.4	8.41	8.7	6.8	7.2	7.2	7.1	7.04	6.65	7.63	7.87
Patenga charpara	8.59	8.67	7.41	8.62	7.22	7.15	5.53	5.39	7.16	6.68	8.16	7.65
1km Straight from CEPZ	8.26	8.2	8.02	8.69	7.35	7.55	6.93	6.8	6.72	6.99	8.33	7.65
Vatiyari Ship yard Area	7.67	7.89				7.31	7.3	7.2	6.17	7.45	7.6	7.39
EQS Fisheries (5 mg/≥)												

Table-270. TDS Level of Sea Water in January'20 to December'20.

Locations of Sea Water Sampling Point	Jan, 20	Feb, 20	Mar, 20	Apr, 20	May, 20	June, 20	July, 20	Aug, 20	Sep, 20	Oct, 20	Nov, 20	Dec, 20
Karnafully Mohona	18960	18780	17242	16100	13750	10170	1717	1808	2129	4810	14250	20690
1km Straight from patenga sea beach	18240	18478	16582	15870	14140	11200	1342	1370	1651	4120	16480	17080
Patenga charpara	17400	17780	14480	15630	14445	11230	1330	1350	1364	2170	14930	17290
1km Straight from CEPZ	16690	17230	17412	16600	14930	10189	1336	1348	1353	2105	15000	16856
Vatiyari Ship yard Area	16530	16770				8510	1709	1700	1049	1509	13250	15255
EQS Industrial (<=2100 mg/l)												

Table-271. SS Level of Sea Water in January'20 to December'20.

Locations of Sea Water Sampling Point	Jan, 20	Feb, 20	Mar, 20	Apr, 20	May, 20	June, 20	July, 20	Aug, 20	Sep, 20	Oct, 20	Nov, 20	Dec, 20
Karnafully Mohona	493	405	686	1304	295	280	1180	1100	1652	64	204	320
1km Straight from patenga sea beach	627	578	768	900	910	428	1162	1090	1254	367	675	211
Patenga charpara	545	520	612	854	410	378	988	960	585	157	1018	262
1km Straight from CEPZ	669	590	776	1274	555	436	1128	1139	705	203	1120	191
Vatiyari Ship yard Area	445	390				310	442	430	86	70	480	314
EQS Industrial (150 mg/l)												

Table-272. EC Level of Sea Water in January'20 to December'20.

Locations of Sea Water Sampling Point	Jan, 20	Feb, 20	Mar, 20	Apr, 20	May, 20	June, 20	July, 20	Aug, 20	Sep, 20	Oct, 20	Nov, 20	Dec, 20
Karnafully Mohona	28100	37560	31452	25700	22700	20379	3430	3560	3990	8200	13900	30070
1km Straight from patenga sea beach	27200	36900	29802	24800	23200	22417	2710	2819	3130	7200	27300	23900
Patenga charpara	26200	35540	22712	24715	23650	22538	2680	2650	2600	3930	24900	23900
1km Straight from CEPZ	25100	34510	28623	25800	24300	20560	2690	2660	2580	3970	25000	23900
Vatiyari Ship yard Area	25866	33627				17119	2830	2900	2080	2840	2910	28100
EQS Industrial (1200 µmhos/cm)												

Annex-6

List of Tables for A Comparative Analysis of River Water Quality Data 2019-2020 due to COVID 19 Situation

Table-273. Level of pH at Burigonga River Water due to COVID19 situation.

Location of Burigonga river	April'19	May'19	April'20	May'20
Mirpur Bridge	8.31	7.37	7.4	7.33
Hajaribag	8.26	7.41	7.21	7.29
Kamrangir Char	8.17	7.42	7.32	7.14
Chadnighat	8.1	7.41	7.42	7.1
Sadar Ghat	8.14	7.38	7.23	7.07
Dholaikhal	8.13	7.52	7.46	6.81
Pagla	8.08	7.46	7.49	6.96
Bangladesg China Frenship Bridge	8.21	7.49	7.43	7
Avg.	8.15	7.43	7.37	7.08
EQS Fisheries (6.5-8.5)	6	6	6	6
EQS Industrial (6.0-9.0)	9	9	9	9

Table-274. Level of DO at Burigonga River Water due to COVID19 situation.

Location of Burigonga river	April'19	May'19	April'20	May'20
Mirpur Bridge	0.41	0.82	2.67	1.83
Hajaribag	0.2	0.29	1.7	1.17
Kamrangir Char	0.38	0.78	2.09	1.6
Chadnighat	0.3	0.25	0.5	1.2
Sadar Ghat	0.39	0.68	0.6	0.5
Dholaikhal	0.53	0.37	0.45	0.56
Pagla	0.48	0.89	0.78	0.62
Bangladesg China Frenship Bridge	0.29	0.69	0.52	0.54
Avg.	0.37	0.59	1.16	1.00
EQS Fisheries (5 mg/l\geq)	5	5	5	5
EQS Industrial (4.5-8 mg/l)	8	8	8	8

Table-275. Level of BOD at Burigonga River Water due to COVID19 situation.

Location of Burigonga river	April'19	May'19	April'20	May'20
Mirpur Bridge	20	12	20	16
Hajaribag	18	8	20	8.4
Kamrangir Char	20	13	15	16
Chadnighat	18	16	28	30
Sadar Ghat	21	8	22	16.8
Dholaikhal	25	8	24	16
Pagla	22	10	20	14.2
Bangladesg China Frenship Bridge	21	13	34	17.6
Avg.	20.62	11	22.87	16.87
EQS Fisheries (\leq6 mg/l)	6	6	6	6
EQS Industrial (\leq50 mg/l)	50	50	50	50

Table-276. Level of COD at Burigonga River Water due to COVID19 situation.

Location of Burigonga river	April'19	May'19	April'20	May'20
Mirpur Bridge	92	66	76	41
Hajaribag	65	78	76	19
Kamrangir Char	72	58	46	63
Chadnighat	99	58	96	134
Sadar Ghat	109	121	88	61
Dholaikhal	110	90	87	49
Pagla	90	160	70	56
Bangladesg China Frenship Bridge	97	90	108	63
Avg.	91.75	90.12	80.87	60.75
EQS Industrial (≤ 200 mg/l)	200	200	200	200

Table-277. Level of TDS at Burigonga River Water due to COVID19 situation.

Location of Burigonga river	April'19	May'19	April'20	May'20
Mirpur Bridge	272	378	460	289
Hajaribag	281	368	465	319
Kamrangir Char	278	356	472	287
Chadnighat	260	353	465	327
Sadar Ghat	255	359	430	343
Dholaikhal	261	363	456	344
Pagla	243	380	438	327
Bangladesg China Frenship Bridge	263	359	437	344
Avg.	264.12	364.5	452.87	322.5
EQS Industrial (≤ 2100 mg/l)	2100	2100	2100	2100

Table-278. Level of SS at Burigonga River Water due to COVID19 situation.

Location of Burigonga river	April'19	May'19	April'20	May'20
Mirpur Bridge	47	23	34	32
Hajaribag	37	49	38	26
Kamrangir Char	39	22	36	40
Chadnighat	42	23	44	38
Sadar Ghat	41	36	40	39
Dholaikhal	32	78	36	48
Pagla	33	35	32	46
Bangladesg China Frenship Bridge	62	43	52	51
Avg.	41.62	38.62	39	40
EQS Industrial (150 mg/l)	150	150	150	150

Table-279. Level of pH at Shitalakhya River Water due to COVID19 situation.

Location of Shitalakhya river	April'19	May'19	April'20	May'20
Demra Ghat	7.29	7.2	7.4	7.12
Ghorashal F.F.	7.15	6.3	7.42	7.13
Near ACI Factory	7.8	6.92	7.38	7.08
Avg.	7.41	6.80	7.4	7.11
EQS Fisheries (6.5-8.5)	6	6	6	6
EQS Industrial (6.0-9.0)	9	9	9	9

Table-280. Level of DO at Shitalakhya River Water due to COVID19 situation.

Location of Shitalakhya river	April'19	May'19	April'20	May'20
Demra Ghat	1	1.4	1.31	1.92
Ghorashal F.F.	5.3	5.6	1.45	1.2
Near ACI Factory	1.2	1.8	1.24	0.84
Avg.	2.5	2.93	1.33	1.32
EQS Fisheries (5 mg/l\geq)	5	5	5	5
EQS Industrial (4.5-8 mg/l)	8	8	8	8

Table-281. Level of BOD at Shitalakhya River Water due to COVID19 situation.

Location of Shitalakhya river	April'19	May'19	April'20	May'20
Demra Ghat	12	10	15	9.6
Ghorashal F.F.	3.2	5	24	10.8
Near ACI Factory	13	9	16.2	16.4
Avg.	9.4	8	18.4	12.26
EQS Fisheries (\leq6 mg/l)	6	6	6	6
EQS Industrial (\leq50 mg/l)	50	50	50	50

Table-282. Level of COD at Shitalakhya River Water due to COVID19 situation.

Location of Shitalakhya river	April'19	May'19	April'20	May'20
Demra Ghat	40	36	45	36
Ghorashal F.F.	8	18	62	42
Near ACI Factory	38	27	52	46
Avg.	28.66	27	53	41.33
EQS Industrial (\leq200 mg/l)	200	200	200	200

Table-283. Level of TDS at Shitalakhya River Water due to COVID19 situation.

Location of Shitalakhya river	April'19	May'19	April'20	May'20
Demra Ghat	190.2	178	352	311
Ghorashal F.F.	210	154	362	323
Near ACI Factory	402	412	387	311
Avg.	267.4	248	367	315
EQS Industrial (\leq2100 mg/l)	2100	2100	2100	2100

Table-284. Level of pH at Turag River Water due to COVID19 situation.

Locations of Turag River	April'19	May'19	April'20	May'20
New Gabtoli Bridge	7.37	7.02	7.69	7.15
Mirpur Diabary BIWTA Landing Station	7.41	7.08	7.14	7.04
Ashulia BIWTA Landing Station	7.43	7.25	7.29	7.05
Tongi Istima Mat	7.16	7.28	7.23	6.94
Average	7.3425	7.1575	7.3375	7.045
EQS Fisheries (6.5-8.5)	6	6	6	6
EQS Industrial (6.0-9.0)	9	9	9	9

Table-285. Level of DO at Turag River Water due to COVID19 situation.

Locations of Turag River	April'19	May'19	April'20	May'20
New Gabtoli Bridge	0.12	1.5	3.2	1.65
Mirpur Diabary BIWTA Landing Station	0	0.5	1.22	2.24
Ashulia BIWTA Landing Station	0	2	1.39	0.95
Tongi Istima Mat	0	3	0.39	0.96
Average	0.03	1.75	1.55	1.45
EQS Fisheries (5 mg/l \geq)	5	5	5	5
EQS Industrial (4.5-8 mg/l)	8	8	8	8

Table-286. Level of BOD at Turag River Water due to COVID19 situation.

Locations of Turag River	April'19	May'19	April'20	May'20
New Gabtoli Bridge	16.2	16	24	14
Mirpur Diabary BIWTA Landing Station	11	20	34	24
Ashulia BIWTA Landing Station	44.5	29	62	40
Tongi Istima Mat	62.4	27	42	6
Average	33.525	23	40.5	21
EQS Fisheries (\leq 6 mg/l)	6	6	6	6
EQS Industrial (\leq 50 mg/l)	50	50	50	50

Table-287. Level of COD at Turag River Water due to COVID19 situation.

Locations of Turag River	April'19	May'19	April'20	May'20
New Gabtoli Bridge	100	180	56	41
Mirpur Diabary BIWTA Landing Station	86	238	91	70
Ashulia BIWTA Landing Station	191	87	263	136
Tongi Istima Mat	225	83	130	19
Average	150.5	147	135	66.5
EQS Industrial (\leq 200 mg/l)	200	200	200	200

Table-288. Level of TDS at Turag River Water due to COVID19 situation.

Locations of Turag River	April'19	May'19	April'20	May'20
New Gabtoli Bridge	386	283	448	287
Mirpur Diabary BIWTA Landing Station	457	282	310	286
Ashulia BIWTA Landing Station	375	435	342	344
Tongi Istima Mat	412	313	333	244
Average	407.5	328.25	358.25	290.25
EQS Industrial (≤ 2100 mg/l)	2100	2100	2100	2100

Table-289. Level of SS at Turag River Water due to COVID19 situation.

Locations of Turag River	April'19	May'19	April'20	May'20
New Gabtoli Bridge	114	53	56	48
Mirpur Diabary BIWTA Landing Station	166	35	62	52
Ashulia BIWTA Landing Station	104	49	45	49
Tongi Istima Mat	179	62	65	52
Average	140.75	49.75	57	50.25
EQS Industrial (150 mg/l)	150	150	150	150

Table-290. Level of pH at Dhaleshwari River Water due to COVID19 situation.

Locations of Dhaleshwari River	April'19	May'19	April'20	May'20
200m up of CETP	7.34		8.1	7.6
Dropping Point of CETP	7.61		7.69	7.53
200m Down of CETP	7.57		7.94	7.64
Average	7.50		7.91	7.59
EQS Fisheries (6.5-8.5)	6	6	6	6
EQS Industrial (6.0-9.0)	9	9	9	9

Table-291. Level of DO at Dhaleshwari River Water due to COVID19 situation.

Locations of Dhaleshwari River	April'19	May'19	April'20	May'20
200m up of CETP	2.4		7.1	4.78
Dropping Point of CETP	2.2		6.1	5.46
200m Down of CETP	2		7.2	5.65
Average	2.2		6.8	5.29
EQS Fisheries (5 mg/l \geq)	5	5	5	5
EQS Industrial (4.5-8 mg/l)	8	8	8	8

Table-292. Level of BOD at Dhaleshwari River Water due to COVID19 situation.

Locations of Dhaleshwari River	April'19	May'19	April'20	May'20
200m up of CETP	10		9.9	10.8
Dropping Point of CETP	12		10.4	9.6
200m Down of CETP	14		9.6	9.2
Average	12		9.96	9.86
EQS Fisheries (≤ 6 mg/l)	6	6	6	6
EQS Industrial (≤ 50 mg/l)	50	50	50	50

Table-293. Level of COD at Dhaleshwari River Water due to COVID19 situation.

Locations of Dhaleshwari River	April'19	May'19	April'20	May'20
200m up of CETP	40		45	32
Dropping Point of CETP	62		36	46
200m Down of CETP	58		32	42
Average	53.33		37.66	40
EQS Industries (≤ 200 mg/l)	200	200	200	200

Table-294. Level of TDS at Dhaleshwari River Water due to COVID19 situation.

Locations of Dhaleshwari River	April'19	May'19	April'20	May'20
200m up of CETP	504		639	586
Dropping Point of CETP	714		677	603
200m Down of CETP	650		641	615
Average	622.66		652.33	601.33
EQS Industries (≤ 2100 mg/l)	2100	2100	2100	2100

Table-295. Level of SS at Dhaleshwari River Water due to COVID19 situation.

Locations of Dhaleshwari River	April'19	May'19	April'20	May'20
200m up of CETP	70		56	20
Dropping Point of CETP	71		54	22
200m Down of CETP	72		51	24
Average	71		53.66	22
EQS Industrial (150 mg/l)	150	150	150	150

Table-296. Level of pH at Balu River Water due to COVID19 situation.

Locations of Balu River	April'19	May'19	April'20	May'20
Near Jaber & Jubair Fabrics Ltd. Tongi	7.58	7.49	7.22	7.22
Near Hossain Dyeing Ltd. Pagar, Tongi	7.59	6.94	7.32	7.17
Near Damra University College, Demra, Dhaka	8.14	7.2	7.23	7.24
Near Balu Bridge, 300 feet Road, Dhaka	8.4	7.4	7.44	7.08
Average	7.92	7.25	7.30	7.17
EQS Fisheries (6.5-8.5)	6	6	6	6
EQS Industrial (6.0-9.0)	9	9	9	9

Table-297. Level of DO at Balu River Water due to COVID19 situation.

Locations of Balu River	April'19	May'19	April'20	May'20
Near Jaber & Jubair Fabrics Ltd. Tongi	0.5	0	0.28	0.88
Near Hossain Dyeing Ltd. Pagar, Tongi	0	2.3	0.32	0.78
Near Damra University College, Demra, Dhaka	0.21	1.4	1.22	1.1
Near Balu Bridge, 300 feet Road, Dhaka	0.1	0	0.68	0.53
Average	0.20	0.92	0.62	0.82
EQS Fisheries (5 mg/l \geq)	5	5	5	5
EQS Industrial (4.5-8 mg/l)	8	8	8	8

Table-298. Level of BOD at Balu River Water due to COVID19 situation.

Locations of Balu River	April'19	May'19	April'20	May'20
Near Jaber & Jubair Fabrics Ltd. Tongi	20	41	48	16
Near Hossain Dyeing Ltd. Pagar, Tongi	22	26	52	14
Near Damra University College, Demra, Dhaka	56.5	7	19.2	13.6
Near Balu Bridge, 300 feet Road, Dhaka	60	7	18.6	18
Average	39.62	20.25	34.45	15.4
EQS Fisheries (≤ 6 mg/l)	6	6	6	6
EQS Industrial (≤ 50 mg/l)	50	50	50	50

Table-299. Level of COD at Balu River Water due to COVID19 situation.

Locations of Balu River	April'19	May'19	April'20	May'20
Near Jaber & Jubair Fabrics Ltd. Tongi	60	172	133	56
Near Hossain Dyeing Ltd. Pagar, Tongi	65	85	136	58
Near Damra University College, Demra, Dhaka	224	87	66	45
Near Balu Bridge, 300 feet Road, Dhaka	212	53	52	36
Average	140.25	99.25	96.75	48.75
EQS Industrial (≤ 200 mg/l)	200	200	200	200

Table-300. Level of TDS at Balu River Water due to COVID19 situation.

Locations of Balu River	April'19	May'19	April'20	May'20
Near Jaber & Jubair Fabrics Ltd. Tongi	398	445	376	237
Near Hossain Dyeing Ltd. Pagar, Tongi	427	302	378	243
Near Damra University College, Demra, Dhaka	924	178	365	248
Near Balu Bridge, 300 feet Road, Dhaka	1089	362	355	215
Average	709.5	321.75	368.5	235.75
EQS Industrial (≤ 2100 mg/l)	2100	2100	2100	2100

Table-301. Level of SS at Balu River Water due to COVID19 situation.

Locations of Balu River	April'19	May'19	April'20	May'20
Near Jaber & Jubair Fabrics Ltd. Tongi	120	80	85	66
Near Hossain Dyeing Ltd. Pagar, Tongi	132	28	96	52
Near Damra University College, Demra, Dhaka	154	11	64	42
Near Balu Bridge, 300 feet Road, Dhaka	390	44	70	48
Average	199	40.75	78.75	52
EQS Industrial (≤ 150 mg/l)	150	150	150	150

Table-302. Level of pH at Karnaphuli River Water due to COVID19 situation.

Locations of Karnaphuli River	April'19	May'19	April'20	May'20
CUFL (Side), Anowara, Ctg.	7	7.1	7.78	7.72
TSP (Side), Potenga, Ctg.	7.1	7.3	7.58	7.1
KAFCO Side, Ctg.			7.9	
Chaktai Khal, Ctg.	6.8	6.9	7.33	7.22
Average	6.96	7.1	7.64	7.34
EQS Fisheries (6.5-8.5)	6	6	6	6
EQS Industries (6.0-9.0)	9	9	9	9

Table-303. Level of DO at Karnaphuli River Water due to COVID19 situation.

Locations of Karnaphuli River	April'19	May'19	April'20	May'20
CUFL (Side), Anowara, Ctg.	6.5	6.3	8.2	5.56
TSP (Side), Potenga, Ctg.	6	6.1	6.45	4.39
KAFCO Side, Ctg.			8.48	
Chaktai Khal, Ctg.	4.5	4.6	3.38	0.78
Average	5.66	5.66	6.62	3.57
EQS Fisheries (5 mg/l\geq)	5	5	5	5
EQS Industries (4.5-8 mg/l)	8	8	8	8

Table-304. Level of SS at Karnaphuli River Water due to COVID19 situation.

Locations of Karnaphuli River	April'19	May'19	April'20	May'20
CUFL (Side), Anowara, Ctg.	193	182	1330	203
TSP (Side), Potenga, Ctg.	200	192	946	228
KAFCO Side, Ctg.			896	
Chaktai Khal, Ctg.	353	329	224	408
Average	248.66	234.33	849	279.66
EQS Industries (\leq150 mg/l)	150	150	150	150

Table-305. Level of EC at Karnaphuli River Water due to COVID19 situation.

Locations of Karnaphuli River	April'19	May'19	April'20	May'20
CUFL (Side), Anowara, Ctg.	20840	21510	25500	9770
TSP (Side), Potenga, Ctg.	11220	10717	25200	2780
KAFCO Side, Ctg.			25000	
Chaktai Khal, Ctg.	768	790	3510	766
Average	10942.67	11005.67	19802.5	4438.66
EQS Industrial (1200μmohs/cm)	1200	1200	1200	1200

Table-306. Level of TDS at Karnaphuli River Water due to COVID19 situation.

Locations of Karnaphuli River	April'19	May'19	April'20	May'20
CUFL (Side), Anowara, Ctg.	13080	12670	16340	5530
TSP (Side), Potenga, Ctg.	6580	6290	16260	1478
KAFCO Side, Ctg.			16000	
Chaktai Khal, Ctg.	405	421	1976	390
Average	6688.33	6460.33	12644	2466
EQS Industries (\leq2100mg/l)	2100	2100	2100	2100

Table-307. Level of TS at Karnaphuli River Water due to COVID19 situation.

Locations of Karnaphuli River	April'19	May'19	April'20	May'20
CUFL (Side), Anowara, Ctg.	13273	12852	17670	5733
TSP (Side), Potenga, Ctg.	6780	6482	17206	1706
KAFCO Side, Ctg.			16896	
Chaktai Khal, Ctg.	496	750	2200	798
Average	6849.66	6694.66	13493	2745.66
EQS (2250 mg/l)	2250	2250	2250	2250

Table-308. Level of pH at Halda River Water due to COVID19 situation.

Locations of Halda River	April'19	May'19	April'20	May'20
Mohona	7.31	7.43	8.12	8.55
Khandakiya Khal	6.94	6.87	8.17	7.36
Madari Khal	7.36	7.2	7.73	7.53
Katakhali Khal	7.07	7.18	7.74	7.83
Krishna Khal	7.08	6.99	8.21	7.63
Average	7.152	7.134	7.994	7.78
EQS Fisheries (6.5-8.5)	6	6	6	6
EQS Industries (6.0-9.0)	9	9	9	9

Table-309. Level of DO at Halda River Water due to COVID19 situation.

Locations of Halda River	April'19	May'19	April'20	May'20
Mohona	5.1	5.23	6.25	6.45
Khandakiya Khal	3.61	4.18	5.8	2.59
Madari Khal	4.7	4.76	6.01	3.25
Katakhali Khal	4.35	4.4	5.88	4.41
Krishna Khal	4.67	4.77	6.08	4.03
Average	4.486	4.668	6.004	4.146
EQS Fisheries (5 mg/l\geq)	5	5	5	5
EQS Industries (4.5-8 mg/l)	8	8	8	8

Table-310. Level of SS at Halda River Water due to COVID19 situation.

Locations of Halda River	April'19	May'19	April'20	May'20
Mohona	85	80	112	105
Khandakiya Khal	233	224	89	158
Madari Khal	40	45	101	98
Katakhali Khal	86	77	91	99
Krishna Khal	205	190	134	97
Average	129.8	123.2	105.4	111.4
EQS Industries (\leq150 mg/l)	150	150	150	150

Table-311. Level of EC at Halda River Water due to COVID19 situation.

Locations of Halda River	April'19	May'19	April'20	May'20
Mohona	185	161	134.1	135.1
Khandakiya Khal	429	445	160.7	238
Madari Khal	165	156	163.3	161.5
Katakhali Khal	267	235	165.2	299
Krishna Khal	277	267	203	161.7
Average	264.6	252.8	165.26	199.06
EQS Industries (\leq1200μmohos/cm)	1200	1200	1200	1200

Table-312. Level of TDS at Halda River Water due to COVID19 situation.

Locations of Halda River	April'19	May'19	April'20	May'20
Mohona	88	82	69.7	64.5
Khandakiya Khal	205	217	83.9	118.3
Madari Khal	78	83	85.4	79.5
Katakhali Khal	130	123	86.3	147.8
Krishna Khal	134	129	106.2	79.8
Average	127	126.8	86.3	97.98
EQS Industries (≤ 2100mg/l)	2100	2100	2100	2100

Table-313. Level of TS at Halda River Water due to COVID19 situation.

Locations of Halda River	April'19	May'19	April'20	May'20
Mohona	173	162	181.7	169.5
Khandakiya Khal	101	441	172.9	276.3
Madari Khal	121	128	186.4	177.5
Katakhali Khal	216	200	177.3	246.8
Krishna Khal	339	319	240.2	176.8
Average	190	250	191.7	209.38
EQS (2250 mg/l)	2250	2250	2250	2250

Annex-7

List of Tables for Level of Drinking Water (Coliform Bacteria) of Hotel, Motel and Restaurant in 2020

Table-314. Level of Drinking Water (Coliform Bacteria) of Hotel, Motel and Restaurant at Barisal District in 2020.

Locations of Barisal District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Bismillah Hotel and Restaurant, Muladi, Barisal	-	-	-	-	-	-	-	-	-	-	30	-
Sofipur Hotel, Muladi, Barisal	-	-	-	-	-	-	-	-	-	-	50	-
Imran Hotel and Restaurent, Muladi, Barisal	-	-	-	-	-	-	-	-	-	-	20	-
Mayer Doa Hotel, Muladi, Barisal	-	-	-	-	-	-	-	-	-	-	0	-
New Bonoful Sweemet and Confectionary, Muladi, Barisal	-	-	-	-	-	-	-	-	-	-	50	-
Soshi Gour Nodi Mistanno Vandar, Muladi, Barisal	-	-	-	-	-	-	-	-	-	-	50	-
Opurbo FastFood and Sweemet, Muladi, Barisal	-	-	-	-	-	-	-	-	-	-	70	-
Monica Muslim Mistanno Vandar, Muladi, Barisal	-	-	-	-	-	-	-	-	-	-	0	-
Hotel Green Chilli, Muladi, Barisal	-	-	-	-	-	-	-	-	-	-	50	-
Ononno Vandar, Muladi, Barisal	-	-	-	-	-	-	-	-	-	-	110	-
Islamia Hotel and Restaurant, Muladi, Barisal	-	-	-	-	-	-	-	-	-	-	30	-
Hazi Biriani House, Muladi, Barisal	-	-	-	-	-	-	-	-	-	-	0	-
Ghorooa Hotel and Restaurant, Muladi, Barisal	-	-	-	-	-	-	-	-	-	-	0	-
Bonolota Sweenet and Restaurent, Muladi, Barisal	-	-	-	-	-	-	-	-	-	-	30	-
Takoa Food Luxary and Sweets House, Sadar, Barisal	-	-	-	-	-	-	-	-	-	-	20	-
Orpita Gour Nodi Mistanno Vander, Sadar, Barisal	-	-	-	-	-	-	-	-	-	-	50	-
Muslim Sweets and Restaurent, Sadar, Barisal	-	-	-	-	-	-	-	-	-	-	0	-
New Korai Gost Restaurent, Sadar, Barisal	-	-	-	-	-	-	-	-	-	-	0	-
Kosturi Restaurant, Sadar, Barisal	-	-	-	-	-	-	-	-	-	-	0	-
Allahr Dan Hotel and Restaurant, Sadar, Barisal	-	-	-	-	-	-	-	-	-	-	0	-
Day-Night Hotel and Restaurant, Sadar, Barisal	-	-	-	-	-	-	-	-	-	-	70	-
Café Halal Hotel and Restaurant, Sadar, Barisal	-	-	-	-	-	-	-	-	-	-	50	-
Star Hotel and Biriani House, Sadar, Barisal	-	-	-	-	-	-	-	-	-	-	70	-
Raj Bilas Biriani House, Sadar, Barisal	-	-	-	-	-	-	-	-	-	-	30	-
Roj Bilas Biriani House, Sadar, Barisal	-	-	-	-	-	-	-	-	-	-	0	-
Alauddin Sweets and Restaurent, Sadar, Barisal	-	-	-	-	-	-	-	-	-	-	90	-
Apurbo Gour Nodi Mistanno Vandar, Amtolar Mor, Barisal	-	-	-	-	-	-	-	-	-	-	-	50
Suprio Mistanno Vandar, Amtolar Mor, Barisal	-	-	-	-	-	-	-	-	-	-	-	20
Gouro Nodi Matri Vandar, Amtolar Mor, Barisal	-	-	-	-	-	-	-	-	-	-	-	10
Siam Hotel, Bangla Bazar, Barisal	-	-	-	-	-	-	-	-	-	-	-	20
The River Cap, Police Line Road, Barisal	-	-	-	-	-	-	-	-	-	-	-	10
Aniyars Dining and Chinese Restaurent, Police Line Road, Barisal	-	-	-	-	-	-	-	-	-	-	-	30
Silver Spoon Chainesse Restaurent, Police Line Road, Barisal	-	-	-	-	-	-	-	-	-	-	-	0
Hot Plate, Police Line Road, Barisal	-	-	-	-	-	-	-	-	-	-	-	0
Kitchen Restaurent, Police Line Road, Barisal	-	-	-	-	-	-	-	-	-	-	-	70
The Moghol Kacchi and Kabab, Police Line Road, Barisal	-	-	-	-	-	-	-	-	-	-	-	50
Handi Korai, Sadar Road, Barisal	-	-	-	-	-	-	-	-	-	-	-	0
Rose Garden Restaurent, Sadar Road, Barishal	-	-	-	-	-	-	-	-	-	-	-	30
Bismillah Hotel, Issorbosu Road, Barisal	-	-	-	-	-	-	-	-	-	-	-	20
Sugondha Hotel and Restaurent, Issorbosu Road, Barisal	-	-	-	-	-	-	-	-	-	-	-	10
Gournodi Muslim Hotel, Issorbosu Road, Barisal	-	-	-	-	-	-	-	-	-	-	-	40

EQS For Drinking 0 (Zero)/100 ml

Table-315. Level of Drinking Water (Coliform Bacteria) of Hotel, Motel and Restaurant at Bhola District in 2020.

Locations of Bhola District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Al-Hamdulillah Hotel and Restaurent, Char fashion, Bhola	-	-	-	-	-	-	-	-	-	-	50	-
Dhaka Hotel and Restaurent, Char fashion, Bhola	-	-	-	-	-	-	-	-	-	-	30	-
Dip Mistanno Vander, Char fashion, Bhola	-	-	-	-	-	-	-	-	-	-	70	-
Modina Hotel and Restaurent, Char fashion, Bhola	-	-	-	-	-	-	-	-	-	-	70	-
Boisakhi Hotel and Restaurent, Char fashion, Bhola	-	-	-	-	-	-	-	-	-	-	30	-
Vai vai Hotel and Restaurent, Char fashion, Bhola	-	-	-	-	-	-	-	-	-	-	0	-
Vuiya Hotel and Restaurent, Char fashion, Bhola	-	-	-	-	-	-	-	-	-	-	20	-
Nirala Restaurent , Char fashion, Bhola	-	-	-	-	-	-	-	-	-	-	0	-
Bismillah Hotel and Restaurent, Char fashion, Bhola	-	-	-	-	-	-	-	-	-	-	50	-
Jaher Hotel, Char fashion, Bhola	-	-	-	-	-	-	-	-	-	-	100	-
Nur Hotel , Char fashion, Bhola	-	-	-	-	-	-	-	-	-	-	0	-
Al Amin Hotel and Restaurent, Char fashion, Bhola	-	-	-	-	-	-	-	-	-	-	0	-
M/S Khandani Restaurent, Char fashion, Bhola	-	-	-	-	-	-	-	-	-	-	0	-
EQS For Drinking 0 (Zero)/100 ml												

Table-316. Level of Drinking Water (Coliform Bacteria) of Hotel, Motel and Restaurant at Jhalokathi District in 2020.

Locations of Jhalokathi District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Vai Vai Hotel and Restaurent, Amtola Road, Jhalokathi	-	-	-	-	-	-	-	-	-	-	-	20
Muslim Sweemet and Restaurent, Kamarpotti, Jhalokathi	-	-	-	-	-	-	-	-	-	-	-	50
Hotel Ghoroa and Restaurent, Old College Road, Jhalokathi	-	-	-	-	-	-	-	-	-	-	-	0
Apon Hotel and Restaurent, Kumarpotti, Jhalokathi	-	-	-	-	-	-	-	-	-	-	-	30
Dalian Chaineese Restaurent, kumarpotti, Jhalokathi	-	-	-	-	-	-	-	-	-	-	-	0
Kismot Hotel, Kumarpotti, Jhalokathi	-	-	-	-	-	-	-	-	-	-	-	70
Bonkoli Muslim Sweemet and Restaurent, Chaumatha, Jhalokathi	-	-	-	-	-	-	-	-	-	-	-	70
Didar Hotel and Restaurent, Sadar road, Jhalokathi	-	-	-	-	-	-	-	-	-	-	-	0
Madaripur Doi Ghor, Kalibari Road, Jhalokathi	-	-	-	-	-	-	-	-	-	-	-	0
Etu Sweets, Kalibari Road, Jhalokathi	-	-	-	-	-	-	-	-	-	-	-	40
Loknath Doi Ghor, Sadhonar Mor, Jhalokathi	-	-	-	-	-	-	-	-	-	-	-	20
Ma-Moni Hotel, Sadhonar Mor, Jhalokathi	-	-	-	-	-	-	-	-	-	-	-	0
Appayon Hotel and kabab, Post Office Road, Jhalokathi	-	-	-	-	-	-	-	-	-	-	-	40
Desi Voj, Sadar, Jhalokathi	-	-	-	-	-	-	-	-	-	-	-	70
Bismillah Birani House and Restaurent, Jhalokathi	-	-	-	-	-	-	-	-	-	-	-	40
EQS For Drinking 0 (Zero)/100 ml												

Table-317. Level of Drinking Water (Coliform Bacteria) of Hotel, Motel and Restaurant at Natore District in 2020.

Locations of Natore District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Ghos Sweets, Madrasa Mor, Natore	-	-	-	-	-	-	-	-	-	0	-	0
Old Nimtola Doi and Mistanno Vandar, Nimtola Bazar, Natore	-	-	-	-	-	-	-	-	-	90	-	90
Sudhi Doi and Mistanno Vandar, Nimtola Bazar, Natore	-	-	-	-	-	-	-	-	-	70	-	70
Islamia Pochur Hotel, Sadar, Natore	-	-	-	-	-	-	-	-	-	80	-	80
M/S Bismillah Hotel, Chakrampur, Natore	-	-	-	-	-	-	-	-	-	100	-	100
M/S Irani Hotel, Chakrampur, Natore	-	-	-	-	-	-	-	-	-	80	-	80
Joljog Mistanno Vandar, Nichu Bazar, Natore	-	-	-	-	-	-	-	-	-	120	-	120
M/S Sukurer Hotel, Valaipur, Natore	-	-	-	-	-	-	-	-	-	130	-	130
M/S Eyamin Hotel, Traffic More, Natore	-	-	-	-	-	-	-	-	-	60	-	0
Macca Madina Hotel, Chakrampur, Natore	-	-	-	-	-	-	-	-	-	70	-	0
EQS For Drinking 0 (Zero)/100 ml												

Table-318. Level of Drinking Water (Coliform Bacteria) of Hotel, Motel and Restaurant at Khulna District in 2020.

Locations of Khulna District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Rahmania Hotel, Jashore Road, Khulna	-	-	-	-	-	-	-	-	-	-	-	120
Satkhira Khagandranath Gosh Dairy, Dhormosava Road, Khulna	-	-	-	-	-	-	-	-	-	-	-	60
Biriani Ghor, Jashore Road, Khulna	-	-	-	-	-	-	-	-	-	-	-	70
Misti Ghor, Jashore Road, Khulna	-	-	-	-	-	-	-	-	-	-	-	200
Chainise Dot Com, Jashore Road, Khulna	-	-	-	-	-	-	-	-	-	-	-	40
Ahasania Hotel, Jashore Road, Khulna	-	-	-	-	-	-	-	-	-	-	-	120
Atithi Hotel, Iqbal Road, Khulna	-	-	-	-	-	-	-	-	-	-	-	150
Hazi Nanna Biriani House, Khulna	-	-	-	-	-	-	-	-	-	-	-	40
Hotel Kostori, Fulbarigate, Khulna	-	-	-	-	-	-	-	-	-	-	-	150
Hotel Otithi Appayon, Fulbarigate, Khulna	-	-	-	-	-	-	-	-	-	-	-	130
Muslim Misti Ghor, Fulbarigate, Khulna	-	-	-	-	-	-	-	-	-	-	-	40
New Abbas Hotel, Daulatpur, Khulna	-	-	-	-	-	-	-	-	-	-	-	170
Palash Restora, Daulotpur, Khulna	-	-	-	-	-	-	-	-	-	-	-	180
Monir Hotel, Daulatpur Bazar, Khulna	-	-	-	-	-	-	-	-	-	-	-	40
A Rahman Hotel and Restaurant, Nurnagar, Khulna	-	-	-	-	-	-	-	-	-	-	-	60
Aloka Restora, Dakbanglo Road, Khulna	-	-	-	-	-	-	-	-	-	-	-	Nil
Hotel Kasturi, Cemetri Road, Khulna	-	-	-	-	-	-	-	-	-	-	-	Nil
Satkhira Jadob Ghos Dairy, Khan A Sabur Road, Khulna	-	-	-	-	-	-	-	-	-	-	-	Nil
Vai Vai Mistanno Vandar, Fulbarigate, Khulna	-	-	-	-	-	-	-	-	-	-	-	Nil
Satkhira Ghos Dairy, Fulbarigate, Khulna	-	-	-	-	-	-	-	-	-	-	-	Nil
Adi Ghos Dairy, Fulbarigate, Khulna	-	-	-	-	-	-	-	-	-	-	-	Nil
Laboni Hotel, Daulatpur, Khulna	-	-	-	-	-	-	-	-	-	-	-	Nil
Satkhira Gosh Dairy, Gallamary Fish Ghat, Khulna	-	-	-	-	-	-	-	-	-	Nil	-	-
Satkhira Gosh Dairy, Batiaghata Road, Gallamary Fish Ghat, Khulna	-	-	-	-	-	-	-	-	-	Nil	-	-
Satkhira Gosh Dairy, 169 Sere Bangla Road, Khulna	-	-	-	-	-	-	-	-	-	40	-	-
Satkhira Gosh Dairy, Gallamary More, Khulna	-	-	-	-	-	-	-	-	-	20	-	-
Hotel Chuknagar, Zero Point, Khulna	-	-	-	-	-	-	-	-	-	500	-	-
Hotel Al-Arafa, Zero Point, Khulna	-	-	-	-	-	-	-	-	-	20	-	-
Hotel Dumuria, Zero Point, Khulna	-	-	-	-	-	-	-	-	-	10	-	-
Hotel Ruchi, Zero Point, Khulna	-	-	-	-	-	-	-	-	-	400	-	-
Hotel Abbas, Zero Point, Khulna	-	-	-	-	-	-	-	-	-	400	-	-
Mayer Doa Hotel and Biriani House, Zero Point, Khulna	-	-	-	-	-	-	-	-	-	500	-	-
Hotel Kamrul, Zero Point, Khulna	-	-	-	-	-	-	-	-	-	30	-	-
Rasana Bilas Restaurant, Zero Point, Khulna	-	-	-	-	-	-	-	-	-	500	-	-

EQS For Drinking 0 (Zero)/100 ml

Table-319. Level of Drinking Water (Coliform Bacteria) of Hotel, Motel and Restaurant at Pabna District in 2020.

Locations of Pabna District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
M/S Shapla Adorso Hotel, Hamid Road, Pabna	-	-	-	-	-	-	-	70	-	70	70	-
Soptoborna Biriani and Hotel, Rupkotha Road, Pabna	-	-	-	-	-	-	-	60	-	60	60	-
Dhaka Biriani House, Rupkotha Road, Pabna	-	-	-	-	-	-	-	0	-	0	0	-
Vai Bon Hotel and Restaurant, Rupkotha Road, Pabna	-	-	-	-	-	-	-	0	-	0	0	-
Laksmi Mistanno Vander, Rupkotha Road, Pabna	-	-	-	-	-	-	-	0	-	0	0	-
Mokka Biriani House, Rupkotha Road, Pabna	-	-	-	-	-	-	-	0	-	0	0	-
Bismillah Hotel, Rupkotha Road, Pabna	-	-	-	-	-	-	-	0	-	0	0	-
Tripti Hotel and Biriani House, Rupkotha Road, Pabna	-	-	-	-	-	-	-	70	-	70	70	-
Hotel Al Modina, Rupkotha Road, Pabna	-	-	-	-	-	-	-	0	-	0	0	-
Pakhi Hotel, Pabna Bus Stand, Pabna	-	-	-	-	-	-	-	0	-	0	0	-

EQS For Drinking 0 (Zero)/100 ml

Table-320. Level of Drinking Water (Coliform Bacteria) of Hotel, Motel and Restaurant at Patuakhali District in 2020.

Locations of Patuakhali District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Al Modina Restaurant and Biriani House, Sadar, Patuakhali	-	-	-	-	-	-	-	-	-	0	-	-
Star Sweets and Biriani House, Sadar, Patuakhali	-	-	-	-	-	-	-	-	-	100	-	-
Faruq Sweets, New Market, Sadar, Patuakhali	-	-	-	-	-	-	-	-	-	150	-	-
Bonoful Sweets, New Market, Sadar, Patuakhali	-	-	-	-	-	-	-	-	-	60	-	-
Prince Restaurant Sweets and Biriani, New Market, Sadar, Patuakhali	-	-	-	-	-	-	-	-	-	110	-	-
Doi Ghor, New Market, Patuakhali	-	-	-	-	-	-	-	-	-	50	-	-
Doi Vandar, New Market, Patuakhali	-	-	-	-	-	-	-	-	-	70	-	-
Nondini Sweets, Notun Bazar, Patuakhali	-	-	-	-	-	-	-	-	-	200	-	-
Hotel Panama, Notun Bazar, Patuakhali	-	-	-	-	-	-	-	-	-	140	-	-
Hotel Jonaki, Sadar Road, Patuakhali	-	-	-	-	-	-	-	-	-	150	-	-
Rofiker Hotel, Sadar Road, Patuakhali	-	-	-	-	-	-	-	-	-	80	-	-
International Payra Residencial Hotel, Sadar Road, Patuakhali	-	-	-	-	-	-	-	-	-	200	-	-
Hotel Chooa, Tin Potti, Patuakhali	-	-	-	-	-	-	-	-	-	60	-	-
Ruchita Hotel and Restaurant, Sadar, Patuakhali	-	-	-	-	-	-	-	-	-	120	-	-
Tisha Sweets, Notun Bazar, Patuakhali	-	-	-	-	-	-	-	-	-	30	-	-
Mollika Restaurant, Mohila Collage road, Patuakhali	-	-	-	-	-	-	-	-	-	0	-	-
Dada Vai Restaurant, Lanch Ghat, Patuakhali	-	-	-	-	-	-	-	-	-	50	-	-
Pringol Hotel and Restaurant, Sadar, Patuakhali	-	-	-	-	-	-	-	-	-	50	-	-
Suborna Restaurent, Sadar, Barisal	-	-	-	-	-	-	-	-	-	70	-	-

EQS For Drinking 0 (Zero)/100 ml

Table-321. Level of Drinking Water (Coliform Bacteria) of Hotel, Motel and Restaurant at Pirojpur District in 2020.

Locations of Pirojpur District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Siqdar Mistanno Vander, CO office Mor, Pirojpur	-	110	-	-	-	-	-	-	-	-	-	-
Vai Vai Hotel and Restaurant, CO office Mor, Pirojpur	-	70	-	-	-	-	-	-	-	-	-	-
Café Al Modina Restaurant and Sawrma House, Sadar, Pirojpur	-	70	-	-	-	-	-	-	-	-	-	-
Hotel Abbas, CO office Mor, Pirojpur	-	0	-	-	-	-	-	-	-	-	-	-
Diamond Sweets, Sadar Road, Pirojpur	-	0	-	-	-	-	-	-	-	-	-	-
Satkhira Ghos Diary, Sadar Road, Pirojpur	-	40	-	-	-	-	-	-	-	-	-	-
Hotel Appayon, Bazar Road, Pirojpur	-	0	-	-	-	-	-	-	-	-	-	-
Oisi Mistanno Vandar, Bazar Road, Pirojpur	-	0	-	-	-	-	-	-	-	-	-	-
New Nirob Hotel and Restaurant, Bridge Road, Pirojpur	-	60	-	-	-	-	-	-	-	-	-	-
Ovijat Sweemet, Bridge Road, Pirojpur	-	40	-	-	-	-	-	-	-	-	-	-
Nirob Hotel and Restaurant, Clab Road, Pirojpur	-	0	-	-	-	-	-	-	-	-	-	-
Star Hotel and Restaurant, Sadar, Pirojpur	-	90	-	-	-	-	-	-	-	-	-	-
Al amin Hotel, Post Office oad, Pirojpur	-	120	-	-	-	-	-	-	-	-	-	-
Hazi Biriani House, Sahid Minar Road, Pirojpur	-	50	-	-	-	-	-	-	-	-	-	-

EQS For Drinking 0 (Zero)/100 ml

Table-322. Level of Drinking Water (Coliform Bacteria) of Hotel, Motel and Restaurant at Rajshahi District in 2020.

Locations of Rajshahi District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Al Modina Hotel and Restaurant, Siroel Bus Stand, Rajshahi	-	-	-	-	-	-	-	-	0		0	-
Sikdar Hotel, Siroel, Rajshahi	-	-	-	-	-	-	-	-	0		0	-
Mostak Hotel, Siroel, Rajshahi	-	-	-	-	-	-	-	-	0		0	-
Sujon Hotel and Restaurant, Siroel, Rajshahi	-	-	-	-	-	-	-	-	120		120	-
Kisan Hotel and Restaurant, Saheb bazar, Rajshahi	-	-	-	-	-	-	-	-	130		130	-
Biddut Hotel, Saheb bazar, Rajshahi	-	-	-	-	-	-	-	-	0		0	-
Hotel Memori, Saheb bazar, Rajshahi	-	-	-	-	-	-	-	-	0		0	-
Padma Hotel and Restaurant, Siroel Bus Stand, Rajshahi	-	-	-	-	-	-	-	-	0		0	-
Pappu Restaurant, Siroel Bazar, Rajshahi	-	-	-	-	-	-	-	-	0		0	-
Boisakhi Hotel, Talaimari Bazar, Rajshahi	-	-	-	-	-	-	-	-	0		0	-

EQS For Drinking 0 (Zero)/100 ml

Table-323. Level of Drinking Water (Coliform Bacteria) of Hotel, Motel and Restaurant at Rangpur District in 2020.

Locations of Rangpur District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
New Piasi Hotel, Kachari Bazar, Rangpur	-	-	-	-	-	-	-	-	90	-	-	-
Moubon Hotel, Kachari Bazar, Rangpur	-	-	-	-	-	-	-	-	70	-	-	-
M/S Pias Hotel, Kachari Bazar, Rangpur	-	-	-	-	-	-	-	-	60	-	-	-
Hotel Monis, Kachari Bazar, Rangpur	-	-	-	-	-	-	-	-	100	-	-	-
Ma Moni Hotel, Dhap Jail Road, Rangpur	-	-	-	-	-	-	-	-	40	-	-	-
Boisakhi Restaurent, Dhap Jail Road, Rangpur	-	-	-	-	-	-	-	-	120	-	-	-
Chadni Restaurent, Dhap Jail Road, Rangpur	-	-	-	-	-	-	-	-	40	-	-	-
Mamun Hotel, Dhap Jail Road, Rangpur	-	-	-	-	-	-	-	-	70	-	-	-
Parvez Hotel, Dhap Jail Road, Rangpur	-	-	-	-	-	-	-	-	80	-	-	-
Mohua Hotel, Kachari Bazar, Rangpur	-	-	-	-	-	-	-	-	90	-	-	-
EQS For Drinking 0 (Zero)/100 ml												

Table-324. Level of Drinking Water (Coliform Bacteria) of Hotel, Motel and Restaurant at Sirajgonj District in 2020.

Locations of Sirajgonj District	Jan	Feb	Mar	Apl	May	June	July	Aug	Sep	Oct	Nov	Dec
Food Village Plus, Hatikumrul, Sirajgonj	-	-	-	-	-	-	-	-	0	-	-	0
Ittadi Hotel and Doi Miste Ghor, Hatikumrul, Sirajgonj	-	-	-	-	-	-	-	-	0	-	-	0
Papia Hotel and Restaurent , Hatikumrul, Sirajgonj	-	-	-	-	-	-	-	-	0	-	-	0
Arif Hotel and Doi Miste Ghor, Hatikumrul, Sirajgonj	-	-	-	-	-	-	-	-	0	-	-	0
Nur a Arafat Hotel and Doi Miste Ghor, Hatikumrul, Sirajgonj	-	-	-	-	-	-	-	-	120	-	-	120
New Night Angle Hotel and Restaurent, Hatikumrul, Sirajgonj	-	-	-	-	-	-	-	-	80	-	-	80
Sonar Bangla Hotel and Restaurent, Hatikumrul, Sirajgonj	-	-	-	-	-	-	-	-	0	-	-	90
New Ruposi Hotel, Hatikumrul, Sirajgonj	-	-	-	-	-	-	-	-	0	-	-	0
Aristocat Restaurent, Hatikumrul, Sirajgonj	-	-	-	-	-	-	-	-	0	-	-	0
Pentagon Hotel and Restaurent, Hatikumrul, Sirajgonj	-	-	-	-	-	-	-	-	90	-	-	90
EQS For Drinking 0 (Zero)/100 ml												

***** End *****