The status of ambient water in Bangladesh: A snapshot from 12 cities

Transitioning to Sustainable Urban Water Cycles in Bangladesh

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ACKNOWLEDGEMENT

Executive Summary

Good ambient water quality is one of the indicators of a clean and healthy living environment. Maintaining good ambient water quality is essential for environmental safety, water security, and is directly linked to human health, livelihoods, and sustainable development. Healthy waterbodies make the cities/municipalities resilient to climate stressors (e.g., floods, droughts, heatwaves, public health threats), helping maintain the natural water cycles, ecosystem balance and water availability. The ambient water quality of SUWC project cities/municipalities (4 city corporations and 8 municipalities) was measured to understand the existing living environment of project cities and contribute to SDG 6.3.2 (Proportion of bodies of water with good ambient water quality) i.e. tracks the surface and groundwater quality. Both surface and groundwater were tested under this assignment. The Consultancy Research and Testing Service (CRTS) of the Department of Civil Engineering of Khulna University of Engineering & Technology (KUET) and the Center for Research, Testing and Consultancy (CRTC) of the Department of Civil and Environmental Engineering of Shahjalal University of Science and Technology (SUST) were engaged in sample collection, transportation, and testing.

Eight (8) parameters i.e. Potential of Hydrogen (pH), Dissolved oxygen (DO), Five-Day Biochemical Oxygen Demand (BOD_5), Chemical Oxygen Demand (COD), Electrical Conductivity (EC), Nitrate (NO_3), Nitrite (NO_2) and Orthophosphate (PO_4) were considered for surface (canals, ponds, lakes and rivers) Water Quality Testing according to SDG 6.3.2 (level 1) and three (3) parameters i.e. pH, EC and NO_3 were considered for groundwater (tubewells and municipal/city production wells). A total of 108 samples (72 surface water and 36 groundwater) were collected from SUWC cities/municipalities for testing. The tested results of collected samples were compared with the acceptable limits of Bangladesh Environment Conservation Rules (ECR) 2023 to understand the status.

The tested results reveal that the surface ambient water quality of Sustainable Urban Water Cycles (SUWC) Project cities/municipalities was not healthy, usable, and safe in terms of BOD_5, COD and PO_4. About 90% (65 samples out of 72) tested results for BOD, 97% (70 samples out of 72) tested results for COD and 70% (50 samples out of 72) tested results for PH_4 did not meet the acceptable limit of ECR 2023. The tested results of BOD_5 and COD were far beyond the acceptable limit which is alarming. One fourth of the samples (18 samples, mostly in Bagerhat, Chapainawabganj, Joypurhat, and Kushtia) tested results for pH and 40% (29 samples, mostly from Khulna, Joypurhat and Moulvibazar) tested results for DO did not meet the acceptable limit, but remarkably the deviation from the acceptable limit is not high which is a good sign and possible to improve quickly. Samples of all cities/municipalities met the acceptable limit of ECR 2023 for Electrical Conductivity except Bagerhat, Cumilla and Moulvibazar. The surface water of the cities/municipalities were safe considering Nitrate (NO_3) and Nitrite (NO_2) tested results.

Less DO and high BOD_5, COD and PO_4 indicate the presence of organic matter in the surface water which pollutes the water and degrades the quality. During the sample collection, some causes of it were observed: Dumping of domestic solid waste, Sanitation effluent (from pit or septic tank outlet) discharge, Greywater discharge, Discharge from municipal drainage system, Presence of dead algae (blue or green) and aquatic plants, Dish and cloth washing with soap/detergent/agent, Fish farming (providing fish meal) and Bathing (with soap & shampoo).

The groundwater quality was better in the cities/municipalities. Among the total 36 samples, four (4) samples (1 from Sylhet, 1 from Chhatak and 2 from Moulvibazar; all of them from Sylhet region) did not meet the acceptable limit for pH. The tested values of these four samples varied between 5.24 and 6.2, which indicates that the groundwater is a little bit acidic and better to avoid for domestic use and drinking purposes (but it may improve over time, especially in monsoon, further testing is recommended). For EC and NO_3, all groundwater samples met the acceptable limit which is desirable.

Finally, the awareness of city dwellers and the willingness of city/municipal authorities are required to improve the quality of ambient water by preventing the waste dumping (sanitation waste, solid waste, and greywater discharge) into surface water, regular cleaning of aquatic plant/algae and continuous monitoring.

Chapter 1: Introduction

1.1 Background

SNV is a global development partner, deeply rooted in the countries where we operate. Driven by a vision of a better world where all people live with dignity and have equitable opportunities to thrive sustainably, SNV strengthens capacities and catalyses partnerships that transform agri-food, energy, and water systems. We help strengthen institutions and effective governance, reduce gender inequalities and barriers to social inclusion, and enable adaptation and mitigation to the climate and biodiversity crises. With 60 years of experience and a team of approximately 1,600 people, we support our partners in more than 20 countries in Africa and Asia, tailoring our approaches to different contexts to achieve large-scale impact and create more equitable lives.

Over the past 10 years, the Urban Sanitation program of SNV has successfully developed a multi-stakeholder coordination mechanism at the local level under the leadership of Local Government Institutions, bringing together local authorities, utility, national agencies, universities, private sector, and civil society around urban sanitation to achieve SDG goal and make institution-alization of FSM. Now, SNV Bangladesh has been focusing on the urban water cycles and implementing a project titled 'Transitioning to Sustainable Urban Water Cycles (SUWC) in Bangladesh' under the water sector.

Ambient water quality testing provides the scientific evidence needed to link sanitation, greywater and solid waste management practices to urban water security which is relevant to SUWC project. It provides critical information on the presence of pollutants from human activities like wastewater discharge, industrial effluents, and solid waste dumping, as well as natural processes that may affect water quality. The suitability for various uses of water such as drinking, irrigation, recreation, and ecosystem support can also be assessed based on the tested results. It is also important for designing the interventions of SUWC project.

1.2 Objectives

One of the objectives of SUWC project is to contribute to the health and well-being of around 1.4 million people in 12 cities/municipalities by improving the cleanliness of their living environment. Good ambient water is one of the indicators of a clean and healthy living environment. SUWC has measured the ambient water quality to understand the existing living environment of project cities and track the water quality of rivers, lakes, and groundwater bodies for contributing SDG 6.3.2 (Proportion of bodies of water with good ambient water quality).

1.3 Scope of Works

72 surface water (4 canals, 14 lakes, 36 ponds and 18 rivers) and 36 groundwater (tubewell and municipal/city production well) samples were collected and tested to understand the ambient water quality of SUWC cities (Table 1). SNV engaged the Consultancy Research and Testing Services (CRTS) of the Civil Engineering Department of Khulna University of Engineering & Technology (KUET) and Center for Research, Testing and Consultancy (CRTC) of the Civil & Environmental Engineering Department of Shahjalal University of Science and Technology (SUST) for sample collection, transportation, processing, field test, laboratory test/analysis, and other related activities are included in this assignment. KUET conducted the study in August-September 2023 and SUST in May 2024 (dry season).

Chapter 2: Methods

2.1 Testing Parameters

Eight (8) parameters i.e. Potential of Hydrogen (pH), Dissolved oxygen (DO), Five-Day Biochemical Oxygen Demand (BOD_5), Chemical Oxygen Demand (COD), Electrical Conductivity (EC), Nitrate (NO_3), Nitrite (NO_2) and Orthophosphate (PO_4) were considered for surface Ambient Water Quality Testing of SUWC cities/municipalities according to SDG 6.3.2 (level 1). For groundwater three (pH, EC and NO_3) parameters were considered.

2.2 Sample Distribution

A total of 108 samples (72 surface water and 36 groundwater) were collected from SUWC cities/municipalities (Table 1) for testing. Surface water included 4 canals, 14 lakes, 36 ponds and 18 rivers samples, whereas groundwater samples were collected from the tubewells and municipal/city production wells.

Table 1: Surface and Ground Water Samples of the Cities/Municipalities

SL.	City/Municipality	Samples			Remarks
		Surface Water	Groundwater	Total	
01	Bagerhat Municipality	4	3	7	Conducted by CRTS, KUET
01	Chapainawabganj Municipality	6	3	9	
03	Chhatak Municipality	6	3	9	
04	Cumilla City Corporation	6	3	9	
05	Gazipur City Corporation	6	4	10	
06	Joypurhat Municipality	6	3	9	
07	Khulna City Corporation	9	2	11	Conducted by CRTC, SUST
08	Kushtia Municipality	6	3	9	
09	Lalmonirhat Municipality	6	3	9	
10	Moulvibazar Municipality	6	3	9	
11	Shibganj Municipality	4	3	7	
12	Sylhet City Corporation	7	3	10	
	Total	72	36	108	

The following criteria were considered to select the sampling points:

- ➢ For the river, a minimum of 1 km downstream from the drainage outfall/point of pollution the samples were collected.
- ➢ The number and locations of sample collection points in lakes and ponds depended on the lake's size and morphology.
- ➢ The sample did not collect during flood/heavy rainfall/other natural calamities which have a great impact on water quality
- ➢ Groundwater samples were taken from existing wells used for domestic/municipal water supply
- ➢ Selected sample locations were scattered to cover the city

All samples were collected in the presence of relevant city/municipal staff.

2.3 Sample Collection

The samples were collected, preserved and transported by following standard collection procedure in the presence of a professor of KUET/SUST and relevant city/municipal staff.

2.4 Testing Procedures and Methods

pH, DO, EC were analyzed in the field during the sample collection and other parameters were analyzed in the Environmental Engineering Lab of KUET and SUST (Table 2).

Table 2: Laboratory and Field Test Methods

SL.	Parameter	Unit	Testing site	Methods Of Analysis
01	pH	--	Field test	SM 4500-H+ B
02	Dissolved oxygen (DO)	mg/l	Field test	SM 4500 O
03	BOD_5	mg/l	Lab test	SM 5210 B
04	COD	mg/l	Lab test	SM 5220 C
05	Electrical conductivity (EC)	mS/cm	Field test	SM 2510 B
06	Nitrate (NO_3)	mg/l	Lab test	SM 4500-NO3 E
07	Nitrite (NO_2)	mg/l	Lab test	SM 4500-NO2 B
08	Orthophosphate	mg/l	Lab test	SM 4500-P E

Chapter 3: Data Analysis

3.1 General

The tested results of collected samples were compared with the acceptable limits of Bangladesh Environment Conservation Rules (ECR) 2023 to understand the status of ambient water quality of SUWC cities/municipalities. The tested results of surface water and groundwater were presented separately in the following sections.

3.2 Surface Water Quality Analysis

Acceptable limits for Inland Recreational Surface Water of ECR 2023 were used to compare the water quality testing results of the surface water samples (Table 3). Notably Acceptable limits for Irrigation was used for EC (as no acceptable limit is available for EC for Inland Recreational Surface Water in ECR 2023.

Table 3: Acceptable Limits for Inland Recreational Surface Water (ECR 2023, Bangladesh)

Testing Parameter	Acceptable Limit
pH	6.5-8.5
Electrical Conductivity (EC)	2250* mS/cm
Dissolved Oxygen (DO)	≥ 5 mg/l
BOD_5	≤ 3 mg/l
COD	≤ 10 mg/l
Nitrite (NO_2)	N/A
Nitrate (NO_3)	≤ 7 mg/l
Orthophosphate (PO_4)	≤ 0.5 mg/l

Acceptable limits for Irrigation as per ECR 2023

3.2.1 pH (Potential of Hydrogen)

18 samples (25%) did not meet the acceptable limit of ECR 2023 for pH (Table 4) and all their pH values were above 8.5 (Figure 1), which means the water was Basic (Alkaline) and not suitable for direct recreational, domestic, irrigation, and industrial uses. The situation of Bagerhat Municipality was the worst (3 samples out of 4 did not meet the acceptable limit). In Chapainawabganj, Joypurhat, and Kushtia the water quality was worse (3 samples out of 6 did not meet the acceptable limit) considering pH (Table 4).

Chhatak, Gazipur and Khulna were in a better situation where all samples met the acceptable limit for pH.

Table 4: pH in the Surface Water of SUWC Cities/Municipalitics

City/Municipality	Did not Meet the Acceptable Limit	Met the Acceptable Limit	Total
Bagerhat	3	1	4
Chapainawabganj	3	3	6
Chhatak	0	6	6
Cumilla	1	5	6
Gazipur	0	6	6
Joypurhat	3	3	6
Khulna	0	9	9
Kushtia	3	3	6
Lalmonirhat	1	5	6
Moulvibazar	1	5	6
Shibganj	2	2	4
Sylhet	1	6	7
Total	**18**	**54**	**72**

Figure 1: Deviation of pH Tested Results from ECR 2023 Acceptable Limit

Lower Limit (6.5) —— Upper Limit (8.5) ● Tested Value
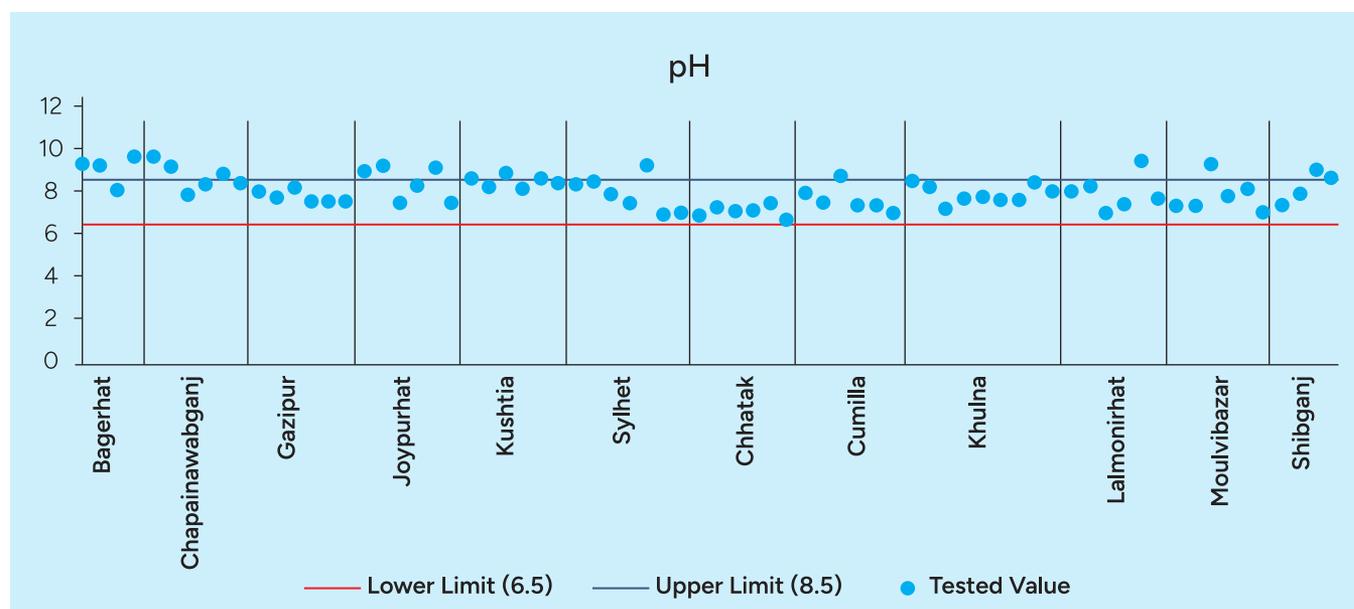
3.2.2 Electrical Conductivity (EC)

11 samples (about 15%) did not meet the acceptable limit of ECR 2023 for EC (Table 5) of all cities/municipalities met the acceptable limit of ECR 2023 for Electrical Conductivity except Bagerhat, Cumilla and Moulvibazar. The scenario of the Cumilla was the worst where no samples met the acceptable limit (Table 5).

Table 5: Electrical Conductivity in the Surface Water of SUWC Cities/Municipalities

City/Municipality	Did not Meet the Acceptable Limit	Met the Acceptable Limit	Total
Bagerhat	2	2	4
Chapainawabganj	0	6	6
Chhatak	0	6	6
Cumilla	6	0	6
Gazipur	0	6	6
Joypurhat	0	6	6
Khulna	0	9	9
Kushtia	0	6	6
Lalmonirhat	0	6	6
Moulvibazar	3	3	6
Shibganj	0	4	4
Sylhet	0	7	7
Total	**11**	**61**	**72**

3.2.3 Dissolved Oxygen (DO)

29 samples (about 40%) met the acceptable limit of ECR 2023 for DO. The scenario of Khulna was worst where no samples met the acceptable limit. Joypurhat and Moulvibazar were in a worse condition where 4 samples out of 6 did not met the acceptable limit (Table 6). In Bagerhat and Kushtia the situation was best (considering DO) as all samples met the acceptable limit.

Table 6: DO in the Surface Water of SUWC Cities/Municipalities

City/Municipality	Did not Meet the Acceptable Limit	Met the Acceptable Limit	Total
Bagerhat	0	4	4
Chapainawabganj	1	5	6
Chhatak	2	4	6
Cumilla	2	4	6
Gazipur	2	4	6
Joypurhat	4	2	6
Khulna	9	0	9
Kushtia	0	6	6
Lalmonirhat	2	4	6
Moulvibazar	4	2	6
Shibganj	1	3	4
Sylhet	2	5	7
Total	29	43	72

The deviation of tested results of DO from the acceptable limit is not high except Bagerhat (Figure 2).

Figure 2: Deviation of Tested DO Results from ECR 2023 Acceptable Limit

3.2.4 Biochemical Oxygen Demand (BOD$_5$)

The status of BOD$_5$ of SUWC cities/municipalities was alarming as 65 samples (about 90%) out of 72 did not meet the acceptable limit of ECR 2023. Chhatak Municipality was comparatively in better condition (3 samples out of 6 meet the acceptable limit), but it is also not desirable (Table 7).

BOD$_5$ tested results of Bagerhat, Chapainawabganj, Gazipur (partially), Joypurhat and Khulna were far beyond the acceptable limit (Figure 3).

Table 7: BOD₅ in the Surface Water of SUWC Cities/Municipalities

City/Municipality	Did not Meet the Acceptable Limit	Met the Acceptable Limit	Total
Bagerhat	4	0	4
Chapainawabganj	6	0	6
Chhatak	3	3	6
Cumilla	5	1	6
Gazipur	6	0	6
Joypurhat	6	0	6
Khulna	9	0	9
Kushtia	6	0	6
Lalmonirhat	6	0	6
Moulvibazar	4	2	6
Shibganj	3	1	4
Sylhet	7	0	7
Total	65	7	72

Higher BOD₅ (than the acceptable limit ≤ 3 mg/l) indicates the presence of organic matter in surface water which comes from the dumping of organic solid waste, decomposition of dead algae/aquatic plant, sewage/sanitation waste discharge/dumping and greywater discharge into the surface water.

Figure 3: Deviation of BOD₅ Tested Results from ECR 2023 Acceptable Limit

3.2.5 Chemical Oxygen Demand (COD)

The status of COD of SUWC cities/municipalities was more alarming than BOD₅ as 70 samples (about 97%) out of 72 did not meet the acceptable limit. Only 2 samples of Sylhet met the acceptable limit (Table 8).
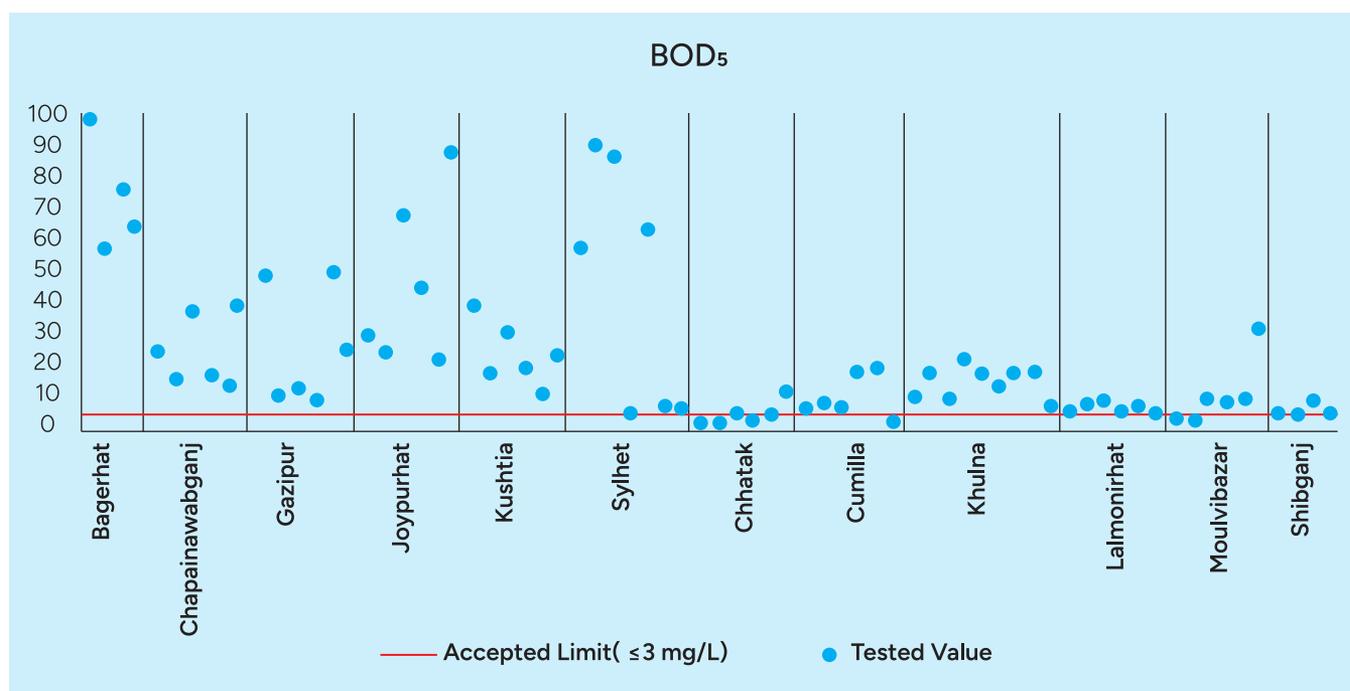
Table 8: COD in the Surface Water of SUWC Cities/Municipalities

City/Municipality	Did not Meet the Acceptable Limit	Met the Acceptable Limit	Total
Bagerhat	4	0	4
Chapainawabganj	6	0	6
Chhatak	6	0	6
Cumilla	6	0	6
Gazipur	6	0	6
Joypurhat	6	0	6
Khulna	9	0	9
Kushtia	6	0	6
Lalmonirhat	6	0	6
Moulvibazar	6	0	6
Shibganj	4	0	4
Sylhet	5	2	7
Total	70	2	72

The tested results of all cities were far beyond the acceptable limit (Figure 4).

Figure 4: Deviation of COD Tested Results from ECR 2023 Acceptable Limit
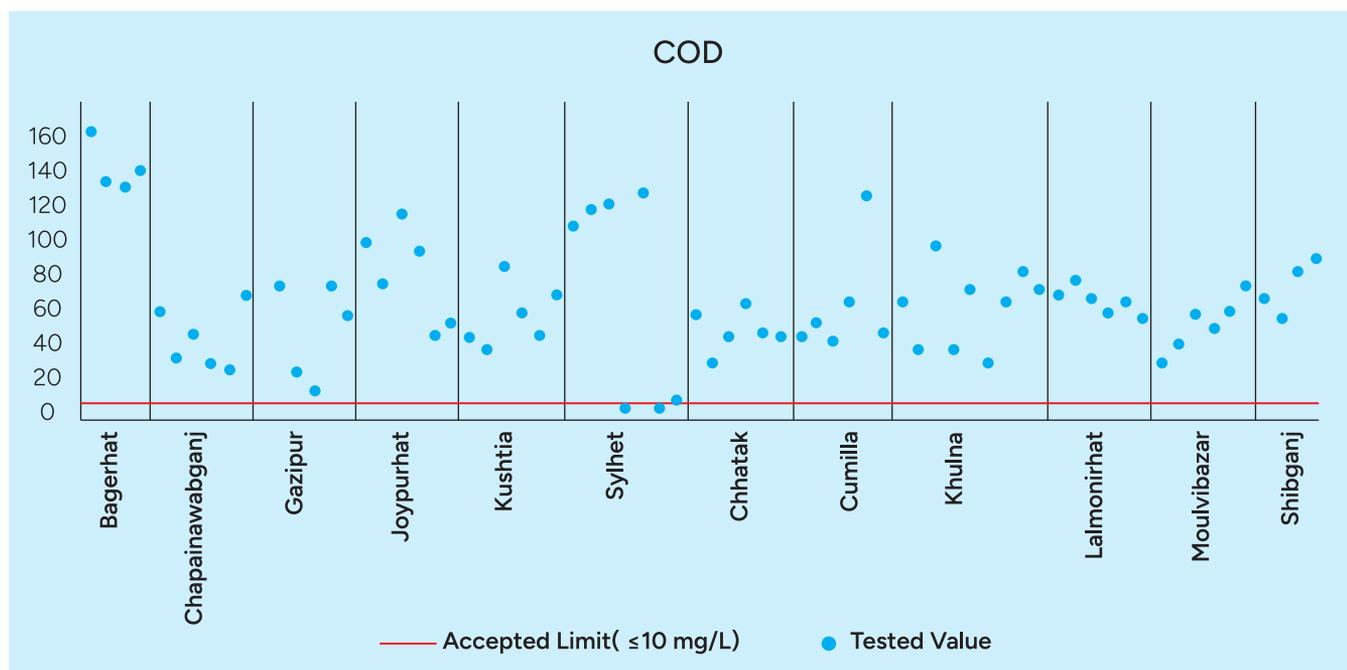
Higher COD (than the acceptable limit ≤ 10 mg/l) indicates the presence of organic and oxidizable chemical matter in surface water (including some inorganic substances also) which comes from the dumping of organic solid waste, decomposition of dead algae/aquatic plants, Industrial effluents, agricultural runoff, sewage/sanitation waste discharge/dumping and greywater discharge into the surface water.

3.2.6 Nitrite (NO_2)

As no acceptable limit has been preferred in ECR 2023, it was not compared to any standard. The tested results of Nitrite are available in Annex A.

3.2.7 Nitrate (NO_3)

Samples of all cities/municipalities met the acceptable limit of ECR 2023 except Bagerhat. In Bagerhat, 2 samples (out of 4) did not meet the acceptable limit.

3.2.8 Orthophosphate (PO₄)

50 samples (about 70%) did not meet the acceptable limit of the ECR 2023 which is alarming. No samples met the acceptable limit for 6 cities/municipalities (Bagerhat, Chapainawabganj, Gazipur, Joypurhat, Kushtia and Lalmonirhat) which indicates an unhealthy environment (Table 9).

Table 9: PO₄ in the Surface Water of SUWC Cities/Municipalities

City/Municipality	Did not Meet the Acceptable Limit	Met the Acceptable Limit	Total
Bagerhat	4	0	4
Chapainawabganj	6	0	6
Chhatak	1	5	6
Cumilla	2	4	6
Gazipur	6	0	6
Joypurhat	6	0	6
Khulna	7	2	9
Kushtia	6	0	6
Lalmonirhat	6	0	6
Moulvibazar	3	3	6
Shibganj	1	3	4
Sylhet	2	5	7
Total	**50**	**22**	**72**

The deviation of the PO₄ tested results from the acceptable limit is also high (Figure 5).

Figure 5: Deviation of PO₄ Tested Results from ECR 2023 Acceptable Limit
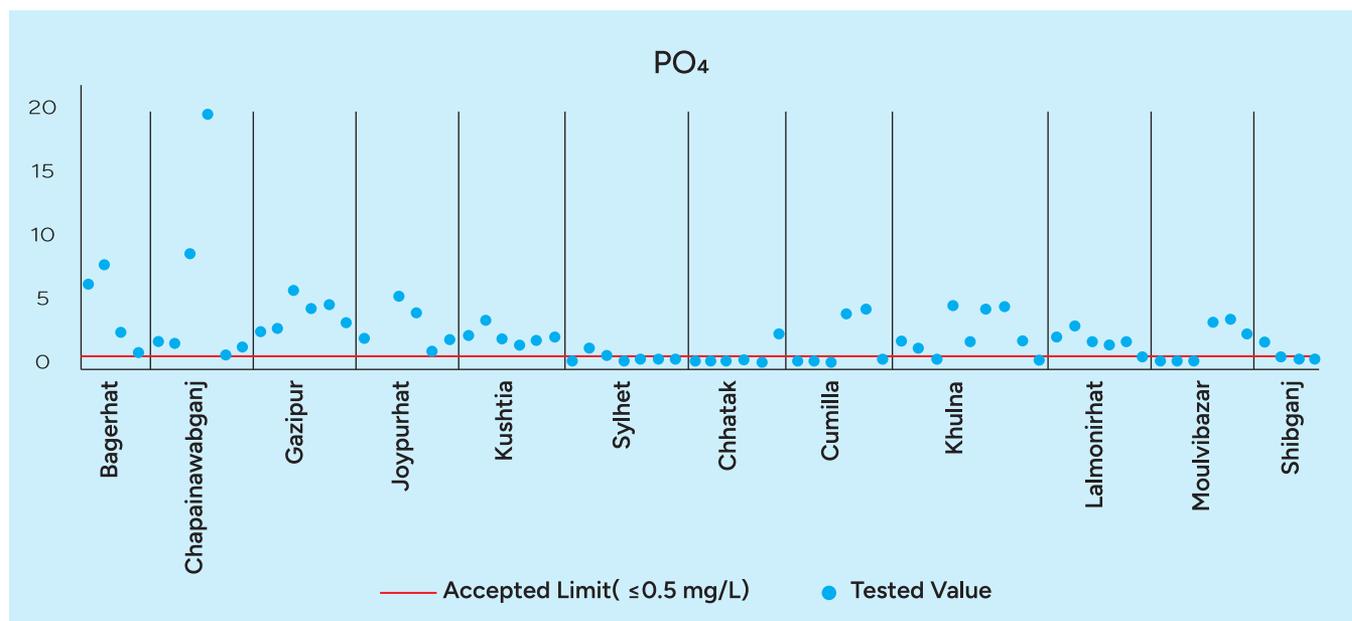
The causes of the high level of Orthophosphate and COD are the same (mentioned earlier in section 3.2.5).

3.2.9 Causes of Degradation of Surface Water Quality

The above discussion (section 3.2.1 to 3.2.8) reveals that the surface water quality of SUWC cities/municipalities was degraded considering BOD_5, COD and PO_4 which indicates an unhealthy living environment. The water is not useable for recreational and domestic purposes without any treatment. During the sample collection, the following causes of surface water quality degradation were observed in the cities/municipalities:

➢ Dumping of domestic solid waste into the surface water
➢ Sanitation effluent (from pit or septic tank outlet) discharge
➢ Greywater discharge
➢ Discharge from municipal drainage system
➢ Presence of dead algae (blue or green) and aquatic plants
➢ Industrial wastewater discharge
➢ Cloth washing with soap and detergent
➢ Runoff from agricultural field
➢ Fish farming (providing fish meal)
➢ Dish washing with agents
➢ Bathing (with soap & shampoo)

3.3 Ground Water Quality Analysis

To understand the groundwater quality, three parameters (pH, EC and NO_3) were tested and the results were compared with the acceptable limits (Table 10) for drinking water of Bangladesh ECR 2023.

Table 10: Acceptable Limits for Drinking Water (ECR 2023, Bangladesh)

Testing Parameter	Acceptable Limit
pH	6.5-8.5
Electrical Conductivity (EC)	N/A
Nitrate (NO_3)	≤ 45

Among the total 36 samples from SUWC cities/municipalities, four (4) samples (1 from Sylhet, 1 from Chhatak and 2 from Moulvibazar, all of them from Sylhet region) did not meet the acceptable limit for pH. The tested values of these four samples varied between 5.24 and 6.2, which indicates that the groundwater is a little bit acidic and not suitable for domestic and drinking purposes (but it may improve during monsoon).

For NO_3, all samples met the acceptable limit which indicates the groundwater is safe for domestic use and drinking purposes (considering Nitrate). As acceptable limit is not available for EC, no comparison was made.

Chapter 4: Recommendations and Conclusion

Chapter 3 reveals that the surface ambient water quality of SUWC cities/municipalities is not healthy, usable and safe in terms of pH, DO, BOD_5, COD and PO_4. The improvement of water quality is required for a healthy environment. The following recommendations are proposed to improve the surface water quality of SUWC cities/municipalities:

Enforcement to Stop Solid Waste Dumping into Waterbodies

Neighboring households and visitors (especially public/tourist places for example Dhopa dhir par in Sylhet, Kamrul Islam Park and Kaliganga River/Lalon's Akhra in Kushtia and Dharma Sagar in Cumilla) into the surface water is one of the main causes of ambient water quality degradation. Enforcement is required to stop solid waste dumping into the surface water to improve the water quality. If requires the city/municipality can introduce penalty.

Strengthening the Solid Waste Collection Services

House-to-house solid waste collection services would be strengthened to prevent illegal solid waste dumping in the waterbodies. Special attention will be given to the public and tourist places (for example at Kaliganga river adjacent to Lalon's Akhra) during the tour/program periods to collect the solid waste. City/municipal authorities would provide dustbins in public and tourist places and collect the waste regularly.

Enforcement to Stop the Sanitation Effluent Discharge into the Waterbodies

Effluent discharge (from pits and septic tanks) was observed during the sample collection. The organic matter of sanitation effluent contributes to an increase the BOD_5, COD and PH_4 (sometimes) which ultimately degrades the water quality. Sanitation effluent is the source of pathogens. It must be stopped through enforcement by the city/municipal authorities to improve the surface water quality.

No Municipal Drainage Connection to Ponds/Lakes

Unfortunately, ponds/lakes are used as municipal drainage outlets (observed during sample collection, for example Sadatikor H Block in Sylhet) in some cases. Drains channel the grey and black water from the households to the ponds/lakes directly which degrades the water quality severely. It is not desirable, and the cities/municipalities would avoid the drainage connection to waterbodies through proper drainage planning.

Preventing Greywater Discharge from Houses into the Waterbodies

Greywater discharge from the houses to waterbodies is one of the sources of organic and chemical matter which degrades the water quality by increasing the BOD_5, COD and PH_4. The households should discharge the greywater into the municipal drainage system, not into waterbodies directly. Awareness raising is required for it.

Notice the Surrounding Households

The surrounding households of the waterbodies would be noticed properly to prevent direct solid waste dumping, sanitation effluent and greywater discharge into the waterbodies. Notification boards would be installed for the information of the mass people and visitors/tourists.

Cleaning of Algae and Aquatic Plants Periodically

The water quality of waterbodies largely depends on algae and aquatic plants. Periodically cleaning of algae and aquatic plants will improve the water quality.

Stop Dish and Cloth washing with soap and detergent/cleaning agent

Dish and Cloth washing with soap and detergent/cleaning agent in the ponds/lakes are very common and it is also difficult to stop directly (as nearby inhabitants are habituated with it). It can be reduced by raising awareness among the nearby inhabitants and engaging the local social organizations.

Behavior Change Campaigns

Behavior change of the city dwellers is the key to ambient water quality improvement. The campaigns will prevent direct dumping of solid waste, sanitation effluent, and greywater discharge into waterbodies by addressing the root causes of existing harmful practices through awareness, motivation, and habitual transformation.

Conclusion

The groundwater quality is suitable for domestic use and municipal water supply. Periodical testing is recommended for quality control. In conclusion, the awareness of city dwellers and willingness of city/municipal authorities are required to prevent organic waste dumping and improve the quality of ambient water.

Annex A: Field and Lab Test Reports

The tested results did not meet the acceptable limit are indicated by red color.

1. Bagerhat Municipality

Time	Name of Sampling Point	Source	Latitude	Longitude	Weather	pH	EC (µS/cm)	DO (mg/L)	BOD₅ (mg/L)	COD (mg/L)	NO₃ (mg/L)	NO₂ (mg/L)	PO₄ (mg/L)
Surface Water													
12:49 PM	Pouro Lake	Lake	22.655228	89.795107	Sunny	9.3	3024	68.2	98.4	165.2	13.3	1.7	6.14
1:05 PM	Mitha Pukur	Pond	22.659147	89.792288	Sunny	9.2	942	65.0	56.8	136.7	0.41	0.2	7.63
1:30 PM	Bhairab River	River	22.653163	89.804017	Sunny	8.1	568	85.0	76.1	134.3	6.76	2.5	2.39
2:10 PM	Pocha Dighi	Pond	22.652797	89.776770	Sunny	9.6	2625	61.2	63.9	142.9	9.54	0.9	0.82
Limits for Inland Recreational Surface Water (ECR 2023, Bangladesh)						6.5-8.5	2250*	≥ 5	≤ 3	≤ 10	≤ 7	--	≤ 0.5
Ground water													
2:45 PM	Sayera	GW	22.651058	89.699687	Sunny	8.5	31517	--	--	--	0.75	--	--
3:10 PM	Purbo Sayera	GW	22.657022	89.724073	Sunny	8.1	1574	--	--	--	7.91	--	--
12:23 PM	Doshani Distribution Point	GW	22.659322	89.784445	Sunny	8.3	715	--	--	--	5.33	--	--
Acceptable Limits for Drinking Water (ECR'2023, Bangladesh)						6.5-8.5	--	--	--	--	≤ 45	--	--

2. Chapainawabganj Municipality

Time	Name of Sampling Point	Source	Latitude	Longitude	Weather	pH	EC (µS/cm)	DO (mg/L)	BOD₅ (mg/L)	COD (mg/L)	NO₃ (mg/L)	NO₂ (mg/L)	PO₄ (mg/L)
Surface Water													
11:30 AM	Bot tala hat lake	Lake	24.586158	88.269204	Sunny	9.60	718	9.6	23.6	62.7	0.53	0	1.7
12:15 PM	Jhapaipara Bill	Lake	24.572113	88.262895	Sunny	9.13	740	10.2	14.8	37.1	0.22	0.01	1.5
12:30 PM	Noyonshokha Primary school	Pond	24.586893	88.257985	Sunny	7.85	721	2.5	36.4	49.5	1.49	0.03	8.6
1:59 PM	Mohadanga Bill	Lake	24.606000	88.306451	Sunny	8.35	835	6.4	16.3	32.9	2.97	0.02	19.6
2:26 PM	Mahananda	River	24.603779	88.281406	Sunny	8.80	323	6.8	13.4	29.5	0.12	0	0.6
3:00 PM	Dariapara Notonpara (FSTP Road)	River	24.564501	88.300847	Sunny	8.40	423	5.8	38.2	71.8	0.64	0	1.1
Acceptable Limits for Inland Recreational Surface Water (ECR 2023, Bangladesh)						6.5-8.5	2250	≥ 5	≤3	≤10	≤7	--	≤0.5
Ground water													
3:20 PM	Production Hand Deep TW-3	GW	24.596985	88.270893	Sunny	7.57	930	--	--	--	1.76	--	--
1:16 PM	Production TW-2	GW	24.593896	88.248642	Sunny	7.80	900	--	--	--	0.04	--	--
2:40 PM	Production TW-1 in Pani Bhabon	GW	24.601694	88.281371	Sunny	7.50	1045	--	--	--	0.31	--	--
Acceptable Limits for Drinking Water (ECR 2023, Bangladesh)						6.5-8.5	--	--	--	--	≤ 45	--	--

3. Gazipur City Corporation

Time	Name of Sampling Point	Source	Latitude	Longitude	Weather	pH	EC (µS/cm)	DO (mg/L)	BOD₅ (mg/L)	COD (mg/L)	NO₃ (mg/L)	NO₂ (mg/L)	PO₄ (mg/L)
Surface Water													
10:00 AM	Chilai Bridge	Canal	24.006356	90.421498	Sunny	8.02	665	1.6	47.6	160.9	0.21	0	2.43
10:25 AM	Raj Dighi	Pond	24.001911	90.424100	Sunny	7.73	450	20.2	9.3	77.2	0.96	0	2.68
10:45 AM	Besides Shahid Barkat Stadium	Pond	23.995448	90.425421	Sunny	8.16	310	26.3	11.4	28.3	1.23	0.03	5.67
11:00 AM	Railway pond	Pond	23.996419	90.420939	Sunny	7.55	429	15.0	7.8	17.9	2.47	0.21	4.21
12:10 PM	Hyderabad Bridge	Canal	23.922749	90.411525	Cloudy	7.56	765	2.7	49.1	76.5	1.65	0.02	4.52
2:30 PM	Bhadam Boat Station	River	23.897808	90.357114	Sunny	7.60	322	18.1	23.8	60.3	1.54	0	3.12
Limits for Inland Recreational Surface Water (ECR 2023, Bangladesh)						6.5-8.5	2250*	≥ 5	≤ 3	≤ 10	≤ 7	--	≤ 0.5
Ground water													
3:45 PM	Rahapara	GW	23.951667	90.429297	Cloudy	7.47	389	--	--	--	0.09	--	--
11:25 AM	Gazipur City Corporation	GW	23.997942	90.421778	Cloudy	7.52	342	--	--	--	0.13	--	--
1:05 PM	Tongi Overhead Tank	GW	23.893442	90.398644	Sunny	7.31	338	--	--	--	0.26	--	--
1:15 PM	Tongi Maidan Pump House	GW	23.893452	90.398503	Sunny	7.34	308	--	--	--	0.19	--	--
Acceptable Limits for Drinking Water (ECR 2023, Bangladesh)						6.5-8.5	--	--	--	--	≤ 45	--	--

4. Joypurhat Municipality

Time	Name of Sampling Point	Source	Latitude	Longitude	Weather	pH	EC (µS/cm)	DO (mg/L)	BOD₅ (mg/L)	COD (mg/L)	NO₃ (mg/L)	NO₂ (mg/L)	PO₄ (mg/L)
Surface Water													
10:30 AM	Shahebpara	Pond	25.102883	89.017423	Cloudy	8.89	401	1.2	28.6	102.3	0.25	0	1.9
11:15 AM	Baroghati	Pond	25.098020	89.026123	Cloudy	9.16	464	5.2	23.5	78.9	0.13	0	0.6
11:45 AM	Tegorvisa Rail Khal	Canal	25.081080	89.028164	Cloudy	7.51	421	2.1	67.5	117.6	0.07	0	5.2
12:02 PM	Shishiraloy Student Boarding	Pond	25.096432	89.028529	Sunny	8.25	707	0.2	43.8	96.8	0.25	0.02	3.9
12:50 PM	Jail Pond	Pond	25.093281	89.043977	Cloudy	9.06	393	10.9	21.3	49.2	1.13	0.11	0.9
1:20 PM	CentralTruck Terminal	Canal	25.091306	89.055624	Cloudy	7.43	147	2.7	87.9	56.1	0.10	0	1.8
Limits for Inland Recreational Surface Water (ECR 2023, Bangladesh)						6.5-8.5	2250	≥ 5	≤ 3	≤ 10	≤ 7	--	≤ 0.5
Ground water													
11:05 AM	Adarshapara Pump House	GW	25.096253	89.021650	Cloudy	7.84	290	--	--	--	0.02	--	--
12:30 PM	Upazil Parishad Tubewell	GW	25.099057	89.036127	Cloudy	7.07	1014	--	--	--	7.91	--	--
1:05 PM	DPHE Pump House	GW	25.093369	89.049459	Sunny	7.66	322	--	--	--	0.62	--	--
Acceptable Limits for Drinking Water (ECR 2023, Bangladesh)						6.5-8.5	--	--	--	--	≤ 45	--	--

5. Kushtia Municipality

Time	Name of Sampling Point	Source	Latitude	Longitude	Weather	pH	EC (µS/cm)	DO (mg/L)	BOD$_5$ (mg/L)	COD (mg/L)	NO$_3$ (mg/L)	NO$_2$ (mg/L)	PO$_4$ (mg/L)
Surface Water													
10:50 AM	Gorai River	River	23.915000	89.128889	Sunny	8.60	387	6.8	38.6	47.7	0.29	0	2.1
11:20 AM	Kamrul Islam Park	Pond	23.905556	89.130278	Sunny	8.30	825	8.4	16.4	41.2	0.43	0.02	3.3
11:45 AM	Old Shishu Park	Pond	23.903611	89.120556	Sunny	8.77	465	5.0	29.7	87.8	0.17	0	1.9
12:10 PM	Hospital Pond	Pond	23.900833	89.123611	Sunny	8.20	543	6.1	18.3	61.4	0.11	0	1.4
12:45 PM	Kaliganga River	River	23.895278	89.150278	Sunny	8.60	700	11.0	9.5	49.6	0.30	0	1.7
1:45 PM	Kushtia Paurashava	Pond	23.910556	89.121111	Sunny	8.42	609	7.2	21.8	72.3	0.34	0.01	2.0
Acceptable Limits for Inland Recreational Surface Water (ECR 2023, Bangladesh)						6.5-8.5	2250*	≥ 5	≤ 3	≤ 10	≤ 7	--	≤ 0.5
Ground water													
1:05 PM	Millpara pump (old)	GW	23.900278	89.146944	Sunny	7.56	865	--	--	--	0.12	--	--
1:15 PM	Millpara Pump (new)	GW	23.900556	89.146667	Sunny	7.54	902	--	--	--	0.21	--	--
1:30 PM	Amlapara Pump	GW	23.906111	89.137222	Sunny	7.64	736	--	--	--	0.10	--	--
Acceptable Limits for Drinking Water (ECR 2023, Bangladesh)						6.5-8.5	--	--	--	--	≤ 45	--	--

6. Sylhet City Corporation

Time	Name of Sampling Point	Source	Latitude	Longitude	Weather	pH	EC (µS/cm)	DO (mg/L)	BOD$_5$ (mg/L)	COD (mg/L)	NO$_3$ (mg/L)	NO$_2$ (mg/L)	PO$_4$ (mg/L)
Surface Water													
10:55 AM	Dhopa Dighirpar	Pond	24.894700	91.876300	Sunny	8.35	150	11.2	57.0	112.0	2.5	1.05	0.28
11:40 AM	Sadatikor H Block	Pond	24.880600	91.893188	Sunny	8.42	342	15.9	90.0	121.0	3.0	1.74	1.05
12:15 PM	Soidanibag	Pond	24.888203	91.891873	Sunny	7.90	385	9.0	87.0	124.0	2.3	1.93	0.72
1:15 PM	Mirerchok (SWTP)	River	24.877230	91.905321	Sunny	7.50	87	10.5	3.9	8.0	2.8	2.20	0.19
4:19 PM	Kanishail	Pond	24.901522	91.842866	Sunny	9.21	188	10.2	63.0	130.0	1.7	1.53	0.18
5:00 PM	Sheikhghat Kolapara	River	24.889378	91.851463	Sunny	6.97	83	3.0	6.0	7.0	2.8	2.53	0.21
5:50 PM	Temukhi Bypass	River	24.909220	91.823623	Sunny	6.99	78	2.8	5.7	12.0	3.3	2.95	0.20
Limits for Inland Recreational Surface Water (ECR 2023, Bangladesh)						6.5-8.5	2250*	≥ 5	≤ 3	≤ 10	≤ 7	--	≤ 0.5
Ground water													
2:33 PM	MC College Pump	GW	24.896894	91.903803	Sunny	5.24	52	--	--	--	1.7	--	--
3:15 PM	Baluchor Arambag Pump	GW	24.909794	91.891678	Sunny	6.87	145	--	--	--	2.0	--	--
3:29 PM	TB Gate	GW	24.907555	91.888512	Sunny	7.50	160	--	--	--	1.7	--	--
Acceptable Limits for Drinking Water (ECR 2023, Bangladesh)						6.5-8.5	--	--	--	--	≤ 45	--	--

7. Chhatak Municipality

SL. No.	Location of Water Sample	GPS	Sampling Date & Time	Weather Condition	pH	EC (µS/cm)	DO (mg/L)	BOD$_5$ (mg/L)	COD (mg/L)	NO$_3$ (mg/L)	NO$_2$ (mg/L)	PO$_4$ (mg/L)	Remarks
Surface Water													
1	Surma River near Railway Officers Rest House	N 25°01'47.67" E 91°39'11.59"	16.08.2023 6:00 PM	Sunny	6.9	50.5	6.8	0.6	60.7	0	0	0.04	
2	Chhatak Railway Colony Pond	N 25°01'50.87" E 91°39'26.94"	16.08.2023 6:15 PM	Sunny	7.2	85.5	7.8	0.97	33.9	0.4	0	0.04	
3	Chhatak Upazila Parishod Pond	N 25°01'54.23" E 91°39'33.75"	16.08.2023 6:30 PM	Sunny	7.1	140	3.4	4.0	48.5	0	0	0	
4	Surma River near Goneshpur Kheya Ghat	N 25°02'21.51" E 91°40'11.04"	16.08.2023 7:30 PM	Sunny	7.1	54	7.4	0.55	68.0	0	0	0.11	
5	Sarkari Pukur	N 25°02'08.11" E 91°40'10.92"	16.08.2023 7:50 PM	Sunny	7.4	2180	5.8	3.8	51.0	0	0	0	
6	Chhatak Multi-purpose Govt High School Pond	N 25°02'04.03" E 91°39'51.34"	16.08.2023 8:25 PM	Sunny	6.7	177	2.5	11.1	48.5	0	0	2.18	
Acceptable Limits for Inland Recreational Surface Water (ECR 2023, Bangladesh)					6.5–8.5	2250*	≥ 5	≤ 3	10	7	--	0.5	
Ground water													
7	Lalpahar Ring Well	N 25°03'01.39" E 91°39'25.79"	16.08.2023 4:45 PM	Sunny	5.8	49.4	--	--	--	0	--	--	
8	Tubewell-1 near Boula	N 25°01'36.91" E 91°40'43.31"	16.08.2023 7:15 PM	Sunny	7.7	3390	--	--	--	0.3	--	--	
9	Tubewell-2, Sarkari Pukur Par	N 25°02'07.91" E 91°40'10.96"	16.08.2023 8:00 PM	Sunny	8.0	2810	--	--	--	0	--	--	
Acceptable Limits for Drinking Water (ECR'2023, Bangladesh)					6.5–8.5	--	--	--	--	45	--	--	

8. Cumilla City Corporation

SL. No.	Location of Water Sample	GPS	Sampling Date & Time	Weather Condition	pH	EC (µS/cm)	DO (mg/L)	BOD$_5$ (mg/L)	COD (mg/L)	NO$_3$ (mg/L)	NO$_2$ (mg/L)	PO$_4$ (mg/L)	Remarks
Surface Water													
1	Dharmashagar (Pond)	23.46510833, 91.17852778	13.08.2023 10:30 AM	Cloudy	7.9	2490	6.6	4.4	48.5	0	0	0.08	
2	Nanuya Dighi (Pond)	23.45879167, 91.18969444	13.08.2023 03:00PM	Cloudy	7.5	3320	5.4	6.3	55.8	0	1	0.11	
3	Amir Dighi (Pond)	23.46264722, 91.19579167	13.08.2023 11:30AM	Cloudy	8.7	3220	7.6	4.5	46.1	0	1	0.09	
4	Old Gomati Lake (Lake)	23.47654444, 91.18308056	13.08.2023 03:45PM	Cloudy	7.4	3500	3.0	17.3	68.0	0	3	3.90	
5	Old Gomati Lake (Lake)	23.46909167, 91.1978	13.08.2023 04:15PM	Cloudy	7.3	3460	3.2	18.4	129.0	0	0	4.18	
6	Gomati River (River)	23.47138889, 91.18421389	13.08.2023 05:00PM	Cloudy	7.0	5830	6.3	1.39	51	0.6	0	0.30	
Acceptable Limits for Inland Recreational Surface Water (ECR 2023, Bangladesh)					6.5–8.5	2250*	≥ 5	≤ 3	≤10	≤7	--	≤0.5	
Ground water													
7	Tubewell-1 Sotara Pump House	23.47931389, 91.17777778	13.08.2023 01:45PM	Cloudy	7.1	2290	--	--	--	0	--	--	
8	Tube Well-2 Old Chowdhuripara Pump House	23.47027778, 91.18360833	13.08.2023 02:00PM	Cloudy	6.9	2230	--	--	--	0	--	--	
9	Tube Well-3 Kaptan Bazar Pump House	23.47888889, 91.18221944	13.08.2023 02:15 PM	Cloudy	6.9	2105	--	--	--	0	--	--	
Acceptable Limits for Drinking Water (ECR'2023, Bangladesh)					6.5–8.5	--	--	--	--	≤45	--	--	

9. Lalmonirhat Municipality

SL. No.	Location of Water Sample	GPS	Sampling Date & Time	Weather Condition	pH	EC (µS/cm)	DO (mg/L)	BOD₅ (mg/L)	COD (mg/L)	NO₃ (mg/L)	NO₂ (mg/L)	PO₄ (mg/L)	Remarks
Surface Water													
1	Lalmonirhat Bazar Pukur (Pond)	N25°54'39.8" E89°26'55.6"	30.08.2023 11:55 AM	Sunny	8.0	270	5.8	4.0	72.9	4.6	6	2.0	
2	Pond near Police Station (Pond)	N25°54'51.8" E89°27'00.2"	30.08.2023 12:20 PM	Sunny	8.2	330	3.4	5.9	80.2	2.6	5	2.7	
3	Pond Utara (Pond)	N25°55'15.1" E89°27'05.8"	30.08.2023 1:10 PM	Sunny	7.0	210	1.8	7.6	70.5	2.9	6	1.7	
4	Lokmangoni Pond	N25°54'59.0" E89°26'31.0"	30.08.2023 1:45 PM	Sunny	7.4	140	5.9	3.9	63.1	1.2	1	1.4	
5	Pond near Sheikh Rasel Stadium (Pond)	N25°54'34.5" E89°26'26.4"	30.08.2023 2:05 PM	Sunny	9.4	190	5.5	5.9	68.0	1.1	6	1.6	
6	Hatir Jhil Lalmonirhat (Lake)	N25°54'40.1" E89°26'26.8"	30.08.2023 2:25 PM	Sunny	7.7	135	5.5	3.7	58.3	0.6	2	0.6	
Acceptable Limits for Inland Recreational Surface Water (ECR 2023, Bangladesh)					6.5-8.5	2250*	≥ 5	≤ 3	≤ 10	≤ 7	--	≤ 0.5	
Ground water													
7	Deep tubewell near Fire Service	N25°54'31.1" E89°26'49.7"	30.08.2023 11:20 AM	Sunny	7.6	140	--	--	--	0	--	--	
8	Deep tubewell at Noyar Hat	N25°55'14.3" E89°28'05.2"	30.08.2023 12:45 PM	Sunny	7.4	160	--	--	--	0	--	--	
9	Deep tubewell at BDR Hat	N25°55'17.7" E89°26'39.1"	30.08.2023 1:30 PM	Sunny	7.6	150	--	--	--	0	--	--	
Acceptable Limits for Drinking Water (ECR'2023, Bangladesh)					6.5-8.5	--	--	--	--	≤ 45	--	--	

10. Moulvibazar Municipality

SL. No.	Location of Water Sample	GPS	Sampling Date & Time	Weather Condition	pH	EC (µS/cm)	DO (mg/L)	BOD₅ (mg/L)	COD (mg/L)	NO₃ (mg/L)	NO₂ (mg/L)	PO₄ (mg/L)	Remarks
Surface Water													
1	Paurashava Pond	N 24°29'18.36" E 91°46'35.34"	17.08.2023 12:40 PM	Sunny	7.4	170	6.1	1.32	33.8	0	0	0	
2	Manu River	N 24°29'33.44" E 91°48'04.06"	17.08.2023 2:25 PM	Sunny	7.3	109	6.0	1.16	43.6	0	0	0	
3	BPDB Pond	N 24°29'10.46" E 91°46'27.34"	17.08.2023 2:50 PM	Sunny	9.2	196	3.4	9.0	60.7	0	0	0	
4	Berry Lake-P1	N 24°29'10.72" E 91°46'03.82"	17.08.2023 3:05 PM	Sunny	7.8	3680	3.5	7.4	53.4	0	0	3.20	
5	Berry Lake-P2	N 24°29'09.87" E 91°46'01.47"	17.08.2023 3:15 PM	Sunny	8.1	3690	3.0	8.2	63.1	0	0	3.34	
6	Kodalichora Khal	N 24°28'52.09" E 91°46'24.34"	17.08.2023 3:50 PM	Sunny	7.0	3110	2.0	30.7	77.8	0	0	2.28	
Acceptable Limits for Inland Recreational Surface Water (ECR 2023, Bangladesh)					6.5-8.5	2250*	≥ 5	≤ 3	≤ 10	≤ 7	--	≤ 0.5	
Ground water													
7	Tubewell-1 near Shohid Zia Govt Primary School	N 24°28'53.13" E 91°46'23.93"	17.08.2023 3:30 PM	Sunny	6.1	99.6	--	--	--	0	--	--	
8	Tubewell-2 near Mayor Chattar	N 24°29'16.31" E 91°46'32.33"	17.08.2023 1:00 PM	Sunny	6.8	58	--	--	--	0	--	--	
9	Tubewell-3 near Tikor Bari	N 24°28'52.41" E 91°46'24.67"	17.08.2023 4:00 PM	Sunny	6.2	56.5	--	--	--	0	--	--	
Acceptable Limits for Drinking Water (ECR'2023, Bangladesh)					6.5-8.5	--	--	--	--	≤ 45	--	--	

11. Shibganj Municipality

SL. No.	Location of Water Sample	GPS	Sampling Date & Time	Weather Condition	pH	EC (µS/cm)	DO (mg/L)	BOD$_5$ (mg/L)	COD (mg/L)	NO$_3$ (mg/L)	NO$_2$ (mg/L)	PO$_4$ (mg/L)	Remarks
Surface Water													
1	Mordana Lake	N24°39'22.47" E88°12'39.60"	28.08.2023 12:30 PM	Sunny	7.4	290	5.3	3.4	70.4	0.2	2	1.6	
2	Pagla River near Tortipur Bridge	N24°39'44.82" E88°09'01.49"	28.08.2023 13:55 PM	Sunny	7.9	210	5.4	2.9	58.3	0.5	4	0.5	
3	Pond near Shibganj Thana	N24°41'00.82" E88°09'16.06"	28.08.2023 15:30 PM	Sunny	8.9	370	4.5	6.9	85.1	1.5	7	0.3	
4	Pond near Shibganj Bus stand Sawmill	N24°40'41.87" E88°09'13.86"	28.08.2023 15:50 PM	Sunny	8.7	680	5.5	3.9	92.4	0.9	5	0.3	
Acceptable Limits for Inland Recreational Surface Water (ECR 2023, Bangladesh)					6.5-8.5	2250*	≥ 5	≤ 3	≤ 10	≤ 7	--	≤ 0.5	
Ground water													
5	Jalmachmari Moddhopara (Pump House)	N24°40'24.18" E88°10'05.21"	28.08.2023 12:55 PM	Sunny	7.1	1090	--	--	--	0.9	--	--	
6	Rosulpur Mor (Pump House)	N24°39'35.13" E88°09'47.28"	28.08.2023 13:15 PM	Sunny	7.3	880	--	--	--	0.8	--	--	
7	DPHE Water Supply Mor (Pump House)	N24°41'12.03" E88°09'26.24"	28.08.2023 15:10 PM	Sunny	7.4	960	--	--	--	1.1	--	--	
Acceptable Limits for Drinking Water (ECR'2023, Bangladesh)					6.5-8.5	--	--	--	--	≤ 45	--	--	

12. Khulna City Corporation

SL. No.	Location of Water Sample	GPS	Sampling Date & Time	Weather Condition	pH	EC (µS/cm)	DO (mg/L)	BOD$_5$ (mg/L)	COD (mg/L)	NO$_3$ (mg/L)	NO$_2$ (mg/L)	PO$_4$ (mg/L)	Remarks
Surface Water													
1	Bastuhara Lake	N 22° 51'02" E 89°31'38"	02.09.2023 12:43 PM	Cloudy	8.44	951	2.5	9.06	68.03	1.7	3.0	1.61	
2	WZPDC Lake Khedmote Kholke Foundation	N 22°51'30" E 89°31'24"	03.09.2023 11:00 AM	Cloudy	8.26	1410	2.1	16.47	41.19	1.0	4.0	1.01	
3	Jhil Pukur Near IEB Khulna	N 22°51'31" E 89°32'31"	03.09.2023 11:30 AM	Cloudy	7.22	906	2.2	8.45	99.76	0	5.0	0.45	
4	Moyur River, 1 km d/s from Gollamari Bridge	N 22°47'35" E 89°32'17"	02.09.2023 10:26 AM	Sunny	7.61	1009	3.0	20.95	41.19	1.1	1.0	4.39	
5	Moyur River, Tetultola dosh gate	N 22°45'30" E 89°33'06"	02.09.2023 11:06 AM	Sunny	7.71	962	2.6	16.63	75.35	0.6	3.0	1.66	
6	Moyur River, Shosan ghat bridge	N 22°49'36" E 89°31'45"	02.09.2023 12:25 PM	Cloudy	7.64	904	2.3	12.30	33.87	0.2	2.0	4.05	
7	Moyur River, Rayer mahal Bridge	N 22°50'02" E 89°31'03"	02.09.2023 11:56 AM	Sunny	7.68	991	1.9	16.65	68.03	0.1	1.0	4.40	
8	Bastuhar Pond	N 22°50'43" E 89°31'42"	02.09.2023 1:30 PM	Cloudy	8.40	834	2.0	17.19	85.12	0	2.0	1.74	
9	Mujgunni Park Lake	N 22°50'50" E 89°31'04"	03.09.2023 9:50 AM	Cloudy	8.03	1084	4.9	5.90	75.35	1.3	2.0	0.23	
Acceptable Limits for Inland Recreational Surface Water (ECR 2023, Bangladesh)					6.5-8.5	2250*	≥ 5	≤ 3	≤ 10	≤ 7	--	≤ 0.5	
Ground water													
10	Tubewell-2, Rayermahal Bridge	N 22°50'02" E 89°31'52"	02.09.2023 11:46 AM	Sunny	8.30	982	--	--	--	0	--	--	
11	Tubewell-3, Bastuhara slum	N 22°50'42" E 89°31'42"	02.09.2023 1:16 PM	Cloudy	8.21	1207	--	--	--	0	--	--	
Acceptable Limits for Drinking Water (ECR 2023, Bangladesh)					6.5-8.5	--	--	--	--	≤ 45	--	--	