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Evaluation of Some Significant Water Quality Parameters of the Turag River during Wet season

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ABSTRACT:

This study deals with the investigation of water quality of the Turag River, Dhaka. Turag River receives partially treated and untreated sewage effluent, sewage polluted surface run-off and untreated industrial effluent from nearby residence and industrial areas. This river is further polluted by indiscriminate throwing of household, clinical, pathological & commercial wastes and discharge of spent fuel and human excreta. In fact, this river has become a dumping ground of all kinds of solid, liquid and chemical waste of bank-side population. For this purpose, samples were collected from six locations of the Turag River of Bangladesh during wet (Monsoon) season in 2015 to determine the spatial distribution and temporal variation of various water quality parameters. Water samples were collected from three different depths of river. The color was light brown in wet (monsoon) season. This study deals with the condition of Turag River's water during wet season showing some water quality parameter's condition. This study was carried out in the wet season because sufficient water level depth in wet season is available where else in dry season it is not.

KEY WORDS:

Turag River, Wet Season, Water Quality, Parameter, Condition, WHO.

01. INTRODUCTION:

Water is the most essential requisite that nature provides to sustain life for plants and animals, and also has tremendous role in every mode of human life (*Reeve, N. 2002, England).* Dhaka, the capital and most populated city in Bangladesh is now a member of mega city family in the world. Rapid and unplanned urbanization, commercial development along with population pressure have made an environmentally polluted city in the world (*Haigh, 2004; Karn and Harada, 2001*). Urbanization is the major demographic development which is occurring very fast and with larger magnitude in the developing countries. Its transforms the existing landscape without considering the possible consequences and requirements for environmental sustainability (*Brookfield, 1988*).

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Urbanization and Industrialization near the river bank has created pollution problem. Modern civilization is dependent on large-scale use of a wide range of metals and most of them are naturally present only at trace levels in the hydrosphere (biosphere) (*Chapman, D. 1996*). The major route by which heavy metals are dispersed in the biosphere is associated with the disposal of industrial effluents. (*Metcalf,2003, New York, USA)*

The Turag River is the upper tributary of the Buriganga, a major river in Bangladesh. The most pollution sources of Turag river water are various consumer goods industries (soap and detergent), garments industries, pharmaceuticals industries, lots of tanneries, dyeing industries, aluminum industries, battery manufacturing, match industries, ink manufacturing industries, textile, paint, iron industries, pulp and paper factories, chemical factories, frozen food factories and Steel workshop etc. Most of the industries discharge their effluents directly or indirectly into the Turag River without any treatment causing pollution of the surface water. Moreover, many sewerage and municipal sewage drainage system have become a dumping ground of all kinds of solid, liquid and chemical waste that polluted the river bank.

Consequently, complex mixture of hazardous chemicals, both organic and inorganic are released into Turag river water resulting in different chemical and biochemical interactions in the river system and thus deteriorate the water quality. For this reason, water causes the adverse effect of surrounding land and aquatic ecosystem as well as subsequent impact on the livelihood of the local community. In this study, the water quality parameters: pH, Conductivity, TDS, DO, Iron (Fe), Temperature, Chlorine was estimated at six different locations of Turag river. (*Alam, M. J. B,2007*)

Turag that may cause harm to the aquatic lives as well as agriculture and domestic uses. Keeping in mind the aims of the present experiment was to investigate some water quality parameters of the Turag River and to determine their suitability for fisheries and other aquatic flora and fauna.

Figure 1. Google view of entire study area of the present work.

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02. MATERIALS AND METHODS:

The experiment was conducted to observe different physio-chemical properties of Turag River and to compare the values with the standard level of water quality parameters to know the suitability of water for fisheries and other aquatic flora and fauna.

03. SAMPLING SITES:

The water sample was collected from different points of Turag River. The sampling sites were Biralia, Diabari, Ashu-leya, Kamar-para, Tongi Bridge, Faidabad. These sites were chosen because these sites are heavily polluted by different kinds of waste discharged from tannery industry, commercial sectors and households.

04. SAMPLE COLLECTION:

Water samples were collected in wet season (1st June- 30th September, 2015). Six water samples of approximately 300ml was collected in 500ml plastic bottles from three different depths viz. Surface, Middle, Bottom of each location. After sampling the bottles were screwed and marked with the respective identification number.

05. SAMPLE ANALYSIS:

Different methods and/or instruments were used for the determination of different physio-chemical properties of water samples. The methods and/or instruments are given in Table-01.

No.	Parameters	Methods/Instruments
01.	pH	pH meter
02.	Conductivity	Conductivity meter
03.	Total Dissolve Solids (TDS)	Digital TDS meter
04.	Dissolve Oxygen (DO)	Titrimetric method
05.	Iron (Fe)	Titrimetric method
06.	Temperature	Thermometer
07.	Chlorine	Titrimetric method
08.	Color and odor	Eye observation and feeling smell.
09.	Biochemical Oxygen Demand (BOD)	Titrimetric method

Table- 01: Methods and/or instruments used for the analysis of different parameters.

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06. RESULTS:

The values of pH, Conductivity, Total Dissolve Solids (TDS), Dissolve Oxygen (DO), Iron (Fe), Temperature, Chlorine, Biochemical Oxygen Demand (BOD_5), Chemical Oxygen Demand (COD) of wet season at three different depths were measured (Table-02 to Table-10).

pH Value								
Site Name	**Layers**	**Sample-1**	**Sample-2**	**Sample-3**	**Sample-4**	**Sample-5**	**Sample-6**	**Average pH**
Faidabad	Surface (0')	6.1	6.1	6.2	6.1	6.3	6.1	6.46
	Middle (4.5')	6.6	6.5	6.4	6.6	6.6	6.5	
	Bottom (10')	6.7	6.7	6.6	6.7	6.7	6.7	
Tongi Bridge	Surface (0')	6.1	6.2	6.1	6.1	6.1	6.1	6.40
	Middle (4.5')	6.3	6.3	6.5	6.5	6.4	6.5	
	Bottom (10')	6.7	6.6	6.7	6.7	6.6	6.7	
Kamar-para	Surface (0')	6.1	6.1	6.1	6.2	6.1	6.2	6.43
	Middle (4.5')	6.5	6.5	6.6	6.5	6.4	6.5	
	Bottom (10')	6.7	6.7	6.7	6.6	6.5	6.7	
Ashu-leya	Surface (0')	6.3	6.3	6.3	6.1	6.2	6.1	6.53
	Middle (4.5')	6.6	6.5	6.7	6.5	6.6	6.5	
	Bottom (10')	6.9	6.7	6.9	6.9	6.8	6.7	
Biralia	Surface (0')	6.1	6.1	6.1	6.2	6.1	6.1	6.45
	Middle (4.5')	6.5	6.6	6.5	6.5	6.5	6.6	
	Bottom (10')	6.7	6.7	6.7	6.7	6.7	6.7	
Diabari	Surface (0')	6.1	6.1	6.1	6.1	6.1	6.1	6.43
	Middle (4.5')	6.5	6.6	6.5	6.4	6.5	6.6	
	Bottom (10')	6.7	6.7	6.7	6.6	6.7	6.7	

Table-02: Results of pH during monsoon.

Conductivity (mS)

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Site Name	Layers	Sample -1	Sample -2	Sample -3	Sample -4	Sample -5	Sample -6	Average Conductivity
Faidabad	Surface (0')	0.12	0.12	0.12	0.12	0.12	0.13	0.123
	Middle (4.5')	0.12	0.12	0.13	0.12	0.12	0.13	
	Bottom (10')	0.12	0.12	0.13	0.12	0.12	0.13	
Tongi Bridge	Surface (0')	0.12	0.12	0.12	0.12	0.13	0.12	0.123
	Middle (4.5')	0.12	0.12	0.13	0.12	0.12	0.13	
	Bottom (10')	0.12	0.12	0.13	0.12	0.12	0.13	
Kamar-para	Surface (0')	0.12	0.12	0.12	0.12	0.13	0.12	0.12
	Middle (4.5')	0.13	0.12	0.13	0.12	0.12	0.12	
	Bottom (10')	0.12	0.12	0.13	0.12	0.12	0.12	
Ashu-leya	Surface (0')	0.12	0.12	0.13	0.12	0.12	0.12	0.125
	Middle (4.5')	0.12	0.13	0.13	0.13	0.13	0.13	
	Bottom (10')	0.12	0.13	0.12	0.12	0.13	0.13	
Biralia	Surface (0')	0.12	0.12	0.12	0.12	0.13	0.12	0.123
	Middle (4.5')	0.12	0.13	0.12	0.13	0.12	0.12	
	Bottom (10')	0.12	0.13	0.12	0.13	0.12	0.13	
Diabari	Surface (0')	0.12	0.13	0.12	0.12	0.13	0.12	0.123
	Middle (4.5')	0.12	0.13	0.12	0.12	0.12	0.12	
	Bottom (10')	0.12	0.13	0.12	0.13	0.12	0.12	

Table-03: Results of Conductivity during monsoon.

TDS (mg/l)

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Site Name	Layers	Sample-1	Sample-2	Sample-3	Sample-4	Sample-5	Sample-6	Average TDS (mg/l)
Faidabad	Surface (0')	181	188	188	181	190	188	195
	Middle (4.5')	184	250	210	200	210	210	
	Bottom (10')	185	190	190	185	190	190	
Tongi Bridge	Surface (0')	210	220	220	220	220	210	244.4
	Middle (4.5')	245	210	245	260	245	260	
	Bottom (10')	250	250	260	288	288	298	
Kamar-para	Surface (0')	250	260	260	250	260	250	198.2
	Middle (4.5')	150	160	150	150	160	150	
	Bottom (10')	171	190	190	190	188	188	
Ashu-leya	Surface (0')	190	230	220	230	220	210	226.7
	Middle (4.5')	288	288	298	298	288	288	
	Bottom (10')	150	181	190	181	150	181	
Biralia	Surface (0')	325	310	310	310	310	310	319.7
	Middle (4.5')	360	360	360	360	345	350	
	Bottom (10')	288	288	295	295	290	288	
Diabari	Surface (0')	230	210	220	220	230	210	278.3
	Middle (4.5')	298	310	298	320	298	295	
	Bottom (10')	310	360	360	310	310	320	

Table-04: Results of TDS during monsoon.

DO (mg/l)

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Site Name	Layers	Sample-1	Sample-2	Sample-3	Sample-4	Sample-5	Sample-6	Average DO (mg/l)
Faidabad	Surface (0')	7.5	7.4	7.6	7.5	7.5	7.6	6.15
	Middle (4.5')	6.3	6.0	6.2	6.3	6.3	6.3	
	Bottom (10')	4.8	4.9	4.7	4.8	4.5	4.5	
Tongi Bridge	Surface (0')	7.5	7.4	7.5	7.5	7.3	7.4	5.95
	Middle (4.5')	5.8	5.5	5.8	5.6	5.5	5.8	
	Bottom (10')	4.8	4.5	4.8	4.8	4.8	4.8	
Kamar-para	Surface (0')	6.3	6.3	6.3	6.3	6.3	6.3	5.54
	Middle (4.5')	5.8	5.5	5.8	6.0	5.8	6.0	
	Bottom (10')	4.2	4.9	4.5	4.2	5.0	4.2	
Ashu-leya	Surface (0')	5.9	5.9	6.0	6.1	5.9	5.9	4.8
	Middle (4.5')	3.9	4.0	3.9	4.8	4.0	4.0	
	Bottom (10')	4.2	4.2	4.5	4.2	4.2	4.3	
Biralia	Surface (0')	6.5	6.5	6.6	6.5	6.5	6.7	5.2
	Middle (4.5')	4.8	5.0	4.9	4.7	4.8	5.2	
	Bottom (10')	3.9	4.2	4.3	3.8	4.3	4.0	
Diabari	Surface (0')	5.8	5.8	6.0	6.2	6.1	6.3	4.79
	Middle (4.5')	4.8	5.0	4.7	4.8	4.9	4.6	
	Bottom (10')	3.0	3.8	3.7	3.6	3.2	3.9	

Table-05: Results of DO during monsoon.

Iron (<mg/l)

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Site Name	Layers	Sample-1	Sample-2	Sample-3	Sample-4	Sample-5	Sample-6	Average Iron (<mg/l)
Faidabad	Surface (0')	1.0	0.9	1.0	0.9	0.9	1.0	0.87
	Middle (4.5')	0.9	0.8	0.9	0.9	0.8	0.9	
	Bottom (10')	0.9	0.8	0.8	0.8	0.7	0.8	
Tongi Bridge	Surface (0')	0.4	0.5	0.4	0.6	0.4	0.4	0.46
	Middle (4.5')	0.5	0.5	0.5	0.5	0.4	0.4	
	Bottom (10')	0.5	0.5	0.5	0.4	0.4	0.5	
Kamar-para	Surface (0')	0.7	0.7	0.7	0.9	0.7	0.8	0.73
	Middle (4.5')	0.8	0.7	0.7	0.8	0.8	0.8	
	Bottom (10')	0.6	0.6	0.8	0.7	0.6	0.7	
Ashu-leya	Surface (0')	1.0	0.9	0.9	0.9	1.0	0.9	0.89
	Middle (4.5')	0.9	0.9	0.9	0.8	0.9	0.9	
	Bottom (10')	0.8	0.9	0.8	0.8	0.9	1.0	
Biralia	Surface (0')	0.9	0.9	0.8	0.9	0.9	0.9	0.86
	Middle (4.5')	0.9	0.8	0.8	0.8	0.8	0.9	
	Bottom (10')	0.9	0.9	0.9	0.9	0.8	0.8	
Diabari	Surface (0')	1.0	0.9	0.9	0.9	1.0	0.9	0.91
	Middle (4.5')	0.9	0.9	0.9	0.9	0.8	0.9	
	Bottom (10')	1.0	0.8	0.9	0.9	0.8	1.0	

Table-06: Results of Iron during monsoon.

Temperature (°C)

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Site Name	Layers	Sample -1	Sample -2	Sample -3	Sample -4	Sample -5	Sample -6	Average Temperature (°C)
Faida-bad	Surface (0')	28.7	28.0	28.5	29.0	28.0	28.5	26.67
	Middle (4.5')	26.2	26.5	26.0	26.0	27.0	26.5	
	Bottom (10')	25.1	25.0	25.5	25.1	25.5	25.0	
Tongi Bridge	Surface (0')	30.5	31.5	31.0	30.0	30.5	30.0	28.31
	Middle (4.5')	27.5	27.5	28.0	28.5	28.0	29.0	
	Bottom (10')	26.0	26.0	26.5	26.0	26.5	26.5	
Kamar-para	Surface (0')	29.8	29.1	29.5	29.7	29.5	29.8	26.47
	Middle (4.5')	25.5	25.8	25.6	25.5	25.6	25.4	
	Bottom (10')	24.3	24.0	24.5	24.6	24.2	24.0	
Ashu-leya	Surface (0')	31.5	31.4	31.6	31.5	31.6	31.7	27.42
	Middle (4.5')	27.3	27.3	27.3	27.6	27.4	27.3	
	Bottom (10')	23.4	23.5	23.0	23.6	23.1	23.5	
Biralia	Surface (0')	28.9	30.0	30.1	29.9	29.7	29.6	26.81
	Middle (4.5')	26.3	26.3	26.3	26.0	26.2	26.1	
	Bottom (10')	24.6	24.7	24.6	24.1	24.5	24.6	
Diabari	Surface (0')	28.5	28.9	28.8	28.5	28.5	28.6	27.38
	Middle (4.5')	27.0	26.9	27.1	27.0	27.3	27.9	
	Bottom (10')	26.5	26.0	26.4	26.1	26.5	26.4	

Table-07: Results of Temperature during monsoon.

Chlorine (<mg/l)

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Site Name	Layers	Sample-1	Sample-2	Sample-3	Sample-4	Sample-5	Sample-6	Average Chlorine (<mg/l)
Faidabad	Surface (0')	0.5	0.5	0.5	0.5	0.5	0.5	0.53
	Middle (4.5')	0.5	0.6	0.6	0.5	0.5	0.5	
	Bottom (10')	0.6	0.5	0.5	0.6	0.6	0.6	
Tongi Bridge	Surface (0')	0.5	0.5	0.5	0.5	0.5	0.6	0.59
	Middle (4.5')	0.7	0.6	0.5	0.7	0.7	0.7	
	Bottom (10')	0.6	0.6	0.6	0.6	0.6	0.7	
Kamar-para	Surface (0')	0.5	0.5	0.5	0.5	0.5	0.5	0.53
	Middle (4.5')	0.5	0.6	0.6	0.6	0.6	0.5	
	Bottom (10')	0.5	0.6	0.5	0.5	0.5	0.5	
Ashu-leya	Surface (0')	0.6	0.6	0.6	0.6	0.6	0.6	0.56
	Middle (4.5')	0.5	0.6	0.6	0.5	0.6	0.5	
	Bottom (10')	0.5	0.6	0.6	0.5	0.5	0.5	
Biralia	Surface (0')	0.7	0.6	0.7	0.7	0.6	0.7	0.61
	Middle (4.5')	0.5	0.6	0.6	0.6	0.6	0.6	
	Bottom (10')	0.5	0.6	0.6	0.6	0.6	0.6	
Diabari	Surface (0')	0.6	0.6	0.7	0.7	0.6	0.7	0.64
	Middle (4.5')	0.5	0.6	0.6	0.7	0.7	0.7	
	Bottom (10')	0.6	0.7	0.7	0.6	0.6	0.6	

Table-08: Results of Chlorine during monsoon.

BOD_5

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Site Name	Layers	Sample-1	Sample-2	Sample-3	Sample-4	Sample-5	Sample-6	Average BOD_5 (mg/l)
Faidabad	Surface (0')	0.18	0.18	0.17	0.18	0.18	0.18	0.176
	Middle (4.5')	0.17	0.18	0.17	0.18	0.17	0.17	
	Bottom (10')	0.18	0.18	0.18	0.17	0.18	0.17	
Tongi Bridge	Surface (0')	0.18	0.18	0.17	0.17	0.18	0.17	0.172
	Middle (4.5')	0.18	0.17	0.17	0.17	0.17	0.17	
	Bottom (10')	0.17	0.17	0.17	0.17	0.17	0.17	
Kamar-para	Surface (0')	0.17	0.18	0.17	0.18	0.17	0.17	0.171
	Middle (4.5')	0.17	0.17	0.17	0.17	0.17	0.17	
	Bottom (10')	0.17	0.17	0.17	0.18	0.17	0.17	
Ashu-leya	Surface (0')	0.17	0.18	0.18	0.17	0.18	0.19	0.177
	Middle (4.5')	0.17	0.17	0.18	0.18	0.18	0.18	
	Bottom (10')	0.17	0.18	0.18	0.18	0.18	0.18	
Biralia	Surface (0')	0.17	0.17	0.18	0.17	0.17	0.16	0.172
	Middle (4.5')	0.18	0.17	0.17	0.8	0.18	0.17	
	Bottom (10')	0.17	0.18	0.17	0.17	0.17	0.17	
Diabari	Surface (0')	0.18	0.19	0.19	0.18	0.19	0.19	0.186
	Middle (4.5')	0.17	0.19	0.19	0.19	0.19	0.18	
	Bottom (10')	0.18	0.18	0.19	0.19	0.19	0.19	

Table-09: Results of BOD_5 during monsoon.

COD

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Site Name	Layers	Sample-1	Sample-2	Sample-3	Sample-4	Sample-5	Sample-6	Average COD (mg/l)
Faidabad	Surface (0')	3.6	3.5	3.5	3.6	3.5	3.5	3.55
	Middle (4.5')	3.6	3.5	3.6	3.6	3.6	3.5	
	Bottom (10')	3.6	3.6	3.5	3.5	3.6	3.5	
Tongi Bridge	Surface (0')	3.5	3.4	3.4	3.5	3.4	3.4	3.42
	Middle (4.5')	3.4	3.4	3.4	3.4	3.5	3.4	
	Bottom (10')	3.4	3.4	3.4	3.4	3.4	3.5	
Kamar-para	Surface (0')	3.4	3.5	3.4	3.4	3.4	3.4	3.41
	Middle (4.5')	3.4	3.4	3.4	3.5	3.4	3.4	
	Bottom (10')	3.4	3.4	3.4	3.4	3.4	3.4	
Ashu-leya	Surface (0')	3.4	3.5	3.6	3.5	3.5	3.6	3.52
	Middle (4.5')	3.5	3.5	3.5	3.6	3.6	3.5	
	Bottom (10')	3.5	3.5	3.5	3.5	3.6	3.5	
Biralia	Surface (0')	3.5	3.7	3.6	3.5	3.6	3.6	3.62
	Middle (4.5')	3.6	3.6	3.5	3.6	3.7	3.7	
	Bottom (10')	3.6	3.6	3.6	3.7	3.7	3.7	
Diabari	Surface (0')	3.8	3.9	3.8	3.9	3.9	3.9	3.87
	Middle (4.5')	3.9	3.9	3.9	3.9	3.8	3.8	
	Bottom (10')	3.8	3.9	3.9	3.9	3.9	3.9	

Table-10: Results of COD during monsoon.

Now the total average condition of these water quality parameters from Upstream (Biralia) to Downstream (Faidabad) is given (in Table-11) below:

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Site Name	pH	Conductivity (mS)	TDS (mg/l)	DO (mg/l)	Iron (<mg/l)	Temperature (°C)	Chlorine (<mg/l)	BOD_5 (mg/l)	COD (mg/l)
Total Average value from Upstream to Downstream	6.45	0.1228	243.72	5.405	0.79	27.18	0.58	0.1757	3.565

Table-11: Total average condition of these water quality parameters during Wet season.

07. DRINKING CONDITION DURING WET SEASON:

Drinking water criteria and standards have been developed by many countries in the world. Bangladesh developed the first water quality standards in 1976 based on the WHO 1971 International Drinking Water Standards.

We made a comparison of investigated data with "The Bangladesh Drinking Water Standards, 1997" and with "*WHO guideline values, 1993*" for investigating its drinking condition which is given (in Table-12) below:

Sl. No.	Water Quality Parameters	Unit	Bangladesh Standards	WHO Guideline Values,1993	Turag River's Water Condition during wet season
1.	*pH*	-	*6.5-8.5*	-	*6.45*
2.	*TDS*	*mg/l*	*1000*	*1000*	*243.72*
3.	*DO*	*mg/l*	*6.0*	-	*5.405*
4.	*Iron*	*mg/l*	*0.3-1.0*	*0.3*	*0.79*
5.	*Temperature*	*°C*	*20-30*	-	*27.18*
6.	*Chlorine*	*mg/l*	*0.2*	*0.6-1.0*	*0.58*
7.	*BOD_5*	*mg/l*	*0.2*	-	*0.1757*
8.	*COD*	*mg/l*	*4.0*	-	*3.565*

Table-12: Drinking Condition during wet season of Turag River's water.

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08. DISCUSSION:

From table-11, The total value of average pH during wet season from Upstream (Biralia) to Downstream (Faidabad) is found 6.45, average Conductivity is 0.1228 mS, average TDS is 243.72 mg/l, average DO is 5.405 mg/l, average Iron is 0.78<mg/l, average Temperature is 27.18 $^{\circ}$C, average Chlorine is 0.58<mg/l, average BOD_5 is 0.1757 mg/l, average COD is 3.565 mg/l.

Again from table-12,

- Turag River's pH condition is 6.45 whereas Bangladesh Standards is 6.5-8.5, so pH condition of Turag River during wet season is in acceptance range.
- Turag River's TDS condition is 243.72 mg/l whereas Bangladesh Standards is 1000 mg/l, so TDS condition of Turag River during wet season is in acceptance range.
- Turag River's DO condition is 5.405 mg/l whereas Bangladesh Standards is 6 mg/l, so DO condition of Turag River during wet season is in acceptance range.
- Turag River's Iron condition is 0.79 mg/l whereas Bangladesh Standards is 0.3-1.0 mg/l, so Iron condition of Turag River during wet season is in acceptance range.
- Turag River's Temperature in wet season is 27.18 $^{\circ}$C whereas Bangladesh Standards is 20-30 $^{\circ}$C, so Temperature of Turag River during wet season is in acceptance range.
- Turag River's Chlorine condition is 0.58 mg/l whereas Bangladesh Standards is 0.2 mg/l, so Chlorine condition of Turag River during wet season is not within acceptable range but it complies with the acceptable range of WHO guidelines [Chlorine(mg/l)- 0.6-1.0].
- Turag River's BOD_5 is 0.1757 whereas Bangladesh Standards is 0.2, so BOD_5 condition of Turag River during wet season is in acceptance range.
- Turag River's COD is 3.565 whereas Bangladesh Standards is 4.0, so COD condition of Turag River during wet season is in acceptance range.

09. COMPARISON OF DATA WITH STANDARD VALUES FOR FISHERIES:

The average values of all investigated water quality parameters were compared with standard values to determine the suitability of water for fisheries. (Table-13).

Parameters	Bangladesh Standard for Fisheries (EQS,1997)	Investigated Water Quality (average value during wet season)
pH	*6.5-8.5*	*6.45*
DO (mg/l)	*4.0-6.0*	*5.405*
TDS (mg/l)	*500*	*243.72*
Temperature (˚C)	*25*	*27.18*
BOD	*(-) or below 2*	*0.1757*

Table-13: Comparison of investigated data with standard values for fisheries.

So it is seen that all the values are in favorable condition for fisheries during wet season. *(Water Quality Criteria, Environmental Studies Board, 1972).*

10. CONCLUSION:

This study deals with the wet seasonal condition of some water quality parameter in 2015 of Turag River's water.

- Maximum pH found in 6.53 in Ashu-leya zone and minimum pH found in 6.40 in Tongi Bridge zone.
- Maximum Conductivity found in 0.125 (mS) in Ashu-leya zone.
- Maximum TDS found in 319.7 mg/l in Biralia zone whereas minimum TDS found in 195 mg/l in Faidabad zone.
- Maximum DO found in 6.15mg/l in Faidabad zone and minimum DO found in 4.8 mg/l in Ashu-leya zone.
- Maximum Iron found in 0.91 (<mg/l) in Diabari zone and minimum Iron found in 0.46 (<mg/l) in Tongi Bridge zone.
- Maximum Temperature of water found in 28.31 (˚C) in Tongi Bridge zone and minimum Temperature found in 26.47 (˚C) in Kamarpara zone.
- Maximum Chlorine found in 0.64 (<mg/l) in Diabari zone and minimum Chlorine found in 0.53 (<mg/l) in Faidabad zone along with Kamarpara zone.

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- Maximum BOD_5 found in 0.186 mg/l in Diabari zone and minimum BOD_5 found in 0.171 mg/l in Kamar-para zone.
- Maximum COD found in 3.87 mg/l in Diabari zone and minimum COD found in 3.41 mg/l in Kamar-para zone.

It is seen that all the results are satisfactory and favorable during this season. But increasing industrialization, urbanization and development activities beside Turag River could be a threat in the future. If the necessary steps are not taken, very soon it would be a source of dangerous pollution point for water pollution.

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