Action Plan
for
Rejuvenation of River Dwarka
Birbhum, West Bengal

Priority – III

Nodal Agency
Public Health Engineering Directorate
Department of Public Health Engineering
Government of West Bengal

Approved by
River Rejuvenation Committee, West Bengal
(constituted in compliance to the order of the Hon'ble National Green Tribunal)

Submitted to
Central Pollution Control Board, Delhi

JULY, 2020

Executive Summary

Sl.	Description of Item		Details		
1.	Name of the identified polluted river		River **Dwarka**		
2.	Identified polluted stretch of the river		Tarapith to Sadhak Bamdeb Ghat		
3.	Total length of the polluted river stretch		1.5 KM (approximately)		
4.	Towns in the catchment of the polluted stretch of the river		Tarapith not being a Town		
5.	Is river is perennial		Non perennial		
6.	No. of drains contributing to pollution and names of major drains		Two (2)		
	Drain discharging to river Dwarka		Lean Flow (CUSEC)	BOD (mg/L)	FC (MPN/100mL)
	Drain # 1 (Domestic/ Hotel)		0.024	141	17000
	Drain # 2 (Domestic/ Hotel/Market)		0.090	179	26000
	Drain # 3 (Domestic/ Hotel)		0.049	70	9300
	Drain # 4 (Domestic/ Hotel/Market)		0.045	35	9200
	Drain # 5 (Hotel/Market)		0.004	68	20000
	Drain # 6 (Domestic/ Hotel)		0.167	354	2600
7.	Whether 'River Rejuvenation Committee' (RRC) constituted by the State Govt./UT Administration and If so, Date of constitution of 'RRC'		Yes. 07/01/2019		
8.	Major Towns on the banks of the river with population		Chandipur, Tarapith, Bishnupur&Margram Population = 3479 (Census, 2011) Floating population in Tarapith : 10,000 per day and during peak season : 1,00,000 per day		
	a.	Total water consumption and sewage generation in MLD	Total water consumption = 5.0 MLD (Present) Total sewage generation = 3.00 MLD (Present) Inclusive of sewage from Commercial and 276 hotel establishments.		
	b.	Total no. of existing STPs and the totalcapacities in MLD	NIL		
	c.	Gaps in sewage treatment in MLD and no. of towns not having STPs	3.00 MLD		
	d.	Total MSW generation in TPA	Removal of waste materials/garbage from river bed river bank (both sides) of Dwaraka river. Solid Waste Management will be under taken as per existing rules by Tarapith and Rampurhat Development Authority (TRDA).		
	e.	Existing treatment and disposal facilities and total capacity	NIL		
9.	Major industrial estates located with total no. of industries		NIL		
	a.	Total no. industries discharging wastewater directly/indirectly in to the river	NIL		
	b.	Total water consumption	NIL		
	c.	Total industrial effluent generation	NIL		
	d.	No. of industries having captive ETPs and their treatment capacity	NIL		
	e.	No. of CETP's and their treatment capacity	NIL		
	f.	Gap in industrial wastewater treatment	NIL		
	g.	Total HW generation in TPA in the catchment area	NIL		

	h.	Existing HW Treatment and Disposal Facilities and total capacity with life span	NIL
10.		Action plan includes mainly covering aspect such as appropriate management of sewage, rain water harvesting, measures for regulating ground water use, protection and management of flood plain zone, plantation on both sides of the river, setting up of bio-diversity parks etc., as per Hon'ble NGT Orders dated 20.09.2018 and 19.12.2018	Whichever applicable has been taken into account.
11.		Responsible Organization (s) for implementation of proposed action plans (Please enclose details as annexure)	Table-6 Annexure-II and Annexure-III
12.		Nodal Agency	Public Health Engineering Directorate Department of Public Health Engineering, Govt. of West Bengal, NS Building (7th Floor), 1 KS Roy Street, Kolkata-700 001

03/07/2020

Superintending Engineer
New Town Kolkata W/S Circle
PH Engineering Directorate
Govt. of West Bengal

07-7-2020

Animesh Bhattacharya
Chief Engineer (H.Q)
P.H. Engineering Dte.
Govt. of West Bengal

Proposed Mechanism for execution of action plans:

This action plan implementation is to be monitored by the River Rejuvenation Committee (RRC) through meetings every month. The Central Monitoring Committee constituted by the Hon'ble NGT under the Chairmanship of the Secretary, Ministry of Jal Shakti, GoIalso holds meeting in every month with the Chief Secretary/Principal Secretary, Environment of the State to assess progress of work. Every month Monthly Progress Report will be sent to Ministry of Jal Shakti, GoI.

An Environment Monitoring Cell in the Office of the Chief Secretary, WB has been constituted to oversee the progress of work.

Expected deliverables with respect to achieving goals :

Considering the importance of river Dwarka in Birbhum district with respect to the visit of the colossal numbers of disciples in Tarapith Temple and their stay in large numbers Hotels, treatment of domestic sewage is necessary. For achieving this objective, construction of one 4.25 MLD capacity STP (based on population demography and projection upto 2045) has been taken-up by complying the discharged standards prescribed under the Environment (Protection) Rules, 1986. **The target for water quality for the stretch is to be fit at least for bathing purposes (i.e. BOD< 3 mg/l and FC < 500 MPN/100 ml).**

Response of the RRC, WB on comments of the
Task Team for ensuring compliance to Hon'ble NGT (PB), New Delhi in OA No 673/2018
held during 26.02.2020 and 11.06.2020

Comments of Task Team	Corresponding response(s) of RRC, West_Bengal
Latest water quality of PRS covering all parameters not provided	Monthly water quality data for BOD & FC for the years 2017, 2018 and 2019 provided. Moreover, latest water quality of river Dwarka covering all parameters also provided for the months of Jan-May 2020.
Projected population not taken into account for assessment of sewage generation.	Projected population till 2022 considered for assessment of sewage generation
Detailed gap analysis (Town wise/ ULB wise) w.r.t sewage, Industrial Effluent and Waste Management along with infrastructure available not included	Available information included in the report.
Aspects such as Utilization of treated waste water, Removalof encroachments not covered in action plan	Department of Urban Development and Municipal Affairs, GoWB has prepared a policy on use of treated wastewater. The policy is in final stage of preparation. The same will be sent to CPCB for approval.
Timelines for construction of STPs is exceeding March, 2021	Conventional domestic sewage treatment plant comprises the unit operations of screening, grit removal and primary sedimentation followed by unit process of aerobic biological treatment usually achieved by activated sludge process or trickling filter followed by secondary sedimentation. The work will be completed by 30/05/2021.
Action plan to be revised adding latest water quality data for the polluted river, major drains with flow and other parameters.	Not applicable.
Map showing all the towns, tributaries, drains & industrial estates, contributing to pollution to be included	Available information included in the report.
Gap analysis with projection upto 15 years w.r.t sewage and Waste Management be included in action plan	Present Generation of Waste Water : 3.00 MLD. No STP is existing, Present Treatment of Waste Water : NIL Gap as assessed presently ; 3.00 MLD Capacity of STP proposed and ongoing : 4.25 MLD
Actions be initiated against industries functioning without captive ETPs or connection with CETPs.	Not Applicable
Detailed gap analysis w.r.t present generation, projected generation existing infrastructure, existing capacity utilization, gap observed in the catchment for management of industrial effluent and waste management (solid waste, hazardous waste, C & D waste, bio-medical waste) need to be detailed in a separate table clearly.	Present Generation : 3.00 MLD Existing Treatment : NIL Gap observed : 3.00 MLD Projected Generation : 4.25 MLD (2045)

Background:

The West Bengal is the land of rivers. An intricate network of three major river basins (the Ganga, Brahmaputra and Subarnarekha) drain this State. Human settlement and related activities on the banks of the rivers have gradually increased over the years. Considering very reach ecological diversities of the water resources and the benefits of river network, most of the industrial development in this State took place near the rivers and the population density is also very high in these areas. As a result, these rivers receive liquid wastes like industrial discharges and municipal sewage and solid wastes are also dumped near the banks of the rivers.

Since early eighties, the West Bengal Pollution Control Board (WBPCB), in collaboration with the Central Pollution Control Board (CPCB), initiated monitoring of water quality of all important rivers, canals, ponds and reservoirs. The CPCB conducted water quality assessment based on available data have collected till 2016 to identify polluted river stretches in the entire country.

An application was registered before the Hon'ble National Green Tribunal, Principal Bench, New Delhi as O.A. No. 673/2018 on the basis of a news item dated 17.09.2018 in 'The Hindu" under the heading "More river stretches are now critically polluted: CPCB". The Hon'ble Tribunal was pleased to pass an order on 20.09.2018identifying seventeen (17) polluted river stretches in the State of West Bengal and categorized these polluted stretches in five priority classes (Table-1). The Hon'ble Tribunal directed the State to prepare action plans for rejuvenation of these 17 polluted river stretches for bringing all the polluted river stretches to be fit at least for bathing purposes (i.e. BOD< 3 mg/l and FC < 500 MPN/100 ml). The Hon'ble NGT further directed on 19.12.2019 that action plans for rivers are to be reviewed by the CPCB before acceptance.

Table 1: Polluted river stretches in West Bengal

Sl. No.	Priority	River	Polluted Stretch identified	BOD (mg/L) when identified as polluted
1	I	Vindyadhari	Haroa Bridge to Malancha Burning Ghat	26.7 – 45.0
2	II	Mahananda	Siliguri to Binaguri	6.5 – 25
3	III	Churni	Santipur Town to Majhadia	10.3 – 11.3
4	III	Dwarka	Tarapith to SadhakBamdebGhat	5.6 – 17.0
5	III	Ganga	Tribeni to Diamond Harbour	5.0 – 12.2
6	IV	Damodar	Durgachak to Dishergarh	4.4 – 8.2
7	IV	Jalangi	Laal Dighi to Krishna Nagar	8.3
8	IV	Kansi	Midnapore to Ramnagar	9.9
9	IV	MathaBhanga	Madhupur to Gobindapur	8.5
10	V	Barakar	Kulti to Asansol	5.7
11	V	Dwarakeshwar	Bankura to Kushtia	1 – 5.6
12	V	Kaljani	Bitala to Alipurdwar	6.0
13	V	Karola	Jalpaiguri to ThakurerKamat	3.9
14	V	Mayurakshi	Suri to Durgapur	5.2
15	V	Rupnarayan	Kolaghat to Benapur	3.1 – 5.8
16	V	Silabati	Ghatal to Nischindipur	3.8
17	V	Teesta	Siliguri to Paharpur	3.3

River Rejuvenation Committee:

In compliance to the direction of Hon'ble National Green Tribunal, Principal Bench, New Delhi in respect of O.A. No. 673/2018, the Government of West Bengal constituted the River Rejuvenation Committee (RRC) for preparation of such action plans for effective abatement of pollution, rejuvenation, protection and management of the identified polluted

River stretches, for bringing the polluted river stretches to be fit at least for bathing purposes and identified the following components for such action plan, although all the components may not be applicable for all the polluted river stretches:

1. Identification of polluting sources
2. Trade and sewage generated in the catchment area of polluted river stretch
3. Functioning status of STPs/ETPs/CETP
4. Interception and Diversion of sewage carrying drains to the STP
5. Solid waste management including quantification and characterisation of solid waste, Bio-medical waste management, e-waste and processing facilities, quantification and characterisation of solid waste
6. Protection and management of Flood Plain Zones (FPZ)
7. Rain water harvesting, ground water charging
8. Adopting good irrigation practices
9. Address issues relating to ground water extraction
10. Maintaining minimum environmental flow of river and plantation on both sides of the river
11. Plantation on both sides of the river
12. Setting up of biodiversity parks on flood plains by removing encroachment.
13. Utilization of treated sewage so as to minimize extraction of ground or surface water

The Member Secretary, West Bengal Pollution Control Board is the Chairman, RRC and the Chief Executive Officer, Kolkata Metropolitan Development Authority is the Member-Convenor, RRC. The Committee is functioning under the supervision and coordination of Principal Secretary, Environment Department, GoWB.

The main causes of the river water quality deterioration are (1) Discharge of industrial wastewater (2) Discharge of municipal wastewater and (3) Pollution from nonpoint sources. Any action plan for any river stretch to improve its water quality then is required to address these three issues and address them primarily. In West Bengal there are forty eight (48) Grossly Polluting Industries (GPIs) and four hundred (400) odd Seriously Polluting Industries (SPIs). All these industries are under Consent administration of the WBPCB. The WBPCB inspects the GPIs every month and SPIs periodically to assess the environmental performance of these industries. All these industries are having Effluent Treatment Plant(s) inside the premises and the industrial wastewater generated are treated in these ETPs before being discharged either in to the river / canal or to local water bodies (Ponds & Wetlands) or to municipal drains/public sewer those are channelized to the canals. The river stretches in the State run through habitations of wide varieties and human activities. The habitations on the banks of these rivers also generate large quantities of sewage water regularly which are also drained through various discharges channels in to these rivers. As the rivers are not of perennial nature, during lean periods the water volume becomes less resulting in high pollution concentrations. Inadequacy in solid waste management facilities resulted in unscientific dumping of solid wastes on the banks and this is also a major source of river pollution.Since most of these rivers are having long stretches, agricultural runoffs also finally find their ways in to these rivers. The river water quality database of the WBPCB however shows no significant impact of such non-point source contribution in any of these river stretches.

Therefore, the action plan for river Dwarkahas been prepared for its catchment areas considering the discharges from domestic source, discharges from six nos drains and diversion of sewage carrying drains to the STP, maintaining minimum environmental flow of river, protection and management of Flood Plain Zones (FPZ), adopting good irrigation practices, plantation on both sides of the river, setting up of biodiversity parks on flood plains etc.

The RRC, WB sent the Action Plan for rejuvenation of river Dwarkat to CPCB on 16.02.2020 and the Task Team in its 10th Meeting held on 26.02.2020 suggested some revision in the action. The RRC, WB approved the revised action in its 7th meeting held on 09.06.2020 and sent to CPCB on 09.06.2020 which was once again reviewed by the CPCB in its 12th Task Team meeting on 11.06.2020 and once again suggested some modifications.

Now, this action plan has been modified as per recommendation of the CPCB Task Team and the RRC, WB has approved this Action Plan in its 8th meeting held on 02.07.2020.

The River Dwarka:

The **Dwarka River** (also called Babla) is a tributary of River Bhagirathi. The Dwaraka originates in Santhal Parganas in Jharkhand, flows through Deucha, and then through Mayureswar and Rampurhat police station areas of Birbhum district. It finally flows through Murshidabad district, where it joins the River Bhagirathi. Total length of Dwarka river is 156.5 km. Though it is a moderate river, it has several names at different places and many small tributaries and estuaries. It flows through Kandi subdivision and near Kalyanpur (Murshidabad) where it merges with River Bhagirathi. It has many backwaters and side channels those also connect with the River Bhagirathi. It is a hill stream with beds full of pebbles and yellow clay.

Polluted stretch of river Dwarka:

The stretch of this river that has been identified as "Polluted" is Tarapith to Sadhak Bamdeb Ghat, about 1.5 km long. The river is non-tidal in nature and receives domestic wastewater from the adjoining area of the Tarapith Temple round the year. Bio-chemical Oxygen Demand (BOD) and Faecal Coliform (FC) are the principal and only pollutants in this river stretch. This river is strictly non-perennial. Usage of water in this stretch is mainly for purposes of agriculture and fishing.

Table-2: Polluted stretch of River Dwarka

SL. No.	Name of the rivers/streams	Details	Identified polluted stretches	BOD (mg/L) when identified	Prioritywise
1.	Dwarka	The Dwaraka originates in Santhal Parganas in Jharkhand, flows through Deucha, and then through Mayureswar and Rampurhat police station areas of Birbhum district. It finally flows through Murshidabad district, where it joins the River Bhagirathi.	Tarapith to Sadhak Bamdeb Ghat, about 1.50 km in length	Max 17 mg/l	III

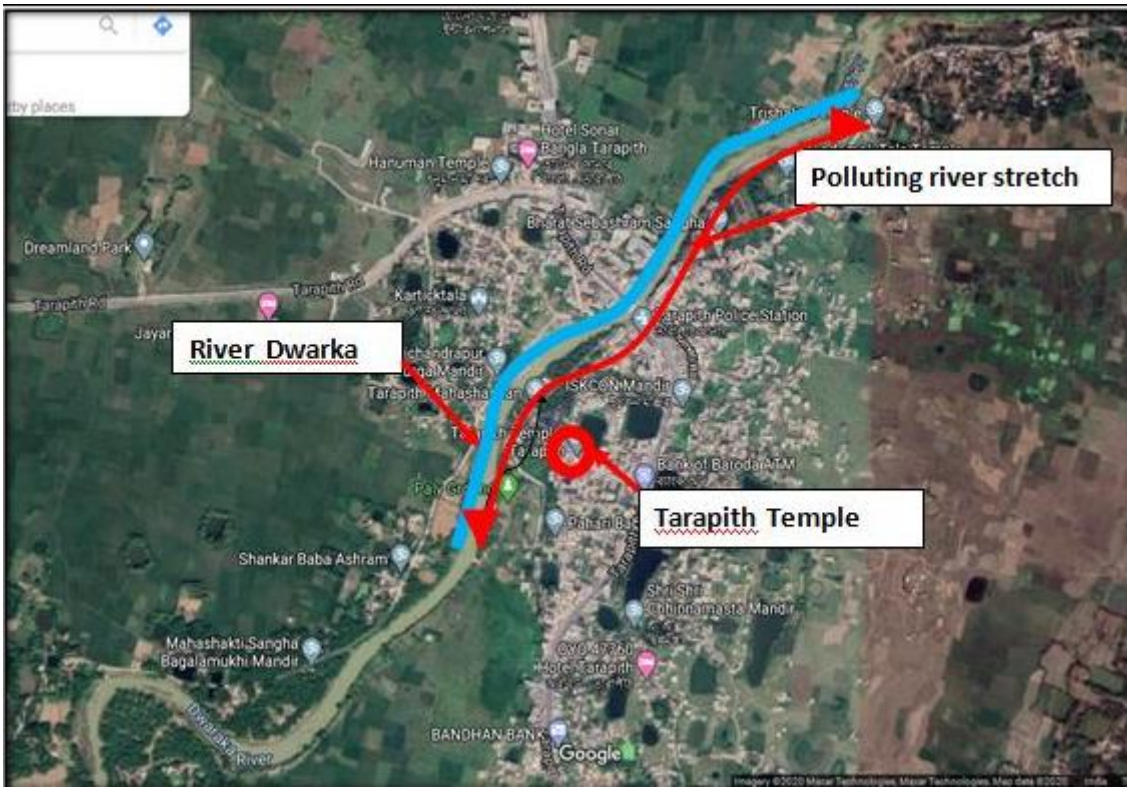

Figure 1: Map showing the River Dwarka

Major towns located on the bank of the polluted stretch:

Within the identified polluted river stretch, the major town located on the side of the river is Tarapith in the distrct of Birbhum.

Water quality assessment of river Dwarka:

The water quality status of the river Dwarka is monitored by the West Bengal Pollution Control Board under the National Water Monitoring Programme on monthly basis at locations at upstream of Tarapith (CPCB Station Code : 2531) and downstream of Tarapith (CPCB Station Code: 2532). The water quality of the river Dwarka during last three years (January 2017-December 2019) for two criteria pollutants (BOD & FC) is given in Table-3.

Table-3: Water quality of river Dwarka during 2017, 2018 & 2019

Sampling Location: River Dwarka, Upstream of Tarapith, CPCB Station Code : 2531						
Months	BOD (mg/l)			FC (MPN/100 ml)		
	2017	2018	2019	2017	2018	2019
January	17.00	5.10	2.70	28000	11000	1400
February	8.90	4.50	3.85	6000	14000	17000
March	17.00	4.50	4.30	7000	17000	28000
April	10.50	2.95	4.80	14000	11000	35000
May	8.00	3.50	2.55	22000	22000	28000
June	4.10	1.80	2.35	35000	17000	22000
July	2.85	2.45	3.65	28000	8000	28000
August	5.00	2.60	3.35	11000	9000	24000
September	5.65	2.85	3.20	11000	6000	22000
October	2.35	2.70	2.75	17000	6000	28000
November	2.40	2.80	2.90	22000	11000	24000
December	1.30	2.85	3.00	14000	14000	17000
Range	1.30-17.00	1.80-5.10	2.35-4.80	6000-35000	6000-22000	1400-35000
Average	7.08	3.21	3.28	17917	12167	22867

Sampling Location: River Dwarka, Downstream of Tarapith, Satighat, CPCB Station Code : 2532						
Months	BOD (mg/l)			FC (MPN/100 ml)		
	2017	2018	2019	2017	2018	2019
January	11.50	3.35	2.85	17000	14000	2400
February	8.10	3.90	2.65	7000	13000	28000
March	11.00	4.90	5.10	3000	22000	90000
April	10.80	2.25	5.65	17000	5000	11000
May	6.60	3.40	3.15	30000	13000	17000
June	2.95	2.10	3.05	50000	11000	35000
July	4.00	2.40	4.65	35000	7000	35000
August	3.90	2.45	4.30	17000	8000	43000
September	4.25	2.70	4.05	14000	7000	35000
October	2.20	2.80	3.05	22000	9000	35000
November	1.10	2.55	3.25	24000	11000	54000
December	1.05	2.60	4.60	17000	9000	22000
Range	1.05-11.50	2.10-4.90	2.65-5.65	3000-50000	5000-22000	2400-90000
Average	5.62	2.95	3.86	21083	10750	33950

Latest water quality of river Dwarka:

Considering the impact of this river water by the domestic sewage, revival of the water quality of this river is extremely important on context of its utility as it is non-perennial river. The ultimate goal for beneficial use of rivers will determine the level of actions to be taken for maintaining the water quality. The water quality of river Dwarka during the first five months in the year 2020 (Jan-May) are also depicted Table-4.

For achieving this objective, generated domestic sewage from nearby hotels in Tarapith area to be treated to meet the required standards for outdoor bathing as notified by the Ministry of Environment, Forests & Climate Change, GoI for "Primary Water Quality Criteria for Bathing Water" vide GSR 742I dated 25.09.2000. Keeping this in view, WBPHED has already taken up construction of 4.25 MLD capacity STP so as to reach the goal and turn the river stretch safe.

The target for water quality for the stretch is for organised outdoor bathing.

Table-4: Water quality of river Dwarka during Jan-May 2020

Sampling Location: River Dwarka, Upstream of Tarapith, CPCB Station Code : 2531					
Parameter	Jan-2020	Feb-2020	Mar-2020	Apr-2020	May-2020
Temperature (°C)	24.00	24.00	27.00	Not Tested	29.00
pH	8.16	7.86	7.81	7.89	8.01
Dissolved Oxygen (mg/l)	7.60	7.40	7.20	7.10	7.30
BOD (mg/l)	2.85	3.15	3.65	3.85	3.10
COD (mg/l)	18.24	23.53	25.30	27.00	25.30
Total Coliform (MPN/100 ml)	11000	17000	5800	11000	9400
Fecal Coliform (MPN/100 ml)	3300	4600	4300	6300	5800
Total Dissolved Solids (mg/l)	114	106	206	142	136
Total Fixed Solids (mg/l)	94	92	180	Not Tested	86
Total Suspended Solids (mg/l)	52	94	46	Not Tested	60
Turbidity (NTU)	76.84	14.70	28.88	31.44	18.54
Conductivity (µs/cm)	206	146.30	198.20	246.10	173.50
Calcium (mg/l)	13.86	14.90	21.95	21.56	15.61
Magnesium (mg/l)	4.33	4.52	10.00	7.86	5.22
Total Hardness as CaCO3 (mg/l)	52.47	55.86	96.04	86.24	60.49
Total Alkalinity (mg/l)	88	68	90	86	84
Phenolphthalein Alkalinity (mg/l)	6.00	NIL	NIL	Not Tested	NIL
Ammonia-N (mg/l)	0.267	0.174	0.183	0.219	0.281
Nitrate-N (mg/l)	0.153	0.096	0.168	0.204	0.139
Phosphate-P (mg/l)	0.088	0.039	0.036	0.0515	0.035
Sulphate (mg/l)	10.080	13.010	20.228	19.1936	19.660
Fluoride (mg/l)	0.372	0.216	0.269	Not Tested	0.235
Chloride (mg/l)	16.45	14.19	19.26	19.26	7.83
Boron (mg/l)	BDL	BDL	BDL	Not Tested	BDL
Potassium (mg/l)	2.90	5.96	3.50	2.40	7.20
Sodium (mg/l)	34.60	14.18	29.20	18.60	16.80

NB : Due to force majeure situation during COVID-19 pandemic, some wastewater quality tests could not be made in April 2020.

Sampling Location: River Dwarka, Downstream of Tarapith, CPCB Station Code : 2532					
Parameter	Jan-2020	Feb-2020	Mar-2020	Apr-2020	May-2020
Temperature (°C)	24.00	24	27	Not Tested	29
pH	7.94	7.78	7.76	7.83	7.84
Dissolved Oxygen (mg/l)	7.40	7.2	6.9	7.2	7.50
BOD (mg/l)	3.15	3.55	3.80	3.95	3.25
COD (mg/l)	20.16	30.38	35.42	33.48	36.43
Total Coliform (MPN/100 ml)	14000	22000	12000	17000	15000
Fecal Coliform (MPN/100 ml)	3900	8400	6300	7000	7900
Total Dissolved Solids (mg/l)	118	94	260	188	152
Total Fixed Solids (mg/l)	78	82	230	Not Tested	90
Total Suspended Solids (mg/l)	38	64	28	Not Tested	38
Turbidity (NTU)	72.24	7.03	27.86	25.81	38.16
Conductivity (µs/cm)	218	134.4	206.3	267.4	156.2
Calcium (mg/l)	13.86	14.90	22.74	20.38	14.83
Magnesium (mg/l)	4.33	4.76	10.95	8.10	4.98
Total Hardness as CaCO3 (mg/l)	52.47	56.84	101.92	84.28	57.56
Total Alkalinity (mg/l)	92	70	88	94	72

Phenolphthalein Alkalinity (mg/l)	NIL	NIL	NIL	Not Tested	NIL
Sampling Location: River Dwarka, Downstream of Tarapith, CPCB Station Code : 2532					
Parameter	**Jan-2020**	**Feb-2020**	**Mar-2020**	**Apr-2020**	**May-2020**
Ammonia-N (mg/l)	0.463	0.122	0.166	0.274	0.249
Nitrate-N (mg/l)	0.155	0.151	0.175	0.2107	0.142
Phosphate-P (mg/l)	0.087	0.041	0.043	0.0439	0.033
Sulphate (mg/l)	12.280	13.03	21.053	18.3721	19.58
Fluoride (mg/l)	0.233	0.814	0.188	Not Tested	0.575
Chloride (mg/l)	16.45	15.21	21.80	27.37	8.80
Boron (mg/l)	BDL	BDL	BDL	Not Tested	NT
Potassium (mg/l)	2.60	3.65	4.20	3.80	2.80
Sodium (mg/l)	39.40	12.24	32.40	16.00	22.60

NB : Due to force majeure situation during COVID-19 pandemic, some wastewater quality tests could not be made in April 2020.

Polluting Sources of River Dwarka:

Industrial wastewater treatment:

There is no industrial estate in the catchment of river Dwarka.

Domestic wastewater treatment:

The stated 06 (six) drains are discharging domestic wastewater into the river.

Drain # 1 (Domestic/ Hotel)	Opposite to NabamiBhawan Lodge
Drain # 2 (Domestic/ Hotel/Market)	Near Tarasroy
Drain # 3 (Domestic/ Hotel)	Adjacent to BanidebGhat
Drain # 4 (Domestic/ Hotel/Market)	Adjacent to Shibabhogtala
Drain # 5 (Hotel/Market)	Adjacent to Tarapith Bridge
Drain # 6 (Domestic/ Hotel)	Under Tarapith Bridge

Name of the recipient water body	:	River Dwarka
Name of the Town	:	Tarapith
No. of drains discharging	:	6 (six)
No. of drains considered for treatment facility	:	6 (six)
Present Water consumption	:	5 MLD
Present Wastewater generation	:	3 MLD
Existing wastewater treatment facility	:	NIL
Gap in wastewater treatment as assessed presently	:	3.00 MLD
Proposed Treatment Facility	:	Conventional domestic sewage treatment plant comprising the unit operations of screening, grit removal and primary sedimentation followed by unit process of aerobic biological treatment usually achieved by suitable biological treatment followed by suitable tertiary treatment.
Scheduled date of start of work for the Sewer Lines	:	February 2018
Scheduled date of start of work for the STP	:	February 2020
Scheduled date of completion of work for STP	:	30/05/2021

Municipal solid waste management:

Removal of waste materials/garbage from river bed river bank (both sides) of Dwaraka river.

Solid Waste Management will be under taken as per existing rules by Tarapith and Rampurhat Development Authority (TRDA).

Hazardous waste management:
There is no hazardous waste.

Bio-medical waste management:
Bio-medical waste generated from different HCF are being disposed at CBMW treatment facilities at Asansol

Construction & Demolition waste management:
Local Authority has been directed by the WBPCB and UD&MA Dept., GoWB to take necessary action as per C&D Waste Management Rules, 2016.

Ecological/Environmental Flow (E-Flow)

Afforestation, rainwater harvesting and reduction of ground water exploitation from flood plain could ensure the ecological flow in this river including discharge of wastewater after appropriate treatment meeting the STP discharge standard.

Table-6: Action Plan with agencies responsible, time target and budgetary estimates

Departments /Agencies	Actions to be taken		Targeted timeline	Budgetary Estimate (Rs. In Lakh)
WBPHED	Action plans for management of wastewater discharge.		31.03.2021	3473.11
WBPCB	No industrial discharge		Not Applicable	Not Applicable
TRDA	Removal of waste materials/garbage from river bed river bank (both sides) of Dwaraka river. Solid Waste Management will be under taken as per existing rules by Tarapith and Rampurhat Development Authority (TRDA).		28-02-2021	11.5
WBPCB	Action plans for management of Hazardous, Bio-medical and Electrical and Electronic wastes		Continuous process	0.00
DoIT	Quantification and Characterization	Installation of e-waste bin, Categorizing and Disposal	28-02-2021	1.23
	Existing Infrastructure	Selection and Utilization of approved PROs for collection and Disposal		
	Detailed Gap Analysis	Monitoring & Management		
	Management Action Plan	Meeting with OEMs, other stake holders		
	Promotional	Sensitization Training		
		Promotional Documents, Training Materials		
		Hoardings at river stretch		
TRDA	Bank protection and pitching work to maintain minimum environmental flow of river			
DoF	a) Forest development at Deocha Barrage Diara b) Setting up biodiversity parks on flood plains		31.03.2021	20.85 (Annexure-II)
P&RDD	Strengthening of River Embankment, Lining of water courses, sand reclaiming of water courses and plantation		31.03.2021	30.00 (Annexure-III)
SWID	• Groundwater recharging • GW Level & Quality Monitoring • Real-Time GWL Monitoring through Installation of DWLR • Roof top rainwater and surface runoff Harvesting for conservation on surface and artificial recharge to groundwater		31.03.2021	2.79
DoUD&MA	Utilization of treated waste water		Policy has been notified by Govt. of West Bengal on 30-06-2020. Action will be taken accordingly.	

MED: Municipal Engineering Directorate, DoUD&MA, GoWB
SUDA: State Urban Development Agency, DoUD&MA, GoWB
WBPCB: West Bengal Pollution Control Board
DoIT: Department of Information Technology, GoWB
P&RDD: Panchayat & Rural Development Department, GoWB
SWID: State Water Investigation Directorate
IRD: Irrigation Department, GoWB
DoF: Forest Department, GoWB
DoAg: Agriculture Department, GoWB
DoUD&MA: Department of Urban Development & Municipal Affairs, GoWB

03/03/2020
Superintending Engineer
New Town Kolkata W/S Circle
PH Engineering Directorate
Govt. of West Bengal

03.03.2020
Animesh Bhattacharya
Chief Engineer (H.Q)
P.H. Engineering Dte.
Govt. of West Bengal

Annexure-I

PERT chart in respect of implementation of action plans for river Dwarka

Sl no	NAME OF WORK	Feb 2018 to Nov2019	Dec 2019	Jan 2020	Feb 2020	Mar 2020	Apr 2020 to Nov2020	Dec 2020 to Mar 2021	Apr 2021 to May 2021
01	Laying of Sewer lines by cut & cover method								
02	Construction of SLS-1								
03	Construction of SLS-2								
05	Construction of STP								

Annexure-II

Financial Outlay of Action Plan in Polluted River Stretches : Dwarka
Forestry Development, Forest Department

Sl no	River Name	District	Division	Stretch Identified	Town	Block/ Municipality	J.L. No.	Area in Hecture	Financial Outlay (INR)	Timeline
1	Dwarka	Birbhum	Birbhum	Deocha Barrage Diara (Border of Birbhum-Murshidabad	1.Chandipur, 2.Tarapith, 3.Bishnupur, 4.Margram	1.Md. Bazar, 2.Mayureswar-I & II, 3.Rampurhat - I & II	25	7.5	1,042,699.50	31/03/2021
2				Deocha Barrage Diara (Border of Birbhum-Murshidabad	1.Chandipur, 2.Tarapith, 3.Bishnupur, 4.Margram	1.Md. Bazar, 2.Mayureswar-I & II, 3.Rampurhat - I & II	29	7.5	1,042,699.50	31/03/2021
		Sub Total						**15**	**2,085,399.00**	

Annexure-III

Status on Implementation of Action Plans for Restoration of Identified Polluted River Stretches for ensuring complaince to Hon'ble National Green Tribunal orders Dt. 20/09/2018, 19/12/2018 and 08/04/2019

Name of the District: Birbhum

Contact details of the Nodal Officer: Mainak Pramanik, Asstt Engg, MGNREGA Cell, Birbhum, Mob No. 9593551848

Sl No.	Name of the River	Activity to be monitored	Timeline	Financial Outlay (in Lakhs)	Remarks
1	Mayurakshi River	Strengthening of River Embankment, Lining of Water Courses, Sand Reclaiming of Water Courses, Plantation	2019-20 & 2020-21	171.330	X
2	Dwaraka River	Strengthening of River Embankment, Lining of Water Courses, Sand Reclaiming of Water Courses, Plantation	2020-21	30.000	X

12/2/2020
District Nodal Officer
MGNREGA, Birbhum

Memo No. 192/MGNREGA **Date.** 12-02-2020

Submitted to the Jt. Secretary, Govt of WB, P& RD Deptt, for her kind perusal. This has a reference her letter vide memo mo. 828 (II)/RD/O/MGNREGA/18S-11/2019 Dt. 07.02.2020

12/2/2020
District Nodal Officer
MGNREGA, Birbhum

ANNEXURE-IV

Water Quality of River Dwarka during June 2020

Sampling Location: River Dwarka, Upstream of Tarapith, CPCB Station Code : 2531

Parameter	Test Result	Unit
Ammonia-N	*0.414*	*mg/l*
BOD	*2.90*	*mg/l*
Conductivity	*111.40*	*µs/cm*
Fecal Coliform	*14000*	*MPN/100ml*
Nitrate-N	*0.093*	*mg/l*
pH	*7.54*	*Unit*
Temperature	*30.0*	*℃*
Boron	*BDL*	*mg/l*
Calcium	*22.63*	*mg/l*
Chloride	*22.01*	*mg/l*
COD	*38.61*	*mg/l*
Magnesium	*6.16*	*mg/l*
Phenolpthalein Alkanity	*Nil*	*mg/l*
Phosphate-P	*0.021*	*mg/l*
Potassium	*2.10*	*mg/l*
Sodium	*24.60*	*mg/l*
Sulphate	*11.99*	*mg/l*
Total Alkalinity	*82.00*	*mg/l*
Total Dissolved Solids(TDS)	*76.00*	*mg/l*
Total Fixed Solids(TFS)	*66.00*	*mg/l*
Total Hardness as CaCo3	*81.95*	*mg/l*
Total Suspended Solids(TSS)	*76.00*	*mg/l*
Turbidity	*113.00*	*NTU*
Fluoride	*0.392*	*mg/l*
Total Kjeldahl Nitrogen(TKN)		*mg/l*
Dissolved O2(DO)	*7.4*	*mg/l*
Total Coliform	*22000*	*MPN/100ml*

ANNEXURE-IV

Water Quality of River Dwarka during July 2020

Sampling Location: River Dwarka, Upstream of Tarapith, CPCB Station Code : 2531

Parameter	Test Result	Unit
Fecal Coliform	*17000*	*MPN/100ml*
Nitrate-N		*mg/l*
pH	*7.46*	*Unit*
Temperature	*32.5*	*^{0}C*
Total Coliform	*24000*	*MPN/100ml*
Boron	*BDL*	*mg/l*
Calcium	*18.73*	*mg/l*
Chloride		*mg/l*
COD	*22.17*	*mg/l*
Magnesium	*6.16*	*mg/l*
Phenolpthalein Alkanity	*Nil*	*mg/l*
Phosphate-P	*0.0475*	*mg/l*
Potassium	*3.40*	*mg/l*
Sodium	*21.70*	*mg/l*
Sulphate	*8.513*	*mg/l*
Total Alkalinity	*80.00*	*mg/l*
Total Dissolved Solids(TDS)	*108.00*	*mg/l*
Total Hardness as CaCo3	*72.19*	*mg/l*
Total Kjeldahl Nitrogen(TKN)		*mg/l*
Total Suspended Solids(TSS)	*44.00*	*mg/l*
Turbidity	*40.18*	*NTU*
Total Fixed Solids(TFS)	*98.00*	*mg/l*
Ammonia-N	*0.434*	*mg/l*
BOD	*3.15*	*mg/l*
Conductivity	*155.10*	*µs/cm*
Fluoride	*0.188*	*mg/l*
Dissolved O2(DO)	*7.5*	*mg/l*

ANNEXURE-IV

Water Quality of River Dwarka during June 2020

Sampling Location: River Dwarka, Downstream of Tarapith, CPCB Station Code : 2532

Parameter	Test Result	Unit
Ammonia-N	*0.318*	*mg/l*
Conductivity	*116.10*	*µs/cm*
Dissolved O2(DO)	*7.1*	*mg/l*
Fecal Coliform	*28000*	*MPN/100ml*
Nitrate-N	*0.110*	*mg/l*
Temperature	*30.0*	*℃*
Total Coliform	*54000*	*MPN/100ml*
Boron	*NT*	*mg/l*
Calcium	*16.39*	*mg/l*
Chloride	*20.06*	*mg/l*
Fluoride	*0.186*	*mg/l*
Magnesium	*8.53*	*mg/l*
Phenolpthalein Alkanity	*Nil*	*mg/l*
Phosphate-P	*0.020*	*mg/l*
Potassium	*2.70*	*mg/l*
Sodium	*18.70*	*mg/l*
Total Alkalinity	*78.00*	*mg/l*
Total Dissolved Solids(TDS)	*80.00*	*mg/l*
Total Fixed Solids(TFS)	*72.00*	*mg/l*
Total Hardness as CaCo3	*76.10*	*mg/l*
Total Kjeldahl Nitrogen(TKN)		*mg/l*
Total Suspended Solids(TSS)	*82.00*	*mg/l*
pH	*7.26*	*Unit*
COD	*52.47*	*mg/l*
Sulphate	*11.89*	*mg/l*
Turbidity	*119.00*	*NTU*
BOD	*3.40*	*mg/l*

ANNEXURE-IV

Water Quality of River Dwarka during July 2020

Sampling Location: River Dwarka, Downstream of Tarapith, CPCB Station Code : 2532

Parameter	Test Result	Unit
Ammonia-N	*0.398*	*mg/l*
BOD	*4.05*	*mg/l*
Dissolved O2(DO)	*6.9*	*mg/l*
Fecal Coliform	*24000*	*MPN/100ml*
Nitrate-N		*mg/l*
pH	*7.37*	*Unit*
Total Coliform	*43000*	*MPN/100ml*
Boron	*BDL*	*mg/l*
Calcium	*19.51*	*mg/l*
Chloride		*mg/l*
COD	*36.55*	*mg/l*
Fluoride	*0.271*	*mg/l*
Phenolpthalein Alkanity	*Nil*	*mg/l*
Phosphate-P	*0.0510*	*mg/l*
Potassium	*3.70*	*mg/l*
Sodium	*14.40*	*mg/l*
Sulphate	*9.995*	*mg/l*
Total Alkalinity	*85.00*	*mg/l*
Total Dissolved Solids(TDS)	*116.00*	*mg/l*
Total Fixed Solids(TFS)	*102.00*	*mg/l*
Total Kjeldahl Nitrogen(TKN)		*mg/l*
Total Suspended Solids(TSS)	*48.00*	*mg/l*
Turbidity	*46.23*	*NTU*
Conductivity	*163.40*	*µs/cm*
Temperature	*32.0*	*℃*
Magnesium	*4.74*	*mg/l*
Total Hardness as CaCo3	*68.29*	*mg/l*

Compliance of RRC Meeting held on 17/08/2020

Sl	Observation of the RRC Meeting	Remarks
1	Water Quality of the Polluted River Stretches for Fecal Streptococci (FSC) whereas water quality of all drains to be analysed for general parameters, heavy metals and Fecal Coliforms (FC) as well as Fecal Streptococci (FSC) included in the report	Will be complied as per CPCB guidelines
2	Water quality of ground water in the catchment for the relevant parameters to be included	Will be complied as per CPCB guidelines
3	Bio-mining of existing dumpsites in the catchment of polluted river stretches need to be elaborated	Not Applicable
4	I & D of sewage from the identified drains to the nearby existing STPs or proposed proposed STPs to be mentioned clearly in the report	<u>Provision of new sewer lines as per DPR, AA&FS:</u> Total length of sewer conduits (150 mm – 400 mm diameter): 6200 metre. <u>Progress of Work of new sewer line as on 28/08/2020:</u> Work Completed: 3000 metre out of 6200 metre. Balance 3200 metre (200 mm- 400 mm diameter) has been taken-up through Horizontal Directional Drilling (HDD) Methodology. There is no Interception & Diversion of sewage from the identified drains to the nearby existing STPs or proposed proposed STPs
5	Watershed management, flood plain protection, ground water recharge, greenery, rain water harvesting, apart from measures for discharge of stored water from u/s of dams to be included as a part of proposal for e-flow maintenance in all the polluted river stretches.	Will be complied as per CPCB guidelines
6	Specific funding agency for each action point to be included	Department of Public Health Engineering, GoWB
7	Short-term measures for drains such as phytoremediation/ bio-remediation/ nano-bubbles treatment/ aeration treatment and other options feasibly to be examined and adopted to improve water quality of polluted rivers depending on the local conditions	Not Applicable

Sl	Observation of the RRC Meeting	Remarks
8	Timelines to be revised as per Hon'ble NGT order for all the proposed action plan and PERT chart also to be included	Works of 4.25 MLD STP, Intermediate Sewage Lifting Stations, Sewer Lines are in progress and the Project will be completed by 31/05/2020, Project Implementation Schedule has been attached in Annexure-I

Superintending Engineer
New Town Kolkata Water Supply Circle, PHED