Annual Average and Range values of Criteria Parameters (January-December, 2021)

(A) Mahanadi River System (2021)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Ib river															
1.	Sundargar h	12	7.6 (6.7-8.2)	7.2 (6.2-9.3)	1.1 (< 1.0-1.7)	2433 (130-4900)	652 (20-1700)	NA	0	0	0	-	C		
2.	Jharsuguda	12	7.7 (6.6-8.5)	7.8 (7.6-8.2)	1.1 (< 1.0-1.7)	1509 (330-2800)	487 (78-1100)	NA	0	0	0	-	C		
3.	Brajarajnagar U/s	12	7.6 (7.2-8.1)	8.0 (7.6-8.2)	< 1.0 (< 1.0-1.5)	1708 (490-3500)	638 (130-1700)	NA	0	0	0	-	C		
4.	Brajarajnagar D/s	12	7.6 (7.2-8.3)	8.0 (7.6-8.4)	1.5 (1.1-2.3)	2820 (700-4900)	1012 (230-2400)	NA	0	0	0	-	C		
Bheden river															
5.	Jharsuguda	12	7.8 (7.2-8.5)	7.8 (7.4-8.2)	1.2 (< 1.0-2.0)	1785 (78-4300)	556 (<1.8-2200)	12 (<1.8-17)	0	0	0	-	C		
Hirakud reservoir															
6.	Hirakud reservoir	12	7.9 (7.0-8.5)	8.0 (7.2-8.8)	< 1.0 (< 1.0-1.6)	1357 (230-3500)	313 (45-1300)	NA	0	0	0	-	C		
Power Channel															
7.	Power Channel U/s	12	7.8 (7.0-8.1)	7.3 (5.8-8.2)	< 1.0 (< 1.0-1.6)	581 (20-1400)	170 (<1.8-490)	NA	0	0	0	-	C		
8.	Power Channel D/s	12	7.8 (7.2-8.3)	7.3 (6.0-7.8)	1.3 (< 1.0-1.9)	2044 (230-4900)	878 (45-2400)	NA	0	0	0	-	C		
Mahanadi river															
9	Sambalpur U/s	12	7.9 (7.3-8.4)	7.7 (6.8-8.8)	1.1 (< 1.0-1.5)	1038 (45-2200)	320 (20-1100)	4 (<1.8-5)	0	0	0	-	C		

NA : Not analysed

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
10	Sambalpur D/s	12	7.8 (6.9-8.4)	7.3 (5.8-8.0)	1.6 (< 1.0-2.0)	4794 (230-22000)	2068 (45-11000)	15 (<1.8-23)	0	1 (8)	0	0	C		
11.	Sambalpur FD/s at Shankarmath	12	7.5 (6.9-8.4)	7.3 (6.4-7.8)	1.4 (< 1.0-1.8)	2230 (230-3500)	812 (20-1700)	10 (<1.8-27)	0	0	0	0	C		
12.	Sambalpur FFD/s at Huma	12	7.7 (7.1-8.4)	7.7 (6.4-9.0)	1.1 (< 1.0-1.5)	1597 (790-2700)	413 (78-1300)	9 (<1.8-23)	0	0	0	0	C		
13.	Sonepur U/s	12	7.9 (7.2-8.5)	7.6 (7-8)	< 1.0 (< 1.0-1.4)	270 (<1.8-790)	73 (<1.8-170)	< 1.8	0	0	0	0	C		
14.	Sonepur D/s	12	7.9 (7.3-8.5)	7.4 (6.2-8.2)	1.1 (< 1.0-1.6)	439 (20-1300)	106 (<1.8-220)	4 (<1.8-5)	0	0	0	0	C		
15.	Tikarapada	12	7.8 (6.6-8.2)	7.8 (6.4-10.4)	< 1.0 (< 1.0-1.3)	739 (<1.8-2400)	201 (<1.8-490)	3 (<1.8-4)	0	0	0	0	C		
16.	Narasinghpur	12	7.3 (6.8-8.2)	8.5 (7.8-9.2)	< 1.0 (< 1.0-1.2)	1077 (170-2400)	325 (45-1300)	10 (<1.8-17)	0	0	0	0	C		
17.	Mundali	12	7.4 (6.7-8.1)	8.4 (7.4-9.2)	< 1.0 (< 1.0-1.4)	2552 (230-4900)	1024 (78-2200)	13 (<1.8-27)	0	0	0	0	C		
18.	Cuttack U/s	12	7.5 (6.6-8.5)	8.5 (8.0-9.4)	1.1 (< 1.0-1.4)	1109 (330-2200)	415 (45-790)	7 (<1.8-11)	0	0	0	0	C		
19.	Cuttack D/s	12	7.5 (6.7-8.5)	8.1 (7.4-9.0)	1.7 (1.3-2.6)	4160 (1700-4900)	1707 (330-2300)	18 (2-33)	0	0	0	0	C		
20.	Cuttack FD/s	12	7.7 (6.9-8.5)	7.8 (7.0-8.6)	1.2 (< 1.0-2.0)	2619 (700-4700)	1123 (130-1700)	14 (<1.8-33)	0	0	0	0	C		
21.	Paradeep U/s	12	7.6 (6.7-8.1)	7.7 (6.8-8.6)	< 1.0 (< 1.0-1.1)	271 (<1.8-490)	93 (<1.8-220)	7 (<1.8-8)	0	0	0	0	C		
22	Paradeep D/s	12	7.7 (6.8-8.1)	7.3 (6.0-8.4)	1.4 (< 1.0-1.7)	332 (<1.8-1300)	206 (<1.8-790)	14 (<1.8-21)	0	0	0	0	C		

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Ong River															
23.	Dharuakhaman	12	8.0 (7.5-8.5)	7.5 (6.4-8.8)	< 1.0 (< 1.0-1.1)	176 (20-700)	58 (<1.8-130)	2 (<1.8-2)	0	0	0	-	C		
Tel River															
24.	Monmunda	12	7.8 (7.4-8.4)	7.4 (6.6-8.8)	1.0 (< 1.0-1.8)	198 (20-460)	61 (<1.8-130)	< 1.8	0	0	0	-	C		
Kathajodi River															
25.	Cuttack U/s	12	7.8 (6.9-8.5)	8.2 (8.0-8.6)	1.2 (< 1.0-1.8)	976 (330-1700)	289 (45-790)	10 (<1.8-13)	0	0	0	0	C		
26.	Cuttack D/s	12	7.8 (7.2-8.4)	6.9 (4.2-8.4)	3.0 (1.5-4.1)	36890 (7900-92000)	17480 (4900-54000)	46 (4.5-130)	6 (50)	12 (100)	12 (100)	1 (8)	Doesn't conform to Class C	BOD, TC	Waste water of Cuttack city
27.	Mattagajpur (Cuttack FD/s)	12	7.8 (7.1-8.5)	6.8 (5.2-7.6)	2.2 (1.5-2.8)	12640 (2200-22000)	6159 (790-13000)	44 (13-79)	0	7 (58)	6 (50)	0	Doesn't conform to Class C	TC	Waste water of Cuttack city
28.	Kamasasan (Cuttack FFD/s)	12	7.5 (7.0-8.5)	7.4 (6.4-8.2)	1.4 (< 1.0-2.3)	3044 (940-3500)	1147 (45-1700)	NA	0	0	0	0	C		
Serua River															
29.	Sankhatrasa (Cuttack FD/s)	12	7.7 (7.2-8.4)	7.4 (4.6-8.2)	2.7 (< 1.0-3.5)	30550 (3500-54000)	13763 (230-35000)	30 (4-49)	6 (50)	9 (75)	9 (75)	0	Doesn't conform to Class C	BOD, TC	Waste water of Cuttack city

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Kuakhai River															
30	Bhubaneswar FU/s	12	7.6 (6.8-8.3)	7.4 (5.4-9.9)	1.1 (< 1.0-1.7)	1604 (170-4000)	706 (78-2200)	11 (<1.8-17)	0	0	0	0	C		
31.	Bhubaneswar U/s	12	7.5 (6.8-8.3)	7.1 (5.3-8.5)	1.4 (1.1-1.9)	2911 (700-4900)	1153 (170-2200)	24 (4-49)	0	0	0	0	C		
Daya River															
32.	Gelapur	12	7.5 (6.5-8.5)	8.3 (5.9-9.9)	1.5 (1.1-2.6)	7099 (790-35000)	4003 (230-24000)	24 (5-46)	0	1 (8)	1 (8)	0	C	TC	Human activities
33.	Bhubaneswar D/s	11	7.3 (6.6-8)	4.7 (2.5-8.5)	4 (2.6-4.6)	58222 (24000-160000)	26322 (7900-54000)	120 (17-280)	10 (91)	11 (100)	11 (100)	4 (36)	Doesn't conform to Class C	DO#, BOD, TC	Waste water of Bhubaneswar city
34.	Bhubaneswar FD/s	11	7.2 (6.6-7.6)	5.3 (3.4-7.9)	3.4 (2.4-4.2)	31444 (11000-92000)	16311 (3300-54000)	73 (11-170)	8 (73)	11 (100)	11 (100)	2 (18)	Doesn't conform to Class C	DO##, BOD, TC	
35.	Kanas	12	7.2 (6.6-7.8)	6.9 (5.5-10.9)	2.3 (1.2-2.8)	13343 (490-35000)	6402 (130-24000)	51 (4.5-170)	0	5 (42)	3 (25)	1 (8)	Doesn't conform to Class C	TC	Human activities

Frequency of violation for DO is 5 times (45 % of total observation)
Frequency of violation for DO is 1 times (9 % of total observation)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters												
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Gangua River															
36.	Near Rajdhani Engg. College	12	6.9 (6.6-7.4)	1.7 (0.6-2.8)	7.3 (4.5-8.6)	142822 (5400-160000)	123133 (2200-160000)	256 (<1.8-350)	12 (100)	12 (100)	12 (100)	11 (92)	Doesn't conform to Class C	DO###, BOD, TC	Waste water of Bhubaneswar city
37.	Palasuni	11	6.2 (3.0-6.9)	1.5 (0.5-3.2)	8.0 (6.0-9.3)	160000 (160000-160000)	160000 (160000-160000)	303 (<1.8-490)	11 (100)	11 (100)	11 (100)	10 (91)	Doesn't conform to Class C	DO####, BOD, TC	
38.	Samantrayp ur	11	6.7 (5.7-7.2)	1.6 (0.7-3.2)	7.6 (4.6-9.7)	160000 (160000-160000)	152444 (92000-160000)	323 (170-540)	11 (100)	11 (100)	11 (100)	10 (91)	Doesn't conform to Class C	DO####, BOD, TC	
39.	Vadimula	11	6.8 (5.9-7.2)	3.8 (1.2-6.4)	5.2 (3.8-7.7)	79656 (7900-160000)	57356 (3300-160000)	189 (11-540)	11 (100)	11 (100)	11 (100)	10 (91)	Doesn't conform to Class C	DO#####, BOD, TC	
Birupa River															
40.	Choudwar D/s	12	7.7 (6.8-8.1)	8.0 (7.2-8.4)	1.0 (< 1.0-1.8)	2464 (340-4900)	738 (93-1300)	NA	0	0	0	-	C		
Kushabhadra River															
41.	Bhingarpur	12	7.1 (6.4-7.5)	7.2 (5.5-10.6)	1.5 (1.1-2.4)	22390 (2200-92000)	12218 (490-54000)	NA	0	5 (42)	4 (33)	-	Doesn't conform to Class C	TC	Human activities
42.	Nimapara	12	7.3 (6.9-7.9)	7.2 (5.1-9.7)	1.6 (1.2-2.1)	37820 (1700-160000)	14609 (490-54000)	NA	0	8 (67)	8 (67)	-	Doesn't conform to Class C	TC	Human activities

Frequency of violation for DO is 12 times (100% of total observation)
Frequency of violation for DO is 11 times (100% of total observation)
Frequency of violation for DO is 7 times (63% of total observation)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
43.	Gop	12	7.4 (7.0-7.7)	6.8 (5.1-11.2)	1.5 (1.1-2.1)	32610 (1700-92000)	14342 (330-54000)	NA	0	7 (58)	7 (58)	-	Doesn't conform to Class C	TC	Human activities
Bhargavi River															
44.	Chandanpur	12	7.7 (7.0-8.5)	7.0 (5.4-9.6)	1.1 (< 1.0-1.8)	2439 (790-4900)	1092 (170-2200)	12 (11-13)	0	0		-	C		
Mangala River															
45.	Malatipatpur	12	7.2 (6.5-7.8)	6.7 (5.3-8.8)	1.3 (1.1-1.7)	1660 (130-3500)	639 (20-1700)	5 (<1.8-4)	0	0	0	-	C		
46.	Golasahi	12	7.8 (6.9-8.5)	7.0 (5.0-10.1)	2.6 (1.6-4.9)	2328 (490-4700)	887 (110-1700)	10 (2-23)	1 (8)	0	0	0	Doesn't conform to Class C	BOD	Human activities
Devi River															
47.	Machhagaon	12	7.6 (6.6-8.2)	7.5 (6.6-8.4)	1.3 (< 1.0-2.3)	1263 (130-2400)	362 (45-1300)	NA	0	0	0	-	C		
Govari River															
48.	Kendrapara U/s	12	7.7 (7.3-8.1)	6.7 (5.2-8.6)	< 1.0 (< 1.0-1.4)	2066 (330-4700)	700 (78-2100)	NA	0	0	0	-	C		
49.	Kendrapara D/s	12	7.5 (7.2-7.8)	6.3 (4.8-7.8)	1.4 (< 1.0-2.1)	3420 (700-4900)	1329 (230-2200)	NA	0	0	0	-	C		
Nuna River															
50.	Bijipur	11	7.3 (6.7-7.8)	7.0 (5.5-11.8)	1.1 (< 1.0-1.6)	2703 (330-4900)	1066 (130-2400)	24 (4-70)	0	0	0	-	C		

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Kusumi River															
51.	Tangi	11	7.1 (6.6-7.8)	6.9 (5.3-8)	1.3 (< 1.0-2.0)	3066 (790-4900)	1420 (330-2800)	18 (2-49)	0	0	0	0	C		
Kansari River															
52.	Banapur	12	7.2 (6.7-7.8)	6.4 (5.0-7.9)	1.6 (< 1.0-2.4)	3069 (790-3500)	1516 (330-2200)	NA	0	0	0	-	C		
Badasankha River															
53.	Langaleswar	10	7.4 (6.9-7.8)	6.0 (3.4-8.9)	1.6 (1.2-2.2)	3825 (2800-4900)	1886 (790-2400)	NA	0	0	0	-	C		
Sabulia River															
54.	Rambha	12	7.5 (6.9-7.9)	6.4 (1.1-10.1)	1.5 (< 1.0-2)	3390 (1300-4900)	1612 (330-2200)	17 (<1.8-33)	0	0	0	0	C		
Ratnachira River															
55.	Kumardihi	12	7.1 (6.9-7.7)	6.3 (5.1-7.6)	1.5 (1.1-2.4)	2239 (790-4700)	873 (130-2200)	16 (<1.8-47)	0	0	0	0	C		
Class 'C' water quality Criteria (IS-2296-1982)			**6.5-8.5**	**4 and above**	**3 or less**	**5000 or less**							**Drinking water source with conventional treatment followed by disinfection**		
Water quality criteria MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000			**6.5-8.5**	**5 and above**	**3 or less**	**-**	**2500 (Maximum Permissible)**	**100**					**Bathing Water**		

NB : The criteria of non-compliance with respect to TC for Class C rivers has been calculated on the following basis:
TC values with more than 5% of samples show more than 20,000 MPN/100 ml and more than 20% of the samples show more than 5000 MPN/ 100 ml.(Ref : IS 2296-1982 foot note)

(b) Brahmani river System (2021)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Sankh River															
1.	Sankh U/s	12	7.6 (6.8-8.4)	7.2 (5.6-10.4)	< 1.0 (< 1.0-1.5)	2448 (490-3500)	620 (45-1300)	NA	0	0	0	-	C		
Koel River															
2.	Koel U/s	12	7.6 (7.1-8.4)	6.9 (5.1-8.8)	1.1 (< 1.0-1.9)	2960 (1300-4700)	1015 (490-2200)	NA	0	0	0	-	C		
Brahmani River															
3.	Panposh U/s	12	7.6 (7.1-8.3)	7.2 (4.6-9.5)	1.0 (< 1.0-1.7)	2839 (490-4700)	1287 (130-2200)	7 (2-14)	0	0	0	-	C		
4.	Panposh D/s	12	7.5 (6.6-8.1)	4.0 (3.0-5.0)	4.6 (1.9-5.7)	28140 (3500-54000)	13020 (1300-35000)	75 (11-170)	11 (92)	8 (67)	7 (58)	3 (25)	Doesn't conform to Class C	DO#,BOD, TC	Waste water of Rourkela town and Steel Plant
5.	Rourkela D/s	12	7.5 (6.8-8)	4.6 (2.7-5.8)	3.9 (1.6-5.3)	17890 (1300-54000)	7377 (490-22000)	36 (8-130)	11 (92)	7 (58)	3 (25)	1 (8)	Doesn't conform to Class C	DO##,BOD, TC	-do-
6.	Rourkela FD/s (Attaghat)	12	7.6 (7.0-8.3)	5.5 (4.2-6.4)	3.2 (1.1-4.2)	2180 (110-4700)	568 (20-1700)	27 (<1.8-49)	8 (67)	0	0	0	Doesn't conform to Class C	BOD	-do-
7.	Rourkela FD/s (Biritola)	12	7.6 (7.0-8.3)	6.2 (5.6-7.2)	2.0 (1.2-2.8)	784 (78-2400)	183 (20-790)	32 (<1.8-79)	0	0	0	0	C		
8.	Bonaigarh	12	7.5 (6.5-8.4)	7.1 (5.9-8.4)	1.1 (< 1.0-1.9)	1057 (130-2400)	295 (45-790)	NA	0	0	0	-	C		

Frequency of violation for DO is 6 times (50% of total observation)
Frequency of violation for DO is 3 times (25% of total observation)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
9.	Rengali	12	7.6 (6.7-8.2)	6.8 (5.4-8.6)	< 1.0 (< 1.0-1.3)	922 (110-3500)	454 (45-2400)	NA	0	0	0	-	C		
10.	Samal	12	7.7 (6.9-8.4)	7.2 (5.4-11)	1.1 (< 1.0-1.8)	1770 (220-3500)	682 (20-1700)	NA	0	0	0	-	C		
11.	Talcher FU/s	12	7.6 (6.9-8.1)	7.4 (6.8-8.8)	1.0 (< 1.0-1.7)	980 (130-2200)	302 (45-790)	2 (<1.8-2)	0	0	0	-	C		
12.	Talcher U/s	12	7.6 (7-8.2)	7.4 (6.8-8.2)	1.1 (< 1.0-1.7)	1638 (130-3500)	651 (68-1700)	6 (<1.8-8)	0	0	0	-	C		
13.	Mandapal	12	7.4 (7.0-7.8)	7.2 (6.4-8.2)	1.4 (< 1.0-2.4)	2776 (230-4700)	1114 (130-2200)	27 (<1.8-79)	0	0	0	-	C		
14.	Talcher D/s	12	7.6 (7.1-8.0)	7.3 (6.4-9.2)	1.7 (1.4-2.2)	2571 (330-4900)	1094 (78-2200)	6.0 (<1.8-13)	0	0	0	-	C		
15.	Talcher FD/s	12	7.6 (7.1-8.2)	7.6 (5.2-10.6)	1.3 (< 1.0-1.8)	990 (170-2800)	288 (45-790)	11 (<1.8-11)	0	0	0	-	C		
16.	Dhenkanal U/s	12	7.4 (7.1-7.8)	7.3 (6.0-8.4)	< 1.0 (< 1.0-1.6)	974 (140-3500)	385 (78-1700)	NA	0	0	0	-	C		
17.	Dhenkanal D/s	12	7.5 (7.2-7.8)	7.0 (6.4-8.0)	1.3 (< 1.0-1.9)	1620 (220-3500)	766 (130-2200)	NA	0	0	0	-	C		
18.	Bhuban	12	7.5 (7.2-7.7)	7.3 (5.4-8.2)	1.2 (< 1.0-2.2)	1838 (170-4300)	787 (45-2100)	NA	0	0	0	-	C		
19.	Kabatabandha	12	7.7 (6.7-8.5)	8.1 (7.4-8.8)	1.1 (< 1.0-1.7)	893 (78-2800)	232 (<1.8-790)	NA	0	0	0	-	C		
20.	Dharmasala U/s	12	7.5 (6.9-8.3)	7.9 (7.0-8.6)	< 1.0 (< 1.0-1.2)	2228 (490-4000)	901 (78-1700)	NA	0	0	0	-	C		
21.	Dharmasala D/s	12	7.4 (6.5-8.2)	7.7 (6.8-8.5)	1.3 (< 1.0-1.8)	3520 (1700-4900)	1451 (330-2400)	NA	0	0	0	-	C		
22.	Pottamundai	12	7.6 (6.8-8.2)	7.6 (6.6-8.8)	1.1 (< 1.0-1.8)	2249 (490-3500)	1897 (110-13300)	NA	0	0	0	-	C		

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Nandira River															
23.	Nandira U/s	12	7.9 (7.5-8.4)	7.3 (6.0-9.4)	1.1 (< 1.0-1.3)	908 (330-2200)	202 (45-490)	<1.8	0	0	0	-	C		
24.	Nandira D/s	12	7.9 (7.5-8.4)	7.7 (5.6-11.2)	1.6 (1.2-1.9)	1779 (700-3500)	426 (78-790)	4 (< 1.8-5)	0	0	0	0	C		
Kisinda Jhor															
25.	Kisindajhor	12	7.9 (7.4-8.3)	6.7 (5.6-9.0)	1.3 (< 1.0-1.9)	1188 (230-3500)	328 (78-790)	NA	0	0	0	-	C		
Kharasrota River															
26.	Khanditara	12	7.5 (7.0-8.0)	8.1 (7.5-8.6)	1.1 (< 1.0-1.9)	1098 (400-1700)	227 (78-490)	NA	0	0	0	-	C		
27.	Binjharpur	12	7.7 (7.3-8.1)	7.8 (6.9-8.5)	1.2 (< 1.0-2.6)	2402 (330-4900)	773 (45-2400)	NA	0	0	0	-	C		
28.	Aul	12	7.6 (7.0-8.1)	7.5 (6.0-9.0)	1.3 (< 1.0-1.7)	1728 (68-4700)	636 (45-2200)	NA	0	0	0	-	C		
Guradih nallah															
29.	Guradih nallah	12	7.6 (6.9-8.5)	3.1 (2.1-4.3)	6.9 (5.2-9.3)	83889 (35000-160000)	31667 (11000-92000)	150 (23-240)	8 (67)	12 (100)	12 (100)	8 (67)	Doesn't conform to Class C	DO#,BOD, TC	Waste water of Rourkela town and Steel Plant
Badajhor															
30.	Badajhor	12	7.7 (7.5-8.3)	7.8 (6.0-11.0)	1.0 (< 1.0-1.7)	2299 (790-3500)	956 (170-2200)	NA	0	0	0	-	C		
Damsala River															
31.	Dayanabil	12	7.6 (7.2-8.0)	7.5 (6.8-8.1)	1.2 (< 1.0-2.0)	1761 (230-3500)	588 (45-2200)	NA	0	0	0	-	C		
Ganda Nallah															
32.	Marthapur	12	7.6 (7.1-7.9)	7.4 (6.7-8.1)	1.3 (< 1.0-2.1)	1643 (170-4300)	499 (45-2100)	NA	0	0	0	-	C		

Frequency of violation for DO is 11 times (92% of total observation)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Lingira River															
33.	Angul U/s	12	8.1 (7.7-8.5)	8.0 (7.0-10.0)	< 1.0 (< 1.0-1.3)	1622 (230-2800)	529 (45-1300)	NA	0	0	0	-	C		
34.	Angul D/s	12	8.1 (7.7-8.5)	7.0 (5.2-11.2)	1.6 (1.1-2.4)	2330 (1300-3500)	852 (130-1700)	NA	0	0	0	-	C		
Ramiala River															
35.	Kamakhyanagar	12	7.6 (7.1-8)	7.1 (5.2-8.8)	< 1.0 (< 1.0-1.2)	1664 (330-3500)	634 (45-1700)	NA	0	0	0	-	C		
Banguru nallah															
36.	Banguru nallah	12	7.3 (6.5-7.7)	7.3 (5.6-9.2)	1.3 (< 1.0-1.9)	1865 (330-3500)	597 (20-1400)	6 (2-13)	0	0	0	0	C		
Singadajhor															
37.	Singadajhor	12	7.6 (6.6-8.4)	7.0 (5.1-10.2)	1.1 (< 1.0-1.6)	1168 (78-3500)	401 (20-1700)	NA	0	0	0	-	C		
Tikira River															
38.	Kaniha U/s	12	7.9 (7.0-8.4)	7.4 (6.2-8.4)	< 1.0 (< 1.0-1.2)	1422 (130-3500)	523 (20-1300)	NA	0	0	0	-	C		
39.	Kaniha D/s	12	7.9 (7.1-8.5)	7.7 (6.0-11.8)	1.4 (< 1.0-1.8)	2638 (700-4900)	986 (130-2200)	NA	0	0	0	-	C		
Bangurusingada jhor															
40.	Bangurusingada jhor	12	7.7 (7.0-8.5)	6.7 (4.0-9.6)	< 1.0 (< 1.0-2.2)	992 (230-2200)	219 (20-490)	NA	0	0	0	-	C		
Karo River															
41.	Barbil	12	7.3 (6.7-7.9)	7.0 (6.6-7.7)	< 1.0 (< 1.0-1.3)	1171 (220-3500)	367 (45-1700)	NA	0	0	0	-	C		
Class 'C' water quality Criteria (IS-2296-1982)			**6.5-8.5**	**4 and above**	**3 or less**	**5000 or less**							**Drinking water source with conventional treatment followed by disinfection**		
Water quality criteria MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000			**6.5-8.5**	**5 and above**	**3 or less**	**-**	**2500 (Maximum Permissible)**	**100**					**Bathing Water**		

NB : The criteria of non-compliance with respect to TC for Class C rivers has been calculated on the following basis:
TC values with more than 5% of samples show more than 20,000 MPN/100 ml and more than 20% of the samples show more than 5000 MPN/ 100 ml.(Ref IS 2296-1982 foot note)

(C) Baitarani river System (2021)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Kundra nallah															
1.	Joda	12	7.2 (6.6-7.8)	6.4 (5.8-7.3)	1.0 (< 1.0-1.9)	2499 (790-4700)	1050 (220-2400)	NA	0	0	0	-	C		
Kusei River															
2.	Deogaon	12	7.7 (7.2-8.3)	7.5 (6.2-8.6)	1.2 (< 1.0-1.7)	2653 (330-4000)	977 (110-2400)	NA	0	0	0	-	C		
Baitarani River															
3.	Naigarh	12	7.3 (6.9-7.9)	6.7 (6.0-7.2)	1.0 (< 1.0-1.5)	787 (68-1300)	182 (20-330)	NA	0	0	0	-	C		
4.	Unchabali	12	7.3 (6.9-8.0)	6.8 (6.1-7.4)	< 1.0 (< 1.0-< 1.0)	1529 (130-3500)	336 (20-1300)	NA	0	0	0	-	C		
5.	Champua	12	7.4 (7.1-8.0)	7.0 (6.4-7.9)	1.1 (< 1.0-1.9)	1553 (78-3500)	440 (20-1300)	NA	0	0	0	-	C		
6.	Tribindha	12	7.5 (7.2-7.9)	7.1 (6.6-7.8)	< 1.0 (< 1.0-1.5)	1435 (130-3500)	487 (20-1700)	NA	0	0	0	-	C		
7.	Joda	12	7.4 (6.8-7.8)	7.0 (6.3-8.2)	1.3 (< 1.0-2.2)	1797 (490-4300)	373 (45-790)	NA	0	0	0	-	C		
8.	Anandpur	12	7.4 (6.7-8.3)	7.3 (5.8-8.5)	1.5 (1.0-2.1)	2193 (790-3500)	819 (220-1700)	NA	0	0	0	-	C		
9.	Jajpur	12	7.7 (7.2-8.1)	7.7 (6.8-8.4)	1.4 (< 1.0-2.5)	2041 (230-4300)	704 (78-2200)	NA	0	0	0	-	C		
10.	Chandbali U/s	12	7.2 (6.5-8.0)	6.9 (6.4-8.4)	< 1.0 (< 1.0-2.1)	2390 (490-4700)	738 (130-2200)	NA	0	0	0	-	C		
11.	Chandbali D/s	12	7.4 (6.7-8.0)	6.5 (6.0-7.2)	1.3 (< 1.0-2.3)	3209 (1300-4900)	1279 (400-2400)	NA	0	0	0	-	C		

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Salandi River															
12.	Bhadrak U/s	12	7.6 (6.8-8.4)	7.2 (6.4-8.4)	< 1.0 (< 1.0-1.3)	1710 (220-3400)	520 (45-1700)	NA	0	0	0	-	C		
13.	Bhadrak D/s	12	7.6 (6.9-8.5)	6.8 (5.6-8.8)	1.5 (< 1.0-2.5)	3000 (1100-4700)	1171 (330-2400)	NA	0	0	0	-	C		
Dhamra River															
14.	Dhamra	12	7.6 (7.1-8.1)	6.6 (6.0-7.6)	1.3 (< 1.0-1.8)	1593 (78-3500)	543 (20-2400)	NA	0	0	0	-	C		
Class 'C' water quality Criteria (IS-2296-1982)			**6.5-8.5**	**4 and above**	**3 or less**	**5000 or less**							**Drinking water source with conventional treatment followed by disinfection**		
Water quality criteria MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000			**6.5-8.5**	**5 and above**	**3 or less**	**-**	**2500 (Maximum Permissible)**	**100**					**Bathing Water**		

NB : The criteria of non-compliance with respect to TC has been calculated on the following basis:

TC values with more than 5% of samples show more than 20,000 MPN/100 ml and more than 20% of the samples show more than 5000 MPN/ 100 ml.

(Ref : IS 2296-1982 foot note)

(D) Rushikulya River System (2021)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Russelkunda Reservoir															
1.	Russelkunda	12	7.7 (6.6-8.5)	8.0 (5.8-12.0)	1.4 (< 1.0-1.8)	3149 (790-4700)	1035 (130-2400)	NA	0	0	0	-	C		
Bada Nadi															
2	Aska	12	8.1 (7.4-8.5)	7.7 (6.0-10.0)	1.2 (< 1.0-2.8)	2327 (490-4700)	717 (130-1700)	NA	0	0	0	-	C		
Rushikula River															
3.	Aska	12	7.9 (7.2-8.5)	7.8 (6.5-11)	1.2 (< 1.0-2.0)	2360 (1100-3500)	942 (130-2200)	NA	0	0	0	-	C		
4.	Nalabanta	12	8.0 (7.4-8.5)	7.3 (5.6-11)	1.2 (< 1.0-1.8)	2818 (790-4900)	1072 (130-2200)	NA	0	0	0	-	C		
5.	Madhopur	12	7.9 (7.4-8.4)	6.8 (6.0-8.5)	1.4 (< 1.0-2.6)	2391 (230-4000)	1092 (45-2200)	9 (2-17)	0	0	0	0	C		
6.	Potagarh	12	7.9 (7.3-8.3)	6.4 (5.0-8.2)	1.3 (< 1.0-2.1)	957 (110-3500)	248 (45-490)	12 (5-17)	0	0	0	0	C		
Class 'C' water quality Criteria (IS-2296-1982)			**6.5-8.5**	**4 and above**	**3 or less**	**5000 or less**							**Drinking water source with conventional treatment followed by disinfection**		
Water quality criteria MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000			**6.5-8.5**	**5 and above**	**3 or less**	**-**	**2500 (Maximum Permissible)**	**100**					**Bathing Water**		

NB : The criteria of non-compliance with respect to TC has been calculated on the following basis:
TC values with more than 5% of samples show more than 20,000 MPN/100 ml and more than 20% of the samples show more than 5000 MPN/ 100 ml.
(Ref : IS 2296-1982 foot note)

(E) Nagavali River System (2021)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
1.	Penta U/s	12	7.5 (7.1-8.3)	7.2 (6.7-7.5)	< 1.0 (< 1.0-1.5)	1425 (220-3500)	395 (78-1400)	NA	0	0	0	-	C		
2.	J.K. Pur D/S	12	7.6 (7.0-8.1)	6.6 (6.2-6.8)	1.4 (< 1.0-1.9)	1856 (330-4700)	743 (78-2200)	21 (4-49)	0	0	0	0	C		
3.	Rayagada D/S	12	7.7 (7.4-8.1)	7.2 (6.9-7.6)	1.1 (< 1.0-1.6)	1374 (110-3500)	488 (20-1300)	24 (13-33)	0	0	0	0	C		
Class 'C' water quality Criteria (IS-2296-1982)			**6.5-8.5**	**4 and above**	**3 or less**	**5000 or less**							**Drinking water source with conventional treatment followed by disinfection**		
Water quality criteria MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000			**6.5-8.5**	**5 and above**	**3 or less**	**-**	**2500 (Maximum Permissible)**	**100**					**Bathing Water**		

NB : The criteria of non-compliance with respect to TC has been calculated on the following basis:
TC values with more than 5% of samples show more than 20,000 MPN/100 ml and more than 20% of the samples show more than 5000 MPN/ 100 ml.
(Ref : IS 2296-1982 foot note)

(F) Subarnarekha river system (2021)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Subarnarekha River															
1.	Rajghat	12	8.1 (7.4-8.5)	7.3 (6.0-8.8)	< 1.0 (< 1.0-1.7)	1092 (130-2800)	232 (20-490)	NA	0	0	0	-	C		
Class 'C' water quality Criteria (IS-2296-1982)			**6.5-8.5**	**4 and above**	**3 or less**	**5000 or less**							**Drinking water source with conventional treatment followed by disinfection**		
Water quality criteria MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000			**6.5-8.5**	**5 and above**	**3 or less**	**-**	**2500 (Maximum Permissible)**	**100**					**Bathing Water**		

NB : The criteria of non-compliance with respect to TC has been calculated on the following basis:

TC values with more than 5% of samples show more than 20,000 MPN/100 ml and more than 20% of the samples show more than 5000 MPN/ 100 ml.

(Ref : IS 2296-1982 foot note)

(G) Budhabalanga river system (2021)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Budhabalanga River															
1.	Baripada D/s	12	7.9 (7.4-8.4)	7.3 (6.0-8.8)	1.4 (< 1.0-2.1)	3113 (940-4900)	1358 (330-2300)	13 (5-27)	0	0	0	0	C		
2.	Balasore U/s	12	7.8 (7.4-8.2)	7.3 (6.0-8.4)	1.2 (< 1.0-2.2)	1974 (330-3500)	734 (78-1700)	NA	0	0	0	-	C		
3.	Balasore D/s	12	7.6 (7.2-8.1)	6.6 (5.2-8.0)	1.6 (< 1.0-2.5)	3755 (1700-4900)	1482 (330-2300)	NA	0	0	0	-	C		
Sone River															
4.	Hatigond	12	7.8 (7.4-8.3)	7.2 (6.4-8.4)	< 1.0 (< 1.0-1.8)	801 (140-1700)	241 (20-490)	NA	0	0	0	-	C		
Class 'C' water quality Criteria (IS-2296-1982)			**6.5-8.5**	**4 and above**	**3 or less**	**5000 or less**							**Drinking water source with conventional treatment followed by disinfection**		
Water quality criteria MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000			**6.5-8.5**	**5 and above**	**3 or less**	**-**	**2500 (Maximum Permissible)**	**100**					**Bathing Water**		

NB : The criteria of non-compliance with respect to TC has been calculated on the following basis:

TC values with more than 5% of samples show more than 20,000 MPN/100 ml and more than 20% of the samples show more than 5000 MPN/ 100 ml.
(Ref : IS 2296-1982 foot note)

(H) Kolab river system (2021)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Kerandi River															
1.	Sunabeda	12	7.5 (6.8-8.3)	7.2 (6.8-7.5)	< 1.0 (< 1.0-1.3)	1465 (78-3500)	553 (20-1700)	NA	0	0	0	-	C		
Class 'C' water quality Criteria (IS-2296-1982)			**6.5-8.5**	**4 and above**	**3 or less**	**5000 or less**							**Drinking water source with conventional treatment followed by disinfection**		
Water quality criteria MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000			**6.5-8.5**	**5 and above**	**3 or less**	**-**	**2500 (Maximum Permissible)**	**100**					**Bathing Water**		

NB : The criteria of non-compliance with respect to TC has been calculated on the following basis:

TC values with more than 5% of samples show more than 20,000 MPN/100 ml and more than 20% of the samples show more than 5000 MPN/ 100 ml.
(Ref : IS 2296-1982 foot note)

(I) Vansadhara river system (2021)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Vansadhara River															
1.	Muniguda	12	7.8 (7.4-8.3)	7.1 (6.8-7.4)	< 1.0 (< 1.0-1.3)	1324 (45-3500)	385 (20-1300)	NA	0	0	0	-	C		
2.	Gunupur	12	7.7 (7.3-8,0)	7.3 (6.8-7.6)	< 1.0 (< 1.0-1.2)	1411 (460-4000)	494 (130-1700)	NA	0	0	0	-	C		
Class 'C' water quality Criteria (IS-2296-1982)			**6.5-8.5**	**4 and above**	**3 or less**	**5000 or less**							**Drinking water source with conventional treatment followed by disinfection**		
Water quality criteria MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000			**6.5-8.5**	**5 and above**	**3 or less**	**-**	**2500 (Maximum Permissible)**	**100**					**Bathing Water**		

NB : The criteria of non-compliance with respect to TC has been calculated on the following basis:
TC values with more than 5% of samples show more than 20,000 MPN/100 ml and more than 20% of the samples show more than 5000 MPN/ 100 ml.
(Ref : IS 2296-1982 foot note)

(J) Indravati river system (2021)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Indravati River															
1.	Nawarangpur	12	7.7 (7.2-8.2)	7.2 (6.9-7.4)	< 1.0 (< 1.0-1.2)	1656 (110-3500)	478 (20-1400)		0	0	0	-	C		
Class 'C' water quality Criteria (IS-2296-1982)			**6.5-8.5**	**4 and above**	**3 or less**	**5000 or less**							**Drinking water source with conventional treatment followed by disinfection**		
Water quality criteria MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000			**6.5-8.5**	**5 and above**	**3 or less**	**-**	**2500 (Maximum Permissible)**	**100**					**Bathing Water**		

NB : The criteria of non-compliance with respect to TC has been calculated on the following basis:
TC values with more than 5% of samples show more than 20,000 MPN/100 ml and more than 20% of the samples show more than 5000 MPN/ 100 ml.
(Ref : IS 2296-1982 foot note)

(K) Bahuda river system (2021)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)	BOD	TC	FC	FS			
Bahuda River															
1.	Damodarpally	12	8.0 (7.2-8.5)	7.8 (5.5-11.5)	1.1 (< 1.0-1.8)	1320 (20-3500)	518 (78-1300)	NA	0	0	0	-	C		
Class 'C' water quality Criteria (IS-2296-1982)			**6.5-8.5**	**4 and above**	**3 or less**	**5000 or less**							**Drinking water source with conventional treatment followed by disinfection**		
Water quality criteria MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000			**6.5-8.5**	**5 and above**	**3 or less**	**-**	**2500 (Maximum Permissible)**	**100**					**Bathing Water**		

NB : The criteria of non-compliance with respect to TC has been calculated on the following basis:
TC values with more than 5% of samples show more than 20,000 MPN/100 ml and more than 20% of the samples show more than 5000 MPN/ 100 ml.
(Ref : IS 2296-1982 foot note)

Water quality with respect to Other Parameters during 2021 (January-December)

(A) Mahanadi River System (2021)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal-inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
Ib River																
1.	Sundargarh	76 (<10-274)	68 (32-96)	8.1 (6.3-10.9)	0.56 (0.56-0.56)	0.013 (0-0.045)	3.36 (<1.5-6.72)	157 (114-196)	0.42 (0.23-0.62)	19.75 (11.04-27.69)	<0.5 (<0.5-<0.5)	112 (108-116)	66 (40-84)	8 (6-12)	15.4 (5.1-36.4)	0.324 (0.155-0.738)
2.	Jharsuguda	77 (<10-210)	63 (24-100)	9.8 (6.9-15.4)	0.672 (0.56-1.12)	0.006 (0-0.055)	2.24 (<1.5-4.48)	173 (134-286)	0.48 (0.24-0.83)	21.21 (11.62-36.85)	<0.5 (<0.5-<0.5)	142 (104-180)	69 (40-108)	13 (6-22)	17.7 (6.8-30.5)	0.401 (0.123-1.14)
3.	Brajrajnagar U/s	76 (<10-222)	64 (32-96)	8.5 (6.9-12.9)	1.008 (0.56-1.68)	0.012 (0-0.059)	2.74 (<1.5-5.6)	166 (126-199)	0.46 (0.26-0.66)	21.1 (13.18-31.67)	<0.5 (<0.5-<0.5)	110 (108-112)	64 (44-88)	13 (6-36)	17.3 (8.3-26.5)	0.389 (0.127-1.06)
4.	Brajrajnagar D/s	73 (<10-281)	63 (36-92)	12.4 (7.9-16.1)	1.307 (0.56-3.36)	0.024 (0-0.134)	4.17 (1.68-8.4)	185 (124-346)	0.51 (0.32-0.72)	22.43 (16.23-30.13)	<0.5 (<0.5-<0.5)	138 (116-160)	70 (40-128)	16 (6-42)	21.5 (12.9-39.5)	0.442 (0.126-1.46)
Bheden River																
5.	Jharsuguda	46 (<10-119)	78 (40-124)	11.3 (7.3-15.4)	1.12 (0.56-3.36)	0.04 (0-0.328)	3.42 (<1.5-5.6)	233 (132-464)	0.5 (0.25-1.09)	19.33 (10.06-29.52)	<0.5 (<0.5-1.096)	210 (188-232)	91 (56-148)	16 (10-42)	27.2 (7.7-57.7)	0.807 (0.272-2.05)
Hirakud Reservoir																
6.	Hirakud reservoir	12 (<10-38)	82 (64-112)	8.5 (7-11.4)	0.84 (0.56-1.12)	0.014 (0-0.045)	2.52 (<1.5-3.36)	203 (178-241)	0.4 (0.22-0.62)	17.14 (9.25-25.4)	<0.5 (<0.5-<0.5)	138 (132-144)	87 (68-112)	12 (6-16)	20.1 (9.3-35.6)	0.347 (0.268-0.476)
Power Channel																
7.	Power Channel U/s	77 (<10-827)	82 (60-104)	7.6 (6.3-11.4)	0.56 (0.56-0.56)	0.006 (0-0.022)	3.01 (1.68-6.72)	197 (162-228)	0.4 (0.22-0.64)	17.18 (9.58-26.4)	<0.5 (<0.5-0.8)	142 (136-148)	84 (60-104)	12 (6-18)	19.9 (8.7-34.9)	0.323 (0.205-0.497)
8.	Power Channel D/s	22 (<10-112)	91 (68-112)	9.5 (7.1-15.2)	0.653 (0.56-1.12)	0.011 (0-0.073)	3.36 (<1.5-6.72)	233 (176-408)	0.49 (0.21-1.24)	18.25 (8.98-33.26)	<0.5 (<0.5-<0.5)	144 (144-144)	95 (64-116)	17 (6-58)	21.9 (9.3-36.1)	0.337 (0.239-0.489)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal-inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
Mahanadi River																
9.	Sambalpur U/s	23 (<10-120)	86 (60-120)	7.6 (6.3-10.8)	0.56 (0.56-0.56)	0.011 (0-0.07)	2.38 (<1.5-4.48)	204 (172-230)	0.4 (0.19-0.56)	17.12 (7.78-22.87)	<0.5 (<0.5-<0.5)	132 (128-136)	86 (60-124)	10 (6-14)	20.6 (9.9-36.5)	0.323 (0.225-0.447)
10.	Sambalpur D/s	24 (<10-74)	91 (68-128)	12.5 (9.5-15.2)	0.84 (0.56-1.68)	0.014 (0-0.067)	3.5 (<1.5-6.16)	229 (175-280)	0.53 (0.26-1.49)	19.49 (9.63-42.71)	0.52 (<0.5-0.967)	148 (144-152)	97 (64-140)	16 (8-34)	22.3 (12-37.6)	0.358 (0.257-0.506)
11.	Sambalpur FD/s at Shankarmath	17 (<10-74)	93 (68-124)	10.1 (7.1-11.8)	0.653 (0.56-1.12)	0.005 (0-0.022)	3.01 (<1.5-5.6)	224 (180-285)	0.49 (0.25-1.02)	19.04 (10.93-33.24)	<0.5 (<0.5-0.602)	158 (148-168)	92 (68-128)	15 (6-26)	21.1 (8.8-33.9)	0.417 (0.268-0.663)
12.	Sambalpur FFD/s at Huma	20 (<10-85)	90 (64-104)	8.5 (6.3-11.2)	0.784 (0.56-1.12)	0.008 (0-0.045)	3.57 (1.68-6.72)	212 (145-246)	0.46 (0.24-0.82)	18.48 (10.69-30.21)	<0.5 (<0.5-<0.5)	136 (132-140)	87 (60-104)	12 (6-20)	19.8 (13.2-34.3)	0.358 (0.252-0.509)
13.	Sonepur U/s	12 (<10-38)	96 (60-160)	7.3 (6.3-7.8)	0.56 (0.56-0.56)	0.006 (0-0.022)	3.22 (<1.5-5.04)	227 (176-347)	0.44 (0.21-1.4)	17.13 (8.9-41.29)	<0.5 (<0.5-<0.5)	140 (136-144)	92 (64-120)	12 (6-36)	19.9 (10.1-34.1)	0.394 (0.237-0.757)
14.	Sonepur D/s	23 (<10-138)	98 (72-116)	9.5 (6.3-15.2)	0.56 (0.56-0.56)	0.015 (0-0.07)	3.08 (1.68-3.92)	229 (160-316)	0.44 (0.22-0.69)	17.16 (9.62-25.44)	<0.5 (<0.5-<0.5)	166 (164-168)	97 (64-124)	12 (6-20)	19.3 (11.7-33.4)	0.393 (0.225-0.602)
15.	Tikarapada	30 (<10-102)	97 (56-180)	8.2 (6.6-11.5)	0.56 (0.56-0.56)	0.015 (0-0.045)	3.67 (<1.5-6.72)	228 (142-437)	0.49 (0.25-0.96)	19.25 (12.51-32.83)	<0.5 (<0.5-<0.5)	114 (112-116)	93 (68-180)	12 (6-22)	15 (7.1-21.8)	0.336 (0.052-0.675)
16.	Narasinghpur	20 (<10-66)	89 (64-128)	7.6 (6.5-11.3)	0.8 (0.56-1.12)	0.013 (0-0.09)	3.53 (<1.5-8.4)	205 (164-266)	0.43 (0.26-0.61)	18.35 (12.69-24.27)	<0.5 (<0.5-<0.5)	156 (152-160)	82 (64-124)	11 (6-16)	17.3 (10-32.8)	0.354 (0.256-0.474)
17.	Munduli	25 (<10-109)	89 (68-124)	8.2 (6.9-11.8)	0.684 (0.56-1.12)	0.011 (0-0.036)	3.58 (<1.5-7.84)	205 (162-247)	0.44 (0.29-0.64)	18.52 (13.92-23.71)	<0.5 (<0.5-<0.5)	162 (156-168)	85 (64-116)	11 (6-18)	17 (10.1-32.1)	0.34 (0.255-0.472)
18.	Cuttack U/s	13 (<10-53)	89 (72-112)	8 (6.5-11.8)	0.72 (0.56-1.12)	0.028 (0-0.14)	3.02 (1.68-5.6)	200 (169-224)	0.44 (0.32-0.64)	18.34 (12.64-23.21)	<0.5 (<0.5-<0.5)	150 (144-156)	87 (68-116)	11 (6-16)	17.1 (10.1-32.9)	0.321 (0.198-0.449)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal-inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
19.	Cuttack D/s	23 (<10-76)	94 (76-116)	12.4 (7.1-17)	0.809 (0.56-1.68)	0.014 (0-0.067)	3.92 (<1.5-7.28)	247 (192-629)	0.68 (0.24-3.43)	21.21 (7.75-58.15)	<0.5 (<0.5-<0.5)	154 (148-160)	95 (68-200)	25 (6-126)	18 (8.8-31.7)	0.345 (0.282-0.457)
20.	Cuttack FD/s	21 (<10-72)	89 (64-108)	9.7 (7.1-14.5)	0.56 (0.56-0.56)	0.018 (0-0.087)	2.8 (<1.5-6.16)	211 (180-298)	0.48 (0.25-1.23)	18.84 (8.44-36.48)	<0.5 (<0.5-<0.5)	138 (128-148)	91 (68-180)	14 (8-34)	15.1 (8.3-21.7)	0.324 (0.268-0.451)
21.	Paradeep U/s	44 (11-109)	92 (52-144)	8.8 (6.7-18.2)	0.728 (0.56-1.68)	0.015 (0-0.059)	4.09 (<1.5-12.32)	3555 (183-13380)	7.62 (0.46-22.62)	46.55 (20.34-76.09)	0.794 (<0.5-1.405)	2814 (1896-3732)	676 (72-2600)	1114 (10-3394)	120.6 (11.1-681)	0.554 (0.285-1.26)
22.	Paradeep D/s	106 (28-229)	109 (76-144)	18.2 (10.3-36.4)	0.809 (0.56-1.12)	0.021 (0-0.073)	4.48 (1.68-7.28)	13137 (730-42730)	23.71 (2.02-90.2)	61.33 (28.93-87.56)	0.882 (<0.5-1.431)	32352 (29340-35364)	1969 (104-3660)	5364 (186-19986)	620 (35.3-1794.2)	1.004 (0.417-1.5)
Ong River																
23.	Dharuakhamma	14 (<10-50)	124 (88-172)	8.3 (6.3-15.2)	0.56 (0.56-0.56)	0.012 (0-0.036)	3.43 (1.68-5.6)	275 (187-367)	0.5 (0.24-0.83)	17.69 (9.17-25.44)	<0.5 (<0.5-0.839)	206 (180-232)	115 (76-136)	16 (8-32)	18.2 (<5-38.8)	0.51 (0.242-0.647)
Tel River																
24.	Monmunda	52 (<10-227)	88 (72-112)	8.6 (6.3-15.2)	0.56 (0.56-0.56)	0.009 (0-0.036)	2.8 (<1.5-5.6)	198 (167-278)	0.46 (0.22-0.83)	19.08 (10.11-30.91)	<0.5 (<0.5-0.73)	134 (132-136)	83 (60-108)	13 (6-28)	12.9 (<5-34.6)	0.306 (0.116-0.455)
Kathajodi River																
25.	Cuttack U/s	26 (<10-79)	88 (76-104)	8.1 (6.7-11.8)	0.64 (0.56-1.12)	0.011 (0-0.055)	3.19 (1.68-6.16)	205 (179-234)	0.49 (0.35-0.71)	20.34 (15.06-26.86)	<0.5 (<0.5-<0.5)	136 (120-152)	80 (72-92)	12 (6-18)	15 (9-22.9)	0.323 (0.26-0.445)
26.	Cuttack D/s	25 (<10-59)	91 (72-120)	15.5 (7.8-22.6)	0.84 (0.56-1.68)	0.027 (0-0.134)	4.42 (<1.5-9.52)	232 (189-348)	0.56 (0.15-1.23)	20.71 (6.16-39.62)	<0.5 (<0.5-<0.5)	148 (148-148)	92 (64-124)	20 (6-62)	15.4 (9.4-24.3)	0.3 (0.165-0.397)
27.	Cuttack FD/s at Mattagajpur)	17 (<10-36)	102 (64-144)	12.9 (7.6-16.7)	0.77 (0.56-1.12)	0.027 (0-0.14)	3.75 (<1.5-7.28)	260 (191-322)	0.73 (0.34-1.23)	25.78 (12.38-37.2)	<0.5 (<0.5-<0.5)	200 (196-204)	90 (64-136)	20 (6-42)	17.8 (10.2-34.3)	0.257 (0.134-0.408)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal -inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
28.	Cuttack FFD/s at Kamasasan	26 (<10-136)	93 (64-128)	8.9 (7.2-13.3)	0.7 (0.56-1.12)	0.015 (0-0.087)	3.02 (1.68-6.16)	224 (172-296)	0.54 (0.35-0.78)	21.47 (14.97-25.85)	<0.5 (<0.5-<0.5)	164 (140-188)	82 (56-112)	15 (8-34)	15 (5.2-21.9)	0.304 (0.168-0.428)
Serua River																
29.	Cuttack FFD/s at Sankhatarasa	24 (<10-82)	97 (72-140)	14.5 (7.8-18.9)	0.952 (0.56-1.68)	0.029 (0-0.084)	4.76 (<1.5-9.52)	219 (168-311)	0.48 (0.31-0.89)	19.29 (13.97-31.22)	<0.5 (<0.5-<0.5)	148 (144-152)	85 (68-100)	12 (6-20)	14.2 (8.3-21.4)	0.307 (0.167-0.443)
Kuakhai River																
30.	Bhubaneswar FU/s	47 (<10-315)	88 (72-128)	7.7 (6.9-11.8)	0.672 (0.56-1.12)	0.011 (0-0.039)	2.86 (1.68-5.04)	210 (154-329)	0.59 (0.23-1.53)	21.81 (11.24-41.51)	<0.5 (<0.5-<0.5)	194 (168-220)	81 (64-108)	13 (6-36)	14.6 (8.6-26.3)	0.29 (0.058-0.451)
31.	Bhubaneswar U/s	24 (<10-88)	91 (60-128)	9 (6.9-11.8)	0.72 (0.56-1.12)	0.01 (0-0.055)	3.24 (1.68-6.16)	219 (171-309)	0.58 (0.25-1.31)	21.89 (12.24-38.4)	<0.5 (<0.5-1.335)	188 (168-208)	82 (68-116)	15 (6-38)	15.9 (8.1-26.6)	0.257 (0.079-0.448)
Daya River																
32.	Gelapur	35 (<10-158)	91 (64-116)	9.7 (7-14.7)	0.56 (0.56-0.56)	0.017 (0-0.087)	2.18 (<1.5-3.92)	217 (151-287)	0.56 (0.35-1.25)	21.17 (15.72-35.36)	<0.5 (<0.5-<0.5)	190 (172-208)	84 (60-108)	15 (10-36)	16 (7.7-21.5)	0.342 (0.19-0.864)
33.	Bhubaneswar D/s	60 (33-104)	89 (48-148)	20.5 (10.6-29.3)	1.54 (0.56-4.48)	0.011 (0-0.056)	5.54 (2.24-12.88)	284 (187-461)	0.92 (0.44-1.49)	29.64 (17.27-40.59)	<0.5 (<0.5-<0.5)	252 (208-296)	93 (56-136)	30 (20-42)	23.6 (8.7-51.1)	0.983 (0.341-2.19)
34.	Bhubaneswar FD/s	50 (13-106)	76 (24-140)	17.5 (10.5-22.9)	0.77 (0.56-1.68)	0.005 (0-0.022)	2.92 (1.68-5.6)	241 (107-410)	0.85 (0.3-1.75)	28.58 (16.76-42.93)	<0.5 (<0.5-<0.5)	224 (188-260)	79 (48-108)	25 (10-44)	20.3 (6.1-38.1)	0.929 (0.211-1.93)
35.	Kanas	24 (<10-56)	81 (64-104)	12.2 (7.1-15.1)	1.04 (0.56-2.24)	0.005 (0-0.034)	3.8 (1.68-6.16)	279 (179-589)	0.95 (0.49-2.62)	28.96 (17.89-48.07)	<0.5 (<0.5-<0.5)	148 (148-148)	87 (64-120)	37 (16-136)	21 (6.6-33.8)	0.684 (0.249-1.19)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal-inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
Gangua River																
36.	Near Rajdhani Engg. College	51 (15-119)	89 (44-152)	37.2 (20.7-66.7)	1.867 (0.56-5.04)	0.015 (0-0.073)	6.47 (2.24-10.64)	273 (159-616)	0.95 (0.41-1.87)	30.21 (13.64-41.34)	<0.5 (<0.5-<0.5)	232 (220-244)	89 (52-160)	27 (10-86)	21.4 (5.7-56)	0.637 (0.121-4.26)
37.	Palasuni	106 (16-566)	64 (4-128)	45 (28.3-56.6)	4.667 (1.12-9.52)	0	10.33 (6.16-15.12)	407 (176-639)	1.8 (0.38-3.49)	38.72 (17.84-60.04)	<0.5 (<0.5-<0.5)	330 (268-392)	108 (64-200)	79 (18-186)	23 (5.1-57.7)	1.025 (0.165-1.87)
38.	Samantrapur	95 (14-433)	91 (32-156)	43.7 (21.1-73.3)	3.484 (0.56-8.96)	0	8.96 (2.8-14)	394 (226-635)	1.64 (0.28-3.03)	38.1 (10.73-55.51)	<0.5 (<0.5-<0.5)	334 (296-372)	104 (60-132)	65 (8-186)	24.7 (7.2-42.1)	1.003 (0.633-1.39)
39.	Vadimula	38 (14-79)	84 (56-128)	25.7 (17.2-51.3)	2.053 (0.56-7.84)	0.002 (0-0.011)	5.79 (2.24-10.64)	304 (141-701)	1.05 (0.35-2.79)	29.58 (15.91-47.11)	<0.5 (<0.5-<0.5)	340 (248-432)	87 (56-148)	45 (8-176)	16.8 (8.5-29.1)	0.8 (0.174-1.46)
Birupa River																
40.	Choudwar D/s	16 (<10-33)	92 (64-124)	7.7 (6.7-11.1)	0.63 (0.56-1.12)	0.015 (0-0.073)	2.91 (<1.5-3.92)	210 (163-284)	0.45 (0.24-0.84)	17.86 (10.71-28.14)	<0.5 (<0.5-<0.5)	150 (132-168)	89 (64-120)	12 (6-24)	15.3 (5.3-23.5)	0.324 (0.046-0.563)
Kushabhadra River																
41.	Bhingarpur	23 (<10-55)	87 (24-124)	11.1 (7.1-18.0)	0.72 (0.56-1.68)	0.004 (0-0.021)	3.17 (1.68-6.16)	245 (154-350)	0.68 (0.3-1.64)	23.64 (11.81-41.03)	<0.5 (<0.5-<0.5)	160 (144-176)	87 (64-112)	26 (12-58)	18.8 (9.8-53.5)	0.284 (0.094-0.668)
42.	Nimapara	22 (<10-62)	86 (52-108)	11.2 (6.3-15.1)	0.91 (0.56-2.24)	0.012 (0-0.09)	3.98 (2.24-11.2)	214 (151-248)	0.61 (0.28-1.09)	23.22 (12.77-35.36)	<0.5 (<0.5-<0.5)	136 (128-144)	81 (64-128)	20 (10-36)	12.8 (7.6-17.5)	0.295 (0.109-0.814)
43.	Gop	24 (<10-94)	91 (48-124)	9.6 (7.1-14.5)	0.56 (0.56-0.56)	0.005 (0-0.017)	2.74 (1.68-4.48)	212 (151-308)	0.59 (0.37-0.98)	23.01 (13.83-34.37)	<0.5 (<0.5-<0.5)	170 (164-176)	83 (56-124)	16 (12-22)	13.3 (7.2-16.9)	0.289 (0.128-0.758)
Bhargavi River																
44.	Chandanpur	19 (<10-52)	94 (68-128)	12 (7.1-34.8)	0.653 (0.56-1.12)	0.011 (0-0.087)	3.24 (1.68-7.28)	278 (176-526)	0.85 (0.32-2.14)	26.09 (11.61-44.12)	<0.5 (<0.5-0.505)	186 (184-188)	101 (68-144)	33 (10-96)	21.4 (6.2-43.1)	0.365 (0.24-0.701)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal-inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
Mangala River																
45.	Malatipatapur	39 (<10-291)	94 (76-148)	10.3 (7.3-12)	0.56 (0.56-0.56)	0.002 (0-0.013)	2.49 (1.68-5.6)	271 (184-553)	0.7 (0.3-1.63)	23.32 (12.88-31.94)	<0.5 (<0.5-<0.5)	170 (144-196)	109 (64-260)	25 (10-76)	20 (8.1-57.9)	0.318 (0.212-0.64)
46.	Golasahi	55 (16-126)	132 (72-220)	21 (13.9 - 37.4)	0.63 (0.56-1.12)	0.022 (0-0.087)	3.36 (1.68-5.6)	10573 (245-38550)	23.08 (0.55-74.61)	62.81 (21.75-91.21)	0.519 (<0.5-1.843)	2994 (2020-3968)	1216 (64-3800)	4402 (20-16988)	304.3 (9.7-1364.7)	0.5 (0.213-0.946)
Devi River																
47.	Machhagaon	39 (<10-103)	90 (32-128)	14 (7.7-22.2)	0.684 (0.56-1.12)	0.013 (0-0.045)	2.91 (<1.5-5.6)	4606 (169-38290)	11.45 (0.33-74.44)	38 (15.22-84.75)	<0.5 (<0.5-<0.5)	20272 (10268-30276)	553 (68-3500)	2018 (8-17987)	66.9 (8.1-341.2)	0.49 (0.118-1.008)
Gobari River																
48.	Kendrapada U/s	37 (10-85)	89 (36-164)	8.5 (6.9-11.1)	0.72 (0.56-1.12)	0.011 (0-0.034)	3.53 (<1.5-8.4)	519 (188-1290)	1.74 (0.7-3.03)	39.94 (25.55-50.2)	<0.5 (<0.5-0.821)	290 (176-404)	140 (44-380)	109 (26-346)	22.6 (5.1-33.2)	0.334 (0.128-0.823)
49.	Kendrapada D/s	43 (10-108)	94 (36-168)	12.8 (10.3 - 15.4)	0.747 (0.56-1.68)	0.01 (0-0.034)	3.75 (2.24-6.72)	545 (180-1400)	1.66 (0.61-4.18)	35.85 (26.02-51.31)	<0.5 (<0.5-<0.5)	296 (136-456)	166 (48-600)	116 (16-396)	23.3 (6.4-42.6)	0.375 (0.143-1.24)
Nuna River																
50.	Bijipur	35 (15-85)	93 (64-124)	10.2 (6.7-14.4)	0.747 (0.56-1.12)	0.003 (0-0.022)	3.55 (2.24-5.6)	228 (186-322)	0.6 (0.3-1.07)	22.24 (12.43-36.85)	<0.5 (<0.5-<0.5)	172 (156-188)	88 (56-124)	20 (8-38)	16.1 (5.4-26.1)	0.42 (0.207-1.16)
Kusumi River																
51.	Tangi	50 (<10-103)	88 (44-152)	10.5 (6.8-18.7)	0.56 (0.56-0.56)	0.001 (0-0.006)	2.45 (<1.5-3.92)	203 (115-407)	0.59 (0.27-1.63)	22.7 (12.24-40.73)	<0.5 (<0.5-<0.5)	182 (108-256)	79 (40-108)	15 (6-56)	10.4 (5.7-16)	0.309 (0.122-0.897)
Kansari River																
52.	Banapur	41 (<10-117)	92 (52-148)	12.7 (7.8-15.4)	0.672 (0.56-1.12)	0.001 (0-0.006)	2.8 (<1.5-5.04)	247 (132-360)	0.78 (0.35-1.83)	26.52 (17.02-48.24)	<0.5 (<0.5-<0.5)	198 (176-220)	81 (52-128)	27 (10-54)	11.3 (8-17.7)	0.246 (0.071-0.594)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal-inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
Badasankha River																
53.	Langaleswar	42 (<10-86)	162 (72-244)	12.3 (6.8-18.2)	0.56 (0.56-0.56)	0.005 (0-0.020)	3.43 (1.68-4.48)	1720 (196-13050)	1.26 (0.25-3.77)	27.9 (10.4-51.35)	<0.5 (<0.5-<0.5)	196 (148-244)	205 (68-780)	629 (8-5600)	38.4 (<5-234.1)	0.416 (0.129-0.751)
Sabulia River																
54.	Rambha	19 (<10-47)	186 (56-344)	13.4 (10.2-19.2)	0.56 (0.56-0.56)	0.007 (0-0.022)	2.8 (<1.5-5.6)	459 (202-899)	1.16 (0.3-1.96)	29.66 (12.92-39.21)	<0.5 (<0.5-<0.5)	232 (204-260)	153 (64-260)	51 (14-106)	18.6 (6.1-37.4)	0.551 (0.241-0.987)
Ratnachira River																
55.	Kumardihi	33 (<10-81)	109 (68-160)	13.5 (7.3-20)	0.64 (0.56-1.12)	0.002 (0-0.011)	2.99 (<1.5-6.16)	462 (206-1611)	2.06 (0.39-13.49)	33.41 (15.8-75.14)	<0.5 (<0.5-0.702)	176 (148-204)	114 (60-240)	95 (12-546)	14.4 (5.3-34.7)	0.366 (0.197-0.867)
❖ **Class 'C'**		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ **Class 'E'**		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

❖ **Tolerance limit for Inland Surface water bodies (IS-2296-1982)**

Class 'C' :Drinking water source with conventional treatment followed by disinfection

Class 'E' :Irrigation water quality

(A) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
Ib River											
1.	Sundergarh	1.665 (0.292-4.064)	<0.05 (<0.05-0.062)	NA	0.272	0.004	0.009	0.006	<0.0005	0.00074	0.007
2.	Jharsuguda	1.946 (0.649-7.047)	<0.05 (<0.05-0.068)	NA	0.335	0.012	0.004	0.007	0.0014	0.00074	0.011
3.	Brajarajnagar U/S	1.843 (0.408-3.721)	<0.05 (<0.05-<0.05)	NA	0.177	0.008	0.003	0.009	0.0011	0.00074	0.010
4.	Brajarajnagar D/S	1.677 (0.583-3.815)	<0.05 (<0.05-0.054)	NA	0.172	0.014	0.005	0.005	0.0022	0.00074	0.010
Bheden River											
5.	Bheden	1.748 (0.603-3.905)	<0.05 (<0.05-<0.05)	NA	0.095	0.023	0.002	0.005	0.0021	0.00074	0.011
Hirakud reservoir											
6.	Hirakud	1.948 (0.121-5.006)	0.081 (<0.05-0.601)	NA	0.039	0.004	0.015	0.020	0.0012	0.00037	0.003
Power Channel											
7.	Power Channel U/s	2.247 (0.508-6.194)	<0.05 (<0.05-0.212)	NA	0.035	0.004	0.010	0.030	0.0014	0.00037	0.004
8.	Power Channel D/s	2.161 (0.801-6.237)	0.108 (<0.05-0.814)	NA	0.046	0.005	0.001	0.010	0.0018	0.00074	0.004
Mahanadi River											
9.	Sambalpur U/s	2.08 (0.295-5.055)	<0.05 (<0.05-0.252)	NA	0.093	0.004	0.002	0.004	0.0010	0.00037	0.002
10.	Sambalpur D/s	1.668 (0.626-4.757)	0.161 (<0.05-0.831)	NA	0.080	0.006	0.002	0.005	0.0020	0.00074	0.002
11.	Sambalpur FD/s at Shankarmath	2.74 (1.06-6.544)	0.118 (<0.05-0.487)	NA	0.086	0.005	0.002	0.006	0.0011	0.00037	0.002
12.	Sambalpur FFD/s Huma	1.325 (0.544-2.251)	0.105 (<0.05-0.657)	NA	0.153	0.005	0.001	0.003	0.0013	0.00037	0.007
13.	Sonepur U/s	1.638 (0.65-2.961)	0.08 4 (<0.05-0.61)	NA	0.089	0.007	0.001	0.006	0.0006	0.00037	0.005

NA : Not analysed

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
14.	Sonepur D/s	2.16 (0.405-10.689)	0.061 (<0.05-0.288)	NA	0.029	0.010	0.003	0.003	0.0013	0.00037	0.006
15.	Tikarapada	4.716 (0.602-40.877)	<0.05 (<0.05-0.139)	NA	0.542	0.004	0.001	0.002	<0.0005	0.00037	0.009
16.	Narasinghpur	1.78 (0.584-3.48)	<0.05 (<0.05-0.292)	NA	0.478	0.012	0.002	0.004	0.0007	0.00037	0.009
17.	Munduli	2.155 (0.161-5.829)	0.082 (<0.05-0.249)	NA	0.211	0.012	0.003	0.003	0.0016	0.00037	0.008
18.	Cuttack U/S	1.931 (0.502-6.103)	<0.05 (<0.05-0.246)	NA	0.140	0.010	0.001	0.003	<0.0005	0.00037	0.009
19.	Cuttack D/S	1.905 (0.45-5.022)	0.06 (<0.05-0.324)	NA	0.088	0.015	0.002	0.003	0.0008	0.00074	0.008
20.	Cuttack FD/s	2.115 (0.269-4.341)	<0.05 (<0.05-0.207)	NA	0.089	0.019	0.003	0.003	0.0016	0.00074	0.007
21.	Paradeep U/s	2.649 (0.354-7.917)	<0.05 (<0.05-0.263)	NA	0.267	0.008	0.021	0.010	0.0011	0.00037	0.009
22.	Paradeep D/s	2.254 (0.969-3.943)	0.264 (<0.05-0.758)	NA	0.283	0.013	0.031	0.018	0.0015	0.00037	0.012
Ong river											
23.	Dharuakhamma	2.342 (0.603-6.179)	<0.05 (<0.05-0.232)	NA	0.484	0.008	0.004	0.004	0.0010	0.00037	0.007
Tel River											
24.	Monmundal	2.328 (0.799-6.615)	<0.05 (<0.05-0.171)	NA	0.390	0.007	0.005	0.005	0.0011	0.00037	0.008
Kathajodi River											
25.	Cuttack U/s	2.213 (0.41-5.161)	0.093 (<0.05-0.249)	NA	0.200	0.014	0.002	0.007	0.0006	0.00037	0.008
26.	Cuttack D/s	1.961 (0.664-4.713)	0.087 (<0.05-0.559)	NA	0.514	0.008	0.010	0.047	0.0019	0.00074	0.007
27.	Cuttack FD/s Mattagajpur	2.32 (0.732-7.645)	0.124 (<0.05-0.417)	NA	0.257	0.011	0.007	0.011	0.0021	0.00074	0.008
28.	Kamasasan (Cuttack FFD/s)	3.422 (0.14-5.844)	0.058 (<0.05-0.14)	NA	0.083	0.003	0.005	0.003	<0.0005	0.00037	0.003

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
Serua River											
29.	Cuttack FD/s Sankhatrasa	3.184 (0.512-7.457)	0.127 (<0.05-0.778)	NA	0.162	0.011	0.009	0.005	0.0016	0.00074	0.008
Kuakhai River											
30.	Bhubaneswar FU/s	11.119 (0.164-64.776)	<0.05 (<0.05-0.149)	NA	0.407	0.009	0.003	0.015	0.0008	0.00037	0.009
31.	Bhubaneswar U/s	1.965 (0.359-6.055)	<0.05 (<0.05-0.167)	NA	0.691	0.009	0.003	0.004	0.0006	0.00037	0.010
Daya River											
32.	Gelapur	3.372 (0.508-15.783)	0.056 (<0.05-0.138)	NA	0.074	0.011	0.003	0.002	0.0008	0.00074	0.018
33.	Bhubaneswar D/s	9.259 (0.78-50.746)	0.148 (<0.05-0.369)	NA	0.656	0.011	0.002	0.111	0.0019	0.00111	0.010
34.	Bhubaneswar FD/s	8.467 (0.709-34.803)	0.14 (<0.05-0.326)	NA	0.045	0.011	0.002	0.006	0.0009	0.00074	0.006
35.	Kanas	2.909 (1.18-5.387)	0.107 (<0.05-0.472)	NA	0.124	0.017	0.005	0.013	0.0023	0.00037	0.009
Gangua River											
36.	Near Rajdhani Engg. College	15.141 (1.443-85.242)	0.36 (0.057-0.786)	NA	1.316	0.022	0.004	0.009	0.0022	0.00111	0.021
37.	Palasuni	11.969 (1.108-51.95)	0.485 (0.08-1.376)	NA	0.834	0.053	0.008	0.023	0.0014	0.00111	0.020
38.	Samantrapur	9.725 (0.48-25.885)	0.527 (0.103-1.672)	NA	0.285	0.017	0.004	0.014	0.0022	0.00111	0.016
39.	Vadimula	4.249 (0.767-17.705)	0.321 (0.071-0.921)	NA	0.050	0.014	0.027	0.009	0.0026	0.00111	0.006
Birupa River											
40.	Choudwar D/s	2.194 (0.864-5.688)	0.071 (<0.05-0.277)	NA	0.083	0.008	0.005	0.007	0.0008	0.00037	0.008
Kushabhadra River											
41.	Bhingarpur	2.115 (0.649-6.857)	0.072 (<0.05-0.413)	NA	0.344	0.017	0.007	0.036	0.0006	0.00074	0.008
42.	Nimapara	1.798 (0.309-4.916)	<0.05 (<0.05-0.187)	NA	0.207	0.013	0.004	0.008	0.0010	0.00074	0.009

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
43.	Gop	1.408 (0.416-2.523)	<0.05 (<0.05-0.207)	NA	1.137	0.012	0.005	0.012	0.0011	0.00074	0.008
Bhargavi River											
44.	Bhargavi at Chandanpur	2.532 (0.611-5.991)	<0.05 (<0.05-0.104)	NA	0.046	0.017	0.001	0.010	0.0026	0.00037	0.003
Mangala River											
45.	Malatipatpur	1.817 (0.486-6.873)	<0.05 (<0.05-0.117)	NA	0.112	0.009	0.001	0.009	0.0014	0.00037	0.005
46.	Golasahi	8.319 (1.056-37.322)	0.114 (<0.05-0.537)	NA	2.073	0.014	0.032	0.047	0.0024	0.00074	0.009
Devi River											
47.	Devi at Machhagaon	7.826 (0.055-75.984)	<0.05 (<0.05-0.179)	NA	0.416	0.010	0.014	0.020	0.0009	0.00037	0.008
Gobari River											
48.	Kendrapada U/s	1.844 (0.285-5.502)	0.091 (<0.05-0.411)	NA	0.219	0.012	0.009	0.017	0.0016	0.00037	0.029
49.	Kendrapada D/s	1.714 (0.584-3.349)	<0.05 (<0.05-0.193)	NA	0.380	0.010	0.014	0.008	0.0020	0.00037	0.033
Nuna River											
50.	Bijipur	1.803 (0.797-4.52)	<0.05 (<0.05-0.157)	NA	0.097	0.017	0.005	0.012	0.0007	0.00037	0.007
Kusumi River											
51.	Tangi	8.302 (0.861-64.553)	<0.05 (<0.05-0.155)	NA	NA	NA	NA	NA	NA	NA	NA
Kansari River											
52.	Banapur	5.436 (0.634-33.464)	<0.05 (<0.05-0.16)	NA	0.148	0.016	0.005	0.063	0.0007	0.00074	0.008
Badasankha River											
53.	Langaleswar	2.279 (0.722-5.539)	0.113 (<0.05-0.573)	NA	4.766	0.027	0.023	0.148	0.0032	0.00037	0.009
Sabulia River											
54.	Rambha	2.181 (0.493-4.58)	0.051 (<0.05-0.228)	NA	0.176	0.027	0.008	0.021	0.0028	0.00074	0.009

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
Ratnachira River											
55.	Kumardihi	1.995 (0.726-4.871)	<0.05 (<0.05-0.107)	NA	2.221	0.022	0.002	0.143	0.0017	0.00074	0.004
❖ **Class 'C'**		50	-	0.05	50	-	1.5	15.0	0.01	-	0.10
❖ **Class 'E'**		-	-	-	-	-	-	-	-	-	-

Class 'C' :Drinking water source with conventional treatment followed by disinfection
Class 'E' :Irrigation water quality

*** Tolerance limit for Inland Surface water bodies (IS-2296-1982)**

Data for the period April, 2021

(B) Brahmani River System (2021)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal-inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
Sankh river																
1.	Sankh U/s	51 (<10-255)	62 (24-84)	7.8 (6.3-11)	0.56 (0.56-0.56)	0.006 (0-0.028)	2.8 (1.68-4.48)	143 (115-185)	0.33 (0.23-0.58)	16.78 (11.09-28.87)	<0.5 (<0.5-<0.5)	108 (104-112)	64 (40-88)	8 (6-10)	13.9 (5.1-31.3)	0.315 (0.15-0.697)
Koel River																
2.	Koel U/s	85 (<10-290)	89 (36-148)	8.1 (6.3-10.9)	0.653 (0.56-1.12)	0.008 (0-0.045)	3.55 (<1.5-5.04)	179 (119-240)	0.32 (0.22-0.55)	14.93 (9.38-27.3)	<0.5 (<0.5-<0.5)	146 (140-152)	84 (48-124)	8 (6-10)	12.1 (5.3-29.3)	0.319 (0.138-0.684)
Brahmani River																
3.	Panposh U/S	58 (<10-242)	67 (40-92)	7.8 (6.3-10.9)	0.56 (0.56-0.56)	0.005 (0-0.020)	2.61 (<1.5-4.48)	145 (119-181)	0.36 (0.25-0.5)	17.65 (12.38-22.99)	<0.5 (<0.5-<0.5)	116 (116-116)	64 (48-76)	7 (6-10)	10.9 (5.2-27.5)	0.32 (0.148-0.783)
4.	Panposh D/S	80 (14-343)	66 (28-132)	25.9 (14.5-33.6)	1.89 (0.56-4.48)	0.031 (0-0.090)	7.09 (2.24-19.04)	288 (177-469)	0.66 (0.23-1.75)	22.62 (8.31-43.63)	<0.5 (<0.5-0.566)	220 (204-236)	101 (56-168)	22 (8-44)	49.6 (9.4-77.9)	0.969 (0.322-2.47)
5.	Rourkela D/S	87 (<10-278)	68 (32-128)	20.3 (10.9-29.3)	1.2 (0.56-3.92)	0.014 (0-0.078)	4.81 (2.24-12.32)	213 (138-410)	0.52 (0.26-1.16)	20.76 (11.39-40.66)	<0.5 (<0.5-<0.5)	206 (156-256)	83 (48-156)	13 (8-22)	27.2 (6.5-62.7)	0.632 (0.171-1.51)
6.	Attaghat	69 (<10-244)	70 (32-152)	11.7 (7.3-15.2)	0.56 (0.56-0.56)	0.023 (0-0.218)	3.36 (1.68-6.16)	179 (110-279)	0.44 (0.24-0.95)	19.38 (10.99-39.8)	<0.5 (<0.5-<0.5)	142 (136-148)	77 (40-152)	9 (6-16)	17.4 (6.7-35.8)	0.396 (0.15-0.933)
7.	Rourkela FD/s (Biritola)	83 (12-317)	70 (36-144)	17.1 (7.3-22.9)	1.027 (0.56-2.24)	0.009 (0-0.055)	3.86 (<1.5-6.16)	199 (135-345)	0.53 (0.26-0.95)	21.48 (11.12-36.57)	<0.5 (<0.5-0.511)	180 (140-220)	77 (48-124)	13 (10-26)	20.7 (7-34.6)	0.522 (0.166-1.43)
8.	Bonaigarh	52 (<10-207)	64 (36-92)	8 (6.6-10.9)	0.64 (0.56-1.12)	0.012 (0-0.070)	4.04 (<1.5-7.28)	177 (122-242)	0.49 (0.26-1.15)	20.4 (13.21-41.27)	<0.5 (<0.5-<0.5)	138 (136-140)	73 (44-112)	12 (6-34)	17.6 (5.1-30.8)	0.387 (0.155-0.816)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal-inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
9.	Rengali	25 (<10-64)	59 (40-100)	8.8 (7-11)	0.653 (0.56-1.12)	0.006 (0-0.034)	3.73 (<1.5-7.28)	146 (107-217)	0.38 (0.22-1.05)	18.28 (10-39.74)	<0.5 (<0.5-<0.5)	120 (96-144)	62 (40-96)	10 (6-18)	13.3 (6.6-21.3)	0.245 (0.171-0.478)
10.	Samal	37 (<10-85)	62 (36-92)	8.8 (6.8-14.7)	0.56 (0.56-0.56)	0.003 (0-0.017)	2.92 (<1.5-4.48)	141 (107-176)	0.36 (0.24-0.69)	18.11 (11.53-35.35)	<0.5 (<0.5-<0.5)	100 (96-104)	64 (32-84)	8 (6-10)	12.2 (7-19.3)	0.263 (0.164-0.408)
11.	Talcher FU/s	32 (<10-150)	61 (40-80)	8.8 (6.6-14.7)	0.933 (0.56-1.68)	0.005 (0-0.038)	2.99 (<1.5-8.4)	140 (114-159)	0.36 (0.25-0.51)	18.08 (13.12-27.28)	<0.5 (<0.5-<0.5)	102 (92-112)	60 (40-76)	8 (6-12)	13.5 (8.2-22.1)	0.257 (0.167-0.438)
12.	Talcher U/s	38 (<10-137)	58 (36-72)	8.8 (6.6-14.7)	0.56 (0.56-0.56)	0.005 (0-0.017)	2.55 (<1.5-3.92)	154 (122-217)	0.4 (0.23-0.81)	19.25 (9.31-32.23)	<0.5 (<0.5-<0.5)	102 (96-108)	64 (40-116)	10 (6-20)	16.8 (12.1-28.1)	0.26 (0.16-0.482)
13.	Mandapal	36 (12-101)	56 (28-76)	11.5 (7.3-18.5)	0.56 (0.56-0.56)	0.002 (0-0.011)	2.3 (<1.5-3.92)	159 (109-338)	0.46 (0.26-1.58)	19.99 (12.71-47.51)	<0.5 (<0.5-<0.5)	96 (96-96)	65 (40-132)	13 (6-44)	17.4 (8.5-46.3)	0.281 (0.154-0.536)
14,	Talcher D/s	46 (<10-133)	66 (40-92)	14.5 (11.2-18.3)	1.12 (0.56-1.68)	0.011 (0-0.034)	3.92 (1.68-7.84)	173 (127-245)	0.44 (0.26-0.93)	19.27 (10.12-32.93)	<0.5 (<0.5-<0.5)	112 (104-120)	73 (44-124)	11 (6-24)	17.2 (11.8-24.7)	0.315 (0.191-0.506)
15.	Talcher FD/s	32 (<10-81)	64 (44-72)	10.9 (7.3-14.3)	0.7 (0.56-1.12)	0.005 (0-0.025)	2.18 (<1.5-3.36)	167 (126-211)	0.47 (0.26-1.04)	20.64 (12.57-37.61)	<0.5 (<0.5-<0.5)	104 (100-108)	67 (52-92)	11 (6-22)	17.1 (12.3-24)	0.345 (0.192-0.543)
16.	Dhenkanal U/s	32 (<10-104)	58 (44-76)	7.6 (6.6-11.5)	0.56 (0.56-0.56)	0.005 (0-0.020)	2.8 (<1.5-7.84)	143 (118-175)	0.35 (0.26-0.45)	18.08 (13.25-23.36)	<0.5 (<0.5-<0.5)	106 (104-108)	59 (44-72)	8 (6-12)	15.2 (10-26.1)	0.281 (0.148-0.596)
17.	Dhenkanal D/s	39 (<10-139)	65 (44-92)	11.3 (7.5-15.4)	0.871 (0.56-1.68)	0.012 (0-0.038)	4.73 (2.24-14.56)	162 (134-196)	0.41 (0.28-0.73)	19.06 (13.39-31.85)	<0.5 (<0.5-<0.5)	120 (116-124)	67 (48-84)	10 (6-16)	15.7 (8.7-28)	0.331 (0.17-0.675)
18.	Bhuban	34 (<10-88)	62 (40-92)	11 (6.6-15.4)	0.896 (0.56-2.24)	0.007 (0-0.050)	4.48 (<1.5-12.88)	148 (113-192)	0.37 (0.26-0.66)	18.08 (13.13-28.96)	<0.5 (<0.5-<0.5)	102 (96-108)	64 (44-80)	9 (6-14)	14.7 (8.3-24.5)	0.379 (0.167-1.34)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal-inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
19.	Kabatabandha	33 (11-77)	68 (48-96)	8.5 (6.3-11.3)	0.747 (0.56-1.68)	0.018 (0-0.087)	3.05 (<1.5-7.84)	162 (121-211)	0.38 (0.22-0.55)	17.94 (10.21-22.95)	<0.5 (<0.5-0.675)	120 (112-128)	71 (48-92)	10 (6-16)	12.9 (5.2-23.6)	0.358 (0.138-0.986)
20.	Dharmasala U/s	44 (12-119)	72 (40-104)	7.9 (6.3-11.6)	0.72 (0.56-1.12)	0.015 (0-0.109)	3.48 (<1.5-7.84)	165 (106-225)	0.46 (0.24-0.85)	20.83 (10.17-33.26)	<0.5 (<0.5-<0.5)	126 (108-144)	67 (44-104)	12 (6-20)	13.7 (8-30.5)	0.275 (0.146-0.645)
21.	Dharmasala D/s	44 (11-91)	64 (44-96)	11 (6.3-19.4)	1.008 (0.56-1.68)	0.006 (0-0.034)	3.61 (<1.5-9.52)	166 (110-242)	0.52 (0.25-1.03)	22.36 (12.32-36.27)	<0.5 (<0.5-<0.5)	118 (112-124)	65 (48-88)	14 (6-26)	16.7 (8.9-40.9)	0.287 (0.148-0.668)
22.	Pottamundai	35 (10-113)	85 (60-120)	8.3 (6.7-11.6)	0.64 (0.56-1.12)	0.008 (0-0.045)	3.42 (<1.5-7.28)	197 (145-250)	0.51 (0.32-0.87)	21.32 (14.06-33.85)	<0.5 (<0.5-0.711)	144 (132-156)	79 (56-104)	12 (8-16)	14.7 (5.9-24.6)	0.426 (0.218-1.14)
Nandira River																
23.	Nandira U/s	15 (<10-38)	158 (92-196)	8.5 (6.8-14.7)	0.622 (0.56-1.12)	0.027 (0-0.073)	3.67 (1.68-7.28)	456 (339-580)	1.02 (0.66-1.71)	26.82 (19.98-37.58)	<0.5 (<0.5-<0.5)	256 (228-284)	155 (120-204)	37 (22-56)	44.8 (24.8-68)	1.642 (0.25-3.08)
24,	Nandira D/s	24 (<10-82)	153 (112-204)	13.4 (10.2-18.3)	0.996 (0.56-1.12)	0.049 (0-0.140)	5.41 (2.24-13.44)	510 (378-714)	0.96 (0.6-1.75)	24.1 (16.78-36.74)	<0.5 (<0.5-<0.5)	312 (288-336)	180 (148-264)	43 (14-66)	66.2 (42.6-152.5)	1.872 (1.08-2.83)
Kisindajhor																
25.	Kisindhajhor	27 (<10-73)	137 (76-188)	11.5 (7.7-15.4)	1.19 (0.56-2.24)	0.039 (0-0.164)	4.73 (2.24-10.64)	404 (226-524)	0.7 (0.5-1.09)	20.54 (16.53-26.64)	<0.5 (<0.5-<0.5)	258 (256-260)	156 (76-200)	32 (8-58)	43.6 (25.1-65.7)	2.003 (0.792-5.62)
Kharasrota River																
26.	Khanditara	37 (<10-78)	60 (36-88)	8.2 (6.3-14.8)	0.896 (0.56-1.68)	0.009 (0-0.059)	3.3 (<1.5-8.4)	144 (92-193)	0.35 (0.2-0.44)	17.81 (9.67-22.44)	<0.5 (<0.5-<0.5)	118 (108-128)	62 (36-92)	9 (6-14)	11.9 (5.3-16.2)	0.318 (0.147-0.867)
27.	Binjharpur	50 (<10-159)	65 (48-96)	9.9 (7.1-15.1)	0.63 (0.56-1.12)	0.014 (0-0.056)	2.74 (<1.5-3.92)	166 (108-248)	0.53 (0.28-1.44)	22.14 (12.73-43.69)	<0.5 (<0.5-<0.5)	120 (116-124)	63 (44-84)	13 (6-42)	11.5 (5.1-15.7)	0.254 (0.115-0.754)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal-inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
28.	Aul	46 (<10-100)	67 (48-92)	11.6 (7.3-15.4)	0.7 (0.56-1.12)	0.009 (0-0.034)	3.7 (1.68-7.84)	190 (134-337)	0.73 (0.32-1.65)	27.22 (14.8-43.94)	<0.5 (<0.5-<0.5)	148 (128-168)	65 (40-76)	20 (8-66)	16.2 (6.2-40.9)	0.367 (0.2-0.97)
Guradih nallah																
29.	Guradhi Nallah	62 (16-163)	91 (24-176)	40.7 (20-66.1)	7.716 (3.36-14.56)	0.143 (0-0.588)	16.18 (7.28-25.2)	407 (312-495)	0.85 (0.43-1.38)	24.07 (12.67-33.48)	<0.5 (<0.5-<0.5)	260 (260-260)	146 (104-204)	32 (18-54)	72.2 (39.8-107)	1.671 (1.21-3.4)
Badajhor																
30.	Badhajhor	36 (<10-101)	120 (80-164)	9.2 (6.8-15)	1.26 (0.56-2.24)	0.034 (0-0.218)	4.92 (1.68-9.52)	293 (200-370)	0.68 (0.44-1.05)	22.76 (16.73-30.61)	<0.5 (<0.5-<0.5)	202 (196-208)	108 (76-132)	23 (10-46)	15.6 (9.4-28.7)	0.371 (0.171-0.86)
Damsala River																
31.	Dayanabil	26 (<10-83)	71 (44-116)	9 (7.2-14.3)	1.4 (0.56-2.8)	0.012 (0-0.067)	4.29 (<1.5-8.96)	150 (112-207)	0.33 (0.22-0.52)	16.05 (10.18-21.61)	<0.5 (<0.5-0.766)	130 (128-132)	70 (48-100)	9 (6-14)	8.3 (5.1-11.5)	0.236 (0.089-0.85)
Gonda nallah																
32.	Marthapur	28 (12-65)	94 (64-124)	12.4 (7.4-19.2)	1.2 (0.56-2.24)	0.016 (0-0.050)	3.86 (1.68-8.4)	326 (138-549)	0.72 (0.26-1.56)	22.32 (6.97-39.68)	<0.5 (<0.5-<0.5)	218 (96-340)	135 (52-280)	21 (6-46)	38.4 (8-97.7)	0.733 (0.194-1.478)
Lingira River																
33.	Lingira U/s	12 (<10-44)	170 (68-248)	7.9 (6.8-11.2)	0.96 (0.56-1.12)	0.033 (0-0.109)	4.6 (<1.5-10.64)	383 (164-555)	0.71 (0.17-1.18)	20.95 (5.94-31.34)	<0.5 (<0.5-<0.5)	172 (108-236)	143 (76-180)	24 (6-44)	20.4 (13.8-29.5)	0.614 (0.348-0.788)
34.	Lingira D/s	26 (<10-55)	183 (72-224)	12.9 (10.2-15.8)	1.26 (0.56-1.68)	0.059 (0-0.210)	5.91 (2.24-14.56)	434 (180-705)	0.84 (0.25-1.92)	22.23 (8.31-35.39)	<0.5 (<0.5-<0.5)	178 (112-244)	159 (88-220)	39 (8-126)	20.1 (13.5-25.8)	0.687 (0.379-0.897)
Ramiala River																
35.	Kamakhyanagar	44 (<10-193)	68 (40-176)	8.3 (6.5-15.8)	0.672 (0.56-1.12)	0.004 (0-0.013)	3.55 (<1.5-7.84)	146 (98-353)	0.4 (0.28-0.72)	20.04 (13.78-31.77)	<0.5 (<0.5-<0.5)	154 (88-220)	61 (36-140)	10 (6-24)	9.4 (5.8-14.7)	0.22 (0.048-0.453)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal -inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
Banguru nallah																
36.	Banguru nallah	30 (10-79)	93 (36-176)	11.4 (7.1-15.7)	0.896 (0.56-1.12)	0.002 (0-0.017)	3.61 (<1.5-6.72)	692 (164-966)	0.63 (0.28-1.29)	14.96 (9.33-24.84)	<0.5 (<0.5-<0.5)	464 (460-468)	284 (72-360)	36 (10-92)	215.5 (30.7-314.1)	0.674 (0.26-1.306)
Singada jhor																
37.	Singada jhor	35 (<10-116)	134 (56-200)	9.6 (6.6-18.2)	0.784 (0.56-1.12)	0.007 (0-0.022)	3.98 (<1.5-9.52)	371 (255-478)	0.46 (0.27-0.62)	15.38 (7.95-22.16)	<0.5 (<0.5-<0.5)	266 (248-284)	153 (104-240)	20 (12-32)	48.1 (21.1-131.8)	0.533 (0.275-0.987)
Tikira River																
38.	Kaniha U/s	47 (<10-233)	82 (60-96)	8 (6.8-11.5)	0.653 (0.56-1.12)	0.018 (0-0.073)	2.36 (<1.5-7.84)	210 (152-285)	0.38 (0.26-0.51)	16.3 (12.74-23.16)	<0.5 (<0.5-<0.5)	130 (120-140)	88 (56-120)	13 (6-20)	20.5 (9.7-37.2)	0.455 (0.164-1.265)
39.	Kaniha D/s	48 (10-261)	91 (64-116)	11.3 (7.3-16.4)	0.8 (0.56-1.12)	0.030 (0-0.174)	3.05 (<1.5-5.6)	275 (183-417)	0.48 (0.28-1.09)	17.37 (10.72-33.41)	<0.5 (<0.5-<0.5)	176 (172-180)	115 (76-200)	17 (8-36)	33 (11.6-67.1)	1.029 (0.266-1.88)
Bangurusingada jhor																
40.	Bangurusingada jhor	17 (<10-34)	136 (48-192)	9.5 (6.5-15.4)	0.56 (0.56-0.56)	0.004 (0-0.045)	2.68 (<1.5-4.48)	342 (160-422)	0.59 (0.21-1.23)	18.89 (6.5-32.6)	<0.5 (<0.5-<0.5)	248 (248-248)	135 (72-220)	23 (8-66)	30.1 (17.9-65.4)	0.638 (0.279-1.292)
Karo River																
41.	Barbil	22 (<10-74)	72 (44-120)	7.8 (6.8-10.7)	0.56 (0.56-0.56)	0.004 (0-0.022)	2.99 (<1.5-5.04)	154 (124-217)	0.49 (0.23-2.13)	19.67 (9.71-53.2)	<0.5 (<0.5-<0.5)	98 (96-100)	68 (48-100)	9 (6-12)	8.8 (<5-24.7)	0.171 (0.053-0.342)
❖ **Class 'C'**		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ **Class 'E'**		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

❖ **Tolerance limit for Inland Surface water bodies (IS-2296-1982)**
Class 'C' : Drinking water source with conventional treatment followed by disinfection
Class 'E' : Irrigation water quality

(B) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
Sankh River											
1.	Sankh U/s	1.447 (0.041-4.71)	<0.05 (<0.05-<0.05)	NA	0.231	0.001	0.001	0.006	<0.0005	0.00074	0.010
Koel River											
2.	Koel U/s	1.251 (0.413-2.195)	<0.05 (<0.05-0.066)	NA	0.055	0.002	0.002	0.004	<0.0005	0.00074	0.007
Brahmani River											
3.	Panposh U/S	9.019 (0.073-65.653)	<0.05 (<0.05-0.074)	NA	0.077	0.004	0.003	0.007	<0.0005	0.00037	0.006
4.	Panposh D/S	6.119 (0.075-18.441)	<0.05 (<0.05-0.191)	NA	0.206	0.009	0.007	0.079	0.0016	0.00074	0.034
5.	Rourkella D/S	10.072 (0.797-31.487)	<0.05 (<0.05-0.069)	NA	0.177	0.004	0.002	0.026	<0.0005	0.00074	0.027
6.	Attaghat	5.288 (0.961-20.441)	<0.05 (<0.05-<0.05)	NA	0.051	0.011	0.009	0.026	0.0010	0.00037	0.020
7.	Rourkela FD/s (Biritola)	7.045 (1.094-27.286)	<0.05 (<0.05-<0.05)	NA	0.101	0.008	0.006	0.042	<0.0005	0.00074	0.018
8.	Bonaigarh	5.932 (1.405-21.076)	<0.05 (<0.05-0.083)	NA	0.061	0.019	0.007	0.058	<0.0005	0.00037	0.016
9.	Rengali	5.448 (0.679-38.072)	<0.05 (<0.05-0.136)	NA	0.055	0.002	0.001	0.003	<0.0005	0.00037	0.008
10.	Samal	5.45 (0.494-41.707)	<0.05 (<0.05-0.097)	NA	0.225	0.005	0.001	0.011	0.0011	0.00037	0.006
11.	Talcher FU/s	2.174 (0.187-5.918)	<0.05 (<0.05-0.066)	NA	0.237	0.008	0.003	0.014	0.0010	0.00037	0.005
12.	Talcher U/S	8.632 (0.609-74.453)	<0.05 (<0.05-0.062)	NA	0.294	0.004	0.003	0.003	0.0014	0.00037	0.005
13.	Mandapal	2.463 (0.435-4.791)	<0.05 (<0.05-0.08)	NA	0.174	0.003	0.002	0.023	<0.0005	0.00037	0.008
14.	Talcher D/S	6.755 (0.861-53.632)	0.058 (<0.05-0.423)	NA	0.294	0.007	0.001	0.006	0.0018	0.00074	0.005

Sl. No.	Sampling Location	Nutrients		Heavy metals							
				Annual Average values (Range of values)							
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
15.	Talcher FD/s	3.147 (0.426-13.966)	<0.05 (<0.05-0.076)	NA	0.162	0.007	0.002	0.004	0.0011	<0.00037	0.009
16.	Dhenkanal U/s	2.196 (0.386-5.008)	<0.05 (<0.05-0.093)	NA	3.477	0.014	0.001	0.097	0.0008	0.00037	0.007
17.	Dhenkanal D/s	2.077 (0.491-5.28)	<0.05 (<0.05-0.087)	NA	0.231	0.005	0.011	0.011	0.0005	0.00037	0.006
18.	Bhuban	2.157 (0.543-4.732)	<0.05 (<0.05-0.098)	NA	0.076	0.004	0.001	0.015	0.0006	0.00037	0.007
19.	Kabatabandha	2.069 (0.56-6.53)	<0.05 (<0.05-0.27)	NA	0.198	0.006	0.001	0.039	0.0015	0.00074	0.005
20.	Dharmasala U/s	1.602 (0.421-3.192)	<0.05 (<0.05-<0.05)	NA	0.580	0.009	0.009	0.004	0.0017	0.00074	0.009
21.	Dharmasala D/s	1.792 (0.705-4.394)	<0.05 (<0.05-<0.05)	NA	2.183	0.010	0.005	0.009	0.0013	0.00074	0.009
22.	Pottamundai	1.643 (0.176-3.378)	0.063 (<0.05-0.319)	NA	0.319	0.009	0.017	0.013	0.0006	0.00037	0.012
Nandira jhor											
23.	Nandira U/s	5.102 (0.453-17.627)	<0.05 (<0.05-0.174)	NA	0.111	0.005	0.001	0.004	0.0007	0.00074	0.007
24.	Nandira D/s	3.827 (0.654-16.452)	<0.05 (<0.05-0.212)	NA	0.100	0.015	0.002	0.004	0.0015	0.00074	0.008
Kisindajhor											
25.	Kisindhajhor	2.73 (0.705-6.48)	<0.05 (<0.05-0.198)	NA	0.100	0.012	0.003	0.020	0.0014	0.00074	0.009
Kharasrota River											
26.	Khanditara	3.489 (0.153-20.694)	<0.05 (<0.05-0.057)	NA	2.488	0.003	0.001	0.026	0.0007	0.00037	0.007
27.	Binjharpur	2.133 (0.638-4.679)	<0.05 (<0.05-<0.05)	NA	0.172	0.027	0.003	0.008	0.0012	0.00037	0.004
28.	Aul	3.016 (0.642-5.818)	<0.05 (<0.05-0.157)	NA	0.410	0.014	0.006	0.006	0.0012	0.00037	0.009
Guradih nallah											
29.	Guradhi Nallah	10.129 (1.535-32.045)	0.084 (<0.05-0.361)	NA	0.312	0.010	0.006	0.069	0.0023	0.00074	0.074

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
Badajhor											
30.	Badhajhor	5.152 (0.95-31.838)	<0.05 (<0.05-0.118)	NA	1.481	0.007	0.004	0.020	0.0009	0.00037	0.009
Damsala River											
31.	Dayanabil	2.286 (0.938-4.341)	<0.05 (<0.05-0.089)	NA	0.062	0.006	0.001	0.002	0.0013	0.00037	0.008
Gonda nallah											
32.	Marthapur	35.282 (0.735-125.211)	0.063 (<0.05-0.585)	NA	2.404	0.049	0.004	0.004	0.0014	0.00037	0.006
Lingira River											
33.	Lingira U/s	1.85 (0.657-4.491)	<0.05 (<0.05-0.076)	NA	2.029	0.006	0.007	0.162	0.0016	0.00074	0.007
34.	Lingira D/s	1.977 (0.586-5.532)	0.083 (<0.05-0.541)	NA	0.298	0.016	0.007	0.005	0.0023	0.00074	0.007
Ramiala River											
35.	Kamakhyanagar	2.447 (0.598-5.464)	<0.05 (<0.05-0.076)	NA	1.126	0.003	0.002	0.009	0.0011	0.00037	0.003
Bangurunallah											
36.	Bangurunallah	10.582 (1.103-28.123)	0.084 (<0.05-0.658)	NA	0.249	0.014	0.002	0.013	0.0017	0.00037	0.009
Singadajhor											
37.	Singadajhor	1.91 (0.332-4.153)	0.054 (<0.05-0.38)	NA	0.329	0.004	0.001	0.006	<0.0005	0.00037	0.004
Tikira River											
38.	Kaniha U/s	2.257 (0.623-4.659)	0.103 (<0.05-0.915)	NA	0.218	0.017	0.002	0.008	<0.0005	0.00037	0.009
39.	Kaniha D/s	2.098 (0.469-4.845)	0.077 (<0.05-0.37)	NA	0.073	0.004	0.001	0.005	0.0005	0.00074	0.004
Bangurusingada jhor											
40.	Bangurusingada jhor	2.021 (0.788-5.488)	0.052 (<0.05-0.297)	NA	0.497	0.004	0.003	0.006	0.0008	0.00037	0.006

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
Karo River											
41.	Karo river at Barbil	2.397 (0.517-4.631)	<0.05 (<0.05-0.219)	NA	0.053	0.012	0.002	0.148	0.0039	0.00037	0.010
❖ **Class 'C'**		50	-	0.05	50	-	1.5	15.0	0.01	-	0.10
❖ **Class 'E'**		-	-	-	-	-	-	-	-	-	-

❖ **Tolerance limit for Inland Surface water bodies (IS-2296-1982)**
Class 'C' : Drinking water source with conventional treatment followed by disinfection
Class 'E' : Irrigation water quality

Data for the period April, 2021

(C) Baitarani river system (2021)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal -inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
Kundra Nallah																
1.	Joda	49 (<10-175)	58 (32-80)	8.5 (6.5-11.4)	0.56 (0.56-0.56)	0.002 (0-0.008)	3.42 (1.68-7.28)	132 (78-186)	0.44 (0.22-1.23)	20.69 (8.81-42.73)	<0.5 (<0.5-<0.5)	92 (88-96)	59 (32-120)	10 (6-24)	6.4 (<5-12)	0.148 (0.075-0.37)
Kusei River																
2.	Deogaon	28 (<10-78)	69 (36-120)	9 (7.1-11.2)	0.896 (0.56-2.24)	0.023 (0-0.218)	4.06 (<1.5-9.52)	158 (104-324)	0.37 (0.28-0.57)	17.9 (14.06-26.96)	<0.5 (<0.5-<0.5)	100 (88-112)	68 (40-112)	10 (6-12)	8.6 (<5-14.4)	0.182 (0.074-0.401)
Baitarani River																
3.	Naigarh	114 (<10-822)	42 (28-68)	7.8 (6.5-11)	0.56 (0.56-0.56)	0.002 (0-0.008)	3.05 (<1.5-5.04)	101 (62-131)	0.36 (0.26-0.52)	20.2 (12.32-29.58)	<0.5 (<0.5-<0.5)	80 (68-92)	47 (32-84)	6 (6-8)	8.3 (<5-21.4)	0.153 (0.011-0.369)
4.	Unchabali	119 (<10-865)	46 (24-72)	7.2 (6.5-7.7)	0.56 (0.56-0.56)	0.004 (0-0.028)	2.99 (<1.5-5.04)	101 (79-133)	0.34 (0.18-0.47)	19.3 (6.73-28.86)	<0.5 (<0.5-<0.5)	78 (64-92)	53 (28-152)	6 (6-8)	7.6 (<5-17.6)	0.154 (0.032-0.374)
5.	Champua	49 (<10-230)	59 (36-96)	9.4 (6.5-18.2)	0.56 (0.56-0.56)	0.002 (0-0.008)	2.3 (<1.5-3.92)	128 (105-170)	0.3 (0.23-0.38)	16.21 (9.24-21.65)	<0.5 (<0.5-<0.5)	104 (96-112)	62 (36-120)	7 (6-10)	8.8 (<5-18)	0.175 (0.025-0.391)
6.	Tribindha	46 (<10-107)	62 (36-92)	8.1 (6.5-11)	0.56 (0.56-0.56)	0.003 (0-0.011)	2.43 (1.68-3.36)	134 (106-180)	0.31 (0.19-0.45)	15.73 (7.67-22.96)	<0.5 (<0.5-<0.5)	106 (96-116)	67 (40-124)	8 (6-10)	8.1 (<5-12.6)	0.168 (0.084-0.398)
7.	Joda	69 (<10-388)	56 (32-140)	9.9 (7.4-14.7)	0.933 (0.56-1.68)	0.006 (0-0.059)	2.8 (<1.5-6.16)	132 (84-280)	0.38 (0.2-0.72)	19.7 (9.79-33.54)	<0.5 (<0.5-<0.5)	134 (92-176)	57 (32-100)	8 (6-12)	10.6 (5.9-20.2)	0.153 (0.066-0.408)
8.	Anandpur	46 (<10-285)	64 (32-108)	10.2 (7.1-11.5)	1.12 (0.56-1.68)	0.013 (0-0.109)	3.61 (<1.5-10.08)	143 (105-188)	0.4 (0.22-0.94)	18.91 (9.85-35.87)	<0.5 (<0.5-<0.5)	102 (92-112)	64 (44-100)	11 (6-20)	9.3 (<5-14)	0.172 (0.025-0.491)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal-inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
9.	Jajpur	45 (<10-139)	71 (40-116)	10.3 (7.1-14.7)	0.56 (0.56-0.56)	0.010 (0-0.028)	2.99 (<1.5-6.72)	166 (115-285)	0.48 (0.25-1.13)	21.42 (11.53-36.47)	<0.5 (<0.5-<0.5)	152 (128-176)	64 (40-84)	11 (6-22)	9.2 (5.2-16.5)	0.214 (0.106-0.46)
10.	Chandbali U/s	169 (11-476)	84 (44-120)	10.7 (7-19.4)	0.56 (0.56-0.56)	0.002 (0-0.006)	1.99 (<1.5-3.92)	3576 (170-15350)	6.64 (0.38-25.92)	43.53 (18.23-74.34)	<0.5 (<0.5-1.241)	4150 (2712-5588)	646 (60-2000)	1170 (10-4194)	128.7 (5.9-564.7)	0.291 (0.164-0.682)
11.	Chandbali D/s	241 (24-910)	87 (48-132)	14.3 (10.5-23.3)	0.747 (0.56-1.12)	0.005 (0-0.056)	2.55 (<1.5-5.04)	3969 (229-15230)	7.4 (0.46-24.8)	44.87 (15.63-70.71)	<0.5 (<0.5-1.295)	5032 (4068-5996)	761 (68-2200)	1444 (24-5193)	140.5 (14.4-570.6)	0.321 (0.158-0.765)
Salandi River																
12.	Bhadrak U/s	18 (<10-47)	69 (40-112)	8.5 (6.5-11.6)	0.672 (0.56-1.12)	0.007 (0-0.070)	2.68 (<1.5-7.28)	159 (106-209)	0.37 (0.26-0.56)	17.59 (12.57-27.84)	<0.5 (<0.5-<0.5)	110 (108-112)	73 (36-132)	13 (6-24)	8.5 (5.1-16.4)	0.183 (0.118-0.268)
13.	Bhadrak D/s	27 (<10-85)	78 (40-152)	12.6 (7-19.6)	0.56 (0.56-0.56)	0.007 (0-0.028)	3.67 (<1.5-9.52)	188 (119-270)	0.47 (0.25-1.08)	18.91 (10.73-35.45)	<0.5 (<0.5-<0.5)	118 (116-120)	88 (52-180)	19 (6-34)	10.8 (5.2-18.7)	0.188 (0.053-0.315)
Dhamra River																
14.	Dhamra	240 (39-473)	106 (60-172)	20.3 (14.3-28)	0.64 (0.56-1.12)	0.008 (0-0.034)	2.99 (<1.5-5.6)	12779 (384-36120)	20.71 (2.02-72.36)	56.57 (20.67-84.43)	0.995 (<0.5-1.807)	14174 (12276-16072)	2021 (84-3400)	4673 (86-16988)	635.4 (17.8-1123.8)	0.568 (0.167-1.08)
	❖ **Class 'C'**	-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
	❖ **Class 'E'**	-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

❖ **Tolerance limit for Inland Surface water bodies (IS-2296-1982)**
Class 'C' :Drinking water source with conventional treatment followed by disinfection
Class 'E' :Irrigation water quality

(C) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
Kundra Nallah											
1.	Joda	3.475 (2.132-5.523)	<0.05 (<0.05-0.217)	NA	0.325	0.009	0.022	0.004	0.0031	0.00037	0.007
Kusei River											
2.	Deogaon	2.381 (0.588-6.495)	<0.05 (<0.05-0.07)	NA	0.326	0.012	0.002	0.014	0.0031	0.00037	0.006
Baitarani River											
3.	Naigarh	2.475 (0.305-5.247)	<0.05 (<0.05-<0.05)	NA	0.370	0.013	0.002	0.022	0.0035	0.00037	0.010
4.	Unchabali	2.218 (0.661-6.202)	<0.05 (<0.05-0.088)	NA	0.177	0.007	0.002	0.007	0.0033	0.00037	0.009
5.	Champua	2.336 (0.543-5.401)	<0.05 (<0.05-0.12)	NA	0.635	0.009	0.001	0.008	0.0029	0.00037	0.008
6.	Tribindha	2.202 (0.391-5.508)	<0.05 (<0.05-0.099)	NA	0.566	0.009	0.001	0.016	0.0029	0.00037	0.006
7.	Joda	2.626 (0.689-6.376)	<0.05 (<0.05-<0.05)	NA	0.128	0.012	0.006	0.100	0.0032	0.00037	0.006
8.	Anandpur	2.389 (0.386-6.334)	<0.05 (<0.05-<0.05)	NA	0.300	0.012	0.006	0.006	0.0028	0.00037	0.004
9.	Jajpur	7.493 (0.786-47.605)	<0.05 (<0.05-0.219)	NA	2.545	0.010	0.003	0.018	0.0013	0.00037	0.006

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
10.	Chandbali U/s	3.192 (0.381-7.659)	<0.05 (<0.05-0.148)	NA	1.386	0.009	0.022	0.027	0.0009	0.00074	0.008
11.	Chandbali D/s	2.946 (0.502-8.252)	0.075 (<0.05-0.712)	NA	1.395	0.011	0.012	0.032	0.0013	0.00074	0.009
Salandi River											
12.	Bhadrak U/s	2.013 (0.42-3.267)	0.059 (<0.05-0.453)	NA	0.726	0.013	0.004	0.014	0.0016	0.00037	0.009
13.	Bhadrak D/s	2.772 (0.589-10.219)	0.087 (<0.05-0.644)	NA	0.309	0.015	0.011	0.018	0.0011	0.00074	0.012
Dhamra River											
14.	Dhamra	3.021 (0.877-8.316)	0.067 (<0.05-0.518)	NA	0.488	0.010	0.011	0.013	0.0014	0.00037	0.009
❖ **Class 'C'**		50	-	0.05	50	-	1.5	15.0	0.01	-	0.10
❖ **Class 'E'**		-	-	-	-	-	-	-	-	-	-

❖ **Tolerance limit for Inland Surface water bodies (IS-2296-1982)**
Class 'C' :Drinking water source with conventional treatment followed by disinfection
Class 'E' :Irrigation water quality

Data for the period April, 2021

(D) Rushikulya river system (2021)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal -inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
Russelkunda Reservoir																
1.	Russelkunda	69 (18-271)	97 (64-148)	9.5 (6.6-14.7)	0.88 (0.56-1.68)	0.014 (0-0.087)	4.79 (1.68-7.28)	229 (163-317)	0.52 (0.26-0.97)	19.71 (13.24-30.28)	<0.5 (<0.5-<0.5)	194 (188-200)	95 (60-140)	15 (6-30)	13.2 (6.8-39.3)	0.32 (0.128-0.982)
Bada Nadi																
2	Aska	54 (12-161)	117 (76-140)	8.8 (7-12)	0.56 (0.56-0.56)	0.026 (0-0.087)	4.42 (1.68-14)	247 (189-304)	0.55 (0.23-1.00)	20.15 (9.58-31.24)	<0.5 (<0.5-<0.5)	188 (180-196)	100 (72-132)	14 (8-18)	12.3 (5.4-28.9)	0.284 (0.089-0.866)
Rushikulya River																
3.	Aska	86 (14-215)	117 (76-176)	11.6 (7-16)	0.84 (0.56-1.68)	0.035 (0-0.210)	3.48 (1.68-6.16)	352 (172-792)	1.19 (0.24-3.21)	29.5 (9.38-50.8)	<0.5 (<0.5-<0.5)	180 (168-192)	106 (72-148)	48 (6-166)	15.2 (5.2-52.8)	0.332 (0.218-1.05)
4.	Nalabanta	68 (12-224)	119 (72-160)	9.1 (6.7-12)	0.56 (0.56-0.56)	0.017 (0-0.087)	2.99 (1.68-5.6)	252 (185-323)	0.52 (0.25-0.99)	18.71 (11.44-30.17)	<0.5 (<0.5-<0.5)	184 (160-208)	104 (68-132)	13 (6-20)	11.8 (5.6-22.8)	0.313 (0.041-1.07)
5.	Madhopur	74 (12-147)	114 (72-152)	11.3 (6.7-24)	0.56 (0.56-0.56)	0.023 (0-0.070)	2.8 (<1.5-5.04)	2181 (167-12530)	4.19 (0.34-19.39)	34.91 (13.5-74.29)	<0.5 (<0.5-<0.5)	510 (180-840)	487 (72-2600)	583 (10-2195)	26.9 (7-72.2)	0.337 (0.197-1.08)
6.	Potagarh	80 (13-237)	115 (76-152)	19 (7.7-40)	0.84 (0.56-1.12)	0.026 (0-0.109)	3.67 (<1.5-12.88)	11146 (177-35760)	24.8 (0.26-79.14)	55.12 (12.65-88.5)	<0.5 (<0.5-0.748)	9894 (5688-14100)	1250 (72-4200)	4636 (6-16988)	326.7 (8.3-1353)	0.469 (0.143-1.26)
❖ **Class 'C'**		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ **Class 'E'**		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

❖ **Tolerance limit for Inland Surface water bodies (IS-2296-1982)**
Class 'C' :Drinking water source with conventional treatment followed by disinfection
Class 'E' :Irrigation water quality

(E) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
Russelkunda Reservoir											
1.	Russelkunda	2.324 (0.519-3.611)	0.142 (<0.05-0.788)	NA	0.149	0.005	0.008	0.007	0.0023	0.00037	0.002
Bada Nadi											
2	Aska	2.283 (0.244-6.975)	<0.05 (<0.05-0.069)	NA	0.384	0.005	0.002	0.018	0.0023	0.00074	0.007
Rushikulya River											
3.	Aska	2.181 (0.485-4.121)	0.058 (<0.05-0.254)	NA	0.020	0.009	0.003	0.013	0.0010	0.00074	0.006
4.	Nalabanta	2.395 (0.619-5.304)	<0.05 (<0.05-<0.05)	NA	0.169	0.009	0.003	0.007	0.0014	0.00074	0.009
5.	Madhopur	2.668 (0.776-5.161)	<0.05 (<0.05-0.06)	NA	0.360	0.009	0.010	0.012	0.0012	0.00111	0.008
6.	Potagarh	2.767 (0.582-6.393)	<0.05 (<0.05-0.117)	NA	2.821	0.007	0.035	0.037	0.0015	0.00074	0.007
❖ **Class 'C'**		50	-	0.05	50	-	1.5	15.0	0.01	-	0.10
❖ **Class 'E'**		-	-	-	-	-	-	-	-	-	-

❖ **Tolerance limit for Inland Surface water bodies (IS-2296-1982)**

Class 'C' :Drinking water source with conventional treatment followed by disinfection

Class 'E' :Irrigation water quality

Data for the period April, 2021

(E) Nagavali river system (2021)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal -inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
Nagavali river																
1.	Penta	38 (<10-106)	93 (64-120)	8.1 (7.1-11.6)	0.64 (0.56-1.12)	0.017 (0-0.090)	3.22 (1.68-5.6)	202 (147-245)	0.48 (0.18-1.13)	19 (7.67-37.57)	<0.5 (<0.5-<0.5)	130 (120-140)	85 (60-112)	15 (6-24)	11.3 (<5-18.9)	0.245 (0.128-0.56)
2.	Jaykaypur D/s	82 (16-279)	100 (60-164)	11.6 (7.3-15.7)	1.126 (0.56-2.28)	0.017 (0-0.109)	5.53 (2.24-13.44)	297 (153-497)	0.91 (0.18-3.03)	24.53 (6.95-55.51)	<0.5 (<0.5-<0.5)	160 (144-176)	104 (68-160)	35 (6-128)	20.2 (7.9-78.8)	0.233 (0.119-0.41)
3.	Rayagada D/s	104 (<10-349)	106 (44-148)	9 (7.1-14.3)	0.8 (0.56-1.68)	0.016 (0-0.084)	3.71 (1.68-6.16)	278 (123-379)	0.67 (0.15-1.37)	22.16 (5.73-40.75)	<0.5 (<0.5-<0.5)	156 (140-172)	104 (56-140)	21 (8-36)	23.7 (8.2-79.5)	0.213 (0.133-0.368)
❖ **Class 'C'**		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ **Class 'E'**		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

❖ **Tolerance limit for Inland Surface water bodies (IS-2296-1982)**
Class 'C' :Drinking water source with conventional treatment followed by disinfection
Class 'E' :Irrigation water quality

(E) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
Nagavali river											
1.	Penta	3.17 (0.881-6.741)	0.058 (<0.05-0.182)	NA	0.066	0.001	0.002	0.005	0.0006	0.00037	0.007
2.	Jaykaypur D/s	2.736 (0.366-5.347)	0.103 (<0.05-0.224)	NA	0.017	0.001	0.002	0.037	0.0009	0.00074	0.004
3.	Rayagada D/s	2.954 (0.45-5.181)	0.09 (<0.05-0.272)	NA	0.218	0.002	0.002	0.002	0.0011	0.00074	0.011
❖ **Class 'C'**		50	-	0.05	50	-	1.5	15.0	0.01	-	0.10
❖ **Class 'E'**		-	-	-	-	-	-	-	-	-	-

❖ **Tolerance limit for Inland Surface water bodies (IS-2296-1982)**
Class 'C' :Drinking water source with conventional treatment followed by disinfection
Class 'E' :Irrigation water quality

Data for the period April, 2021

(F) Subarnarekha river system (2021)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal-inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
Subarnarekha river																
1.	Rajghat	52 (10-166)	85 (52-116)	8.3 (6.5-11.6)	0.56 (0.56-0.56)	0.012 (0-0.045)	3.11 (<1.5-6.72)	254 (164-455)	0.6 (0.07-1.74)	20.12 (0.72-39.79)	1.53 (<0.5-5.13)	202 (196-208)	92 (64-112)	24 (10-62)	22 (7.6-37.8)	0.402 (0.204-0.823)
❖ **Class 'C'**		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ **Class 'E'**		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

(F) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
Subarnarekha river											
1.	Rajghat	2.221 (0.748-4.311)	<0.05 (<0.05-0.17)	NA	0.231	0.015	0.006	0.004	0.0019	0.00037	0.008
❖ **Class 'C'**		50	-	0.05	50	-	1.5	15.0	0.01	-	0.10
❖ **Class 'E'**		-	-	-	-	-	-	-	-	-	-

❖ **Tolerance limit for Inland Surface water bodies (IS-2296-1982)**
Class 'C' :Drinking water source with conventional treatment followed by disinfection
Class 'E' :Irrigation water quality

Data for the period April, 2021

(G) Budhabalanga river system (2021)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal -inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
Budhabalanga river																
1.	Baripada D/s	47 (13-135)	101 (48-176)	12.5 (7.1-18.2)	0.88 (0.56-1.12)	0.016 (0-0.073)	3.05 (<1.5-5.04)	265 (106-471)	3.3 (0.21-33.62)	0.6 (0.21-1.23)	20.55 (8.82-33.62)	258 (240-276)	104 (44-164)	26 (6-58)	14.8 (5.8-21.5)	0.229 (0.122-0.519)
2.	Balasore U/s	52 (15-143)	83 (48-144)	10.3 (7-14.5)	0.56 (0.56-0.56)	0.011 (0-0.036)	2.45 (1.68-3.36)	209 (127-365)	3.03 (0.22-31.65)	0.49 (0.22-1.09)	19.77 (10.01-31.65)	164 (144-184)	82 (44-132)	18 (8-34)	12.1 (5.1-18.6)	0.179 (0.118-0.34)
3.	Balasore D/s	84 (13-280)	98 (52-168)	12.8 (7.2-17.5)	0.56 (0.56-0.56)	0.005 (0-0.013)	2.59 (<1.5-4.48)	754 (169-5957)	7.42 (0.31-80.57)	2.75 (0.31-24.56)	29.56 (13.14-80.57)	244 (228-260)	124 (72-360)	197 (18-1995)	20.9 (5.2-71.3)	0.239 (0.115-0.564)
Sone River																
4.	Hatigond	67 (13-184)	89 (48-152)	8.3 (6.5-11.8)	0.84 (0.56-1.12)	0.016 (0-0.090)	2.31 (1.68-3.36)	247 (114-349)	3.45 (0.28-30.78)	0.96 (0.28-2.26)	29.53 (14.78-53.62)	206 (180-232)	75 (40-128)	28 (6-76)	13.5 (5.2-23.7)	0.194 (0.125-0.388)
	❖ **Class 'C'**	-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
	❖ **Class 'E'**	-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

(G) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
Budhabalanga river											
1.	Baripada D/s	4.568 (1.491-14.515)	0.065 (<0.05-0.282)	NA	0.080	0.016	0.002	0.002	0.0014	0.00074	0.012
2.	Balasore U/s	1.784 (0.432-4.4)	0.056 (<0.05-0.314)	NA	0.161	0.016	0.004	0.003	0.0024	0.00037	0.007
3.	Balasore D/s	3.861 (1.29-8.888)	0.067 (<0.05-0.191)	NA	0.166	0.015	0.003	0.005	0.0027	0.00074	0.009
Sone River											
4.	Hatigond	2.055 (0.625-3.882)	<0.05 (<0.05-<0.05)	NA	0.261	0.009	0.006	0.005	0.0018	0.00037	0.007
❖ **Class 'C'**		50	-	0.05	50	-	1.5	15.0	0.01	-	0.10
❖ **Class 'E'**		-	-	-	-	-	-	-	-	-	-

❖ **Tolerance limit for Inland Surface water bodies (IS-2296-1982)**

Class 'C' :Drinking water source with conventional treatment followed by disinfection

Class 'E' :Irrigation water quality

Data for the period April, 2021

(H) Kolab river system (2021)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal-inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
Kerandi river																
1.	Sunabeda	53 (<10-178)	33 (16-52)	9.9 (7.1-18)	0.653 (0.56-1.12)	0.005 (0-0.022)	2.66 (<1.5-3.92)	110 (74-184)	0.66 (0.34-1.35)	30.96 (19.81-51.73)	<0.5 (<0.5-<0.5)	66 (60-72)	36 (20-52)	12 (6-20)	10.8 (6.1-17.9)	0.129 (0.052-0.225)
❖ **Class 'C'**		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ **Class 'E'**		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

(H) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
Kerandi river											
1.	Sunabeda	2.133 (0.468-4.284)	0.075 (<0.05-0.444)	NA	0.191	0.003	0.009	0.038	0.0020	0.00037	0.004
❖ **Class 'C'**		50	-	0.05	50	-	1.5	15.0	0.01	-	0.10
❖ **Class 'E'**		-	-	-	-	-	-	-	-	-	-

❖ **Tolerance limit for Inland Surface water bodies (IS-2296-1982)**
Class 'C' :Drinking water source with conventional treatment followed by disinfection
Class 'E' :Irrigation water quality

Data for the period April, 2021

(I) Vansadhara river system (2021)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal -inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
Vansadhara river																
1.	Muniguda	44 (<10-203)	83 (48-112)	8.4 (7.1-11.6)	0.56 (0.56-0.56)	0.014 (0-0.055)	2.45 (<1.5-4.48)	204 (137-416)	0.57 (0.22-1.8)	20.9 (9.78-42.12)	<0.5 (<0.5-<0.5)	124 (112-136)	82 (56-104)	18 (6-76)	12.2 (<5-24.7)	0.212 (0.079-0.392)
2.	Gunupur	127 (15-589)	87 (52-128)	8.1 (7.1-11.5)	0.653 (0.56-1.12)	0.010 (0-0.039)	3.22 (1.68-7.28)	211 (133-494)	0.54 (0.21-2.24)	19.37 (8.43-45.3)	<0.5 (<0.5-<0.5)	132 (112-152)	79 (52-124)	16 (6-86)	12.4 (<5-25.2)	0.186 (0.062-0.365)
❖ **Class 'C'**		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ **Class 'E'**		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

(I) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
Vansadhara river											
1.	Muniguda	2.184 (0.16-6.183)	0.061 (<0.05-0.246)	NA	0.436	0.002	0.002	0.007	0.0006	0.00037	0.002
2.	Gunupur	1.986 (0.549-4.58)	0.11 (<0.05-0.424)	NA	0.042	0.003	0.004	0.003	0.0005	0.00037	0.002
❖ **Class 'C'**		50	-	0.05	50	-	1.5	15.0	0.01	-	0.10
❖ **Class 'E'**		-	-	-	-	-	-	-	-	-	-

❖ **Tolerance limit for Inland Surface water bodies (IS-2296-1982)**
Class 'C' :Drinking water source with conventional treatment followed by disinfection
Class 'E' :Irrigation water quality ## Data for the period April, 2021

(J) Indravati river system (2021)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal -inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
Indravati river																
1.	Nawarangpur	40 (<10-113)	46 (32-68)	7.5 (7.1-7.8)	0.56 (0.56-0.56)	0.010 (0-0.028)	2.8 (<1.5-3.92)	125 (94-164)	1.59 (0.3-14.08)	0.44 (0.27-0.94)	22.23 (14.08-35.63)	74 (68-80)	49 (36-64)	10 (6-28)	12.5 (<5-24.7)	0.146 (0.075-0.256)
❖ **Class 'C'**		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ **Class 'E'**		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

(J) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
Indravati river											
1.	Nawarangpur	2.211 (0.233-5.503)	0.067 (<0.05-0.259)	NA	0.035	0.003	0.002	0.009	0.00094	0.00037	0.001
❖ **Class 'C'**		50	-	0.05	50	-	1.5	15.0	0.01	-	0.10
❖ **Class 'E'**		-	-	-	-	-	-	-	-	-	-

❖ **Tolerance limit for Inland Surface water bodies (IS-2296-1982)**

Class 'C' :Drinking water source with conventional treatment followed by disinfection
Class 'E' :Irrigation water quality

Data for the period April, 2021

(K) Bahuda river system (2021)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkal -inity	COD	NH_4-N	Free NH_3-N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO_4	F
		(mg/L)		(mg/L)				(µS/cm)			(mg/L)					
Bahuda river																
1.	Damodarpally	61 (18-227)	135 (80-200)	10.3 (7-18)	0.84 (0.56-1.12)	0.049 (0-0.174)	3.67 (<1.5-8.4)	365 (225-623)	0.94 (0.35-2.33)	25.01 (11.86-43.57)	<0.5 (<0.5-<0.5)	224 (192-256)	133 (80-220)	41 (8-106)	15.5 (5.4-34.1)	0.406 (0.222-1.23)
❖ **Class 'C'**		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ **Class 'E'**		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

(K) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals							
		Annual Average values (Range of values)									
		Nitrate as NO_3^-	PO_4^{3-}-P	Cr(VI)##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/L)		(mg/L)							
1.	Damodarpally	1.966 (0.356-4.158)	<0.05 (<0.05-0.104)	NA	0.201	0.007	0.002	0.012	0.0031	0.00037	0.008
❖ **Class 'C'**		50	-	0.05	50	-	1.5	15.0	0.01	-	0.10
❖ **Class 'E'**		-	-	-	-	-	-	-	-	-	-

❖ **Tolerance limit for Inland Surface water bodies (IS-2296-1982)**

Class 'C' :Drinking water source with conventional treatment followed by disinfection

Class 'E' :Irrigation water quality

Data for the period April, 2021