

Annual Average and Range values of Criteria Parameters (January-December, 2022)

(A) Mahanadi River System (2022)

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.	Sundargarh	12	7.3 (6.5-8.5)	7.4 (5.8-8.9)	1.2 (< 1.0-1.7)	1595 (230-3500)	563 (<1.8-2400)	NA	0	0	0	-	C		
2.	Jharsuguda	12	7.2 (6.6-8.4)	8.1 (8.0-8.4)	1.2 (< 1.0-1.8)	1845 (230-4700)	686 (20-2200)	NA	0	0	0	-	C		
3.	Brajarajnaragar U/s	12	7.3 (6.7-8.4)	8.0 (7.6-8.4)	1.2 (< 1.0-1.8)	1759 (790-4000)	727 (45-1700)	NA	0	0	0	-	C		
4.	Brajarajnaragar D/s	12	7.3 (6.8-8.1)	7.7 (7.2-8.2)	1.5 (< 1.0-1.8)	2608 (790-4900)	984 (78-2200)	NA	0	0	0	-	C		
Bheden river															
5.	Jharsuguda	12	7.4 (6.8-8.2)	8.0 (7.4-8.5)	1.3 (1.1-2.2)	2811 (230-4900)	964 (45-2200)	21 (5-79)	0	0	0	-	C		
Hirakud reservoir															
6.	Hirakud reservoir	12	7.4 (6.6-8.5)	7.5 (7.0-8.2)	1.2 (< 1.0-1.4)	769 (130-2400)	145 (<1.8-330)	NA	0	0	0	-	C		
Power Channel															
7.	Power Channel U/s	12	7.5 (6.8-8.4)	7.0 (6.4-7.6)	1.1 (< 1.0-1.3)	143 (<1.8-790)	28 (<1.8-130)	NA	0	0	0	-	C		
8.	Power Channel D/s	12	7.5 (6.9-8.4)	7.2 (6.6-7.8)	1.5 (< 1.0-2.1)	1196 (45-3500)	270 (<1.8-790)	NA	0	0	0	-	C		
Mahanadi river															
9	Sambalpur U/s	12	7.5 (6.9-8.3)	7.1 (6.2-7.6)	1.2 (< 1.0-1.6)	880 (170-4000)	396 (20-2200)	NA	0	0	0	-	C		

NA : Not analysed

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						BOD	TC	FC	FS			
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/100 ml)	FC (MPN/100 ml)	FS (MPN/100 ml)							
10	Sambalpur D/s	12	7.9 (7.1-8.5)	7.0 (6.4-7.8)	1.7 (1.3-2.6)	2230 (490-4700)	687 (78-2400)	5 (5-5)	0	0	0	0	C		
11.	Sambalpur FD/s at Shankarmath	12	7.7 (6.9-8.2)	6.7 (4.2-7.6)	1.3 (1.1-1.8)	1593 (330-3500)	329 (45-1300)	6 (4-8)	0	0	0	0	C		
12.	Sambalpur FFD/s at Huma	12	7.7 (7.3-8.2)	7.3 (6.8-7.8)	1.2 (< 1.0-1.6)	1118 (130-3500)	297 (<1.8-1300)	8 (5-11)	0	0	0	0	C		
13.	Sonepur U/s	12	7.7 (7.3-8.3)	7.4 (6.4-8.0)	1.2 (< 1.0-2.1)	176 (<1.8-790)	33 (<1.8-140)	5 (5-5)	0	0	0	0	C		
14.	Sonepur D/s	12	7.8 (7.4-8.4)	7.1 (6.6-7.6)	1.5 (1.3-2.4)	542 (<1.8-2200)	158 (<1.8-1300)	33 (33-33)	0	0	0	0	C		
15.	Tikarapada	12	7.1 (6.6-8.3)	7.1 (5.6-8.0)	1.1 (< 1.0-1.2)	475 (23-2400)	163 (<1.8-1300)	11 (8-14)	0	0	0	0	C		
16.	Narasinghpur	12	7.2 (6.6-8.1)	8.4 (8.0-8.8)	1.1 (< 1.0-1.4)	1504 (490-3500)	317 (68-1300)	13 (8-23)	0	0	0	0	C		
17.	Mundali	12	7.6 (6.8-8.4)	8.2 (7.4-8.8)	1.2 (< 1.0-1.3)	1853 (490-4900)	451 (110-2200)	15 (5-49)	0	0	0	0	C		
18.	Cuttack U/s	12	7.6 (6.7-8.4)	8.4 (7.8-8.8)	1.2 (< 1.0-1.8)	1113 (170-2400)	316 (45-1300)	6 (2-11)	0	0	0	0	C		
19.	Cuttack D/s	12	7.6 (7.1-8.1)	8.0 (7.4-8.6)	1.7 (1.2-2.6)	3334 (310-4900)	1388 (170-2800)	11 (5-22)	0	0	0	0	C		
20.	Cuttack FD/s	12	7.8 (7.1-8.4)	7.7 (7.2-8.6)	1.4 (1.1-2.5)	2047 (170-4000)	811 (110-2200)	6 (2-13)	0	0	0	0	C		
21.	Paradeep U/s	12	7.3 (6.7-8.1)	7.6 (6.8-8.6)	1.2 (1.1-2.1)	147 (<1.8-330)	30 (<1.8-130)	7 (2-22)	0	0	0	0	C		
22	Paradeep D/s	12	7.5 (6.6-8.3)	7.1 (5.6-8.4)	1.6 (1.1-2.2)	640 (<1.8-3500)	70 (<1.8-330)	11 (4-33)	0	0	0	0	C		

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						BOD	TC	FC	FS			
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/100 ml)	FC (MPN/100 ml)	FS (MPN/100 ml)							
Ong River															
23.	Dharuakhaman	12	7.9 (7.2-8.3)	7.0 (6.2-7.8)	1.2 (< 1.0-2.1)	225 (<1.8-790)	43 (<1.8-170)	NA	0	0	0	-	C		
Tel River															
24.	Monmunda	12	7.9 (6.8-8.5)	6.9 (5.8-7.8)	1.2 (< 1.0-1.5)	862 (<1.8-3500)	170 (<1.8-790)	NA	0	0	0	-	C		
Kathajodi River															
25.	Cuttack U/s	12	7.6 (6.9-8.4)	8.2 (7.8-8.8)	1.3 (1.1-2.1)	1313 (230-3500)	373 (45-1300)	NA	0	0	0	-	C		
26.	Cuttack D/s	12	7.7 (7.2-8.5)	7.5 (3.6-8.6)	3.3 (1.6-4.4)	28117 (3500-92000)	14774 (790-54000)	29 (11-70)	7 (58)	11 (92)	11 (92)	0	Doesn't conform to Class C	DO#,BOD, TC, FC®	Waste water of Cuttack city
27.	Mattagajpur (Cuttack FD/s)	12	8.0 (7.2-8.5)	7.1 (3.4-8.6)	2.4 (1.6-4.0)	11240 (790-54000)	5498 (45-35000)	28 (7-79)	2 (17)	8 (67)	9 (75)	0	Doesn't conform to Class C	DO#,BOD, TC, FC®	Waste water of Cuttack city
28.	Kamasasan (Cuttack FFD/s)	12	7.8 (7.3-8.1)	7.6 (6.4-8.4)	1.5 (1.1-1.9)	2152 (330-4700)	797 (78-2400)	NA	0	0	0	-	C		
Seru River															
29.	Sankhatrasa (Cuttack FD/s)	12	7.8 (7-8.5)	7.5 (6.0-8.3)	3.0 (1.1-4.2)	34233 (5400-160000)	20441 (490-160000)	42 (11-79)	6 (50)	12 (100)	11 (92)	0	Doesn't conform to Class C	BOD, TC, FC®	Waste water of Cuttack city

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						BOD	TC	FC	FS			
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/100 ml)	FC (MPN/100 ml)	FS (MPN/100 ml)							
Kuakhai River															
30	Bhubaneswar FU/s	12	7.4 (6.7-8.5)	7.9 (5.9-9.5)	1.2 (< 1.0-1.9)	2158 (490-4000)	809 (170-2200)	15 (5-46)	0	0	0	0	C		
31.	Bhubaneswar U/s	12	7.3 (6.7-8.5)	7.3 (5.1-10.7)	1.5 (< 1.0-1.9)	3533 (1400-4900)	1460 (330-2400)	20 (5-49)	0	0	0	0	C		
Daya River															
32.	Gelapur	12	7.6 (6.9-8.5)	8.2 (2.4-11.1)	1.6 (1.1-2.2)	3075 (1300-4900)	1139 (170-2400)	24 (11-41)	0	0	0	0	Doesn't conform to Class C	DO#	Human activities
33.	Bhubaneswar D/s	12	7.2 (6.8-7.7)	4.4 (2.3-10.2)	4.4 (3.6-5.6)	104583 (17000-160000)	66225 (7900-160000)	198 (23-540)	12 (100)	12 (100)	12 (100)	8 (67)	Doesn't conform to Class C	DO##, BOD, TC, FC,FS@	Waste water of Bhubaneswar city
34.	Bhubaneswar FD/s	12	7.2 (6.8-7.8)	5.4 (3.1-10.1)	3.8 (3.2-4.3)	64817 (7900-160000)	33000 (2300-54000)	144 (17-350)	8 (73)	11 (100)	11 (100)	2 (18)	Doesn't conform to Class C	DO###,BOD, TC,FC,FS@	
35.	Kanas	12	7.0 (6.7-7.4)	6.3 (5.2-7.4)	2.3 (1.4-2.8)	3650 (1300-7900)	1613 (490-4900)	24 (5-110)	0	1 (9)	1 (9)	1 (9)	Doesn't conform to Class C	TC, FC,FS@	Human activities

Frequency of violation for DO is 1 times (9 % of total observation)
Frequency of violation for DO is 7 times (58 % 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)						Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters						BOD	TC	FC	FS			
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)							
Gangua River															
36.	Near Rajdhani Engg. College	12	7.0 (6.7-7.2)	1.3 (0.4-3.9)	7.9 (4.3-9.7)	121917 (13000-160000)	108817 (7900-160000)	283 (49-920)	12 (100)	12 (100)	12 (100)	10 (83)	Doesn't conform to Class C	DO#, BOD, TC, FC,FS@	Waste water of Bhubaneswar city
37.	Palasuni	12	6.5 (4-7.1)	1.3 (0.4-3.2)	9.0 (5.0-12.0)	135025 (3300-160000)	100267 (3300-160000)	273 (49-920)	12 (100)	11 (92)	12 (100)	10 (83)	Doesn't conform to Class C	DO# BOD, TC, FC,FS@	
38.	Samantraypur	12	6.9 (6.5-7.3)	1.1 (0.5-2.9)	9.1 (4.7-16.0)	132000 (17000-160000)	116358 (3300-160000)	244 (22-540)	12 (100)	12 (100)	12 (100)	11 (92)	Doesn't conform to Class C	DO# BOD, TC, FC,FS@	
39.	Vadimula	11	7.0 (6.6-7.5)	2.9 (0.7-7.9)	6.3 (4.2-8.3)	122182 (24000-160000)	112273 (13000-160000)	224 (79-350)	11 (100)	11 (100)	11 (100)	10 (91)	Doesn't conform to Class C	DO## BOD, TC, FC,FS@	
Birupa River															
40.	Choudwar D/s	12	7.8 (7.2-8.2)	7.9 (7.0-8.6)	1.5 (1.1-2.6)	2318 (220-4000)	1030 (45-2400)	NA	0	0	0	-	C		
Kushabhadra River															
41.	Bhingarpur	12	7.2 (6.9-7.6)	8.3 (5.3-11.0)	1.4 (1.1-2.2)	33892 (700-160000)	22431 (130-160000)	NA	0	6 (50)	7 (58)	-	Doesn't conform to Class C	TC, FC@	Human activities
42.	Nimapara	12	7.1 (6.8-7.7)	7.7 (5.2-10.6)	1.7 (< 1.0-2.6)	18475 (1700-54000)	6781 (790-24000)	NA	0	10 (83)	8 (67)	-	Doesn't conform to Class C	TC, FC@	Human activities

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

Frequency of violation for DO is 10 times (91% 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						BOD	TC	FC	FS			
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/100 ml)	FC (MPN/100 ml)	FS (MPN/100 ml)							
43.	Gop	12	7.1 (6.8-7.7)	7.7 (5.0-11.7)	1.5 (1.1-2.3)	22333 (1400-160000)	18083 (490-160000)	NA	0	5 (42)	5 (42)	-	Doesn't conform to Class C	TC, FC@	Human activities
Bhargavi River															
44.	Chandanpur	12	7.8 (7.3-8.5)	7.5 (3.6-9.6)	1.3 (1.1-1.8)	2660 (490-4900)	1116 (170-2400)	NA	0	0	-	-	Doesn't conform to Class C	DO#	Human activities
Mangala River															
45.	Malatipatpur	12	7.3 (6.6-8.2)	7.3 (5.2-10.8)	1.4 (1.1-2.2)	1480 (490-3500)	431 (45-1300)	NA	0	0	0	-	C		
46.	Golasahi	12	7.5 (6.7-8.4)	7.8 (5.3-12.8)	2.7 (1.6-4.4)	2477 (220-4700)	878 (78-2100)	15 (5-33)	1 (8)	0	0	0	Doesn't conform to Class C	BOD	Human activities
Devi River															
47.	Machhagaon	12	7.6 (6.5-8.5)	7.4 (7.0-7.8)	1.7 (1.1-2.4)	673 (110-2200)	179 (20-700)	NA	0	0	0	-	C		
Govari River															
48.	Kendrapara U/s	12	7.5 (6.7-8.2)	5.7 (3.8-8.0)	1.2 (1.1-1.6)	1308 (330-2800)	495 (130-1300)	NA	0	0	0	-	Doesn't conform to Class C	DO#	Human activities
49.	Kendrapara D/s	12	7.6 (6.8-8.5)	5.0 (3.0-6.0)	1.7 (1.4-2.7)	2700 (700-4900)	1024 (230-2200)	NA	0	0	0	-			
Nuna River															
50.	Bijipur	12	7.1 (6.6-7.8)	6.3 (5.6-7.5)	1.4 (< 1.0-2.3)	3145 (700-4900)	1424 (170-2200)	24 (4-79)	0	0	0	-	C		

Frequency of violation for DO is 1 time (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					BOD	TC	FC	FS				
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/100 ml)	FC (MPN/100 ml)								FS (MPN/100 ml)
Kusumi River															
51.	Tangi	12	7.3 (6.5-7.9)	7.4 (4.7-10.3)	1.2 (1.1-1.6)	3700 (1100-4900)	1703 (230-2400)	31 (9-79)	0	0	0	0	C		
Kansari River															
52.	Banapur	12	7.2 (6.5-7.8)	7.0 (5.2-8.5)	1.4 (< 1.0-2.4)	3233 (1300-4900)	1423 (330-2400)	NA	0	0	0	-	C		
Badasankha River															
53.	Langaleswar	12	7.2 (6.7-7.7)	7.2 (4.6-11.4)	1.6 (1.1-2.7)	3432 (790-4900)	1538 (130-2400)	NA	0	0	0	-	C		
Sabulia River															
54.	Rambha	12	7.4 (6.9-7.8)	6.2 (5.0-7.1)	1.4 (1.1-1.8)	3575 (700-4900)	1688 (130-2300)	32 (13-79)	0	0	0	0	C		
Ratnachira River															
55.	Kumardihi	12	7.5 (7.1-8.4)	6.1 (4.9-7.9)	1.4 (1.1-2.4)	1688 (230-3500)	556 (20-2200)	13 (4.5-23)	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		

@ Not conforming to the specified limit for bathing water quality (MOEF Notification)

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 (2022)

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						BOD	TC	FC	FS			
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/100 ml)	FC (MPN/100 ml)	FS (MPN/100 ml)							
Sankh River															
1.	Sankh U/s	12	7.3 (6.6-8.4)	8.0 (5.3-12.0)	1.2 (< 1.0-1.9)	2668 (430-4700)	878 (78-1700)	NA	0	0	0	-	C		
Koel River															
2.	Koel U/s	12	7.4 (6.7-8.3)	8.0 (6.5-11.7)	1.2 (< 1.0-1.5)	2504 (330-4900)	861 (45-2300)	NA	0	0	0	-	C		
Brahmani River															
3.	Panposh U/s	12	7.5 (6.8-8.4)	7.2 (5.4-8.3)	1.3 (1.1-1.9)	2196 (490-4900)	710 (45-1700)	NA	0	0	0	-	C		
4.	Panposh D/s	12	7.4 (6.8-8.1)	5.3 (3.3-9.6)	4.4 (3.4-5.7)	24333 (11000-54000)	9017 (3300-35000)	42 (13-170)	12 (100)	12 (100)	12 (100)	2 (17)	Doesn't conform to Class C	DO#,BOD, TC,FC,FS®	Waste water of Rourkela town and Steel Plant
5.	Rourkela D/s	12	7.5 (6.8-8)	5.9 (3.8-8.4)	3.9 (2.9-4.7)	18017 (7900-35000)	6517 (3300-22000)	36 (8-130)	11 (92)	12 (100)	12 (100)	2 (17)	Doesn't conform to Class C	DO##,BOD, TC,FC,FS	-do-
6.	Rourkela FD/s (Attaghat)	12	7.3 (6.7-7.9)	7.4 (4.1-11.0)	2.8 (1.4-3.8)	2491 (330-11000)	927 (78-4900)	19 (5-49)	5 (42)	1 (8)	1 (8)	0	Doesn't conform to Class C	BOD	-do-
7.	Rourkela FD/s (Biritola)	12	7.5 (6.9-8.4)	7.9 (5.7-11.0)	2.1 (1.1-2.8)	2288 (230-7900)	721 (20-2300)	18 (5-33)	0	1 (8)	0	0	C		
8.	Bonaigarh	12	7.5 (6.9-8.4)	7.1 (5.8-9.0)	1.4 (< 1.0-2.2)	1614 (130-4900)	606 (<1.8-1700)	NA	0	0	0	-	C		

Frequency of violation for DO is 8 times (67% of total observation)

Frequency of violation for DO is 2 times (17% 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						BOD	TC	FC	FS			
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)							
9.	Rengali	12	7.3 (6.8-8)	7.5 (5.6-9.4)	1.3 (< 1.0-2.3)	357 (<1.8-2400)	59 (<1.8-170)	8 (8-8)	0	0	0	-	C		
10.	Samal	12	7.3 (6.9-7.8)	8.2 (6.2-10)	1.2 (< 1.0-2.6)	1401 (130-3500)	470 (20-1700)	NA	0	0	0	-	C		
11.	Talcher FU/s	12	7.3 (6.7-7.6)	7.9 (6.6-10.6)	1.1 (< 1.0-1.3)	293 (130-490)	73 (20-170)	NA	0	0	0	-	C		
12.	Talcher U/s	12	7.3 (6.9-7.6)	7.6 (5.8-10.2)	1.2 (< 1.0-1.5)	613 (230-1300)	180 (45-330)	NA	0	0	0	-	C		
13.	Mandapal	12	7.3 (6.8-7.8)	7.9 (6.8-10.6)	1.3 (1.1-1.9)	2924 (790-4900)	1134 (230-2300)	12 (4-23)	0	0	0	-	C		
14.	Talcher D/s	12	7.3 (7.1-7.7)	7.5 (5.2-9.2)	1.9 (1.4-2.6)	1497 (490-3300)	579 (68-1320)	NA	0	0	0	-	C		
15.	Talcher FD/s	12	7.3 (6.7-7.8)	8.3 (6.2-10.6)	1.6 (1.2-2.1)	639 (130-2400)	169 (20-490)	NA	0	0	0	-	C		
16.	Dhenkanal U/s	12	7.3 (7.1-7.9)	7.5 (6.3-9.2)	1.1 (< 1.0-1.5)	513 (78-2400)	194 (<1.8-1300)	NA	0	0	0	-	C		
17.	Dhenkanal D/s	12	7.3 (6.7-7.9)	7.4 (6.4-8.4)	1.5 (< 1.0-2.1)	1023 (130-3500)	454 (<1.8-1700)	NA	0	0	0	-	C		
18.	Bhuban	12	7.3 (6.9-7.9)	7.3 (5.4-8.4)	1.4 (1.1-2.4)	1120 (78-3500)	249 (<1.8-1300)	NA	0	0	0	-	C		
19.	Kabatabandha	12	7.4 (6.6-8.3)	7.8 (7.4-8.1)	1.2 (< 1.0-1.6)	2030 (330-4900)	742 (45-2400)	NA	0	0	0	-	C		
20.	Dharmasala U/s	12	7.5 (6.6-8.4)	7.5 (7.2-7.8)	1.2 (< 1.0-1.9)	1733 (490-4700)	871 (78-3330)	NA	0	0	0	-	C		
21.	Dharmasala D/s	12	7.5 (6.7-8.4)	7.4 (7.0-7.7)	1.4 (1.1-1.9)	1991 (790-4700)	820 (220-2200)	NA	0	0	0	-	C		
22.	Pottamundai	12	7.8 (6.8-8.3)	7.3 (6.0-8.4)	1.3 (1.1-1.7)	1847 (78-3500)	489 (45-1100)	NA	0	0	0	-	C		

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					BOD	TC	FC	FS				
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/100 ml)	FC (MPN/100 ml)								FS (MPN/100 ml)
Nandira River															
23.	Nandira U/s	12	7.4 (6.9-8.3)	7.4 (4.4-10.6)	1.2 (< 1.0-1.5)	737 (79-3500)	188 (17-1100)	NA	0	0	0	-	C		
24.	Nandira D/s	12	7.5 (7.1-8.5)	7.1 (5.0-9.0)	1.5 (1.2-1.8)	1571 (130-4900)	666 (33-2400)	15 (8-23)	0	0	0	0	C		
KisindaJhor															
25.	Kisindajhor	12	7.5 (7.1-8.5)	7.7 (5.8-9.0)	1.3 (< 1.0-2.1)	1471 (45-4700)	641 (20-2400)	NA	0	0	0	-	C		
Kharasrota River															
26.	Khanditara	12	7.6 (6.9-8.4)	7.9 (7.6-8.3)	1.1 (< 1.0-1.4)	1163 (330-2800)	364 (45-1700)	NA	0	0	0	-	C		
27.	Binjharpur	12	7.6 (7.2-8.2)	7.8 (7.4-8.2)	1.2 (1.1-1.6)	1983 (330-4900)	555 (78-2400)	NA	0	0	0	-	C		
28.	Aul	12	7.8 (6.8-8.5)	7.5 (6.8-8.2)	1.3 (1.1-1.8)	1388 (170-4700)	458 (20-2200)	NA	0	0	0	-	C		
Guradih nallah															
29.	Guradih nallah	12	7.5 (6.9-8.2)	4.2 (1.6-6.8)	6.1 (4.2-8.3)	90000 (24000-160000)	42325 (7900-92000)	139 (13-350)	12 (100)	12 (100)	12 (100)	7 (58)	Doesn't conform to Class C	DO#,BOD, TC, FC, FS@	Waste water of Rourkela town and Steel Plant
Badajhor															
30.	Badajhor	12	7.6 (6.7-8.5)	7.5 (5.6-9.2)	1.2 (< 1.0-2.2)	2190 (490-4900)	714 (130-1700)	NA	0	0	0	-	C		
Damsala River															
31.	Dayanabil	12	7.5 (7-8.1)	7.7 (7.4-8.1)	1.1 (< 1.0-1.4)	1433 (330-2400)	461 (78-1300)	NA	0	0	0	-	C		
Ganda Nallah															
32.	Marthapur	12	7.3 (6.9-7.8)	7.5 (7.2-7.8)	1.3 (< 1.0-1.7)	1322 (220-2800)	349 (45-1100)	NA	0	0	0	-	C		

Frequency of violation for DO is 5 times (42% 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					BOD	TC	FC	FS				
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/100 ml)	FC (MPN/100 ml)								FS (MPN/100 ml)
Lingira River															
33.	Angul U/s	12	7.8 (7.1-8.5)	7.4 (5.0-8.8)	1.2 (< 1.0-1.5)	974 (130-3500)	276 (20-1100)	NA	0	0	0	-	C		
34.	AngulD/s	12	7.9 (7.5-8.5)	7.9 (6.0-9.4)	1.7 (1.2-2.3)	1819 (170-4700)	465 (45-1700)	NA	0	0	0	-	C		
Ramiala River															
35.	Kamakhyanager	12	7.6 (7.3-8.1)	6.8 (4.0-9.6)	1.1 (< 1.0-1.3)	885 (130-2800)	267 (45-1100)	NA	0	0	0	-	C		
Banguru nallah															
36.	Banguru nallah	12	7.3 (6.7-8)	7 (5.0-9.2)	1.4 (< 1.0-2)	1205 (330-3300)	401 (78-1700)	11 (5-17)	0	0	0	0	C		
Singadajhor															
37.	Singadajhor	12	7.5 (6.9-8.3)	6.9 (4.0-10.0)	1.2 (< 1.0-1.5)	799 (170-2400)	224 (45-790)	NA	0	0	0	-	C		
Tikira River															
38.	KanihaU/s	12	7.8 (7.4-8.5)	7.1 (5.6-8.8)	1.1 (< 1.0-1.3)	1570 (330-3500)	447 (78-1700)	NA	0	0	0	-	C		
39.	KanihaD/s	12	7.7 (7.2-8.4)	7.7 (5.4-9.4)	1.6 (1.3-2.8)	2523 (490-4900)	887 (110-2400)	NA	0	0	0	-	C		
Bangurusingadajhor															
40.	Bangurusingadajhor	12	7.5 (7.2-8.2)	6.3 (2.4-8.6)	1.3 (< 1.0-1.7)	968 (230-2400)	269 (45-790)	NA	0	0	0	-	C		
Karo River															
41.	Barbil	12	7.2 (6.6-8.1)	7.0 (5.8-7.9)	1.2 (< 1.0-1.6)	1554 (230-4000)	481 (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		

@ Not conforming to the specified limit for bathing water quality (MOEF Notification)

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 (2022)

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						BOD	TC	FC	FS			
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)							
Kundra nallah															
1.	Joda	12	7.3 (6.9-7.7)	6.3 (4.8-7.2)	1.3 (1.1-1.5)	1533 (230-3500)	397 (45-1300)	NA	0	0	0	-	C		
Kusei River															
2.	Deogaon	12	7.6 (6.9-8.5)	8.3 (6.4-10.6)	1.3 (< 1.0-1.9)	2254 (460-3500)	916 (110-2400)	NA	0	0	0	-	C		
Baitarani River															
3.	Naigarh	12	7.4 (6.7-8.2)	6.7 (6-7.4)	1.2 (< 1.0-1.8)	1026 (78-2800)	212 (20-490)	NA	0	0	0	-	C		
4.	Unchabali	12	7.4 (6.8-8)	6.8 (6.1-7.5)	1.3 (< 1.0-2.1)	916 (130-2400)	198 (20-490)	NA	0	0	0	-	C		
5.	Champua	12	7.3 (6.8-7.8)	6.9 (5.8-7.8)	1.2 (1.1-1.7)	966 (170-2200)	213 (45-790)	NA	0	0	0	-	C		
6.	Tribindha	12	7.4 (6.9-7.7)	6.9 (5.4-7.9)	1.3 (1.1-1.9)	1016 (170-3500)	277 (20-1300)	NA	0	0	0	-	C		
7.	Joda	12	7.5 (7.1-8.0)	6.8 (6.2-7.9)	1.1 (< 1.0-1.5)	926 (270-2400)	225 (45-700)	NA	0	0	0	-	C		
8.	Anandpur	12	7.4 (6.9-8)	8.4 (6.6-10.3)	1.2 (< 1.0-1.5)	1614 (330-3500)	339 (78-1100)	NA	0	0	0	-	C		
9.	Jajpur	12	7.5 (7.1-8.0)	7.4 (7.0-7.8)	1.2 (< 1.0-1.9)	2074 (230-4900)	512 (45-2300)	NA	0	0	0	-	C		
10.	Chandbali U/s	12	7.2 (6.7-7.7)	6.5 (5.2-8.4)	1.2 (< 1.0-1.9)	2444 (230-4000)	965 (78-2200)	NA	0	0	0	-	C		
11.	Chandbali D/s	12	7.4 (6.6-8.0)	6.3 (5.2-8.0)	1.5 (1.3-2.1)	3408 (1300-4900)	1341 (230-2400)	NA	0	0	0	-	C		

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						BOD	TC	FC	FS			
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/ 100 ml)	FC (MPN/ 100 ml)	FS (MPN/ 100 ml)							
Salandi River															
12.	Bhadrak U/s	12	7.6 (6.5-8.4)	6.4 (4.8-8.4)	1.1 (< 1.0-1.8)	2150 (1100-3500)	666 (110-1700)	NA	0	0	0	-	C		
13.	Bhadrak D/s	12	7.5 (6.5-8.2)	6.1 (4.0-8.8)	1.5 (1.2-2.2)	3350 (2200-4900)	1260 (460-2200)	NA	0	0	0	-	C		
Dhamra River															
14.	Dhamra	12	7.3 (6.7-8.1)	6.3 (5.2-7.6)	1.2 (< 1.0-1.6)	1899 (68-4600)	813 (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)RushikulyaRiver System (2022)

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					BOD	TC	FC	FS				
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/100 ml)	FC (MPN/100 ml)								FS (MPN/100 ml)
Russelkunda Reservoir															
1.	Russelkunda	12	7.5 (6.8-8.5)	7 (5.7-7.8)	1.5 1.1-2.3)	3598 (790-17000)	1416 (49-7900)	NA	0	0	0	-	C		
Bada Nadi															
2	Aska	12	7.7 (7.1-8.5)	6.9 (5.7-9)	1.2 (< 1.0-1.6)	2211 (460-4700)	929 (110-2400)	NA	0	0	0	-	C		
Rushikula River															
3.	Aska	12	7.6 (7.1-8.2)	7.2 (6.5-9.7)	1.2 (< 1.0-2.1)	2852 (220-4700)	960 (45-2200)	NA	0	0	0	-	C		
4.	Nalabanta	12	7.9 (7.2-8.5)	7.6 (6-10)	1.2 (< 1.0-1.6)	2395 (330-4900)	1104 (45-2300)	NA	0	0	0	-	C		
5.	Madhopur	12	7.8 (6.9-8.5)	7.3 (5.5-9.5)	1.4 (< 1.0-2)	2309 (230-4900)	878 (45-2300)	16 (5-34)	0	0	0	0	C		
6.	Potagarh	12	7.7 (7.1-8.1)	7.1 (5.5-9)	1.4 (1.1-2.1)	2129 (45-3500)	764 (20-1300)	17 (4-49)	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) NagavaliRiver System (2022)

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					BOD	TC	FC	FS				
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/100 ml)	FC (MPN/100 ml)								FS (MPN/100 ml)
1.	Penta U/s	12	7.2 (6.6-7.7)	7.3 (7.1-7.6)	1.1 (1.1-1.3)	1862 (140-3500)	715 (<1.8-2400)	NA	0	0	0	-	C		
2.	J.K. Pur D/S	12	7.2 (6.7-7.7)	6.6 (6.4-6.8)	1.8 (1.1-2.4)	2251 (330-4700)	800 (20-2400)	15.63 (5-27)	0	0	0	0	C		
3.	Rayagada D/S	12	7.3 (6.9-7.8)	7.2 (6.9-7.4)	1.5 (1.1-2.1)	1849 (220-4900)	515 (20-2300)	14.25 (5-33)	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) Subarnarekhariversystem (2022)

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						BOD	TC	FC	FS			
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/100 ml)	FC (MPN/100 ml)	FS (MPN/100 ml)							
Subarnarekha River															
1.	Rajghat	12	7.8 (6.8-8.5)	7.5 (6.0-8.8)	1.3 (< 1.0-2.1)	1166 (170-3500)	483 (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)

(G) Budhabalanga river system (2022)

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					BOD	TC	FC	FS				
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/100 ml)	FC (MPN/100 ml)								FS (MPN/100 ml)
Budhabalanga River															
1.	Baripada D/s	12	7.8 (6.6-8.5)	7.4 (6.0-8.8)	1.5 (1.1-2.0)	4167 (2800-4900)	1788 (460-2300)	20 (5-40)	0	0	0	0	C		
2.	Balasore U/s	12	7.9 (6.9-8.5)	7.0 (5.6-8.4)	1.2 (< 1.0-1.9)	2758 (790-4000)	1216 (170-2300)	NA	0	0	0	-	C		
3.	Balasore D/s	12	7.6 (6.7-8.5)	7.3 (5.6-8.4)	1.7 (1.2-2.5)	3515 (490-9400)	1063 (130-2200)	NA	0	1 (8)	0	-	C		
Sone River															
4.	Hatigond	12	7.6 (6.8-8.3)	6.7 (6.0-8.0)	1.5 (1.1-2.4)	1826 (130-4900)	681 (20-2300)	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 (2022)

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					BOD	TC	FC	FS				
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/100 ml)	FC (MPN/100 ml)								FS (MPN/100 ml)
Kerandi River															
1.	Sunabeda	12	7.3 (6.6-7.7)	7.2 (6.7-7.5)	1.4 (1.1-2.1)	1180 (20-2400)	421 (<1.8-1300)	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)

(I) Vansadhara river system (2022)

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					BOD	TC	FC	FS				
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/100 ml)	FC (MPN/100 ml)								FS (MPN/100 ml)
VansadharaRiver															
1.	Muniguda	12	7.4 (7.1-7.9)	7.2 (6.9-7.4)	1.3 (1.1-2.1)	1241 (230-3500)	424 (78-2400)	NA	0	0	0	-	C		
2.	Gunupur	12	7.5 (6.9-8.1)	7.3 (6.9-7.5)	1.2 (< 1.0-1.7)	1598 (230-4900)	457 (45-1300)	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)

(J) Indravati river system (2022)

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					BOD	TC	FC	FS				
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/100 ml)	FC (MPN/100 ml)								FS (MPN/100 ml)
Indravati River															
1.	Nawarangpur	12	7.4 (6.8-7.9)	7.3 (6.9-7.5)	1.3 (1.1-1.8)	1548 (110-4900)	584 (20-2200)	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)

(K) Bahuda river system (2022)

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					BOD	TC	FC	FS				
			pH	DO (mg/L)	BOD (mg/L)	TC (MPN/100 ml)	FC (MPN/100 ml)								FS (MPN/100 ml)
Bahuda River															
1.	Damodarpally	12	7.9 (6.9-8.5)	7.1 (5.0-9.0)	1.2 (< 1.0-2.2)	2408 (130-4700)	855 (20-2200)	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 2022 (January-December)

(A) Mahanadi River System (2022)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	34 (<10-131)	61 (32-76)	7.8 (6.7-12)	0.51 (<0.4-1.12)	0.011 (0-0.090)	3.17 (1.68-4.48)	154 (95-265)	0.61 (0.38-0.78)	27.43 (21.14-32.67)	<0.5 (<0.5-<0.5)	NA	59 (40-100)	13 (10-36)	11.5 (6.8-17.1)	0.4 (0.23-0.561)
2.	Jharsuguda	35 (<10-148)	61 (36-80)	8.1 (6.7-12)	0.7 (<0.4-2.8)	0.011 (0-0.070)	3.55 (1.68-7.28)	176 (108-239)	0.59 (0.34-0.84)	25.64 (18.7-32.02)	<0.5 (<0.5-2.855)	NA	65 (48-76)	14 (10-24)	19.2 (5.2-41.1)	0.61 (0.38-0.88)
3.	Brajrajnagar U/s	32 (<10-97)	64 (36-112)	8.1 (6.7-16)	0.61 (<0.4-1.68)	0.006 (0-0.022)	3.64 (1.68-6.72)	178 (124-245)	0.6 (0.34-0.8)	25.91 (18.09-32.9)	<0.5 (<0.5-<0.5)	NA	67 (52-104)	14 (10-19)	17.8 (7.3-30.6)	0.5 (0.37-0.64)
4.	Brajrajnagar D/s	44 (<10-125)	75 (44-132)	11.2 (6.7-16)	0.84 (<0.4-2.24)	0.01 (0-0.036)	3.55 (1.68-6.16)	201 (122-320)	0.67 (0.38-1.06)	26.53 (18.89-39.77)	<0.5 (<0.5-<0.5)	NA	77 (48-132)	15 (10-21)	19.8 (5.3-35.1)	0.54 (0.29-0.78)
Bheden River																
5.	Jharsuguda	33 (13-82)	72 (40-104)	8.9 (7-13)	0.61 (<0.4-1.12)	0.011 (0-0.045)	3.55 (1.68-7.28)	259 (143-542)	0.81 (0.34-1.77)	27.64 (15.81-40.21)	<0.5 (<0.5-2.523)	NA	90 (56-176)	26 (10-90)	31.2 (11.4-100)	1.48 (0.33-3.73)
Hirakud Reservoir																
6.	Hirakud reservoir	42 (<10-322)	74 (32-92)	8.4 (6.6-12)	0.61 (<0.4-1.12)	0.019 (0-0.087)	3.27 (1.68-5.6)	209 (153-290)	0.46 (0.32-0.61)	19 (12.98-24.62)	<0.5 (<0.5-<0.5)	NA	88 (76-116)	15 (8-42)	25.7 (8.7-58.8)	0.57 (0.323-0.788)
Power Channel																
7.	Power Channel U/s	20 (<10-79)	82 (64-112)	7.8 (6.6-12)	0.65 (0.56-1.12)	0.018 (0-0.070)	3.17 (1.68-5.04)	200 (144-244)	0.44 (0.25-0.61)	18.39 (11.97-24.2)	<0.5 (<0.5-<0.5)	NA	86 (80-96)	12 (10-18)	16.8 (7.4-28.8)	0.47 (0.362-0.57)
8.	Power Channel D/s	20 (<10-80)	86 (60-144)	10.6 (6.9-12)	1.03 (0.56-1.68)	0.031 (0-0.210)	4.06 (2.8-5.6)	228 (184-427)	0.5 (0.23-1.05)	19.44 (10.35-29.24)	<0.5 (<0.5-<0.5)	NA	92 (72-144)	16 (10-40)	21.3 (9.1-30.7)	0.42 (0.3-0.509)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	20 (<10-74)	80 (52-96)	7.7 (6.6-11)	0.56 (0.56-0.56)	0.014 (0-0.055)	3.69 (1.68-6.16)	201 (149-244)	0.45 (0.29-0.57)	19.19 (14.67-23.14)	<0.5 (<0.5-<0.5)	NA	83 (60-100)	11 (8-14)	18.1 (<5-32.9)	0.41 (0.36-0.469)
10.	Sambalpur D/s	20 (<10-76)	82 (64-96)	10.9 (6.9-15)	0.93 (0.56-1.12)	0.061 (0-0.174)	4.39 (3.36-6.16)	210 (145-237)	0.49 (0.26-0.65)	20.09 (12.64-26.78)	<0.5 (<0.5-1.119)	NA	86 (72-100)	14 (8-18)	19.8 (7.5-28.6)	0.46 (0.33-0.564)
11.	Sambalpur FD/s at Shankarmath	21 (<10-88)	91 (56-120)	9.8 (6.6-17.2)	0.89 (0.56-2.24)	0.037 (0-0.179)	4.2 (1.68-7.28)	228 (160-282)	0.62 (0.43-0.82)	24 (17.75-29.61)	<0.5 (<0.5-1.074)	NA	88 (68-108)	15 (10-22)	19.5 (6.3-33.4)	0.6 (0.39-0.76)
12.	Sambalpur FFD/s at Huma	17 (<10-44)	83 (56-96)	8.6 (6.9-12)	0.61 (0.56-1.12)	0.023 (0.007-0.090)	3.41 (2.24-5.04)	211 (154-262)	0.49 (0.28-0.6)	20.24 (13.95-24.37)	<0.5 (<0.5-0.584)	NA	84 (68-96)	13 (10-17)	18.8 (<5-34.6)	0.51 (0.404-0.69)
13.	Sonepur U/s	18 (<10-57)	86 (72-108)	7.7 (6.6-11)	0.65 (0.56-1.12)	0.023 (0.007-0.055)	3.87 (1.68-7.28)	221 (173-275)	0.54 (0.34-0.79)	21.96 (14.47-28.76)	<0.5 (<0.5-<0.5)	NA	85 (68-100)	14 (8-18)	17.6 (5.6-35.6)	0.49 (0.39-0.56)
14.	Sonepur D/s	18 (<10-47)	88 (64-100)	10.5 (6.9-16)	0.75 (0.56-1.12)	0.030 (0.011-0.073)	3.78 (1.68-5.6)	229 (170-280)	0.56 (0.38-0.76)	22.12 (16.48-27.86)	<0.5 (<0.5-<0.5)	NA	89 (68-100)	15 (10-22)	20.5 (7.8-36.1)	0.54 (0.37-0.68)
15.	Tikarapada	27 (<10-105)	85 (60-96)	8.4 (6.7-13.8)	0.51 (<0.4-0.56)	0.004 (0-0.013)	3.59 (1.68-6.16)	217 (161-251)	0.55 (0.34-1.02)	21.65 (15.41-33.67)	<0.5 (<0.5-<0.5)	NA	86 (76-100)	14 (12-20)	20.6 (9.3-33.9)	0.49 (0.28-0.64)
16.	Narasinghpur	31 (<10-98)	85 (56-100)	7.8 (6.7-11)	0.79 (<0.4-2.24)	0.006 (0-0.036)	4.34 (1.68-8.4)	214 (156-250)	0.51 (0.31-0.71)	20.75 (13.51-27.07)	<0.5 (<0.5-<0.5)	NA	88 (68-104)	15 (10-28)	17.7 (5.8-28.4)	0.5 (0.31-0.672)
17.	Munduli	46 (12-141)	84 (60-100)	8.4 (6.7-12)	0.51 (<0.4-0.56)	0.019 (0-0.070)	3.17 (2.24-5.04)	207 (153-239)	0.51 (0.33-0.63)	20.96 (15.61-24.36)	<0.5 (<0.5-<0.5)	NA	85 (72-100)	13 (8-20)	16.9 (7.8-27.4)	0.46 (0.29-0.79)
18.	Cuttack U/s	29 (10-71)	80 (60-100)	7.5 (6.7-8)	0.65 (<0.4-1.12)	0.024 (0-0.073)	3.69 (1.68-6.16)	202 (156-235)	0.53 (0.39-0.68)	22.16 (17.56-27.56)	<0.5 (<0.5-<0.5)	NA	78 (68-92)	13 (8-18)	15.1 (5.9-24.9)	0.44 (0.347-0.76)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	33 (12-115)	88 (64-104)	11.5 (10-14)	0.93 (0.56-1.68)	0.030 (0.003-0.109)	4.15 (1.68-6.72)	218 (152-246)	0.55 (0.37-0.67)	22.06 (15.89-27.05)	<0.5 (<0.5- <0.5)	NA	86 (68-104)	13 (10-18)	18.2 (5.3-36.9)	0.4 (0.318-0.51)
20.	Cuttack FD/s	26 (<10-86)	83 (56-100)	10.2 (7.3-12)	0.7 (0.56-1.12)	0.028 (0.003-0.073)	3.55 (1.68-6.16)	204 (153-232)	0.54 (0.35-0.64)	22.06 (17.12-25.73)	<0.5 (<0.5- <0.5)	NA	81 (68-92)	13 (8-16)	16.5 (6.8-28.3)	0.42 (0.335-0.52)
21.	Paradeep U/s	62 (<10-148)	90 (68-104)	10.9 (6.7-37)	0.56 (0.56-0.56)	0.010 (0-0.036)	3.13 (1.68-4.48)	4264 (157-16770)	11.72 (0.5-40.13)	51.42 (19.96-80.61)	0.516 (<0.5-1.896)	NA	591 (76-2080)	1696 (12-7996)	164.9 (<5-454.3)	0.52 (0.32-0.683)
22.	Paradeep D/s	73 (<10-223)	110 (56-200)	17.4 (10-37)	0.7 (0.56-1.12)	0.027 (0.0-0.073)	3.45 (2.24-5.6)	17897 (519-42680)	31.91 (2.16-73.89)	69.47 (46.36-85.4)	1.402 (<0.5-3.141)	NA	2401 (116-5400)	7350 (140-18991)	1125.8 (5.1-3528.6)	0.76 (0.32-1.89)
Ong River																
23.	Dharuakhamma	17 (<10-61)	120 (80-152)	8 (6.6-12)	0.56 (<0.4-1.12)	0.029 (0-0.090)	3.17 (1.68-5.04)	277 (205-361)	0.69 (0.45-0.96)	24.26 (16.18-29.82)	<0.5 (<0.5- <0.5)	NA	107 (84-132)	19 (10-31)	17.1 (6.5-31.1)	0.57 (0.3-0.79)
Tel River																
24.	Monmunda	64 (<10-230)	89 (60-112)	8.4 (6.6-12)	0.84 (<0.4-2.24)	0.038 (0-0.109)	4.11 (1.68-8.4)	200 (162-230)	0.5 (0.4-0.61)	21.08 (15.78-23.85)	<0.5 (<0.5- <0.5)	NA	83 (64-100)	12 (8-14)	11.9 (5.1-26.4)	0.56 (0.35-0.75)
Kathajodi River																
25.	Cuttack U/s	32 (<10-102)	81 (60-100)	8.1 (6.7-11.1)	0.75 (0.56-1.68)	0.028 (0-0.109)	3.78 (1.68-8.4)	192 (147-228)	0.54 (0.43-0.68)	22.74 (18.71-28.04)	<0.5 (<0.5- <0.5)	NA	76 (60-88)	12 (8-16)	13.9 (5.5-26)	0.44 (0.326-0.49)
26.	Cuttack D/s	44 (<10-205)	84 (60-108)	18.6 (11-24)	1.31 (0.56-2.24)	0.046 (0.007-0.174)	5.23 (2.8-8.96)	216 (164-326)	0.59 (0.42-0.99)	23.6 (18.87-30.96)	<0.5 (<0.5- <0.5)	NA	81 (60-100)	16 (10-28)	15.1 (7.4-26.4)	0.51 (0.27-0.84)
27.	Cuttack FD/s at Mattagajpur	21 (<10-61)	87 (56-120)	15.9 (8-36)	1.03 (0.56-2.24)	0.080 (0.008-0.174)	4.57 (1.68-8.4)	240 (194-258)	0.89 (0.57-1.18)	30.63 (21.84-41.17)	<0.5 (<0.5- <0.5)	NA	85 (56-100)	25 (18-28)	15.9 (5.3-26.6)	0.42 (0.256-0.61)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	32 (<10-123)	87 (60-124)	9.7 (6.7-15)	0.7 (0.56-1.68)	0.028 (0.007-0.084)	3.27 (1.68-6.72)	217 (155-263)	0.57 (0.35-0.78)	22.52 (16.18-28.6)	<0.5 (<0.5-<0.5)	NA	86 (76-108)	15 (10-22)	17.1 (6.1-26.7)	0.56 (0.318-0.94)
Serua River																
29.	Cuttack FFD/s at Sankhatarasa	45 (<10-166)	83 (56-112)	17.2 (7.5-24)	1.03 (<0.4-3.36)	0.041 (0-0.174)	3.92 (1.68-8.96)	219 (156-320)	0.6 (0.36-0.94)	23.29 (17.28-30.05)	<0.5 (<0.5-0.664)	NA	84 (68-112)	15 (10-26)	17.1 (7.3-27.4)	0.48 (0.29-0.83)
Kuakhai River																
30.	Bhubaneswar FU/s	48 (12-239)	75 (48-88)	8.2 (6.7-13)	0.65 (0.56-1.12)	0.016 (0-0.087)	3.73 (1.68-8.4)	200 (147-261)	0.61 (0.41-0.92)	24.04 (19.15-30.95)	<0.5 (<0.5-<0.5)	NA	79 (60-116)	17 (10-36)	15.7 (7-25.1)	0.44 (0.3-0.74)
31.	Bhubaneswar U/s	73 (10-341)	78 (56-100)	9.8 (6.7-17)	0.93 (0.56-1.68)	0.022 (0-0.174)	4.67 (2.24-7.28)	222 (183-319)	0.72 (0.49-1.36)	27.18 (20.87-37.04)	<0.5 (<0.5-<0.5)	NA	79 (60-96)	20 (10-50)	17.7 (6.8-27.4)	0.42 (0.26-0.84)
Daya River																
32.	Gelapur	42 (<10-201)	78 (52-96)	10.1 (6.7-17)	0.7 (0.56-1.12)	0.026 (0-0.087)	3.97 (1.68-6.16)	198 (143-233)	0.59 (0.31-0.77)	24.12 (15.16-30.92)	<0.5 (<0.5-<0.5)	NA	78 (64-108)	14 (6-18)	16.6 (6.2-25.6)	0.41 (0.26-0.635)
33.	Bhubaneswar D/s	54 (10-173)	74 (48-100)	22.8 (14.7-31)	2.33 (0.56-8.4)	0.019 (0-0.067)	8.07 (3.36-14)	283 (159-355)	1.11 (0.3-1.64)	33.69 (14.35-45.81)	<0.5 (<0.5-<0.5)	NA	87 (72-100)	38 (10-60)	20.8 (7.8-32.9)	0.73 (0.28-2.37)
34.	Bhubaneswar FD/s	56 (<10-260)	77 (52-96)	18.9 (12-27)	1.91 (0.56-6.16)	0.014 (0-0.059)	6.16 (2.24-11.2)	287 (154-383)	1.13 (0.32-1.67)	34.3 (16.1-45.7)	<0.5 (<0.5-<0.5)	NA	85 (60-116)	38 (6-60)	18.5 (<5-29.7)	0.69 (0.27-2.143)
35.	Kanas	21 (<10-45)	76 (56-112)	12 (7.3-18)	1.03 (0.56-2.8)	0.004 (0-0.017)	5.13 (2.24-11.2)	279 (176-508)	1.05 (0.21-2.61)	31.12 (9.22-52.05)	<0.5 (<0.5-<0.5)	NA	93 (68-128)	37 (6-116)	22.6 (<5-40.4)	0.93 (0.34-2.99)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	34 (<10-73)	77 (40-136)	46.8 (21-67)	4.48 (0.56-10.08)	0.017 (0.-0.101)	11.15 (2.8-22.4)	298 (166-490)	1.29 (0.53-2.59)	37.04 (23.22-49.75)	<0.5 (<0.5-<0.5)	NA	83 (56-132)	42 (18-86)	17.7 (6.8-31)	0.31 (0.2-0.63)
37.	Palasuni	242 (21-1896)	64 (8-112)	60.4 (32-79.2)	6.63 (0.56-20.16)	0.002 (0.-0.025)	13.35 (3.92-25.2)	507 (227-1289)	2.92 (0.72-11.13)	46.83 (27.42-80.08)	<0.5 (<0.5-<0.5)	NA	104 (76-148)	125 (30-460)	22.2 (6-39.8)	0.61 (0.26-1.27)
38.	Samantrapur	72 (23-171)	95 (64-132)	54.8 (28-69.3)	6.48 (0.56-14.56)	0.021 (0-0.073)	13.72 (1.68-21.84)	378 (210-514)	1.5 (0.75-2.14)	38.26 (27.56-49.25)	<0.5 (<0.5-<0.5)	NA	103 (68-156)	54 (22-80)	25.5 (7.6-44.4)	0.92 (0.232-4.07)
39.	Vadimula	115 (13-887)	91 (52-136)	35.5 (22-48)	4.17 (<0.4-12.88)	0.023 (0-0.129)	8.09 (2.24-16.8)	388 (174-532)	1.56 (0.48-2.31)	39.72 (22-48.87)	<0.5 (<0.5-<0.5)	NA	101 (64-156)	57 (18-90)	22.3 (<5-40.7)	1.14 (0.31-5.16)
Birupa River																
40.	Choudwar D/s	24 (<10-76)	81 (56-104)	10.3 (7-15)	0.75 (0.56-1.68)	0.031 (0.006-0.109)	4.15 (2.24-6.16)	199 (144-244)	0.55 (0.34-0.67)	22.77 (15.18-27.3)	<0.5 (<0.5-<0.5)	NA	78 (60-96)	13 (10-16)	16.8 (7.2-31.1)	0.38 (0.29-0.433)
Kushabhadra River																
41.	Bhingarpur	21 (<10-57)	93 (80-112)	9.3 (7.1-14)	0.93 (<0.4-2.24)	0.008 (0.0-0.050)	4.34 (1.68-8.4)	236 (206-286)	0.7 (0.54-0.9)	25.51 (20.73-30.67)	<0.5 (<0.5-<0.5)	NA	83 (64-96)	19 (14-22)	13.8 (<5-32)	0.38 (0.243-0.59)
42.	Nimapara	31 (13-59)	97 (76-116)	10.6 (7.1-24)	0.75 (<0.4-2.24)	0.006 (0-0.034)	3.83 (1.68-11.2)	245 (197-309)	0.78 (0.53-1.06)	27.92 (20.99-33.06)	<0.5 (<0.5-<0.5)	NA	86 (72-96)	21 (14-36)	13.6 (5.3-26)	0.35 (0.238-0.52)
43.	Gop	29 (<10-59)	95 (72-116)	9.6 (7.1-20)	0.65 (<0.4-1.12)	0.004 (0-0.017)	3.55 (1.68-6.72)	255 (204-336)	0.88 (0.64-1.28)	30.63 (25.79-37.58)	<0.5 (<0.5-<0.5)	NA	82 (72-96)	23 (14-32)	14.9 (<5-25.6)	0.37 (0.264-0.72)
Bhargavi River																
44.	Chandanpur	29 (<10-135)	84 (60-100)	8.9 (6.7-14)	0.98 (0.56-2.24)	0.057 (0.008-0.347)	4.43 (2.24-7.28)	248 (148-535)	0.83 (0.42-3.43)	26.58 (18.83-61.12)	<0.5 (<0.5-0.631)	NA	87 (64-124)	27 (14-135)	17.9 (<5-41)	0.47 (0.29-0.572)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	31 (<10-136)	91 (64-132)	8.3 (6.7-12)	0.93 (0.56-2.8)	0.012 (0-0.045)	4.62 (1.68-8.96)	366 (165-1889)	1.76 (0.37-13.71)	29.7 (15.76-75.05)	<0.5 (<0.5- <0.5)	NA	90 (68-180)	78 (12-746)	19.3 (<5-67.3)	0.47 (0.41-0.55)
46.	Golasahi	40 (12-138)	120 (72-192)	21 (11-31)	1.21 (0.56-2.24)	0.025 (0-0.070)	5.74 (1.68-11.2)	6075 (188-25970)	14.48 (0.51-63.58)	55.52 (20.38-85.46)	0.648 (<0.5-2.127)	NA	851 (68-3400)	2569 (12-11568)	254.5 (<5-1978.6)	0.55 (0.39-0.69)
Devi River																
47.	Machhagaon	55 (13-88)	88 (64-104)	14.9 (7.4-24)	0.75 (0.56-1.12)	0.036 (0-0.174)	3.55 (1.68-6.16)	9287 (175-32650)	17.78 (0.57-56.45)	51.64 (21.65-85.12)	0.826 (<0.5-2.493)	NA	1296 (60-3700)	3751 (16-13493)	430.5 (8.1-1942.9)	0.52 (0.3-0.653)
Gobari River																
48.	Kendrapada U/s	51 (<10-114)	107 (52-136)	7.8 (6.7-11)	0.75 (0.56-2.8)	0.016 (0-0.045)	2.85 (1.68-6.16)	739 (164-2064)	2.99 (0.52-7.92)	44.56 (20.58-71.79)	<0.5 (<0.5- <0.5)	NA	222 (60-1080)	204 (18-700)	71.2 (10-418.6)	0.38 (0.28-0.86)
49.	Kendrapada D/s	78 (23-209)	122 (56-160)	12.8 (10-16)	1.07 (0.56-3.92)	0.051 (0-0.314)	3.87 (1.68-10.08)	894 (146-3020)	3.1 (0.39-7.53)	45.36 (19.37-67.84)	<0.5 (<0.5- <0.5)	NA	256 (60-1360)	235 (12-900)	75.7 (<5-477.2)	0.37 (0.288-0.61)
Nuna River																
50.	Bijipur	42 (13-87)	99 (60-180)	9.4 (6.7-18)	0.71 (0.56-1.12)	0.007 (0-0.039)	4.12 (1.68-8.96)	258 (186-444)	0.64 (0.18-1.1)	23.24 (6.88-29.29)	<0.5 (<0.5- <0.5)	NA	100 (76-164)	19 (10-38)	20.1 (<5-37)	0.52 (0.39-0.652)
KusumiRiver																
51.	Tangi	47 (<10-180)	78 (56-124)	10.5 (6.7-18)	0.65 (0.56-1.12)	0.009 (0-0.020)	3.17 (1.68-5.6)	193 (133-289)	0.74 (0.35-1.13)	28.83 (16.43-37.4)	<0.5 (<0.5-1.673)	NA	71 (52-104)	19 (8-48)	12.6 (5.3-19.1)	0.41 (0.226-0.519)
Kansari River																
52.	Banapur	49 (<10-115)	88 (56-144)	10.7 (6.7-18)	0.79 (0.56-1.12)	0.011 (0-0.039)	4.62 (1.68-9.52)	213 (142-325)	0.75 (0.52-1.25)	28.8 (18.22-40.05)	<0.5 (<0.5-0.618)	NA	77 (52-136)	19 (10-38)	9.9 (<5-19.3)	0.48 (0.23-0.69)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	27 (<10-109)	147 (64-204)	11.6 (7.3-20)	0.84 (0.56-1.68)	0.012 (0-0.045)	3.78 (1.68-7.28)	1990 (249-16620)	9.04 (0.79-75.1)	53.85 (28.07-92.19)	<0.5 (<0.5-0.902)	NA	182 (96-480)	655 (20-6196)	53.6 (13-354.3)	0.62 (0.32-0.789)
Sabulia River																
54.	Rambha	25 (<10-51)	157 (92-228)	12.7 (7.1-37)	0.75 (0.56-1.68)	0.010 (0-0.021)	4.15 (2.24-8.4)	508 (268-643)	1.89 (0.8-2.52)	42.07 (27.78-55.62)	<0.5 (<0.5-0.71)	NA	152 (48-228)	83 (36-150)	22.9 (11.7-57.1)	0.67 (0.33-0.922)
Ratnachira River																
55.	Kumardihi	16 (<10-54)	102 (68-140)	10 (6.7-17)	0.93 (0.56-1.68)	0.021 (0-0.070)	4.62 (2.24-8.4)	298 (175-544)	1.09 (0.44-2.2)	32.49 (17.44-43.96)	<0.5 (<0.5-0.5)	NA	93 (68-132)	40 (18-116)	14.5 (6.2-27.1)	0.48 (0.33-0.59)
❖ 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' :Irrigationwater 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) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
(mg/L)												
Ib River												
1.	Sundergarh	1.907 (0.339-5.739)	0.067 (<0.05-0.2)	0.007	0.011	0.173	0.005	0.002	0.005	0.0015	NA	0.009
2.	Jharsuguda	1.622 (0.228-3.472)	<0.05 (<0.05-0.085)	0.004	0.008	0.118	0.003	0.01	0.021	0.0016	NA	0.007
3.	Brajarajnaragar U/S	1.264 (0.323-2.348)	<0.05 (<0.05-<0.05)	0.005	0.011	0.361	0.011	0.005	0.025	0.0010	NA	0.006
4.	Brajarajnaragar D/S	1.445 (0.134-3.154)	0.072 (<0.05-0.311)	<0.002	0.016	0.411	0.004	0.004	0.031	0.0018	NA	0.004
Bheden River												
5.	Bheden	2.131 (0.454-7.515)	<0.05 (<0.05-0.093)	<0.002	0.008	0.572	0.003	0.004	0.015	0.0049	NA	0.004
Hirakud reservoir												
6.	Hirakud	2.299 (0.36-4.535)	0.074 (<0.05-0.235)	0.006	0.009	0.015	0.014	0.012	0.014	0.0016	NA	0.007
Power Channel												
7.	Power Channel U/s	1.738 (0.349-4.17)	0.061 (<0.05-0.249)	0.004	0.017	0.377	0.019	0.014	0.014	0.0022	NA	0.007
8.	Power Channel D/s	3.632 (0.486-22.492)	0.073 (<0.05-0.232)	0.003	0.019	0.078	0.019	0.029	0.136	0.0022	NA	0.009
Mahanadi River												
9.	Sambalpur U/s	1.991 (0.614-5.567)	0.075 (<0.05-0.227)	0.008	0.009	0.138	0.008	0.014	0.021	0.0015	NA	0.01
10.	Sambalpur D/s	2.094 (0.804-4.762)	0.08 (<0.05-0.221)	0.007	0.016	0.003	0.016	0.022	0.209	0.0027	NA	0.009
11.	Sambalpur FD/s at Shankarmath	3.357 (0.58-8.975)	0.12 (<0.05-0.327)	0.005	0.008	0.094	0.014	0.018	0.108	0.0024	NA	0.006
12.	Sambalpur FFD/s Huma	1.469 (0.434-3.385)	0.077 (<0.05-0.399)	<0.002	0.008	0.007	0.002	0.018	0.014	0.0009	NA	0.009
13.	Sonepur U/s	1.958 (0.383-6.45)	0.136 (<0.05-0.852)	<0.002	0.006	0.03	0.002	0.007	0.041	0.0006	NA	0.006

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) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
(mg/L)												
14.	Sonepur D/s	2.482 (0.441-10.161)	0.171 (<0.05-0.977)	<0.002	0.006	0.002	0.003	0.004	0.015	0.0006	NA	0.007
15.	Tikarapada	2.657 (0.336-8.573)	<0.05 (<0.05-0.21)	<0.002	0.009	0.007	0.008	0.002	0.006	0.0012	NA	0.011
16.	Narasinghpur	3.534 (0.533-17.72)	0.09 (<0.05-0.294)	0.002	0.009	0.188	0.013	0.003	0.01	0.0016	NA	0.008
17.	Munduli	1.818 (0.426-5.71)	0.072 (<0.05-0.189)	<0.002	0.009	0.105	0.015	0.003	0.009	0.0015	NA	0.005
18.	Cuttack U/S	1.687 (0.441-5.047)	0.094 (<0.05-0.427)	<0.002	0.014	0.316	0.01	0.012	0.176	0.0017	NA	0.005
19.	Cuttack D/S	3.558 (0.327-22.315)	0.094 (<0.05-0.478)	<0.002	0.018	0.204	0.015	0.003	0.013	0.0029	NA	0.006
20.	Cuttack FD/s	3.144 (0.765-12.066)	0.05 (<0.05-0.122)	<0.002	0.009	0.095	0.011	0.002	0.008	0.0013	NA	0.013
21.	Paradeep U/s	3.97 (0.352-25.159)	0.131 (<0.05-0.667)	0.004	0.011	0.965	0.014	0.005	0.019	0.0021	NA	0.007
22.	Paradeep D/s	2.21 (0.765-5.316)	0.412 (<0.05-2.035)	0.003	0.014	1.114	0.018	0.009	0.082	0.003	NA	0.011
Ong river												
23.	Dharuakhamma	1.476 (0.593-3.292)	<0.05 (<0.05-0.178)	<0.002	0.007	0.089	0.003	0.003	0.011	0.0006	NA	0.009
Tel River												
24.	Monmundal	1.924 (0.326-4.241)	0.068 (<0.05-0.234)	<0.002	0.007	0.047	0.002	0.003	0.006	0.0006	NA	0.009
Kathajodi River												
25.	Cuttack U/s	2.351 (0.209-6.816)	0.086 (<0.05-0.431)	<0.002	0.015	0.518	0.012	0.004	0.022	0.0021	NA	0.005
26.	Cuttack D/s	4.077 (0.215-29.134)	0.192 (<0.05-1.092)	0.003	0.021	0.308	0.007	0.006	0.029	0.0023	NA	0.012
27.	Cuttack FD/s Mattagajpur	1.953 (0.113-4.064)	0.122 (<0.05-0.721)	0.004	0.014	0.218	0.003	0.003	0.008	0.0005	NA	0.014
28.	Kamasasan (Cuttack FFD/s)	2.804 (0.757-6.197)	0.15 (<0.05-0.359)	0.006	0.009	0.095	0.017	0.004	0.01	0.0013	NA	0.012

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO ₃ ⁻	PO ₄ ³⁻ -P	Cr(VI) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
(mg/L)												
Serua River												
29.	Cuttack FD/s Sankhatrasa	4.84 (0.718-30.248)	0.166 (<0.05-0.425)	0.007	0.018	0.628	0.019	0.003	0.011	0.0025	NA	0.015
Kuakhai River												
30.	Bhubaneswar FU/s	2.22 (0.447-7.657)	0.06 (<0.05-0.217)	<0.002	0.009	0.131	0.019	0.002	0.002	0.0021	NA	0.008
31.	Bhubaneswar U/s	4.117 (0.401-10.862)	0.119 (<0.05-0.389)	<0.002	0.009	0.052	0.014	0.001	0.006	0.0019	NA	0.002
Daya River												
32.	Gelapur	2.412 (0.931-4.202)	<0.05 (<0.05-0.089)	0.007	0.009	0.049	0.017	0.002	0.025	0.002	NA	0.008
33.	Bhubaneswar D/s	13.31 (1.77-30.527)	0.201 (<0.05-0.427)	0.003	0.014	0.101	0.019	0.004	0.036	0.0044	NA	0.005
34.	Bhubaneswar FD/s	11.414 (1.077-30.641)	0.217 (<0.05-0.451)	0.004	0.011	0.064	0.015	0.001	0.006	0.0028	NA	0.005
35.	Kanas	12.213 (0.651-35.033)	0.148 (<0.05-0.414)	<0.002	0.011	0.108	0.012	0.003	0.127	0.0011	NA	0.009
Gangua River												
36.	Near Rajdhani Engg. College	22.051 (1.765-49.482)	0.534 (<0.05-1.733)	0.007	0.018	0.031	0.039	0.007	0.057	0.0040	NA	0.009
37.	Palasuni	15.66 (1.672-68.004)	0.729 (<0.05-2.022)	0.009	0.016	0.159	0.032	0.015	0.032	0.0038	NA	0.009
38.	Samantrapur	18.529 (0.584-71.444)	0.609 (0.116-2.098)	0.008	0.018	0.039	0.034	0.012	0.046	0.0049	NA	0.008
39.	Vadimula	20.01 (0.508-60.754)	0.273 (<0.05-0.797)	0.005	0.016	0.099	0.023	0.005	0.07	0.0043	NA	0.011
Birupa River												
40.	ChoudwarD/s	1.974 (0.518-6.913)	0.119 (<0.05-0.781)	0.002	0.005	0.133	0.016	0.004	0.009	0.0038	NA	0.006
Kushabhadra River												
41.	Bhingarpur	1.82 (0.261-3.13)	0.064 (<0.05-0.34)	<0.002	0.009	0.121	0.009	0.002	0.01	0.0013	NA	0.011
42.	Nimapara	1.703 (0.247-3.08)	0.059 (<0.05-0.176)	<0.002	0.012	0.152	0.005	0.002	0.012	0.0009	NA	0.009

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO ₃ ⁻ (mg/L)	PO ₄ ³⁻ -P (mg/L)	Cr(VI) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
43.	Gop	2.045 (0.508-4.394)	0.101 (<0.05-0.466)	<0.002	0.016	0.123	0.01	0.004	0.007	0.0017	NA	0.009
Bhargavi River												
44.	Bhargavi at Chandanpur	1.967 (0.421-5.352)	0.052 (<0.05-0.168)	0.005	0.008	0.207	0.015	0.004	0.013	0.0034	NA	0.006
Mangala River												
45.	Malatipatpur	4.608 (0.503-34.344)	0.136 (<0.05-0.924)	0.005	0.011	0.115	0.007	0.002	0.006	0.0019	NA	0.006
46.	Golasahi	10.647 (0.565-35.457)	0.185 (<0.05-0.524)	0.007	0.014	0.308	0.014	0.007	0.009	0.0035	NA	0.011
Devi River												
47.	Devi at Machhagaon	2.15 (0.889-5.207)	0.052 (<0.05-0.157)	0.006	0.016	1.687	0.018	0.011	0.087	0.0028	NA	0.011
Gobari River												
48.	Kendrapada U/s	2.227 (0.767-5.054)	0.115 (<0.05-0.286)	0.005	0.004	0.491	0.016	0.016	0.131	0.0020	NA	0.004
49.	Kendrapada D/s	3.889 (1.154-12.977)	0.169 (<0.05-0.432)	0.006	0.005	1.239	0.019	0.029	0.039	0.0043	NA	0.008
Nuna River												
50.	Bijipur	2.319 (0.463-4.255)	0.059 (<0.05-0.165)	<0.002	0.019	0.122	0.008	0.001	0.004	0.0010	NA	0.007
Kusumi River												
51.	Tangi	1.958 (0.46-3.872)	0.076 (<0.05-0.191)	<0.002	0.011	0.071	0.008	0.003	0.016	0.0005	NA	0.008
Kansari River												
52.	Banapur	2.357 (0.467-5.257)	0.102 (<0.05-0.248)	<0.002	0.018	0.004	0.007	0.002	0.004	0.0005	NA	0.009
Badasankha River												
53.	Langaleswar	3.228 (0.814-6.562)	0.08 (<0.05-0.256)	<0.002	0.015	0.162	0.022	0.004	0.016	0.0026	NA	0.009
Sabulia River												
54.	Rambha	3.902 (0.685-13.418)	0.085 (<0.05-0.296)	<0.002	0.013	0.039	0.014	0.003	0.007	0.0015	NA	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) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
		(mg/L)		(mg/L)								
Ratnachira River												
55.	Kumardihi	1.388 (0.845-2.443)	0.05 (<0.05-0.116)	0.007	0.011	0.157	0.009	0.002	0.004	0.0031	NA	0.011
	❖ 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' :Irrigationwater quality

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

##Data for the period April, 2022 NA :Not analysed

(B) Brahmani River System (2022)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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)							
Sankhriver																
1.	Sankh U/s	46 (13-178)	52 (36-72)	7.4 (6.7-7.9)	0.7 (<0.4-1.68)	0.018 (0-0.078)	3.78 (1.68-8.96)	129 (104-171)	0.41 (0.3-0.52)	21.01 (17.05-25.4)	<0.5 (<0.5-<0.5)	NA	54 (44-76)	9 (6-14)	12.1 (6.7-22.9)	0.4 (0.27-0.98)
Koel River																
2.	Koel U/s	67 (12-332)	73 (32-104)	8 (6.9-12)	0.93 (0.56-2.8)	0.023 (0-0.164)	4.06 (2.24-8.96)	167 (116-216)	0.39 (0.29-0.53)	18.29 (14.06-24)	<0.5 (<0.5-<0.5)	NA	71 (48-96)	11 (8-16)	11.5 (7.3-27)	0.36 (0.25-0.46)
Brahmani River																
3.	Panposh U/S	48 (<10-223)	58 (40-104)	7.8 (6.7-12)	0.75 (0.56-1.68)	0.021 (0-0.140)	3.64 (1.68-7.84)	144 (109-238)	0.41 (0.29-0.55)	20.34 (13.17-26.99)	<0.5 (<0.5-<0.5)	NA	63 (40-104)	10 (8-12)	13 (6-29.5)	0.43 (0.27-0.78)
4.	Panposh D/S	73 (12-324)	69 (32-136)	25.1 (17.2-32.7)	4.2 (0.56-12.88)	0.100 (0-0.364)	9.68 (5.04-20.16)	304 (208-512)	0.72 (0.39-1.56)	23 (15.82-38.18)	<0.5 (<0.5-<0.5)	NA	110 (56-136)	25 (12-36)	49.2 (10.6-110.6)	0.76 (0.32-1.39)
5.	Rourkela D/S	67 (<10-384)	61 (20-96)	21.1 (13.8-27)	1.59 (0.56-4.48)	0.032 (0-0.084)	5.23 (2.24-11.2)	208 (108-307)	0.48 (0.3-1.08)	19.07 (13.32-33.11)	<0.5 (<0.5-<0.5)	NA	85 (48-108)	16 (10-28)	25.1 (7.2-42.6)	0.53 (0.28-0.769)
6.	Attaghat	73 (<10-494)	73 (28-152)	15.2 (6.9-24)	1.12 (0.56-2.24)	0.018 (0-0.067)	3.92 (1.68-6.72)	216 (129-407)	0.55 (0.31-1.18)	21.11 (14.73-32.52)	<0.5 (<0.5-<0.5)	NA	82 (52-136)	17 (10-44)	20.7 (11.6-34)	0.48 (0.28-0.661)
7.	Rourkela FD/s (Biritola)	60 (<10-393)	66 (32-92)	11.8 (6.9-17)	0.65 (0.56-1.12)	0.015 (0.0-0.070)	3.97 (2.8-6.16)	184 (118-282)	0.46 (0.3-0.95)	20.16 (14.54-30.95)	<0.5 (<0.5-<0.5)	NA	73 (48-92)	13 (6-27)	16.6 (7-29)	0.45 (0.26-0.64)
8.	Bonaigarh	61 (<10-416)	63 (40-84)	9 (6.7-12)	0.51 (<0.4-1.12)	0.013 (0-0.070)	3.22 (1.68-7.28)	175 (120-210)	0.43 (0.26-0.55)	19.06 (12.79-22.12)	<0.5 (<0.5-<0.5)	NA	72 (52-88)	12 (6-18)	16.9 (5.4-32.9)	0.43 (0.25-0.635)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	24 (<10-104)	54 (40-68)	8.8 (6.7-16)	0.61 (<0.4-1.12)	0.006 (0-0.017)	3.5 (1.68-5.6)	143 (106-179)	0.41 (0.31-0.85)	20.27 (15.73-36.17)	<0.5 (<0.5-<0.5)	NA	58 (40-84)	10 (6-16)	14.1 (5.6-31.4)	0.41 (0.28-0.71)
10.	Samal	21 (<10-57)	54 (40-68)	8.1 (6.7-11)	0.61 (0.56-1.12)	0.008 (0-0.020)	4.15 (1.68-8.4)	141 (113-172)	0.37 (0.29-0.47)	18.9 (15.57-21.88)	<0.5 (<0.5-<0.5)	NA	59 (48-76)	10 (8-14)	13.3 (<5-19.9)	0.41 (0.29-0.55)
11.	Talcher FU/s	24 (<10-59)	55 (40-64)	8.1 (6.7-13.8)	0.56 (0.56-0.56)	0.007 (0-0.013)	3.36 (2.24-6.16)	145 (112-180)	0.36 (0.3-0.45)	17.75 (14.87-20.77)	<0.5 (<0.5-<0.5)	NA	63 (52-80)	10 (8-14)	15.5 (6.4-23.8)	0.41 (0.29-0.62)
12.	Talcher U/s	36 (<10-123)	57 (44-80)	7.8 (6.7-12)	0.61 (0.56-1.12)	0.008 (0-0.022)	3.73 (2.24-6.16)	148 (118-187)	0.36 (0.27-0.45)	17.84 (13.24-22.27)	<0.5 (<0.5-<0.5)	NA	64 (48-88)	9 (6-14)	15.8 (5.1-24.9)	0.41 (0.28-0.58)
13.	Mandapal	35 (10-123)	56 (36-72)	8.5 (6.7-16)	0.7 (0.56-1.68)	0.011 (0-0.059)	3.36 (2.24-6.16)	150 (124-187)	0.37 (0.3-0.53)	18.44 (15.61-24.35)	<0.5 (<0.5-<0.5)	NA	62 (48-80)	9 (6-12)	15.6 (6.6-27.9)	0.42 (0.322-0.6)
14.	Talcher D/s	35 (10-91)	66 (48-96)	12.2 (10-16)	0.98 (0.56-1.68)	0.011 (0.003-0.034)	4.95 (3.36-6.72)	189 (148-250)	0.47 (0.3-0.6)	20.21 (14.69-23.35)	<0.5 (<0.5-<0.5)	NA	76 (64-96)	13 (8-18)	20.6 (6.7-38.1)	0.44 (0.27-0.532)
15.	Talcher FD/s	36 (<10-119)	70 (48-108)	10.3 (7.1-12)	0.7 (0.56-1.12)	0.009 (0-0.020)	3.31 (1.68-5.6)	191 (158-275)	0.5 (0.3-0.77)	21.23 (15.1-27.51)	<0.5 (<0.5-<0.5)	NA	76 (64-96)	14 (10-22)	20.3 (5.8-32.9)	0.45 (0.27-0.526)
16.	Dhenkanal U/s	40 (<10-154)	63 (48-84)	8.1 (6.7-12)	0.51 (<0.4-0.56)	0.007 (0-0.022)	3.31 (1.68-5.6)	159 (119-221)	0.4 (0.29-0.54)	18.95 (15.75-22.01)	<0.5 (<0.5-<0.5)	NA	68 (52-84)	12 (8-18)	13.9 (6.8-24)	0.43 (0.32-0.61)
17.	Dhenkanal D/s	32 (11-117)	63 (52-84)	11 (7.1-16)	0.75 (<0.4-1.68)	0.011 (0-0.025)	4.15 (2.24-6.16)	169 (142-227)	0.42 (0.26-0.55)	19.31 (13.04-22.65)	<0.5 (<0.5-<0.5)	NA	70 (56-92)	13 (8-18)	15.5 (6-28.9)	0.42 (0.31-0.74)
18.	Bhuban	51 (<10-216)	62 (52-76)	8.4 (6.7-12)	0.75 (<0.4-1.68)	0.011 (0-0.045)	3.64 (1.68-5.6)	159 (131-219)	0.41 (0.3-0.55)	19.65 (15.88-22.91)	<0.5 (<0.5-<0.5)	NA	65 (52-76)	10 (8-16)	13.8 (6.3-25.7)	0.47 (0.22-0.79)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	60 (<10-202)	58 (44-96)	7.7 (6.7-11)	0.79 (0.56-1.68)	0.006 (0-0.017)	4.71 (2.24-7.28)	150 (123-175)	0.38 (0.27-0.44)	18.54 (13.14-22.26)	<0.5 (<0.5-<0.5)	NA	65 (52-76)	10 (6-12)	15.3 (6.4-25.9)	0.4 (0.31-0.56)
20.	Dharmasala U/s	45 (<10-226)	63 (44-92)	8 (6.7-11)	0.7 (0.56-1.68)	0.008 (0-0.020)	3.64 (1.68-6.72)	159 (130-189)	0.4 (0.24-0.53)	19.05 (11.9-24.01)	<0.5 (<0.5-<0.5)	NA	66 (56-84)	10 (8-14)	17.4 (<5-35.7)	0.39 (0.3-0.75)
21.	Dharmasala D/s	75 (<10-334)	66 (48-88)	10.9 (7.2-16)	0.79 (<0.4-1.68)	0.007 (0-0.013)	3.59 (1.68-7.28)	174 (133-265)	0.42 (0.23-0.66)	18.72 (10.79-24.7)	<0.5 (<0.5-<0.5)	NA	75 (64-96)	12 (8-18)	18.6 (6.8-42.4)	0.4 (0.299-0.64)
22.	Pottamundai	29 (<10-76)	78 (56-108)	8.6 (7-13)	0.65 (0.56-1.12)	0.008 (0-0.022)	4.06 (1.68-6.16)	229 (147-437)	0.78 (0.39-3.34)	25.72 (15.1-64.38)	<0.5 (<0.5-<0.5)	NA	83 (64-124)	24 (10-110)	20.7 (7.4-58)	0.41 (0.269-0.532)
Nandira River																
23.	Nandira U/s	14 (<10-38)	154 (120-200)	8.8 (6.7-12)	0.56 (<0.4-1.12)	0.011 (0-0.055)	2.8 (1.68-4.48)	497 (456-549)	1.3 (0.99-1.71)	32.24 (25.4-39.32)	<0.5 (<0.5-<0.5)	NA	163 (136-188)	52 (31-100)	44.2 (7.3-80)	2.26 (0.62-3.47)
24.	Nandira D/s	27 (11-76)	156 (104-196)	11.3 (7.5-16)	0.93 (0.56-2.24)	0.036 (0-0.260)	3.64 (1.68-6.16)	530 (375-671)	1.22 (0.77-1.67)	29.78 (22.31-40.48)	<0.5 (<0.5-<0.5)	NA	183 (128-260)	52 (32-87)	62.9 (5.6-150)	2.32 (0.47-3.61)
Kisindhajhor																
25.	Kisindhajhor	25 (<10-69)	148 (76-268)	8.7 (6.7-12)	0.61 (<0.4-1.12)	0.022 (0-0.174)	3.73 (1.68-6.16)	537 (218-869)	1.22 (0.62-2.52)	29.52 (22.5-42.66)	<0.5 (<0.5-<0.5)	NA	180 (88-240)	56 (24-116)	61.5 (5.1-109.3)	1.56 (0.4-2.32)
Kharasrota River																
26.	Khanditara	50 (<10-157)	60 (44-72)	8.6 (6.7-11)	0.89 (<0.4-2.24)	0.032 (0-0.210)	4.57 (2.24-7.28)	157 (137-193)	0.37 (0.25-0.48)	17.77 (12.01-22.28)	<0.5 (<0.5-<0.5)	NA	68 (52-84)	11 (8-16)	15.3 (6.3-23)	0.4 (0.283-0.85)
27.	Binjharapur	44 (<10-195)	66 (52-80)	7.7 (6.9-10)	0.7 (0.56-1.12)	0.018 (0.006-0.045)	4.06 (2.8-6.16)	158 (131-202)	0.4 (0.27-0.48)	18.63 (14.08-22.36)	<0.5 (<0.5-<0.5)	NA	69 (60-84)	11 (8-17)	12.4 (5.6-26.1)	0.41 (0.293-0.82)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	47 (17-111)	67 (48-128)	10 (6.7-16)	0.79 (0.56-1.68)	0.051 (0-0.210)	4.15 (1.68-5.6)	262 (130-896)	0.93 (0.34-4.05)	26.13 (14.22-65.62)	<0.5 (<0.5-<0.5)	NA	83 (56-200)	39 (8-196)	22.5 (<5-56.9)	0.42 (0.334-0.49)
Guradih nallah																
29.	Guradih Nallah	34 (<10-101)	83 (20-156)	35.2 (20-55)	10.78 (1.68-34.16)	0.252 (0-1.196)	21.37 (9.52-39.2)	436 (310-606)	0.93 (0.6-1.94)	24.72 (16.57-43.57)	<0.5 (<0.5-0.552)	NA	145 (124-176)	42 (34-56)	71.2 (7-120)	1.12 (0.29-2.19)
Badajhor																
30.	Badhajhor	28 (<10-78)	103 (52-152)	8.9 (6.7-20.7)	0.84 (<0.4-2.24)	0.028 (0-0.087)	3.97 (1.68-5.04)	289 (201-407)	0.68 (0.44-1.06)	23.58 (18.52-29.73)	<0.5 (<0.5-<0.5)	NA	107 (76-144)	27 (14-44)	20.5 (8.4-40.3)	0.64 (0.36-0.89)
Damsala River																
31.	Dayanabil	44 (<10-145)	63 (32-84)	8.6 (6.7-13.8)	0.75 (0.56-1.68)	0.019 (0-0.073)	4.11 (2.24-6.72)	151 (96-190)	0.33 (0.23-0.6)	16.27 (10.58-28.55)	<0.5 (<0.5-<0.5)	NA	69 (48-92)	10 (6-14)	12 (5.4-27.1)	0.59 (0.188-1.31)
Gonda nallah																
32.	Marthapur	57 (10-320)	95 (60-204)	8.9 (6.7-11)	0.7 (<0.4-1.68)	0.012 (0-0.059)	4.39 (1.68-7.84)	438 (160-1054)	1.21 (0.15-3.5)	30.06 (5.03-49.85)	<0.5 (<0.5-0.584)	NA	149 (56-280)	58 (10-210)	52.8 (<5-173.6)	0.78 (0.27-1.19)
Lingira River																
33.	Lingira U/s	16 (<10-52)	176 (124-212)	7.8 (6.7-10.3)	0.65 (<0.4-2.24)	0.049 (0-0.280)	3.31 (1.68-5.6)	404 (346-503)	0.93 (0.4-1.37)	26.69 (12.94-36.96)	<0.5 (<0.5-<0.5)	NA	149 (116-176)	27 (14-40)	22.6 (7.4-46.9)	0.65 (0.33-0.9)
34.	Lingira D/s	21 (<10-48)	165 (116-236)	11.9 (7.9-16)	0.93 (<0.4-1.68)	0.084 (0-0.680)	4.29 (2.24-5.6)	395 (251-504)	1.09 (0.57-1.64)	30.53 (17.1-44.72)	<0.5 (<0.5-<0.5)	NA	140 (68-180)	31 (15-52)	24 (6.1-47.7)	0.8 (0.578-1.03)
Ramiala River																
35.	Kamakhyanagar	31 (<10-113)	57 (32-96)	7.5 (6.7-8)	0.56 (<0.4-1.12)	0.016 (0-0.056)	3.27 (1.68-4.48)	144 (85-245)	0.38 (0.24-0.64)	19.09 (11.47-24.55)	<0.5 (<0.5-<0.5)	NA	61 (36-100)	10 (6-24)	12.5 (5.4-32.3)	0.53 (0.31-0.79)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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.	Bangurunallah	26 (<10-58)	100 (60-140)	10.7 (6.7-16)	0.61 (<0.4-1.68)	0.007 (0-0.028)	3.59 (1.68-6.16)	751 (518-1091)	0.99 (0.51-1.74)	21.82 (12.9-36.2)	<0.5 (<0.5-<0.5)	NA	257 (160-400)	49 (28-80)	193.8 (58-340)	0.49 (0.31-0.738)
Singadajhor																
37.	Singadajhor	20 (<10-44)	141 (60-184)	8.3 (6.9-11)	0.89 (<0.4-2.24)	0.024 (0-0.164)	3.51 (1.68-7.28)	380 (233-525)	0.62 (0.38-0.75)	19.56 (11.93-27.01)	<0.5 (<0.5-<0.5)	NA	156 (84-220)	24 (16-46)	43.3 (14.2-89.1)	0.59 (0.426-0.701)
Tikira River																
38.	Kaniha U/s	39 (<10-248)	84 (56-124)	7.5 (6.7-8)	0.65 (<0.4-1.12)	0.035 (0-0.174)	3.73 (1.68-6.16)	212 (136-292)	0.44 (0.3-0.67)	18.05 (13.25-23.71)	<0.5 (<0.5-<0.5)	NA	91 (60-116)	13 (8-20)	18.4 (<5-52.6)	0.56 (0.4-0.744)
39.	Kaniha D/s	51 (12-169)	89 (60-128)	11 (6.9-16)	0.89 (0.56-1.68)	0.038 (0.006-0.109)	3.92 (2.24-6.16)	269 (145-352)	0.61 (0.36-1.38)	21.82 (13.3-45.48)	<0.5 (<0.5-<0.5)	NA	106 (64-144)	20 (12-32)	30.7 (5.3-58.9)	1.11 (0.35-1.98)
Bangurusingadajhor																
40.	Bangurusingadajhor	20 (<10-49)	130 (88-200)	9.4 (6.7-16)	0.84 (0.56-1.68)	0.045 (0.006-0.045)	4.01 (1.68-8.4)	331 (195-483)	0.73 (0.43-1.36)	22.88 (17.09-32.9)	<0.5 (<0.5-<0.5)	NA	135 (84-200)	25 (12-54)	24.2 (8.2-56.3)	0.61 (0.29-0.879)
Karo River																
41.	Barbil	30 (<10-114)	67 (40-160)	8.7 (6.7-12)	0.65 (0.56-1.12)	0.009 (0-0.036)	4.2 (2.24-6.72)	168 (104-522)	0.38 (0.26-1.36)	16.86 (12.45-32.69)	<0.5 (<0.5-<0.5)	NA	71 (40-168)	14 (6-70)	11.1 (5.4-28.8)	0.48 (0.17-1.34)
❖ Class 'C'		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ Class 'E'		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

NA : Not analysed

❖ 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) [#]	T Cr [#]	Fe [#]	Ni [#]	Cu [#]	Zn [#]	Cd [#]	Hg [#]	Pb [#]
(mg/L)		(mg/L)										
Sankh River												
1.	Sankh U/s	1.531 (0.36-3.526)	<0.05 (<0.05-0.123)	0.006	0.009	0.148	0.003	0.002	0.001	0.0008	NA	0.009
Koel River												
2.	Koel U/s	1.556 (0.279-3.292)	<0.05 (<0.05-0.153)	0.004	0.011	0.188	0.012	0.002	0.004	0.001	NA	0.012
Brahmani River												
3.	Panposh U/S	1.378 (0.092-3.316)	<0.05 (<0.05-0.085)	0.002	0.009	0.139	0.005	0.004	0.029	0.0004	NA	0.006
4.	Panposh D/S	21.567 (5.027-44.189)	<0.05 (<0.05-0.102)	0.003	0.017	1.917	0.018	0.006	0.031	0.0027	NA	0.015
5.	Rourkella D/S	16.105 (2.31-35.988)	<0.05 (<0.05-0.056)	0.004	0.011	0.635	0.011	0.004	0.012	0.0024	NA	0.011
6.	Attaghat	11.16 (2.215-40.22)	<0.05 (<0.05-0.066)	0.006	0.011	0.286	0.014	0.004	0.013	0.0026	NA	0.007
7.	Rourkela FD/s (Biritola)	6.651 (2.28-12.754)	<0.05 (<0.05-0.106)	0.004	0.009	0.419	0.013	0.003	0.006	0.002	NA	0.006
8.	Bonaigarh	9.333 (2.524-19.793)	<0.05 (<0.05-0.152)	<0.002	0.009	0.304	0.008	0.004	0.008	0.0015	NA	0.005
9.	Rengali	2.309 (0.044-5.906)	0.063 (<0.05-0.269)	<0.002	0.015	0.069	0.004	0.005	0.009	0.0022	NA	0.011
10.	Samal	2.113 (0.696-3.786)	0.064 (<0.05-0.191)	<0.002	0.018	0.033	0.006	0.004	0.026	0.0032	NA	0.005
11.	Talcher FU/s	2.298 (0.641-4.739)	<0.05 (<0.05-0.103)	<0.002	0.011	0.087	0.005	0.005	0.006	0.0009	NA	0.011
12.	Talcher U/S	1.944 (0.8-3.351)	<0.05 (<0.05-0.09)	<0.002	0.011	0.078	0.004	0.003	0.005	0.0007	NA	0.005
13.	Mandapal	1.757 (0.849-2.932)	0.108 (<0.05-0.351)	<0.002	0.012	0.122	0.007	0.003	0.018	0.0010	NA	0.009
14.	Talcher D/S	1.503 (0.406-3.313)	0.059 (<0.05-0.228)	<0.002	0.016	0.064	0.007	0.003	0.004	0.0010	NA	0.014

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO ₃ ⁻ (mg/L)	PO ₄ ³⁻ -P (mg/L)	Cr(VI) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
15.	Talcher FD/s	1.732 (0.657-2.691)	0.129 (<0.05-0.47)	<0.002	0.014	0.124	0.008	0.003	0.006	0.0011	NA	0.007
16.	Dhenkanal U/s	2.499 (0.818-5.863)	0.059 (<0.05-0.247)	<0.002	0.009	0.216	0.006	0.005	0.01	0.001	NA	0.007
17.	Dhenkanal D/s	1.626 (0.762-3.271)	0.064 (<0.05-0.43)	<0.002	0.011	0.178	0.026	0.008	0.215	0.001	NA	0.009
18.	Bhuban	1.605 (0.477-2.975)	0.12 (<0.05-0.883)	<0.002	0.011	0.175	0.004	0.003	0.013	0.0009	NA	0.007
19.	Kabatabandha	2.27 (1.124-5.069)	0.088 (<0.05-0.544)	<0.002	0.016	0.253	0.004	0.002	0.001	0.0004	NA	0.008
20.	Dharmasala U/s	1.721 (0.393-4.091)	<0.05 (<0.05-0.088)	<0.002	0.011	0.062	0.003	0.003	0.002	0.0009	NA	0.002
21.	Dharmasala D/s	4.708 (1.119-20.163)	<0.05 (<0.05-0.071)	<0.002	0.014	0.107	0.005	0.001	0.001	0.0010	NA	0.006
22.	Pottamundai	2.154 (0.772-5.075)	0.074 (<0.05-0.384)	0.002	0.006	1.496	0.012	0.006	0.165	0.0024	NA	0.005
Nandirajhor												
23.	Nandira U/s	3.745 (1.291-7.996)	0.083 (<0.05-0.314)	<0.002	0.023	0.026	0.016	0.005	0.006	0.0022	NA	0.008
24.	Nandira D/s	2.362 (0.614-4.336)	0.052 (<0.05-0.282)	<0.002	0.028	0.114	0.018	0.004	0.006	0.0022	NA	0.011
Kisindhajhor												
25.	Kisindhajhor	2.763 (0.488-8.091)	0.065 (<0.05-0.231)	<0.002	0.015	0.224	0.033	0.006	0.163	0.0028	NA	0.009
Kharasrota River												
26.	Khanditara	2.663 (0.85-10.743)	<0.05 (<0.05-0.095)	<0.002	0.011	0.205	0.0164	0.019	0.188	0.0003	NA	0.011
27.	Binjharpur	3.14 (0.411-9.473)	<0.05 (<0.05-0.137)	<0.002	0.015	0.202	0.004	0.006	0.004	0.0023	NA	0.007
28.	Aul	2.204 (0.872-3.388)	0.083 (<0.05-0.358)	0.007	0.018	0.597	0.019	0.004	0.034	0.0027	NA	0.006
Guradih nallah												
29.	Guradih Nallah	21.249 (4.911-54.696)	0.072 (<0.05-0.154)	<0.002	0.018	1.823	0.023	0.005	0.038	0.0052	NA	0.024

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO ₃ ⁻ (mg/L)	PO ₄ ³⁻ -P	Cr(VI) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
Badajhor												
30.	Badhajhor	2.029 (0.423-4.929)	<0.05 (<0.05-0.18)	<0.002	0.008	0.056	0.011	0.004	0.016	0.0021	NA	0.012
Damsala River												
31.	Dayanabil	3.567 (0.401-17.401)	<0.05 (<0.05-0.153)	0.008	0.021	0.134	0.004	0.004	0.004	0.0033	NA	0.003
Gonda nallah												
32.	Marthapur	23.663 (1.478-84.632)	<0.05 (<0.05-0.168)	0.015	0.016	0.196	0.017	0.005	0.008	0.0039	NA	0.014
Lingira River												
33.	Lingira U/s	1.683 (0.676-4.334)	0.073 (<0.05-0.294)	<0.002	0.013	0.166	0.011	0.004	0.006	0.0037	NA	0.011
34.	Lingira D/s	1.803 (0.515-5.159)	0.09 (<0.05-0.356)	<0.002	0.015	0.201	0.014	0.002	0.008	0.0054	NA	0.011
Ramiala River												
35.	Kamakhyanagar	3.084 (0.321-17.508)	<0.05 (<0.05-0.192)	<0.002	0.015	0.074	0.004	0.001	0.003	0.0009	NA	0.003
Bangurunallah												
36.	Bangurunallah	12.299 (2.269-24.026)	0.069 (<0.05-0.234)	<0.002	0.019	0.239	0.019	0.007	0.126	0.0013	NA	0.008
Singadajhor												
37.	Singadajhor	1.877 (0.16-4.16)	<0.05 (<0.05-0.142)	<0.002	0.018	0.381	0.028	0.005	0.044	0.0007	NA	0.007
Tikira River												
38.	Kaniha U/s	1.876 (0.511-3.757)	0.079 (<0.05-0.344)	<0.002	0.008	0.972	0.012	0.004	0.024	0.0015	NA	0.011
39.	Kaniha D/s	1.724 (0.602-2.997)	0.082 (<0.05-0.247)	<0.002	0.011	0.438	0.014	0.005	0.008	0.0016	NA	0.012
Bangurusingadajhor												
40.	Bangurusingadajhor	17.548 (1.093-183.192)	0.055 (<0.05-0.204)	<0.002	0.019	0.071	0.012	0.001	0.004	0.0011	NA	0.011

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO ₃ ⁻	PO ₄ ³⁻ -P	Cr(VI) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
		(mg/L)		(mg/L)								
Karo River												
41.	Karo river at Barbil	4.786 (1.932-20.499)	0.065 (<0.05-0.188)	<0.002	0.009	0.581	0.005	0.004	0.133	0.0035	NA	0.004
	❖ Class 'C'	50	-	0.05	-	50	-	1.5	15.0	0.01	-	0.10
	❖ Class 'E'	-	-	-	-	-	-	-	-	-	-	-

NA : Not analysed

❖ **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, 2022

(C) Baitarani river system (2022)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	46 (<10-228)	50 (40-60)	8.4 (6.7-12)	0.65 (0.56-1.12)	0.007 (0-0.017)	3.5 (1.68-8.4)	122 (94-147)	0.36 (0.3-0.55)	18.71 (14.21-25.67)	<0.5 (<0.5-<0.5)	NA	52 (40-60)	10 (6-18)	8.2 (<5-16.9)	0.39 (0.212-0.59)
Kusei River																
2.	Deogaon	45 (<10-134)	92 (48-160)	8.4 (6.7-12)	0.89 (0.56-1.68)	0.032 (0-0.109)	3.55 (1.68-5.6)	210 (132-317)	0.53 (0.21-1.11)	21.6 (8.55-41.57)	<0.5 (<0.5-<0.5)	NA	86 (56-132)	14 (6-24)	11.8 (5.6-32.1)	0.42 (0.27-0.66)
Baitarani River																
3.	Naigarh	78 (<10-324)	43 (32-80)	7.7 (6.7-11)	0.61 (<0.4-1.12)	0.014 (0-0.090)	3.64 (1.68-7.28)	104 (75-167)	0.34 (0.26-0.43)	19.88 (12.69-25.45)	<0.5 (<0.5-<0.5)	NA	47 (32-76)	8 (6-16)	9.6 (<5-19.8)	0.44 (0.218-0.626)
4.	Unchabali	74 (<10-312)	39 (20-88)	8.1 (6.7-12)	0.61 (<0.4-1.12)	0.010 (0-0.056)	2.89 (1.68-5.04)	94 (64-165)	0.36 (0.27-0.42)	21.55 (12.76-26.24)	<0.5 (<0.5-<0.5)	NA	42 (28-80)	9 (6-16)	8.7 (5.1-17.3)	0.38 (0.207-0.6)
5.	Champua	75 (<10-314)	55 (28-76)	8.6 (6.7-12)	0.61 (<0.4-1.12)	0.009 (0-0.025)	3.36 (1.68-5.04)	128 (95-179)	0.35 (0.27-0.4)	18.23 (12.23-22.4)	<0.5 (<0.5-<0.5)	NA	58 (40-88)	9 (6-10)	10.8 (6.5-33.2)	0.42 (0.257-0.77)
6.	Tribindha	32 (<10-103)	62 (40-76)	8.3 (6.7-11)	0.51 (<0.4-0.56)	0.007 (0.0-0.017)	3.08 (1.68-5.04)	141 (99-183)	0.34 (0.27-0.41)	16.9 (13-22.25)	<0.5 (<0.5-<0.5)	NA	65 (44-76)	9 (6-12)	11 (<5-18.4)	0.46 (0.23-0.69)
7.	Joda	131 (10-1022)	51 (32-68)	8 (6.7-12)	0.61 (<0.4-1.12)	0.011 (0-0.028)	3.64 (2.24-7.28)	123 (98-157)	0.34 (0.27-0.37)	18.1 (13.27-21.06)	<0.5 (<0.5-<0.5)	NA	54 (40-76)	7 (6-12)	11.7 (5.1-34.6)	0.48 (0.233-0.79)
8.	Anandpur	35 (<10-122)	81 (36-152)	8.3 (6.7-12)	0.75 (0.56-1.68)	0.012 (0-0.028)	3.64 (2.24-6.16)	166 (92-284)	0.38 (0.19-0.62)	17.9 (7.49-22.63)	<0.5 (<0.5-<0.5)	NA	74 (48-132)	9 (6-12)	8.9 (5.8-13.9)	0.37 (0.245-0.473)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	EC	SAR	% Na	B	TDS	TH	Cl	SO ₄	F
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(μS/cm)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
9.	Jajpur	51 (<10-197)	74 (44-96)	9.5 (7-18)	0.98 (0.56-2.24)	0.022 (0.003-0.067)	4.76 (1.68-10.08)	185 (118-267)	0.52 (0.32-0.78)	22.34 (16.91-31.33)	<0.5 (<0.5-<0.5)	NA	73 (52-96)	13 (10-22)	13.5 (<5-30.1)	0.41 (0.273-0.836)
10.	Chandbali U/s	209 (69-394)	65 (32-84)	9.2 (6.7-21)	0.84 (<0.4-2.24)	0.014 (0-0.067)	4.2 (1.68-7.28)	4036 (144-13800)	13.49 (0.79-49.64)	58.36 (27.5-90.89)	<0.5 (<0.5-1.149)	NA	501 (32-1800)	1564 (18-4998)	225.5 (15.6-792.9)	0.4 (0.237-0.51)
11.	Chandbali D/s	240 (76-696)	72 (32-112)	12.4 (7-21)	0.75 (<0.4-1.68)	0.014 (0-0.059)	3.78 (1.68-7.28)	4813 (169-20720)	15.86 (0.78-61.14)	57.75 (26.65-92.74)	0.632 (<0.5-1.813)	NA	567 (44-2100)	1894 (20-7496)	322 (15.9-1167.9)	0.46 (0.302-0.54)
Salandi River																
12.	Bhadrak U/s	30 (10-66)	60 (40-92)	7.7 (6.9-10)	0.61 (<0.4-1.68)	0.022 (0-0.070)	3.69 (1.68-6.72)	144 (114-175)	0.39 (0.25-0.75)	19.36 (11.99-28.9)	<0.5 (<0.5-<0.5)	NA	61 (40-80)	11 (6-16)	11.7 (5.3-27.1)	0.35 (0.241-0.54)
13.	Bhadrak D/s	23 (<10-67)	61 (40-100)	10.9 (6.9-16)	0.79 (<0.4-2.24)	0.020 (0-0.045)	3.41 (1.68-5.6)	147 (101-212)	0.35 (0.26-0.56)	17.97 (12.21-25.96)	<0.5 (<0.5-0.797)	NA	62 (40-100)	10 (6-14)	12.4 (<5-41.6)	0.3 (0.22-0.61)
Dhamra River																
14.	Dhamra	221 (<10-714)	98 (36-160)	26.8 (19-34.5)	0.61 (<0.4-1.12)	0.008 (0-0.028)	3.97 (1.68-8.4)	17981 (362-41210)	36.28 (1.95-85.41)	67.88 (27.51-87.13)	1.186 (<0.5-2.888)	NA	2229 (92-5400)	8061 (80-19990)	762.4 (40.3-2414.3)	0.52 (0.39-0.752)
❖ Class 'C'		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ Class 'E'		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

NA : Not analysed

❖ **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) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
(mg/L)					(mg/L)							
Kundra Nallah												
1.	Joda	3.358 (1.99-7.19)	<0.05 (<0.05-0.114)	0.006	0.015	0.233	0.004	0.002	0.011	0.0008	NA	0.01
Kusei River												
2.	Deogaon	1.739 (0.3-4.34)	<0.05 (<0.05-0.065)	<0.002	0.009	0.231	0.018	0.003	0.008	0.0012	NA	0.011
Baitarani River												
3.	Naigarh	2.141 (0.277-3.741)	0.073 (<0.05-0.265)	<0.002	0.008	0.883	0.007	0.007	0.021	0.0017	NA	0.004
4.	Unchabali	2.003 (0.252-3.949)	0.111 (<0.05-0.799)	<0.002	0.009	1.589	0.007	0.004	0.003	0.0017	NA	0.004
5.	Champua	2.467 (1.006-6.547)	0.064 (<0.05-0.206)	0.003	0.013	0.23	0.007	0.005	0.018	0.0029	NA	0.009
6.	Tribindha	2.237 (0.933-4.16)	<0.05 (<0.05-0.138)	0.004	0.011	0.405	0.013	0.004	0.006	0.0023	NA	0.006
7.	Joda	2.477 (1.257-4.18)	<0.05 (<0.05-0.095)	0.007	0.009	0.252	0.003	0.002	0.009	0.0014	NA	0.008
8.	Anandpur	1.971 (0.536-4.15)	0.056 (<0.05-0.146)	0.005	0.018	0.108	0.008	0.003	0.014	0.0014	NA	0.01
9.	Jajpur	4.278 (0.238-12.871)	<0.05 (<0.05-0.134)	0.003	0.011	0.097	0.005	0.008	0.001	0.0016	NA	0.009
10.	Chandbali U/s	2.442 (0.776-4.848)	0.051 (<0.05-0.268)	0.003	0.011	0.353	0.011	0.019	0.166	0.0024	NA	0.009
11.	Chandbali D/s	2.25 (0.774-5.017)	0.056 (<0.05-0.309)	0.007	0.013	0.222	0.015	0.025	0.044	0.0024	NA	0.012

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO ₃ ⁻	PO ₄ ³⁻ -P	Cr(VI) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
(mg/L)					(mg/L)							
Salandi River												
12.	Bhadrak U/s	1.431 (0.41-4.403)	<0.05 (<0.05-0.062)	0.004	0.011	0.008	0.011	0.006	0.074	0.0011	NA	0.009
13.	Bhadrak D/s	1.844 (0.395-4.826)	<0.05 (<0.05-0.078)	0.005	0.011	0.035	0.006	0.009	0.013	0.0008	NA	0.003
Dhamra River												
14.	Dhamra	2.092 (1.13-2.958)	0.061 (<0.05-0.447)	<0.002	0.014	0.634	0.011	0.015	0.078	0.0016	NA	0.014
	❖ 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, 2022 NA : Not analysed

(D) Rushikulya river system (2022)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	54 (<10-148)	100 (52-188)	11.6 (6.6-23.5)	0.75 (<0.4-2.24)	0.017 (0-0.087)	3.73 (2.24-8.4)	336 (140-1121)	0.9 (0.32-2.24)	26.15 (15.98-48.38)	<0.5 (<0.5-0.564)	NA	121 (52-440)	49 (8-280)	29.6 (5.3-129.3)	0.51 (0.25-0.984)
Bada Nadi																
2	Aska	116 (14-479)	101 (64-132)	7.8 (6.6-12)	0.7 (<0.4-1.68)	0.026 (0-0.087)	3.41 (1.68-6.16)	242 (158-312)	0.69 (0.37-1.03)	24.68 (16.25-31.65)	<0.5 (<0.5-<0.5)	NA	96 (72-144)	23 (8-54)	12.8 (6.6-26.1)	0.42 (0.286-0.64)
Rushikulya River																
3.	Aska	101 (16-416)	109 (72-144)	8.7 (6.6-16)	0.7 (0.56-1.12)	0.020 (0.003-0.045)	3.69 (2.24-6.16)	263 (160-375)	0.72 (0.38-1.38)	24.8 (15.88-38.64)	<0.5 (<0.5-2.39)	NA	98 (72-120)	24 (8-48)	13.9 (6.9-26.6)	0.39 (0.23-0.57)
4.	Nalabanta	96 (13-379)	106 (64-152)	10.4 (6.6-20)	0.65 (<0.4-1.12)	0.043 (0-0.140)	3.45 (1.68-5.6)	276 (161-409)	0.9 (0.39-1.51)	29.28 (17.15-42.67)	<0.5 (<0.5-<0.5)	NA	97 (76-120)	25 (8-56)	14.9 (5.5-28.8)	0.4 (0.24-0.63)
5.	Madhopur	115 (11-370)	101 (44-140)	9.4 (6.7-24)	0.75 (0.56-1.68)	0.036 (0-0.140)	3.31 (1.68-6.16)	1465 (198-7422)	5.13 (0.55-24.25)	44.58 (21.58-79.09)	<0.5 (<0.5-0.744)	NA	226 (68-880)	506 (12-2999)	55.2 (<5-265.7)	0.42 (0.3-0.67)
6.	Potagarh	115 (39-273)	103 (68-140)	15.6 (7.3-30)	0.7 (0.56-1.12)	0.025 (0.003-0.073)	3.69 (1.68-5.6)	8686 (220-35460)	17.28 (0.64-76.65)	53.28 (23.73-85.43)	0.947 (<0.5-2.623)	NA	1045 (80-3200)	3554 (18-13993)	401.3 (5.6-3085.8)	0.49 (0.322-0.762)
❖ Class 'C'		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ Class 'E'		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

NA : Not analysed

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

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

Class 'E' :Irrigationwater 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) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
(mg/L)					(mg/L)							
Russelkunda Reservoir												
1.	Russelkunda	3.189 (1.137-8.362)	0.089 (<0.05-0.467)	0.002	0.009	0.078	0.009	0.004	0.119	0.0003	NA	0.011
Bada Nadi												
2	Aska	1.664 (0.677-4.064)	0.117 (<0.05-0.373)	0.004	0.011	0.339	0.006	0.012	0.012	0.0009	NA	0.014
Rushikulya River												
3.	Aska	2.156 (0.811-4.813)	0.103 (<0.05-0.38)	0.007	0.009	0.126	0.01	0.006	0.035	0.0009	NA	0.012
4.	Nalabanta	2.539 (0.113-13.253)	0.076 (<0.05-0.173)	0.005	0.011	0.151	0.005	0.004	0.009	0.0011	NA	0.013
5.	Madhopur	2.014 (0.401-5.124)	0.06 (<0.05-0.261)	0.004	0.011	0.109	0.011	0.023	0.123	0.0011	NA	0.016
6.	Potagarh	3.905 (0.467-13.813)	0.06 (<0.05-0.157)	<0.002	0.014	0.117	0.014	0.009	0.034	0.0016	NA	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, 2022 NA : Not analysed

(E) Nagavali river system (2022)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	127 (<10-392)	86 (44-164)	8.3 (6.7-11)	0.75 (0.56-1.68)	0.006 (0-0.017)	4.06 (1.68-8.4)	195 (139-283)	0.39 (0.28-0.61)	16.72 (10.95-22.93)	<0.5 (<0.5-<0.5)	NA	86 (60-140)	13 (8-25)	14.2 (6.1-34.4)	0.45 (0.234-0.843)
2.	Jaykaypur D/s	207 (<10-880)	85 (40-124)	13 (6.7-23.9)	1.03 (0.56-1.68)	0.013 (0-0.050)	4.15 (2.24-6.72)	264 (168-449)	0.73 (0.3-1.52)	25.22 (13.96-41.63)	<0.5 (<0.5-<0.5)	NA	94 (72-148)	22 (10-46)	28.1 (6.6-58.5)	0.36 (0.24-0.55)
3.	Rayagada D/s	201 (<10-789)	96 (52-156)	10.7 (7-23.9)	0.89 (0.56-1.68)	0.011 (0-0.039)	4.17 (1.68-7.28)	293 (148-447)	0.72 (0.37-1.19)	24.23 (17.41-32.25)	<0.5 (<0.5-<0.5)	NA	105 (52-148)	22 (10-46)	33.8 (7.7-73)	0.37 (0.293-0.509)
❖ Class 'C'		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ Class 'E'		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

NA : Not analysed

❖ 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) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
(mg/L)		(mg/L)										
Nagavaliriver												
1.	Penta	4.398 (1.473-11.103)	<0.05 (<0.05-.059)	<0.002	0.011	0.356	0.018	0.019	0.169	0.0019	NA	0.008
2.	Jaykaypur D/s	5.202 (2.974-9.107)	0.095 (<0.05-0.206)	<0.002	0.018	0.477	0.026	0.004	0.021	0.0042	NA	0.013
3.	Rayagada D/s	5.076 (2.204-8.889)	0.132 (<0.05-0.412)	<0.002	0.014	0.205	0.024	0.004	0.046	0.0073	NA	0.019
❖ 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' :Irrigationwater quality

Data for the period April, 2022 NA : Not analysed

(F) Subarnarekha river system (2022)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators					Mineral constituents							
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	36 (<10-104)	79 (32-112)	8.5 (6.7-12)	0.61 (0.56-1.12)	0.040 (0-0.087)	4.06 (1.68-7.28)	247 (125-384)	0.75 (0.4-1.34)	26.94 (14.64-41.08)	<0.5 (<0.5-<0.5)	NA	92 (52-144)	25 (12-62)	21.6 (7-40.9)	0.48 (0.33-0.59)
❖ 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) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}	
		(mg/L)			(mg/L)								
Subarnarekha river													
1.	Rajghat	1.565 (0.598-3.741)	<0.05 (<0.05-0.233)	<0.002	0.018	0.003	0.019	0.015	0.122	0.0013	NA	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' :Irrigationwater quality

Data for the period April, 2022 NA : Not analysed

(G) Budhabalanga river system (2022)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	39 (<10-170)	76 (28-136)	9.4 (6.7-16)	0.79 (0.56-1.68)	0.072 (0-0.260)	3.55 (1.68-6.16)	196 (110-340)	0.48 (0.26-0.92)	20.03 (11.72-32.16)	<0.5 (<0.5-<0.5)	NA	81 (48-128)	13 (8-26)	16.4 (8.6-33.4)	0.4 (0.254-0.57)
2.	Balasore U/s	52 (12-178)	73 (40-104)	7.8 (6.7-12)	0.65 (0.56-1.12)	0.038 (0-0.174)	3.5 (1.68-5.6)	183 (101-281)	0.51 (0.24-0.92)	21.83 (10.69-31.54)	<0.5 (<0.5-<0.5)	NA	75 (48-104)	15 (6-28)	14.7 (7.4-30.6)	0.39 (0.248-0.55)
3.	Balasore D/s	94 (21-221)	79 (36-112)	11.2 (6.9-16)	0.89 (0.56-1.68)	0.054 (0-0.174)	3.55 (1.68-5.6)	431 (101-1438)	2.34 (0.25-12.8)	33.5 (11.9-85.41)	<0.5 (<0.5-<0.5)	NA	86 (44-192)	89 (8-380)	26.1 (6.9-83.4)	0.37 (0.278-0.491)
Sone River																
4.	Hatigond	72 (10-293)	78 (36-120)	8.7 (6.7-12)	0.61 (<0.4-1.12)	0.020 (0-0.090)	3.22 (1.68-7.28)	193 (108-319)	0.61 (0.29-1.01)	24.39 (15.27-34.35)	<0.5 (<0.5-<0.5)	NA	77 (48-108)	16 (10-32)	15.2 (5.9-29.3)	0.39 (0.266-0.71)
❖ Class 'C'		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ Class 'E'		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

NA : Not analysed

(G) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO ₃ ⁻ (mg/L)	PO ₄ ³⁻ -P	Cr(VI) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
Budhabalanga river												
1.	Baripada D/s	2.103 (1.016-4.086)	0.055 (<0.05-0.136)	<0.002	0.016	0.094	0.009	0.005	0.014	0.001125	NA	0.009
2.	Balasore U/s	1.603 (0.495-2.466)	<0.05 (<0.05-0.088)	0.003	0.018	0.256	0.006	0.004	0.015	0.001	NA	0.007
3.	Balasore D/s	2.077 (0.505-4.657)	<0.05 (<0.05-0.106)	0.008	0.019	0.433	0.009	0.024	0.123	0.0015	NA	0.014
Sone River												
4.	Hatigond	1.632 (0.434-3.599)	<0.05 (<0.05-0.18)	0.005	0.011	0.479	0.008	0.005	0.013	0.0014	NA	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' :Irrigationwater quality

Data for the period April, 2022

NA : Not analysed

(H) Kolab river system (2022)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	126 (<10-890)	40 (12-120)	9.8 (6.7-18.4)	0.7 (<0.4-1.68)	0.009 (0-0.025)	3.73 (2.24-5.6)	115 (71-197)	0.41 (0.23-0.75)	23.09 (9.78-35.79)	<0.5 (<0.5-<0.5)	NA	48 (24-108)	10 (6-24)	13.9 (5-34.1)	0.32 (0.199-0.53)
❖ 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) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
		(mg/L)			(mg/L)							
Kerandi river												
1.	Sunabeda	3.141 (1.178-5.874)	<0.05 (<0.05-0.186)	0.008	0.009	2.461	0.011	0.005	0.015	0.0011	NA	0.005
❖ 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' :Irrigationwater quality

Data for the period April, 2022 NA : Not analysed

(I) Vansadhara river system (2022)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	90 (<10-418)	76 (40-112)	9.5 (6.7-19)	0.65 (<0.4-1.68)	0.010 (0-0.025)	3.78 (1.68-7.84)	187 (128-264)	0.48 (0.29-0.82)	20.52 (14.47-34.54)	<0.5 (<0.5-0.5)	NA	76 (40-104)	12 (8-18)	16.7 (5.7-34.4)	0.32 (0.196-0.42)
2.	Gunupur	119 (<10-433)	82 (32-120)	8.4 (6.7-16)	0.75 (0.56-1.68)	0.016 (0-0.073)	3.73 (1.68-7.28)	196 (101-364)	0.69 (0.34-1.98)	26.12 (16.69-50.46)	<0.5 (<0.5-0.93)	NA	72 (36-104)	18 (8-70)	11.2 (5.7-20.9)	0.3 (0.238-0.394)
❖ 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) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
		(mg/L)			(mg/L)							
Vansadhara river												
1.	Muniguda	3.423 (0.811-10.373)	0.089 (<0.05-0.494)	<0.002	0.008	0.263	0.019	0.012	0.177	0.0007	NA	0.018
2.	Gunupur	2.531 (0.305-5.785)	0.072 (<0.05-0.213)	<0.002	0.011	1.249	0.019	0.006	0.014	0.0013	NA	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, 2022 NA : Not analysed

(J) Indravati river system (2022)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	60 (<10-221)	56 (20-112)	8.3 (6.7-11)	0.7 (<0.4-1.68)	0.012 (0-0.022)	3.83 (2.24-7.28)	124 (75-219)	0.34 (0.22-0.5)	18.53 (9.89-28.41)	<0.5 (<0.5-<0.5)	NA	55 (28-100)	9 (6-14)	10.9 (5.3-30.3)	0.29 (0.21-0.39)
❖ 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) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}	
		(mg/L)				(mg/L)							
Indravati river													
1.	Nawarangpur	1.986 (0.749-4.035)	0.062 (<0.05-0.222)	<0.002	0.008	1.69	0.016	0.004	0.033	0.0013	NA	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' :Irrigationwater quality

Data for the period April, 2022 NA : Not analysed

(K) Bahudariver system (2022)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators					Mineral constituents							
		Annual average values (Range of values)														
		TSS	Total alkalinity	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	55 (<10-202)	120 (80-168)	9.3 (6.7-17)	0.75 (0.56-1.12)	0.052 (0-0.174)	3.73 (1.68-5.6)	322 (181-647)	1.14 (0.44-3.17)	31.81 (15.99-55.4)	<0.5 (<0.5-<0.5)	NA	107 (72-148)	36 (8-140)	17.5 (8.4-51.4)	0.48 (0.32-0.62)
	❖ 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) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}	
		(mg/L)				(mg/L)							
Bahuda River													
1.	Damodarpally	1.911 (0.361-4.106)	0.083 (<0.05-0.396)	<0.002	0.011	0.586	0.019	0.009	0.088	0.0013	NA	0.015	
	❖ 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' :Irrigationwater quality

Data for the period April, 2022 NA : Not analysed