

Annual Average and Range values of Criteria Parameters (January-December, 2023)

(A) Mahanadi River System (2023)

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/100ml)	BOD	TC	FC	FS			
			Ib river												
1.	Sundargarh	12	7.2 (6.5-7.8)	6.9 (5.4-8.1)	1.4 (1.1-1.9)	2043 (330-3500)	697 (45-1700)	NA	0	0	0	-	C		
2.	Jharsuguda	12	7.5 (6.8-8.3)	8.1 (7.8-8.6)	1.3 (1.1-1.5)	2487 (940-3500)	765 (230-1700)	NA	0	0	0	-	C		
3.	Brajarajnaragar U/s	12	7.5 (6.8-8.2)	7.9 (7.6-8.2)	1.4 (1.1-1.9)	1498 (490-2400)	413 (110-790)	NA	0	0	0	-	C		
4.	Brajarajnaragar D/s	12	7.6 (6.7-8.5)	7.9 (7.6-8.2)	1.6 (1.4-1.8)	2816 (790-4900)	931 (130-1700)	NA	0	0	0	-	C		
Bheden river															
5.	Jharsuguda	12	7.6 (6.8-8.5)	7.9 (7.6-8.4)	1.5 (1.3-1.7)	1706 (170-3300)	474 (45-1300)	11 (<1.8-27)	0	0	0	-	C		
Hirakud reservoir															
6.	Hirakud reservoir	12	7.7 (6.7-8.5)	7.5 (6.8-8.4)	1.3 (1.1-1.5)	1548 (490-3500)	599 (130-1700)	NA	0	0	0	-	C		
Power Channel															
7.	Power Channel U/s	12	7.6 (7.1-8.0)	7.0 (6.0-7.8)	1.3 (1.1-2.0)	1418 (79-3300)	319 (23-1300)	NA	0	0	0	-	C		
8.	Power Channel D/s	12	7.6 (7.1-8.1)	7.1 (6.0-8.0)	1.6 (1.2-1.9)	6542 (1100-24000)	1907 (170-7900)	NA	0	3 (25)	3 (25)	-	Doesn't conform to Class C	TC, FC®	Human activities
Mahanadi river															
9	Sambalpur U/s	12	7.6 (7.1-8.0)	7.1 (6.2-7.8)	1.3 (1.1-1.6)	1678 (460-3300)	529 (130-1700)	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/100ml)
10	Sambalpur D/s	12	7.9 (7.4-8.5)	7.1 (6.2-7.8)	1.9 (1.5-2.4)	2917 (1700-4900)	971 (270-2300)	7 (<1.8-13)	0	0	0	0	C		
11.	Sambalpur FD/s at Shankarmath	12	7.7 (7.2-8.3)	6.8 (5.8-7.6)	1.8 (1.4-2.2)	2366 (790-4900)	623 (220-1700)	8 (<1.8-14)	0	0	0	0	C		
12.	Sambalpur FFD/s at Huma	12	7.7 (7.4-8.3)	7.2 (6.4-8.0)	1.5 (1.2-1.9)	2391 (790-4900)	789 (230-2300)	8 (<1.8-17)	0	0	0	0	C		
13.	Sonepur U/s	12	7.8 (7.2-8.5)	8.4 (7.3-9.9)	1.3 (1.1-1.6)	770 (49-2400)	292 (13-1300)	12 (<1.8-33)	0	0	0	0	C		
14.	Sonepur D/s	12	7.9 (7.3-8.5)	8.4 (6.2-10.0)	1.5 (1.3-2.1)	1420 (240-4900)	607 (49-2200)	15 (<1.8-49)	0	0	0	0	C		
15.	Tikarapada	12	7.4 (6.6-8.4)	8.1 (5.8-12.4)	1.4 (1.1-1.8)	296 (78-790)	63 (13-130)	5 (<1.8-5)	0	0	0	0	C		
16.	Narasinghpur	12	7.4 (6.5-8.2)	7.6 (6.8-8.2)	1.2 (1.1-1.5)	2507 (490-4900)	1063 (78-2300)	26 (<1.8-49)	0	0	0	0	C		
17.	Mundali	12	7.5 (6.9-8.2)	7.7 (6.6-8.8)	1.5 (1.2-2.0)	2518 (330-4900)	843 (78-2300)	37 (<1.8-79)	0	0	0	0	C		
18.	Cuttack U/s	12	7.5 (6.9-8.0)	7.7 (6.4-8.6)	1.5 (1.1-1.7)	1964 (330-4700)	768 (78-2200)	20 (<1.8-49)	0	0	0	0	C		
19.	Cuttack D/s	12	7.5 (7.1-8.1)	7.6 (6.6-8.5)	1.9 (1.3-2.6)	49800 (3300-160000)	24642 (1300-92000)	71 (11-240)	0	9 (75)	8 (67)	3 (25)	Doesn't conform to Class C	TC, FC@	Human activities
20.	Cuttack FD/s	12	7.7 (7.1-8.4)	7.8 (6.4-8.5)	1.7 (1.5-2.0)	9875 (1700-54000)	2993 (330-13000)	33 (5-130)	0	5 (42)	5 (42)	1 (8)	Doesn't conform to Class C	TC, FC@	Human activities
21.	Paradeep U/s	12	7.8 (7.2-8.2)	6.9 (6.0-8.6)	1.2 (1.1-1.4)	785 (79-3300)	250 (23-1300)	10 (<1.8-33)	0	0	0	0	C		
22	Paradeep D/s	12	7.8 (7.1-8.4)	6.5 (5.4-8.4)	1.7 (1.4-2.2)	1614 (79-4900)	409 (23-1700)	14 (<1.8-49)	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	8.1 (7.8-8.5)	7.7 (5.6-10.1)	1.2 (1.1-1.6)	902 (94-2400)	253 (33-790)	NA	0	0	0	-	C		
Tel River															
24.	Monmunda	12	8.0 (7.6-8.4)	8.4 (6.7-10.1)	1.3 (1.1-1.7)	876 (130-3500)	260 (45-1100)	NA	0	0	0	-	C		
Kathajodi River															
25.	Cuttack U/s	12	7.8 (7.2-8.5)	7.6 (6.3-9.2)	1.4 (1.1-1.6)	1798 (490-3300)	593 (130-1300)	NA	0	0	0	-	C		
26.	Cuttack D/s	12	7.7 (7.2-8.4)	7.4 (6.0-8.8)	3.5 (1.5-4.2)	93833 (24000-160000)	47492 (7900-92000)	132 (23-240)	10 (83)	12 (100)	12 (100)	6 (50)	Doesn't conform to Class C	BOD, TC, FC®	Waste water of Cuttack city
27.	Mattagajpur (Cuttack FD/s)	12	7.7 (7.1-8.3)	7.8 (7.0-8.6)	2.8 (1.3-3.9)	17900 (4900-54000)	13500 (1300-92000)	64 (13-170)	4 (33)	11 (92)	5 (42)	4 (33)	Doesn't conform to Class C	BOD, TC, FC®	Waste water of Cuttack city
28.	Kamasasan (Cuttack FFD/s)	12	7.8 (7.3-8.5)	7.4 (6.6-8.5)	1.9 (1.3-2.5)	7050 (1700-22000)	2391 (330-7900)	NA	0	3 (25)	3 (25)	-	Doesn't conform to Class C	TC, FC®	Human activities
Serua River															
29.	Sankhatrasa (Cuttack FD/s)	12	7.7 (7.2-8.5)	7.6 (6.3-8.6)	3.3 (1.1-3.9)	143000 (92000-160000)	95667 (35000-160000)	137 (49-220)	10 (83)	12 (100)	12 (100)	10 (83)	Doesn't conform to Class C	BOD, TC, FC®	Waste water of Cuttack city

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	7.3 (6.8-7.7)	8.6 (6.1-10.5)	1.4 (1.3-1.8)	2382 (790-4900)	816 (130-2200)	20 (5-79)	0	0	0	0	C		
31.	Bhubaneswar U/s	12	7.3 (6.8-7.8)	7.6 (6.3-9.2)	1.3 (1.1-1.7)	4783 (1700-14000)	1798 (490-4900)	39 (11-110)	0	1 (8)	0	0	C	Single deviation of TC	Human activities
Daya River															
32.	Gelapur	12	7.5 (7.1-8.4)	8.4 (6.2-9.4)	1.4 (1.1-1.7)	2850 (1100-4900)	917 (230-2200)	47 (5-79)	0	0	0	0	C		
33.	Bhubaneswar D/s	12	7.1 (6.7-7.5)	4.4 (2.8-7.1)	4.2 (2.8-5.7)	61433 (9200-160000)	30217 (3300-92000)	185 (22-540)	11 (92)	12 (100)	12 (100)	10 (83)	Doesn't conform to Class C	DO#, BOD, TC, FC,FS@	Waste water of Bhubaneswar city
34.	Bhubaneswar FD/s	12	7.2 (6.9-7.7)	5.2 (3.0-7.3)	3.5 (2.3-4.8)	29817 (3500-92000)	15650 (1700-54000)	98 (17-240)	9 (75)	11 (92)	11 (92)	6 (50)	Doesn't conform to Class C	DO##,BOD, TC,FC,FS@	
35.	Kanas	12	7.3 (6.6-8)	6.2 (3.4-9.5)	1.7 (1.2-2.4)	45508 (1300-160000)	24299 (220-160000)	35 (5-130)	0	6 (50)	5 (42)	1 (8)	Doesn't conform to Class C	DO###,TC, FC,FS@	Human activities

Frequency of violation for DO is 6 times (8% of total observation)

Frequency of violation for DO is 5 times (42% of total observation)

Frequency of violation for DO is 1 time (8% 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 (6.7-7.4)	1.5 (0.9-2.5)	9.3 (6.3-15.0)	145500 (54000-160000)	132583 (24000-160000)	340 (70-920)	12 (100)	12 (100)	12 (100)	11 (92)	Doesn't conform to Class C	DO#, BOD, TC, FC,FS®	Waste water of Bhubaneswar city
37.	Palasuni	12	6.7 (4.7-7.2)	1.0 (0.4-3.3)	14.6 (7.7-18.0)	148667 (92000-160000)	127833 (54000-160000)	247 (49-540)	12 (100)	11 (92)	12 (100)	11 (92)	Doesn't conform to Class C	DO# BOD, TC, FC,FS®	
38.	Samantraypur	12	7.0 (6.6-7.3)	1.2 (0.4-3.3)	13.6 (8.0-18.0)	160000 (160000-160000)	148667 (92000-160000)	267 (110-920)	12 (100)	12 (100)	12 (100)	12 (100)	Doesn't conform to Class C	DO# BOD, TC, FC,FS®	
39.	Vadimula	12	7.2 (6.8-7.9)	2.5 (0.9-4.5)	7.7 (5.0-18.0)	91583 (24000-160000)	72575 (7900-160000)	161 (79-280)	12 (100)	12 (100)	12 (100)	10 (83)	Doesn't conform to Class C	DO## BOD, TC, FC,FS®	
Birupa River															
40.	Choudwar D/s	12	7.8 (7.3-8.4)	7.5 (6.8-8.8)	1.5 (1.2-2.1)	3700 (1300-17000)	1153 (170-4900)	NA	0	1 (8)	1 (8)	-	C	Single Deviation of TC	Human activities
Kushabhadra River															
41.	Bhingarpur	12	7.3 (7.1-7.8)	7.2 (5.1-9.1)	1.5 (1.2-1.7)	38975 (1700-160000)	13376 (330-54000)	NA	0	6 (50)	6 (50)	-	Doesn't conform to Class C	TC, FC®	Human activities
42.	Nimapara	12	7.3 (6.8-7.8)	7.2 (4.9-8.8)	1.3 (1.1-1.6)	4633 (490-11000)	1721 (130-3300)	NA	0	4 (33)	3 (25)	-	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 11 times (92% 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	7.3 (6.8-7.8)	6.3 (4.3-8.4)	1.4 (1.2-1.7)	30133 (2800- 160000)	13753 (940- 54000)	NA	0	4 (33)	4 (33)	-	Doesn't conform to Class C	TC, FC@	Human activities
Bhargavi River															
44.	Chandanpur	12	7.7 (6.9-8.3)	7.2 (4.6-9.2)	1.7 (1.2-2.6)	2466 (230-4900)	887 (45-2200)	NA	0	0	-	-	C		
Mangala River															
45.	Malatipatpur	12	7.4 (6.9-8.2)	6.9 (4.8-9.1)	1.3 (1.1-2.1)	1598 (330-2800)	559 (78-1700)	NA	0	0	0	-	C		
46.	Golasahi	12	7.5 (7.1-8.5)	7.7 (4.4-13.0)	2.6 (1.7-3.6)	3249 (490-4900)	1492 (130- 2200)	14 (<1.8- 24)	2 (17)	0	0	0	Doesn't conform to Class C	BOD	Waste water
Devi River															
47.	Machhagaon	12	7.8 (7.1-8.3)	6.5 (5.2-7.8)	1.5 (1.2-2.0)	2279 (230- 4900)	665 (78- 2200)	NA	0	0	0	-	C		
Govari River															
48.	Kendrapara U/s	12	7.7 (7.1-8.2)	4.1 (2.4-5.5)	1.5 (1.1-2.2)	5717 (1100- 24000)	1868 (330- 4900)	NA	0	3 (25)	2 (17)	-	Doesn't conform to Class C	DO#, TC, FC@	Human activities
49.	Kendrapara D/s	12	7.5 (6.9-8.2)	3.6 (2.0-5.2)	2.0 (1.5-2.6)	14583 (1700- 54000)	4344 (790- 24000)	NA	0	4 (33)	3 (25)	-		DO##, TC, FC@	Human activities
Nuna River															
50.	Bijipur	12	7.3 (6.9-7.7)	6.8 (4.8-10.8)	1.4 (1.1-1.8)	13355 (1700- 92000)	4802 (330- 35000)	25 (7-94)	0	3 (25)	2 (17)	-	Doesn't conform to Class C	TC, FC@	Human activities

Frequency of violation for DO is 4 time (33% of total observation)

Frequency of violation for DO is 8 time (67% 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 (6.6-7.9)	6.5 (5.3-7.7)	1.6 (1.2-2.4)	4583 (2400-4900)	1999 (790-2300)	29 (8-49)	0	0	0	0	C		
Kansari River															
52.	Banapur	12	7.5 (6.6-7.8)	6.7 (5.5-8.2)	1.5 (1.1-2.2)	3767 (1400-4900)	1468 (490-2300)	NA	0	0	0	-	C		
Badasankha River															
53.	Langaleswar	12	7.5 (6.8-8.1)	6.6 (5.0-10.2)	1.8 (1.4-2.4)	3017 (700-4900)	1326 (210-2400)	NA	0	0	0	-	C		
Sabulia River															
54.	Rambha	12	7.5 (7.2-7.9)	6.3 (5.2-7.9)	1.7 (1.1-1.9)	4336 (2200-4900)	1890 (790-2400)	28 (5-46)	0	0	0	0	C		
Ratnachira River															
55.	Kumardihi	12	7.3 (6.9-7.7)	6.1 (5.1-7.3)	1.6 (1.2-1.9)	2667 (1100-4900)	899 (230-2300)	15 (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	

@ 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 (2023)

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	7.2 (6.7-7.9)	6.7 (5.4-8.4)	1.2 (1.1-1.5)	2115 (490-4900)	664 (78-1300)	NA	0	0	0	-	C		
Koel River															
2.	Koel U/s	12	7.3 (6.8-8.5)	6.9 (5.0-8.3)	1.4 (1.1-1.8)	3850 (1700-4900)	1333 (330-2300)	NA	0	0	0	-	C		
Brahmani River															
3.	Panposh U/s	12	7.4 (6.9-8.2)	6.8 (5.0-8.8)	1.3 (1.1-1.7)	2816 (490-4900)	971 (140-2300)	NA	0	0	0	-	C		
4.	Panposh D/s	12	7.3 (6.6-7.8)	5.3 (2.4-7.0)	4.7 (3.2-5.7)	56617 (9400-92000)	21058 (4900-54000)	78 (22-320)	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	7.3 (6.7-7.8)	5.7 (2.8-7.8)	4.3 (3.4-5.3)	34333 (7000-54000)	11908 (3300-35000)	50 (17-130)	12 (100)	12 (100)	12 (100)	2 (17)	Doesn't conform to Class C	DO##,BOD, TC,FC, FS@	-do-
6.	Rourkela FD/s (Attaghat)	12	7.5 (6.5-8.5)	6.6 (3.2-9.0)	3.1 (1.8-4.8)	3469 (330-7900)	1115 (78-2300)	12 (5-23)	8 (67)	1 (8)	0	0	Doesn't conform to Class C	DO##,BOD, TC	-do-
7.	Rourkela FD/s (Biritola)	12	7.4 (6.6-8.1)	6.9 (5.4-8.1)	2.2 (1.5-3.0)	2003 (130-4900)	627 (13-2300)	9 (4-14)	0	0	0	0	C		
8.	Bonaigarh	12	7.4 (6.7-8.1)	7.4 (6.1-10.5)	1.5 (1.1-2.1)	6418 (130-54000)	2649 (13-24000)	NA	0	1 (8)	1 (8)	-	C	Single deviation of TC, FC	Human activities

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

Frequency of violation for DO is 1 time (8% of total observation)

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			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	7.5 (7.1-8.5)	8.5 (6.0-9.8)	1.3 (1.1-2.0)	583 (45-2400)	140 (17-490)	NA	0	0	0	-	C		
10.	Samal	12	7.5 (7.1-8.4)	8.2 (6.2-10.2)	1.3 (1.1-1.9)	1512 (490-4900)	473 (110-1700)	NA	0	0	0	-	C		
11.	Talcher FU/s	12	7.4 (7.1-8.3)	7.9 (6.4-9.8)	1.3 (1.2-1.5)	985 (330-2400)	279 (45-790)	NA	0	0	0	-	C		
12.	Talcher U/s	12	7.4 (7.1-8.2)	8.0 (6.8-9)	1.5 (1.1-2.4)	1560 (490-2800)	512 (130-1300)	NA	0	0	0	-	C		
13.	Mandapal	12	7.3 (6.5-7.6)	7.5 (6.4-8.6)	1.4 (1.1-1.9)	16983 (3500-35000)	7333 (1700-17000)	35 (14-79)	0	10 (83)	8 (67)	-	Doesn't Conform to Class C	TC, FC®	Human activities
14.	Talcher D/s	12	7.4 (7.1-8.1)	7.5 (6.2-8.6)	1.7 (1.2-2.1)	2399 (940-3500)	760 (330-1700)	NA	0	0	0	-	C		
15.	Talcher FD/s	12	7.4 (6.9-8.1)	7.8 (5.6-9.2)	1.5 (1.3-1.7)	623 (330-1300)	181 (78-330)	NA	0	0	0	-	C		
16.	Dhenkanal U/s	12	7.3 (6.8-7.5)	7.6 (6.4-9.4)	1.4 (1.1-1.6)	1538 (490-3500)	457 (110-1400)	NA	0	0	0	-	C		
17.	Dhenkanal D/s	12	7.3 (6.9-7.5)	7.9 (6.8-9.0)	1.6 (1.4-1.8)	2867 (1700-4900)	919 (330-2400)	NA	0	0	0	-	C		
18.	Bhuban	12	7.2 (6.5-7.6)	7.7 (6.0-9.0)	1.3 (1.1-1.6)	2119 (490-4600)	727 (78-2300)	NA	0	0	0	-	C		
19.	Kabatabandha	12	7.3 (6.6-8.1)	7.7 (6.0-8.9)	1.4 (1.1-1.6)	1508 (330-3300)	511 (78-1700)	NA	0	0	0	-	C		
20.	Dharmasala U/s	12	7.4 (6.5-8.4)	7.8 (6.4-8.7)	1.4 (1.1-1.9)	2782 (490-9400)	833 (110-2200)	NA	0	1 (8)	0	-	C	Single deviation of TC	Human activities
21.	Dharmasala D/s	12	7.6 (6.9-8.2)	7.6 (6.2-8.6)	1.5 (1.3-1.6)	7466 (790-54000)	3012 (130-24000)	NA	0	1 (8)	1 (8)	-	C	Single deviation of TC, FC®	Human activities
22.	Pottamundai	12	7.8 (7.3-8.2)	6.8 (5.8-8.6)	1.2 (1.1-1.4)	2575 (1300-4000)	961 (330-1700)	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	7.5 (6.8-8.4)	7.8 (4.8-12.4)	1.4 (1.1-1.6)	1651 (330-4900)	576 (78-2300)	NA	0	0	0	-	C		
24.	Nandira D/s	12	7.5 (6.9-8.3)	8.5 (6.2-12.6)	1.7 (1.3-2.0)	2848 (490-4900)	907 (130-2100)	11 (5-17)	0	0	0	0	C		
KisindaJhor															
25.	Kisindajhor	12	7.5 (6.9-7.9)	5.9 (3.8-7.8)	1.5 (1.1-1.9)	2841 (790-4900)	1094 (230-2300)	NA	0	0	0	-	C		
Kharasrota River															
26.	Khanditara	12	7.5 (6.9-8.2)	7.6 (6.2-8.6)	1.3 (1.1-1.6)	1899 (330-4900)	661 (45-2300)	NA	0	0	0	-	C		
27.	Binjharpur	12	7.7 (6.8-8.5)	7.6 (6.3-8.9)	1.3 (1.1-1.9)	2294 (790-4900)	750 (110-2300)	NA	0	0	0	-	C		
28.	Aul	12	8.0 (7.3-8.4)	7.0 (5.5-8.6)	1.3 (1.1-1.5)	2092 (700-4900)	775 (220-2300)	NA	0	0	0	-	C		
Guradih nallah															
29.	Guradih nallah	12	7.4 (6.9-7.7)	5.0 (1.2-6.8)	6.1 (4.3-8.0)	52264 (7900-92000)	21375 (3300-54000)	108 (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	7.5 (7.1-8.1)	7.7 (6.0-10.4)	1.4 (1.1-1.9)	5692 (1300-24000)	1818 (230-4900)	NA	0	1 (8)	1 (8)	-	C	Single deviation of TC, FC@	Human activities
Damsala River															
31.	Dayanabil	12	7.5 (6.8-8.0)	7.2 (6.0-8.4)	1.4 (1.1-2.0)	2093 (330-3500)	697 (130-2200)	NA	0	0	0	-	C		
Ganda Nallah															
32.	Marthapur	12	7.4 (7.1-8.0)	6.3 (4.3-8.6)	1.8 (1.3-2.1)	1790 (49-3500)	565 (13-1300)	NA	0	0	0	-	C		

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)							
Lingira River															
33.	Angul U/s	12	8.0 (7.4-8.4)	9.1 (6.2-12.0)	1.3 (1.1-1.6)	1342 (460-3500)	375 (130-790)	NA	0	0	0	-	C		
34.	Angul D/s	12	8.0 (7.5-8.3)	8.3 (4.8-10.8)	1.7 (1.4-1.8)	2124 (700-4900)	620 (230-1300)	NA	0	0	0	-	C		
Ramiala River															
35.	Kamakhyanagar	12	7.7 (7.2-8.1)	7.2 (5.2-8.6)	1.4 (1.2-1.9)	1560 (490-2800)	500 (130-790)	NA	0	0	0	-	C		
Banguru nallah															
36.	Banguru nallah	12	7.5 (7.2-7.9)	7.2 (5.8-9.0)	1.5 (1.1-2.5)	1267 (330-3500)	448 (130-1100)	13 (5-34)	0	0	0	0	C		
Singadajhor															
37.	Singadajhor	12	7.7 (7.3-8.2)	8.2 (6.6-10.0)	1.3 (1.1-1.6)	1890 (700-4900)	598 (170-2300)	NA	0	0	0	-	C		
Tikira River															
38.	Kaniha U/s	12	7.9 (7.5-8.2)	7.9 (6.2-9.0)	1.3 (1.1-1.4)	1606 (330-4000)	543 (78-2100)	NA	0	0	0	-	C		
39.	Kaniha D/s	12	7.8 (7.5-8.4)	8.3 (6.8-10.8)	1.7 (1.4-2.0)	2232 (490-4900)	833 (170-2200)	NA	0	0	0	-	C		
Bangurusingadajhor															
40.	Bangurusingadajhor	12	7.8 (7.5-7.9)	7.0 (4.6-9.6)	1.3 (1.1-1.8)	1704 (490-4900)	581 (110-1700)	NA	0	0	0	-	C		
Karo River															
41.	Barbil	12	7.2 (6.7-8.2)	7.1 (6.2-8.1)	1.3 (1.1-1.6)	1851 (330-3900)	567 (78-1300)	NA	0	0	0	-	C		
Class 'C' water quality Criteria (IS-2296-1982)			6.5-8.5	4 and above	3 or less	5000 or less	-	-					Drinking water source with conventional treatment followed by disinfection		
Water quality criteria MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000			6.5-8.5	5 and above	3 or less	-	2500 (Maximum Permissible)	100					Bathing Water		

@ 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 (2023)

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	7.2 (6.7-7.9)	6.5 (6.1-7.3)	1.4 (1.1-1.8)	2592 (700-4900)	828 (210-1700)	NA	0	0	0	-	C		
Kusei River															
2.	Deogaon	12	7.6 (6.7-8.5)	7.6 (6.8-8.5)	1.5 (1.1-2)	3611 (330-11000)	1316 (130-3300)	NA	0	1 (8)	1 (8)	-	C	Single deviation of TC, FC®	Human activities
Baitarani River															
3.	Naigarh	12	7.1 (6.8-8.1)	6.8 (6.0-7.3)	1.2 (1.1-1.5)	895 (330-2200)	224 (45-700)	NA	0	0	0	-	C		
4.	Unchabali	12	7.2 (6.7-8.1)	6.8 (6.4-7.4)	1.2 (1.1-1.4)	1040 (330-2200)	271 (110-790)	NA	0	0	0	-	C		
5.	Champua	12	7.1 (6.7-7.9)	6.8 (6.3-7.0)	1.4 (1.1-1.7)	1383 (330-2800)	562 (110-1700)	NA	0	0	0	-	C		
6.	Tribindha	12	7.2 (6.8-8.0)	7.0 (6.2-7.3)	1.4 (1.1-1.8)	1516 (330-4900)	442 (78-1300)	NA	0	0	0	-	C		
7.	Joda	12	7.3 (6.8-8.0)	6.8 (6.2-7.5)	1.4 (1.1-1.8)	1631 (490-4000)	458 (110-1300)	NA	0	0	0	-	C		
8.	Anandpur	12	7.3 (6.9-8)	7.4 (6.2-9.6)	1.4 (1.1-1.9)	1658 (490-2400)	518 (130-790)	NA	0	0	0	-	C		
9.	Jajpur	12	7.6 (7.1-8.2)	7.0 (6.2-8.5)	1.5 (1.1-2.6)	4594 (330-24000)	1338 (130-4900)	NA	0	1 (8)	1 (8)	-	C	Single deviation of TC, FC®	Human activities
10.	Chandbali U/s	12	7.2 (6.6-7.8)	6.5 (4.8-9.2)	1.4 (1.1-2.0)	2123 (490-4900)	804 (170-2200)	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)							
11.	Chandbali D/s	12	7.3 (6.5-8.3)	6.2 (4.4-8.8)	1.6 (1.3-2.1)	5116 (790-17000)	1616 (220-4900)	NA	0	2 (17)	2 (17)	-	C	TC, FC	Human activities
Salandi River															
12.	Bhadrak U/s	12	7.6 (6.7-8.4)	6.5 (4.8-9.2)	1.3 (1.1-1.6)	6258 (790-54000)	2518 (130-24000)	NA	0	1 (8)	1 (8)	-	C	Single deviation of TC, FC®	Human activities
13.	Bhadrak D/s	12	7.4 (6.6-8.2)	6.4 (4.4-9.6)	1.5 (1.2-1.9)	6317 (1700-22000)	2170 (330-7900)	NA	0	2 (17)	2 (17)	-	C	TC, FC®	Human activities
Dhamra River															
14.	Dhamra	12	7.5 (6.6-8.1)	6.8 (6.0-9.6)	1.5 (1.1-1.9)	1870 (330-4700)	635 (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)

(D) Rushikulya River System (2023)

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	7.6 (6.9-8.5)	8.4 (5.3-11.9)	1.5 (1.1-2.7)	2783 (790-4700)	1146 (220-2200)	NA	0	0	0	-	C		
Bada Nadi															
2	Aska	12	8.0 (6.9-8.5)	7.6 (5.0-10.8)	1.6 (1.1-1.8)	2341 (790-4900)	768 (330-2200)	NA	0	0	0	-	C		
Rushikula River															
3.	Aska	12	8.0 (7.1-8.5)	7.3 (5.0-9.0)	1.5 (1.3-2.3)	2316 (790-4900)	732 (130-1300)	NA	0	0	0	-	C		
4.	Nalabanta	12	8.0 (7.2-8.4)	7.5 (5.4-9.8)	1.5 (1.1-1.7)	2423 (490-4900)	805 (170-2300)	NA	0	0	0	-	C		
5.	Madhopur	12	8.1 (7.4-8.5)	7.6 (5.9-9.1)	1.6 (1.1-2.2)	1935 (330-4900)	607 (130-2300)	10 (5-17)	0	0	0	0	C		
6.	Potagarh	12	7.9 (7.4-8.3)	6.7 (5.2-8.5)	1.6 (1.2-2.2)	1250 (330-2400)	296 (78-790)	12 (4-22)	0	0	0	0	C		
Class 'C' water quality Criteria (IS-2296-1982)			6.5-8.5	4 and above	3 or less	5000 or less	-	-						Drinking water source with conventional treatment followed by disinfection	
Water quality criteria MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000			6.5-8.5	5 and above	3 or less	-	2500 (Maximum Permissible)	100						Bathing Water	

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

(E) Nagavali River System (2023)

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	7.3 (6.7-8.2)	7.2 (6.9-7.4)	1.3 (1.1-2.2)	6280 (490-54000)	2598 (130-24000)	NA	0	1 (8)	1 (8)	-	C	Single deviation of TC, FC®	Human activities
2.	J.K. Pur D/S	12	7.4 (6.9-8.1)	6.9 (6.3-7.4)	1.5 (1.1-2.1)	2616 (490-4900)	960 (230-2300)	17 (11-49)	0	0	0	0	C		
3.	Rayagada D/S	12	7.5 (6.9-8.2)	7.3 (6.9-7.8)	1.5 (1.1-2.3)	2817 (1100-4900)	1026 (330-2300)	14 (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) Subarnarekha river system (2023)

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 (6.8-8.4)	7.1 (6.0-9.6)	1.4 (1.1-1.8)	2357 (700-4900)	752 (130-2300)	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)

(G) Budhabalanga river system (2023)

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	7.9 (7.2-8.4)	7.8 (5.2-9.2)	1.7 (1.3-2.2)	5017 (2300-17000)	1686 (780-4900)	29 (5-49)	0	1 (8)	1 (8)	0	C	Single deviation of TC, FC [@]	Human activities
2.	Balasore U/s	12	7.9 (6.9-8.5)	7.2 (5.6-9.6)	1.4 (1.1-2.4)	3275 (1300-4900)	1188 (230-2300)	NA	0	0	0	-	C		
3.	Balasore D/s	12	7.7 (6.9-8.5)	6.6 (5.2-9.6)	1.5 (1.1-2.2)	6825 (1700-24000)	2584 (330-7900)	NA	0	2 (17)	2 (17)	-	C	TC, FC [@]	Human activities
Sone River															
4.	Hatigond	12	7.7 (6.9-8.5)	6.5 (3.2-9.6)	1.4 (1.1-1.8)	6007 (490-35000)	1736 (78-13000)	NA	0	2 (17)	1 (8)	-	C	TC, FC [@]	Human activities
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 (2023)

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	7.2 (6.8-7.9)	7.1 (4.9-10.6)	1.6 (1.2-2.1)	3613 (170-24000)	903 (45-4900)	NA	0	1 (8)	1 (8)	-	C	Single deviation of TC, FC®	Human activities
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 (2023)

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)							
Vansadhara River															
1.	Muniguda	12	7.6 (6.9-8.1)	7.2 (6.8-7.5)	1.4 (1.1-1.8)	2136 (700-4700)	701 (130-2200)	NA	0	0	0	-	C		
2.	Gunupur	12	7.8 (6.8-8.2)	7.0 (6.6-7.4)	1.6 (1.1-2.7)	2093 (330-3500)	750 (78-1100)	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 (2023)

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	7.3 (6.7-7.8)	6.9 (4.5-8.2)	1.3 (1.1-1.8)	3653 (490-28000)	1500 (78-13000)	NA	0	1 (8)	1 (8)	0	C	Single deviation of TC, FC®	Human activities
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 (2023)

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	8.2 (7.5-8.5)	7.9 (5.4-11.6)	1.4 (1.1-2.0)	2333 (790-3500)	708 (130-1700)	NA	0	0	0	-	C		
Class 'C' water quality Criteria (IS-2296-1982)			6.5-8.5	4 and above	3 or less	5000 or less	-	-					Drinking water source with conventional treatment followed by disinfection		
Water quality criteria MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000			6.5-8.5	5 and above	3 or less	-	2500 (Maximum Permissible)	100					Bathing Water		

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

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

Table -4 Water quality with respect to Other Parameters during 2023 (January-December)

(A) Mahanadi River System (2023)

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	38 (<10-119)	62 (31-80)	10.2 (6.9-16)	0.71 (0.56-1.12)	0.007 (0-0.025)	5.12 (1.68-7.28)	151 (107-180)	0.54 (0.37-0.68)	26.2 (17.29-33.09)	<0.5 (<0.5-0.623)	95 (76-124)	54 (36-72)	10 (8-12)	11.1 (6-21.1)	0.37 (0.12-0.743)
2.	Jharsuguda	44 (<10-185)	66 (40-96)	7.9 (6.7-12)	0.61 (0.56-1.12)	0.021 (0-0.056)	3.36 (1.68-5.04)	195 (98-333)	0.62 (0.3-0.93)	25.7 (16.27-36.44)	<0.5 (<0.5-0.696)	120 (76-172)	69 (40-112)	12 (6-23)	19.7 (7.8-36.9)	0.43 (0.16-1.11)
3.	Brajrajnagar U/s	38 (<10-89)	69 (36-88)	9.3 (6.7-12)	0.61 (0.56-1.12)	0.019 (0-0.09)	3.47 (2.24-5.04)	186 (120-265)	0.63 (0.39-0.99)	26.28 (21.25-35.62)	<0.5 (<0.5-0.601)	119 (80-164)	69 (40-92)	13 (6-29)	16.9 (10.5-26.5)	0.41 (0.16-0.92)
4.	Brajrajnagar D/s	42 (<10-105)	70 (36-112)	11.8 (10-14)	0.71 (0.56-1.12)	0.037 (0-0.174)	4.2 (1.68-5.6)	209 (115-338)	0.68 (0.38-0.97)	27.24 (20.03-32.99)	<0.5 (<0.5-0.571)	127 (76-192)	75 (36-128)	18 (6-38)	18.7 (8.9-28)	0.44 (0.15-0.91)
Bheden River																
5.	Jharsuguda	62 (<10-201)	73 (31-112)	9.2 (7.2-12)	0.71 (0.56-1.12)	0.031 (0-0.109)	4.42 (2.8-7.28)	380 (125-795)	1.01 (0.23-2.43)	27.66 (12.49-50.07)	<0.5 (<0.5-0.714)	224 (72-472)	136 (36-440)	52 (6-260)	63.4 (14.6-176.5)	1.47 (0.32-4.88)
Hirakud Reservoir																
6.	Hirakud reservoir	16 (<10-32)	82 (64-96)	8.5 (6.8-12)	0.71 (0.56-1.12)	0.032 (0-0.087)	4.26 (2.8-6.16)	197 (163-218)	0.45 (0.28-0.53)	19.22 (13.63-22.33)	<0.5 (<0.5-0.635)	123 (96-148)	82 (64-96)	12 (6-26)	15.1 (7.7-22.2)	0.44 (0.16-0.93)
Power Channel																
7.	Power Channel U/s	19 (<10-81)	85 (56-100)	7.9 (6.8-12)	0.76 (0.56-1.12)	0.019 (0.003-0.039)	4.31 (1.68-6.72)	209 (162-246)	0.5 (0.37-0.74)	21.03 (17.35-29.9)	<0.5 (<0.5-0.5)	127 (96-148)	82 (64-100)	12 (8-14)	14.9 (6.5-23.9)	0.42 (0.18-1.09)
8.	Power Channel D/s	37 (<10-220)	85 (60-104)	10.1 (7.3-12)	0.97 (0.56-2.8)	0.025 (0.003-0.063)	4.42 (2.8-6.16)	202 (180-239)	0.5 (0.36-0.65)	20.94 (16.59-25.9)	<0.5 (<0.5-0.508)	124 (104-152)	81 (64-100)	12 (8-14)	15 (7.2-23.4)	0.4 (0.19-1.05)

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	25 (<10-117)	85 (60-100)	8.9 (6.8-12)	0.61 (0.56-1.12)	0.017 (0.003-0.034)	4.17 (2.8-5.6)	206 (178-235)	0.5 (0.39-0.59)	20.79 (17.38-23.65)	<0.5 (<0.5-<0.5)	128 (112-144)	82 (72-96)	12 (8-18)	14.5 (7.4-24.2)	0.42 (0.13-1.16)
10.	Sambalpur D/s	31 (<10-153)	84 (60-96)	14.7 (11-18)	1.07 (0.56-2.8)	0.072 (0.011-0.26)	4.59 (1.68-7.28)	207 (158-240)	0.54 (0.36-0.72)	22.19 (16.38-26.74)	<0.5 (<0.5-0.518)	128 (92-160)	83 (60-104)	12 (8-18)	16 (7.6-29.7)	0.43 (0.17-1.12)
11.	Sambalpur FD/s at Shankarmath	31 (<10-180)	95 (52-152)	11.7 (7.5-18)	0.92 (0.56-2.24)	0.036 (0.006-0.109)	4.76 (2.8-6.72)	228 (146-380)	0.64 (0.38-1.33)	24.36 (18.02-36.19)	<0.5 (<0.5-0.696)	142 (88-232)	87 (60-116)	15 (6-33)	13.2 (6.6-23.7)	0.5 (0.19-1.25)
12.	Sambalpur FFD/s at Huma	33 (<10-190)	88 (56-113)	9.9 (7.3-14)	0.76 (0.56-1.12)	0.028 (0.008-0.109)	3.86 (2.24-6.16)	210 (160-247)	0.51 (0.31-0.65)	20.89 (15.19-24.46)	<0.5 (<0.5-0.531)	129 (104-154)	85 (68-100)	13 (6-23)	14 (6.1-22.9)	0.47 (0.16-1.12)
13.	Sonepur U/s	23 (<10-140)	98 (52-132)	7.6 (6.8-8)	0.71 (0.56-1.12)	0.03 (0.007-0.087)	4.09 (2.8-5.6)	241 (156-362)	0.73 (0.47-2.07)	25.55 (18.07-50.82)	<0.5 (<0.5-0.571)	145 (96-176)	93 (56-124)	19 (8-60)	15.2 (8.1-22.8)	0.42 (0.13-0.98)
14.	Sonepur D/s	30 (<10-170)	93 (56-132)	10.5 (7.3-12)	0.66 (0.56-1.12)	0.041 (0.007-0.09)	4.31 (2.8-6.72)	219 (150-270)	0.58 (0.34-0.86)	23.25 (14.88-28.7)	<0.5 (<0.5-0.803)	132 (92-162)	86 (52-108)	13 (8-20)	13.6 (6.5-19.7)	0.39 (0.17-0.77)
15.	Tikarapada	26 (<10-110)	83 (60-100)	9.6 (7.3-16)	0.71 (0.56-1.12)	0.01 (0-0.028)	4.98 (2.8-9.52)	227 (137-358)	0.55 (0.26-1.5)	20.58 (10.59-41.54)	<0.5 (<0.5-0.623)	140 (104-208)	91 (68-112)	16 (8-40)	25.5 (15.5-37.9)	0.38 (0.25-0.71)
16.	Narasinghpur	33 (<10-120)	86 (56-108)	7.5 (6.7-8)	0.7 (0.56-1.12)	0.016 (0-0.09)	4.17 (1.68-6.72)	207 (160-247)	0.53 (0.31-0.78)	22.02 (14.98-29.85)	<0.5 (<0.5-0.586)	128 (96-156)	80 (60-96)	12 (6-16)	14.2 (6.1-25.9)	0.38 (0.23-0.65)
17.	Munduli	58 (<10-390)	90 (60-112)	9 (6.7-18)	0.65 (0.56-1.12)	0.014 (0-0.045)	4.02 (1.68-5.6)	212 (157-245)	0.53 (0.39-0.74)	22.08 (16.8-28.91)	<0.5 (<0.5-0.55)	128 (104-140)	81 (60-96)	12 (8-15)	13.6 (5.7-22.9)	0.38 (0.22-0.62)
18.	Cuttack U/s	60 (<10-268)	85 (64-104)	8.2 (6.7-12)	0.56 (0.56-0.56)	0.011 (0-0.028)	3.44 (1.68-4.76)	211 (173-258)	0.53 (0.34-0.74)	22.18 (16.61-28.49)	<0.5 (<0.5-0.513)	127 (100-148)	78 (68-92)	12 (6-20)	14.2 (6.7-24.7)	0.5 (0.2-2.13)

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	44 (10-184)	96 (68-136)	12.3 (7.3-17)	0.75 (0.56-1.12)	0.018 (0.003-0.073)	4.02 (2.24-7.28)	240 (180-340)	0.61 (0.36-1.2)	23.05 (17.44-34.88)	<0.5 (<0.5-0.5)	147 (108-202)	87 (68-116)	17 (8-30)	14.9 (7.8-25.3)	0.38 (0.22-0.61)
20.	Cuttack FD/s	52 (<10-200)	85 (60-108)	11.3 (10-12)	0.61 (0.56-1.12)	0.022 (0.006-0.07)	3.97 (1.68-5.6)	210 (167-248)	0.54 (0.32-0.71)	22.03 (15.3-27.39)	<0.5 (<0.5-0.821)	131 (104-152)	83 (68-104)	14 (6-30)	14.7 (6.2-25)	0.37 (0.26-0.7)
21.	Paradeep U/s	45 (<10-120)	93 (56-112)	7.5 (6.9-7.9)	0.56 (0.56-0.56)	0.023 (0.008-0.045)	3.25 (1.68-4.48)	6686 (158-22980)	15.71 (0.37-41.86)	53.48 (15.97-92.54)	0.55 (<0.5-1.464)	3623 (104-14780)	978 (64-4160)	2592 (8-11568)	303.5 (12.5-1123.5)	0.43 (0.18-0.75)
22.	Paradeep D/s	80 (<10-213)	97 (56-120)	12 (10-18)	0.61 (0.56-1.12)	0.03 (0.003-0.07)	3.76 (2.24-6.72)	19604 (210-35410)	37.25 (0.7-63.44)	72.15 (28.58-84.13)	1.005 (<0.5-1.804)	13934 (124-25700)	2247 (68-4280)	8323 (16-14993)	568.8 (24.5-1209.9)	0.48 (0.19-0.91)
Ong River																
23.	Dharuakhamma	31 (<10-160)	132 (80-172)	7.6 (6.8-8)	0.71 (0.56-1.12)	0.053 (0.02-0.174)	4.48 (1.68-8.96)	279 (190-340)	0.67 (0.44-0.97)	23.44 (16.79-31.61)	<0.5 (<0.5-0.696)	172 (120-212)	115 (68-140)	17 (10-24)	13.5 (6.6-33)	0.44 (0.15-1.08)
Tel River																
24.	Monmunda	49 (<10-250)	89 (44-140)	7.6 (6.8-8)	0.71 (0.56-1.12)	0.036 (0-0.07)	3.64 (1.68-5.04)	188 (109-246)	0.45 (0.31-0.64)	19.14 (14.58-24.19)	<0.5 (<0.5-0.785)	122 (72-160)	85 (48-108)	9 (6-15)	9.9 (<5-21.6)	0.36 (0.14-0.711)
Kathajodi River																
25.	Cuttack U/s	27 (<10-117)	87 (48-112)	8.1 (7-11)	0.61 (0.56-1.12)	0.026 (0.006-0.087)	4.02 (1.68-5.6)	204 (153-252)	0.52 (0.34-0.77)	21.37 (16.52-30.34)	<0.5 (<0.5-0.623)	125 (96-148)	82 (56-96)	11 (6-16)	14.5 (7.1-23.6)	0.38 (0.25-0.76)
26.	Cuttack D/s	53 (<10-294)	91 (52-120)	18.3 (11-27)	0.93 (0.56-1.68)	0.039 (0.005-0.21)	5.65 (3.36-8.4)	239 (151-361)	0.68 (0.42-1.05)	25.39 (18.19-33.67)	<0.5 (<0.5-0.518)	149 (112-212)	86 (60-112)	19 (8-40)	14.7 (6.3-21.6)	0.36 (0.19-0.8)
27.	Cuttack FD/s at Mattagajpur	23 (<10-75)	113 (80-148)	15.5 (7.4-24)	0.75 (0.56-1.12)	0.023 (0.006-0.055)	4.28 (1.68-6.16)	301 (202-388)	0.86 (0.44-1.19)	28.04 (19.2-37.98)	<0.5 (<0.5-0.605)	180 (120-224)	102 (80-136)	26 (10-40)	15 (10.7-23.8)	0.37 (0.19-0.74)

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	46 (<10-320)	90 (56-116)	12.5 (7.4-17)	0.79 (0.56-2.8)	0.039 (0.007-0.174)	4.48 (2.24-10.64)	227 (158-327)	0.66 (0.4-0.99)	25.46 (18.8-35.17)	<0.5 (<0.5-<0.5)	138 (104-188)	81 (56-104)	17 (8-40)	12.8 (7.4-24.4)	0.4 (0.19-0.795)
Serua River																
29.	Cuttack FFD/s at Sankhatarasa	56 (<10-380)	90 (52-112)	16.5 (7.4-24)	0.89 (0.56-1.68)	0.04 (0.006-0.174)	4.63 (2.8-7.28)	223 (149-280)	0.65 (0.39-1.08)	24.96 (18.14-35.75)	<0.5 (<0.5-0.55)	140 (104-176)	83 (56-96)	15 (8-28)	13.4 (6.8-23.6)	0.38 (0.19-0.746)
Kuakhai River																
30.	Bhubaneswar FU/s	36 (<10-280)	83 (48-100)	8.5 (7.1-16)	0.7 (0.56-1.12)	0.01 (0-0.025)	3.87 (1.68-8.96)	211 (183-241)	0.61 (0.43-0.78)	24.75 (19.55-33.2)	<0.5 (<0.5-<0.5)	130 (112-152)	78 (48-88)	14 (8-28)	16.3 (7.1-32.8)	0.41 (0.19-0.75)
31.	Bhubaneswar U/s	39 (<10-240)	84 (48-100)	8.5 (7.1-14)	0.75 (0.56-1.12)	0.009 (0-0.022)	4.43 (2.8-7.28)	212 (150-253)	0.64 (0.43-1.1)	25.27 (17.9-36.34)	<0.5 (<0.5-<0.5)	127 (96-156)	81 (48-120)	18 (8-37)	14.2 (8.7-21.2)	0.36 (0.19-0.55)
Daya River																
32.	Gelapur	39 (<10-277)	88 (40-112)	8.5 (7.1-14)	0.79 (0.56-1.12)	0.034 (0.003-0.14)	4.17 (2.24-7.28)	212 (137-282)	0.58 (0.34-0.79)	23.19 (17.85-28.96)	<0.5 (<0.5-0.554)	128 (84-160)	84 (44-108)	16 (6-40)	12.8 (5.6-19.5)	0.39 (0.12-0.62)
33.	Bhubaneswar D/s	47 (<10-320)	95 (44-160)	23.9 (14-37)	3.78 (0.56-8.4)	0.036 (0-0.168)	7.89 (2.8-11.2)	283 (162-430)	1.03 (0.47-1.57)	32.45 (18.37-41.02)	<0.5 (<0.5-0.513)	163 (100-230)	90 (44-124)	31 (8-60)	14.2 (10.4-20.7)	0.71 (0.16-1.45)
34.	Bhubaneswar FD/s	55 (11-340)	99 (56-132)	19.6 (11-32)	2.8 (0.56-10.64)	0.033 (0-0.133)	6.97 (3.36-16.8)	306 (155-426)	1.17 (0.32-1.7)	34.39 (16.79-43.99)	<0.5 (<0.5-0.536)	176 (96-248)	91 (56-116)	37 (6-80)	13.6 (9.2-22.7)	0.66 (0.17-1.23)
35.	Kanas	43 (<10-140)	96 (52-132)	10.8 (7-16)	1.35 (0.56-3.92)	0.019 (0-0.067)	5.7 (2.24-8.4)	304 (143-472)	1.15 (0.44-2.04)	34.12 (20.04-44.68)	<0.5 (<0.5-0.589)	170 (92-268)	95 (52-132)	41 (8-110)	12.4 (5.4-18.1)	0.58 (0.2-1.26)

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	37 (12-96)	90 (52-136)	42.4 (21-75)	6.86 (1.12-16.8)	0.025 (0-0.185)	12.78 (6.16-20.16)	308 (172-449)	1.25 (0.66-2.05)	36.51 (27.39-50.21)	<0.5 (<0.5-0.513)	179 (112-260)	86 (52-108)	38 (16-56)	16.6 (6-44.2)	0.31 (0.12-0.493)
37.	Palasuni	55 (16-186)	83 (24-168)	62.1 (40-119)	10.17 (1.68-20.16)	0.018 (0-0.087)	16.19 (6.72-25.2)	416 (201-702)	1.85 (0.79-4.22)	42.49 (30.85-61.01)	<0.5 (<0.5-0.5)	233 (116-304)	103 (60-144)	77 (14-220)	18.3 (11.1-43.8)	1.9 (0.1-14.2)
38.	Samantrapur	34 (10-69)	114 (68-164)	53.5 (21-85)	11.15 (2.8-17.92)	0.036 (0-0.09)	16.19 (8.4-22.4)	420 (268-580)	1.65 (0.76-2.44)	40.35 (26.65-51.44)	<0.5 (<0.5-0.5)	251 (172-344)	111 (88-144)	66 (38-130)	14.8 (7.2-27)	1.2 (0.39-5.8)
39.	Vadimula	34 (10-80)	109 (40-152)	35 (18-48)	8.87 (1.68-19.04)	0.07 (0-0.196)	14.31 (6.16-23.52)	370 (195-502)	1.48 (0.72-2.32)	38.84 (30.18-49.81)	<0.5 (<0.5-0.803)	218 (112-288)	98 (48-128)	52 (20-80)	15 (8.2-22.7)	0.8 (0.17-1.87)
Birupa River																
40.	Choudwar D/s	21 (<10-82)	86 (60-108)	10.7 (7.3-14)	0.75 (0.56-1.12)	0.035 (0.007-0.14)	4.53 (2.24-7.28)	212 (160-248)	0.56 (0.34-0.73)	22.74 (16.63-27.87)	<0.5 (<0.5-0.5)	129 (96-148)	81 (64-96)	13 (6-26)	13.1 (7.1-25.1)	0.37 (0.18-0.775)
Kushabhadra River																
41.	Bhingarpur	42 (12-128)	91 (60-108)	9.5 (7-12)	0.81 (0.56-1.68)	0.009 (0.003-0.02)	4.93 (2.8-8.4)	235 (180-290)	0.77 (0.5-1.03)	27.87 (20.52-33.78)	<0.5 (<0.5-0.571)	143 (112-168)	79 (56-100)	18 (12-26)	11.4 (5.6-17.2)	0.3 (0.13-0.69)
42.	Nimapara	44 (11-230)	87 (48-116)	7.6 (7-8)	1.02 (0.56-3.36)	0.013 (0-0.05)	4.59 (2.24-9.52)	230 (131-292)	0.93 (0.5-1.62)	32.96 (23.43-48.88)	<0.5 (<0.5-0.596)	133 (92-164)	70 (44-88)	20 (8-30)	12.3 (6.9-21.9)	0.31 (0.13-0.638)
43.	Gop	54 (11-259)	92 (48-120)	7.8 (7-10)	0.71 (0.56-1.12)	0.008 (0-0.022)	4.54 (2.8-6.72)	263 (164-348)	1.11 (0.55-2.14)	34.69 (24.4-50.9)	<0.5 (<0.5-0.513)	156 (96-212)	78 (52-92)	28 (10-58)	12.4 (5.9-18.9)	0.32 (0.15-0.696)
Bhargavi River																
44.	Chandanpur	26 (<10-136)	86 (52-124)	10 (6.8-16)	0.87 (0.56-1.68)	0.029 (0-0.056)	4.76 (2.8-6.16)	234 (148-280)	0.69 (0.57-0.86)	26.22 (21.49-31.4)	0.984 (<0.5-9.068)	146 (88-192)	87 (52-112)	20 (6-34)	20.6 (9-54.9)	0.39 (0.15-0.77)

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	26 (<10-148)	94 (52-148)	7.9 (6.9-11)	0.66 (0.56-1.12)	0.012 (0-0.045)	3.81 (1.68-6.16)	227 (138-360)	0.66 (0.49-0.97)	25.25 (21.99-27.82)	<0.5 (<0.5-0.571)	143 (92-228)	86 (52-140)	18 (8-44)	12.9 (8.2-21.9)	0.38 (0.15-0.817)
46.	Golasahi	51 (16-188)	130 (48-228)	17.5 (10-24)	1.27 (0.56-3.92)	0.041 (0.003-0.26)	5.54 (2.24-11.2)	5695 (166-14710)	12.93 (0.46-37.58)	56.08 (20.93-83.06)	0.714 (<0.5-1.474)	3705 (96-9340)	1029 (56-3400)	2358 (8-7712)	172.7 (8.8-932.1)	0.39 (0.17-0.84)
Devi River																
47.	Machhagaon	48 (<10-230)	95 (60-124)	9.3 (7.3-15)	0.61 (0.56-1.12)	0.028 (0.003-0.056)	4.36 (2.24-7.28)	6417 (182-24860)	24.85 (0.45-118.51)	51.36 (21.14-94.95)	0.51 (<0.5-1.191)	4005 (104-18920)	513 (64-2640)	2896 (8-13496)	191.1 (12.9-947.9)	0.35 (0.19-0.48)
Gobari River																
48.	Kendrapada U/s	36 (<10-111)	117 (64-160)	8.2 (6.9-12)	0.66 (0.56-1.12)	0.028 (0.007-0.09)	4.14 (2.24-7.28)	815 (168-1843)	3.76 (0.52-11.46)	47.13 (22.6-77.27)	<0.5 (<0.5-1.142)	481 (112-1188)	169 (64-300)	227 (10-600)	32 (9.8-79.9)	0.34 (0.16-0.54)
49.	Kendrapada D/s	52 (<10-288)	124 (56-176)	12.9 (11-18)	0.66 (0.56-1.12)	0.017 (0-0.045)	3.92 (1.68-7.28)	990 (205-2453)	4.11 (0.6-12.1)	47.65 (22.7-72.81)	<0.5 (<0.5-0.928)	599 (120-1592)	208 (64-400)	295 (10-800)	37.2 (10.8-92.5)	0.36 (0.21-0.68)
Nuna River																
50.	Bijipur	66 (11-240)	89 (52-132)	7.6 (7-8)	0.73 (0.56-1.12)	0.01 (0-0.025)	4.98 (2.8-6.16)	227 (145-323)	0.72 (0.48-1.02)	27.37 (22.61-36.38)	<0.5 (<0.5-0.605)	133 (88-156)	81 (48-116)	16 (8-28)	13.8 (5.5-30.2)	0.43 (0.19-0.89)
Kusumi River																
51.	Tangi	31 (11-100)	80 (56-120)	10 (7.1-22)	0.61 (0.56-1.12)	0.01 (0-0.045)	3.46 (2.24-5.04)	195 (150-276)	0.71 (0.31-1.3)	28.47 (15.17-42.05)	<0.5 (<0.5-0.571)	125 (88-176)	67 (48-92)	16 (8-26)	11 (5.3-19.3)	0.32 (0.14-0.728)
Kansari River																
52.	Banapur	36 (<10-132)	92 (72-128)	9.5 (7-12)	0.56 (0.56-0.56)	0.012 (0-0.02)	3.44 (1.68-5.04)	243 (178-355)	0.82 (0.39-1.48)	29.46 (16.65-44.16)	<0.5 (<0.5-0.5)	141 (112-204)	80 (68-100)	21 (8-50)	13.1 (6.2-23.8)	0.31 (0.14-0.708)

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 (11-82)	129 (56-184)	10.2 (7-15)	0.7 (0.56-1.68)	0.02 (0-0.109)	3.72 (2.24-5.04)	1227 (410-4657)	6.79 (1.3-33.37)	59.36 (35.61-87.01)	<0.5 (<0.5-0.879)	851 (240-3560)	199 (132-384)	429 (36-2410)	43.2 (5.8-196.5)	0.48 (0.14-0.98)
Sabulia River																
54.	Rambha	28 (<10-140)	174 (88-256)	12.1 (7.1-15)	0.76 (0.56-1.12)	0.015 (0.006-0.045)	4.37 (1.68-6.72)	606 (428-1208)	2.04 (0.24-4.55)	39.98 (7.58-55.91)	<0.5 (<0.5-0.641)	400 (276-808)	193 (120-296)	125 (48-420)	14.4 (5.4-26.1)	0.59 (0.19-1.06)
Ratnachira River																
55.	Kumardihi	20 (<10-41)	103 (52-160)	9.6 (7.2-12)	0.76 (0.56-1.12)	0.009 (0-0.034)	4.59 (2.8-7.28)	358 (176-957)	1.35 (0.55-4.01)	35.41 (21.25-53.71)	<0.5 (<0.5-0.55)	220 (104-592)	100 (60-176)	56 (12-300)	12.7 (6.5-18.7)	0.41 (0.15-0.81)
❖ Class 'C'		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ Class 'E'		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

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

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

Class 'E' :Irrigation water quality

(A) Contd..

Sl. No.	Sampling Location	Nutrients			Heavy metals							
		Annual Average values (Range of values)										
		Nitrate as NO ₃ ⁻	PO ₄ ³⁻ -P	Cr(VI) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
(mg/L)												
Ib River												
1.	Sundergarh	2.035 (0.703-3.617)	0.058 (<0.05-0.191)	<0.002	0.004	1.359	0.007	0.003	0.005	<0.0005	0.00062	0.012
2.	Jharsuguda	1.899 (0.136-5.985)	<0.05 (<0.05-0.129)	<0.002	0.006	1.807	0.013	0.002	0.003	0.0011	0.00092	0.004
3.	Brajarajnaragar U/S	1.909 (0.258-6.064)	<0.05 (<0.05-0.116)	0.008	0.015	1.528	0.009	0.006	0.043	0.0009	0.00046	0.008
4.	Brajarajnaragar D/S	1.709 (0.281-4.676)	<0.05 (<0.05-0.079)	0.003	0.008	2.131	0.012	0.005	0.042	0.0014	0.00062	0.015
Bheden River												
5.	Bheden	1.875 (0.465-5.239)	0.053 (<0.05-0.154)	0.008	0.014	1.568	0.016	0.037	0.037	0.0009	0.00092	0.014
Hirakud reservoir												
6.	Hirakud	1.614 (0.218-3.463)	0.055 (<0.05-0.26)	<0.002	0.004	0.508	0.007	0.004	0.011	0.0006	0.00077	0.008
Power Channel												
7.	Power Channel U/s	1.603 (0.254-3.33)	<0.05 (<0.05-0.164)	<0.002	0.006	0.478	0.004	0.003	0.004	<0.0005	0.00062	0.010
8.	Power Channel D/s	1.492 (0.281-3.187)	0.061 (<0.05-0.154)	<0.002	0.005	2.763	0.002	0.003	0.004	<0.0005	0.00031	0.009
Mahanadi River												
9.	Sambalpur U/s	1.532 (0.27-3.057)	0.07 (<0.05-0.191)	<0.002	0.006	1.016	0.002	0.004	0.003	<0.0005	0.00046	0.007
10.	Sambalpur D/s	1.435 (0.308-2.621)	0.063 (<0.05-0.224)	<0.002	0.004	0.692	0.002	0.003	0.015	<0.0005	0.00031	0.006
11.	Sambalpur FD/s at Shankarmath	1.744 (0.613-2.824)	0.076 (<0.05-0.204)	<0.002	0.005	0.742	0.010	0.004	0.004	0.0006	0.00031	0.008
12.	Sambalpur FFD/s Huma	1.195 (0.09-2.678)	0.073 (<0.05-0.224)	<0.002	0.008	0.921	0.009	0.005	0.010	0.0007	0.00046	0.007
13.	Sonepur U/s	1.435 (0.158-2.974)	0.101 (<0.05-0.302)	<0.002	0.005	0.597	0.009	0.002	0.001	0.0009	0.00062	0.013

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	1.44 (0.209-3.27)	0.087 (<0.05-0.244)	<0.002	0.008	0.563	0.007	0.003	0.002	0.0010	0.00077	0.011
15.	Tikarapada	2.209 (0.173-10.804)	<0.05 (<0.05-0.127)	<0.002	0.006	0.289	0.007	0.005	0.046	<0.0005	0.00046	0.009
16.	Narasinghpur	1.346 (0.306-3.99)	0.068 (<0.05-0.223)	0.003	0.008	0.697	0.007	0.003	0.006	0.0011	0.00062	0.005
17.	Munduli	1.207 (0.46-2.65)	0.09 (<0.05-0.214)	<0.002	0.003	1.030	0.006	0.003	0.005	0.0007	0.00046	0.004
18.	Cuttack U/S	1.374 (0.323-6.827)	0.079 (<0.05-0.242)	0.003	0.006	1.449	0.006	0.003	0.006	0.0011	0.00062	0.009
19.	Cuttack D/S	1.51 (0.303-3.546)	0.069 (<0.05-0.136)	0.003	0.010	1.364	0.006	0.003	0.003	0.0008	0.00046	0.005
20.	Cuttack FD/s	1.491 (0.383-4.16)	0.066 (<0.05-0.204)	<0.002	0.005	0.518	0.004	0.002	0.002	<0.0005	0.00077	0.003
21.	Paradeep U/s	1.503 (0.492-3.83)	0.089 (<0.05-0.208)	0.003	0.008	0.869	0.017	0.004	0.021	0.0023	0.00092	0.009
22.	Paradeep D/s	2.527 (1.026-9.529)	0.289 (0.059-1.889)	0.009	0.013	0.100	0.015	0.006	0.024	0.0024	0.00062	0.009
Ong river												
23.	Dharuakhamma	1.461 (0.248-3.517)	0.117 (<0.05-0.315)	<0.002	0.006	0.637	0.010	0.004	0.001	0.0009	0.00062	0.012
Tel River												
24.	Monmundal	4.207 (0.393-32.218)	0.069 (<0.05-0.216)	0.006	0.018	0.826	0.009	0.003	0.018	0.0008	0.00092	0.009
Kathajodi River												
25.	Cuttack U/s	1.114 (0.313-2.544)	0.076 (<0.05-0.154)	<0.002	0.004	1.240	0.006	0.003	0.005	0.0007	0.00015	0.005
26.	Cuttack D/s	1.544 (0.162-4.97)	0.125 (<0.05-0.385)	0.003	0.012	2.190	0.008	0.003	0.005	0.0013	0.00046	0.009
27.	Cuttack FD/s Mattagajpur	2.235 (0.125-4.876)	0.071 (<0.05-0.174)	<0.002	0.005	6.491	0.007	0.004	0.007	0.0011	0.00077	0.007
28.	Kamasasan (Cuttack FFD/s)	1.596 (0.318-3.711)	0.109 (<0.05-0.203)	<0.002	0.004	1.454	0.009	0.003	0.005	0.0017	0.00092	0.007

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	1.978 (0.529-3.556)	0.094 (<0.05-0.257)	<0.002	0.008	2.146	0.010	0.004	0.011	0.0014	0.00077	0.006
Kuakhai River												
30.	Bhubaneswar FU/s	1.221 (0.194-2.914)	<0.05 (<0.05-0.11)	<0.002	0.005	0.558	0.006	0.002	0.002	0.0007	0.00077	0.005
31.	Bhubaneswar U/s	2.565 (0.173-12.298)	0.099 (<0.05-0.423)	0.003	0.005	1.240	0.007	0.005	0.030	<0.0005	0.00046	0.006
Daya River												
32.	Gelapur	1.033 (0.2-2.526)	<0.05 (<0.05-0.22)	<0.002	0.005	1.075	0.005	0.002	0.003	0.0008	0.00062	0.005
33.	Bhubaneswar D/s	6.653 (0.903-18.258)	0.418 (0.056-0.815)	<0.002	0.006	1.971	0.007	0.003	0.002	<0.0005	0.00062	0.006
34.	Bhubaneswar FD/s	6.085 (1.316-19.898)	0.381 (0.091-0.625)	0.003	0.010	1.254	0.008	0.002	0.003	0.0009	0.00077	0.006
35.	Kanas	8.349 (1.042-31.878)	0.313 (0.066-0.97)	<0.002	0.008	0.554	0.009	0.003	0.012	<0.0005	0.00046	0.009
Gangua River												
36.	Near Rajdhani Engg. College	11.101 (0.963-69.52)	0.652 (0.201-1.055)	<0.002	0.004	2.295	0.010	0.005	0.018	<0.0005	0.00062	0.005
37.	Palasuni	11.98 (0.922-58.488)	0.877 (0.207-1.41)	0.003	0.010	3.644	0.009	0.004	0.016	0.0006	0.00062	0.010
38.	Samantrapur	11.231 (0.528-46.749)	0.781 (0.099-1.409)	0.003	0.008	2.180	0.009	0.005	0.009	0.0006	0.00077	0.009
39.	Vadimula	8.433 (0.603-26.609)	0.781 (0.14-1.526)	0.004	0.008	2.489	0.006	0.004	0.006	0.0006	0.00046	0.007
Birupa River												
40.	Choudwar D/s	1.316 (0.388-5.811)	0.088 (<0.05-0.203)	<0.002	0.005	0.309	0.004	0.002	0.001	<0.0005	0.00092	0.003
Kushabhadra River												
41.	Bhingarpur	2.042 (0.172-3.772)	0.078 (<0.05-0.182)	0.003	0.014	1.737	0.006	0.005	0.007	<0.0005	0.00046	0.005
42.	Nimapara	3.098 (0.393-21.93)	0.102 (<0.05-0.215)	0.004	0.013	1.434	0.007	0.003	0.007	0.0005	0.00046	0.007

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)										
43.	Gop	2.249 (0.14-8.201)	0.106 (<0.05-0.317)	0.003	0.013	3.348	0.005	0.003	0.006	<0.0005	0.00046	0.005
Bhargavi River												
44.	Bhargavi at Chandanpur	1.389 (0.501-2.818)	0.099 (<0.05-0.221)	<0.002	0.004	0.577	0.005	0.002	0.003	0.0008	0.00015	0.007
Mangala River												
45.	Malatipatpur	1.301 (0.416-2.753)	0.079 (<0.05-0.15)	<0.002	0.004	0.528	0.015	0.003	0.003	0.0009	0.00077	0.005
46.	Golasahi	5.325 (0.747-17.775)	0.293 (0.072-0.623)	0.003	0.006	3.310	0.007	0.003	0.003	0.0005	0.00031	0.004
Devi River												
47.	Devi at Machhagaon	1.862 (0.743-4.096)	0.064 (<0.05-0.14)	0.003	0.010	1.180	0.014	0.009	0.012	0.0017	0.00092	0.010
Gobari River												
48.	Kendrapada U/s	1.946 (0.708-3.307)	0.06 (<0.05-0.152)	<0.002	0.005	2.220	0.010	0.005	0.741	0.0019	0.00077	0.010
49.	Kendrapada D/s	1.83 (0.198-3.647)	0.089 (<0.05-0.249)	<0.002	0.004	0.916	0.016	0.006	0.012	0.0018	0.00092	0.015
Nuna River												
50.	Bijipur	2.376 (0.265-12.633)	0.088 (<0.05-0.221)	0.005	0.015	3.783	0.010	0.021	0.025	0.0006	0.00031	0.010
Kusumi River												
51.	Tangi	2.385 (0.792-6.855)	0.089 (<0.05-0.286)	0.004	0.008	2.419	0.007	0.007	0.031	0.0006	0.00046	0.003
Kansari River												
52.	Banapur	1.84 (0.42-6.758)	0.082 (<0.05-0.163)	0.004	0.008	2.290	0.005	0.002	0.001	<0.0005	0.00071	0.004
Badasankha River												
53.	Langaleswar	2.761 (0.986-6.554)	0.059 (<0.05-0.116)	<0.002	0.004	1.065	0.013	0.007	0.092	0.0014	0.00062	0.004
Sabulia River												
54.	Rambha	2.41 (0.751-7.564)	0.077 (<0.05-0.184)	<0.002	0.005	3.335	0.011	0.007	0.033	0.0014	0.00062	0.008

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	1.392 (0.649-4.529)	0.1 (<0.05-0.323)	<0.002	0.005	0.881	0.004	0.002	0.002	<0.0005	0.00031	0.004
	❖ Class 'C'	50	-	0.05	-	50	-	1.5	15.0	0.01	-	0.10
	❖ Class 'E'	-	-	-	-	-	-	-	-	-	-	-

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

Class 'E' :Irrigation water quality

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

##Data for the period April, 2023

(B) Brahmani River System (2023)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents								
		Annual average values (Range of values)														
		TSS	Total alkali- nity	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	51 (<10-220)	49 (28-68)	7.6 (6.9-8)	0.61 (0.56-1.12)	0.006 (0-0.022)	3.64 (1.68-5.04)	138 (100-198)	0.47 (0.33-0.8)	23.81 (16.64-32.62)	<0.5 (<0.5- <0.5)	92 (72-128)	50 (40-64)	9 (6-18)	14.4 (6.4-32.1)	0.32 (0.12-0.787)
Koel River																
2.	Koel U/s	42 (<10-130)	79 (40-104)	7.9 (6.9-11)	0.61 (0.56-1.12)	0.014 (0-0.087)	3.86 (2.8-4.48)	182 (123-220)	0.41 (0.23-0.54)	19.06 (9.66-23.68)	<0.5 (<0.5- <0.5)	112 (80-148)	73 (44-96)	9 (6-12)	13 (7.1-27.4)	0.3 (0.12-0.649)
Brahmani River																
3.	Panposh U/S	56 (<10-265)	52 (28-72)	7.9 (6.9-11)	0.66 (0.56-1.12)	0.016 (0-0.09)	3.36 (1.68-5.6)	143 (114-218)	0.56 (0.41-1.09)	26.29 (20.82-41.66)	<0.5 (<0.5- 0.625)	93 (76-132)	51 (36-68)	12 (6-29)	12.7 (5.9-22.9)	0.28 (0.11-0.662)
4.	Panposh D/S	81 (16-163)	70 (44-112)	25.8 (12-41)	5.65 (1.68-22.4)	0.085 (0-0.437)	11.59 (4.48-25.76)	323 (188-625)	0.89 (0.61-1.42)	27.55 (22.59-36.72)	<0.5 (<0.5- 0.696)	207 (116-396)	106 (60-196)	30 (12-54)	45.4 (8.7-161.7)	0.96 (0.13-2.12)
5.	Rourkela D/S	64 (18-206)	59 (12-100)	21.6 (15-33)	2.34 (0.56-6.72)	0.037 (0-0.151)	7.11 (3.92-11.76)	229 (141-368)	0.68 (0.42-1.28)	26.06 (19.47-36.64)	<0.5 (<0.5- 0.714)	139 (88-214)	75 (48-124)	18 (8-35)	28.3 (<5-62.7)	0.58 (0.16-1.09)
6.	Attaghat	72 (11-280)	71 (43-144)	17.3 (11-28)	1.22 (0.56-4.48)	0.059 (0-0.26)	5.15 (1.68-10.64)	215 (140-345)	0.61 (0.35-0.95)	23.94 (16.74-29.38)	<0.5 (<0.5- 0.75)	124 (88-160)	80 (52-132)	15 (6-36)	20.9 (11.4-29.6)	0.46 (0.16-0.81)
7.	Rourkela FD/s (Biritola)	67 (<10-234)	66 (36-104)	12.9 (10-18)	0.66 (0.56-1.12)	0.016 (0-0.036)	3.7 (2.24-5.6)	187 (110-244)	0.57 (0.33-1.35)	23.43 (17.79-38.23)	<0.5 (<0.5- 0.875)	116 (76-164)	70 (36-108)	14 (6-26)	19.8 (9.4-27.4)	0.42 (0.12-0.886)
8.	Bonaigarh	39 (<10-138)	58 (35-84)	9.2 (7-16)	0.61 (0.56-1.12)	0.015 (0-0.036)	3.58 (2.24-6.72)	182 (112-246)	0.52 (0.37-0.87)	22.47 (17.22-30.86)	<0.5 (<0.5- 0.572)	114 (80-152)	69 (40-92)	13 (6-20)	21.2 (12.2-30.5)	0.47 (0.11-0.832)

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	31 (<10-192)	57 (44-88)	9.3 (6.9-12)	0.81 (0.56-1.68)	0.02 (0.003-0.087)	4.48 (1.68-6.72)	149 (114-185)	0.42 (0.29-0.61)	21.11 (13.07-31.43)	<0.5 (<0.5-0.75)	93 (76-124)	58 (32-92)	10 (6-15)	11.4 (5.4-19.7)	0.38 (0.17-0.82)
10.	Samal	36 (11-188)	59 (47-68)	8.7 (6.9-12)	0.61 (0.56-1.12)	0.016 (0.003-0.07)	3.92 (2.24-5.6)	139 (116-158)	0.41 (0.33-0.58)	20.64 (15.78-26.69)	<0.5 (<0.5-0.714)	90 (80-112)	57 (44-72)	9 (6-12)	9.5 (5.3-21)	0.33 (0.18-0.54)
11.	Talcher FU/s	38 (<10-194)	58 (43-72)	8.3 (7.3-12)	0.61 (0.56-1.12)	0.015 (0.003-0.055)	3.64 (2.24-6.16)	140 (113-176)	0.41 (0.3-0.58)	20.44 (14.84-26.06)	<0.5 (<0.5-0.5)	94 (72-120)	59 (40-84)	9 (6-12)	12.2 (5.6-26.2)	0.36 (0.18-0.62)
12.	Talcher U/s	37 (<10-175)	59 (48-76)	9.3 (6.9-20)	0.81 (0.56-1.12)	0.015 (0.006-0.045)	5.21 (3.92-8.4)	159 (136-187)	0.48 (0.29-0.87)	22.26 (15.02-36.02)	<0.5 (<0.5-0.518)	102 (88-116)	61 (48-72)	10 (6-18)	15.6 (7.1-26.6)	0.35 (0.19-0.52)
13.	Mandapal	36 (<10-194)	57 (48-64)	8.5 (7.3-15)	0.66 (0.56-1.12)	0.008 (0-0.013)	3.81 (1.68-6.72)	148 (124-187)	0.42 (0.3-0.51)	20.8 (15.45-26.4)	<0.5 (<0.5-0.571)	93 (76-116)	59 (48-72)	10 (6-12)	10.6 (5.6-21.9)	0.33 (0.18-0.49)
14.	Talcher D/s	39 (<10-172)	67 (56-100)	10.9 (7.8-12)	0.71 (0.56-1.12)	0.014 (0.003-0.036)	3.92 (1.68-7.28)	178 (143-224)	0.52 (0.39-0.72)	22.88 (17.89-31.7)	<0.5 (<0.5-0.714)	115 (88-148)	69 (52-88)	12 (8-20)	14.6 (5.1-27.7)	0.36 (0.23-0.51)
15.	Talcher FD/s	32 (<10-175)	67 (48-108)	11.3 (7.5-12)	0.66 (0.56-1.12)	0.013 (0-0.039)	4.26 (2.24-7.28)	177 (126-233)	0.47 (0.24-0.75)	21.38 (14.2-33.58)	<0.5 (<0.5-0.518)	113 (76-152)	68 (48-88)	12 (8-22)	15.6 (7.2-28.8)	0.39 (0.25-0.52)
16.	Dhenkanal U/s	29 (<10-144)	63 (48-88)	7.7 (6.9-8)	0.76 (0.56-1.12)	0.009 (0-0.017)	4.09 (2.8-5.6)	152 (126-220)	0.48 (0.38-0.58)	22.44 (19.03-26.05)	<0.5 (<0.5-0.804)	97 (76-128)	62 (52-84)	11 (6-14)	10.6 (5.1-19.6)	0.31 (0.19-0.4)
17.	Dhenkanal D/s	29 (13-89)	69 (52-108)	12.3 (10-15)	0.81 (0.56-1.12)	0.01 (0-0.022)	4.82 (2.8-6.72)	172 (134-227)	0.45 (0.37-0.6)	20.74 (16.74-25.16)	<0.5 (<0.5-0.714)	108 (88-148)	70 (52-96)	12 (8-35)	11.6 (6.4-18.4)	0.36 (0.2-0.54)
18.	Bhuban	40 (<10-180)	64 (48-136)	8.7 (6.9-12)	0.66 (0.56-1.12)	0.008 (0-0.017)	3.86 (1.68-5.6)	175 (133-386)	0.69 (0.33-1.74)	26.92 (15.53-48.11)	<0.5 (<0.5-0.653)	97 (84-128)	61 (40-104)	17 (8-50)	10.7 (6.9-21.9)	0.41 (0.18-1.33)

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	48 (<10-121)	60 (44-98)	7.8 (6.9-11)	0.61 (0.56-1.12)	0.01 (0-0.036)	3.97 (2.24-5.6)	172 (110-325)	0.73 (0.31-2.3)	26.43 (16.01-57.13)	<0.5 (<0.5-0.617)	117 (76-188)	62 (44-104)	18 (6-70)	14.7 (6.8-28.7)	0.4 (0.14-0.804)
20.	Dharmasala U/s	31 (<10-133)	59 (44-80)	8.5 (6.9-12)	0.65 (0.56-1.12)	0.016 (0-0.07)	3 (1.68-5.04)	159 (131-186)	0.44 (0.32-0.7)	20.54 (14.73-29.33)	<0.5 (<0.5-0.536)	102 (88-120)	66 (56-84)	10 (6-28)	16.4 (6-26.9)	0.37 (0.19-0.797)
21.	Dharmasala D/s	61 (<10-258)	62 (44-80)	11 (7.3-15)	0.65 (0.56-1.12)	0.018 (0-0.045)	3.77 (2.24-5.6)	155 (135-178)	0.44 (0.32-0.59)	20.95 (16-26.15)	<0.5 (<0.5-0.581)	103 (92-124)	64 (52-88)	10 (6-18)	15 (5.6-24.2)	0.36 (0.18-0.787)
22.	Pottamundai	37 (<10-185)	83 (60-100)	7.5 (6.9-7.9)	0.66 (0.56-1.12)	0.03 (0.008-0.09)	4.2 (2.8-6.16)	203 (165-233)	0.62 (0.45-1.06)	24.99 (20.59-38.43)	<0.5 (<0.5-0.536)	125 (104-148)	77 (64-88)	15 (8-20)	14.5 (7.4-24.1)	0.39 (0.24-0.57)
Nandira River																
23.	Nandira U/s	14 (<10-27)	159 (124-216)	9.3 (7.3-16)	0.66 (0.56-1.12)	0.02 (0-0.14)	3.81 (1.68-7.84)	487 (325-595)	1.14 (0.59-1.69)	28.33 (19.34-37.19)	<0.5 (<0.5-0.696)	301 (200-376)	178 (136-228)	53 (22-90)	44.8 (14.2-79.7)	1.39 (0.44-3.14)
24.	Nandira D/s	24 (<10-66)	149 (116-180)	12.3 (10-15)	0.81 (0.56-1.68)	0.026 (0-0.164)	4.2 (2.24-8.4)	552 (410-721)	1.06 (0.77-1.67)	26.34 (21.81-34.72)	<0.5 (<0.5-0.714)	330 (236-448)	197 (148-240)	48 (24-90)	75.5 (14.1-141.8)	1.79 (0.42-3.52)
Kisindajhor																
25.	Kisindhajhor	16 (<10-48)	154 (112-224)	10.6 (7.3-14)	0.81 (0.56-2.24)	0.015 (0-0.045)	4.09 (1.68-7.84)	556 (302-710)	0.95 (0.56-1.26)	24.62 (15.25-29.58)	<0.5 (<0.5-0.762)	320 (196-388)	199 (120-248)	53 (20-140)	56.3 (29.9-76)	2.08 (0.48-3.52)
Kharasrota River																
26.	Khanditara	42 (<10-137)	57 (36-68)	7.5 (6.9-8)	0.84 (0.56-1.12)	0.018 (0-0.045)	5.24 (2.8-8.96)	142 (125-162)	0.44 (0.29-0.55)	21.28 (13.42-25.9)	<0.5 (<0.5-0.518)	95 (76-112)	60 (40-84)	9 (6-16)	14.9 (6.4-24.2)	0.32 (0.15-0.762)
27.	Binjharpur	74 (<10-237)	67 (32-112)	8.1 (7-14)	0.7 (0.56-1.12)	0.026 (0-0.087)	4.33 (1.68-6.72)	163 (108-236)	0.44 (0.3-0.7)	20.67 (14.15-29.95)	<0.5 (<0.5-0.589)	100 (72-132)	68 (44-108)	10 (6-16)	15.2 (6-26.2)	0.36 (0.17-0.662)

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	46 (11-180)	58 (44-72)	7.5 (6.9-7.9)	0.66 (0.56-1.12)	0.05 (0.008-0.14)	4.03 (1.68-7.28)	192 (140-371)	0.83 (0.33-1.96)	30.47 (15.07-47.36)	<0.5 (<0.5-0.839)	112 (80-156)	66 (48-108)	23 (6-90)	15.9 (6-35.6)	0.37 (0.16-0.59)
Guradih nallah																
29.	Guradhi Nallah	39 (14-160)	96 (56-156)	41.4 (22-55)	9.32 (1.12-27.44)	0.13 (0-0.416)	18.28 (5.6-36.96)	441 (328-717)	1.16 (0.6-1.61)	30.71 (19.43-38.65)	<0.5 (<0.5-0.714)	278 (212-416)	128 (92-208)	43 (30-58)	55.3 (13.1-175.3)	1.26 (0.24-2.47)
Badajhor																
30.	Badhajhor	25 (<10-74)	108 (68-160)	12.2 (6.9-19)	0.66 (0.56-1.12)	0.015 (0.003-0.036)	4.03 (1.68-7.84)	289 (185-386)	0.84 (0.38-1.43)	27.69 (17.58-43.79)	<0.5 (<0.5-0.605)	175 (108-240)	103 (68-132)	30 (12-77)	12.5 (5.1-22.5)	0.48 (0.21-0.89)
Damsala River																
31.	Dayanabil	33 (<10-93)	65 (32-92)	10.5 (6.9-12)	0.65 (0.56-1.12)	0.014 (0-0.028)	4.07 (1.68-5.6)	159 (83-205)	0.41 (0.24-1.04)	19.4 (9.82-36.84)	<0.5 (<0.5-0.926)	104 (64-144)	70 (32-116)	13 (6-33)	14 (5.4-22.5)	0.38 (0.11-0.87)
Gonda nallah																
32.	Marthapur	20 (<10-45)	84 (52-121)	17.8 (8-26)	0.61 (0.56-1.12)	0.01 (0.003-0.028)	4.48 (2.24-7.84)	448 (146-890)	1.17 (0.23-2.67)	27.78 (7.26-51.7)	0.508 (<0.5-0.964)	239 (92-518)	158 (64-288)	62 (6-200)	52.3 (11.8-157)	0.69 (0.18-1.39)
Lingira River																
33.	Lingira U/s	<10 (<10-17)	191 (160-228)	8 (6.9-12)	0.56 (0.56-0.56)	0.031 (0.008-0.07)	3.53 (1.68-5.6)	431 (290-523)	0.93 (0.25-1.3)	25.15 (9-35.91)	<0.5 (<0.5-0.586)	264 (188-328)	169 (124-208)	30 (14-48)	25.9 (9.7-92)	0.59 (0.3-0.86)
34.	Lingira D/s	18 (<10-75)	185 (148-244)	11.6 (10-12)	0.76 (0.56-1.12)	0.045 (0.011-0.109)	4.48 (2.24-6.16)	429 (312-530)	0.78 (0.24-1.3)	21.82 (7.84-36.36)	<0.5 (<0.5-0.533)	253 (188-304)	170 (120-208)	26 (14-40)	25.7 (12.6-72)	0.66 (0.31-1.11)
Ramiala River																
35.	Kamakhyanagar	16 (<10-38)	55 (36-68)	10 (7.4-14)	0.71 (0.56-1.12)	0.024 (0.007-0.045)	4.48 (1.68-8.96)	149 (101-272)	0.55 (0.29-2.41)	22.73 (15.08-57.98)	<0.5 (<0.5-0.679)	98 (64-184)	56 (40-68)	12 (6-60)	13.2 (5.9-37.3)	0.34 (0.13-0.65)

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	34 (<10-130)	99 (59-224)	10.5 (7.3-19)	0.71 (0.56-1.68)	0.015 (0.007-0.05)	4.09 (2.8-5.6)	810 (471-1052)	0.79 (0.41-1.14)	17.04 (9.76-26.75)	0.561 (<0.5-0.857)	503 (268-780)	323 (160-508)	48 (20-120)	245.8 (49.6-480)	0.77 (0.17-1.41)
Singadajhor																
37.	Singadajhor	50 (<10-201)	147 (104-200)	8.9 (6.9-12)	0.66 (0.56-1.12)	0.028 (0.007-0.09)	4.42 (2.8-6.16)	376 (280-520)	0.75 (0.35-1.23)	22.26 (11.24-31.23)	<0.5 (<0.5-0.635)	241 (160-376)	152 (96-228)	25 (12-60)	38.4 (8.7-109.9)	0.45 (0.25-0.69)
Tikira River																
38.	Kaniha U/s	31 (<10-179)	85 (60-124)	7.6 (6.9-8)	0.61 (0.56-1.12)	0.026 (0.011-0.045)	4.2 (2.24-7.28)	244 (163-366)	0.55 (0.32-1.03)	21.2 (11.93-29.63)	<0.5 (<0.5-0.5)	145 (96-236)	95 (56-136)	18 (8-37)	25.6 (10.7-55.3)	0.44 (0.15-0.72)
39.	Kaniha D/s	30 (12-69)	91 (72-128)	13.2 (10-19)	0.66 (0.56-1.12)	0.032 (0.011-0.14)	4.37 (2.24-5.6)	289 (174-416)	0.62 (0.31-0.87)	21.73 (11.13-30.95)	<0.5 (<0.5-0.513)	172 (108-248)	111 (72-156)	22 (10-44)	33.7 (9.8-69.5)	1.11 (0.29-1.94)
Bangurusingadajhor																
40.	Bangurusingadajhor	12 (<10-22)	151 (88-216)	8.6 (6.9-16)	0.71 (0.56-1.12)	0.024 (0.013-0.045)	4.93 (2.8-8.4)	339 (260-455)	0.66 (0.23-1.09)	20.99 (8.66-29.1)	<0.5 (<0.5-0.5)	208 (152-288)	142 (88-176)	22 (10-40)	20 (11.9-46.1)	0.56 (0.17-0.91)
Karo River																
41.	Barbil	37 (<10-230)	63 (39-88)	7.6 (6.9-7.9)	0.61 (0.56-1.12)	0.01 (0-0.045)	3.42 (1.68-6.16)	151 (115-178)	0.36 (0.24-0.64)	17.82 (10.88-26.53)	<0.5 (<0.5-0.531)	95 (80-120)	65 (48-92)	8 (6-12)	13.8 (5.9-24.6)	0.27 (0.12-0.62)
❖ Class 'C'		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ Class 'E'		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

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

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

Class 'E' :Irrigation water quality

(B) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO ₃ ⁻	PO ₄ ³⁻ -P	Cr(VI) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
(mg/L)		(mg/L)										
Sankh River												
1.	Sankh U/s	1.539 (0.533-2.427)	<0.05 (<0.05-0.16)	<0.002	0.005	0.089	0.008	0.003	0.007	<0.0005	0.00046	0.011
Koel River												
2.	Koel U/s	2.369 (0.225-5.739)	0.076 (<0.05-0.437)	<0.002	0.003	1.444	0.007	0.003	0.008	0.0005	0.00046	0.011
Brahmani River												
3.	Panposh U/S	2.602 (0.46-14.279)	<0.05 (<0.05-0.227)	<0.002	0.003	0.105	0.009	0.004	0.005	<0.0005	0.00062	0.010
4.	Panposh D/S	20.42 (2.931-79.094)	0.072 (<0.05-0.242)	0.006	0.012	2.862	0.012	0.007	0.034	0.0006	0.00092	0.011
5.	Rourkella D/S	13.843 (2.854-45.875)	<0.05 (<0.05-0.206)	0.004	0.008	3.086	0.011	0.003	0.013	0.0008	0.00092	0.019
6.	Attaghat	9.304 (2.044-30.55)	0.051 (<0.05-0.2)	0.003	0.006	2.987	0.013	0.003	0.016	0.0007	0.00077	0.008
7.	Rourkela FD/s (Biritola)	6.713 (1.323-30.237)	<0.05 (<0.05-0.072)	<0.002	0.004	0.792	0.011	0.003	0.008	0.0006	0.00062	0.008
8.	Bonaigarh	7.167 (1.314-26.774)	<0.05 (<0.05-0.19)	<0.002	0.006	0.204	0.010	0.003	0.007	0.0006	0.00077	0.008
9.	Rengali	1.715 (1.036-3.022)	0.05 (<0.05-0.091)	<0.002	0.012	0.244	0.003	0.003	0.052	0.0005	0.00077	0.002
10.	Samal	1.637 (0.32-3.264)	<0.05 (<0.05-0.058)	0.003	0.015	0.134	0.004	0.003	0.007	<0.0005	0.00077	0.003
11.	Talcher FU/s	1.33 (0.293-2.493)	<0.05 (<0.05-0.099)	<0.002	0.010	0.645	0.006	0.003	0.014	0.0010	0.00062	0.003
12.	Talcher U/S	1.443 (0.356-2.901)	<0.05 (<0.05-0.091)	<0.002	0.008	1.847	0.005	0.002	0.052	0.0009	0.00046	0.003
13.	Mandapal	1.274 (0.145-3.03)	<0.05 (<0.05-0.054)	0.003	0.008	0.548	0.004	0.005	0.065	0.0006	0.00031	0.003
14.	Talcher D/S	2.109 (0.566-5.619)	0.086 (<0.05-0.203)	0.003	0.014	1.304	0.001	0.001	<0.001	<0.0005	0.00031	0.002

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	1.418 (0.535-2.512)	<0.05 (<0.05-0.083)	0.003	0.012	0.662	0.003	0.002	0.003	<0.0005	0.00031	0.002
16.	Dhenkanal U/s	1.982 (0.796-3.84)	0.054 (<0.05-0.161)	0.004	0.006	1.105	0.005	0.005	0.011	0.0008	0.00077	0.006
17.	Dhenkanal D/s	2.646 (0.406-7.127)	<0.05 (<0.05-0.091)	0.004	0.008	1.150	0.004	0.003	0.021	0.0006	0.00077	0.005
18.	Bhuban	3.458 (0.486-12.395)	0.097 (<0.05-0.854)	0.005	0.010	3.246	0.011	0.008	0.028	0.0013	0.00046	0.010
19.	Kabatabandha	2.035 (0.529-5.818)	0.065 (<0.05-0.165)	0.004	0.008	0.667	0.010	0.002	0.006	0.0006	0.00062	0.015
20.	Dharmasala U/s	1.786 (0.47-5.235)	0.057 (<0.05-0.171)	0.005	0.013	1.867	0.007	0.002	0.005	0.0006	0.00077	0.013
21.	Dharmasala D/s	2.043 (0.46-7.268)	<0.05 (<0.05-0.134)	<0.002	0.004	1.907	0.007	0.003	0.006	0.0007	0.00092	0.016
22.	Pottamundai	1.467 (0.096-3.82)	0.055 (<0.05-0.16)	<0.002	0.008	0.757	0.009	0.004	0.016	0.0008	0.00077	0.011
Nandirajhor												
23.	Nandira U/s	6.834 (2.028-16.993)	0.051 (<0.05-0.166)	0.003	0.006	0.816	0.009	0.005	0.009	0.0018	0.00077	0.008
24.	Nandira D/s	4.099 (0.986-10.308)	0.051 (<0.05-0.156)	<0.002	0.005	0.388	0.009	0.004	0.005	0.0014	0.00062	0.009
Kisindajhor												
25.	Kisindhajhor	5.27 (1.185-13.804)	0.077 (<0.05-0.203)	<0.002	0.004	0.637	0.009	0.004	0.008	0.0013	0.00031	0.013
Kharasrota River												
26.	Khanditara	2.152 (0.713-5.262)	<0.05 (<0.05-0.173)	0.004	0.008	0.647	0.009	0.003	0.018	0.0006	0.00092	0.014
27.	Binjharpur	4.665 (0.336-19.125)	<0.05 (<0.05-0.149)	<0.002	0.003	1.011	0.008	0.003	0.001	0.0007	0.00092	0.009
28.	Aul	1.241 (0.164-2.573)	0.066 (<0.05-0.157)	<0.002	0.006	1.145	0.007	0.002	0.001	0.0008	0.00092	0.011
Guradih nallah												
29.	Guradih Nallah	18.234 (0.682-42.877)	0.097 (<0.05-0.244)	0.005	0.010	5.625	0.006	0.002	0.017	<0.0005	0.00092	0.012

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 ^{##}
Badajhor												
30.	Badhajhor	2.186 (0.621-4.226)	0.053 (<0.05-0.184)	0.003	0.008	1.274	0.004	0.003	0.003	<0.0005	0.00046	0.010
Damsala River												
31.	Dayanabil	1.745 (0.495-4.589)	<0.05 (<0.05-0.121)	0.008	0.015	1.523	0.003	0.001	0.004	<0.0005	0.00092	0.011
Gonda nallah												
32.	Marthapur	36.682 (0.948-89.585)	<0.05 (<0.05-0.08)	0.004	0.010	1.807	0.014	0.005	0.002	0.0016	0.00077	0.018
Lingira River												
33.	Lingira U/s	1.883 (0.589-7.823)	<0.05 (<0.05-0.123)	<0.002	0.004	0.752	0.005	0.003	0.003	<0.0005	0.00062	0.005
34.	Lingira D/s	2.428 (0.564-10.388)	0.069 (<0.05-0.256)	<0.002	0.005	0.861	0.004	0.003	0.002	<0.0005	0.00046	0.005
Ramiala River												
35.	Kamakhyanagar	1.495 (0.22-2.818)	<0.05 (<0.05-0.113)	0.005	0.010	0.742	0.002	0.002	0.001	<0.0005	0.00031	0.007
Bangurunallah												
36.	Bangurunallah	7.065 (1.364-12.365)	0.053 (<0.05-0.203)	0.003	0.005	0.408	0.010	0.004	0.014	0.0011	0.00046	0.009
Singadajhor												
37.	Singadajhor	3.863 (0.681-16.474)	0.055 (<0.05-0.172)	0.006	0.012	3.982	0.008	0.004	0.006	0.0006	0.00031	0.007
Tikira River												
38.	Kaniha U/s	1.236 (0.311-4.112)	<0.05 (<0.05-0.122)	<0.002	0.008	1.120	0.007	0.003	0.005	0.0006	0.00062	0.008
39.	Kaniha D/s	1.855 (0.657-5.095)	0.058 (<0.05-0.122)	0.003	0.008	0.632	0.007	0.002	0.018	<0.0005	0.00031	0.007
Bangurusingadajhor												
40.	Bangurusingadajhor	2.047 (0.476-4.369)	0.065 (<0.05-0.161)	<0.002	0.004	0.433	0.003	0.002	0.025	<0.0005	0.00031	0.004

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	1.795 (0.483-3.51)	<0.05 (<0.05-0.158)	<0.002	0.008	1.712	0.009	0.004	0.006	<0.0005	0.00031	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, 2023

(C) Baitarani river system (2023)

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	98 (12-760)	58 (36-84)	9.2 (7.3-12)	0.56 (0.56-0.56)	0.006 (0-0.022)	3.02 (1.68-4.48)	146 (118-175)	0.44 (0.29-0.79)	20.74 (13.53-34.12)	<0.5 (<0.5-<0.5)	96 (80-112)	58 (44-76)	11 (6-15)	12.1 (5.8-24.1)	0.28 (0.12-0.64)
Kusei River																
2.	Deogaon	85 (<10-612)	113 (56-180)	9 (6.9-12)	0.66 (0.56-1.12)	0.024 (0-0.087)	3.75 (2.24-5.04)	239 (144-322)	0.51 (0.32-0.83)	19.89 (11.28-27.52)	<0.5 (<0.5-<0.5)	153 (96-220)	105 (56-156)	13 (6-20)	13.3 (5.1-25.8)	0.28 (0.16-0.61)
Baitarani River																
3.	Naigarh	84 (10-500)	33 (24-44)	7.6 (6.9-7.9)	0.61 (0.56-1.12)	0.006 (0-0.036)	3.25 (2.24-5.6)	94 (73-153)	0.4 (0.32-0.49)	23.47 (17.85-28.15)	<0.5 (<0.5-<0.5)	69 (56-92)	38 (32-48)	7 (6-10)	15.5 (5.6-35.1)	0.33 (0.11-0.62)
4.	Unchabali	69 (<10-324)	36 (27-56)	7.6 (6.9-7.9)	0.61 (0.56-1.12)	0.008 (0-0.036)	3.79 (1.68-6.72)	102 (70-151)	0.46 (0.32-0.7)	25.55 (16.97-37.21)	<0.5 (<0.5-<0.5)	72 (60-92)	41 (28-56)	8 (6-12)	16.2 (5.9-37.8)	0.27 (0.12-0.56)
5.	Champua	50 (<10-210)	50 (36-60)	9 (6.9-12)	0.61 (0.56-1.12)	0.005 (0-0.022)	3.92 (1.68-5.6)	118 (93-140)	0.41 (0.27-0.83)	21.39 (13.71-37.72)	<0.5 (<0.5-<0.5)	84 (64-100)	52 (36-68)	9 (6-18)	10.8 (6.2-23.1)	0.28 (0.12-0.6)
6.	Tribindha	59 (11-220)	58 (36-72)	9.2 (6.9-12)	0.56 (0.56-0.56)	0.007 (0-0.028)	3.42 (1.68-5.04)	136 (112-168)	0.43 (0.32-0.71)	21.25 (15.67-30.27)	<0.5 (<0.5-<0.5)	91 (72-104)	57 (40-72)	9 (6-16)	11.2 (5.8-27.2)	0.28 (0.15-0.57)
7.	Joda	50 (<10-160)	52 (28-72)	8.9 (6.9-12)	0.61 (0.56-1.12)	0.009 (0-0.028)	3.58 (1.68-5.6)	126 (80-164)	0.43 (0.29-0.66)	22.13 (15.71-28.34)	<0.5 (<0.5-<0.5)	81 (52-112)	51 (28-68)	8 (6-12)	11.2 (6.2-23.7)	0.27 (0.11-0.58)
8.	Anandpur	41 (<10-180)	61 (40-88)	7.9 (6.9-11)	0.61 (0.56-1.12)	0.008 (0-0.028)	3.42 (1.68-7.28)	143 (103-178)	0.44 (0.31-0.73)	21.47 (13.9-32.18)	<0.5 (<0.5-<0.5)	93 (64-112)	61 (44-84)	10 (6-16)	11.3 (6.9-25.8)	0.27 (0.14-0.59)

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.	Jajpur	83 (<10-250)	79 (32-116)	9.8 (7-16)	0.65 (0.56-1.12)	0.016 (0.003-0.045)	4.19 (2.24-8.4)	201 (110-328)	0.65 (0.37-1.71)	25.06 (17.95-43.02)	<0.5 (<0.5-0.586)	128 (68-212)	75 (36-116)	16 (6-54)	14.2 (6.9-22.9)	0.38 (0.12-0.66)
10.	Chandbali U/s	191 (33-382)	76 (52-92)	7.9 (6.7-12)	0.66 (0.56-1.12)	0.009 (0-0.02)	3.7 (2.24-6.72)	5050 (140-20550)	16.6 (0.88-47.3)	65.12 (35.3-86.6)	0.566 (<0.5-1.285)	3410 (108-14872)	530 (44-2400)	2082 (14-8676)	113.2 (13.3-319.8)	0.35 (0.19-0.57)
11.	Chandbali D/s	218 (30-445)	75 (44-100)	11.1 (7.5-15)	0.71 (0.56-1.12)	0.018 (0-0.109)	4.09 (1.68-6.16)	5505 (150-21870)	17.02 (0.9-47.16)	64.78 (38.19-86.01)	0.575 (<0.5-1.25)	3708 (96-15116)	605 (44-2300)	2296 (16-8676)	126.2 (13.9-459.9)	0.35 (0.18-0.56)
Salandi River																
12.	Bhadrak U/s	27 (11-85)	53 (40-64)	7.5 (6.7-8)	0.76 (0.56-1.12)	0.046 (0-0.14)	4.65 (2.8-9.52)	150 (105-322)	0.57 (0.29-2.27)	24.25 (15.98-56.7)	<0.5 (<0.5-0.803)	94 (64-192)	55 (32-64)	13 (6-60)	11.7 (5.6-18.9)	0.34 (0.12-0.59)
13.	Bhadrak D/s	26 (<10-92)	51 (20-64)	11.8 (7.5-16)	0.81 (0.56-1.68)	0.022 (0-0.09)	4.95 (3.6-7.84)	162 (98-380)	0.71 (0.27-2.3)	27.22 (13.81-58.2)	<0.5 (<0.5-0.571)	108 (72-220)	57 (44-80)	19 (6-80)	14.5 (5.4-45.4)	0.41 (0.13-1.19)
Dhamra River																
14.	Dhamra	183 (13-372)	88 (64-132)	22.6 (7.5-29)	0.71 (0.56-1.12)	0.023 (0-0.073)	4.54 (2.24-7.28)	17788 (410-34030)	36.7 (2.61-68.65)	74.99 (58.33-87.96)	0.986 (<0.5-1.652)	12927 (236-28920)	2463 (76-5000)	8092 (80-16388)	519.9 (25.3-1651.9)	0.46 (0.18-0.93)
❖ Class 'C'		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ Class 'E'		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

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

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

Class 'E' :Irrigation water quality

(C) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO ₃ ⁻	PO ₄ ³⁻ -P	Cr(VI) [#]	T Cr [#]	Fe [#]	Ni [#]	Cu [#]	Zn [#]	Cd [#]	Hg [#]	Pb [#]
(mg/L)		(mg/L)										
Kundra Nallah												
1.	Joda	3.141 (0.894-11.906)	0.062 (<0.05-0.142)	0.003	0.008	6.944	0.010	0.003	0.008	0.0006	0.00046	0.017
Kusei River												
2.	Deogaon	1.612 (0.318-6.184)	<0.05 (<0.05-0.182)	<0.002	0.005	5.526	0.013	0.003	0.012	0.0010	0.00092	0.014
Baitarani River												
3.	Naigarh	1.4 (0.06-4.449)	0.059 (<0.05-0.192)	0.003	0.008	4.132	0.009	0.004	0.007	<0.0005	0.00077	0.007
4.	Unchabali	1.879 (0.384-6.204)	<0.05 (<0.05-0.129)	0.004	0.006	1.862	0.004	0.002	0.005	<0.0005	0.00062	0.011
5.	Champua	1.714 (0.744-6.631)	<0.05 (<0.05-0.135)	<0.002	0.003	4.779	0.005	0.003	0.006	<0.0005	0.00046	0.012
6.	Tribindha	1.72 (0.297-6.547)	0.066 (<0.05-0.232)	0.003	0.006	1.558	0.011	0.003	0.008	0.0008	0.00046	0.013
7.	Joda	2.227 (0.954-6.94)	<0.05 (<0.05-0.079)	<0.002	0.004	7.318	0.009	0.005	0.005	0.0012	0.00062	0.019
8.	Anandpur	1.833 (1.024-2.807)	<0.05 (<0.05-0.117)	0.005	0.010	0.513	0.006	0.004	0.005	<0.0005	0.00092	0.015
9.	Jajpur	3.254 (0.542-14.021)	<0.05 (<0.05-0.151)	0.008	0.012	1.603	0.007	0.003	0.000	0.0009	0.00077	0.010
10.	Chandbali U/s	2.833 (1.031-6.031)	0.091 (<0.05-0.195)	0.01	0.018	8.487	0.009	0.010	0.015	0.0017	0.00046	0.007
11.	Chandbali D/s	2.87 (0.57-6.054)	0.06 (<0.05-0.107)	0.009	0.015	6.322	0.010	0.011	0.018	0.0018	0.00031	0.008

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	2.127 (0.306-9.841)	<0.05 (<0.05-0.108)	<0.002	0.005	0.582	0.007	0.004	0.023	0.0009	0.00062	0.015
13.	Bhadrak D/s	1.415 (0.33-7.423)	<0.05 (<0.05-0.123)	<0.002	0.006	0.508	0.012	0.006	0.013	0.0010	0.00031	0.017
Dhamra River												
14.	Dhamra	2.405 (0.946-3.807)	<0.05 (<0.05-0.093)	0.006	0.014	7.990	0.008	0.015	0.007	0.0012	0.00062	0.010
	❖ Class 'C'	50	-	0.05	-	50	-	1.5	15.0	0.01	-	0.10
	❖ Class 'E'	-	-	-	-	-	-	-	-	-	-	-

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

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

Class 'E' :Irrigation water quality

Data for the period April, 2023

(D) Rushikulya river system (2023)

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	22 (<10-70)	80 (48-116)	9.7 (7.3-21)	0.61 (0.56-1.12)	0.025 (0-0.087)	4.07 (2.8-6.16)	226 (151-771)	1.04 (0.33-7.36)	25.31 (15.05-79.93)	<0.5 (<0.5-0.589)	117 (92-164)	75 (56-116)	29 (6-220)	10.9 (<5-19)	0.28 (0.12-0.74)
Bada Nadi																
2.	Aska	50 (<10-260)	123 (88-152)	10.4 (7.2-12)	0.71 (0.56-1.12)	0.056 (0-0.174)	4.06 (1.68-7.19)	288 (230-344)	0.79 (0.64-1.05)	26.69 (22.12-32.03)	<0.5 (<0.5-0.568)	174 (152-204)	108 (92-132)	21 (16-34)	13.5 (5.4-29.2)	0.27 (0.18-0.39)
Rushikulya River																
3.	Aska	55 (11-233)	136 (100-184)	8.6 (7-15)	0.66 (0.56-1.12)	0.045 (0-0.09)	4.07 (1.68-7.28)	281 (210-332)	0.72 (0.52-1.02)	24.1 (17.94-30.87)	<0.5 (<0.5-1.557)	180 (144-212)	118 (84-140)	20 (12-34)	12.9 (6.8-36.8)	0.31 (0.2-0.54)
4.	Nalabanta	53 (12-240)	129 (102-164)	11.5 (7-16)	0.81 (0.56-1.12)	0.06 (0-0.14)	4.58 (2.8-8.4)	337 (238-890)	1.12 (0.41-5.85)	27.52 (16.24-70.69)	<0.5 (<0.5-0.5)	172 (140-224)	115 (92-156)	36 (14-240)	11.4 (5.6-19.5)	0.31 (0.17-0.51)
5.	Madhopur	88 (11-318)	133 (100-180)	11.8 (7-18)	0.61 (0.56-1.12)	0.044 (0-0.087)	4.23 (2.24-9.52)	457 (250-1489)	2.13 (0.54-10.4)	38.43 (19.3-79.24)	<0.5 (<0.5-0.769)	223 (168-336)	116 (92-144)	78 (14-480)	14.3 (6.3-22.5)	0.36 (0.22-0.59)
6.	Potagarh	51 (16-120)	125 (74-176)	10.7 (7-19)	0.56 (0.56-0.56)	0.025 (0-0.055)	3.31 (1.68-5.04)	12922 (320-29950)	28.91 (1.1-60.48)	66.03 (29.27-84.95)	0.692 (<0.5-1.722)	9881 (188-22920)	1683 (104-4000)	5897 (34-13493)	314 (13.5-888.9)	0.42 (0.29-0.63)
❖ 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

(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	2.084 (0.361-6.645)	<0.05 (<0.05-0.119)	<0.002	0.008	0.249	0.017	0.005	0.007	0.0010	0.00077	0.012
Bada Nadi												
2.	Aska	1.671 (0.576-6.614)	0.069 (<0.05-0.21)	<0.002	0.003	7.168	0.013	0.003	0.002	0.0007	0.00092	0.010
Rushikulya River												
3.	Aska	1.877 (0.803-4.665)	0.091 (<0.05-0.242)	0.003	0.012	0.035	0.011	0.004	0.006	0.0007	0.00077	0.011
4.	Nalabanta	1.353 (0.366-3.713)	0.064 (<0.05-0.141)	0.003	0.008	1.931	0.010	0.005	0.005	0.0018	0.00092	0.011
5.	Madhopur	1.202 (0.313-2.764)	0.074 (<0.05-0.215)	0.006	0.013	2.016	0.011	0.008	0.007	0.0026	0.00062	0.008
6.	Potagarh	1.642 (0.737-3.254)	0.065 (<0.05-0.239)	<0.002	0.004	1.772	0.012	0.006	0.007	0.0020	0.00092	0.009
❖ Class 'C'		50	-	0.05	-	50	-	1.5	15.0	0.01	-	0.10
❖ Class 'E'		-	-	-	-	-	-	-	-	-	-	-

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

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

Class 'E' :Irrigation water quality

Data for the period April, 2023

(E) Nagavali river system (2023)

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	93 (<10-364)	83 (55-100)	9.4 (6.7-31)	0.76 (0.56-1.12)	0.015 (0-0.09)	4.26 (1.68-6.72)	181 (135-216)	0.4 (0.26-0.53)	18.16 (11.4-22.95)	<0.5 (<0.5-<0.5)	116 (84-136)	79 (52-104)	9 (6-12)	11 (5.3-23.8)	0.34 (0.14-0.62)
2.	Jaykaypur D/s	172 (14-602)	87 (51-112)	10.6 (6.7-16)	0.71 (0.56-1.12)	0.012 (0-0.036)	4.37 (2.24-5.6)	205 (145-275)	0.54 (0.38-0.84)	21.94 (16.4-29.75)	<0.5 (<0.5-<0.5)	129 (88-160)	82 (52-112)	13 (8-20)	11.1 (6.5-20.9)	0.33 (0.14-0.58)
3.	Rayagada D/s	189 (15-652)	89 (55-112)	11.5 (7.1-27)	0.61 (0.56-1.12)	0.016 (0-0.045)	3.98 (2.24-5.6)	199 (155-262)	0.53 (0.24-0.85)	21.55 (10.81-29.87)	<0.5 (<0.5-0.518)	130 (92-164)	83 (56-96)	14 (8-20)	11 (5.9-19)	0.32 (0.12-0.57)
❖ Class 'C'		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ Class 'E'		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

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

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

Class 'E' :Irrigation water quality

(E) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO ₃ ⁻	PO ₄ ³⁻ -P	Cr(VI) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
(mg/L)		(mg/L)										
Nagavali river												
1.	Penta	2.933 (1.523-6.211)	0.125 (<0.05-0.969)	0.008	0.015	7.193	0.013	0.006	0.016	0.0008	0.00046	0.003
2.	Jaykaypur D/s	3.3 (1.789-7.447)	0.083 (<0.05-0.128)	0.006	0.013	3.534	0.009	0.002	0.007	0.0009	0.00062	0.005
3.	Rayagada D/s	2.867 (1.252-6.617)	0.099 (<0.05-0.193)	0.009	0.015	29.184	0.013	0.005	0.005	0.0006	0.00077	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, 2023

(F) Subarnarekha river system (2023)

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	26 (<10-87)	95 (68-164)	10.3 (6.7-16)	0.61 (0.56-1.12)	0.04 (0-0.14)	3.42 (1.68-5.04)	277 (180-407)	1.01 (0.5-1.64)	32.13 (21.93-41.25)	<0.5 (<0.5-<0.5)	169 (104-292)	95 (60-152)	29 (10-50)	20.4 (5.9-37.5)	0.38 (0.17-0.61)
	❖ 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	1.642 (0.385-3.984)	0.081 (<0.05-0.301)	<0.002	0.005	0.976	0.009	0.003	0.001	0.0009	0.00092	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, 2023

(G) Budhabalanga river system (2023)

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	23 (<10-138)	97 (52-160)	11.8 (7.3-20)	0.71 (0.56-1.12)	0.048 (0.006-0.14)	4.59 (2.8-7.28)	237 (146-326)	0.71 (0.35-1.2)	26.01 (18.06-34.97)	<0.5 (<0.5-<0.5)	140 (84-206)	93 (48-136)	18 (6-34)	12.8 (5.2-22.7)	0.32 (0.13-0.56)
2.	Balasore U/s	39 (<10-143)	82 (48-112)	8.8 (6.7-16)	0.71 (0.56-1.12)	0.046 (0-0.109)	4.3 (2.8-5.6)	223 (125-383)	0.73 (0.37-1.22)	27.11 (18.66-35.55)	<0.5 (<0.5-0.803)	128 (80-164)	87 (48-156)	24 (6-52)	15.8 (8.7-34.3)	0.31 (0.13-0.64)
3.	Balasore D/s	53 (13-236)	90 (52-128)	9.1 (7.2-14)	0.71 (0.56-1.12)	0.039 (0-0.109)	4.31 (2.24-7.28)	2257 (134-14560)	8.13 (0.33-58.13)	45.37 (18.03-91.16)	<0.5 (<0.5-0.898)	1660 (76-9960)	270 (52-1000)	818 (6-5784)	62.1 (5.1-266.7)	0.31 (0.14-0.57)
Sone River																
4.	Hatigond	31 (12-110)	85 (56-148)	9 (7.2-17)	0.61 (0.56-1.12)	0.034 (0-0.174)	3.85 (2.24-5.6)	233 (120-433)	0.94 (0.35-2.16)	33.05 (17.73-50.41)	<0.5 (<0.5-0.513)	126 (76-196)	72 (44-104)	21 (6-44)	16 (<5-36.1)	0.29 (0.13-0.63)
❖ Class 'C'		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ Class 'E'		-	-	-	-	-	-	2250	26	60	2.0	2100	-	600	1000	-

(G) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO ₃ ⁻ (mg/L)	PO ₄ ³⁻ -P	Cr(VI) ^{##}	T Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
Budhabalanga river												
1.	Baripada D/s	1.485 (0.473-2.848)	<0.05 (<0.05-0.106)	<0.002	0.006	0.493	0.012	0.005	0.002	0.0012	0.00077	0.003
2.	Balasure U/s	1.724 (0.452-3.76)	<0.05 (<0.05-0.142)	0.004	0.010	1.040	0.010	0.002	0.001	0.0009	0.00046	0.005
3.	Balasure D/s	2.231 (0.871-5.801)	0.123 (<0.05-0.297)	0.01	0.018	8.189	0.019	0.003	0.007	0.0013	0.00092	0.005
Sone River												
4.	Hatigond	2.255 (0.837-4.044)	<0.05 (<0.05-0.069)	0.003	0.008	0.229	0.010	0.004	0.003	0.0014	0.00046	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' :Irrigation water quality

Data for the period April, 2023

(H) Kolab river system (2023)

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	61 (11-215)	43 (20-60)	10.3 (7.1-15)	0.61 (0.56-1.12)	0.008 (0-0.022)	4.2 (1.68-5.6)	111 (70-145)	0.5 (0.29-0.8)	26.88 (15.19-44.65)	<0.5 (<0.5-0.75)	77 (56-92)	43 (20-64)	8 (6-12)	11.7 (5.9-21.1)	0.3 (0.11-0.54)
	❖ 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	2.255 (0.756-6.021)	0.082 (<0.05-0.422)	0.004	0.010	1.210	0.009	0.002	0.021	<0.0005	0.00092	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' : Irrigation water quality

Data for the period April, 2023

(I) Vansadhara river system (2023)

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	80 (<10-321)	75 (51-92)	10.9 (6.7-27)	0.61 (0.56-1.12)	0.015 (0-0.036)	3.47 (1.68-6.16)	183 (133-215)	0.51 (0.41-0.7)	22.1 (17.71-28.14)	<0.5 (<0.5-0.5)	112 (96-128)	72 (52-88)	12 (8-24)	12 (5.9-18.8)	0.36 (0.15-0.61)
2.	Gunupur	130 (<10-610)	85 (56-120)	9.1 (6.7-12)	0.56 (0.56-0.56)	0.022 (0-0.045)	3.78 (1.68-6.16)	189 (140-246)	0.53 (0.3-0.84)	22.25 (13.85-28.5)	<0.5 (<0.5-1.356)	122 (92-172)	77 (48-100)	11 (6-24)	13.4 (5.9-30.8)	0.35 (0.13-0.64)
❖ 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	3.638 (1.164-13.754)	<0.05 (<0.05-0.08)	0.006	0.014	3.236	0.011	0.011	0.011	0.0009	0.00062	0.007
2.	Gunupur	2.546 (0.459-11.709)	0.057 (<0.05-0.099)	0.006	0.013	3.534	0.007	0.003	0.004	<0.0005	0.00046	0.006
❖ 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, 2023

(J) Indravati river system (2023)

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	82 (<10-474)	47 (32-76)	8.5 (7.1-12)	0.66 (0.56-1.12)	0.011 (0-0.039)	4.03 (1.68-5.6)	127 (90-192)	0.5 (0.24-1.39)	23.85 (11.26-49.74)	<0.5 (<0.5-0.768)	88 (60-112)	50 (32-88)	12 (6-31)	14.4 (6.1-35.3)	0.28 (0.12-0.55)
	❖ 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	3.303 (0.634-16.61)	0.139 (<0.05-0.934)	0.005	0.013	2.713	0.010	0.007	0.091	<0.0005	0.00092	0.003
	❖ 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, 2023

(K) Bahuda river system (2023)

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	25 (11-53)	164 (120-200)	9.5 (7.3-14)	0.66 (0.56-1.12)	0.058 (0-0.174)	4.33 (1.68-7.84)	473 (330-894)	1.51 (0.64-4.03)	34.15 (19.88-60.57)	<0.5 (<0.5-0.536)	273 (228-512)	146 (120-176)	58 (18-190)	23.8 (9.1-77.8)	0.38 (0.24-0.59)
	❖ 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	1.636 (0.722-4.862)	0.119 (<0.05-0.605)	<0.002	0.005	1.414	0.014	0.007	0.008	0.0021	0.00092	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' :Irrigation water quality

Data for the period April, 2023