

Table-1 Annual Average and Range values of Four Criteria Parameters (January-December, 2018)

(A) Mahanadi River System (2018)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)				Frequency of violation (Percent of violation) from designated criteria value		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
Ib river												
1.	Sundargarh	12	7.3 (6.6-7.9)	7.0 (5.3-8.6)	1.0 (0.4-2.0)	2049 (45-3500)	0	0	C	C		
2.	Jharsuguda	12	7.8 (6.5-8.6)	7.7 (7.2-8.0)	1.0 (0.4-1.7)	1521 (110-4300)	0	0	C	C		
3.	Brajarajnaragar U/s	12	7.8 (6.9-8.4)	7.6 (6.8-8.0)	1.0 (0.4-1.8)	1674 (20-3500)	0	0	C	C		
4.	Brajarajnaragar D/s	12	7.9 (7.0-8.4)	7.6 (7.2-8.2)	1.6 (0.5-2.9)	2709 (45-4900)	0	0	C	C		
Bheden river												
5.	Jharsuguda	12	7.9 (7.2-8.4)	7.7 (7.4-8.2)	1.4 (0.6-2.8)	2277 (<1.8-16000)	0	1 (8)	C	C		
Hirakud reservoir												
6.	Hirakud reservoir	12	7.7 (6.6-8.3)	7.4 (6.7-9.0)	0.9 (0.3-1.7)	1592 (20-16000)	0	1 (8)	C	C		
Power Channel												
7.	Power Channel U/s	12	7.7 (6.6-8.3)	7.2 (5.2-8.1)	0.6 (0.3-1.1)	328 (<1.8-1400)	0	0	C	C		
8.	Power Channel D/s	12	7.6 (6.9-8.2)	7.2 (5.2-8.6)	1.0 (0.5-2.0)	795 (20-3500)	0	0	C	C		
Mahanadi river												
9	Sambalpur U/s	12	7.5 (6.6-8.3)	7.6 (6.9-8.4)	1.2 (0.6-1.7)	1355 (45-4900)	0	0	C	C		

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)				Frequency of violation	Designated Class	Existing Class	Parameters responsible	Possible Reason
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			Parameters				(Percent of violation) from designated criteria value				for downgrading the water quality	
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)	BOD	TC				
10	Sambalpur D/s	12	7.6 (6.6-8.4)	7.4 (6.7-8.4)	1.6 (0.6-2.2)	5626 (130-22000)	0	4 (33)	C	Doesn't conform to Class C	TC	Waste water of Sambalpur town
11.	Sambalpur FD/s at Shankarmath	12	7.6 (6.7-8.4)	7.3 (6.0-8.2)	1.1 (0.5-1.8)	2850 (20-16000)	0	2 (17)	C	C		
12.	Sambalpur FFD/s at Huma	12	7.7 (6.9-8.3)	7.4 (6.5-8.4)	0.9 (0.4-1.4)	2255 (170-9200)	0	1 (8)	C	C		
13.	Sonepur U/s	12	7.8 (6.9-8.3)	7.6 (6.7-8.4)	0.8 (0.2-1.5)	151 (<1.8-460)	0	0	C	C		
14.	Sonepur D/s	12	7.7 (7.0-8.4)	7.0 (6.1-7.8)	1.2 (0.4-2.1)	641 (130-3500)	0	0	C	C		
15.	Tikarapada	12	7.8 (6.7-8.4)	8.0 (6.4-10.2)	0.7 (0.2-1.5)	766 (20-3500)	0	0	C	C		
16.	Narasinghpur	12	7.8 (6.7-8.5)	8.1 (7.4-10.0)	0.6 (0.4-0.9)	723 (20-3500)	0	0	C	C		
17.	Mundali	12	7.8 (7.2-8.4)	8.1 (7.2-9.8)	0.7 (0.3-1.1)	614 (78-1300)	0	0	C	C		
18.	Cuttack U/s	12	7.9 (7.1-8.4)	7.9 (6.8-10.2)	0.7 (0.3-1.0)	930 (45-2400)	0	0	C	C		
19.	Cuttack D/s	12	7.8 (7.2-8.3)	7.5 (6.4-9.8)	1.3 (0.6-2.3)	4866 (790-16000)	0	4 (33)	C	Doesn't conform to Class C	TC	Waste water of Cuttack city
20.	Cuttack FD/s	12	7.9 (7.3-8.5)	7.6 (6.6-9.6)	1.0 (0.6-1.7)	4057 (490-16000)	0	2 (17)	C	C		
21.	Paradeep U/s	12	7.8 (6.9-8.0)	7.4 (6.2-8.6)	1.0 (0.4-1.5)	973 (<1.8-3500)	0	0	C	C		

Sl. No	Sampling Location	No. of	Annual average values (Range of values)	Frequency of violation	Designated Class	Existing Class	Parameters responsible	Possible Reason
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		Obs.	Parameters				(Percent of violation) from designated criteria value				for downgrading the water quality	
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)	BOD	TC				
22.	Paradeep D/s	12	7.6 (7.0-8.1)	7.4 (6.8-8.2)	1.0 (0.3-1.8)	146 (<1.8-490)	0	0	C	C		
Ong River												
23.	Dharuakhaman	12	7.9 (6.4-8.5)	7.7 (6.7-8.4)	0.8 (0.2-2.7)	594 (<1.8-5400)	0	1 (8)	C	C		
Tel River												
24.	Monmunda	12	7.7 (6.5-8.3)	7.4 (6.6-8.4)	1.0 (0.3-1.9)	345 (<1.8-1300)	0	0	C	C		
Kathajodi river												
25.	Cuttack U/s	12	7.7 (6.5-8.1)	7.7 (6.9-8.4)	0.7 (0.4-1.4)	1703 (140-5400)	0	1 (8)	C	C		
26.	Cuttack D/s	12	7.7 (6.8-8.4)	6.4 (4.6-8.4)	2.8 (0.7-5.7)	46758 (790-160000)	6 (50)	10 (83)	C	Doesn't conform to Class C	BOD, TC	Waste water of Cuttack city
27.	Mattagajpur (Cuttack FD/s)	12	7.8 (6.9-8.5)	6.7 (4.2-9.2)	2.6 (0.8-3.9)	23416 (790-92000)	5 (42)	11 (92)	C	Doesn't conform to Class C	BOD, TC	
28.	Kamasasan (Cuttack FFD/s)	12	7.7 (7.2-8.1)	7.5 (6.6-8.6)	1.2 (0.5-2.6)	1532 (78-4900)	0	0	C	C		
Serua River												
29.	Sankhatrasa (Cuttack FD/s)	12	7.7 (7.1-8.5)	6.9 (5.6-7.8)	2.4 (0.6-5.5)	25494 (230-160000)	5 (42)	7 (58)	C	Doesn't conform to Class C	BOD, TC	Waste water of Cuttack city

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)				Frequency of violation (Percent of violation) from designated criteria value		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
Kuakhai river												
30	Bhubaneswar FU/s	12	7.6 (6.7-8.4)	7.4 (5.5-8.7)	1.0 (0.4-1.5)	1432 (330-3500)	0	0	C	C		
31.	Bhubaneswar U/s	12	7.6 (6.5-8.3)	7.3 (5.3-9.7)	1.1 (0.6-1.6)	2800 (1300-3500)	0	0	C	C		
Daya river												
32.	Gelapur*	12	7.5 (7.0-8.3)	8.2 (6.0-9.9)	1.0 (0.5-1.9)	2695 (170-16000)	0	2 (17)	C	C		
33.	Bhubaneswar D/s	12	7.4 (6.7-8.2)	4.2 (1.1-7.8)	4.6 (1.5-7.4)	72583 (13000-160000)	9 (75)	12 (100)	C	Doesn't conform to Class C	DO#, BOD, TC	Waste water of Bhubaneswar city
34.	Bhubaneswar FD/s	12	7.3 (6.8-8.1)	5.1 (1.4-11.1)	4.3 (1.3-7.4)	54358 (3300-160000)	9 (75)	11 (92)	C	Doesn't conform to Class C	DO##, BOD, TC	
35.	Kanas	12	7.7 (6.9-8.4)	6.5 (3.8-8.9)	2.2 (0.8-4.4)	8092 (200-16000)	2 (17)	10 (83)	C	Doesn't conform to Class C	DO###, BOD, TC	Human activities

Frequency of violation for DO is 6 times (50 % 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		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
Gangua River												
36.	Near Rajdhani Engg. College	12	7.1 (6.5-7.6)	1.9 (0.4-4.6)	14.2 (3.6-31.3)	153818 (92000-160000)	12 (100)	12 (100)	C	Doesn't conform to Class C	DO#, BOD, TC	Waste water of Bhubaneswar city
37.	Palasuni	12	7.1 (6.5-7.7)	1.7 (0.5-3.2)	15.0 (4.1-34.3)	154333 (92000-160000)	12 (100)	12 (100)	C	Doesn't conform to Class C	DO##, BOD, TC	
38.	Samantray pur	12	7.2 (6.7-7.9)	1.1 (0.2-3.8)	22.4 (3.6-70.8)	151167 (54000-160000)	12 (100)	12 (100)	C	Doesn't conform to Class C	DO##, BOD, TC	
39.	Vadimula	12	7.3 (6.7-8.1)	3.2 (0.7-6.6)	8.1 (3.4-16.3)	123533 (5400-160000)	12 (100)	12 (100)	C	Doesn't conform to Class C	DO###, BOD, TC	
Birupa River												
40.	Choudwar D/s	12	7.7 (6.7-8.2)	8.0 (6.6-9.2)	0.9 (0.4-1.8)	2003 (40-3500)	0	0	C	C		
Kushabhadra River												
41.	Bhingarpur	12	7.8 (6.9-8.4)	7.0 (5.1-10.0)	1.6 (0.7-2.5)	3911 (130-9200)	0	2 (17)	C	C		
42.	Nimapara	12	7.8 (7.0-8.5)	7.0 (5.5-8.5)	1.3 (0.7-2.4)	3442 (78-16000)	0	2 (17)	C	C		
43.	Gop	12	7.8 (7.0-8.5)	6.7 (5.2-8.2)	1.2 (0.5-2.2)	6199 (790-17000)	0	4 (33)	C	Doesn't conform to Class C	TC	Human activities

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

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

Frequency of violation for DO is 9 times (75% 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		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
Bhargavi River												
44.	Chandanpur	12	8.0 (7.4-8.5)	7.0 (4.3-10.3)	1.1 (0.5-2.0)	3285 (330-16000)	0	1 (8)	C	C		
Mangala River												
45.	Malatipatpur	12	7.6 (6.6-8.4)	6.5 (4.8-8.6)	1.1 (0.4-1.7)	2734 (490-9200)	0	2 (17)	C	C		
46.	Golasahi	12	7.7 (7.2-8.4)	6.5 (3.2-11.6)	3.6 (1.3-5.8)	8108 (1300-17000)	8 (67)	9 (75)	C	Doesn't conform to Class C	DO#, BOD, TC	Human activities
Devi River												
47.	Machhagaon	12	7.6 (7.2-8.2)	7.0 (6.2-7.6)	0.8 (0.3-1.4)	621 (<1.8-3500)	0	0	C	C		
Gobari River												
48.	Kendrapara U/s	12	7.8 (7.1-8.4)	6.7 (5.2-7.6)	1.3 (0.3-2.2)	9018 (330-43000)	0	5 (42)	C	Doesn't conform to Class C	TC	Human activities
49.	Kendrapara D/s	12	7.7 (7.0-8.4)	6.5 (4.4-7.8)	1.8 (0.8-2.5)	22008 (790-92000)	0	10 (83)	C	Doesn't conform to Class C	TC	Human activities
Nuna River												
50.	Bijipur	12	7.8 (7.0-8.5)	6.5 (5.6-8.4)	1.3 (0.2-2.7)	5265 (490-16000)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
Kusumi River												
51.	Tangi	12	7.8 (7.3-8.3)	7.0 (6.2-8.4)	1.2 (0.4-1.7)	4543 (330-16000)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
Sl. No	# Frequency of violation for DO is 1 time (8% of total observation)						Frequency of violation		Designated Class	Existing Class	Parameters responsible	Possible Reason

			Parameters				(Percent of violation) from designated criteria value				for downgrading the water quality	
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)	BOD	TC				
Kansari River												
52.	Banapur	12	7.8 (6.7-8.4)	6.6 (4.4-8.4)	1.6 (0.6-3.6)	7586 (330-35000)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
Badasankha River												
53.	Langaleswar	12	7.8 (7.1-8.4)	6.7 (3.3-10.1)	2.4 (0.6-5.4)	4243 (330-16000)	4 (33)	3 (25)	C	Doesn't conform to Class C	DO#,BOD, TC	Human activities
Sabulia River												
54.	Rambha	12	8.0 (7.5-8.5)	6.5 (4.1-8.6)	1.5 (0.8-2.4)	4636 (230-16000)	0	4 (33)	C	Doesn't conform to Class C	TC	Human activities
Ratnachira River												
55.	Kumardihi	12	7.8 (7.1-8.5)	6.8 (3.1-8.7)	1.8 (0.5-3.5)	5825 (460-16000)	1 (8)	4 (33)	C	Doesn't conform to Class C	DO#,BOD, TC	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			

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

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)

(b) Brahmani river System (2018)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)				Frequency of violation (Percent of violation) from designated criteria value		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
Sankh river												
1.	Sankh U/s	12	7.5 (6.7-8.1)	6.8 (4.8-8.2)	1.2 (0.4-1.8)	4901 (330-16000)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
Koel River												
2.	Koel U/s	12	7.6 (6.7-8.3)	6.7 (4.5-8.0)	1.1 (0.4-2.5)	3966 (68->16000)	0	4 (33)	C	Doesn't conform to Class C	TC	Human activities
Brahmani river												
3.	Panposh U/s	12	7.5 (6.8-8.3)	7.4 (5.6-9.0)	1.3 (0.5-2.0)	3956 (580-16000)	0	2 (17)	C	C		
4.	Panposh D/s	12	7.5 (6.6-8.2)	5.0 (3.5-7.4)	4.8 (1.5-7.6)	35858 (5400-92000)	11 (92)	12 (100)	C	Doesn't conform to Class C	DO#, BOD, TC	Waste water of Rourkela town and Steel Plant
5.	Rourkela D/s	12	7.4 (6.6-8.2)	5.2 (3.7-7.8)	4.2 (1.3-6.5)	20217 (1300-92000)	11 (92)	11 (92)	C	Doesn't conform to Class C	DO##, BOD, TC	-do-
6.	Rourkela FD/s (Attaghat)	12	7.4 (6.9-8.2)	6.5 (4.6-8.6)	3.1 (0.8-5.4)	6671 (92-24000)	6 (50)	7 (58)	C	Doesn't conform to Class C	BOD, TC	-do-
7.	Rourkela FD/s (Biritola)	12	7.6 (6.7-8.2)	7.2 (5.2-8.2)	1.4 (0.4-2.8)	2216 (45-9200)	0	2 (17)	C	C		

Frequency of violation for DO is 4 times (33% 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		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
8.	Bonaigarh	12	7.7 (7.0-8.2)	7.3 (4.9-9.0)	1.3 (0.1-2.2)	860 (20-3500)	0	0	C	C		
9.	Rengali	12	7.7 (6.9-8.2)	7.9 (6.0-9.0)	0.8 (0.5-1.5)	626 (68-1600)	0	0	C	C		
10.	Samal	12	7.7 (7.1-8.3)	8.0 (4.8-9.2)	0.8 (0.2-1.9)	1180 (130-3500)	0	0	C	C		
10.	Talcher FU/s	12	7.7 (7.1-8.3)	8.0 (7.2-9.0)	0.7 (0.4-1.1)	1427 (78-5400)	0	1 (8)	C	C		
10.	Talcher U/s	12	7.8 (7.2-8.2)	7.8 (6.4-8.6)	0.8 (0.5-1.2)	1816 (130-9200)	0	1 (8)	C	C		
13.	Mandapal	12	7.7 (7.1-8.2)	7.8 (6.8-8.4)	1.2 (0.6-2.6)	3226 (170-16000)	0	2 (17)	C	C		
14.	Talcher D/s	12	7.6 (6.6-8.1)	7.8 (6.9-8.8)	1.2 (0.2-2.8)	3027 (230-11000)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
15.	Talcher FD/s	12	7.6 (7.0-8.1)	8.0 (6.4-9.1)	0.8 (0.2-1.4)	2085 (230-7900)	0	2 (17)	C	C		
16.	Dhenkanal U/s	12	7.7 (7.3-8.2)	8.2 (7.2-9.4)	0.7 (0.2-1.0)	1621 (130-9200)	0	1 (8)	C	C		
17.	Dhenkanal D/s	12	7.7 (7.3-8.0)	8.0 (6.4-9.2)	1.0 (0.2-2.0)	3502 (270-17000)	0	2 (17)	C	C		
18.	Bhuban	12	7.8 (7.3-8.3)	7.9 (6.8-9.0)	0.8 (0.2-1.9)	715 (20-2400)	0	0	C	C		
19.	Kabatabandha	12	7.7 (6.3-8.4)	7.2 (6.4-7.6)	0.5 (0.2-0.8)	1149 (20-4300)	0	0	C	C		
20.	Dharmasala U/s	12	7.6 (6.4-8.2)	7.4 (6.8-7.9)	0.6 (0.2-0.9)	1227 (110-3500)	0	0	C	C		
21.	Dharmasala D/s	12	7.7 (6.7-8.4)	7.3 (6.6-7.6)	1.1 (0.6-1.6)	1847 (78-5400)	0	1 (8)	C	C		
22.	Pottamundai	12	7.8 (7.0-8.4)	7.4 (6.0-9.2)	1.2 (0.7-1.8)	1719 (170-4300)	0	0	C	C		

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			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
Nandira river												
23.	Nandira U/s	12	7.9 (7.3-8.4)	7.4 (5.8-8.4)	1.1 (0.6-2.5)	3921 (45 - >16000)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
24.	Nandira D/s	12	8.0 (7.4-8.5)	7.3 (5.8-8.8)	1.6 (0.8-3.5)	7551 (330-35000)	1 (8)	4 (33)	C	Doesn't conform to Class C	BOD, TC	Human activities
Kisindajhor												
25.	Kisindajhor	12	8.0 (7.6-8.3)	6.9 (4.6-8.2)	1.1 (0.6-2.1)	2133 (78-5400)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
Kharasuan River												
26.	Khanditara	12	7.6 (6.8-8.1)	7.7 (6.4-8.4)	0.8 (0.3-1.4)	789 (45-3500)	0	0	C	C		
27.	Binjharpur	12	7.8 (7.1-8.3)	7.9 (7.2-8.6)	0.7 (0.3-1.6)	1169 (45-5400)	0	1 (8)	C	C		
28.	Aul	12	7.8 (7.3-8.4)	7.3 (6.2-8.6)	1.2 (0.3-2.0)	2390 (45-5400)	0	1 (8)	C	C		
Guradih nallah												
29.	Guradih nallah	12	7.4 (6.8-7.9)	3.4 (1.8-6.4)	7.0 (3.3-10.1)	70750 (11000->160000)			Drain			
Badjhor nallah												
30.	Badjhor nallah	12	8.0 (7.7-8.3)	7.2 (6.6-8.3)	0.9 (0.4-1.5)	7173 (490-54000)	0	2 (17)	C	C		

Sl. No	Sampling Location	No. of	Annual average values (Range of values)				Frequency of violation		Designated Class	Existing Class	Parameters responsible	Possible Reason
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		Obs.	Parameters				(Percent of violation) from designated criteria value				for downgrading the water quality	
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)	BOD	TC				
Damsala River												
31.	Dayanabil	12	7.8 (7.0-8.5)	7.3 (6.4-8.3)	0.7 (0.3-1.4)	1884 (45-4600)	0	0	C	C		
Ganda nallah												
32.	Marthapur	12	7.8 (7.2-8.2)	7.5 (6.4-8.2)	1.0 (0.4-2.4)	10964 (20-92000)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
Lingira River												
33.	Angul U/s	12	8.3 (7.7-8.8)	7.7 (6.2-9.0)	1.0 (0.3-1.8)	2183 (45-16000)	0	1 (8)	C	C		
34.	Angul D/s	12	8.3 (7.8-8.8)	7.3 (5.8-8.6)	1.1 (0.5-2.2)	2299 (78-9200)	0	1 (8)	C	C		
Ramiala River												
35.	Kamakhyanagar	12	8.0 (7.5-8.5)	7.8 (4.4-9.4)	1.0 (0.3-1.8)	1397 (78-3500)	0	0	C	C		
Banguru nallah												
36.	Banguru nallah	12	8.1 (7.6-8.5)	7.5 (5.2-9.0)	1.3 (0.5-3.9)	1248 (130-2400)	1 (8)	0	C	Doesn't conform to Class C	BOD	Human activities
Singada jhor												
37.	Singada jhor	12	8.1 (7.5-8.5)	7.9 (5.8-10.0)	1.2 (0.7-2.1)	980 (45-4300)	0	0	C	C		
Tikira River												
38.	Kaniha U/s	12	8.1 (7.9-8.3)	8.0 (7.0-9.6)	0.8 (0.4-1.5)	1163 (110-3500)	0	0	C	C		
39.	Kaniha D/s	12	7.9 (6.7-8.4)	7.3 (5.8-8.2)	1.1 (0.6-2.5)	2520 (110-9200)	0	1 (8)	C	C		

Sl. No	Sampling Location	No. of	Annual average values (Range of values)	Frequency of violation	Designated Class	Existing Class	Parameters responsible	Possible Reason
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		Obs.	Parameters				(Percent of violation) from designated criteria value				for downgrading the water quality	
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)	BOD	TC				
Bangurusingada jhor												
40.	Bangurusingada jhor	12	8.1 (7.7-8.5)	7.3 (5.2-8.8)	1.1 (0.1-2.5)	2775 (20-9200)	0	1 (8)	C	C		
Karo River												
41.	Barbil	12	7.6 (6.4-8.5)	7.0 (6.0-7.7)	0.9 (0.1-1.9)	1744 (78-4300)	0	0	C	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			

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)

(C) Baitarani river system (2018)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)				Frequency of violation (Percent of violation) from designated criteria value		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
Kundra nallah												
1.	Joda	12	7.6 (6.9-8.4)	6.9 (6.0-8.3)	1.2 (0.3-2.1)	1636 (68-4300)	0	0	C	C		
Kusei River												
2.	Deogaon	12	7.9 (7.0-8.5)	7.6 (7.1-9.6)	1.2 (0.7-2.2)	3306 (390-5400)	0	1 (8)	C	C		
Baitarani River												
3.	Naigarh	12	7.7 (6.7-8.4)	7.5 (6.2-8.9)	0.8 (0.4-1.8)	842 (78-3500)	0	0	C	C		
4.	Unchabali	12	7.5 (6.0-8.4)	7.5 (6.2-8.9)	0.8 (0.4-1.8)	842 (78-3500)	0	0	C	C		
5.	Champua	12	7.5 (6.8-8.3)	7.1 (6.0-7.8)	1.0 (0.3-2.4)	1289 (78-3500)	0	0	C	C		
6.	Tribindha	12	7.7 (6.9-8.3)	7.4 (6.4-8.2)	0.9 (0.4-2.2)	1061 (78-3500)	0	0	C	C		
7.	Joda	12	7.6 (6.9-8.3)	7.5 (6.2-8.7)	0.7 (0.4-1.3)	1089 (20-3500)	0	0	C	C		
8.	Anandpur	12	7.6 (7.0-8.4)	7.5 (6.8-8.1)	1.0 (0.5-2.0)	1805 (170-360)	0	0	C	C		
9.	Jajpur	12	7.9 (7.4-8.4)	7.6 (6.5-8.4)	0.7 (0.3-1.4)	4556 (78-16000)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)				Frequency of violation (Percent of violation) from designated criteria value		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
10.	Chandbali U/s	12	7.9 (7.1-8.4)	7.4 (5.6-9.2)	0.9 (0.5-2.1)	8267 (1100-16000)	0	5 (42)	C	Doesn't conform to Class C	TC	Human activities
11.	Chandbali D/s	12	7.8 (7.3-8.2)	7.4 (6.0-8.8)	1.3 (0.4-1.9)	8335 (920-16000)	0	5 (42)	C	Doesn't conform to Class C	TC	Human activities
Salandi River												
12.	Bhadrak U/s	12	7.9 (7.1-8.4)	7.5 (5.2-9.2)	0.8 (0.3-1.2)	2391 (490-5400)	0	1 (8)	C	C		
13.	Bhadrak D/s	12	7.8 (6.4-8.4)	7.7 (5.6-9.6)	1.1 (0.7-1.8)	9823 (790-54000)	0	5 (42)	C	Doesn't conform to Class C	TC	Human activities
Dhamra River												
14.	Dhamra	12	7.7 (6.9-8.1)	7.2 (5.6-8.8)	0.9 (0.4-1.9)	5028 (330-16000)	0	3 (25)	C	Doesn't conform to Class C	TC	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			

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 (2018)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)				Frequency of violation (Percent of violation) from designated criteria value		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
Russelkunda Reservoir												
1.	Russelkunda	12	7.6 (7.0-8.3)	8.1 (6.0-9.8)	1.2 (0.8-2.0)	1716 (<1.8-4300)	0	0	C	C		
Bada Nadi												
2	Aska	12	8.0 (7.4-8.4)	8.2 (6.5-9.5)	1.0 (0.3-1.8)	1414 (170-4300)	0	0	C	C		
Rushikulya River												
3.	Aska	12	7.9 (6.9-8.5)	7.6 (6.0-8.6)	0.9 (0.4-1.5)	2508 (230-5400)	0	1 (8)	C	C		
4.	Nalabanta	12	8.0 (7.5-8.4)	7.7 (6.0-10.0)	1.1 (0.4-1.8)	1906 (61-5400)	0	1 (8)	C	C		
5.	Madhopur	12	8.0 (7.4-8.4)	7.9 (6.2-10.5)	1.4 (0.6-2.6)	2642 (<1.8-4300)	0	0	C	C		
6.	Potagarh	12	7.8 (7.5-8.4)	7.8 (6.8-10.1)	2.0 (0.9-3.7)	1126 (<1.8-3500)	2 (17)	0	C	Doesn't conform to Class C	BOD	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			

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 (2018)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)				Frequency of violation (Percent of violation) from designated criteria value		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
Nagavali river												
1.	Penta U/s	12	7.6 (6.4-8.3)	7.4 (6.9-7.8)	0.9 (0.4-1.5)	1103 68-3500	0	0	C	C		
2.	J.K. Pur D/S	12	7.7 (6.7-8.4)	6.7 (6.3-7.0)	1.6 (0.8-2.8)	3364 (700-16000)	0	2 (17)	C	C		
3.	Rayagada D/S	12	7.7 (6.6-8.4)	7.3 (7.0-7.6)	1.1 (0.5-2.1)	1391 (170-3500)	0	0	C	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			

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 (2018)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)				Frequency of violation (Percent of violation) from designated criteria value		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
Subarnarekha river												
1.	Rajghat	12	8.0 (6.9-8.5)	7.5 (6.4-8.8)	1.0 (0.3-1.6)	2162 (170-4900)	0	0	C	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			

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 (2018)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)				Frequency of violation (Percent of violation) from designated criteria value		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
Budhabalanga river												
1.	Baripada D/s	12	7.9 (6.8-8.5)	8.1 (6.8-9.6)	1.0 (0.6-1.6)	7923 (680-54000)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
2.	Balasore U/s	12	7.8 (7.0-8.3)	7.5 (6.4-8.8)	1.0 (0.2-2.3)	3149 (790-9200)	0	1 (8)	C	C		
3.	Balasore D/s	12	7.8 (7.0-8.4)	6.9 (5.2-8.2)	1.6 (1.0-2.8)	17567 (3500-54000)	0	7 (58)	C	Doesn't conform to Class C	TC	Human activities
Sone River												
4.	Hatigond	12	7.7 (6.9-8.4)	7.3 (5.0-8.4)	1.2 (0.4-2.3)	2107 (220-4300)	0	0	C	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			

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 (2018)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)				Frequency of violation (Percent of violation) from designated criteria value		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
Kerandi River												
1.	Sunabeda	12	7.6 (7.2-8.1)	7.3 (7.0-7.8)	0.7 (0.3-1.4)	1593 (78-3500)	0	0	C	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			

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 (2018)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)				Frequency of violation (Percent of violation) from designated criteria value		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
Vansadhara River												
1.	Muniguda	12	7.7 (6.6-8.4)	7.3 (6.7-7.9)	0.8 (0.5-1.5)	638 (20-1700)	0	0	C	C		
2.	Gunupur	12	7.8 (6.6-8.4)	7.4 (7.1-8.1)	0.9 (0.2-1.6)	1339 (20-3500)	0	0	C	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			

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 (2018)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)				Frequency of violation (Percent of violation) from designated criteria value		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
Indravati River												
1.	Nawarangpur	12	7.6 (6.8-8.3)	7.4 (7.0-8.1)	0.7 (0.2-1.7)	537 (40-2400)	0	0	C	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			

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 (2018)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)				Frequency of violation (Percent of violation) from designated criteria value		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
Bahuda River												
1.	Damodarpally	12	8.1 (7.6-8.4)	7.5 (6.0-9.2)	0.9 (0.5-1.5)	1411 (170-3500)	0	0	C	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			

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-2 Water quality with respect to Other Parameters during 2018 (January-December)

(A) Mahanadi River System (2018)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents								
		Annual average values (Range of values)															
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F	
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)							
Ib river																	
1.	Sundargarh	114 (2-426)	64 (42-88)	9.4 (5.0-24.1)	0.191 (BDL-0.450)	0.003 (0-0.010)	4.29 (0.56-13.44)	788 (20-2200)	156 (111-212)	0.39 (0.28-0.86)	0.011 (<0.003-0.028)	93 (66-122)	55 (36-88)	10.40 (7.40-20.20)	7.77 (1.74-19.40)	0.35 (0.22-0.61)	
2.	Jharsuguda	69 (1-370)	62 (44-76)	8.9 (6.1-13.9)	0.204 (0.056-0.560)	0.007 (0-0.034)	3.32 (0.28-13.44)	757 (20-3500)	210 (114-648)	0.77 (0.20-3.66)	0.043 (0.005-0.162)	123 (68-352)	65 (48-98)	24.59 (5.78-139.00)	12.77 (1.71-38.06)	0.39 (0.25-0.60)	
3.	Brajrajnagar U/s	138 (3-804)	74 (32-186)	9.5 (5.2-15.8)	0.204 (0.056-0.560)	0.007 (0-0.022)	2.59 (0.56-7.84)	652 (<1.8-1700)	180 (107-392)	0.35 (0.18-0.76)	0.039 (<0.003-0.136)	109 (58-218)	73 (30-162)	9.88 (5.78-17.70)	13.45 (8.28-24.13)	0.39 (0.21-0.81)	
4.	Brajrajnagar D/s	78 (2-378)	85 (40-208)	13.0 (8.1-18.5)	0.242 (0.056-0.790)	0.013 (0-0.077)	2.43 (0.56-6.16)	1198 (<1.8-2600)	214 (111-534)	0.46 (0.19-0.91)	0.047 (0.003-0.088)	131 (67-299)	83 (38-186)	14.87 (5.78-44.97)	16.48 (7.8-31.47)	0.46 (0.25-1.50)	
Bheden river																	
5.	Jharsuguda	117 (1-614)	76 (20-124)	12.8 (7.8-20.0)	0.158 (BDL-0.450)	0.010 (0-0.031)	2.36 (0.28-7.84)	11985 (<1.8-9200)	219 (102-339)	0.45 (0.16-0.93)	0.038 (0.004-0.105)	133 (62-211)	85 (32-124)	14.56 (3.86-29.98)	25.4 (9.07-56.09)	0.55 (0.22-1.20)	
Hirakud Reservoir																	
6.	Hirakud reservoir	23 (1-75)	71 (44-98)	8.2 (4.8-13.8)	0.266 (BDL-1.120)	0.010 (0-0.029)	2.19 (0.56-7.28)	853 (<1.8-9200)	193 (135-298)	0.34 (0.28-0.43)	0.025 (<0.003-0.084)	109 (82-124)	71 (52-82)	10.37 (7.71-13.99)	13.99 (6.72-18.65)	0.35 (0.25-0.54)	
Power Channel																	
7.	Power Channel U/s	27 (1-132)	74 (48-96)	8.4 (4.8-13.9)	0.083 (BDL-0.330)	0.003 (0-0.013)	2.12 (0.56-5.60)	161 (<1.8-790)	177 (132-227)	0.35 (0.24-0.68)	0.032 (<0.003-0.088)	107 (86-121)	70 (56-86)	9.50 (7.40-11.99)	12.63 (6.72-17.16)	0.36 (0.27-0.55)	
8.	Power Channel D/s	23 (2-88)	73 (48-96)	17.0 (6.6-93.5)	0.200 (0.056-1.120)	0.004 (0-0.014)	1.96 (0.56-6.16)	330 (<1.8-1300)	185 (153-227)	0.35 (0.24-0.68)	0.034 (<0.003-0.112)	113 (94-132)	73 (54-94)	10.20 (7.40-15.99)	13.74 (6.84-21.76)	0.37 (0.28-0.55)	

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)		(mg/l)					
Mahanadi river																
9.	Sambalpur U/s	23 (1-115)	80 (52-112)	10.2 (7.7-17.8)	0.168 (0.056-1.120)	0.003 (0-0.014)	1.84 (0.28-4.48)	468 (20-1700)	203 (135-261)	0.42 (0.29-0.53)	0.045 (<0.003-0.095)	120 (88-148)	77 (60-100)	11.26 (1.99-15.99)	14.07 (9.95-21.26)	0.38 (0.27-0.56)
10.	Sambalpur D/s	23 (2-86)	83 (56-116)	15.4 (6.6-28.1)	0.219 (BDL-1.680)	0.006 (0-0.021)	3.10 (0.28-7.84)	2928 (20-11000)	215 (137-290)	0.45 (0.28-0.75)	0.051 (<0.003-0.123)	127 (96-164)	81 (56-106)	13.16 (7.40-18.20)	16.67 (9.95-28.07)	0.38 (0.24-0.58)
11.	Sambalpur FD/s at Shankarmath	29 (1-70)	89 (64-110)	11.8 (6.4-19.8)	0.102 (BDL-0.336)	0.003 (0-0.014)	3.62 (0.56-15.12)	1453 (20-9200)	221 (161-273)	0.42 (0.26-0.62)	0.095 (0.003-0.666)	129 (102-158)	82 (64-102)	13.55 (7.40-19.99)	13.58 (8.20-19.40)	0.41 (0.22-0.45)
12.	Sambalpur FFD/s at Huma	38 (1-84)	80 (56-104)	9.3 (4.8-15.8)	0.112 (BDL-0.448)	0.003 (0-0.007)	2.99 (0.56-16.80)	1079 (45-5400)	194 (146-266)	0.39 (0.26-0.79)	0.028 (<0.003-0.059)	118 (98-147)	76 (52-98)	10.79 (7.40-14.99)	14.20 (5.84-24.50)	0.39 (0.28-0.61)
13.	Sonepur U/s	18 (1-59)	84 (60-112)	8.8 (4.8-17.8)	0.125 (BDL-0.336)	0.005 (0-0.018)	2.43 (0.56-10.08)	33 (<1.8-110)	208 (146-262)	0.41 (0.26-0.76)	0.042 (<0.003-0.144)	123 (88-148)	80 (54-104)	12.22 (7.40-17.99)	12.80 (7.41-20.02)	0.39 (0.25-0.61)
14.	Sonepur D/s	20 (1-66)	86 (64-104)	11.3 (7.6-16.8)	0.164 (BDL-0.560)	0.004 (0-0.010)	2.99 (0.56-14.56)	210 (20-1300)	236 (192-263)	0.51 (0.35-0.83)	0.038 (<0.003-0.088)	135 (119-156)	86 (64-102)	16.35 (11.57-24.98)	13.53 (8.58-18.36)	0.41 (0.24-0.60)
15.	Tikarapada	58 (4-247)	77 (56-98)	8.2 (3.6-13.9)	0.219 (0.056-0.560)	0.012 (0-0.056)	3.01 (0.56-6.72)	375 (20-2200)	195 (161-252)	0.40 (0.26-0.55)	0.041 (0.007-0.122)	113 (88-138)	73 (42-92)	11.43 (7.40-15.99)	11.48 (2.24-18.40)	0.39 (0.22-0.72)
16.	Narasinghpur	40 (4-198)	82 (60-102)	9.0 (5.7-18.7)	0.079 (BDL-0.220)	0.005 (0-0.017)	1.96 (0.56-4.48)	288 (<1.8-1300)	195 (154-234)	0.46 (0.21-1.96)	0.172 (<0.003-1.510)	125 (98-228)	79 (62-104)	15.11 (7.71-65.96)	12.41 (7.83-18.40)	0.34 (0.24-0.50)
17.	Munduli	38 (5-144)	78 (56-98)	8.2 (3.8-11.8)	0.089 (BDL-0.336)	0.004 (0-0.009)	2.10 (0.56-5.04)	225 (20-490)	194 (153-228)	0.36 (0.23-0.53)	0.039 (<0.003-0.133)	115 (96-142)	77 (62-92)	10.55 (6.99-15.70)	11.27 (5.22-18.53)	0.34 (0.24-0.46)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
18.	Cuttack U/s	27 (2-106)	77 (56-100)	7.9 (3.9-11.8)	0.084 (BDL-0.224)	0.004 (0-0.007)	1.90 (0.17-5.04)	374 (20-1300)	186 (145-221)	0.34 (0.18-0.55)	0.053 (<0.003-0.123)	110 (92-129)	74 (52-86)	10.02 (5.99-13.00)	11.84 (5.34-18.40)	0.34 (0.25-0.54)
19.	Cuttack D/s	42 (2-111)	82 (56-96)	13.4 (9.5-19.7)	0.172 (0.056-0.448)	0.008 (0.001-0.021)	2.42 (0.28-21.72)	2667 (68-16000)	201 (148-240)	0.40 (0.26-0.75)	0.048 (0.003-0.143)	119 (92-147)	78 (62-88)	12.07 (7.71-22.98)	11.93 (4.60-18.28)	0.34 (0.25-0.55)
20.	Cuttack FD/s	33 (1-120)	84 (56-112)	11.6 (8.3-19.7)	0.121 (0.056-0.330)	0.007 (0.001-0.026)	3.29 (0.28-7.84)	2348 (45-16000)	195 (147-248)	0.36 (0.26-0.51)	0.047 (<0.003-0.137)	116 (92-142)	78 (52-90)	10.68 (7.70-14.99)	11.72 (4.97-18.15)	0.36 (0.26-0.68)
21.	Paradeep U/s	105 (14-182)	105 (68-166)	10.7 (3.2-21.0)	0.178 (0.056-0.570)	0.003 (0-0.009)	2.78 (0.56-6.16)	356 (<1.8-1300)	10929 (161-31070)	24.67 (0.35-59.40)	0.710 (0.007-2.570)	7819 (106-22060)	1150 (62-2900)	4114.7 (9.64-11994.0)	591.6 (5.97-1424.2)	0.47 (0.24-0.72)
22.	Paradeep D/s	242 (48-904)	104 (48-134)	20.5 (8.5-45.3)	0.177 (BDL-0.560)	0.005 (0-0.018)	2.87 (0.56-8.96)	47 (<1.8-230)	24314 (203-51284)	49.50 (0.56-97.60)	1.316 (0.017-2.781)	19687 (122-43260)	2421 (52-5400)	10660.1 (19.28-23488.2)	1273.7 (18.65-2898.1)	0.77 (0.21-2.60)
Ong River																
23.	Dharuakhaman	24 (2-91)	120 (70-156)	9.6 (3.3-16.8)	0.130 (0.056-0.448)	0.006 (0.001-0.021)	2.84 (0.56-9.52)	351 (<1.8-3500)	280 (141-397)	0.46 (0.24-0.82)	0.028 (<0.003-0.077)	161 (89-223)	109 (60-152)	16.44 (6.99-24.98)	12.59 (7.58-36.94)	0.50 (0.23-0.73)
Tel River																
24.	Monmunda	52 (16-126)	77 (52-96)	8.6 (3.3-17.8)	0.224 (0.056-0.672)	0.005 (0-0.011)	2.47 (0.28-8.96)	141 (<1.8-700)	178 (148-206)	0.33 (0.20-0.66)	0.024 (<0.003-0.077)	104 (88-122)	72 (52-84)	9.66 (5.78-16.70)	5.66 (1.74-12.11)	0.32 (0.21-0.46)
Kathajodi River																
25.	Cuttack U/s	60 (3-136)	83 (56-96)	8.6 (6.4-11.8)	0.173 (0.056-0.560)	0- (0.005)	1.68 (0.56-4.48)	857 (45-3500)	193 (140-220)	0.39 (0.26-0.56)	0.050 (0.004-0.164)	116 (88-138)	74 (56-82)	11.25 (7.40-18.99)	10.47 (1.24-19.27)	0.32 (0.27-0.45)
26.	Cuttack D/s	40 (6-191)	94 (60-128)	21.0 (10.0-29.7)	0.158 (0.056-0.386)	0.005 (0-0.018)	2.33 (0.28-7.84)	28411 (330-92000)	240 (155-384)	0.53 (0.32-0.94)	0.052 (<0.003-0.116)	143 (98-213)	89 (64-118)	18.04 (9.30-35.98)	13.92 (1.37-24.87)	0.32 (0.25-0.43)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/100ml)	(μS/cm)	(mg/l)						
27.	Mattagajpur (Cuttack FD/s)	31 (1-108)	95 (56-120)	17.8 (8.4-26.6)	0.298 (0.056-0.900)	0.010 (0-0.032)	3.98 (1.12-12.32)	12436 (330-54000)	279 (152-357)	0.70 (0.36-0.99)	0.058 (<0.003-0.108)	165 (96-228)	94 (58-122)	24.37 (9.64-39.98)	20.91 (11.19-29.97)	0.28 (0.21-0.48)
28.	Kamasasan (Cuttack FFD/s)	42 (2-200)	88 (60-124)	10.0 (6.2-15.8)	0.155 (0.056-0.450)	0.005 (0-0.014)	2.80 (0.56-7.28)	526 (20-1700)	219 (144-313)	0.51 (0.31-0.74)	0.051 (0.004-0.226)	131 (89-179)	80 (54-106)	15.33 (7.71-25.98)	11.37 (6.34-20.64)	0.32 (0.24-0.48)
Serua River																
29.	Sankhatrasa	62 (3-462)	91 (58-124)	17.2 (8.2-29.7)	0.247 (0.056-0.790)	0.006(0 (.001-0.024)	3.43 (0.28-10.64)	13206 (78-92000)	223 (139-335)	0.48 (0.29-0.96)	0.043 (<0.003-0.115)	133 (88-192)	84 (56-106)	15.51 (7.71-33.98)	11.57 (6.09-21.14)	0.32 (0.24-0.44)
Kuakhai River																
30.	Mancheswar (Bhubaneswar FU/s)	23 (2-86)	83 (64-100)	9.0 (3.9-13.9)	0.181 (BDL-0.670)	0.005 (0-0.020)	4.11 (1.12-11.20)	670 (130-1700)	200 (146-221)	0.40 (0.29-0.53)	0.047 (<0.003-0.112)	117 (92-138)	74 (62-86)	11.62 (9.64-15.80)	11.71 (6.59-26.36)	0.32 (0.19-0.54)
31.	Hansapal (Bhubaneswar U/s)	33 (2-192)	87 (60-108)	9.8 (3.9-12.4)	0.190 (0.056-0.670)	0.008 (0-0.054)	3.27 (0.56-8.96)	1351 (490-2400)	210 (146-245)	0.44 (0.33-0.65)	0.062 (<0.003-0.214)	125 (94-148)	80 (64-98)	12.98 (11.10-21.98)	12.63 (6.21-29.35)	0.29 (0.20-0.44)
Daya River																
32.	Gelapur*	25 (3-142)	81 (56-102)	8.1 (3.8-13.9)	0.224 (0.056-0.952)	0.005 (0-0.021)	2.99 (0.56-9.52)	1778 (45-16000)	201 (145-224)	0.52 (0.30-1.52)	0.052 (<0.003-0.143)	126 (82-197)	77 (56-86)	15.39 (7.71-45.97)	12.69 (7.83-28.35)	0.29 (0.17-0.47)
33.	Kanti (Bhubaneswar D/s)	47 (2-332)	85 (48-108)	31.4 (13.3-56.2)	0.494 (0.110-2.800)	0.006 (0-0.029)	4.06 (0.56-10.64)	55575 (4900-160000)	312 (163-384)	1.09 (0.61-1.57)	0.080 (0.010-0.217)	179 (104-220)	88 (60-100)	37.99 (17.35-63.00)	18.67 (8.58-33.96)	0.27 (0.17-0.42)
34.	Manitri (Bhubaneswar FD/s)	53 (2-390)	83 (60-120)	28.0 (6.6-49.8)	0.158 (0.056-0.330)	0.003 (0-0.021)	3.71 (0.56-8.96)	35592 (1300-160000)	288 (161-390)	0.91 (0.55-1.58)	0.053 (0.003-0.143)	164 (106-214)	84 (62-100)	31.80 (15.42-55.97)	16.28 (7.33-33.08)	0.27 (0.17-0.41)
35.	Kanas	75 (14-156)	89 (58-114)	18.7 (6.1-46.5)	0.186 (0.056-0.560)	0.007 (0-0.034)	2.16 (0.28-3.92)	3618 (20-16000)	274 (167-356)	0.93 (0.45-1.80)	0.051 (0.021-0.221)	166 (96-218)	85 (60-100)	31.64 (13.50-55.97)	15.50 (8.19-20.97)	0.27 (0.11-0.55)

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		Annual average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/100ml)	(μS/cm)	(mg/l)						
Gangua River																
36.	Near Rajdhani Engg. College	51 (7-118)	86 (50-148)	55.8 (28.5-118.8)	1.049 (0.056-3.920)	0.004 (0-0.039)	5.55 (2.52-12.32)	145500 (54000-160000)	317 (211-419)	1.31 (0.73-1.78)	0.064 (<0.003-0.161)	173 (122-234)	73 (50-110)	38.27 (8.45-28.10)	12.72 (8.45-28.10)	0.23 (0.13-0.40)
37.	Palasuni	64 (2-140)	85 (54-124)	56.4 (26.6-96.4)	1.105 (0.056-4.500)	0.010 (0-0.067)	5.71 (0.56-16.80)	151167 (54000-160000)	330 (204-416)	1.34 (0.80-2.08)	0.060 (<0.003-0.190)	185 (128-246)	79 (62-100)	43.11 (22.20-77.12)	16.77 (8.58-27.48)	0.28 (0.13-0.56)
38.	Samantrapur	121 (2-888)	96 (62-128)	80.7 (29.9-216.7)	1.023 (0.056-3.808)	0.009 (0-0.088)	5.60 (1.12-14.00)	151167 (54000-160000)	397 (273-718)	1.60 (0.91-3.02)	0.042 (<0.003-0.088)	225 (152-398)	90 (54-126)	55.22 (25.90-131.93)	27.42 (10.07-95.32)	0.24 (0.14-0.40)
39.	Vadimula	48 (5-97)	92 (52-136)	43.2 (14.9-111.8)	0.479 (0.056-1.340)	0.011 (0-0.073)	4.67 (0.56-13.44)	121942 (4900-160000)	386 (187-510)	1.48 (0.74-2.33)	0.051 (0.003-0.102)	223 (114-279)	95 (46-116)	52.26 (24.10-86.76)	21.69 (5.72-43.03)	0.29 (0.15-0.52)
Birupa River																
40.	Choudwar D/s	36 (3-121)	81 (54-98)	9.0 (5.9-16.4)	0.236 (BDL-0.790)	0.008 (0-0.040)	3.69 (1.12-10.64)	963 (0-3500)	209 (161-273)	0.52 (0.25-1.53)	0.047 (<0.003-0.087)	123 (94-160)	75 (56-84)	15.17 (7.40-48.20)	12.46 (6.59-21.89)	0.35 (0.25-0.48)
Kushabhadra River																
41.	Bhingarpur	42 (2-132)	110 (60-150)	13.9 (5.6-20.1)	0.479 (0.056-1.340)	0.006 (0-0.014)	1.84 (0.56-3.92)	1758 (20-5400)	284 (189-410)	0.62 (0.39-1.06)	0.053 (0.004-0.254)	163 (108-222)	97 (64-130)	21.31 (11.57-35.98)	12.01 (5.72-19.27)	0.29 (0.13-0.50)
42.	Nimapara	59 (12-248)	90 (56-128)	14.0 (7.3-25.6)	0.135 (0.056-0.560)	0.004 (0-0.018)	2.05 (0.56-5.04)	2388 (20-16000)	279 (152-789)	0.82 (0.38-3.75)	0.051 (0.003-0.242)	159 (96-429)	83 (54-126)	29.50 (11.57-157.90)	14.69 (10.32-28.60)	0.25 (0.15-0.42)
43.	Gop	58 (3-100)	91 (60-112)	13.2 (7.3-20.6)	0.182 (0.056-0.560)	0.013 (0-0.087)	1.93 (0.28-5.04)	3508 (330-16000)	249 (183-334)	0.68 (0.37-1.11)	0.057 (0.003-0.294)	146 (106-194)	84 (56-104)	22.29 (13.00-41.97)	13.87 (10.32-17.66)	0.28 (0.16-0.54)
Bhargavi River																
44.	Chandanpur	32 (6-100)	85 (56-112)	11.1 (7.6-15.8)	0.219 (0.056-0.560)	0.015 (0.001-0.055)	2.62 (0.28-9.28)	1257 (110-5400)	256 (160-506)	0.70 (0.23-3.22)	0.056 (<0.003-0.118)	146 (94-274)	83 (60-100)	22.09 (5.78-101.90)	17.34 (8.58-27.24)	0.40 (0.23-0.60)

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		Annual average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/100ml)	(μS/cm)	(mg/l)						
Mangala River																
45.	Malatipatpur	39 (4-246)	91 (56-126)	10.3 (7.6-15.8)	0.214 (BDL-0.780)	0.005 (0-0.023)	2.66 (0.56-11.20)	1307 (270-5400)	270 (164-522)	0.63 (0.22-1.24)	0.040 (0.007-0.098)	159 (98-278)	94 (54-142)	22.32 (6.99-49.97)	23.44 (11.07-61.55)	0.34 (0.18-0.44)
46.	Golasahi	106 (30-192)	134 (56-240)	29.5 (9.7-61.2)	0.434 (0.056-1.680)	0.019 (0.001-0.113)	3.70 (0.56-12.04)	5323 (1300-17000)	10391 (169-32040)	26.28 (0.58-74.87)	0.282 (0.003-1.351)	8240 (102-32900)	1197 (52-4200)	4323.6 (15.42-17991.0)	590.25 (16.66-1791.10)	0.41 (0.21-0.70)
Devi River																
47.	Machhagaon	125 (14-278)	110 (58-216)	27.6 (8.2-66.7)	0.265 (0.056-0.560)	0.006 (0.001-0.013)	3.55 (0.56-11.20)	400 (<1.8-2400)	12773 (168-39970)	38.99 (0.64-161.72)	0.617 (0.003-2.141)	10429 (108-33060)	1245 (64-4500)	5562.3 (19.28-17991.0)	688.0 (10.32-2307.2)	0.47 (0.24-0.80)
Gobari River																
48.	Kendrapara U/s	74 (22-178)	122 (48-228)	11.5 (5.0-18.7)	0.157 (0.056-0.450)	0.011 (0-0.056)	2.22 (0.56-8.40)	5668 (110-28000)	881 (164-1999)	5.75 (0.55-31.83)	0.103 (0.004-0.484)	729 (104-3340)	154 (60-272)	323 (17.35-1869.0)	46.89 (8.33-160.46)	0.39 (0.21-0.74)
49.	Kendrapara D/s	64 (25-204)	120 (48-202)	13.9 (7.6-21.8)	0.233 (0.056-0.560)	0.008 (0-0.041)	3.55 (0.56-8.96)	12524 (490-54000)	934 (164-1971)	6.24 (0.60-34.98)	0.089 (0.004-0.386)	803 (102-3580)	163 (56-260)	354.17 (15.42-1999.0)	66.32 (8.20-208.30)	0.39 (0.20-0.66)
Nuna River																
50.	Bijipur	71 (7-196)	87 (48-144)	14.7 (7.6-31.5)	0.167 (0.056-0.560)	0.005 (0-0.055)	1.77 (0.28-3.36)	3043 (220-16000)	233 (143-375)	0.51 (0.28-1.45)	0.052 (0.003-0.266)	136 (88-208)	84 (50-132)	16.59 (9.30-49.97)	15.65 (6.84-25.49)	0.32 (0.21-0.50)
Kusumi River																
51.	Tangi	64 (6-366)	68 (44-92)	13.0 (6.8-37.1)	0.264 (0.056-1.120)	0.010 (0.001-0.056)	3.66 (0.56-12.88)	3517 (68-16000)	185 (127-314)	0.58 (0.33-0.88)	0.042 (<0.003-0.143)	111 (82-169)	64 (40-92)	16.09 (9.64-30.23)	10.31 (2.86-24.50)	0.31 (0.11-0.52)
Kansari River																
52.	Banapur	53 (3-232)	100 (68-202)	14.0 (9.1-27.4)	0.173 (0.056-0.560)	0.010 (0-0.036)	1.80 (0.56-5.04)	4563 (130-16000)	272 (141-560)	0.63 (0.20-2.29)	0.051 (0.003-0.161)	163 (85-375)	94 (56-164)	23.41 (7.99-94.95)	17.51 (1.37-87.19)	0.31 (0.13-0.45)

Sl. No.	Sampling Location	Physical parameters	Organic pollution Indicators	Bacteriological parameter	Mineral constituents
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		Annual average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)			(MPN/100ml)	(μS/cm)			(mg/l)					
Badasankha River																
53.	Langaleswar	32 (6-90)	147 (40-196)	17.4 (6.6-25.7)	0.302 (0.056-0.896)	0.012 (0.001-0.041)	2.83 (8.96)	1801 (78-5400)	1112 (144-7583)	4.01 (0.53-27.04)	0.113 (0.003-0.365)	745 (109-5490)	189 (56-800)	327.05 (13.00-2998.5)	40.74 (2.61-248.70)	0.39 (0.20-0.56)
Sabulia River																
54.	Rambha	50 (2-144)	191 (78-284)	14.0 (6.6-229)	0.303 (0.056-0.780)	0.016 (0.006-0.070)	3.06 (0.56-13.44)	2713 (78-16000)	500 (187-730)	1.16 (0.16-1.78)	0.065 (0.003-0.329)	293 (102-420)	166 (72-252)	49.48 (5.99-83.95)	20.01 (9.10-59.70)	0.46 (0.28-0.63)
Ratnachira River																
55.	Kumardihi	35 (3-84)	90 (36-164)	15.3 (6.1-30.9)	0.167 (0.056-0.336)	0.008 (0.001-0.035)	2.89 (0.56-8.96)	3469 (110-16000)	282 (121-605)	0.68 (0.32-1.80)	0.056 (0.003-0.123)	153 (82-346)	88 (40-164)	24.79 (10.99-89.99)	16.01 (2.98-34.70)	0.39 (0.20-0.58)
	❖ Class 'C'	-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
	❖ Class 'E'								2250	26	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)		(mg/l)										
Ib River												
1.	Sundargarh	2.1242 (0.565-4.305)	0.076 (0.009-0.356)	<0.002	0.005	4.814	0.002	0.004	0.008	0.0003	0.00006	0.002
2.	Jharsuguda	2.571 (0.199-7.284)	0.077 (0.001-0.180)	0.005	0.014	3.631	0.006	0.007	0.015	0.0003	0.00019	0.013
3.	Brajraj nagar U/s	2.063 (0.266-4.244)	0.054 (0.001-0.155)	<0.002	0.012	3.254	0.008	0.006	0.009	0.0008	0.00006	0.007
4.	Brajraj nagar D/s	2.142 (0.372-6.922)	0.093 (0.002-0.344)	<0.002	0.019	5.539	0.014	0.012	0.015	0.0009	0.00025	0.016
Bheden river												
5.	Jharsuguda	3.277 (0.274-10.720)	0.058 (0.003-0.151)	0.005	0.021	0.296	0.011	0.004	0.016	0.0006	<0.00006	0.015
Hirakud reservoir												
6.	Hirakud reservoir	2.486 (0.754-6.245)	0.068 (0.001-0.171)	<0.002	0.009	0.357	0.006	0.003	0.006	0.0004	0.00019	0.004
7.	Power channel U/s	2.094 (0.429-5.134)	0.094 (0.001-0.457)	<0.002	0.011	0.153	0.006	0.003	0.006	0.0005	0.00013	0.006
8.	Power Channel D/s	2.568 (0.988-5.160)	0.146 (0.003-0.590)	0.003	0.019	0.541	0.008	0.005	0.014	0.0005	0.00019	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)								
Mahanadi River												
9.	Sambalpur U/s	2.968 (0.775-5.397)	0.065 (0.002-0.199)	<0.002	0.009	0.587	0.006	0.002	0.004	0.0004	0.00051	0.004
10.	Sambalpur D/s	3.099 (1.032-5.764)	0.113 (0.002-0.753)	0.003	0.011	0.571	0.008	0.004	0.020	0.0004	0.00044	0.005
11.	Sambalpur FD/s at Shankarmath	2.706 (0.927-5.043)	0.116 (0.001-0.725)	<0.002	0.009	0.643	0.007	0.004	0.007	0.0003	0.00019	0.009
12.	Sambalpur FD/s at Huma	2.831 (1.085-7.272)	0.095 (0.001-0.332)	<0.002	0.011	0.602	0.005	0.004	0.035	0.0003	0.00051	0.004
13.	Sonepur U/s	2.135 (0.870-5.125)	0.080 (0.001-0.270)	<0.002	0.005	0.469	0.005	0.004	0.006	0.0004	0.00006	0.007
14.	Sonepur D/s	2.443 (1.156-5.746)	0.114 (0.001-0.516)	0.002	0.005	0.367	0.006	0.002	0.003	0.0004	<0.00006	0.003
15.	Tikarapada	1.700 (0.286-3.289)	0.096 (0.001-0.508)	<0.002	0.009	0.877	0.006	0.003	0.003	0.0004	0.00006	0.003
16.	Narasinghpur	1.598 (0.420-3.503)	0.143 (0.003-0.895)	0.01	0.021	0.959	0.001	0.001	0.002	0.0004	0.00006	0.002
17.	Munduli	1.935 (0.207-5.248)	0.154 (0.001-1.008)	0.002	0.014	0.974	0.002	0.001	0.003	0.0005	0.00051	0.005
18.	Cuttack U/s	1.783 (0.464-4.942)	0.158 (0.007-0.601)	<0.002	0.008	0.128	0.002	0.001	0.004	0.0004	0.00025	0.006

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO ₃ ⁻	PO ₄ ³⁻ -P	Cr(VI) ^{##}	T. Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}

		Nitrate as NO ₃ ⁻	PO ₄ ³⁻ -P	Cr(VI) ^{##}	T. Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
		(mg/l)		(mg/l)								
19.	Cuttack D/s	3.905 (0.297-30.035)	0.098 (0.001-0.335)	0.005	0.011	0.944	0.008	0.001	0.004	0.0003	<0.00006	0.005
20.	Cuttack FD/s ^s	1.767 (0.332-6.080)	0.101 (0.001-0.669)	0.015	0.029	0.275	0.008	0.001	0.007	0.0004	0.00021	0.008
21.	Paradeep U/s	2.527 (0.511-6.096)	0.085 (0.002-0.322)	0.003	0.011	1.872	0.006	0.004	0.007	0.0004	0.00006	0.008
22.	Paradeep D/s	2.341 (0.315-5.886)0	0.577 (0.017-3.600)	0.008	0.026	0.551	0.008	0.006	0.012	0.0006	0.00013	0.008
Ong River												
23.	Dharuakhaman*	2.636 (0.815-11.327)	0.126 (0.001-0.621)	<0.002	0.005	0.464	0.005	0.005	0.026	0.0009	0.00025	0.010
Tel River												
24.	Monmunda	1.856 (0.857-3.375)	0.142 (0.001-0.602)	0.003	0.011	0.785	0.005	0.007	0.057	0.0007	0.00019	0.008
Kathajodi River												
25.	Cuttack U/s	1.977 (0.164-6.430)	0.146 (0.005-0.549)	<0.002	0.005	1.637	0.001	0.004	0.002	0.0004	0.00044	0.003
26.	Cuttack D/s	6.356 (0.426-20.911)	0.274 (0.004-0.833)	0.015	0.037	0.296	0.003	0.001	0.005	0.0003	0.00025	0.005
27.	Mattagajpur (Cuttack FD/s)	4.419 (0.626-8.744)	0.226 (0.001-1.082)	<0.002	0.009	1.821	0.005	0.004	0.004	0.0008	0.00063	0.012
28.	Kamasasan (Cuttack FFD/s)**	6.091 (0.651-16.574)	0.160 (0.004-0.412)	0.005	0.011	1.499	0.002	0.003	0.002	0.0005	<0.00006	0.005

Sl.	Sampling	Nutrients	Heavy metals
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No.	Location	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)								
Serua River												
29.	Sankhatrasa (Cuttack FD/s)	3.515 (0.549-7.923)	0.243 (0.004-0.723)	<0.002	0.009	3.397	0.003	0.003	0.032	0.0006	0.00006	0.010
Kuakhai River												
30.	Mancheswar (Bhubaneswar FU/s)	1.903 (0.328-4.050)	0.083 (0.001-0.332)	0.005	0.011	0.505	0.006	0.002	0.007	0.0004	0.00057	0.005
31.	Hansapal (Bhubaneswar U/s)	1.896 (0.195-6.183)	0.111 (0.001-0.457)	0.007	0.017	0.954	0.004	0.002	0.010	0.0004	0.00006	0.005
Daya River												
32.	Gelapur*	1.982 (1.041-3.581)	0.139 (0.002-0.479)	0.012	0.029	1.341	0.007	0.003	0.009	0.0006	0.00006	0.002
33.	Kanti (Bhubaneswar D/s)	13.826 (3.848-41.624)	0.302 (0.015-0.708)	0.02	0.031	1.295	0.004	0.002	0.012	0.0011	0.00076	0.004
34.	Manitri (Bhubaneswar FD/s)	18.700 (1.887-51.994)	0.226 (0.009-0.476)	0.012	0.026	0.785	0.005	0.002	0.006	0.0011	0.00006	0.003
35.	Kanas*	7.232 (1.032-20.765)	0.128 (0.001-0.378)	<0.002	0.009	4.304	0.007	0.008	0.037	0.0008	0.00285	0.006
Gangua River												
36.	Near Rajdhani Engg. Collge*	11.198 (1.487-35.855)	0.358 (0.106-1.186)	0.018	0.037	2.366	0.006	0.004	0.025	0.0012	0.00006	0.002
37.	Palasuni*	15.297 (0.805-43.076)	0.402 (0.002-1.290)	0.017	0.024	0.938	0.004	0.004	0.046	0.0016	0.00032	0.006
Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO ₃ ⁻	PO ₄ ³⁻ -P	Cr(VI) ^{##}	T. Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
		(mg/l)		(mg/l)								

38.	Samantray pur*	16.899 (0.726-56.826)	0.485 (0.145-1.359)	0.018	0.03	0.903	0.009	0.010	0.109	0.0008	0.00006	0.006
39.	Vadimula	23.670 (1.448-62.178)	0.578 (0.022-1.604)	0.005	0.015	3.468	0.003	0.008	0.045	0.0008	0.00006	0.006
Birupa River												
40.	Choudwar D/s	2.003 (0.079-7.172)	0.130 (0.001-0.904)	<0.002	0.01	0.219	0.014	0.003	0.007	0.0004	0.00019	0.005
Kushabhadra River												
41.	Bhingarpur*	3.420 (0.784-8.237)	0.064 (0.002-0.161)	0.003	0.015	1.703	0.009	0.004	0.036	0.0007	0.00019	0.006
42.	Nimapara*	2.326 (0.985-3.980)	0.091 (0.001-0.196)	<0.002	0.013	0.755	0.011	0.004	0.012	0.0008	0.00013	0.008
43.	Gop*	2.005 (0.833-4.079)	0.109 (0.005-0.256)	<0.002	0.013	4.712	0.012	0.006	0.098	0.0007	0.00044	0.008
Bhargavi River												
44.	Chandanpur*	1.821 (0.035-4.154)	0.270 (0.002-2.120)	<0.002	0.01	1.372	0.006	0.005	0.009	0.0011	0.00013	0.005
Mangala River												
45.	Malatipatpur**	2.973 (0.140-6.463)	0.136 (0.001-0.830)	<0.002	0.011	0.551	0.005	0.003	0.007	0.0007	0.00013	0.006
46.	Golasahi**	11.334 (2.615-36.796)	0.275 (0.019-0.629)	<0.002	0.015	1.183	0.007	0.008	0.011	0.0009	0.00032	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)										
Devi River												
47.	Machhagaon	2.548 (0.638-6.368)	0.317 (0.002-3.001)	0.012	0.025	0.780	0.008	0.007	0.008	0.0004	0.00006	0.005
Gobari River												
48.	Kendrapara U/s	3.640 (0.134-9.936)	0.109 (0.006-0.319)	0.010	0.027	0.520	0.016	0.003	0.006	0.0011	0.00032	0.014
49.	Kendrapara D/s	4.220 (0.912-9.048)	0.119 (0.003-0.290)	0.010	0.045	0.887	0.008	0.003	0.008	0.0012	0.00019	0.012
Nuna River												
50.	Bijipur	2.144 (0.928-4.894)	0.072 (0.001-0.166)	0.005	0.011	1.811	0.008	0.007	0.029	0.0009	0.00032	0.005
Kusumi River												
51.	Tangi	3.374 (1.398-8.633)	0.101 (0.001-0.366)	0.015	0.027	0.842	0.006	0.006	0.007	0.0007	<0.00006	0.002
Kansari River												
52.	Banapur	3.679 (1.155-7.015)	3.679 (1.155-7.015)	<0.002	0.021	1.336	0.004	0.009	0.027	0.0006	<0.00006	0.008
Badasankha River												
53.	Langaleswar	5.736 (0.450-31.164)	0.072 (0.001-0.237)	0.002	0.023	0.796	0.006	0.002	0.006	0.0009	0.00013	0.008
Sabulia River												
54.	Rambha	5.400 (0.523-12.586)	0.081 (0.001-0.198)	0.003	0.018	1.836	0.007	0.002	0.040	0.0007	0.00019	0.004

Sl.	Sampling	Nutrients		Heavy metals								
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No.	Location	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	2.940 (0.070-11.383)	0.100 (0.001-0.345)	<0.002	0.013	6.293	0.009	0.003	0.018	0.0004	<0.00006	0.005
*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, 2018

(B) Brahmani River System (2018)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/100ml)	(μ S/cm)	(mg/l)						
Sankh river																
1.	Sankh U/s	70 (2-330)	58 (32-78)	9.4 (5.5-14.4)	0.190 (BDL-0.670)	0.006 (0-0.028)	4.22 (0.28-11.20)	3101 (130-16000)	148 (111-201)	0.39 (0.21-0.59)	0.015 (<0.003-0.045)	87 (68-112)	52 (30-72)	9.32 (5.99-15.99)	9.20 (2.61-26.36)	0.33 (0.13-0.53)
Koel river																
2.	Koel U/s	138 (11-722)	78 (36-110)	9.7 (5.0-17.8)	0.368 (BDL-2.800)	0.037 (0-0.208)	4.32 (0.56-21.28)	2619 (20-16000)	185 (136-251)	0.34 (0.22-0.51)	0.021 (<0.003-0.077)	111 (83-146)	74 (48-104)	9.61 (5.86-13.00)	11.67 (2.73-28.10)	0.28 (0.14-0.50)
Brahmani river																
3.	Panposh U/s	122 (14-376)	70 (44-98)	10.6 (5.0-19.8)	0.167 (BDL-0.670)	0.011 (0-0.068)	4.44 (0.28-11.20)	1889 (170-9200)	169 (133-224)	0.36 (0.25-0.45)	0.038 (<0.003-0.077)	100 (78-138)	65 (46-100)	9.57 (5.80-13.50)	10.08 (2.86-26.24)	0.33 (0.19-0.62)
4.	Panposh D/s	167 (14-836)	72 (36-104)	32.8 (15.8-48.0)	1.091 (BDL-10.752)	0.027 (0-0.242)	5.04 (0.56-16.80)	19333 (1700-49000)	322 (207-494)	0.67 (0.16-1.11)	0.046 (0.004-0.091)	182 (122-258)	100 (64-120)	22.30 (5.99-31.98)	47.28 (26.36-80.40)	1.03 (0.24-1.60)
5.	Rourkela D/s	229 (8-634)	70 (40-88)	29.1 (13.8-44.2)	0.302 (0.056-1.456)	0.007 (0-0.029)	4.55 (0.28-20.16)	8874 (490-35000)	227 (150-308)	0.49 (0.19-0.87)	0.042 (<0.003-0.084)	132 (84-175)	77(4-96)	15.36 (5.99-31.98)	23.49 (8.95-33.45)	0.51 (0.21-0.75)
6.	Rourkela FD/s (Attaghat)	164 (8-812)	79 (46-140)	22.2 (11.2-40.3)	0.271 (0.056-0.800)	0.006 (0-0.026)	5.01 (0.28-17.92)	3617 (20-13000)	225 (152-313)	0.46 (0.16-0.64)	0.029 (<0.003-0.073)	133 (86-184)	81 (48-118)	14.79 (5.78-19.99)	20.95 (11.43-39.05)	0.49 (0.23-0.79)
7.	Rourkela FD/s (Biritola)	131 (9-662)	76 (42-126)	13.5 (5.0-28.8)	0.163 (0.056-0.450)	0.005 (0-0.036)	3.66 (0.56-11.76)	1238 (20-5400)	202 (141-273)	0.40 (0.21-0.81)	0.027 (<0.003-0.087)	121 (82-143)	76 (48-100)	11.13 (5.78-15.99)	18.50 (7.83-32.09)	0.41 (0.21-0.84)
8.	Bonaigarh	155 (6-696)	71 (32-92)	11.1 (6.7-17.3)	0.218 (0.056-0.720)	0.009 (0-0.058)	2.26 (0.28-7.28)	481 (5-1700)	200 (111-245)	0.41 (0.14-0.55)	0.024 (<0.003-0.101)	118 (64-142)	72 (40-88)	12.20 (3.86-17.99)	18.33 (10.32-27.36)	0.41 (0.20-0.62)
9.	Rengali	38 (1-158)	53 (28-78)	7.7 (3.6-12.9)	0.107 (0.056-0.220)	0.004 (0-0.014)	1.82 (0.28-3.92)	188 (20-540)	139 (111-199)	0.30 (0.19-0.52)	0.061 (0.004-0.407)	84 (66-110)	54 (38-84)	7.12 (5.78-12.99)	11.92 (5.84-23.75)	0.35 (0.17-0.63)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents								
		Annual Average values (Range of values)															
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F	
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)							
10.	Samal	38 (1-132)	55 (32-70)	8.4 (3.6-13.8)	0.117 (BDL-0.450)	0.006 (0-0.029)	2.10 (0.56-6.72)	457 (45-1300)	145 (102-187)	0.31 (0.19-0.50)	0.048 (<0.003-0.143)	87 (62-103)	55 (36-80)	7.27 (5.86-9.99)	14.15 (8.08-27.24)	0.38 (0.19-0.72)	
11.	Talcher FU/s	38 (1-178)	53 (40-72)	7.6 (3.6-11.9)	0.149 (BDL-0.560)	0.004 (0-0.011)	1.96 (0.56-5.60)	504 (20-1700)	141 (121-173)	0.29 (0.23-0.38)	0.056 (0.004-0.157)	87 (76-106)	54 (44-60)	7.01 (5.78-8.22)	13.90 (5.97-29.60)	0.36 (0.18-0.72)	
12.	Talcher U/s	61 (4-385)	60 (44-88)	9.2 (3.6-13.9)	0.121 (BDL-0.330)	0.004 (0-0.009)	1.75 (0.56-4.48)	774 (45-3500)	165 (117-286)	0.34 (0.33-0.52)	0.040 (0.004-0.084)	98 (84-164)	60 (46-104)	8.89 (5.78-17.30)	16.14 (6.46-36.69)	0.36 (0.17-0.97)	
13.	Mandapal	52 (1-166)	61 (32-146)	10.5 (5.5-23.6)	0.079 (BDL-0.224)	0.002 (0-0.004)	2.75 (0.28-8.96)	2010 (78-16000)	172 (119-519)	0.31 (0.21-0.68)	0.042 (0.004-0.084)	105 (74-314)	66 (42-192)	9.35 (5.78-35.98)	20.91 (8.58-79.97)	0.53 (0.11-2.60)	
14.	Talcher D/s	35 (2-102)	62 (48-84)	13.7 (7.6-28.8)	0.145 (BDL-0.570)	0.004 (0-0.029)	2.64 (0.28-7.28)	1352 (20-4600)	170 (124-249)	0.45 (0.28-1.55)	0.068 (0.004-0.133)	104 (82-148)	61 (52-90)	11.48 (7.40-37.98)	16.08 (9.33-29.97)	0.40 (0.20-0.84)	
15.	Talcher FD/s	64 (1-334)	67 (36-100)	11.3 (3.6-17.7)	0.084 (BDL-0.336)	0.002 (0-0.005)	1.89 (0.28-7.28)	819 (78-3500)	181 (126-266)	0.48 (0.29-1.36)	0.086 (0.004-0.217)	112 (78-149)	63 (48-86)	12.95 (7.99-43.97)	16.74 (8.45-28.85)	0.39 (0.24-0.51)	
16.	Dhenkanal U/s	49 (3-192)	56 (44-72)	8.7 (3.8-13.1)	0.167 (0.056-0.560)	0.005 (0.001-0.011)	2.17 (0.28-5.04)	619 (45-3500)	153 (115-201)	0.36 (0.24-0.50)	0.037 (<0.003-0.098)	92 (78-119)	54 (42-66)	9.14 (6.99-12.99)	13.94 (7.08-26.74)	0.36 (0.18-0.63)	
17.	Dhenkanal D/s	36 (3-154)	66 (48-80)	9.8 (5.5-12.9)	0.191 (0.056-0.670)	0.004 (0.001-0.015)	2.62 (0.03-6.72)	1844 (78-11000)	173 (116-224)	0.39 (0.28-0.57)	0.054 (<0.003-0.147)	105 (85-122)	63 (52-74)	10.46 (5.99-13.99)	15.63 (7.21-27.48)	0.36 (0.21-0.55)	
18.	Bhuban	39 (4-180)	56 (40-80)	9.3 (3.8-14.4)	0.131 (BDL-0.620)	0.007 (0-0.060)	2.15 (0.56-11.20)	255 (<1.8-1300)	149 (106-186)	0.31 (0.17-0.46)	0.059 (0.004-0.249)	90 (68-104)	55 (40-70)	7.68 (3.86-10.60)	14.33 (7.46-25.62)	0.34 (0.18-0.54)	
19.	Kabatabandha	63 (3-264)	55 (44-66)	6.8 (3.6-11.2)	0.224 (0.056-0.560)	0.005 (0-0.018)	2.52 (0.28-10.64)	555 (<1.8-2800)	155 (114-171)	0.34 (0.20-0.53)	0.036 (<0.003-0.108)	91 (82-98)	55 (48-68)	8.39 (5.78-10.99)	15.01 (9.10-22.51)	0.34 (0.24-0.46)	

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
20.	Dharmasala U/s	52 (1-214)	68 (44-96)	6.7 (4.0-10.9)	0.229 (0.056-0.560)	0.007 (0-0.034)	2.36 (0.28-11.20)	543 (45-1300)	173 (115-225)	0.40 (0.23-0.90)	0.040 (<0.003-0.101)	104 (68-135)	62 (40-84)	11.66 (5.78-25.98)	12.24 (5.59-17.16)	0.27 (0.19-0.44)
21.	Dharmasala D/s	74 (6-244)	68 (44-96)	9.2 (3.6-16.5)	0.205 (0.056-0.670)	0.008 (0-0.028)	3.00 (0.56-13.40)	840 (<1.8-2800))	182 (139-230)	0.41 (0.19-0.77)	0.036 (0.003-0.133)	109 (82-138)	66 (48-88)	12.38 (5.78-22.98)	14.16 (6.09-19.77)	0.26 (0.18-0.34)
22.	Pottamundai	55 (18-154)	76 (40-100)	9.9 (3.8-13.1)	0.182 (0.056-0.560)	0.004 (0-0.014)	2.59 (0.56-5.04)	898 (45-3500)	217 (130-343)	0.50 (0.26-0.66)	0.040 (0.003-0.108)	124 (78-158)	76 (50-92)	15.70 (7.71-21.98)	13.95 (9.45-24.50)	0.37 (0.25-0.69)
Nandira River																
23.	Nandira U/s	161 (2-758)	151 (64-212)	11.6 (4.1-18.7)	0.121 (BDL-0.560)	0.006 (0-0.022)	2.99 (0.28-10.64)	2998 (20-16000)	488 (175-607)	0.77 (0.35-1.28)	0.076 (0.007-0.133)	278 (97-356)	169 (60-220)	33.55 (9.99-61.96)	54.71 (13.68-89.18)	1.03 (0.26-2.00)
24.	Nandira D/s	177 (1-780)	149 (92-192)	14.1 (6.1-27.7)	0.267 (BDL-0.6680)	0.016 (0-0.054)	3.76 (0.56-15.12)	4947 (110-17000)	513 (295-594)	0.87 (0.63-1.45)	0.092 (<0.003-0.187)	306 (182-378)	182 (104-208)	36.54 (22.42-58.00)	71.81 (35.07-104.60)	1.41 (0.54-2.70)
Kisinda Jhor																
25.	Kisindajhor	25 (1-64)	148 (104-208)	12.1 (3.8-29.7)	0.126 (BDL-0.560)	0.007 (0-0.45)	1.96 (0.56-3.92)	962 (20-3500)	533 (393-669)	1.03 (0.43-1.78)	0.113 (0.004-0.252)	309 (206-418)	177 (142-214)	42.35 (19.28-58.60)	67.39 (35.94-123.90)	1.61 (0.53-3.50)
Kharasrota River																
26.	Khanditara	69 (4-244)	60 (44-78)	6.9 (3.4-11.8)	0.158 (0.056-0.560)	0.005 (0-0.012)	1.59 (0.56-3.36)	386 (<1.8-2800)	156 (118-188)	0.33 (0.21-0.46)	0.027 (<0.003-0.074)	94 (68-114)	57 (40-74)	8.33 (5.50-11.99)	14.56 (6.46-22.88)	0.30 (0.25-0.36)
27.	Binjharpur	88 (5-330)	65 (40-84)	7.8 (3.4-16.5)	0.144 (BDL-0.336)	0.008 (0.001-0.021)	1.94 (0.56-3.92)	562 (<1.8-3500)	163 (123-194)	0.36 (0.29-0.46)	0.038 (<0.003-0.094)	101 (76-117)	61 (40-76)	9.37 (6.93-11.10)	14.67 (6.09-26.74)	0.27 (0.19-0.37)
28.	Aul	54 (24-142)	70 (48-88)	10.4 (3.8-16.8)	0.196 (0.056-0.560)	0.005 (0-0.017)	2.57 (0.56-6.16)	1006 (20-2400)	757 (133-6052)	2.00 (0.21-18.19)	0.151 (0.004-0.775)	428 (78-3390)	140 (52-634)	163.02 (5.99-1730.0)	59.53 (7.21-305.8)	0.40 (0.21-0.84)
Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							

		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)			(MPN/100ml)	(μS/cm)			(mg/l)					
Guradih nallah																
29.	Guradih nallah	84 (28-276)	78 (38-132)	46.0 (27.4-63.4)	1.892 (0.056-10.416)	0.008 (0-0.022)	11.60 (0.28-50.96)	54050 (4600-160000)	429 (303-574)	0.88 (0.58-1.50)	0.070 (<0.003-0.116)	245 (168-322)	129 (104-160)	32.46 (20.98-43.97)	72.97 (40.54-103.70)	1.46 (0.19-2.20)
Badjhor nallah																
30.	Badjhor nallah	21 (6-37)	108 (62-138)	9.9 (5.7-17.8)	0.144 (BDL-0.336)	0.020 (0-0.191)	3.61 (0.56-7.28)	5737 (130-54000)	286 (158-407)	0.64 (0.19-1.14)	0.060 (0.004-0.242)	170 (93-234)	103 (66-130)	24.08 (5.99-42.97)	16.95 (9.70-29.10)	0.45 (0.29-0.72)
Damsala River																
31.	Dayanabil	62 (13-274)	89 (40-130)	7.0 (3.4-11.2)	0.191 (BDL-1.230)	0.005 (0-0.013)	3.01 (0.56-11.20)	812 (<1.8-2800)	224 (124-315)	0.27 (0.20-0.36)	0.038 (<0.003-0.108)	132 (72-219)	98 (44-168)	9.25 (5.78-11.99)	19.62 (3.48-60.25)	0.24 (0.14-0.40)
Ganda nallah																
32.	Marthapur	90 (8-326)	68 (46-104)	11.2 (5.5-16.1)	0.131 (BDL-0.330)	0.004 (0-0.009)	2.40 (0.56-6.16)	4952 (<1.8-35000)	190 (121-391)	0.40 (0.25-0.99)	0.052 (<0.003-0.130)	113 (78-238)	68 (44-128)	12.41 (6.70-40.97)	18.50 (7.09-51.49)	0.41 (0.23-1.20)
Lingira River																
33.	Angul U/s	18 (1-40)	131 (76-196)	9.8 (8.1-12.7)	0.158 (BDL-0.780)	0.028 (0.002-0.111)	3.94 (0.28-17.64)	1719 (<1.8-16000)	359 (244-526)	0.53 (0.22-0.67)	0.066 (0.007-0.252)	201 (146-306)	133 (84-172)	20.34 (9.64-29.98)	20.03 (9.15-31.35)	0.67 (0.50-0.95)
34.	Angul D/s	15 (1-92)	163 (88-214)	11.3 (8.2-14.4)	0.263 (0.056-0.890)	0.006 (0.002-0.012)	5.30 (0.56-23.80)	803 (<1.8-2800)	445 (375-502)	0.74 (0.44-1.14)	0.062 (0.004-0.175)	247 (206-282)	161 (120-200)	31.97 (21.21-51.97)	24.78 (9.53-36.56)	0.67 (0.59-0.79)
Ramiala River																
35.	Kamakhyanagar	49 (1-312)	69 (36-168)	9.7 (3.8-17.8)	0.149 (0.056-0.448)	0.011 (0.001-0.034)	1.94 (0.28-6.16)	621 (78-2400)	178 (124-427)	0.40 (0.20-0.86)	0.069 (<0.003-0.235)	107 (75-243)	66 (42-152)	12.60 (5.99-39.98)	11.69 (3.10-25.99)	0.36 (0.18-0.70)
Banguru nallah																
36.	Banguru nallah	47 (1-156)	134 (100-184)	10.5 (5.5-19.8)	0.154 (0.056-0.450)	0.012 (0.001-0.036)	3.78 (0.28-13.72)	492 (45-1400)	733 (442-988)	0.55 (0.32-0.93)	0.049 (<0.001-0.168)	421 (246-546)	286 (160-372)	29.84 (17.99-43.77)	177.04 (81.59-278.60)	0.61 (0.49-0.80)

Sl. No.	Sampling Location	Physical parameters	Organic pollution Indicators	Bacteriological parameter	Mineral constituents
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		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)		(mg/l)	(MPN/100ml)	(μS/cm)		(mg/l)						
Singada jhor																
37.	Singada jhor	99 (4-496)	126 (64-168)	10.5 (5.5-18.7)	0.200 (0.056-0.560)	0.009 (0.002-0.036)	3.36 (0.28-11.48)	486 (20-2800)	398 (164-510)	0.49 (0.27-0.88)	0.045 (0.003-0.182)	237 (98-324)	161 (62-212)	19.52 (9.64-26.98)	60.04 (17.93-101.90)	0.66 (0.38-1.80)
Tikira River																
38.	Kaniha U/s	216 (2-648)	77 (62-88)	9.1 (5.5-16.8)	0.158 (0.056-0.448)	0.010 (0-0.035)	2.85 (0.28-14.28)	449 (20-1700)	215 (157-326)	0.40 (0.27-0.58)	0.051 (<0.003-0.221)	128 (88-188)	82 (62-126)	11.57 (7.40-17.99)	21.53 (7.46-50.12)	0.59 (0.22-1.50)
39.	Kaniha D/s	95 (8-486)	86 (64-108)	11.0 (5.5-18.7)	0.228 (0.056-0.896)	0.005 (0-0.017)	2.38 (0.28-7.56)	1045 (20-3500)	292 (210-427)	0.55 (0.29-1.35)	0.061 (0.003-0.196)	173 (122-239)	108 (78-170)	19.33 (9.30-39.40)	40.15 (23.88-68.65)	1.18 (0.37-2.90)
Bangurusingada jhor																
40.	Bangurusingada jhor	32 (2-158)	140 (52-194)	10.2 (5.0-19.3)	0.181 (0.056-0.504)	0.012 (0.004-0.040)	3.27 (0.56-6.72)	1024 (<1.8-2800)	353 (170-484)	0.49 (0.26-0.98)	0.060 (0.004-0.235)	200 (96-268)	138 (60-172)	19.16 (7.71-46.97)	23.13 (12.68-38.80)	0.64 (0.38-0.97)
Karo River																
41.	Barbil	98 (1-798)	68 (36-88)	9.5 (3.8-16.1)	0.150 (0.056-0.450)	0.016 (0-0.076)	2.03 (0.28-6.16)	652 (45-1700)	157 (104-198)	0.26 (0.15-0.53)	0.033 (0.003-0.123)	94 (62-119)	65 (32-88)	7.73 (5.78-10.99)	7.64 (2.98-13.80)	0.25 (0.09-0.75)
	❖ Class 'C'	-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
	❖ Class 'E'	-	-	-	-	-	-	-	2250	26	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 ⁻ (mg/l)	PO ₄ ³⁻ -P	Cr(VI) ##	T. Cr##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
Sankha River												
1.	Sankha U/s	2.239 (0.243-6.595)	0.058 (0.002-0.201)	<0.002	0.018	0.949	0.001	0.002	0.003	0.0006	<0.00006	0.003
Koel River												
2.	Koel U/s	3.078 (0.371-7.570)	0.054 (0.002-0.205)	0.003	0.027	6.926	0.004	0.005	0.004	0.0008	<0.00006	0.009
Brahmani river												
3.	Panposh U/s	3.166 (0.304-5.886)	0.090 (0.006-0.376)	<0.002	0.013	2.642	0.005	0.004	0.092	0.0007	0.00006	0.005
4.	Panposh D/s	20.965 (4.198-48.980)	0.126 (0.001-0.369)	<0.002	0.018	4.274	0.004	0.006	0.221	0.0012	0.00032	0.014
5.	Rourkela D/s	11.660 (2.811-33.027)	0.138 (0.001-0.811)	<0.002	0.021	6.181	0.007	0.008	0.240	0.0018	0.00013	0.018
6.	Attaghat	8.969 (0.910-19.146)	0.091 (0.001-0.249)	<0.002	0.015	4.014	0.004	0.019	0.025	0.0008	0.00006	0.010
7.	Biritola	4.630 (1.143-12.761)	0.063 (0.001-0.270)	<0.002	0.013	0.709	0.002	0.003	0.004	0.0006	0.00006	0.006
8.	Bonai	7.867 (3.052-16.085)	0.064 (0.001-0.223)	<0.002	0.018	6.605	0.004	0.005	0.015	0.0009	<0.00006	0.010
9.	Rengali	2.557 (0.166-4.650)	0.140 (0.001-0.787)	<0.002	0.018	1.142	0.005	0.007	0.015	0.0004	<0.00006	0.010

Sl.	Sampling Location	Nutrients	Heavy metals									
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No.		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)								
10.	Samal	2.352 (0.219-5.239)	0.111 (0.001-0.279)	<0.002	0.015	1.290	0.005	0.003	0.005	0.0004	<0.00006	0.003
11.	Talcher FU/s	1.780 (0.421-3.227)	0.104 (0.001-0.419)	<0.002	0.019	0.311	0.007	0.003	0.003	0.0004	<0.00006	0.003
12.	Talcher U/s	2.251 (0.699-4.732)	0.099 (0.001-0.506)	<0.002	0.02	0.439	0.007	0.001	0.004	0.0004	<0.00006	0.002
13.	Mandapal	2.211 (1.064-3.665)	0.076 (0.001-0.156)	<0.002	0.015	0.179	0.008	0.003	0.003	0.0004	<0.00006	0.005
14.	Talcher D/s	2.187 (1.312-4.601)	0.101 (0.001-0.565)	<0.002	0.022	1.224	0.011	0.003	0.005	0.0007	<0.00006	0.003
15.	Talcher FD/s	2.070 (0.742-3.962)	0.044 (0.001-0.123)	<0.002	0.015	2.438	0.011	0.002	0.002	0.0007	<0.00006	0.001
16.	Dhenkanal U/s	2.527 (0.912-10.598)	0.106 (0.001-0.456)	<0.002	0.015	0.066	0.001	0.002	0.005	0.0004	<0.00006	0.005
17.	Dhenkanal D/s	0.418 (0.322-3.665)	0.112 (0.001-0.680)	<0.002	0.018	0.036	0.002	0.004	0.012	0.0005	<0.00006	0.007
18.	Bhuban	1.874 (0.669-3.061)	0.145 (0.001-1.279)	0.002	0.018	0.535	0.006	0.002	0.009	0.0004	0.00013	0.003
19.	Kabatabandha	3.106 (0.523-8.710)	0.072 (0.001-0.221)	<0.002	0.027	2.341	0.006	0.005	0.006	0.0004	0.00057	0.007
20.	Dharmasala U/s	2.305 (0.525-6.776)	0.094 (0.002-0.284)	<0.002	0.024	0.831	0.006	0.005	0.003	0.0006	0.00038	0.011

Sl. No.	Sampling Location	Nutrients	Heavy metals
		Annual Average values (Range of values)	

		Nitrate as NO ₃ ⁻	PO ₄ ³⁻ -P	Cr(VI) ##	T. Cr##	Fe##	Ni##	Cu##	Zn##	Cd##	Hg##	Pb##
		(mg/l)		(mg/l)								
21.	Dharmasala D/s	2.271 (0.401-6.377)	0.151 (0.003-0.586)	<0.002	0.024	2.530	0.006	0.012	0.003	0.0006	0.00070	0.012
22.	Pottamundai	3.788 (0.918-14.039)	0.112 (0.011-0.355)	0.005	0.037	0.479	0.006	0.002	0.009	0.0007	0.00019	0.007
Nandira River												
23.	Nandira U/s	5.570 (1.174-11.580)	0.235 (0.001-1.574)	<0.002	0.027	4.213	0.014	0.015	0.029	0.0006	0.00019	0.021
24.	Nandira D/s	4.045 (1.557-8.867)	0.174 (0.001-0.824)	<0.002	0.029	5.243	0.016	0.004	0.009	0.0009	0.00032	0.007
Kisindajhor												
25.	Kisindajhor	11.282 (2.184-28.784)	0.101 (0.002-0.277)	<0.002	0.024	0.026	0.009	0.004	0.009	0.0006	0.00013	0.008
Kharasrota River												
26.	Khanditara	2.422 (0.675-4.575)	0.172 (0.001-0.870)	<0.002	0.027	2.417	0.005	0.001	0.008	0.0004	0.00076	0.005
27.	Binjharpur	1.918 (0.140-4.077)	0.074 (0.002-0.179)	<0.002	0.024	3.478	0.005	0.002	0.011	0.0007	0.00044	0.008
28.	Aul	3.544 (1.131-11.195)	0.364 (0.002-3.198)	0.013	0.035	1.040	0.004	0.008	0.015	0.0011	0.00006	0.008
Guradih nallah												
29.	Guradih nallah	24.770 (5.930-55.566)	0.070 (0.002-0.193)	0.003	0.029	3.662	0.006	0.009	0.192	0.0012	0.00019	0.016

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)								
Badjhor nallah												
30.	Badjhor nallah	2.965 (0.630-8.362)	0.171 (0.001-1.389)	0.01	0.024	0.156	0.007	0.004	0.003	0.0005	<0.00006	0.007
Damsala River												
31.	Dayanabil	3.730 (0.182-13.950)	0.081 (0.002-0.211)	0.022	0.059	3.295	0.004	0.004	0.008	0.0004	0.00032	0.002
Ganda nallah												
32.	Marthapur	3.655 (0.237-9.632)	0.131 (0.011-0.690)	0.002	0.015	1.005	0.004	0.009	0.017	0.0006	0.00019	0.003
Lingra River												
33.	Angul U/s	1.952 (0.444-5.095)	0.126 (0.001-0.910)	<0.002	0.017	0.102	0.001	0.003	0.003	0.0004	<0.00006	0.002
34.	Angul D/s	2.172 (0.604-4.364)	0.082 (0.003-0.301)	<0.002	0.024	0.046	0.003	0.003	0.007	0.0011	<0.00006	0.004
Ramiala River												
35.	Kamakhyanagar	1.369 (0.055-2.545)	0.104 (0.001-0.429)	0.002	0.02	0.015	0.006	0.004	0.005	0.0004	0.00013	0.001
Banguru nallah												
36.	Banguru nallah	2.875 (0.620-6.269)	0.173(0.001-1.194)	<0.002	0.018	2.433	0.007	0.005	0.007	0.0004	<0.00006	0.018
Singada jhor												
37.	Singada jhor	2.457 (0.523-6.244)	0.087 (0.005-0.189)	<0.002	0.029	6.472	0.006	0.008	0.015	0.0004	<0.00006	0.017

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##
Tikira River												
38.	Kaniha U/s	1.990 (0.067-4.877)	0.159 (0.001-0.836)	<0.002	0.04	4.672	0.007	0.007	0.011	0.0007	0.00013	0.007
39.	Kaniha D/s	2.409 (0.195-5.198)	0.127 (0.006-0.346)	<0.002	0.027	1.688	0.008	0.002	0.004	0.0070	0.00013	0.002
Bangurusingada jhor												
40.	Bangurusingada jhor	1.538 (0.079-5.335)	0.120 (0.001-0.664)	<0.002	0.024	0.551	0.007	0.001	0.003	0.0006	0.00006	0.001
Karo River												
41.	Barbil	2.305 (0.540-5.108)	0.062 (0.001-0.300)	0.01	0.03	0.316	0.017	0.002	0.002	0.0006	0.00063	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, 2018

(C) Baitarani river system (2018)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
Kundra Nallah																
1.	Joda	54 (1-167)	63 (34-84)	10.0 (5.5-19.3)	0.093 (BDL-0.224)	0.003 (0-0.007)	1.50 (0.28-4.76)	654 (18-2200)	156 (121-195)	0.31 (0.19-0.68)	0.033 (<0.003-0.157)	92 (72-110)	59 (34-76)	8.22 (5.78-9.99)	9.20 (3.60-20.64)	0.23 (0.11-0.46)
Kusei River																
2.	Deogaon	104 (13-381)	112 (32-166)	9.6 (5.1-20.6)	0.177 (0.056-0.450)	0.008 (0-0.023)	3.21 (1.08-10.64)	1438 (110-2800)	256 (97-346)	0.39 (0.13-0.71)	0.038 (<0.003-0.081)	145 (56-204)	103 (24-172)	13.37 (5.78-19.99)	9.76 (3.21-14.05)	0.30 (0.15-0.68)
Baitarani River																
3.	Naigarh	207 (2-1806)	48 (16-164)	10.5 (5.0-41.1)	0.178 (0.056-0.560)	0.006 (0-0.036)	1.71 (0.06-5.06)	279 (20-1100)	124 (65-315)	0.28 (0.14-0.54)	0.015 (<0.003-0.042)	74 (42-172)	48 (24-152)	6.01 (3.80-9.30)	8.82 (1.74-25.00)	0.35 (0.07-1.42)
4.	Unchabali	204 (1-1852)	38 (22-52)	11.3 (5.0-44.9)	0.093 (BDL-0.336)	0.003 (0-0.010)	1.98 (0.56-5.04)	371 (4.5-2200)	103 (76-155)	0.28 (0.10-0.50)	0.023 (0.003-0.049)	62 (48-91)	38 (28-50)	5.53 (3.86-7.99)	7.68 (1.99-15.50)	0.23 (0.09-0.50)
5.	Champua	65 (1-346)	53 (32-72)	9.4 (1.9-23.8)	0.112 (0.056-0.560)	0.002 (0-0.005)	1.98 (0.28-6.44)	485 (20-1700)	133 (108-168)	0.32 (0.17-0.49)	0.019 (0.004-0.052)	81 (64-97)	50 (40-62)	7.50 (3.80-11.99)	8.88 (4.47-17.53)	0.19 (0.07-0.37)
6.	Tribindha	60 (1-218)	55 (32-68)	8.1 (3.8-15.0)	0.154 (0.056-0.560)	0.004 (0-0.011)	1.70 (0.56-4.48)	501 (20-1700)	145 (99-213)	0.35 (0.18-0.78)	0.019 (<0.003-0.088)	87 (58-132)	53 (28-66)	8.57 (4.99-23.98)	10.90 (2.74-19.90)	0.21 (0.10-0.37)
7.	Joda	85 (1-664)	51 (24-72)	8.2 (3.4-13.1)	0.135 (0.056-0.560)	0.007 (0-0.059)	1.82 (0.56-5.04)	442 (20-1700)	129 (97-167)	0.26 (0.16-0.43)	0.019 (<0.003-0.067)	77 (56-98)	50 (36-58)	6.92 (3.86-11.99)	8.88 (4.35-16.79)	0.20 (0.11-0.37)
8.	Anandpur	56 (14-176)	60 (38-80)	9.3 (5.0-18.7)	0.167 (BDL-0.448)	0.004 (0-0.012)	2.17 (1.12-5.04)	848 (78-2400)	160 (126-204)	0.37 (0.24-0.70)	0.029 (<0.003-0.084)	92 (68-119)	55 (40-72)	9.79 (6.70-18.11)	8.52 (3.10-13.55)	0.20 (0.08-0.40)

Sl. No.	Sampling Location	Physical parameters	Organic pollution Indicators	Bacteriological parameter	Mineral constituents
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		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(MPN/100ml)	(µS/cm)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
9.	Jajpur	121 (2-458)	67 (40-96)	8.6 (3.6-15.8)	0.219 (0.056-0.560)	0.010 (0.002-0.044)	2.45 (0.56-5.88)	2676 (20-16000)	173 (118-233)	0.38 (0.12-0.60)	0.096 (<0.003-0.685)	102 (74-136)	63 (40-84)	10.02 (3.86-14.10)	11.65 (1.74-20.27)	0.26 (0.15-0.68)
10.	Chandbali U/s	328 (44-906)	90 (44-180)	19.0 (6.8-47.6)	0.173 (0.056-0.570)	0.009 (0.001-0.071)	2.01 (0.56-4.48)	5338 (330-16000)	6155 (145-19730)	17.38 (0.57-46.89)	0.511 (<0.003-2.148)	4211 (88-14400)	634 (44-2000)	2167.2 (13.5-7696.2)	327.03 (12.31-982.60)	0.32 (0.18-0.57)
11.	Chandbali D/s	366 (80-940)	89 (48-130)	21.9 (8.5-50.2)	0.117 (BDL-0.336)	0.004 (0-0.012)	1.74 (0.45-3.92)	6023 (330-16000)	6161 (189-19770)	17.16 (0.89-45.21)	0.615 (0.003-2.396)	4435 (122-14800)	717 (52-2220)	2262.1 (21.2-7896.1)	393.96 (13.80-1113.20)	0.33 (0.10-0.82)
Salandi River																
12.	Bhadrak U/s	41 (7-82)	80 (40-128)	8.7 (3.4-14.4)	0.107 (BDL-0.336)	0.005 (0-0.014)	1.42 (0.56-2.80)	1188 (170-5400)	182 (99-249)	0.37 (0.17-0.65)	0.090 (0.003-0.277)	107 (48-142)	71 (36-102)	10.34 (5.99-13.99)	7.44 (2.86-16.42)	0.25 (0.13-0.60)
13.	Bhadrak D/s	44 (20-68)	81 (32-120)	16.9 (6.7-42.6)	0.148 (BDL-0.448)	0.009 (0-0.041)	2.03 (0.56-4.48)	5338 (130-35000)	202 (97-273)	0.41 (0.21-0.76)	0.126 (0.004-0.723)	114 (58-159)	75 (38-100)	12.53 (7.71-18.99)	9.19 (3.60-20.23)	0.24 (0.12-0.42)
Dhamra River																
14.	Dhamra	526 (62-2076)	100 (50-148)	25.1 (12.4-57.2)	0.214 (0.056-0.448)	0.006 (0-0.017)	2.56 (0.17-9.52)	3125 (130-16000)	17827 (284-45150)	41.01 (1.02-82.27)	1.265 (0.017-2.898)	14117 (178-34290)	1832 (92-4550)	7681.3 (30.9-19490.2)	871.3 (52.9-2223.3)	0.42 (0.14-0.63)
	❖ Class 'C'	-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
	❖ Class 'E'	-	-	-	-	-	-	-	2250	26	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 ⁻ (mg/l)	PO ₄ ³⁻⁻ P	Cr(VI) [#]	T. Cr [#]	Fe [#]	Ni [#]	Cu [#]	Zn [#]	Cd [#]	Hg [#]	Pb [#]
Kundra nallah												
1.	Joda	3.089 (0.328-9.984)	0.058 (0.002-0.277)	0.005	0.015	1.499	0.001	0.002	0.009	0.0003	<0.00006	0.004
Kusei River												
2.	Deogaon	1.744 (0.438-4.531)	0.125 (0.001-0.464)	<0.002	0.024	1.158	0.001	0.001	0.008	0.0004	<0.00006	0.004
Baitarani river												
3.	Naigarh	2.328 (0.815-5.829)	0.110 (0.001-0.961)	0.008	0.024	1.076	0.018	0.003	0.006	0.0004	0.00032	0.002
4.	Unchabali	2.578 (1.058-4.793)	0.064 (0.001-0.398)	0.003	0.027	1.290	0.016	0.001	0.007	0.0004	0.00044	0.002
5.	Champua	2.483 (0.365-4.122)	0.112 (0.001-0.811)	<0.002	0.015	0.163	0.002	0.001	0.009	0.0006	<0.00006	0.007
6.	Tribindha	3.247 (0.341-7.452)	0.105 (0.001-0.522)	0.003	0.018	0.770	0.001	0.002	0.009	0.0002	<0.00006	0.001
7.	Joda	2.319 (0.833-4.290)	0.058 (0.002-0.487)	<0.002	0.015	0.444	0.001	0.002	0.011	0.0004	0.00032	0.003
8.	Anandpur	2.303 (0.347-5.613)	0.077 (0.001-0.467)	<0.002	0.013	0.031	0.002	0.001	0.026	0.0006	<0.00006	0.006
9.	Jajpur	2.349 (0.055-6.001)	0.070 (0.002-0.190)	0.002	0.015	1.127	0.008	0.002	0.003	0.0005	0.00044	0.004

Sl.	Sampling Location	Nutrients	Heavy metals									
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No.		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)										
10.	Chandbali U/s	2.455 (0.961-7.190)	0.112 (0.001-0.456)	<0.002	0.018	4.631	0.011	0.012	0.066	0.0007	0.00076	0.012
11.	Chandbali D/s	2.639 (0.464-6.945)	0.163 (0.001-0.916)	<0.002	0.024	4.814	0.016	0.017	0.076	0.0009	0.00032	0.012
Salandi river												
12.	Bhadrak U/s	1.736 (0.450-6.709)	0.080 (0.001-0.345)	<0.002	0.013	0.530	0.007	0.003	0.005	0.0004	<0.00006	0.004
13.	Bhadrak D/s	2.372 (0.035-8.545)	0.098 (0.001-0.309)	<0.002	0.018	0.842	0.009	0.019	0.004	0.0006	0.00013	0.012
Dhamra River												
14.	Dhamra	2.385 (0.026-6.988)	0.074 (0.001-0.198)	<0.002	0.015	7.711	0.011	0.007	0.041	0.0009	0.00044	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, 2018

(D) Rushikulya river system (2018)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
Russelkunda Reservoir																
1.	Russelkunda	24 (6-62)	74 (60-84)	11.2 (7.9-17.1)	0.247 (BDL-0.670)	0.011 (0-0.055)	2.80 (0.56-5.60)	781 (<1.8-2800)	166 (145-185)	0.39 (0.24-0.74)	0.037 (0.003-0.074)	96 (81-112)	62 (52-76)	9.84 (7.40-14.90)	3.26 (0.87-7.71)	0.28 (0.18-0.46)
Bada Nadi																
2	Aska	63 (16-208)	118 (100-140)	10.2 (5.5-21.1)	0.125 (BDL-0.330)	0.009 (0-0.041)	4.57 (0.56-13.40)	696 (45-2800)	300 (238-554)	0.78 (0.38-3.11)	0.045 (<0.003-0.101)	176 (146-352)	105 (84-120)	30.31 (11.10-138.90)	7.27 (1.49-10.82)	0.29 (0.22-0.45)
Rushikulya river																
3.	Aska	46 (2-104)	132 (104-164)	9.7 (5.5-15.0)	0.382 (BDL-1.608)	0.028 (0-0.168)	4.83 (0.28-16.24)	1307 (45-2700)	284 (222-342)	0.44 (0.31-0.71)	0.035 (0.003-0.077)	163 (132-198)	114 (78-138)	15.72 (11.10-25.06)	4.97 (2.24-8.83)	0.29 (0.22-0.44)
4.	Nalabanta	75 (22-186)	122 (94-148)	10.0 (5.9-16.8)	0.209 (BDL-0.670)	0.018 (0-0.084)	4.20 (1.12-12.32)	1038 (<1.8-3500)	317 (247-498)	0.63 (0.33-2.02)	0.065 (0.004-0.334)	174 (139-298)	111 (84-132)	25.45 (11.1-96.10)	7.16 (2.11-14.55)	0.29 (0.23-0.48)
5.	Madhopur	95 (1-220)	132 (112-162)	10.2 (3.8-17.8)	0.126 (BDL-0.450)	0.007 (0-0.036)	1.82 (0.28-3.36)	1220 (<1.8-3500)	506 (260-2005)	1.57 (0.44-8.21)	0.066 (0.011-0.270)	296 (144-1170)	133 (96-264)	80.27 (14.80-499.70)	23.80 (3.11-143.03)	0.33 (0.24-0.58)
6.	Potagarh	164 (21-302)	138 (116-186)	29.5 (5.2-49.3)	0.195 (BDL-0.560)	0.009 (0-0.027)	3.97 (0.28-21.00)	435 (<1.8-1700)	14248 (436-34020)	29.09 (1.48-58.59)	0.491 (0.010-1.450)	11104 (242-26900)	1774 (116-4000)	5859.7 (57.84-14492.7)	839.1 (19.28-2070.9)	0.41 (0.27-0.63)
❖ Class 'C'		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ Class 'E'		-	-	-	-	-	-	-	2250	26	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

(D) 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)										
Russelkunda Reservoir												
1.	Russelkunda	1.827 (0.420-4.463)	0.037 (0.001-0.122)	0.003	0.018	0.643	0.015	0.005	0.056	0.0006	0.00178	0.003
Bada Nadi												
2.	Aska	1.868 (0.638-3.437)	0.058 (0.001-0.273)	0.002	0.024	1.239	0.012	0.008	0.014	0.0007	0.00051	0.006
Rushikulya river												
3.	Aska	2.346 (1.005-6.214)	0.083 (0.002-0.444)	0.013	0.044	0.326	0.011	0.004	0.009	0.0007	0.00076	0.007
4.	Nalabanta	1.846 (0.438-4.958)	0.083 (0.001-0.178)	0.003	0.024	2.203	0.011	0.003	0.019	0.0004	0.00044	0.011
5.	Madhopur	5.063 (0.146-34.102)	0.108 (0.003-0.448)	0.007	0.027	5.681	0.015	0.013	0.014	0.0006	<0.00006	0.008
6.	Potagarh	3.433 (0.490-7.171)	0.065 (0.001-0.234)	0.022	0.044	2.820	0.009	0.006	0.018	0.0009	0.00006	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, 2018

(E) Nagavali river system (2018)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(MPN/100ml)	(µS/cm)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
Nagavali river																
1.	Penta	129 (18-440)	84 (66-98)	8.8 (3.6-17.8)	0.105 (BDL-0.330)	0.006 (0-0.021)	3.94 (0.56-11.76)	573 (<1.8-2400)	191 (154-228)	0.28 (0.12-0.40)	0.017 (0.003-0.064)	111 (88-124)	75 (56-84)	8.10 (3.99-9.99)	11.46 (3.48-16.04)	0.31 (0.20-0.48)
2.	Jaykaypur D/s	201 (10-1470)	96 (68-120)	17.0 (9.1-29.7)	0.163 (BDL-0.560)	0.013 (0-0.063)	3.90 (0.28-8.40)	1185 (170-3500)	243 (171-346)	0.47 (0.25-0.83)	0.041 (<0.003-0.112)	144 (98-189)	90 (58-124)	15.54 (7.71-27.98)	17.13 (8.33-25.37)	0.28 (0.18-0.41)
3.	Rayagada D/s	201 (22-1422)	109 (72-150)	13.5 (7.4-22.7)	0.143 (BDL-0.392)	0.007 (0-0.041)	3.10 (0.56-7.84)	543 (45-1700)	295 (184-435)	0.55 (0.28-0.97)	0.058 (0.003-0.225)	168 (110-244)	106 (76-150)	19.95 (9.64-39.98)	18.77 (11.14-32.31)	0.28 (0.18-0.44)
	❖ Class 'C'	-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
	❖ Class 'E'	-	-	-	-	-	-	-	2250	26	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 ⁻ (mg/l)	PO ₄ ³⁻ -P	Cr(VI) ^{##}	T. Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}
Nagavali river												
1.	Penta	5.206 (1.041-29.229)	0.153 (0.006-0.624)	<0.002	0.015	1.193	0.004	0.002	0.009	0.0003	0.00032	0.003
2.	Jaykaypur D/s	3.135 (1.514-5.632)	0.154 (0.001-0.627)	<0.002	0.027	4.355	0.006	0.005	0.035	0.0005	0.00070	0.007
3.	Rayagada D/s	4.127 (1.113-12.341)	0.131 (0.029-0.346)	<0.002	0.019	5.498	0.006	0.005	0.011	0.0005	0.00089	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, 2018

(F) Subarnarekha river system (2018)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
Subarnarekha river																
1.	Rajghat	99 (25-394)	90 (48-116)	10.8 (5.5-21.8)	0.168 (BDL-0.900)	0.010 (0-0.059)	2.49 (0.28-10.08)	765 (78-1700)	285 (147-388)	0.69 (0.34-0.99)	0.139 (0.007-0.884)	164 (92-212)	95 (56-124)	24.21 (9.64-35.98)	24.83 (11.19-35.60)	0.44 (0.13-0.70)
	❖ Class 'C'	-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
	❖ Class 'E'	-	-	-	-	-	-	-	2250	26	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	2.622 (0.105-6.088)	0.089 (0.001-0.273)	0.002	0.015	1.158	0.006	0.009	0.005	0.0004	0.00057	0.014	
	❖ Class 'C'	50	-	0.05	-	50	-	1.5	15.0	0.01	-	0.10	
	❖ Class 'E'	-	-	-	-	-	-	-	-	-	-	-	

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

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

Class 'E' : Irrigation water quality

Data for the period April, 2018

(G) Budhabalanga river system (2018)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
Budhabalanga river																
1.	Baripada D/s	61 (8-228)	87 (46-122)	10.8 (7.3-15.8)	0.167 (BDL-0.560)	0.006 (0-0.018)	2.75 (0.56-8.24)	4478 (200-35000)	217 (132-305)	0.44 (0.29-0.55)	0.075 (0.003-0.459)	129 (74-176)	84 (40-116)	13.94 (7.71-21.98)	13.46 (7.96-21.85)	0.27 (0.14-0.46)
2.	Balasore U/s	102 (7-260)	82 (52-120)	10.0 (5.5-17.1)	0.121 (BDL-0.560)	0.005 (0-0.014)	1.62 (0.56-3.36)	1663 (330-5400)	197 (118-279)	0.44 (0.22-0.56)	0.076 (0.003-0.445)	119 (78-168)	76 (52-108)	13.06 (6.78-17.99)	11.86 (6.96-16.29)	0.25 (0.13-0.42)
3.	Balasore D/s	95 (28-138)	91 (70-130)	15.8 (7.3-23.8)	0.242 (BDL-0.780)	0.011 (0-0.041)	3.64 (1.12-10.08)	12900 (1700-54000)	287 (184-569)	0.87 (0.36-2.28)	0.083 (0.007-0.382)	166 (113-323)	87 (64-120)	30.64 (10.99-93.95)	15.52 (7.83-27.48)	0.24 (0.17-0.39)
Sone River																
4.	Hatigond*	60 (6-193)	72 (42-98)	10.9 (6.8-17.6)	0.084 (0.056-0.280)	0.005 (0-0.035)	1.91 (0.28-3.92)	945 (45-2300)	200 (122-294)	0.57 (0.23-1.09)	0.066 (0.003-0.438)	119 (74-168)	68 (38-100)	14.92 (5.78-25.06)	14.02 (6.84-22.88)	0.25 (0.13-0.46)
	❖ Class 'C'	-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
	❖ Class 'E'	-	-	-	-	-	-	-	2250	26	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

(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	1.989 (0.166-3.656)	0.206 (0.001-1.162)	<0.002	0.015	0.704	0.004	0.004	0.014	0.0006	0.00035	0.008
2.	Balasore U/s	1.971 (0.481-4.758)	0.291 (0.001-1.990)	<0.002	0.018	2.815	0.004	0.003	0.005	0.0005	0.00032	0.001
3.	Balasore D/s	3.257 (0.534-8.118)	0.150 (0.002-0.380)	0.005	0.037	6.385	0.006	0.005	0.067	0.0006	0.00067	0.005
Sone River												
4.	Hatigond*	2.202 (0.367-6.037)	0.158 (0.002-0.724)	<0.002	0.018	1.168	0.004	0.004	0.013	0.0007	0.00051	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, 2018

(H) Kolab river system (2018)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
Kerandi river																
1.	Sunabeda	72 (39-212)	43 (16-136)	10.0 (3.9-15.8)	0.168 (0.056-0.400)	0.006 (0.001-0.026)	2.90 (0.56-14.00)	539 (20-2400)	128 (68-371)	0.33 (0.02-0.94)	0.024 (0.004-0.077)	74 (39-212)	43 (18-120)	9.49 (3.99-40.40)	9.41 (3.10-14.67)	0.24 (0.09-0.42)
❖ Class 'C'		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ Class 'E'		-	-	-	-	-	-	-	2250	26	2.0	2100	-	600	1000	-

(H) Contd..

Sl. No.	Sampling Location	Nutrients				Heavy metals								
		Annual Average values (Range of values)												
		Nitrate as NO ₃ ⁻	PO ₄ ³⁻ -P	Cr(VI) ^{##}	T. Cr ^{##}	Fe ^{##}	Ni ^{##}	Cu ^{##}	Zn ^{##}	Cd ^{##}	Hg ^{##}	Pb ^{##}		
		(mg/l)				(mg/l)								
Kerandi river														
1.	Sunabeda	3.180 (0.590-5.834)		0.088 (0.005-0.191)	<0.002	0.011	0.893	0.005	0.004	0.013	0.0004	0.00076		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, 2018

(I) Vansadhara river system (2018)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
Vansadhara river																
1.	Muniguda	80 (1-229)	82 (62-132)	9.5 (3.9-15.8)	0.134 (0.056-0.440)	0.005 (0-0.025)	2.31 (0.28-5.88)	255 (20-700)	191 (154-311)	0.37 (0.26-0.68)	0.032 (0.003-0.081)	113 (92-172)	78 (54-136)	10.09 (7.40-15.99)	9.49 (2.40-18.53)	0.40 (0.16-1.57)
2.	Gunupur	129 (4-602)	93 (58-136)	11.1 (3.6-27.8)	0.107 (ND-0.336)	0.006 (0-0.028)	1.87 (0.28-5.60)	703 (20-2400)	205 (135-261)	0.34 (0.22-0.73)	0.051 (0.003-0.105)	119 (84-148)	83 (44-112)	9.09 (7.40-11.99)	7.57 (2.11-11.94)	0.27 (0.15-0.50)
❖ Class 'C'		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
❖ Class 'E'		-	-	-	-	-	-	-	2250	26	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	4.247 (0.455-19.093)		0.128 (0.004-0.541)	<0.002	0.018	1.142	0.006	0.004	0.018	0.0004	0.00006	0.002
2.	Gunupur	2.821 (0.407-5.010)		0.097 (0.001-0.231)	<0.002	0.015	5.722	0.006	0.006	0.021	0.0006	0.00013	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, 2018

(J) Indravati river system (2018)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
Indravati river																
1.	Nawarangpur	75 (20-274)	46 (20-78)	9.7 (3.9-20.3)	0.169 (0.056-0.560)	0.005 (0-0.039)	3.71 (0.28-12.88)	256 (<1.8-1300)	115 (86-149)	0.30 (0.21-0.50)	0.027 (0.003-0.077)	70 (54-88)	423 (28-64)	6.53 (5.50-7.99)	9.63 (1.24-18.40)	0.23 (0.10-0.44)
	❖ Class 'C'	-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
	❖ Class 'E'	-	-	-	-	-	-	-	2250	26	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	4.147 (0.547-11.117)	0.074 (0.003-0.199)	<0.002	0.015	1.250	0.003	0.004	0.011	0.0004	0.00019	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, 2018

(K) Bahuda river system (2018)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
Bahuda river																
1.	Damodarpally	64 (13-314)	149 (84-238)	9.3 (6.6-14.5)	0.201 (BDL-0.900)	0.018 (0-0.113)	2.47 (0.28-12.32)	556 (45-1700)	362 (191-517)	0.53 (0.28-0.85)	0.388 (0.004-1.972)	196 (118-282)	137 (86-202)	22.79 (13.00-32.98)	8.53 (1.99-22.10)	0.428 (0.280-0.77)
	❖ Class 'C'	-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
	❖ Class 'E'	-	-	-	-	-	-	-	2250	26	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	6.966 (0.577-51.454)	0.051 (0.001-0.172)	0.008	0.025	0.556	0.008	0.003	0.059	0.0005	<0.00006	0.013	
	❖ 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, 2018