

**Table – 1 Annual Average and Range values of Four Criteria Parameters (February-December, 2014)**

**(A) Mahanadi River System**

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)						
<b>Ib river</b>												
1.	Sundargarh	11	7.8 (6.9 – 8.4)	7.5 (6.8 – 8.3)	0.6 (0.3 – 0.8)	1234 (330– 3300)	0	0	C	C		
2.	Jharsuguda	11	7.9 (7.0 – 8.2)	7.3 (5.9 – 8.3)	0.6 (0.3 – 1.2)	4306 (78 – 24000)	0	3 (27)	C	Doesn't conform to Class C	TC	Human activities
3.	Brajarajnaragar U/s	11	7.8 (7.4 – 8.2)	7.7 (6.5 – 8.3)	0.5 (0.2 – 1.0)	2365 (130 – 5400)	0	2 (18)	C	C		
4.	Brajarajnaragar D/s	11	7.9 (7.1 – 8.4)	7.5 (6.0 – 9.0)	0.8 (0.2 – 1.3)	3245 (490 – 9200)	0	3 (27)	C	Doesn't conform to Class C	TC	Human activities
<b>Bheden river</b>												
5.	Jharsuguda	11	7.9 (7.3 – 8.3)	7.5 (6.0 – 9.2)	0.9 (0.1 – 1.5)	1695 (230 – 4900)	0	0	C	C		
<b>Hirakud reservoir</b>												
6.	Hirakud reservoir	11	8.0 (7.7 – 8.4)	7.3 (6.5 – 8.3)	0.6 (0.2 – 1.3)	3533 (78– 16000)	0	3 (27)	C	Doesn't conform to Class C	TC	Human activities
<b>Power Channel</b>												
7.	Power Channel U/s	11	7.9 (7.4 – 8.4)	6.5 (4.6 – 7.5)	0.5 (0.4 – 0.7)	885 (170– 3500)	0	0	C	C		
8.	Power Channel D/s	11	7.8 (7.3 – 8.4)	6.5 (4.5 – 8.4)	0.7 (0.3 – 0.9)	3069 (140 – 16000)	0	2 (18)	C	C		
<b>Mahanadi river</b>												
9	Sambalpur U/s	11	7.9 (7.4 – 8.4)	7.3 (4.9 – 8.6)	1.1 (0.5 – 1.8)	14036 (2400 – 92000)	0	5 (45)	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	Sambalpur D/s	11	8.0 (6.9 – 8.4)	7.5 (4.7 – 11.5)	2.8 (1.2 – 3.9)	49091 (13000 – 160000)	5 (45)	11 (100)	C	Doesn't conform to Class C	BOD, TC	Waste water of Sambalpur town
11.	Sambalpur FD/s at Shankarmath	11	7.8 (7.1 – 8.3)	6.3 (4.7 – 7.6)	2.0 (1.1 – 3.1)	9127 (2200 – 35000)	1 (9)	8 (73)	C	Doesn't conform to Class C	BOD, TC	Waste water of Sambalpur town
12.	Sambalpur FFD/s at Huma	11	8.1 (7.4 – 8.4)	7.3 (6.3 – 8.4)	1.7 (0.8 – 2.6)	3708 (490 – 17000)	0	1 (9)	C	C		
13.	Sonepur U/s	11	8.0 (7.1 – 8.4)	7.6 (6.9 – 8.3)	0.7 (0.2 – 1.1)	1485 (78 – 9200)	0	1 (9)	C	C		
14.	Sonepur D/s	11	8.1 (7.6 – 8.4)	7.8 (7.2 – 8.5)	1.0 (0.4 – 1.9)	2500 (330– 5400)	0	3 (27)	C	Doesn't conform to Class C	TC	Human activities
15.	Tikarapada	11	8.0 (7.2 – 8.3)	8.0 (6.9 – 9.5)	0.6 (0.3 – 0.8)	3275 (230 – 17000)	0	2 (18)	C	C		
16.	Narasinghpur	11	8.1 (7.8 – 8.4)	7.3 (6.3 – 8.7)	0.7 (0.2 – 1.4)	22102 (130 – 160000)	0	3 (27)	C	Doesn't conform to Class C	TC	Human activities
17.	Mundali	11	8.0 (7.4 – 8.4)	7.4 (6.3 – 8.6)	0.7 (0.4 – 1.5)	19659 (460 – 160000)	0	5 (45)	C	Doesn't conform to Class C	TC	Human activities
18.	Cuttack U/s	11	7.9 (7.4 – 8.5)	8.0 (6.5 – 8.9)	1.0 (0.7 – 1.5)	4817 (790 – 16000)	0	5 (45)	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)						
19.	Cuttack D/s	11	7.9 (7.5 – 8.4)	7.4 (5.9 – 9.3)	2.2 (1.7 – 2.5)	62455 (22000 – 160000)	0	11 (100)	C	Doesn't conform to Class C	TC	Waste water of Cuttack city
20.	Cuttack FD/s	11	7.9 (7.4 – 8.4)	7.5 (6.5 – 8.6)	1.5 (1.1 – 2.0)	42818 (11000 – 160000)	0	11 (100)	C	Doesn't conform to Class C	TC	Waste water of Cuttack city
21.	Paradeep U/s	11	7.9 (7.3 – 8.4)	7.0 (5.7 – 8.8)	1.2 (0.5 – 2.0)	15187 (170 – 92000)	0	7 (64)	C	Doesn't conform to Class C	TC	Human activities
22.	Paradeep D/s	11	7.9 (7.3 – 8.2)	6.5 (5.7 – 7.7)	1.4 (0.8 – 2.7)	6802 (<2 – 22000)	0	5 (45)	C	Doesn't conform to Class C	TC	Human activities
<b>Tel River</b>												
23.	Monmunda	11	8.2 (7.8 – 8.6)	7.6 (6.7 – 9.3)	0.9 (0.3 – 1.3)	1755 (230 – 5400)	0	1 (9)	C	C		
<b>Kathajodi river</b>												
24.	Cuttack U/s	11	8.0 (7.6 – 8.4)	7.6 (6.6 – 9.6)	1.2 (0.6 – 1.6)	5600 (1300 – 16000)	0	5 (45)	C	Doesn't conform to Class C	TC	Human activities
25.	Cuttack D/s	11	7.8 (7.1 – 8.4)	7.1 (6.0 – 8.6)	3.7 (2.1 – 5.6)	98818 (28000 – 160000)	7 (63)	11 (100)	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)						
26.	Mattagajpur (Cuttack FD/s)	11	7.8 (7.0 – 9.1)	6.9 (4.6 – 10.8)	8.4 (1.6 – 19.3)	94273 (35000 – 160000)	9 (82)	11 (100)	C	Doesn't conform to Class C	BOD,TC	Waste water of Cuttack city
<b>Serua River</b>												
27.	Sankhatrasa (Cuttack FD/s)	11	7.9 (7.3 – 8.4)	7.1 (2.0 – 14.2)	2.7 (1.3 – 4.2)	32164 (5400 – 92000)	4 (36)	11 (100)	C	Doesn't conform to Class C	DO, BOD, TC	Waste water of Cuttack city
<b>Kuakhai river</b>												
28	BhubaneswarFU/s	11	8.1 (7.6 – 8.3)	8.0 (6.6 – 9.9)	1.0 (0.4 – 1.8)	6241 (450 – 24000)	0	5 (45)	C	Doesn't conform to Class C	TC	Human activities
29.	Bhubaneswar U/s	11	7.8 (7.2 – 8.4)	7.8 (5.0 – 9.3)	1.5 (0.7 – 2.7)	31218 (2400 – 92000)	0	10 (91)	C	Doesn't conform to Class C	TC	Human activities
<b>Daya river</b>												
30.	Bhubaneswar D/s	11	7.6 (7.0 – 8.2)	5.8 (1.5 – 7.8)	4.4 (2.8 – 5.4)	85727 (16000 – 160000)	10 (91)	11 (100)	C	Doesn't conform to Class C	DO, BOD, TC	Waste water of Bhubaneswar city
31.	BhubaneswarFD/s	11	7.6 (7.0 – 8.4)	5.5 (1.4 – 7.2)	3.6 (2.2 – 4.7)	52909 (22000 – 160000)	9 (82)	11 (100)	C	Doesn't conform to Class C	DO, BOD, TC	Waste water of Bhubaneswar 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)						
<b>Birupa River</b>												
32.	Choudwar D/s	11	8.0 (7.2 – 8.4)	7.2 (5.8 – 8.9)	1.0 (0.5 – 1.8)	19245 (1300 – 160000)	0	6 (55)	C	Doesn't conform to Class C	TC	Waste water of Choudwar town
<b>Class 'C' water quality Criteria (IS-2296-1982)</b>			<b>6.5-8.5</b>	<b>4 and above</b>	<b>3 or less</b>	<b>5000 or less</b>			<b>Drinking water source with conventional treatment followed by disinfection</b>			

\* data for period Feb – Dec, 2014

**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**

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)						
<b>Sankh river</b>												
1.	Sankh U/s	11	7.8 (7.1 - 8.1)	7.3 (6.0 - 8.9)	1.0 (0.3 - 2.1)	6480 (230 - 24000)	0	4 (36)	C	Doesn't conform to Class C	TC	Human activities
<b>Koel River</b>												
2.	Koel U/s	11	7.8 (7.1 - 8.3)	7.4 (6.2 - 8.9)	1.0 (0.3 - 1.8)	13723 (230 - 92000)	0	5 (45)	C	Doesn't conform to Class C	TC	Human activities
<b>Brahmani river</b>												
3.	Panposh U/s	11	7.8 (7.1 - 8.2)	7.4 (6.4 - 8.6)	0.8 (0.5 - 1.4)	7709 (1300 - 26000)	0	5 (45)	C	Doesn't conform to Class C	TC	Human activities
4.	Panposh D/s	11	7.7 (7.1 - 8.2)	6.9 (5.6 - 8.4)	4.7 (3.4 - 5.6)	28909 (11000 - 54000)	11 (100)	11 (100)	C	Doesn't conform to Class C	BOD, TC	Waste water of Rourkela town and Steel Plant
5.	Rourkela D/s	11	7.6 (7.1 - 8.3)	7.6 (5.9 - 13.5)	3.8 (2.7 - 5.0)	44091 (17000 - 160000)	8 (73)	11 (100)	C	Doesn't conform to Class C	BOD, TC	-do-
6.	Rourkela FD/s (Attaghat)	11	7.8 (7.0 - 8.4)	7.4 (6.5 - 9.3)	2.1 (1.3 - 2.9)	7457 (330 - 35000)	0	4 (36)	C	Doesn't conform to Class C	TC	-do-
7.	Rourkela FD/s (Biritola)	11	8.0 (7.8 - 8.4)	7.3 (6.0 - 9.3)	2.8 (1.8 - 4.5)	10117 (790 - 35000)	4 (36)	5 (45)	C	Doesn't conform to Class C	BOD, TC	-do-

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	11	7.8 (6.9 – 8.4)	7.4 (6.5 – 8.9)	1.2 (0.5 – 2.6)	19448 (140 – 92000)	0	4 (36)	C	Doesn't conform to Class C	TC	Human activities
9.	Rengali	11	7.8 (7.4 – 8.4)	7.6 (6.4 – 8.5)	0.8 (0.3 – 1.3)	2561 (45 – 9200)	0	3 (27)	C	Doesn't conform to Class C	TC	Human activities
10.	Samal	11	7.6 (6.9 – 8.2)	7.7 (6.3 – 8.8)	0.9 (0.4 – 2.2)	6482 (230 – 16000)	0	6 (55)	C	Doesn't conform to Class C	TC	Human activities
10.	Talcher FU/s	11	7.9 (7.4 – 8.2)	7.4 (6.2 – 8.4)	0.7 (0.2 – 1.2)	30760 (460 – 160000)	0	3 (27)	C	Doesn't conform to Class C	TC	Human activities
10.	Talcher U/s	11	8.0 (7.4 – 8.2)	7.4 (6.6 – 8.6)	0.9 (0.6 – 1.5)	31472 (490 – 160000)	0	4 (36)	C	Doesn't conform to Class C	TC	Human activities
13.	Talcher D/s	11	8.0 (7.7 – 8.4)	7.4 (6.2 – 8.7)	1.5 (0.6 – 2.7)	9391 (1300 – 22000)	0	5 (45)	C	Doesn't conform to Class C	TC	Waste water of Talcher township
14.	Talcher FD/s	11	8.0 (7.6 – 8.3)	7.3 (6.7 – 8.5)	1.60 (0.5 – 1.8)	5710 (230 – 17000)	0	3 (27)	C	Doesn't conform to Class C	TC	-do-
15.	Dhenkanal U/s	11	7.7 (7.0 - 8.2)	7.6 (6.6 - 8.6)	1.0 (0.3 – 1.8)	84211 (920– 160000)	0	8 (73)	C	Doesn't conform to Class C	TC	Human activities
16.	Dhenkanal D/s	11	7.9 (7.5 – 8.2)	7.2 (5.6 – 8.7)	1.6 (1.1 – 2.6)	40355 (7900 – 92000)	0	11 (100)	C	Doesn't conform to Class C	TC	Waste water of Dhenkanal township

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)						
17.	Bhuban	11	8.1 (7.9 – 8.4)	7.6 (6.7 – 9.6)	0.6 (0.3 – 1.4)	4218 (230 – 17000)	0	3 (27)	C	Doesn't conform to Class C	TC	Human activities
18.	Kabatabandha	11	8.1 (7.7 - 8.4)	7.3 (6.4 – 8.2)	0.8 (0.2 – 1.9)	4917 (230–17000)	0	2 (18)	C	C		
19.	Dharmasala U/s	11	7.8 (7.3 – 8.3)	7.0 (5.9 – 8.9)	1.0 (0.2 – 1.8)	11436 (1100 – 54000)	0	11 (100)	B	Doesn't conform to Class B	TC	Human activities
20.	Dharmasala D/s	11	8.0 (7.6 – 8.3)	7.9 (6.6 – 12.2)	1.2 (0.3 – 1.6)	15309 (1100-92000)	0	11 (100)	B	Doesn't conform to Class B	TC	Human activities
21.	Pottamundai	11	7.8 (7.2 – 8.3)	7.6 (5.5 – 10.3)	1.4 (0.5 – 2.8)	6145 (490 – 16000)	0	10 (91)	B	Doesn't conform to Class B	TC	Human activities
<b>Nandira river</b>												
22.	Nandira river before confluence with river Brahmani	11	8.3 (7.7 – 8.7)	7.4 (5.6 – 10.7)	2.0 (1.1 – 3.3)	18645 (790 – 54000)	1 (9)	8 (73)	C	Doesn't conform to Class C	BOD, TC	Human activities
<b>Kisindajhor</b>												
23.	Kisindajhor	11	8.2 (7.7 – 8.7)	8.0 (6.0 – 11.7)	1.7 (0.8 – 2.7)	15682 (1100 – 35000)	0	7 (64)	C	Doesn't conform to Class C	BOD, TC	Human activities
<b>Kharasuan River</b>												
24.	Khanditara	11	8.1 (7.8 – 8.3)	7.2 (6.3 – 8.5)	0.8 (0.4 – 1.3)	3137 (45 – 9400)	0	3 (27)	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)						
25.	Binjharpur	11	7.9 (7.4 – 8.2)	7.4 (6.4 – 8.5)	0.7 (0.3 – 1.2)	4945 (1700 – 16000)	0	3 (27)	C	Doesn't conform to Class C	TC	Human activities
26.	Aul	11	7.8 (7.3 – 8.3)	7.2 (6.4 – 8.3)	1.1 (0.6 – 2.1)	21277 (1300 – 92000)	0	8 (73)	C	Doesn't conform to Class C	TC	Human activities
<b>Class 'B' water quality Criteria (IS-2296-1982)</b>			<b>6.5-8.5</b>	<b>5 and above</b>	<b>3 or less</b>	<b>500 or less</b>			<b>Outdoor bathing</b>			
<b>Class 'C' water quality Criteria (IS-2296-1982)</b>			<b>6.5-8.5</b>	<b>4 and above</b>	<b>3 or less</b>	<b>5000 or less</b>			<b>Drinking water source with conventional treatment followed by disinfection</b>			

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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**

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)						
<b>Kusei River</b>												
1.	Deogaon	11	8.1 (7.6 - 8.4)	7.4 (6.0 - 8.7)	0.8 (0.4 - 1.5)	10021 (330 - 28000)	0	6 (54)	C	Doesn't conform to Class C	TC	Human activities
<b>Baitarani River</b>												
2.	Joda	11	7.8 (6.9 - 8.4)	7.5 (5.8 - 8.7)	0.8 (0.4 - 1.8)	19206 (790- 92000)	0	4 (36)	C	Doesn't conform to Class C	TC	Human activities
3.	Anandpur	11	7.7 (6.8 - 8.3)	7.5 (6.6 - 9.0)	0.9 (0.2 - 1.8)	16008 (790 - 54000)	0	6 (54)	C	Doesn't conform to Class C	TC	Human activities
4.	Jajpur	11	8.0 (7.1 - 8.4)	7.3 (6.1 - 8.7)	1.7 (0.8 - 3.0)	34364 (2400 - 160000)	0	9 (82)	C	Doesn't conform to Class C	TC	Human activities
5.	Chandbali U/s	11	7.7 (7.4 - 8.2)	6.5 (5.5 - 7.8)	1.2 (0.3 - 2.0)	70364 (16000 - 160000)	0	11 (100)	C	Doesn't conform to Class C	TC	Human activities
6.	Chandbali D/s	11	7.7 (7.2 - 8.1)	6.2 (5.2 - 7.1)	1.4 (0.6 - 2.5)	60273 (16000 - 160000)	0	11 (100)	C	Doesn't conform to Class C	TC	Human activities
<b>Salandi River</b>												
7.	Bhadrak U/s	11	7.8 (7.0 - 8.3)	7.5 (6.6 - 8.8)	0.8 (0.2 - 1.4)	36700 (1700 - 160000)	0	8 (73)	C	Doesn't conform to Class C	TC	Human activities
8.	Bhadrak D/s	11	7.9 (7.1- 8.4)	7.8 (6.2 - 10.3)	1.7 (0.2 - 3.6)	43718 (3300 - 160000)	2 (18)	10 (91)	C	Doesn't conform to Class C	BOD,TC	Human activities

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			Parameters				BOD	TC				
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)						
<b>Dhamara River</b>												
9.	Dhamara	11	7.8 (7.3 – 8.2)	5.9 (4.8 – 6.6)	1.2 (0.7 – 2.1)	8375 (45 – 16000)	0	5 (45)	C	Doesn't conform to Class C	TC	Human activities
<b>Class 'C' water quality Criteria (IS-2296-1982)</b>			<b>6.5-8.5</b>	<b>4 and above</b>	<b>3 or less</b>	<b>5000 or less</b>			<b>Drinking water source with conventional treatment followed by disinfection</b>			

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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**

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)						
<b>Rushikulya river</b>												
1.	Madhopur	11	8.0 (7.0 – 8.4)	7.2 (6.0 - 8.9)	1.5 (0.6 – 2.1)	4314 (170 – 9400)	0	5 (45)	C	Doesn't conform to Class C	TC	Human activities
2.	Potagarh	11	7.8 (7.5 – 8.2)	6.6 (5.1 – 7.6)	1.5 (0.8 -2.2)	4224 (68 – 16000)	0	5 (45)	C	Doesn't conform to Class C	TC	Human activities
<b>Class 'C' water quality Criteria (IS-2296-1982)</b>			<b>6.5-8.5</b>	<b>4 and above</b>	<b>3 or less</b>	<b>5000 or less</b>			<b>Drinking water source with conventional treatment followed by disinfection</b>			

\* data for period Feb – Dec, 2014

**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**

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)						
<b>Nagavali river</b>												
1.	Penta U/s	11	7.9 (7.5 – 8.2)	7.3 (6.8 – 8.0)	0.7 (0.5 – 1.2)	13948 (230 – 92000)	0	5 (45)	C	Doesn't conform to Class C	TC	Human activities
2.	J.K. Pur D/S	11	7.8 (7.3 – 8.4)	7.3 (6.8 – 7.8)	2.0 (1.1 – 3.0)	11657 (330 – 24000)	0	7 (63)	C	Doesn't conform to Class C	TC	Human activities
3.	Rayagada D/S	11	8.0 (7.4 – 8.4)	7.5 (6.9 – 7.9)	1.6 (0.7 – 3.2)	27635 (790 – 160000)	1 (9)	7 (63)	C	Doesn't conform to Class C	BOD,TC	Human activities
<b>Class 'C' water quality Criteria (IS-2296-1982)</b>			<b>6.5-8.5</b>	<b>4 and above</b>	<b>3 or less</b>	<b>5000 or less</b>			<b>Drinking water source with conventional treatment followed by disinfection</b>			

\* data for period Feb – Dec, 2014

**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

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)						
<b>Subarnarekha river</b>												
1.	Rajghat	11	7.9 (7.6 – 8.4)	7.9 (7.4 – 8.4)	1.2 (0.4 – 2.9)	7218 (2200 – 17000)	0	4 (36)	C	Doesn't conform to Class C	TC	Human activities
<b>Class 'C' water quality Criteria (IS-2296-1982)</b>			<b>6.5-8.5</b>	<b>4 and above</b>	<b>3 or less</b>	<b>5000 or less</b>			<b>Drinking water source with conventional treatment followed by disinfection</b>			

\* data for period Feb – Dec, 2014

**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**

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)						
<b>Budhabalanga river</b>												
1.	Baripada D/s	11	7.9 (7.4 – 8.5)	7.7 (7.2 – 8.2)	1.2 (0.6 – 2.7)	52200 (13000 – 160000)	0	11 (100)	C	Doesn't conform to Class C	TC	Human activities
2.	Balasure U/s	11	7.8 (7.5 – 8.2)	7.7 (7.2 – 8.4)	0.8 (0.4 – 1.9)	4710 (1300 – 17000)	0	3 (27)	C	Doesn't conform to Class C	TC	Human activities
3.	Balasure D/s	11	7.8 (7.2 – 8.4)	7.6 (7.2 – 8.0)	2.0 (1.1 – 3.2)	47200 (16000 – 160000)	1 (9)	11 (100)	C	Doesn't conform to Class C	BOD,TC	Human activities
<b>Class 'C' water quality Criteria (IS-2296-1982)</b>			<b>6.5-8.5</b>	<b>4 and above</b>	<b>3 or less</b>	<b>5000 or less</b>			<b>Drinking water source with conventional treatment followed by disinfection</b>			

\* data for period Feb – Dec, 2014

**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**

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)						
<b>KerandiRiver</b>												
1.	Sunabeda	11	7.2 (6.8-7.7)	7.3 (6.8-8.0)	0.7 (0.2-1.4)	12773 (1300-92000)	0	4 (36)	C	Doesn't conform to Class C	TC	Human activities
<b>Class 'C' water quality Criteria (IS-2296-1982)</b>			<b>6.5-8.5</b>	<b>4 and above</b>	<b>3 or less</b>	<b>5000 or less</b>			<b>Drinking water source with conventional treatment followed by disinfection</b>			

**(I) Vansadhara river system**

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)						
<b>Vansadhara River</b>												
1.	Muniguda	11	8.0 (7.5-8.4)	7.4 (6.8-7.9)	0.8 (0.4-2.0)	12742 (170-92000)	0	4 (36)	C	Doesn't conform to Class C	TC	Human activities
2.	Gunupur	11	7.9 (7.4-8.4)	7.5 (6.9-8.1)	1.0 (0.3-2.2)	10275 (330-35000)	0	5 (45)	C	Doesn't conform to Class C	TC	Human activities
<b>Class 'C' water quality Criteria (IS-2296-1982)</b>			<b>6.5-8.5</b>	<b>4 and above</b>	<b>3 or less</b>	<b>5000 or less</b>			<b>Drinking water source with conventional treatment followed by disinfection</b>			

\* data for period Feb – Dec, 2014

**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 2014 (February-December)**

**(A) Mahanadi River System**

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual average values (Range of values)														
		TSS	Total alkalinity	COD	NH <sub>4</sub> -N	Free NH <sub>3</sub> -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO <sub>4</sub>	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
<b>lb river</b>																
1.	Sundargarh	32 (3-174)	55 (40-68)	6.7 (3.2-11.8)	0.137 (0.056-0.336)	0.005 (0-0.014)	1.20 (0.56-1.96)	471 (78-1300)	147 (111-218)	0.37 (0.24-0.57)	0.037 (0.003-0.105)	85 (68-128)	49 (30-68)	9.2 (4.9-15.7)	4.56 (2.23-10.44)	0.304 (0.230-0.380)
2.	Jharsuguda	25 (5-154)	58 (32-72)	7.3 (3.3-15.8)	0.117 (0.056-0.224)	0.006 (0-0.013)	1.12 (0.28-1.96)	1913 (20-13000)	153 (121-185)	0.43 (0.25-0.61)	0.035 (0.003-0.083)	90 (72-108)	51 (32-62)	10.4 (5.9-14.7)	5.53 (2.74-12.81)	0.300 (0.215-0.360)
3.	Brajrajnagar U/s	31 (7-175)	61 (36-76)	6.6 (4.0-9.9)	0.127 (0.056-0.224)	0.005 (0.001-0.011)	1.20 (0.28-1.68)	899 (20-2400)	160 (108-186)	0.42 (0.28-0.65)	0.033 (0-0.067)	93 (66-109)	54 (32-76)	10.5 (5.9-16.6)	5.82 (3.73-9.07)	0.304 (0.219-0.428)
4.	Brajrajnagar D/s	26 (6-116)	62 (40-72)	9.4 (6.1-15.8)	0.137 (0.056-0.224)	0.007 (0.001-0.028)	1.04 (0.28-1.68)	1515 (130-5400)	170 (130-207)	0.43 (0.25-0.72)	0.039 (0-0.083)	100 (78-116)	55 (32-70)	10.8 (5.9-18.6)	5.57 (3.48-8.57)	0.296 (0.226-0.388)
<b>Bheden river</b>																
5.	Jharsuguda	35 (13-108)	74 (48-116)	11.0 (3.9-19.3)	0.137 (0.056-0.224)	0.007 (0.002-0.011)	1.30(0.56-2.24)	580 (78-1300)	258 (132-455)	0.76 (0.29-1.94)	0.064 (0.003-0.15)	149 (78-247)	81 (38-134)	22.0 (6.9-56.8)	19.24 (6.34-50.86)	1.192 (0.283-7.610)
<b>Hirakud Reservoir</b>																
6.	Hirakud reservoir	14 (5-38)	76 (56-92)	8.8 (5.7-15.8)	0.117 (0.056-0.224)	0.007 (0.003-0.018)	1.30 (0.28-1.96)	1064 (20-5400)	190 (138-218)	0.43 (0.34-0.51)	0.051 (0.003-0.105)	109 (82-126)	75 (58-86)	10.9 (7.8-13.7)	7.18 (4.10-11.19)	0.331 (0.242-0.408)
<b>Power Channel</b>																
7.	Power Channel U/s	13 (2-48)	75 (48-92)	6.9 (5.1-9.9)	0.122 (0.056-0.224)	0.006 (0.002-0.021)	1.25 (0.28-1.96)	434 (45-2800)	196 (150-231)	0.38 (0.23-0.55)	0.037 (0.003-0.073)	111 (85-128)	53 (38-62)	9.8 (5.9-13.7)	8.44 (5.97-11.44)	0.485 (0.192-2.250)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents								
		Annual average values (Range of values)															
		TSS	Total alkalinity	COD	NH <sub>4</sub> -N	Free NH <sub>3</sub> -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO <sub>4</sub>	F	
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)							
8.	Power Channel D/s	20 (3-51)	76 (52-92)	9.4 (6.5-11.8)	0.127 (0.056-0.224)	0.006 (0.001-0.028)	1.25 (0.28-1.68)	1493 (78-9200)	202 (160-241)	0.41 (0.29-0.51)	0.042 (0.003-0.096)	115 (90-130)	52 (40-64)	10.5 (7.8-13.9)	9.27 (7.33-14.67)	0.346 (0.238-0.549)	
<b>Mahanadi river</b>																	
9.	Sambalpur U/s	20 (2-114)	77 (44-90)	10.8 (8.0-13.5)	0.117 (0.056-0.224)	0.007 (0.002-0.028)	1.20 (0.56-1.68)	5444 (780-35000)	203 (131-235)	0.47 (0.32-0.65)	0.029 (0.003-0.096)	114 (78-132)	72 (40-84)	11.9 (7.8-16.6)	7.06 (3.98-11.81)	0.386 (0.224-0.630)	
10.	Sambalpur D/s	39 (4-230)	76 (40-92)	20.9 (13.7-32.9)	0.122 (0.056-0.168)	0.007 (0-0.021)	1.35 (0.84-1.96)	27173 (7900-92000)	218 (148-309)	0.47 (0.27-0.64)	0.037 (0.003-0.077)	126 (80-168)	75 (48-88)	12.3 (6.9-18.6)	9.87 (5.72-23.51)	0.384 (0.240-0.670)	
11.	Sambalpur FD/s at Shankarmath	21 (4-50)	86 (60-104)	16.5 (7.6-31.4)	0.122 (0.056-0.224)	0.004 (0.001-0.011)	1.27 (0.28-1.68)	3380 (490-13000)	229 (166-267)	0.51 (0.34-0.82)	0.041 (0.003-0.141)	132 (92-148)	81 (52-94)	13.8 (8.3-21.5)	9.41 (4.22-17.16)	0.448 (0.332-0.536)	
12.	Sambalpur FFD/s at Huma	15 (2-33)	81 (48-120)	13.8 (8.5-27.2)	0.127 (0.056-0.168)	0.009 (0.002-0.016)	1.12 (0.28-1.68)	1825 (110-11000)	214 (142-305)	0.42 (0.28-0.51)	0.039 (0.003-0.112)	121 (82-164)	79 (48-110)	11.0 (6.9-14.7)	7.91 (4.85-13.43)	0.377 (0.251-0.451)	
13.	Sonepur U/s	13 (2-53)	80 (52-98)	8.8 (6.5-12.0)	0.117 (0.056-0.168)	0.008 (0.001-0.021)	1.25 (0.28-1.68)	462 (20-2800)	205 (146-253)	0.40 (0.31-0.51)	0.076 (0.022-0.147)	117 (80-148)	78 (50-132)	10.5 (7.8-14.7)	6.68 (1.61-13.05)	0.332 (0.228-0.420)	
14.	Sonepur D/s	13 (5-25)	87 (60-108)	10.4 (6.5-14.0)	0.107 (0.056-0.112)	0.008 (0.003-0.014)	1.17 (0.56-1.68)	819 (45-2400)	219 (172-268)	0.44 (0.30-0.66)	0.071 (0.022-0.205)	126 (95-158)	87 (64-128)	11.8 (7.8-19.6)	8.23 (5.84-13.05)	0.384 (0.312-0.455)	
15.	Tikarapada	28 (3-96)	73 (40-90)	7.4 (4.8-11.3)	0.132 (0.056-0.280)	0.009 (0.001-0.027)	1.32 (0.28-1.96)	2005 (78-13000)	191 (129-229)	0.40 (0.24-0.65)	0.094 (0.003-0.359)	107 (78-128)	71 (46-88)	10.5 (5.9-16.6)	8.18 (5.22-14.17)	0.346 (0.266-0.430)	
16.	Narasinghpur	40 (6-119)	72 (44-94)	7.8 (4.9-10.0)	0.112 (0.056-0.224)	0.009 (0.002-0.015)	1.15 (0.28-1.68)	3316 (45-22000)	196 (148-226)	0.40 (0.32-0.58)	0.069 (0.003-0.150)	111 (82-128)	72 (52-86)	10.3 (7.5-13.7)	7.75 (4.35-12.18)	0.308 (0.215-0.443)	

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual average values (Range of values)														
		TSS	Total alkalinity	COD	NH <sub>4</sub> -N	Free NH <sub>3</sub> -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO <sub>4</sub>	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
17.	Munduli	38 (3-114)	72 (48-92)	7.9 (5.2-14.0)	0.153 (0.056-0.392)	0.009 (0.002-0.028)	1.27 (0.56-1.96)	2373 (110-7900)	198 (136-228)	0.42 (0.32-0.51)	0.050 (0.019-0.096)	112 (78-130)	70 (50-86)	10.6 (7.8-13.7)	7.89 (5.47-12.18)	0.318 (0.228-0.458)
18.	Cuttack U/s	46 (3-195)	71 (44-92)	9.1 (6.5-11.0)	0.137 (0.056-0.280)	0.009 (0.001-0.027)	1.07 (0.56-1.96)	1926 (330-9200)	181 (138-228)	0.38 (0.27-0.49)	0.038 (0.003-0.121)	102 (78-125)	68 (42-96)	9.8 (6.1-13.7)	6.89 (2.57-12.31)	0.325 (0.232-0.482)
19.	Cuttack D/s	63 (5-281)	76 (36-96)	18.2 (12.7-27.6)	0.117 (0.056-0.168)	0.006 (0.001-0.014)	1.12 (0.28-1.68)	35636 (11000-92000)	204 (140-261)	0.46 (0.30-0.62)	0.080 (0.006-0.523)	116 (80-148)	71 (40-88)	11.7 (7.8-16.6)	8.03 (3.1-12.56)	0.330 (0.266-0.502)
20.	Cuttack FD/s	51 (4-260)	76 (48-96)	13.3 (8.0-17.7)	0.137 (0.056-0.224)	0.008 (0.002-0.022)	1.22 (0.28-1.68)	20864 (4900-54000)	199 (142-241)	0.41 (0.30-0.48)	0.049 (0.003-0.195)	113 (82-132)	71 (48-92)	10.3 (7.8-13.7)	7.50 (2.87-14.05)	0.323 (0.269-0.474)
21.	Paradeep U/s	96 (10-398)	85 (40-140)	14.2 (6.8-24.7)	0.143 (0.112-0.224)	0.007 (0.002-0.018)	1.12 (0.28-1.68)	4738 (68-22000)	4152 (146-15040)	16.20 (0.32-47.79)	0.402 (0.096-1.251)	3105 (82-12214)	452 (40-1700)	1567.4 (7.8-6560.3)	220.80 (6.46-625.10)	0.386 (0.237-0.485)
22.	Paradeep D/s	181 (18-646)	91 (36-150)	25.3 (10.3-45.5)	0.122 (0.056-0.168)	0.005 (0.002-0.011)	1.04 (0.28-1.68)	2881 (2-11000)	20184 (190-48780)	45.89 (1.07-93.56)	1.108 (0.083-3.786)	16592 (102-41924)	2300 (42-5300)	8828.5 (23.5-22505.5)	1022.72 (14.17-2282.3)	0.656 (0.272-1.180)
<b>Tel River</b>																
23.	Monmunda	63 (14-203)	68 (44-92)	8.8 (5.7-17.7)	0.127 (0.056-0.224)	0.009 (0-0.022)	1.20 (0.56-1.96)	658 (78-1700)	178 (140-216)	0.41 (0.26-0.73)	0.074 (<0.001-0.44)	102 (80-124)	65 (36-82)	10.6 (6.9-19.6)	6.25 (2.36-10.07)	0.313 (0.256-0.370)
<b>Kathajodi River</b>																
24.	Cuttack U/s	81 (3-267)	69 (44-92)	11.5 (6.5-18.2)	0.097 (0.056-0.168)	0.006 (0.001-0.014)	1.02 (0.28-1.68)	1378 (490-3500)	185 (136-280)	0.47 (0.32-1.13)	0.045 (0.003-0.163)	105 (76-152)	64 (42-84)	11.9 (7.8-29.4)	6.83 (2.98-10.69)	0.343 (0.256-0.469)
25.	Cuttack D/s	85 (16-310)	78 (48-126)	26.3 (16.4-40.0)	0.122 (0.056-0.336)	0.006 (0.001-0.017)	1.16 (0.28-1.84)	57600 (13000-160000)	248 (150-420)	0.68 (0.31-1.38)	0.101 (0.003-0.407)	139 (85-234)	79 (52-116)	18.3 (6.9-39.1)	11.26 (6.71-22.98)	0.292 (0.205-0.442)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual average values (Range of values)														
		TSS	Total alkalinity	COD	NH <sub>4</sub> -N	Free NH <sub>3</sub> -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO <sub>4</sub>	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
26.	Mattagajpur (Cuttack FD/s)	85 (30-226)	91 (48-124)	42.2 (12.1-76.6)	1.232(0.056-10.360)	0.007 (0-0.023)	3.08 (0.56-15.4)	66889 (17000-160000)	319 (142-539)	0.99 (0.29-2.24)	0.164 (0.002-1.157)	186 (80-290)	92 (46-134)	28.6 (6.9-64.6)	19.77 (4.23-37.3)	0.283 (0.178-0.464)
<b>Serua River</b>																
27.	Sankhatrasa (Cuttack FD/s)	40 (9-144)	79 (48-134)	20.4 (10.2-36.0)	0.168 (0.112-0.392)	0.012 (0.001-0.049)	1.17 (0.28-1.96)	14982 (1700-54000)	212 (142-326)	0.49 (0.30-0.77)	0.079 (0.002-0.253)	120 (80-186)	74 (46-110)	12.7 (6.9-23.5)	7.24 (4.98-9.95)	0.320 (0.243-0.464)
<b>Kuakhai River</b>																
28.	Bhubaneswar FU/s	34 (4-184)	71 (48-88)	8.8 (4.9-20.0)	0.565 (0.056-4.480)	0.041 (0.004-0.358)	1.76 (0.56-5.60)	2144 (200-7900)	189 (140-229)	0.42 (0.32-0.54)	0.042 (0.003-0.086)	106 (80-128)	10.9 (7.8-15.7)	5.51 (1.99-9.08)	0.302 (0.222-0.370)	0.302 (0.222-0.370)
29.	Bhubaneswar U/s	39 (3-190)	68 (52-86)	12.0 (4.9-26.7)	0.519 (0.056-3.584)	0.013 (0.002-0.072)	1.88 (0.56-4.48)	17281 (790-54000)	199 (142-247)	0.55 (0.31-1.09)	0.064 (0.006-0.154)	110 (82-142)	67 (48-86)	14.3 (6.9-29.4)	7.71 (4.85-14.42)	0.288 (0.220-0.371)
<b>Daya River</b>																
30.	Bhubaneswar D/s	54 (8-274)	71 (44-96)	29.9 (20.6-38.0)	1.553 (0.056-7.168)	0.026 (0-0.161)	3.28 (0.84-9.24)	49109 (9200-160000)	250 (170-350)	0.80 (0.28-1.59)	0.078 (0.003-0.186)	144 (96-202)	75 (48-90)	21.2 (6.9-43.1)	14.24 (5.59-24.36)	0.291 (0.201-0.421)
31.	Bhubaneswar FD/s	43 (11-149)	69 (44-98)	24.5 (19.6-33.5)	0.972 (0.056-4.032)	0.017 (0-0.091)	2.83 (0.84-8.40)	27818 (13000-54000)	250 (140-372)	0.92 (0.39-1.54)	0.081 (0.006-0.205)	139 (82-202)	72 (46-92)	23.7 (8.8-41.1)	12.33 (5.22-23.5)	0.278 (0.199-0.424)
32.	Birupa D/s	45 (10-244)	78 (36-104)	10.1 (5.7-16.2)	0.122 (0.056-0.224)	0.008 (0.001-0.021)	1.12 (0.28-1.68)	10237 (330-92000)	208 (142-250)	0.51 (0.22-1.34)	0.045 (0.006-0.112)	117 (82-148)	75 (40-100)	13.5 (6.9-34.3)	7.91 (4.6-16.41)	0.305 (0.190-0.390)
<b>* Class 'C'</b>		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
<b>* Class 'E'</b>		-	-	-	-	-	-	-	2250	26	2.0	2100	-	600	1000	-

**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)

**(A) Contd..**

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO <sub>3</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3-</sup> -P	Cr(VI)	T. Cr	Fe	Ni <sup>#</sup>	Cu <sup>#</sup>	Zn <sup>#</sup>	Cd <sup>#</sup>	Hg	Pb <sup>#</sup>
		(mg/l)		(mg/l)								
<b>Ib River</b>												
1.	Sundargarh	2.328 (0.372-10.620)	0.058 (0.010-0.156)	0.015 (<0.002-0.040)	0.035 (0.005-0.0141)	1.118 (0.015-6.197)	0.003 (0.003-0.004)	0.018 (0.017-0.019)	0.006 (0.004-0.008)	0.0004 (0.0004-0.0004)	0.00017 (<0.00006-0.00057)	0.001 (0.001-0.002)
2.	Jharsuguda	1.700 (0.554-4.834)	0.075 (0.017-0.119)	0.009 (<0.002-0.031)	0.024 (0.003-0.065)	0.982 (0.041-6.426)	0.003 (0.001-0.005)	0.024 (0.022-0.026)	0.008 (0.008-0.009)	0.0008 (0.0008-0.0009)	0.00019 (<0.00006-0.00095)	0.004 (0.003-0.005)
3.	Brajraj nagar U/s	1.630 (0.602-2.989)	0.053 (0.002-0.140)	0.010 (<0.002-0.035)	0.025 (0.007-0.050)	1.157 (0.010-7.344)	0.003 (0.002-0.004)	0.016 (0.016-0.017)	0.030 (0.026-0.034)	0.0010 (0.0008-0.0013)	0.00018 (<0.00006-0.00057)	0.007 (0.007-0.008)
4.	Brajraj nagar D/s	2.368 (0.545-4.857)	0.080 (0.006-0.165)	0.009 (<0.002-0.031)	0.035 (0.006-0.102)	0.769 (0.005-4.029)	0.009 (0.008-0.009)	0.017 (0.016-0.018)	0.038 (0.038-0.038)	0.0008 (0.0008-0.0009)	0.00019 (<0.00006-0.00057)	0.004 (<0.001-0.008)
<b>Bheden River</b>												
5.	Jharsuguda	2.337 (0.430-4.832)	0.085 (0.015-0.408)	0.010 (<0.002-0.031)	0.029 (0.007-0.060)	1.863 (0.229-5.447)	0.026 (0.025-0.027)	0.019 (0.018-0.019)	0.048 (0.043-0.052)	0.0020 (0.0012-0.0028)	0.00031 (<0.00006-0.00095)	0.020 (0.018-0.022)
<b>Hirakud Reservoir</b>												
6.	Hirakud reservoir	2.354 (1.107-6.482)	0.071 (0.013-0.373)	0.009 (<0.002-0.018)	0.040 (0.005-0.089)	0.492 (0.005-1.856)	0.012 (0.011-0.012)	0.009 (0.008-0.009)	0.005 (0.002-0.008)	0.0009 (0.0008-0.0009)	0.00012 (<0.00006-0.00051)	0.005 (0.003-0.008)
<b>Power channel</b>												
7.	Power channel U/s	1.956 (0.318-6.743)	0.094 (0.003-0.361)	0.010 (<0.002-0.030)	0.038 (0.005-0.187)	0.691 (<0.005-3.713)	0.009 (0.007-0.012)	0.009 (0.009-0.010)	0.006 (0.006-0.006)	0.0008 (0.0008-0.0008)	0.00011 (<0.00006-0.00032)	0.007 (0.006-0.007)
8.	Power Channel D/s	2.969 (1.377-7.901)	0.117 (0.014-0.570)	0.009 (<0.002-0.046)	0.054 (0.006-0.334)	0.666 (0.020-3.167)	0.008 (<0.001-0.016)	0.008 (<0.001-0.015)	0.008 (0.008-0.008)	0.0005 (<0.0001-0.0009)	0.00025 (<0.00006-0.00095)	0.005 (<0.001-0.009)

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO <sub>3</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3-</sup> -P	Cr(VI)	T. Cr	Fe	Ni <sup>#</sup>	Cu <sup>#</sup>	Zn <sup>#</sup>	Cd <sup>#</sup>	Hg	Pb <sup>#</sup>
		(mg/l)		(mg/l)								
<b>Mahanadi River</b>												
9.	Sambalpur U/s	2.077 (0.943-3.499)	0.054 (0.006-0.110)	0.010 (<0.002-0.041)	0.024 (0.010-0.048)	1.210 (0.005-5.712)	0.011 (0.010-0.011)	0.009 (0.008-0.011)	0.007 (0.007-0.008)	0.0008 (0.0008-0.0008)	0.00019 (<0.00006-0.00089)	0.007 (0.007-0.008)
10.	Sambalpur D/s	2.699 (0.609-7.790)	0.122 (0.015-0.456)	0.010 (<0.002-0.046)	0.024 (0.005-0.070)	0.587 (0.010-2.728)	0.011 (0.007-0.015)	0.019 (0.014-0.024)	0.015 (0.012-0.018)	0.0008 (0.0006-0.0009)	0.00042 (<0.00006-0.00159)	0.009 (0.007-0.011)
11.	Sambalpur FD/s at Shankarmath	3.418 (0.611-11.111)	0.060 (0.011-0.143)	0.011 (0.002-0.025)	0.037 (0.013-0.099)	0.668 (0.005-1.744)	0.015 (0.012-0.018)	0.016 (0.013-0.018)	0.008 (0.008-0.008)	0.0008 (0.0007-0.0009)	0.00023 (<0.00006-0.00102)	0.009 (0.009-0.009)
12.	Sambalpur FD/s at Huma	1.750 (0.639-3.246)	0.058 (0.009-0.188)	0.010 (<0.002-0.028)	0.032 (0.007-0.092)	0.771 (0.010-2.764)	0.013 (0.012-0.014)	0.014 (0.011-0.017)	0.008 (0.008-0.008)	0.0011 (0.0007-0.0015)	0.00017 (<0.00006-0.00057)	0.006 (0.004-0.008)
13.	Sonepur U/s	1.735 (0.633-4.783)	0.104 (0.018-0.344)	0.011 (<0.002-0.028)	0.034 (0.008-0.109)	0.417 (0.020-0.938)	0.014 (0.014-0.015)	0.008 (0.008-0.009)	0.001 (0.001-0.001)	0.0007 (0.0007-0.0008)	0.00024 (<0.00006-0.00076)	0.007 (0.006-0.008)
14.	Sonepur D/s	2.565 (0.731-8.459)	0.094 (0.029-0.317)	0.009 (<0.002-0.025)	0.020 (0.005-0.032)	0.476 (0.036-1.220)	0.013 (0.011-0.015)	0.008 (0.007-0.008)	0.001 (0.001-0.001)	0.0009 (0.0008-0.0009)	0.00027 (<0.00006-0.00083)	0.008 (0.007-0.010)
15.	Tikarapada	1.948 (0.478-5.663)	0.176 (0.009-0.693)	0.010 (<0.002-0.027)	0.035 (0.017-0.076)	1.438 (0.036-5.460)	0.010 (0.008-0.012)	0.007 (0.006-0.008)	0.001 (0.001-0.001)	0.0009 (0.0008-0.0011)	0.00014 (<0.00006-0.00070)	0.004 (0.003-0.005)
16.	Narasinghpur	2.363 (0.607-7.463)	0.091 (0.022-0.358)	0.015 (<0.002-0.031)	0.038 (0.012-0.072)	2.104 (0.040-9.231)	0.010 (0.008-0.012)	0.004 (0.002-0.005)	0.002 (0.002-0.002)	0.0009 (0.0007-0.0010)	0.00027 (<0.00006-0.00108)	0.004 (0.002-0.005)
17.	Munduli	2.281 (0.485-5.704)	0.159 (0.021-0.840)	0.011 (<0.002-0.026)	0.034 (0.003-0.061)	1.872 (0.010-6.018)	0.012 (0.011-0.013)	0.002 (0.001-0.002)	0.002 (0.002-0.002)	0.0010 (0.0006-0.0014)	0.00019 (<0.00006-0.00051)	0.008 (0.007-0.009)
18.	Cuttack U/s	1.921 (0.206-7.396)	0.118 (0.008-0.679)	0.010 (<0.002-0.023)	0.029 (0.003-0.085)	2.317 (0.064-9.614)	0.015 (0.006-0.024)	0.006 (0.005-0.006)	0.004 (0.004-0.004)	0.0007 (0.0004-0.0010)	0.00019 (<0.00006-0.00070)	0.007 (0.005-0.009)

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO <sub>3</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3-</sup> -P	Cr(VI)	T. Cr	Fe	Ni <sup>#</sup>	Cu <sup>#</sup>	Zn <sup>#</sup>	Cd <sup>#</sup>	Hg	Pb <sup>#</sup>
		(mg/l)		(mg/l)								
19.	Cuttack D/s	3.174 (0.642-9.442)	0.094 (0.009-0.317)	0.010 (<0.002-0.033)	0.025 (<0.002-0.055)	2.267 (0.010-10.557)	0.012 (0.007-0.017)	0.006 (0.003-0.008)	0.006 (0.006-0.006)0	0.0032 (0.0005-0.0059)	0.00027 (<0.00006-0.00095)	0.006 (0.004-0.009)
20.	Cuttack FD/s	2.317 (0.890-9.152)	0.042 (0.016-0.109)	0.016 (<0.002-0.056)	0.032 (0.003-0.116)	2.125 (0.082-8.721)	0.011 (0.007-0.015)	0.009 (0.009-0.009)	0.004 (0.004-0.004)	0.0008 (0.0006-0.0010)	0.00025 (<0.00006-0.00101)	0.008 (0.005-0.010)
21.	Paradeep U/s	4.150 (0.611-14.902)	0.072 (0.006-0.325)	0.015 (0.010-0.031)	0.042 (0.026-0.122)	2.713 (<0.005-9.384)	0.022 (0.021-0.023)	0.007 (0.004-0.011)	0.012 (0.012-0.012)	0.0016 (0.0008-0.0023)	0.00043 (<0.00006-0.00229)	0.008 (0.007-0.008)
22.	Paradeep D/s	5.753 (1.603-21.691)	0.161 (0.006-0.599)	0.017 (<0.002-0.060)	0.045 (0.011-0.083)	2.854 (<0.005-9.996)	0.011 (0.009-0.012)	0.007 (0.002-0.012)	0.026 (0.026-0.026)	0.0005 (0.0004-0.0006)	0.00054 (<0.00006-0.00305)	0.004 (0.004-0.005)
<b>Tel River</b>												
23.	Monmunda	2.165 (0.469-9.468)	0.073 (0.029-0.138)	0.011 (<0.002-0.036)	0.049 (0.007-0.212)	2.070 (0.260-6.430)	0.010 (0.009-0.011)	0.006 (0.006-0.007)	0.002 (0.002-0.002)	0.0006 (0.0005-0.0006)	0.00016 (<0.00006-0.00051)	0.008 (0.008-0.008)
<b>Kathajodi River</b>												
24.	Cuttack U/s	2.929 (0.226-7.465)	0.035 (0.012-0.073)	0.012 (<0.002-0.023)	0.035 (0.006-0.075)	3.147 (0.087-9.155)	0.011 (0.002-0.020)	0.005 (0.004-0.007)	0.008 (0.007-0.009)	0.0007 (0.0006-0.0007)	0.00036 (<0.00006-0.00120)	0.004 (0.002-0.007)
25.	Cuttack D/s	8.424 (0.851-44.852)	0.116 (0.006-0.833)	0.018 (<0.002-0.050)	0.057 (0.003-0.121)	3.023 (0.230-8.339)	0.013 (0.013-0.014)	0.007 (0.006-0.009)	0.015 (0.007-0.024)	0.0011 (0.0008-0.0014)	0.00050 (<0.00006-0.00101)	0.010 (0.006-0.014)
26.	Mattagajpur (Cuttack FD/s)	10.699 (2.167-22.909)	0.183 (0.017-0.910)	0.015 (<0.002-0.035)	0.044 (<0.002-0.145)	3.001 (0.301-8.874)	0.009 (0.006-0.013)	0.017 (0.005-0.029)	0.030 (0.003-0.056)	0.0011 (0.0010-0.0012)	0.00033 (<0.00006-0.00095)	0.008 (0.005-0.011)
<b>Serua River</b>												
27.	Sankhatrasa (Cuttack FD/s)	4.223 (0.859-13.215)	0.096 (0.025-0.350)	0.015 (<0.002-0.061)	0.042 (<0.002-0.148)	1.844 (0.041-8.874)	0.012 (0.007-0.017)	0.004 (0.004-0.005)	0.014 (0.004-0.024)	0.0007 (0.0005-0.0009)	0.00030 (<0.00006-0.00070)	0.010 (0.004-0.015)

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO <sub>3</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3-</sup> -P	Cr(VI)	T. Cr	Fe	Ni <sup>#</sup>	Cu <sup>#</sup>	Zn <sup>#</sup>	Cd <sup>#</sup>	Hg	Pb <sup>#</sup>
		(mg/l)		(mg/l)								
<b>Kuakhai River</b>												
28.	Bhubaneswar FU/s	1.695 (0.430-7.763)	0.261 (0.007-1.950)	0.010 (<0.002-0.028)	0.042 (0.012-0.081)	1.063 (0.030-7.216)	0.012 (0.011-0.013)	0.011 (0.006-0.016)	0.009 (0.009-0.009)	0.0010 (0.0008-0.0013)	0.00029 (<0.00006-0.00108)	0.008 (0.007-0.008)
29.	Bhubaneswar U/s	3.780 (0.233-11.501)	0.093 (0.013-0.227)	0.014 (0.003-0.040)	0.042 (0.005-0.128)	2.388 (0.010-10.532)	0.009 (0.006-0.012)	0.010 (0.008-0.012)	0.002 (0.002-0.002)	0.0008 (0.0008-0.0008)	0.00020 (<0.00006-0.00051)	0.006 (0.003-0.008)
<b>Daya River</b>												
30.	Bhubaneswar D/s	10.955 (0.080-27.010)	0.212 (0.002-0.733)	0.016 (<0.002-0.042)	0.053 (0.013-0.130)	2.115 (0.077-9.793)	0.013 (0.007-0.018)	0.012 (0.011-0.014)	0.009 (0.009-0.009)	0.0009 (0.0009-0.0009)	0.00014 (<0.00006-0.00051)	0.008 (<0.001-0.015)
31.	Bhubaneswar FD/s	12.835 (0.616-25.256)	0.227 (0.006-0.665)	0.016 (<0.002-0.030)	0.040 (0.018-0.083)	2.460 (0.199-8.313)	0.011 (0.011-0.011)	0.009 (0.008-0.011)	0.009 (0.009-0.009)	0.0010 (0.0008-0.0013)	0.00016 (<0.00006-0.00051)	0.005 (0.003-0.006)
<b>Birupa River</b>												
32.	Choudwar D/s	3.225 (0.531-11.519)	0.139 (0.013-0.781)	0.017 (<0.002-0.050)	0.034 (0.010-0.073)	1.750 (<0.005-8.389)	0.024 (0.022-0.027)	0.002 (0.001-0.004)	0.012 (0.012-0.012)	0.0015 (0.0009-0.0022)	0.00021 (<0.00006-0.00044)	0.006 (0.004-0.008)
<b>*Class 'C'</b>		50	-	0.05	-	50	-	1.5	15.0	0.01	-	0.10
<b>*Class 'E'</b>		-	-	-	-	-	-	-	-	-	-	-

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 February and March, 2014



**(B) Brahmani River System**

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH <sub>4</sub> -N	Free NH <sub>3</sub> -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO <sub>4</sub>	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
<b>Sankh river</b>																
1.	Sankha U/s	77 (8-557)	49 (24-72)	9.1 (3.9-13.6)	0.163 (0.056-0.28)	0.007 (0.001-0.015)	1.30 (0.84-0.68)	2071 (78-13000)	150 (114-198)	0.37 (0.24-0.47)	0.027 (0.003-0.064)	86 (68-115)	32 (16-56)	8.8 (5.9-11.7)	8.02 (3.23-15.67)	0.272 (0.145-0.355)
<b>Koel river</b>																
2.	Koel U/s	132 (8-948)	70 (24-104)	8.7 (3.8-12.1)	0.122 (0.056-0.224)	0.0006 (0.001-0.016)	1.12 (0.56-1.96)	5279 (130-35000)	209 (130-384)	0.37 (0.20-0.49)	0.030 (0.003-0.048)	120 (75-216)	68 (24-96)	9.9 (4.9-13.7)	6.87 (3.1-13.18)	0.291 (0.166-0.421)
<b>Brahmani river</b>																
3.	Panposh U/s	30 (5-83)	53 (36-88)	10.5 (3.8-18.7)	0.127 (0.056-0.336)	0.006 (0.001-0.027)	1.30 (0.84-1.96)	3636 (790-13000)	157 (131-194)	0.41 (0.27-0.86)	0.036 (0.003-0.147)	89 (76-112)	50 (28-68)	10.1 (6.9-20.6)	7.98 (1.99-15.44)	0.296 (0.184-0.684)
4.	Panposh D/s	154 (23-1035)	70 (28-106)	36.0 (23.1-53.1)	4.373 (0.112-21.56)	0.121 (0.001-0.412)	7.46 (1.12-27.44)	17764 (7000-35000)	295 (166-415)	0.76 (0.24-1.21)	0.051 (0.006-0.112)	175 (98-240)	96 (52-136)	20.7 (6.8-33.3)	38.10 (23.01-81.83)	1.123 (0.210-1.320)
5.	Rourkela D/s	131 (15-761)	68 (48-88)	31.2 (19.3-45.3)	1.563 (0.112-6.944)	0.029 (0.0001-0.077)	3.79 (1.12-13.72)	26727 (7000-92000)	260 (80-327)	0.63 (0.28-1.20)	0.054 (0.012-0.092)	151 (110-196)	86 (64-110)	17.6 (7.8-35.2)	23.94 (13.43-34.00)	0.885 (0.218-2.150)
6.	Biritola	96 (10-722)	66 (44-96)	24.0 (11.5-42.2)	0.158 (0.056-0.280)	0.008 (0.004-0.014)	1.35 (0.84-1.68)	4217 (230-11000)	193 (126-234)	0.43 (0.26-0.66)	0.040 (0.003-0.096)	111 (72-130)	65 (30-86)	11.4 (5.9-16.6)	12.00 (8.08-24.62)	0.398 (0.190-0.751)
7.	Attaghat	117 (8-885)	65 (28-90)	19.8 (11.5-27.7)	0.163 (0.112-0.336)	0.008 (0-0.028)	1.30 (0.84-1.68)	3655 (130-16000)	182 (122-246)	0.42 (0.23-0.63)	0.029 (0.003-0.080)	106 (76-140)	63 (32-88)	10.8 (5.9-15.7)	11.50 (6.72-21.38)	0.378 (0.188-0.731)
8.	Bonaigarh	109 (5-891)	61 (32-84)	10.9 (3.3-23.4)	0.137 (0.112-0.224)	0.006 (0-0.014)	1.32 (0.56-1.68)	5769 (45-24000)	197 (132-254)	0.56 (0.29-1.15)	0.041 (0.003-0.077)	113 (78-140)	62 (36-84)	13.9 (5.9-28.4)	11.60 (5.22-17.91)	0.400 (0.212-0.651)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH <sub>4</sub> -N	Free NH <sub>3</sub> -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO <sub>4</sub>	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
9.	Rengali	25 (6-64)	50 (36-76)	9.0 (3.9-13.6)	0.097 (0.056-0.168)	0.005 (0.001-0.014)	1.15 (0.28-1.68)	8688 (20-3500)	147 (110-208)	0.42 (0.20-0.70)	0.048 (0.003-0.124)	85 (64-116)	48 (38-70)	10.1 (3.9-18.6)	6.16 (2.23-11.06)	0.290 (0.196-0.673)
10.	Samal	28 (3-85)	53 (36-82)	10.1 (4.9-19.4)	0.132 (0.056-0.280)	0.004 (0-0.011)	1.22 (1.12-1.068)	2238 (45-5400)	161 (134-214)	0.37 (0.27-0.52)	0.063 (0.003-0.136)	91 (74-118)	51 (34-76)	9.3 (6.9-12.7)	8.84 (3.10-13.80)	0.280 (0.221-0.332)
11.	Talcher FU/s	32 (3-76)	52 (40-72)	7.5 (3.7-14.6)	0.122 (0.056-0.168)	0.005 (0.003-0.009)	1.15 (0.56-1.40)	838 (110-3500)	148 (123-180)	0.36 (0.23-0.68)	0.041 (0.003-0.073)	85 (72-100)	46 (30-60)	8.7 (5.9-17.6)	7.52 (2.86-13.95)	0.265 (0.192-0.33)
12.	Talcher U/s	36 (3-73)	52 (44-68)	9.2 (4.9-16.3)	0.127 (0.056-0.224)	0.007 (0.004-0.018)	1.25 (0.28-1.68)	7330 (230-35000)	154 (123-190)	0.34 (0.23-0.49)	0.060 (0.006-0.150)	87 (72-105)	48 (40-60)	8.4 (5.9-11.7)	8.05 (1.74-17.16)	0.328 (0.235-0.920)
13.	Talcher D/s	36 (4-78)	59 (44-80)	13.6 (5.6-24.0)	0.137 (0.056-0.224)	0.008 (0.003-0.028)	1.22 (0.28-1.68)	5515 (490-14000)	172 (129-221)	0.40 (0.31-0.51)	0.063 (0.019-0.115)	101 (79-132)	59 (46-94)	9.8 (7.8-12.7)	10.44 (3.73-19.65)	0.417 (0.237-1.36)
14.	Talcher FD/s	39 (4-85)	61 (46-80)	10.4 (3.7-18.0)	0.148 (0.056-0.280)	0.009 (0.001-0.022)	1.27 (0.28-2.24)	1946 (78-7000)	176 (133-226)	0.41 (0.31-0.56)	0.063 (0.003-0.118)	99 (76-128)	62 (48-98)	10.5 (7.8-14.67)	9.56 (3.85-14.42)	0.435 (0.234-1.260)
15.	Dhenkanal U/s	25 (6-72)	57 (44-88)	10.3 (5.4-14.9)	0.117 (0.056-0.280)	0.007 (0-0.037)	1.09(0.56-1.40)	38494 (450-92000)	185 (128-402)	0.42 (0.28-0.74)	0.077(0.003-0.353)	108 (76-250)	63 (44-164)	10.9 (6.9-23.5)	15.28 (3.36-81.93)	0.364 (0.162-1.42)
16.	Dhenkanal D/s	35 (2-95)	69 (44-92)	14.6 (7.7-21.9)	0.102 (0.056-0.168)	0.008 (0.002-0.037)	1.12 (0.28-1.68)	21364 (5300-54000)	217 (134-502)	0.64 (0.34-2.15)	0.098 (0.009-0.221)	127 (80-308)	73 (44-154)	17.2 (8.81-65.56)	13.73 (3.73-71.51)	0.395 (0.194-1.700)
17.	Bhuban	73 (6-73)	54 (44-72)	7.5 (4.9-9.5)	0.137 (0.056-0.224)	0.011 (0.004-0.028)	1.20 (0.56-1.96)	1325 (78-4900)	154 (122-201)	0.33 (0.27-0.39)	0.067 (0.006-0.190)	87 (66-108)	54 (44-74)	8.4 (6.8-9.8)	7.49 (2.61-14.37)	0.268 (0.175-0.405)
18.	Kabatabandha	37 (6-114)	55 (40-80)	8.8 (3.7-18.6)	0.137 (0.112-0.168)	0.009 (0.005-0.021)	1.17 (0.28-1.96)	2058 (78-7900)	163 (126-248)	0.39 (0.27-0.70)	0.082 (0.003-0.186)	94 (76-135)	55 (44-82)	9.2 (7.8-12.7)	9.80 (2.11-18.9)	0.277 (0.197-0.415)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents								
		Annual Average values (Range of values)															
		TSS	Total alkalinity	COD	NH <sub>4</sub> -N	Free NH <sub>3</sub> -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO <sub>4</sub>	F	
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)							
19.	Dharmasala	22 (6-44)	64 (44-96)	11.3 (8.1-19.7)	0.193 (0.056-1.064)	0.016 (0.001-0.104)	1.27 (0.28-2.24)	7853 (490-54000)	184 (130-249)	0.43 (0.34-0.56)	0.076 (0.003-0.168)	105 (82-140)	61 (42-90)	11.5 (8.8-15.7)	6.66 (3.10-12.31)	0.287 (0.175-0.358)	
20.	Pottamundai	26 (4-77)	67 (44-94)	16.5 (6.0-52.5)	0.122 (0.056-0.224)	0.005 (0.001-0.011)	0.99(0.28-1.68)	2642 (230-9200)	195 (140-241)	0.51 (0.33-0.65)	0.103 (0.006-0.606)	112 (77-130)	67 (52-88)	12.9 (7.8-16.6)	8.17 (3.6-15.67)	0.290 (0.213-0.400)	
<b>Nandira River</b>																	
21.	Nandira river before confluence with river Brahmani	71 (4-293)	118 (48-152)	17.6 (9.3-36.0)	0.127 (0.056-0.224)	0.015 (0.003-0.035)	1.25 (0.56-1.96)	10265 (140-35000)	390 (138-495)	0.66 (0.31-0.95)	0.117 (0.044-0.256)	223 (87-292)	142 (52-210)	21.6 (7.8-27.4)	39.20 (5.22-75.12)	1.565 (0.252-2.940)	
<b>Kisinda Jhor</b>																	
22.	Kisindajhor	26 (5-92)	122 (64-198)	14.0 (8.2-26.0)	0.158 (0.056-0.224)	0.016 (0.002-0.037)	1.45 (0.56-1.96)	8643 (490-24000)	459 (147-704)	1.11 (0.40-1.67)	0.147 (0.051-0.211)	264 (98-380)	148 (62-210)	36.9 (10.8-61.6)	45.14 (5.72-65.04)	2.208 (0.254-3.920)	
<b>Kharasrota River</b>																	
23.	Khanditara	31 (8-68)	55 (44-76)	8.6 (5.1-18.7)	0.132 (0.112-0.224)	0.009 (0.006-0.015)	1.20 (0.56-1.68)	1166 (130-3300)	164 (135-198)	0.42 (0.33-0.68)	0.073 (0.003-0.117)	94 (80-115)	56 (44-76)	10.1 (7.8-16.6)	8.24 (2.61-15.54)	0.280 (0.198-0.342)	
24.	Binjharapur	34 (8-76)	63 (46-82)	6.7 (3.8-9.7)	0.127 (0.112-0.224)	0.006 (0.003-0.009)	1.17 (0.28-1.96)	2076 (490-9200)	172 (132-212)	0.40 (0.28-0.53)	0.091 (0.006-0.173)	101 (78-122)	57 (44-84)	9.7 (7.8-11.8)	6.55 (3.23-11.56)	0.257 (0.136-0.310)	
25.	Aul	44 (12-108)	70 (40-200)	10.7 (6.5-17.7)	0.127 (0.056-0.168)	0.005 (0.001-0.011)	1.04 (0.28-1.68)	11383 (330-54000)	252 (138-954)	0.90 (0.28-4.48)	0.052 (0.003-0.173)	151 (79-612)	56 (44-74)	28.1 (7.8-171.2)	15.03 (3.48-71.14)	0.288 (0.218-0.56)	
<b>*Class 'C'</b>		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5	
<b>*Class 'E'</b>		-	-	-	-	-	-	-	2250	26	2.0	2100	-	600	1000	-	

**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)**

**(B) Contd..**

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		NO <sub>3</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3--</sup> P	Cr(VI)	T. Cr	Fe	Ni <sup>#</sup>	Cu <sup>#</sup>	Zn <sup>#</sup>	Cd <sup>#</sup>	Hg	Pb <sup>#</sup>
		(mg/l)		(mg/l)								
<b>Sankha River</b>												
1.	Sankha U/s	2.610 (0.071-15.500)	0.284 (0.005-2.220)	0.022 (0.002-0.066)	0.068 (0.005-0.168)	2.781 (0.030-9.560)	0.009 (0.008-0.009)	0.003 (0.002-0.003)	0.005 (0.002-0.008)	0.0011 (0.0008-0.0014)	0.00019 (<0.00006-0.00083)	0.011 (0.008-0.014)
<b>Koel River</b>												
2.	Koel U/s	2.771 (0.660-13.658)	0.138 (0.022-0.923)	0.021 (<0.002-0.053)	0.048 (0.080-0.108)	1.853 (<0.005-8.262)	0.008 (0.007-0.008)	0.019 (0.019-0.020)	0.006 (0.001-0.012)	0.0011 (0.0009-0.0011)	0.00012 (<0.00006-0.00032)	0.006 (0.003-0.009)
<b>Brahmani river</b>												
3.	Panposh U/s	3.267 (0.893-20.540)	0.108 (0.017-0.310)	0.019 (<0.002-0.048)	0.061 (0.018-0.111)	2.418 (0.030-8.645)	0.012 (0.011-0.013)	0.007 (0.005-0.008)	0.030 (0.024-0.036)	0.0010 (0.0009-0.0012)	0.00023 (<0.00006-0.00083)	0.007 (0.006-0.008)
4.	Panposh D/s	18.273 (3534-35.329)	0.140 (0.006-0.717)	0.019 (<0.002-0.035)	0.043 (0.025-0.077)	4.251 (0.066-12.572)	0.020 (0.016-0.025)	0.011 (0.010-0.012)	0.172 (0.164-0.180)	0.0010 (0.0007-0.0013)	0.00038 (<0.00006-0.00076)	0.007 (0.002-0.012)
5.	Rourkela D/s	13.851 (1.333-32.126)	0.217 (0.014-1.765)	0.018 (<0.002-0.038)	0.043 (0.028-0.056)	4.240 (0.570-10.302)	0.016(0.016-0.016)	0.016 (0.015-0.018)	0.035 (0.021-0.048)	0.0009 (0.0006-0.0011)	0.00025 (<0.00006-0.00063)	0.009 (0.005-0.012)
6.	Biritola	5.826 (2.870-13.844)	0.182 (0.005-1.231)	0.021 (<0.002-0.058)	0.080 (0.008-0.255)	2.883 (0.020-10.736)	0.011 (0.011-0.012)	0.016 (0.015-0.017)	0.027 (0.018-0.036)	0.0006 (0.0002-0.0011)	0.00010 (<0.00006-0.00032)	0.006 (0.005-0.008)
7.	Attaghat	5.689 (0.655-15.372)	0.152 (0.022-1.025)	0.018 (0.003-0.038)	0.052 (0.030-0.083)	2.797 (0.015-11.858)	0.011 (0.011-0.012)	0.013 (0.013-0.014)	0.025 (0.016-0.034)	0.0007 (0.0006-0.0009)	0.00030 (<0.00006-0.00095)	0.004 (0.001-0.008)
8.	Bonaigarh	6.846 (3.470-15.566)	0.234 (0.006-1.036)	0.021 (<0.002-0.058)	0.047 (0.010-0.119)	1.592 (0.030-9.869)	0.010 (0.008-0.013)	0.006 (0.003-0.008)	0.007 (0.002-0.012)	0.0010 (0.0007-0.0013)	0.00027 (<0.00006-0.00089)	0.007 (0.006-0.009)

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		NO <sub>3</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3--P</sup>	Cr(VI)	T. Cr	Fe	Ni#	Cu#	Zn#	Cd#	Hg	Pb#
		(mg/l)		(mg/l)								
9.	Rengali	3.868 (0.673-9.947)	0.367 (0.007-0.959)	0.019 (<0.002-0.041)	0.042 (0.005-0.065)	1.254 (0.030-5.020)	0.006 (0.004-0.008)	0.005 (0.003-0.008)	0.008 (0.001-0.014)	0.0007 (0.0004-0.0011)	0.00013 (<0.00006-0.00032)	0.008 (0.005-0.011)
10.	Samal	3.930 (1.262-9.021)	0.087 (0.018-0.192)	0.026 (<0.002-0.053)	0.096 (0.022-0.534)	1.200 (0.076-7.013)	0.009 (0.009-0.010)	0.004 (0.002-0.007)	0.006 (0.001-0.011)	0.0007 (0.0004-0.0011)	0.00025 (<0.00006-0.00089)	0.011 (0.011-0.011)
11.	Talcher FU/s	2.465 (0.611-7.577)	0.246 (0.011-2.287)	0.017 (<0.002-0.043)	0.059 (0.003-0.267)	1.351 (0.005-4.743)	0.016 (0.016-0.017)	0.005 (0.005-0.006)	0.007 (0.006-0.009)	0.0011 (0.0011-0.0012)	0.00008 (<0.00006-0.00032)	0.027 (0.009-0.044)
12.	Talcher U/s	3.533 (0.485-10.177)	0.144 (0.015-1.053)	0.025 (<0.002-0.073)	0.054 (0.010-0.106)	1.946 (0.005-5.993)	0.015 (0.012-0.017)	0.004 (0.002-0.006)	0.007 (0.002-0.012)	0.0008 (0.0004-0.0012)	0.00011 (<0.00006-0.00025)	0.010 (0.007-0.012)
13.	Talcher D/s	3.745 (0.424-8.937)	0.058 (0.009-0.319)	0.017 (<0.002-0.058)	0.056 (0.007-0.131)	1.468 (0.041-5.646)	0.016 (0.010-0.022)	0.007 (0.003-0.012)	0.016 (0.013-0.018)	0.0009 (0.0004-0.0014)	0.00022 (<0.00006-0.00083)	0.018 (0.012-0.024)
14.	Talcher FD/s	2.664 (0.854-6.395)	0.238 (0.009-1.210)	0.007 (<0.002-0.035)	0.038 (0.003-0.105)	1.853 (<0.005-8.262)	0.020 (0.019-0.020)	0.008 (0.003-0.014)	0.012 (0.011-0.014)	0.0011 (0.0010-0.0011)	0.00025 (<0.00006-0.00083)	0.010 (0.009-0.012)
15.	Dhenkanal U/s	2.257 (0.350-7.484)	0.063 (0.008-0.146)	0.008 (<0.002-0.035)	0.036 (0.016-0.067)	1.372 (0.005-4.710)	0.008 (0.006-0.011)	0.005 (0.004-0.005)	0.005 (0.001-0.008)	0.0008 (0.0008-0.0009)	0.00023 (<0.00006-0.00095)	0.004 (0.001-0.008)
16.	Dhenkanal D/s	1.809 (0.600-3.937)	0.072 (0.009-0.234)	0.010 (<0.002-0.031)	0.035 (0.013-0.073)	1.884 (0.056-6.680)	0.016 (0.016-0.016)	0.007 (0.006-0.007)	0.014 (0.012-0.017)	0.0011 (0.0011-0.0012)	0.00019 (<0.00006-0.00044)	0.011 (0.006-0.016)
17.	Bhuban	1.493 (0.633-3.530)	0.082 (0.030-0.175)	0.020 (<0.002-0.043)	0.037 (0.018-0.051)	1.566 (0.025-6.579)	0.014 (0.012-0.016)	0.006 (0.005-0.007)	0.025(0.022-0.027)	0.0011 (0.0010-0.0011)	0.00015 (<0.00006-0.00051)	0.013 (0.011-0.016)
18.	Kabatabandha	2.114 (0.709-5.026)	0.118 (0.008-0.529)	0.015 (<0.002-0.031)	0.036 (0.010-0.112)	1.243(0.061-3.770)	0.011 (0.009-0.014)	0.012 (0.009-0.015)	0.022 (0.021-0.022)	0.0016 (0.0014-0.0018)	0.00012 (<0.00006-0.00044)	0.008 (0.006-0.009)

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		NO <sub>3</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3-</sup> -P	Cr(VI)	T. Cr	Fe	Ni <sup>#</sup>	Cu <sup>#</sup>	Zn <sup>#</sup>	Cd <sup>#</sup>	Hg	Pb <sup>#</sup>
		(mg/l)		(mg/l)								
19.	Dharmasala U/s	1.581 (0.133-3.286)	0.080 (0.011-0.150)	0.017 (<0.002-0.046)	0.038 (0.008-0.068)	1.653 (0.060-5.666)	0.014 (0.011-0.017)	0.004 (0.003-0.004)	0.005 (0.003-0.008)	0.0011 (0.0009-0.0012)	0.00012 (<0.00006-0.00038)	0.008 (0.008-0.008)
20.	Dharmasala D/s	3.073 (0.071-9.110)	0.053 (0.023-0.097)	0.012 (<0.002-0.033)	0.058 (0.015-0.292)	1.668 (0.138-7.579)	0.010 (0.006-0.014)	0.004 (0.002-0.005)	0.006 (0.001-0.011)	0.0010 (0.0008-0.0012)	0.00019 (<0.00006-0.00070)	0.006 (0.005-0.007)
21	Pottamundai	2.556 (1.014-4.756)	0.116 (0.020-0.420)	0.008 (<0.002-0.021)	0.035 (0.002-0.080)	1.601 (0.030-5.200)	0.015 (0.011-0.019)	0.003 (0.003-0.004)	0.005 (0.002-0.008)	0.0011 (0.0008-0.0014)	0.00006 (<0.00006-0.00032)	0.011 (0.008-0.013)
<b>Nandira River</b>												
21.	Nandira river before confluence with river Brahmani	4.820 (0.944-14.543)	0.220 (0.025-1.040)	0.011 (<0.002-0.025)	0.060 (0.005-0.140)	0.947 (<0.005-2.647)	0.031 (0.017-0.045)	0.014 (0.006-0.022)	0.032 (0.020-0.045)	0.0019 (0.0018-0.0020)	0.00023 (<0.00006-0.00095)	0.028 (0.014-0.042)
<b>Kisinda Jhor</b>												
22.	Kisindajhor	3.519 (0.567-13.990)	0.321 (0.019-2.444)	0.012 (<0.002-0.033)	0.065 (0.002-0.135)	1.314 (0.046-11.322)	0.027 (0.023-0.032)	0.006 (0.005-0.008)	0.016 (0.005-0.026)	0.0021 (0.0021-0.0021)	0.00012 (<0.00006-0.00038)	0.036 (0.025-0.048)
23.	Khanditara	3.086 (0.266-6.510)	0.089 (0.025-0.224)	0.011 (<0.002-0.031)	0.062 (0.008-0.167)	2.189 (0.080-5.839)	0.012 (0.012-0.012)	0.003 (0.003-0.004)	0.006 (0.002-0.009)	0.0011 (0.0009-0.0013)	0.00030 (<0.00006-0.00108)	0.009 (0.008-0.009)
24.	Binjharpur	2.486 (0.549-7.298)	0.047 (0.008-0.091)	0.009 (<0.002-0.016)	0.049 (0.005-0.250)	1.248 (0.080-6.044)	0.012 (0.010-0.014)	0.004 (0.002-0.006)	0.007 (0.002-0.011)	0.006 (0.006-0.006)	0.00020 (<0.00006-0.00051)	0.009 (0.005-0.012)
25.	Aul	6.784 (0.806-45.548)	0.128 (0.018-0.320)	0.012 (<0.002-0.025)	0.049 (0.003-0.114)	2.275 (0.120-7.900)	0.015 (0.014-0.016)	0.029 (0.008-0.051)	0.042 (0.010-0.073)	0.0013 (0.0011-0.0014)	0.00025 (<0.00006-0.00139)	0.012 (0.009-0.014)
<b>*Class 'C'</b>		50	-	0.05	-	50	-	1.5	15.0	0.01	-	0.10
<b>* Class 'E'</b>		-	-	-	-	-	-	-	-	-	-	-

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 February and March, 2014

**(C) Baitarani river system**

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH <sub>4</sub> -N	Free NH <sub>3</sub> -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO <sub>4</sub>	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
<b>Kusei river</b>																
1.	Deogan	61 (10-210)	97 (48-144)	8.6 (3.3-17.2)	0.137 (0.112-0.224)	0.010 (0.003-0.016)	1.27 (0.56-1.68)	6426 (130-17000)	234 (148-312)	0.43 (0.31-0.63)	0.049 (0.012-0.137)	135 (84-178)	95 (44-132)	12.1 (8.2-17.6)	6.29 (2.73-10.57)	0.238 (0.152-0.335)
<b>Baitarani river</b>																
2.	Joda	14 (8-724)	54 (22-120)	8.6 (3.8-20.9)	0.127 (0.056-0.224)	0.007 (0-0.028)	1.171 (0.56-1.680)	5724 (220-35000)	148 (94-248)	0.32 (0.19-0.46)	0.066 (0.003-0.234)	85 (56-147)	47 (16-102)	8.0 (4.9-13.7)	6.41 (2.86-13.93)	0.188 (0.105-0.314)
3.	Anandpur	124 (10-864)	60 (20-96)	8.8 (1.9-15.2)	0.122 (0.056-0.224)	0.005 (0-0.011)	1.20 (0.56-1.96)	6800 (220-24000)	169 (130-264)	0.40 (0.29-0.75)	0.055 (0.016-0.109)	97 (78-140)	56 (32-100)	9.9 (7.8-15.7)	8.82 (1.24-23.25)	0.194 (0.126-0.292)
4.	Jajpur	59 (8-371)	59 (24-76)	15.5 (7.6-28.3)	0.137 (0.056-0.224)	0.009 (0.001-0.022)	1.25 (0.28-1.96)	17553 (790-54000)	176 (116-220)	0.44 (0.30-1.06)	0.094 (0.012-0.256)	102 (68-132)	59 (36-76)	11.1 (6.9-24.5)	7.54 (2.39-13.93)	0.205 (0.131-0.312)
5.	Chandbali U/s	234 (45-926)	69 (28-176)	16.9 (4.9-39.6)	0.127 (0.056-0.224)	0.004 (0.002-0.008)	1.30 (0.56-1.96)	43090 (2200-160000)	2452 (150-7669)	12.82 (0.46-40.02)	0.276 (0.010-0.632)	1725 (88-5616)	249 (44-660)	853.7 (11.7-3035.0)	86.84 (9.57-251.85)	0.248 (0.165-0.334)
6.	Chandbali D/s	260 (56-988)	71 (36-176)	23.0 (10.2-43.6)	0.122 (0.056-0.224)	0.004 (0.001-0.010)	1.35 (0.84-1.68)	42020 (2300-160000)	2795 (182-8924)	13.61 (0.41-43.37)	0.278 (0.009-0.860)	2027 (102-6536)	292 (40-920)	987.9 (10.8-3524)	100.78 (10.94-279.84)	0.240 (0.147-0.351)
<b>Salandi river</b>																
7.	Bhadrak U/s	36 (5-147)	53 (36-88)	9.3 (4.8-19.8)	0.137 (0.112-0.168)	0.005 (0-0.016)	1.27 (0.84-1.68)	11949 (790-35000)	146 (102-218)	0.53 (0.29-1.24)	0.083 (0.006-0.215)	86 (60-122)	52 (32-86)	12.8 (7.8-27.4)	4.7 (0.9-9.0)	0.186 (0.112-0.302)
8.	Bhadrak D/s	39 (12-182)	57 (20-96)	13.9 (6.5-25.7)	0.168 (0.056-0.336)	0.012 (0-0.035)	1.48 (0.84-1.96)	30728 (110-160000)	165 (110-290)	0.65 (0.34-1.54)	0.083 (0.003-0.165)	98 (68-182)	54 (30-100)	16.6 (7.8-40.8)	6.1 (2.9-10.0)	0.172 (0.103-0.288)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH <sub>4</sub> -N	Free NH <sub>3</sub> -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO <sub>4</sub>	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
<b>Dhamara river</b>																
9.	Dhamra	216 (60-651)	88 (48-196)	28.4 (8.6-62.4)	0.122 (0.056-0.280)	0.005 (0.001-0.010)	1.20 (0.84-1.68)	3156 (45-16000)	18037 (233-35200)	41.19 (1.22-83.82)	0.949 (0.080-2.779)	14190 (144-29156)	2090 (54-4700)	7494.3 (33.3-15466.8)	867.30 (17.96-1789.78)	0.483 (0.166-0.711)
<b>*Class 'C'</b>		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
<b>* Class 'E'</b>		-	-	-	-	-	-	-	2250	26	2.0	2100	-	600	1000	-

**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)**



## (C) Contd..

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO <sub>3</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3-</sup> -P	Cr(VI)	T. Cr	Fe	Ni <sup>#</sup>	Cu <sup>#</sup>	Zn <sup>#</sup>	Cd <sup>#</sup>	Hg	Pb <sup>#</sup>
		(mg/l)		(mg/l)								
<b>Kusei River</b>												
1.	Deogan	2.511 (0.556-12.055)	0.180 (0.006-1.571)	0.016 (<0.002-0.047)	0.038 (0.010-0.058)	1.978 (<0.005-9.460)	0.012 (0.014-0.012)	0.006 (0.005-0.008)	0.012 (0.011-0.012)	0.0018 (0.0016-0.0020)	0.00040 (<0.00006-0.00257)	0.011 (0.010-0.012)
<b>Baitarani river</b>												
2.	Joda	3.616 (0.226-16.474)	0.045 (0.011-0.147)	0.020 (<0.002-0.051)	0.055 (0.020-0.113)	3.699 (<0.005-11.580)	0.005 (0.001-0.008)	0.005 (0.003-0.007)	0.006 (0.003-0.008)	0.0007 (0.0005-0.0008)	0.00010 (<0.00006-0.00060)	0.013 (0.011-0.014)
3.	Anandpur	2.809 (0.128-15.496)	0.239 (0.021-1.702)	0.019 (<0.002-0.043)	0.084 (0.005-0.288)	2.644 (0.010-8.720)	0.012 (0.007-0.018)	0.007 (0.003-0.011)	0.006 (0.004-0.008)	0.0007 (0.0007-0.0008)	0.00026 (<0.00006-0.00133)	0.009 (0.008-0.009)
4.	Jajpur	3.475 (0.226-15.018)	0.071 (0.009-0.138)	0.013 (0.003-0.028)	0.048 (0.010-0.145)	2.266 (0.090-9.792)	0.014 (0.012-0.015)	0.008 (0.004-0.012)	0.004 (0.003-0.006)	0.0010 (0.0008-0.0013)	0.00026 (<0.00006-0.00102)	0.002 (0.001-0.004)
5.	Chandbali U/s	4.196 (0.385-17.125)	0.051 (0.009-0.164)	0.022 (0.003-0.067)	0.084 (0.023-0.242)	5.125 (0.051-15.606)	0.065 (0.046-0.084)	0.010 (0.009-0.011)	0.013 (0.012-0.014)	0.0034 (0.0005-0.0063)	0.00012 (<0.00006-0.00076)	0.030 (0.025-0.036)
6.	Chandbali D/s	5.418 (0.908-20.358)	0.043 (0.007-0.087)	0.018 (<0.002-0.033)	0.086 (0.021-0.202)	8.609 (0.061-15.989)	0.061 (0.042-0.080)	0.009 (0.008-0.011)	0.011 (0.010-0.012)	0.0033 (0.0005-0.0060)	0.00021 (<0.00006-0.00090)	0.033 (0.028-0.038)
<b>Salandi river</b>												
7.	Bhadrak U/s	1.605 (0.314-3.853)	0.081 (0.004-0.387)	0.011 (<0.002-0.036)	0.030 (0.006-0.057)	0.759 (0.010-4.830)	0.013 (0.011-0.015)	0.005 (0.002-0.008)	0.012 (0.012-0.012)	0.0008 (0.0008-0.0008)	0.00010 (<0.00006-0.00038)	0.006 (0.005-0.008)
8.	Bhadrak D/s	3.379 (0.700-10.248)	0.105 (0.009-0.396)	0.017 (<0.002-0.056)	0.063 (0.013-0.188)	2.215 (0.102-7.478)	0.014 (0.011-0.018)	0.028 (0.025-0.032)	0.016 (0.016-0.016)	0.0029 (0.0012-0.0046)	0.00020 (<0.00006-0.00051)	0.011 (0.009-0.012)

Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO <sub>3</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3-</sup> -P	Cr(VI)	T. Cr	Fe	Ni <sup>#</sup>	Cu <sup>#</sup>	Zn <sup>#</sup>	Cd <sup>#</sup>	Hg	Pb <sup>#</sup>
		(mg/l)		(mg/l)								
<b>Dhamara river</b>												
9.	Dhamra	3.315 (1.497-8.060)	0.058 (0.007-0.116)	0.020 (<0.002-0.043)	0.056 (0.025-0.126)	6.167 (0.464-18.003)	0.010 (0.008-0.012)	0.006 (0.006-0.011)	0.049 (0.046-0.052)	0.0008 (0.0006-0.0011)	0.00010 (<0.00006-0.00025)	0.005 (0.004-0.007)
<b>*Class 'C'</b>		50	-	0.05	-	50	-	1.5	15.0	0.01	-	0.10
<b>*Class 'E'</b>		-	-	-	-	-	-	-	-	-	-	-

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 February and March, 2014

**(D) Rushikulya river system**

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH <sub>4</sub> -N	Free NH <sub>3</sub> -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO <sub>4</sub>	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
<b>Rushikulya river</b>																
1.	Madhopur	63 (8-180)	114 (68-152)	13.5 (6.5-30.6)	0.132 (0.056-0.224)	0.009 (0-0.021)	1.22 (0.28-1.68)	1468 (45-5400)	296 (215-392)	0.65 (0.42-1.27)	0.093 (0.006-0.397)	168 (115-216)	102 (48-134)	19.6 (10.8-38.2)	9.7 (4.7-16.3)	0.271 (0.033-0.426)
2.	Potagarh	127 (8-356)	108 (92-132)	25.9 (8.6-63.3)	0.127 (0.056-0.168)	0.005 (0.003-0.009)	1.27 (0.56-1.68)	1671 (20-5400)	25034 (380-50370)	46.05 (1.48-94.45)	1.297 (0.016-3.186)	20764 (230-42856)	2756 (112-5050)	11178 (45-23875)	1203 (19.4-2711)	0.604 (0.198-1.010)
<b>Class 'C'</b>		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
<b>Class 'E'</b>		-	-	-	-	-	-	-	2250	26	2.0	2100	-	600	1000	-

Sl. No.	Sampling Location	Nutrients				Heavy metals							
		Annual Average values (Range of values)											
		Nitrate as NO <sub>3</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3-</sup> -P	Cr(VI)	T. Cr	Fe	Ni <sup>#</sup>	Cu <sup>#</sup>	Zn <sup>#</sup>	Cd <sup>#</sup>	Hg	Pb <sup>#</sup>	
		(mg/l)				(mg/l)							
<b>Rushikulya river</b>													
1.	Madhopur	3.087 (0.638-9.938)	0.066 (0.004-0.235)	0.016 (<0.002-0.045)	0.048 (0.018-0.082)	2.310 (0.127-7.956)	0.007 (0.007-0.007)	0.019 (0.016-0.021)	0.013 (0.012-0.014)	0.0030 (0.0020-0.0039)	0.00020 (<0.00006-0.00076)	0.008 (0.007-0.008)	
2.	Potagarh	4.288 (0.325-8.043)	0.163 (0.001-0.873)	0.012 (<0.002-0.030)	0.057 (0.008-0.145)	1.569 (0.117-6.400)	0.015 (0.011-0.018)	0.005 (0.003-0.008)	0.026 (0.024-0.028)	0.001 (0.0008-0.0012)	0.00020 (<0.00006-0.00051)	0.004 (0.001-0.006)	
<b>*Class 'C'</b>		50	-	0.05	-	50	-	1.5	15.0	0.01	-	0.10	
<b>*Class 'E'</b>		-	-	-	-	-	-	-	-	-	-	-	

**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 February and March, 2014

(E) Nagavali river system

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH <sub>4</sub> -N	Free NH <sub>3</sub> -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO <sub>4</sub>	F
		(mg/l)	(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)
<b>Nagavali river</b>																
1.	Penta	76 (14-304)	82 (44-108)	8.2 (4.0-13.8)	0.122 (0.112-0.224)	0.006 (0.002-0.011)	1.04 (0.28-1.68)	4884 (130-24000)	198 (130-238)	0.37 (0.25-0.51)	0.064 (0.000-0.134)	114 (78-135)	74 (44-96)	9.2 (6.9-11.7)	6.27 (0.74-10.60)	0.225 (0.147-0.361)
2.	Jaykaypur D/s	104 (20-349)	92 (48-118)	18.7 (8.0-29.5)	0.107 (0.056-0.168)	0.005 (0.001-0.021)	1.07 (0.56-1.96)	19026 (110-160000)	253 (142-342)	0.54 (0.31-0.97)	0.070 (0.006-0.131)	148 (82-196)	87 (42-116)	14.9 (7.8-27.4)	13.76 (4.47-27.74)	0.243 (0.159-0.356)
3.	Rayagada D/s	99 (12-357)	93 (54-110)	15.1 (6.6-23.6)	0.127 (0.056-0.224)	0.009 (0.002-0.021)	1.09 (0.56-1.68)	8012 (110-35000)	251 (187-327)	0.48 (0.27-0.89)	0.064 (0.003-0.118)	146 (104-186)	91 (66-108)	13.5 (7.8-22.5)	12.76 (5.26-20.40)	0.240 (0.172-0.347)
<b>Class 'C'</b>		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
<b>Class 'E'</b>		-	-	-	-	-	-	-	2250	26	2.0	2100	-	600	1000	-

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 <sub>3</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3-</sup> -P	Cr(VI)	T. Cr	Fe	Ni <sup>#</sup>	Cu <sup>#</sup>	Zn <sup>#</sup>	Cd <sup>#</sup>	Hg	Pb <sup>#</sup>
		(mg/l)		(mg/l)								
<b>Nagavali river</b>												
1.	Penta	2.790 (0.706-7.502)	0.064 (0.015-0.175)	0.015 (<0.002-0.043)	0.059 (0.012-0.123)	3.489 (0.010-8.874)	0.011 (0.011-0.012)	0.008 (0.006-0.010)	0.028 (0.024-0.032)	0.0008 (0.0006-0.00010)	0.00008 (<0.00006-0.00032)	0.007 (0.006-0.008)
2.	Jaykaypur D/s	4.664 (1.521-9.393)	0.229 (0.009-1.475)	0.015 (<0.002-0.041)	0.055 (0.036-0.114)	3.351 (0.041-10.124)	0.017 (0.015-0.018)	0.010 (0.009-0.012)	0.027 (0.026-0.028)	0.0009 (0.0009-0.0009)	0.00013 (<0.00006-0.00038)	0.011 (0.010-0.012)
3.	Rayagada D/s	3.943 (1.692-5.992)	0.185 (0.022-1.312)	0.011 (<0.002-0.040)	0.080 (0.016-0.322)	4.148 (0.036-10.379)	0.015 (0.014-0.016)	0.008 (0.008-0.009)	0.029 (0.014-0.042)	0.0007 (0.0007-0.0008)	0.00013 (<0.00006-0.00032)	0.004 (0.001-0.008)
<b>*Class 'C'</b>		50	-	0.05	-	50	-	1.5	15.0	0.01	-	0.10
<b>*Class 'E'</b>		-	-	-	-	-	-	-	-	-	-	-

**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 February and March, 2014

**(F) Subarnarekha river system**

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH <sub>4</sub> -N	Free NH <sub>3</sub> -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO <sub>4</sub>	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
<b>Subarnarekha river</b>																
1.	Rajghat	46 (6-166)	74 (44-102)	11.0 (6.5-23.8)	0.132 (0.112-0.224)	0.006 (0.003-0.014)	1.30 (0.28-2.80)	3587 (490-11000)	250 (133-320)	66 (0.28-1.09)	0.091 (0.022-0.184)	141 (78-178)	79 (40-102)	19.1 (6.9-29.4)	18.2 (10.2-28.2)	0.479 (0.233-0.652)
<b>Class 'C'</b>		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
<b>Class 'E'</b>		-	-	-	-	-	-	-	2250	26	2.0	2100	-	600	1000	-

Sl. No.	Sampling Location	Nutrients				Heavy metals							
		Annual Average values (Range of values)											
		Nitrate as NO <sub>3</sub> <sup>-</sup>		PO <sub>4</sub> <sup>3-</sup> -P	Cr(VI)	T. Cr	Fe	Ni <sup>#</sup>	Cu <sup>#</sup>	Zn <sup>#</sup>	Cd <sup>#</sup>	Hg	Pb <sup>#</sup>
		(mg/l)			(mg/l)								
<b>Subarnarekha river</b>													
1.	Rajghat	3.986 (0.476-10.965)		0.172 (0.014-1.187)	0.017 (<0.002-0.040)	0.059 (0.010-0.164)	1.470 (<0.005-7.727)	0.024 (0.022-0.027)	0.002 (0.001-0.004)	0.017 (0.016-0.018)	0.0011 (0.0009-0.0013)	0.00032 (<0.00006-0.00102)	0.005 (0.004-0.006)
<b>*Class 'C'</b>		50		-	0.05	-	50	-	1.5	15.0	0.01	-	0.10
<b>*Class 'E'</b>		-		-	-	-	-	-	-	-	-	-	-

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 February and March, 2014

**(G) Budhabalanga river system**

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH <sub>4</sub> -N	Free NH <sub>3</sub> -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO <sub>4</sub>	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
<b>Budhabalanga river</b>																
1.	Baripada D/s	42 (10-114)	87 (48-116)	10.5 (4.9-22.6)	0.140 (0.056-0.336)	0.008 (0.001-0.018)	1.55 (0.28-3.36)	28590 (4900-92000)	230 (145-392)	0.45 (0.33-0.57)	0.071 (0.009-0.181)	138 (88-270)	83 (40-106)	19.3 (7.8-81.2)	9.70 (4.48-20.40)	0.201 (0.152-0.233)
2.	Balasore U/s	50 (8-100)	71 (36-102)	8.2 (5.1-12.1)	0.129 (0.056-0.224)	0.005 (0.001-0.013)	1.20 (0.28-2.24)	1941 (130-7900)	194 (130-285)	0.49 (0.25-1.07)	0.047 (0.009-0.099)	114 (75-166)	68 (40-92)	13.1 (5.9-27.4)	8.72 (5.97-17.04)	0.205 (0.146-0.276)
3.	Balaosre D/s	47 (6-89)	81 (44-148)	14.8 (7.9-25.6)	0.134 (0.112-0.224)	0.006 (0.001-0.014)	1.43 (0.56-3.36)	23222 (11000-54000)	326 (110-1287)	3.11 (0.23-14.93)	0.059 (0.006-0.112)	353 (67-1710)	99 (40-250)	131.2 (5.9-782.8)	33.66 (3.10-182.25)	0.200 (0.153-0.236)
<b>*Class 'C'</b>		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
<b>*Class 'E'</b>		-	-	-	-	-	-	-	2250	26	2.0	2100	-	600	1000	-

**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)**

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Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual Average values (Range of values)										
		Nitrate as NO <sub>3</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3-</sup> -P	Cr(VI)	T. Cr	Fe	Ni <sup>#</sup>	Cu <sup>#</sup>	Zn <sup>#</sup>	Cd <sup>#</sup>	Hg	Pb <sup>#</sup>
		(mg/l)		(mg/l)								
<b>Budhabalanga river</b>												
1.	Baripada D/s	3.524 (0.648-7.936)	0.087 (0.011-0.164)	0.013 (<0.002-0)	0.042 (0.018-0.092)	1.669 (<0.005-8.007)	0.026 (0.020-0.032)	0.005 (0.002-0.008)	0.030 (0.028-0.032)	0.0017 (0.0012-0.0021)	0.00028 (<0.00006-0.00095)	0.006 (0.004-0.008)
2.	Balasore U/s	3.655 (0.354-17.648)	0.139 (0.014-0.369)	0.018 (<0.002-0.033)	0.065 (0.035-0.113)	2.185 (<0.005-8.833)	0.017 (0.016-0.018)	0.009 (0.004-0.013)	0.026 (0.025-0.026)	0.0022 (0.0014-0.0031)	0.00019 (<0.00006-0.00076)	0.008 (0.007-0.008)
3.	Balaosre D/s	3.066 (0.208-6.943)	0.088 (0.007-0.235)	0.018 (<0.002-0.048)	0.045 (0.014-0.097)	1.062 (0.056-2.188)	0.026 (0.026-0.026)	0.007 (0.003-0.012)	0.038 (0.034-0.042)	0.0018 (0.0018-0.0019)	0.00031 (<0.00006-0.00076)	0.007 (0.001-0.012)
<b>*Class 'C'</b>		50	-	0.05	-	50	-	1.5	15.0	0.01	-	0.10
<b>*Class 'E'</b>		-	-	-	-	-	-	-	-	-	-	-

**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 February and March, 2014



(H) Kolab river system

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH <sub>4</sub> -N	Free NH <sub>3</sub> -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO <sub>4</sub>	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
<b>Kerandi river</b>																
1.	Sunabeda	60 (10-334)	29 (19-72)	8.4 (3.3-19.7)	0.112 (0.056-0.168)	0.001 (0-0.003)	1.27 (0.56-2.52)	4499 (330-35000)	100 (65-173)	0.36 (0.20-0.46)	0.058 (0.012-0.134)	57 (40-100)	30 (16-68)	8.0 (5.9-9.8)	5.5 (3.1-11.2)	0.154 (0.078-0.315)
<b>*Class 'C'</b>		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
<b>*Class 'E'</b>		-	-	-	-	-	-	-	2250	26	2.0	2100	-	600	1000	-

Sl. No.	Sampling Location	Nutrients				Heavy metals						
		Annual Average values (Range of values)										
		Nitrate as NO <sub>3</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3-</sup> -P	Cr(VI)	T. Cr	Fe	Ni <sup>#</sup>	Cu <sup>#</sup>	Zn <sup>#</sup>	Cd <sup>#</sup>	Hg	Pb <sup>#</sup>
		(mg/l)				(mg/l)						
<b>Kerandi river</b>												
1.	Sunabeda	6.979 (0.868-37.412)	0.056 (0.011-0.242)	0.014 (<0.002-0.033)	0.046 (0.005-0.078)	2.828 (0.051-10.175)	0.011 (0.011-0.012)	0.005 (0.004-0.006)	0.010 (0.008-0.012)	0.0009 (0.0008-0.0009)	0.00015 (<0.00006-0.00083)	0.006 (0.003-0.009)
<b>*Class 'C'</b>		50	-	0.05	-	50	-	1.5	15.0	0.01	-	0.10
<b>*Class 'E'</b>		-	-	-	-	-	-	-	-	-	-	-

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 February and March, 2014

**(I) Vansadhara river system**

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Bacteriological parameter	Mineral constituents							
		Annual Average values (Range of values)														
		TSS	Total alkalinity	COD	NH <sub>4</sub> -N	Free NH <sub>3</sub> -N	TKN	FC	EC	SAR	B	TDS	TH	Cl	SO <sub>4</sub>	F
		(mg/l)		(mg/l)				(MPN/100ml)	(µS/cm)	(mg/l)						
<b>Vansadhara river</b>																
1.	Muniguda	105 (8-511)	67 (32-90)	10.0 (4.0-21.7)	0.122 (0.056-0.224)	0.008 (0.002-0.028)	1.12 (0.56-1.68)	3532 (68-24000)	169 (122-218)	0.35 (0.25-0.51)	0.078 (0.006-0.231)	97 (72-122)	62 (36-86)	8.98 (5.88-12.72)	5.49 (0.37-14.42)	0.247 (0.16-0.432)
2.	Gunupur	81 (6-377)	76 (48-92)	14.1 (4.0-26.0)	0.122 (0.056-0.168)	0.006 (0.002-0.021)	1.04 (0.28-1.40)	3626 (130-13000)	195 (156-236)	0.37 (0.25-0.52)	0.065 (0.009-0.205)	110 (88-134)	72 (40-86)	9.70 (6.86-12.72)	7.8 (1.0-15.5)	0.252 (0.161-0.405)
<b>Class 'C'</b>		-	-	-	-	-	-	-	-	-	-	1500	-	600	400	1.5
<b>Class 'E'</b>		-	-	-	-	-	-	-	2250	26	2.0	2100	-	600	1000	-

Sl. No.	Sampling Location	Nutrients				Heavy metals						
		Annual Average values (Range of values)										
		Nitrate as NO <sub>3</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3-</sup> -P	Cr(VI)	T. Cr	Fe	Ni <sup>#</sup>	Cu <sup>#</sup>	Zn <sup>#</sup>	Cd <sup>#</sup>	Hg	Pb <sup>#</sup>
		(mg/l)				(mg/l)						
<b>Vansadhara river</b>												
1.	Muniguda	2.992 (0.877-15.270)	0.084 (0.006-0.359)	0.016 (<0.002-0.033)	0.050 (0.022-0.090)	3.022 (0.082-7.574)	0.015 (0.014-0.017)	0.008 (0.008-0.008)	0.015 (0.012-0.018)	0.0010 (0.0009-0.0016)	0.0003 (<0.00006-0.00070)	0.007 (0.007-0.008)
2.	Gunupur	4.559 (0.522-19.596)	0.159 (0.009-0.552)	0.019 (0.002-0.048)	0.075 (0.005-0.217)	3.824 (0.541-8.600)	0.019 (0.018-0.019)	0.007 (0.006-0.008)	0.019 (0.014-0.024)	0.0013 (0.0012-0.0014)	0.0002 (<0.00006-0.00038)	0.011 (0.009-0.012)
<b>*Class 'C'</b>		50	-	0.05	-	50	-	1.5	15.0	0.01	-	0.10
<b>*Class 'E'</b>		-	-	-	-	-	-	-	-	-	-	-

**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 February and March, 2014