

## Annual Average and Range values of Four Criteria Parameters (January-December, 2016)

### (A) Mahanadi River System

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values) Parameters				Frequency of violation (Percent of violation) from designated criteria value		Designated Class	Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)	BOD	TC				
			<b>Ib river</b>									
1.	Sundargarh	12	7.9 (7.5-8.3)	8.1 (6.1-9.3)	0.8 (0.3-1.8)	1762 (460-5400)	0	1 (8)	C	C		
2.	Jharsuguda	12	7.9 (7.4-8.4)	7.7 (6.5-9.4)	0.9 (0.3-1.5)	5192 (1700-13000)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
3.	Brajarajnaragar U/s	12	7.8 (7.2-8.3)	8.2 (6.4-9.7)	0.8 (0.4-1.6)	2472 (330-4900)	0	0	C	C		
4.	Brajarajnaragar D/s	12	7.9 (7.2-8.4)	8.0 (6.2-9.3)	1.1 (0.7-1.8)	3832 (790-11000)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
<b>Bheden river</b>												
5.	Jharsuguda	12	7.9 (7.5-8.4)	7.7 (6.3-9.0)	0.9 (0.1-1.8)	3191 (790-9200)	0	2 (17)	C	C		
<b>Hirakud reservoir</b>												
6.	Hirakud reservoir	12	8.0 (7.4-8.3)	7.1 (5.3-8.0)	0.8 (0.5-1.3)	2393 (220-9200)	0	2 (17)	C	C		
<b>Power Channel</b>												
7.	Power Channel U/s	12	7.9 (7.5-8.3)	6.9 (5.6-8.3)	0.7 (0.3-1.5)	1667 (170-5400)	0	2 (17)	C	C		
8.	Power Channel D/s	12	7.9 (7.6-8.3)	6.7 (5.8-7.7)	1.0 (0.5-1.8)	3325 (1100-9200)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
<b>Mahanadi river</b>												
9	Sambalpur U/s	12	8.0 (7.5-8.3)	7.3 (5.6-9.3)	1.0 (0.5-1.7)	17924 (490-160000)	0	4 (33)	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	12	8.0 (7.4-8.4)	6.4 (4.4-8.7)	2.2 (1.3-3.6)	47992 (4900-160000)	2 (17)	11 (92)	C	Doesn't conform to Class C	BOD, TC	Waste water of Sambalpur town
11.	Sambalpur FD/s at Shankarmath	12	7.9 (7.3-8.5)	6.9 (4.2-8.9)	1.5 (0.7-2.2)	15442 (2200-92000)	0	8 (67)	C	Doesn't conform to Class C	TC	Waste water of Sambalpur town
12.	Sambalpur FFD/s at Huma	12	8.0 (7.4-8.4)	7.4 (5.3-9.7)	1.1 (0.4-1.8)	22075 (1300-160000)	0	5 (42)	C	Doesn't conform to Class C	TC	Human activities
13.	Sonepur U/s	12	8.1 (7.5-8.5)	7.8 (6.6-9.1)	0.7 (0.3-1.3)	1363 (230-5400)	0	1 (8)	C	C		
14.	Sonepur D/s	12	8.2 (7.5-8.4)	7.8 (6.2-10.3)	1.1 (0.7-2.0)	4875 (700-11000)	0	5 (42)	C	Doesn't conform to Class C	TC	Human activities
15.	Tikarapada	12	8.1 (7.5-8.4)	7.9 (6.0-10.3)	0.7 (0.4-1.6)	2358 (23-11000)	0	1 (8)	C	C		
16.	Narasinghpur	12	8.0 (7.3-8.4)	7.7 (6.6-8.7)	0.7 (0.4-1.4)	2858 (1300-4900)	0	0	C	C		
17.	Mundali	12	8.0 (7.5-8.4)	7.6 (6.1-8.9)	0.8 (0.5-1.5)	5391 (790-17000)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
18.	Cuttack U/s	12	7.9 (7.2-8.5)	7.8 (6.3-9.1)	1.0 (0.5-1.9)	1922 (490-5400)	0	1 (8)	C			

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	12	7.9 (7.4-8.5)	7.7 (6.0-8.9)	1.8 (1.4-2.5)	50342 (2300-160000)	0	11 (92)	C	Doesn't conform to Class C	TC	Waste water of Cuttack city
20.	Cuttack FD/s	12	7.9 (7.0-8.4)	7.7 (6.4-8.4)	1.1 (0.6-1.8)	37617 (2300-160000)	0	8 (67)	C	Doesn't conform to Class C	TC	Waste water of Cuttack city
21.	Paradeep U/s	12	7.8 (7.3-8.3)	6.9 (6.0-8.1)	1.1 (0.4-1.9)	10971 (460-35000)	0	6 (50)	C	Doesn't conform to Class C	TC	Human activities
22.	Paradeep D/s	12	7.9 (7.4-8.2)	6.5 (5.6-7.1)	1.4 (0.8-2.1)	7384 (20-35000)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
<b>Tel River</b>												
23.	Monmunda	12	8.1 (7.6-8.4)	7.8 (6.4-9.7)	1.0 (0.3-2.4)	1632 (130-5400)	0	2 (17)	C	C		
<b>Kathajodi river</b>												
24.	Cuttack U/s	12	8.0 (7.5-8.4)	7.7 (6.5-8.9)	1.2 (0.6-2.1)	2490 (490-9200)	0	2 (17)	C	C		
25.	Cuttack D/s	12	7.8 (6.7-8.4)	7.1 (4.5-8.9)	3.5 (1.7-5.8)	76500 (7000-160000)	9 (75)	12 (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)	12	7.8 (7.4-8.4)	7.9 (1.2-14.3)	7.9 (1.8-17.4)	78250 (7000-160000)	10 (83)	12 (100)	C	Doesn't conform to Class C	DO*, BOD,TC	Waste water of Cuttack city
<b>Serua River</b>												
27.	Sankhatrasa (Cuttack FD/s)	12	7.6 (6.9-8.4)	6.6 (4.9-9.0)	2.8 (1.4-4.8)	50233 (4900-160000)	5 (32)	10 (83)	C	Doesn't conform to Class C	BOD, TC	Waste water of Cuttack city
<b>Kuakhai river</b>												
28	BhubaneswarFU/s	12	8.0 (7.0-8.4)	8.3 (7.2-9.8)	1.0 (0.4-1.7)	7892 (1300-17000)	0	9 (75)	C	Doesn't conform to Class C	TC	Human activities
29.	Bhubaneswar U/s	12	7.7 (6.4-8.4)	7.2 (5.7-9.0)	1.2 (0.7-1.8)	26833 (7000-54000)	0	12 (100)	C	Doesn't conform to Class C	TC	Human activities
<b>Daya river</b>												
30.	Bhubaneswar D/s	12	7.4 (6.6-8.1)	4.6 (3.1-7.8)	4.7 (2.4-6.7)	93833 (54000-160000)	10 (83)	12 (100)	C	Doesn't conform to Class C	DO**, BOD, TC	Waste water of Bhubaneswar city
31.	BhubaneswarFD/s	12	7.6 (6.6-8.4)	5.1 (3.2-7.7)	4.0 (2.0-5.5)	69167 (35000-160000)	9 (75)	12 (100)	C	Doesn't conform to Class C	DO***, BOD, TC	Waste water of Bhubaneswar city

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

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

\*\*\* Frequency of violation for DO is 3 times (25% of 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)						
<b>Birupa River</b>												
32.	Choudwar D/s	12	8.0 (7.0-8.4)	8.1 (5.1-9.6)	1.1 (0.5-1.8)	7383 (790-35000)	0	7 (58)	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>			

**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>Sankhriver</b>												
1.	Sankh U/s	12	7.7 (6.9-8.4)	7.8 (6.3-9.7)	0.8 (0.4-1.7)	4167 (1100-13000)	0	2 (17)	C	C		
<b>Koel River</b>												
2.	Koel U/s	12	7.7 (7.2-8.2)	6.9 (5.8-8.3)	1.2 (0.5-2.9)	14958 (790-35000)	0	9 (75)	C	Doesn't conform to Class C	TC	Human activities
<b>Brahmani river</b>												
3.	Panposh U/s	12	7.7 (7.1-8.3)	7.4 (5.8-9.0)	0.9 (0.6-1.5)	18625 (1400-92000)	0	6 (50)	C	Doesn't conform to Class C	TC	Human activities
4.	Panposh D/s	12	7.2 (6.5-7.9)	6.6 (4.2-8.2)	4.7 (2.3-5.8)	82917 (22000-160000)	11 (92)	12 (100)	C	Doesn't conform to Class C	BOD, TC	Waste water of Rourkela town and Steel Plant
5.	Rourkela D/s	12	7.2 (6.7-7.9)	6.5 (4.2-8.3)	3.9 (2.0-5.4)	49500 (13000-160000)	10 (83)	12 (100)	C	Doesn't conform to Class C	BOD, TC	-do-
6.	Rourkela FD/s (Attaghat)#	11	7.7 (6.9-8.4)	7.5 (5.9-9.8)	2.1 (0.6-4.6)	18983 (790-92000)	3 (27)	6 (55)	C	Doesn't conform to Class C	BOD, TC	-do-
7.	Rourkela FD/s (Biritola)	12	7.7 (7.1-8.3)	7.7 (6.3-9.7)	1.3 (0.5-2.5)	4856 (170-17000)	0	4 (33)	C	Doesn't conform to Class C	TC	-do-

# for the period January-December, 2016 excluding November, 2016

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	7.6 (7.1-8.1)	8.0 (6.2-9.9)	1.0 (0.5-1.8)	4183 (20-17000)	0	5 (42)	C	Doesn't conform to Class C	TC	Human activities
9.	Rengali	12	7.8 (7.2-8.2)	7.5 (6.3-8.7)	0.7 (0.3-1.8)	2134 (170-9200)	0	2 (17)	C	C		
10.	Samal	12	7.6 (7.2-8.2)	7.5 (5.8-9.7)	0.8 (0.4-1.4)	3179 (230-9200)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
10.	Talcher FU/s	12	8.0 (7.6-8.3)	7.5 (6.2-9.7)	0.8 (0.3-1.7)	2995 (170-7900)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
10.	Talcher U/s	12	8.0 (7.7-8.3)	7.7 (6.3-9.1)	1.0 (0.5-1.8)	6048 (490-17000)	0	5 (42)	C	Doesn't conform to Class C	TC	Human activities
13.	Talcher D/s	12	8.0 (7.6-8.4)	7.2 (5.6-8.6)	1.6 (0.7-2.5)	8600 (2400-22000)	0	7 (58)	C	Doesn't conform to Class C	TC	Waste water of Talcher township
14.	Talcher FD/s	12	8.1 (7.3-8.4)	7.2 (4.0-8.2)	1.1 (0.6-1.7)	4733 (1300-13000)	0	4 (33)	C	Doesn't conform to Class C	TC	-do-
15.	Dhenkanal U/s	12	7.9 (7.3-8.3)	7.5 (5.5-9.7)	1.0 (0.5-1.6)	30725 (3500-92000)	0	10 (83)	C	Doesn't conform to Class C	TC	Human activities
16.	Dhenkanal D/s	12	8.0 (7.3-8.4)	7.6 (6.4-9.5)	1.3 (0.8-2.1)	22700 (2300-92000)	0	9 (75)	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	12	7.9 (6.7-8.4)	7.9 (5.8-9.8)	1.0 (0.5-1.6)	6359 (330-22000)	0	4 (33)	C	Doesn't conform to Class C	TC	Human activities
18.	Kabatabandha	12	7.9 (6.9-8.5)	7.5 (6.2-9.2)	1.0 (0.6-1.8)	7078 (330-22000)	0	5 (42)	C	Doesn't conform to Class C	TC	Human activities
19.	Dharmasala U/s	12	8.0 (7.4-8.5)	7.5 (6.3-9.4)	0.9 (0.4-1.4)	2184 (230-5400)	0	11 (92)	B	Doesn't conform to Class B	TC	Human activities
20.	Dharmasala D/s	12	8.1 (7.5-8.5)	7.6 (5.2-9.7)	1.2 (0.6-1.7)	3563 (170-9400)	0	11 (92)	B	Doesn't conform to Class B	TC	Human activities
21.	Pottamundai	12	8.0 (7.6-8.4)	7.4 (6.0-10.3)	1.1 (0.2-2.9)	9516 (790-35000)	0	12 (100)	B	Doesn't conform to Class B	TC	Human activities
<b>Nandira river</b>												
22.	Nandira river before confluence with river Brahmani	12	8.3 (7.7-8.5)	7.6 (4.0-9.1)	2.2 (0.6-3.0)	8283 (490-24000)	0	8 (67)	C	Doesn't conform to Class C	TC	Human activities
<b>Kisindajhor</b>												
23.	Kisindajhor	12	8.2 (7.7-8.5)	8.5 (5.7-12.1)	1.2 (0.5-2.5)	6757 (490-24000)	0	4 (33)	C	Doesn't conform to Class C	TC	Human activities
<b>KharasuanRiver</b>												
24.	Khanditara	12	7.9 (7.1-8.4)	7.4 (5.7-8.4)	0.8 (0.4-1.6)	2965 (490-7900)	0	2 (17)	C	C		



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	12	8.0 (7.3-8.4)	7.8 (6.3-9.1)	0.7 (0.3-1.5)	4150 (1400-7900)	0	2 (17)	C	C		
26.	Aul	12	7.9 (7.1-8.3)	7.1 (5.9-9.7)	1.0 (0.4-1.3)	28403 (2200-160000)	0	8 (67)	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>			

**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**

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>KuseiRiver</b>												
1.	Deogaon	11	8.2 (7.8-8.4)	7.8 (6.1-9.5)	0.8 (0.3-1.4)	10645 (1300-35000)	0	5 (45)	C	Doesn't conform to Class C	TC	Human activities
<b>Baitarani River</b>												
2.	Joda	12	7.8 (7.1-8.3)	7.2 (5.6-8.5)	0.9 (0.3-2.0)	5166 (790-16000)	0	5 (42)	C	Doesn't conform to Class C	TC	Human activities
3.	Anandpur	12	7.9 (7.5-8.4)	7.1 (6.2-8.6)	0.8 (0.3-1.5)	6975 (1300-35000)	0	4 (33)	C	Doesn't conform to Class C	TC	Human activities
4.	Jajpur	12	7.9 (7.4-8.3)	7.5 (5.4-8.8)	1.5 (0.8-2.5)	9733 (2100-24000)	0	10 (83)	C	Doesn't conform to Class C	TC	Human activities
5.	Chandbali U/s	12	7.7 (7.2-8.3)	6.2 (5.0-7.4)	1.0 (0.2-1.9)	13267 (2400-24000)	0	11 (92)	C	Doesn't conform to Class C	TC	Human activities
6.	Chandbali D/s	12	7.8 (7.5-8.3)	6.2 (5.0-7.8)	1.1 (0.5-1.7)	33450 (9400-160000)	0	12 (100)	C	Doesn't conform to Class C	TC	Human activities
<b>SalandiRiver</b>												
7.	Bhadrak U/s	12	8.0 (7.0-8.6)	7.3 (5.5-9.1)	0.9 (0.4-1.6)	27790 (490-160000)	0	7 (58)	C	Doesn't conform to Class C	TC	Human activities
8.	Bhadrak D/s	12	7.9 (7.2-8.5)	6.4 (4.3-10.2)	1.5 (0.6-2.5)	52575 (7900-160000)	0	12 (100)	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)						
<b>Dhamra River</b>												
9.	Dhamra	12	7.6 (7.1-8.2)	5.8 (5.0-6.5)	1.6 (0.8-2.7)	23627 (230-160000)	0	10 (82)	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>			

**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**

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	12	8.1 (7.7-8.4)	7.7 (5.7-9.3)	1.0 (0.3-1.9)	5043 (170-17000)	0	3 (25)	C	Doesn't conform to Class C	TC	Human activities
2.	Potagarh	12	8.0 (7.4-8.4)	7.2 (6.4-8.2)	1.1 (0.3-2.1)	1263 (<1.8-5400)	0	1 (8)	C			
<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>			

**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 riversystem**

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	12	7.9 (7.0-8.2)	6.8 (6.2-7.5)	0.9 (0.2-1.7)	10233 (1700-35000)	0	5 (42)	C	Doesn't conform to Class C	TC	Human activities
2.	J.K. Pur D/S	12	7.9 (7.3-8.3)	6.8 (5.9-7.7)	2.1 (0.4-3.2)	23508 (7900-54000)	1 (8)	12 (100)	C	Doesn't conform to Class C	BOD,TC	Human activities
3.	Rayagada D/S	12	7.8 (7.5-8.3)	6.9 (6.4-7.4)	1.3 (0.3-2.0)	27817 (5400-92000)	0	12 (100)	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>			

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

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

(Ref : IS 2296-1982 foot note)

(F) Subarnarekhariversystem

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	12	8.1 (7.8-8.5)	7.5 (5.6-8.8)	1.3 (0.6-1.9)	3733 (490-7900)	0	2 (17)	C	C		
<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>			

**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 riversystem**

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	12	7.9 (7.6-8.4)	6.9 (5.6-8.8)	1.4 (0.6-2.7)	18625 (4900-54000)	0	10 (83)	C	Doesn't conform to Class C	TC	Human activities
2.	Balasore U/s	12	7.9 (7.3-8.3)	7.0 (6.0-8.2)	1.3 (0.4-2.2)	10425 (1300-35000)	0	8 (67)	C	Doesn't conform to Class C	TC	Human activities
3.	Balasore D/s	12	7.8 (7.3-8.2)	6.6 (5.6-7.6)	1.9 (0.7-3.5)	33933 (4900-92000)	2 (17)	11 (92)	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>			

**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	12	7.5 (6.8-8.1)	6.9 (6.3-7.9)	1.0 (0.5-1.7)	14817 (1300-92000)	0	5 (42)	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>			

**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

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	12	7.9 (7.4-8.3)	6.7 (6.0-7.2)	0.8 (0.5-1.6)	3043 (230-5400)	0	1 (8)	C	C		
2.	Gunupur	12	7.9 (7.6-8.4)	6.9 (6.3-7.9)	0.8 (0.4-1.6)	3424 (790-9400)	0	2 (17)	C	C		
<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>			

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

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

## Water quality with respect to Other Parameters during 2016(January-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>Ib river</b>																
1.	Sundargarh	72 (2-352)	58 (28-72)	7.1 (3.3-20.2)	0.065 (0.056-0.112)	0.004 (0.001-0.009)	1.12 (0.56-1.40)	873 (130-3500)	141 (82-171)	0.30 (0.19-0.52)	0.098 (0.003-0.428)	81 (58-95)	53 (32-60)	8.1 (3.9-14.7)	6.2 (.7-10.7)	0.324 (0.150-0.550)
2.	Jharsuguda	65 (3-243)	58 (24-76)	8.5 (4.9-12.8)	0.075 (0.056-0.224)	0.004 (0.001-0.007)	1.20 (0.84-2.24)	2643 (330-7900)	150 (99-181)	0.32 (0.22-0.47)	0.111 (0.003-0.421)	86 (52-100)	54 (24-66)	8.9 (5.9-12.7)	8.7 (3.2-14.0)	0.315 (0.180-0.540)
3.	Brajrajnagar U/s	80 (4-337)	60 (24-76)	7.8 (3.3-16.5)	0.056 (0.056-0.056)	0.002 (0.001-0.005)	1.07 (0.56-1.40)	1200 (130-3300)	151 (96-188)	0.34 (0.19-0.48)	0.082 (0.003-0.393)	85 (56-112)	55 (32-66)	9.1 (5.9-13.7)	8.3 (2.5-16.3)	0.341 (0.260-0.530)
4.	Brajrajnagar D/s	85 (4-353)	58 (20-72)	10.5 (5.7-18.3)	0.061 (0.056-0.112)	0.003 (0.001-0.009)	1.09 (0.56-1.40)	2066 (330-7000)	155 (103-181)	0.35 (0.23-0.53)	0.088 (0.003-0.411)	89 (58-117)	56 (32-74)	9.4 (4.9-15.7)	9.5 (4.2-18.7)	0.365 (0.250-0.660)
<b>Bheden river</b>																
5.	Jharsuguda	51 (9-167)	71 (36-96)	9.0 (5.1-13.1)	0.061 (0.056-0.112)	0.003 (0.001-0.014)	1.09 (0.84-1.68)	1273 (460-5400)	224 (127-338)	0.47 (0.27-0.83)	0.103 (0.021-0.260)	131 (78-209)	83 (42-116)	16.2 (6.9-33.3)	23.4 (5.7-48.7)	0.526 (0.330-0.890)
<b>Hirakud Reservoir</b>																
6.	Hirakud reservoir	27 (4-174)	76 (52-92)	7.9 (5.1-10.6)	0.065 (0.056-0.112)	0.004 (0.001-0.011)	1.17 (0.56-1.68)	1031 (130-3500)	190 (167-219)	0.32 (0.24-0.42)	0.047 (0.007-0.253)	107 (92-127)	76 (66-82)	9.8 (7.8-12.7)	10.1 (4.7-17.7)	0.401 (0.270-0.630)
<b>Power Channel</b>																
7.	Power Channel U/s	27 (1-185)	76 (60-84)	7.3 (4.9-10.4)	0.056 (0.056-0.056)	0.003 (0.001-0.005)	1.02 (0.56-1.40)	567 (78-2400)	191 (163-230)	0.34 (0.23-0.50)	0.061 (0.007-0.302)	108 (92-126)	75 (62-86)	10.8 (7.8-14.7)	9.7 (4.6-16.4)	0.415 (0.250-0.640)

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	34 (2-241)	76 (52-88)	9.7 (6.6-15.0)	0.056 (0.056-0.056)	0.003 (0.001-0.005)	1.04 (0.84-1.40)	1728 (490-5400)	195 (156-231)	0.32 (0.20-0.62)	0.061 (0.011-0.260)	110 (96-128)	77 (62-86)	10.5 (5.9-21.5)	10.5 (5.4-17.0)	0.405 (0.250-0.650)
<b>Mahanadi river</b>																
9.	Sambalpur U/s	23 (3-152)	78 (52-92)	9.4 (5.7-13.3)	0.084 (0.056-0.168)	0.005 (0.001-0.011)	1.30 (0.84-2.24)	15230 (110-160000)	205 (159-250)	0.39 (0.22-0.56)	0.119 (0.003-0.460)	116 (93-142)	77 (56-90)	12.5 (7.8-19.6)	10.8 (7.1-17.5)	0.504 (0.290-0.930)
10.	Sambalpur D/s	25 (1-131)	87 (60-116)	18.8 (10.5-24.8)	0.089 (0.056-0.168)	0.005 (0.002-0.014)	1.35 (0.84-1.68)	36825 (3300-160000)	228 (176-284)	0.43 (0.26-0.71)	0.131 (0.028-0.442)	131 (98-175)	87 (54-100)	14.7 (7.8-25.4)	12.6 (8.2-21.4)	0.437 (0.290-0.710)
11.	Sambalpur FD/s at Shankarmath	24 (3-131)	88 (60-108)	13.4 (6.6-16.7)	0.061 (0.056-0.112)	0.004 (0.001-0.009)	1.09 (0.56-1.40)	8174 (790-54000)	238 (167-296)	0.44 (0.30-0.64)	0.140 (0.007-0.463)	135 (96-187)	87 (64-102)	15.4 (9.8-23.5)	13.0 (5.7-30.4)	0.474 (0.320-0.760)
12.	Sambalpur FFD/s at Huma	24 (1-174)	78 (52-96)	10.7 (6.6-17.5)	0.056 (0.056-0.056)	0.003 (0.001-0.007)	1.09 (0.56-1.40)	19473 (490-160000)	194 (164-220)	0.32 (0.23-0.41)	0.091 (0.003-0.316)	110 (94-124)	77 (58-88)	10.5 (7.8-13.7)	10.2 (5.0-18.6)	0.437 (0.240-0.710)
13.	Sonepur U/s	22 (3-146)	79 (60-96)	7.8 (5.1-12.5)	0.061 (0.056-0.112)	0.004 (0.001-0.009)	1.20 (0.56-1.40)	538 (78-2200)	201 (176-219)	0.36 (0.26-0.73)	0.055 (0.003-0.253)	113 (98-124)	80 (62-90)	11.7 (8.8-21.5)	8.9 (3.6-17.9)	0.430 (0.280-0.650)
14.	Sonepur D/s	22 (2-123)	84 (68-116)	10.1 (7.0-14.6)	0.070 (0.056-0.112)	0.007 (0.001-0.014)	1.17 (0.56-1.68)	2410 (130-4900)	212 (173-282)	0.32 (0.23-0.43)	0.066 (0.003-0.242)	121 (98-156)	86 (72-102)	10.8 (7.8-15.7)	10.0 (6.0-18.8)	0.433 (0.270-0.750)
15.	Tikarapada	50 (4-310)	82 (60-104)	7.7 (5.0-15.9)	0.056 (0.056-0.056)	0.004 (0.001-0.007)	1.20 (0.84-1.68)	169 (13-7900)	201 (181-238)	0.33 (0.16-0.60)	0.046 (0.011-0.091)	116 (105-132)	79 (64-88)	10.7 (5.9-17.6)	10.5 (4.5-19.6)	0.468 (0.220-0.970)
16.	Narasinghpur	25 (3-58)	74 (56-96)	8.0 (4.9-11.8)	0.084 (0.056-0.336)	0.007 (0.001-0.033)	1.35 (0.84-2.52)	1446 (490-3500)	211 (131-489)	0.37 (0.25-0.89)	0.091 (0.025-0.312)	107 (78-142)	73 (52-84)	11.3 (7.8-29.4)	8.8 (1.5-19.2)	0.421 (0.240-0.920)

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	27 (3-111)	75 (56-100)	8.1 (4.9-11.9)	0.061 (0.056-0.112)	0.004 (0.001-0.007)	1.17 (0.84-1.40)	2813 (170-11000)	190 (136-284)	0.36 (0.25-0.49)	0.087 (0.006-0.316)	104 (78-132)	73 (48-92)	10.8 (7.8-15.7)	9.4 (2.0-18.3)	0.384 (0.230-0.570)
18.	Cuttack U/s	28 (4-167)	72 (64-88)	10.2 (5.1-16.9)	0.075 (0.056-0.168)	0.004 (0.001-0.013)	1.20 (0.84-1.40)	701 (170-1700)	181 (157-203)	0.38 (0.25-0.58)	0.036 (0.003-0.144)	104 (89-115)	70 (56-82)	11.9 (7.8-16.6)	7.8 (2.5-14.5)	0.395 (0.240-0.590)
19.	Cuttack D/s	41 (7-194)	78 (64-88)	15.8 (11.9-20.2)	0.070 (0.056-0.112)	0.004 (0.001-0.009)	1.25 (1.12-1.40)	36433 (1300-160000)	198 (140-254)	0.34 (0.26-0.48)	0.048 (0.003-0.221)	112 (86-134)	77 (60-92)	10.8 (7.8-15.7)	10.4 (4.1-17.8)	0.369 (0.260-0.470)
20.	Cuttack FD/s	30 (2-171)	80 (56-92)	10.9 (6.7-15.9)	0.061 (0.056-0.112)	0.003 (0-0.007)	1.17 (0.84-1.40)	33667 (1300-160000)	200 (152-244)	0.35 (0.27-0.46)	0.042 (0.003-0.197)	112 (84-128)	77 (60-88)	11.1 (7.8-15.7)	9.6 (5.3-21.6)	0.386 (0.270-0.640)
21.	Paradeep U/s	78 (5-155)	87 (56-112)	15.1 (9.4-22.0)	0.089 (0.056-0.168)	0.004 (0.001-0.013)	1.45 (1.12-2.24)	6486 (170-24000)	8893 (146-29050)	24.67 (0.31-64.63)	0.404 (0.025-1.122)	5800 (98-21580)	885 (66-2400)	3117.0 (10.8-1644.1)	370.4 (7.6-1318.4)	0.508 (0.230-0.980)
22.	Paradeep D/s	142 (12-303)	99 (72-124)	29.9 (21.8-42.0)	0.070 (0.056-0.168)	0.004 (0.001-0.009)	1.27 (0.84-1.96)	5116 (20-22000)	25227 (187-42170)	50.82 (0.61-87.89)	1.426 (0.063-3.233)	19896 (102-37488)	2848 (76-4750)	10648.7 (18.6-19570.0)	1273.6 (8.3-2394.2)	0.683 (0.220-1.000)
<b>Tel River</b>																
23.	Monmunda	58 (4-342)	79 (40-108)	9.0 (4.9-14.0)	0.079 (0.056-0.224)	0.006 (0.001-0.015)	1.30 (0.84-1.68)	833 (45-5400)	185 (121-227)	0.32 (0.17-0.48)	0.053 (0.014-0.119)	103 (72-128)	72 (44-100)	9.3 (4.9-13.7)	6.8 (1.5-11.4)	0.451 (0.300-0.620)
<b>Kathajodi River</b>																
24.	Cuttack U/s	29 (4-154)	72 (56-100)	10.1 (6.0-12.9)	0.089 (0.056-0.224)	0.005 (0.001-0.014)	1.35 (0.84-1.96)	1028 (140-5400)	189 (154-238)	0.39 (0.25-0.60)	0.043 (0.003-0.197)	107 (89-132)	69 (52-104)	11.6 (7.8-16.6)	8.5 (2.5-15.5)	0.364 (0.260-0.510)
25.	Cuttack D/s	39 (17-139)	93 (60-112)	23.5 (16.1-30.3)	2.086 (0.056-8.624)	0.041 (0-0.273)	3.95 (0.84-13.72)	58492 (4900-160000)	271 (162-361)	0.63 (0.25-1.16)	0.061 (0.006-0.260)	153 (95-212)	88 (64-108)	22.6 (7.8-43.1)	13.2 (5.3-26.1)	0.341 (0.180-0.520)

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)	43 (5-114)	129 (60-192)	43.1 (16.1-84.3)	3.831 (0.056-16.240)	0.148 (0.001-0.650)	5.93 (1.68-17.04)	62650 (2100-160000)	429 (169-618)	1.18 (0.35-1.85)	0.063 (0.003-0.291)	236 (98-342)	115 (58-160)	45.7 (10.8-74.4)	18.1 (2.6-41.4)	0.320 (0.190-0.470)
<b>Serua River</b>																
27.	Sankhatrasa (Cuttack FD/s)	54 (3-243)	94 (64-116)	19.5 (11.3-31.3)	1.849 (0.056-6.216)	0.022 (0-0.098)	4.07 (1.12-11.48)	36175 (2300-160000)	285 (152-395)	0.74 (0.26-1.63)	0.064 (0.003-0.225)	158 (92-218)	87 (62-102)	25.8 (7.8-58.7)	12.6 (3.6-21.1)	0.322 (0.190-0.450)
<b>Kuakhai River</b>																
28.	Bhubaneswar FU/s	28 (2-210)	75 (48-88)	8.4 (5.0-14.6)	0.056 (0.056-0.056)	0.004 (0-0.007)	1.04 (0.84-1.12)	3908 (790-9200)	191 (139-220)	0.36 (0.22-0.49)	0.061 (<0.003-0.305)	105 (78-122)	71 (50-80)	10.8 (5.9-15.7)	9.3 (4.2-17.3)	0.362 (0.200-0.520)
29.	Bhubaneswar U/s	40 (3-270)	79 (52-92)	10.5 (6.6-15.9)	0.065 (0.056-0.112)	0.003 (0-0.007)	1.20 (0.84-1.40)	19400 (4900-54000)	208 (152-251)	0.40 (0.32-0.52)	0.071 (0.006-0.316)	116 (94-128)	74 (52-84)	12.0 (9.8-13.7)	11.2 (4.6-18.0)	0.334 (0.160-0.480)
<b>Daya River</b>																
30.	Bhubaneswar D/s	48 (11-229)	81 (60-104)	28.3 (16.5-44.7)	4.569 (0.112-11.536)	0.075 (0-0.346)	6.80 (1.40-19.60)	75750 (22000-160000)	303 (199-409)	0.97 (0.38-1.59)	0.098 (0.023-0.337)	167 (121-232)	83 (68-100)	31.7 (11.7-58.7)	18.1 (10.6-32.2)	0.314 (0.280-0.470)
31.	Bhubaneswar FD/s	51 (11-253)	79 (64-100)	24.2 (14.9-35.2)	4.531 (0.168-10.976)	0.120 (0-0.504)	6.47 (1.68-11.76)	52000 (22000-160000)	285 (316-389)	0.88 (0.40-1.68)	0.075 (0.011-0.326)	151 (118-185)	79 (62-92)	26.2 (11.7-42.1)	14.3 (7.0-22.4)	0.303 (0.160-0.440)
<b>Birupa River</b>																
32.	ChoudwarD/s	24 (3-71)	82 (68-96)	8.9 (5.0-17.1)	0.065 (0.056-0.112)	0.004 (0-0.014)	1.25 (0.84-1.40)	4245 (330-24000)	208 (176-255)	0.35 (0.23-0.48)	0.049 (0.007-0.151)	116 (98-128)	80 (60-94)	11.6 (7.8-15.7)	9.6 (4.1-16.0)	0.357 (0.190-0.550)
<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	5.412 (0.724-24.054)	0.088 (0.002-0.310)	0.004 (<0.002-0.013)	0.020 (0.003-0.044)	1.910 (0.14-5.36)	0.009 (0.002-0.019)	0.003 (0.001-0.009)	0.012 (0.004-0.018)	0.0009 (0.0003-0.0020)	0.00007 (<0.00006-0.00019)	0.007 (0.002-0.013)
2.	Jharsuguda	5.206 (0.903-23.989)	0.071 (0.021-0.157)	0.005 (<0.002-0.011)	0.025 (0.008-0.044)	1.359 (0.210-5.200)	0.008 (0.002-0.014)	0.005 (0.002-0.013)	0.013 (0.005-0.024)	0.0010 (0.0003-0.0028)	0.00009 (<0.00006-0.00032)	0.007 (0.002-0.009)
3.	Brajrajnagar U/s	4.366 (0.688-12.594)	0.078 (0.002-0.172)	0.008 (<0.002-0.015)	0.024 (0.012-0.042)	1.524 (0.140-6.400)	0.010 (0.002-0.022)	0.003 (0.001-0.014)	0.010 (0.001-0.015)	0.0009 (0.0003-0.0024)	0.00013 (<0.00006-0.00044)	0.007 (0.004-0.010)
4.	Brajrajnagar D/s	5.436 (0.471-13.442)	0.159 (0.024-0.619)	0.010 (<0.002-0.020)	0.031 (0.018-0.077)	1.574 (0.220-6.400)	0.012 (0.003-0.024)	0.004 (0.002-0.012)	0.019 (0.005-0.066)	0.0010 (0.0004-0.0024)	0.00014 (<0.00006-0.00032)	0.007 (0.005-0.016)
<b>Bheden River</b>												
5.	Jharsuguda	2.411 (0.473 -8.039)	0.108 (0.017-0.255)	0.007 (<0.002-0.023)	0.028 (0.007-0.071)	1.196 (0.021-6.200)	0.007 (0.003-0.014)	0.003 (<0.001-0.006)	0.015 (0.004-0.026)	0.0009 (0.0003-0.0021)	0.00009 (<0.00006-0.0003019)	0.007 (0.005-0.015)
<b>Hirakud Reservoir</b>												
6.	Hirakud reservoir	2.897 (0.676-9.057)	0.129 (0.022-0.407)	0.006 (<0.002-0.028)	0.023 (0.011-0.079)	0.687 (0.11-2.300)	0.008 (0.004-0.018)	0.003 (0.001-0.005)	0.011 (0.001-0.024)	0.0009 (0.0003-0.0024)	0.00004 (<0.00006-0.00019)	0.007 (0.004-0.011)
<b>Power channel</b>												
7.	Power channel U/s	1.781 (0.614-3.028)	0.073 (0.045-0.110)	0.008 (<0.002-0.028)	0.028 (0.012-0.079)	0.787 (0.040-3.700)	0.007 (0.002-0.014)	0.002 (0.001-0.004)	0.008 (0.001-0.017)	0.0009 (0.0003-0.0022)	0.00009 (<0.00006-0.00051)	0.007 (0.004-0.011)
8.	Power Channel D/s	3.204 (1.565-6.143)	0.088 (0.045-0.286)	0.011 (<0.002-0.028)	0.035 (0.018-0.069)	0.608 (0.060-1.810)	0.011 (0.004-0.019)	0.003 (0.001-0.005)	0.014 (0.008-0.019)	0.0012 (0.0003-0.0027)	0.00010 (<0.00006-0.00025)	0.010 (0.006-0.018)

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	2.473 (1.010-5.963)	0.066 (0.004-0.158)	0.006 (<0.002-0.016)	0.025 (0.012-0.044)	0.900 (0.030-5.500)	0.008 (0.004-0.018)	0.004 (0.002-0.005)	0.011 (0.003-0.019)	0.0009 (0.0004-0.0025)	0.00004 (<0.00006-0.00010)	0.007 (0.004-0.012)
10.	Sambalpur D/s	5.126 (1.723-14.157)	0.098 (0.021-0.212)	0.010 (<0.002-0.030)	0.034 (0.013-0.076)	0.963 (0.03-6.900)	0.010 (0.003-0.026)	0.005 (0.002-0.008)	0.015 (0.008-0.022)	0.0011 (0.0005-0.0025)	0.00019 (<0.00006-0.00089)	0.009 (0.004-0.016)
11.	Sambalpur FD/s at Shankarmath	2.731 (0.563-7.139)	0.117 (0.004-0.381)	0.008 (<0.002-0.025)	0.028 (0.012-0.047)	0.676 (0.020-3.000)	0.009 (0.001-0.022)	0.003 (0.001-0.007)	0.012 (0.001-0.029)	0.0008 (0.0003-0.0023)	0.00005 (<0.00006-0.00025)	0.006 (0.003-0.008)
12.	Sambalpur FD/s at Huma	6.236 (1.054-25.882)	0.076 (0-0.138)	0.008 (<0.002-0.023)	0.026 (0.007-0.059)	0.719 (0.06-2.500)	0.009 (0.004-0.022)	0.003 (0.001-0.006)	0.010 (0.001-0.017)	0.0010 (0.0003-0.0023)	0.00007 (<0.00006-0.00038)	0.007 (0.005-0.011)
13.	Sonepur U/s	2.966 (0.093-10.936)	0.118 (0.025-0.378)	0.007 (<0.002-0.018)	0.027 (0.013-0.060)	0.475 (0.020-2.150)	0.010 (0.003-0.023)	0.003 (0.001-0.005)	0.008 (0.003-0.012)	0.0009 (0.0003-0.0027)	0.00007 (<0.00006-0.00025)	0.008 (0.004-0.011)
14.	Sonepur D/s	5.628 (2.028-22.759)	0.141 (0.029-0.350)	0.008 (<0.002-0.020)	0.030 (0.015-0.066)	0.493 (0.07-1.81)	0.017 (0.004-0.048)	0.004 (0.001-0.011)	0.013 (0.006-0.036)	0.0010 (0.0003-0.0026)	0.00007 (<0.00006-0.00038)	0.008 (0.004-0.013)
15.	Tikarapada	4.116 (0.277-15.396)	0.104 (0.043-0.230)	0.006 (<0.002-0.016)	0.024 (0.011-0.035)	0.862 (0.01-2.500)	0.010 (0.003-0.024)	0.003 (0.001-0.005)	0.011 (0.006-0.026)	0.0009 (0.0003-0.0026)	0.00004 (<0.00006-0.00025)	0.007 (0.004-0.011)
16.	Narasinghpur	5.116 (0.805-36.468)	0.075 (0.002-0.191)	0.008 (<0.002-0.015)	0.028 (0.008-0.049)	1.303 (0.010-4.830)	0.011 (0.002-0.033)	0.004 (0.001-0.008)	0.010 (0.001-0.021)	0.0007 (0.0003-0.0018)	0.00006 (<0.00006-0.00006)	0.006 (0.003-0.015)
17.	Munduli	2.583 (0.576-5.261)	0.085 (0.006-0.352)	0.004 (<0.002-0.011)	0.019 (0.005-0.035)	0.851 (0.04-3.87)	0.011 (0.004-0.031)	0.004 (0.001-0.008)	0.012 (0.005-0.030)	0.0007 (0.0003-0.0014)	0.00006 (<0.00006-0.00006)	0.007 (0.002-0.011)
18.	Cuttack U/s	2.145 (0.456-10.169)	0.123 (0.019-0.280)	0.006 (<0.002-0.020)	0.023 (0.012-0.052)	0.400 (0.110-1.200)	0.009 (0.002-0.023)	0.003 (0.001-0.004)	0.011 (0.001-0.016)	0.0007 (0.0003-0.0011)	0.00006 (<0.00006-0.00006)	0.006 (0.002-0.012)

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)								
19.	Cuttack D/s	5.520 (1.721-11.979)	0.119 (0.030-0.400)	0.010 (<0.002-0.025)	0.033 (0.012-0.066)	0.368 (0.090-1.200)	0.013 (0.004-0.039)	0.005 (0.002-0.008)	0.015 (0.006-0.023)	0.0009 (0.0004-0.0018)	0.00007 (<0.00006-0.00051)	0.008 (0.004-0.012)
20.	Cuttack FD/s	3.368 (0.965-10.823)	0.105 (0.017-0.364)	0.008 (<0.002-0.023)	0.029 (0.015-0.064)	0.437 (0.07-1.23)	0.010 (0.003-0.028)	0.004 (0.002-0.007)	0.012 (0.006-0.018)	0.0007 (0.0003-0.0011)	0.00013 (<0.00006-0.00032)	0.008 (0.005-0.012)
21.	Paradeep U/s	3.134 (0.648-10.329)	0.099 (0.008-0.428)	0.011 (<0.002-0.030)	0.036 (0.010-0.081)	1.389 (0.34-2.900)	0.014 (0.001-0.046)	0.005 (0.001-0.011)	0.024 (0.002-0.091)	0.0009 (0.0004-0.0013)	0.00013 (<0.00006-0.00019)	0.008 (0.004-0.016)
22.	Paradeep D/s	5.523 (0.794-13.319)	0.155 (0.012-0.338)	0.012 (0.002-0.035)	0.041 (0.012-0.086)	2.245 (0.03-8.72)	0.018 (0.005-0.048)	0.009 (0.003-0.018)	0.019 (0.008-0.034)	0.0010 (0.0005-0.0018)	0.00016 (<0.00006-0.00032)	0.010 (0.005-0.021)
<b>Tel River</b>												
23.	Monmunda	5.006 (0.182-17.284)	0.144 (0.029-0.279)	0.010 (<0.002-0.018)	0.033 (0.013-0.076)	1.652 (0.080-6.480)	0.011 (0.003-0.032)	0.003 (0.001-0.007)	0.012 (0.002-0.026)	0.0008 (0.0003-0.0023)	0.00006 (<0.00006-0.00025)	0.007 (0.004-0.011)
<b>Kathajodi River</b>												
24.	Cuttack U/s	2.317 (0.639-9.625)	0.091 (0.025-0.220)	0.005 (<0.002-0.017)	0.022 (0.012-0.042)	0.603 (0.070-1.430)	0.008 (0.003-0.021)	0.003 (0.001-0.006)	0.009 (0.001-0.014)	0.0006 (0.0003-0.0009)	0.00011 (<0.00006-0.00051)	0.006 (0.004-0.011)
25.	Cuttack D/s	11.290 (1.038-32.608)	0.250 (0.024-1.168)	0.013 (<0.002-0.028)	0.042 (0.015-0.071)	0.755 (0.100-2.470)	0.012 (0.006-0.028)	0.004 (0.002-0.007)	0.026 (0.010-0.093)	0.0010 (0.0005-0.0018)	0.00034 (0.00019-0.00082)	0.011 (0.006-0.021)
26.	Mattagajpur (Cuttack FD/s)	13.491 (4.740-28.879)	0.382 (0.082-0.913)	0.016 (<0.002-0.033)	0.049 (0.018-0.076)	0.983 (0.050-4.410)	0.013 (0.003-0.034)	0.006 (0.001-0.010)	0.034 (0.014-0.085)	0.0010 (0.0004-0.0023)	0.00028 (<0.00006-0.00071)	0.014 (0.003-0.031)
<b>Serua River</b>												
27.	Sankhatrasa (Cuttack FD/s)	11.009 (2.548-30.637)	0.351 (0.059-1.445)	0.012 (<0.002-0.031)	0.032 (0.013-0.069)	0.958 (0.080-3.290)	0.008 (0.003-0.019)	0.004 (0.001-0.009)	0.010 (0.001-0.017)	0.0007 (0.0004-0.0011)	0.00022 (<0.00006-0.00082)	0.008 (0.004-0.018)



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	1.580 (0.279-3.547)	0.110 (0.028-0.298)	0.006 (<0.002-0.012)	0.028 (0.012-0.052)	0.655 (0.056-3.10)	0.008 (0.003-0.012)	0.002 (0.001-0.003)	0.008 (0.003-0.011)	0.0011 (0.0002-0.0024)	0.00007 (<0.00006-0.00019)	0.009 (0.003-0.040)
29.	Bhubaneswar U/s	2.541 (0.914-5.923)	0.090 (0.009-0.234)	0.007 (<0.002-0.015)	0.027 (0.012-0.47)	1.606 (0.220-7.000)	0.008 (0.003-0.013)	0.002 (0.002-0.003)	0.009 (0.006-0.012)	0.0010 (0.0002-0.0021)	0.00006 (<0.00006-0.00013)	0.009 (0.004-0.032)
<b>Daya River</b>												
30.	Bhubaneswar D/s	15.000 (6.876-40.984)	0.451 (0.005-1.119)	0.015 (<0.002-0.025)	0.041 (0.005-0.077)	1.850 (0.36-7.200)	0.012 (0.005-0.021)	0.005 (0.001-0.008)	0.016 (0.004-0.024)	0.0013 (0.0004-0.0026)	0.00017 (<0.00006-0.00032)	0.010 (0.006-0.029)
31.	Bhubaneswar FD/s	13.532 (3.197-40.578)	0.312 (0.094-0.629)	0.009 (<0.002-0.023)	0.030 (0.007-0.064)	1.563 (0.201-3.800)	0.009 (0.003-0.018)	0.004 (0.002-0.007)	0.011 (0.005-0.018)	0.0010 (0.0004-0.0023)	0.00009 (<0.00006-0.00025)	0.009 (0.006-0.031)
<b>Birupa River</b>												
32.	Choudwar D/s	2.575 (0.235-7.830)	0.074 (0.011-0.230)	0.006 (<0.002-0.021)	0.022 (0.012-0.052)	0.743 (0.130-2.200)	0.008 (0.005-0.016)	0.004 (0.002-0.011)	0.009 (0.002-0.018)	0.0010 (0.0003-0.0026)	0.00008 (<0.00006-0.00025)	0.006 (0.004-0.009)
	<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 January-December, 2016 excluding May and June, 2016

**(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>Sankhriver</b>																
1.	Sankha U/s	68 (5-378)	47 (24-60)	8.8 (3.6-15.2)	0.056 (0.056-0.056)	0.002 (0-0.007)	1.19 (0.84-1.68)	1583 (330-4900)	143 (97-169)	0.39 (0.20-0.64)	0.052 (0.003-0.273)	82 (57-96)	49 (30-68)	10.1 (5.9-15.7)	9.7 (4.0-31.6)	0.439 (0.280-0.630)
<b>Koelriver</b>																
2.	Koel U/s	165 (7-1037)	69 (24-120)	11.4 (4.0-24.2)	0.065 (0.056-0.112)	0.002 (0.001-0.004)	1.28 (0.84-1.68)	9153 (330-24000)	179 (122-267)	0.27 (0.15-0.40)	0.061 (0.007-0.283)	101 (72-144)	69 (36-106)	8.0 (3.9-10.8)	11.4 (3.7-27.5)	0.390 (0.240-0.590)
<b>Brahmani river</b>																
3.	Panposh U/s	103 (5-655)	64 (32-116)	9.3 (4.0-16.2)	0.439 (0.056-4.424)	0.018 (0-0.177)	1.28 (0.56-1.96)	10240 (490-54000)	157 (94-271)	0.31 (0.24-0.38)	0.070 (0.003-0.296)	92 (56-154)	60 (28-98)	8.6 (5.9-13.7)	10.4 (4.1-22.3)	0.385 (0.230-0.490)
4.	Panposh D/s	159 (14-926)	52 (20-88)	33.9 (20.3-52.5)	5.273 (0.056-11.648)	0.035 (0-0.175)	9.08 (1.12-23.24)	53167 (11000-160000)	257 (151-363)	0.62 (0.22-0.96)	0.109 (0.011-0.354)	149 (81-206)	85 (58-106)	22.4 (7.8-48.9)	36.6 (9.6-67.0)	1.066 (0.300-1.900)
5.	Rourkela D/s	163 (6-986)	55 (20-90)	28.9 (17.8-52.5)	3.085 (0.056-10.808)	0.020 (0-0.108)	5.32 (1.12-12.88)	38567 (7900-160000)	220 (133-286)	0.49 (0.25-0.71)	0.077 (0.003-0.307)	125 (79-156)	75 (56-94)	16.1 (6.9-22.5)	25.3 (7.7-57.1)	0.833 (0.290-1.700)
6.	Biritola	166 (5-938)	66 (32-136)	13.0 (6.8-18.2)	0.966 (0.056-9.968)	0.037 (0-0.399)	1.45 (0.56-2.52)	2862 (68-13000)	197 (112-319)	0.44 (0.16-0.75)	0.060 (0.003-0.297)	114 (66-198)	71 (40-144)	13.9 (3.9-24.4)	15.2 (4.3-29.0)	0.583 (0.300-1.000)
7.	Attaghat#	151 (7-861)	67 (28-112)	18.6 (10.7-28.8)	1.125 (0.056-11.2)	0.031 (0-0.336)	2.80 (1.12-15.96)	11459 (220-54000)	220 (143-307)	0.59 (0.20-1.20)	0.058 (0.003-0.151)	126 (82-168)	72 (42-116)	19.1 (4.9-35.2)	18.6 (3.6-31.0)	0.582 (0.290-0.890)
8.	Bonaigarh	120 (4-778)	65 (20-96)	10.5 (5.6-17.8)	0.098 (0.056-0.168)	0.003 (0-0.007)	1.45 (0.84-1.96)	2542 (<1.8-13000)	200 (93-282)	0.52 (0.32-0.88)	0.139 (0.003-0.667)	114 (58-156)	67 (36-84)	15.9 (7.8-27.4)	14.2 (4.8-27.5)	0.529 (0.300-0.810)

# Data for the period January-December, 2015 excluding November, 2016

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	37 (3-131)	49 (36-60)	8.1 (3.6-17.8)	0.065 (0.056-0.112)	0.002 (0.001-0.006)	1.33 (0.84-1.68)	1366 (45-5400)	138 (88-169)	0.32 (0.19-0.45)	0.069 (0.007-0.287)	79 (59-99)	49 (38-64)	8.5 (5.9-12.7)	10.2 (5.5-19.4)	0.372 (0.170-0.690)
10.	Samal	43 (5-169)	50 (34-64)	8.9 (5.6-13.7)	0.056 (0.056-0.056)	0.001 (0-0.004)	1.07 (0.84-1.40)	1405 (78-3500)	141 (103-205)	0.42 (0.22-0.95)	0.085 (0.003-0.322)	82 (65-119)	48 (36-60)	10.6 (5.9-22.5)	7.3 (2.7-15.1)	0.376 (0.220-0.510)
11.	Talcher FU/s	34 (2-156)	49 (40-58)	8.4 (3.9-14.1)	0.056 (0.056-0.056)	0.004 (0.001-0.005)	1.17 (0.84-1.40)	1586 (78-4900)	144 (117-198)	0.40 (0.23-0.95)	0.048 (0.014-0.105)	82 (65-109)	50 (36-64)	10.4 (5.9-23.5)	9.7 (3.6-17.2)	0.390 (0.200-0.920)
12.	Talcher U/s	41 (2-156)	50 (36-64)	10.4 (6.7-14.8)	0.070 (0.056-0.112)	0.004 (0.002-0.011)	1.21 (0.56-1.68)	3260 (130-7900)	138 (116-163)	0.30 (0.23-0.50)	0.080 (0.021-0.376)	80 (68-98)	50 (36-64)	8.1 (5.9-14.7)	10.6 (4.1-17.9)	0.371 (0.210-0.610)
13.	Talcher D/s	58 (10-277)	59 (38-108)	15.6 (4.9-23.9)	0.065 (0.056-0.112)	0.004 (0.001-0.011)	1.24 (0.56-1.68)	5278 (330-17000)	175 (133-358)	0.30 (0.20-0.36)	0.068 (0.011-0.130)	103 (75-218)	68 (46-164)	8.9 (7.8-11.7)	18.5 (5.6-68.4)	0.548 (0.250-1.900)
14.	Talcher FD/s	57 (9-278)	63 (56-80)	10.8 (6.6-15.2)	0.065 (0.056-0.112)	0.004 (0.001-0.007)	1.17 (0.84-1.40)	2149 (330-7900)	181 (151-240)	0.39 (0.22-0.47)	0.059 (0.003-0.141)	105 (88-138)	68 (52-118)	11.6 (8.8-14.7)	15.2 (6.0-29.1)	0.668 (0.280-2.200)
15.	Dhenkanal U/s	44 (3-123)	59 (40-96)	8.4 (4.1-11.6)	0.061 (0.056-0.112)	0.003 (0.001-0.006)	1.28 (0.84-1.68)	19225 (1700-54000)	157 (113-242)	0.31 (0.23-0.43)	0.083 (0.007-0.326)	91 (68-138)	57 (42-92)	8.7 (5.9-11.7)	11.5 (6.7-16.9)	0.468 (0.250-0.770)
16.	Dhenkanal D/s	46 (5-122)	65 (46-96)	10.7 (6.2-15.7)	0.061 (0.056-0.112)	0.004 (0.001-0.007)	1.21 (0.84-1.68)	12567 (1300-54000)	179 (140-285)	0.37 (0.27-0.77)	0.079 (0.010-0.323)	105 (80-157)	64 (46-100)	11.2 (6.8-25.4)	13.2 (6.7-18.9)	0.436 (0.260-0.650)
17.	Bhuban	67 (4-267)	53 (40-86)	10.2 (3.9-14.4)	0.079 (0.056-0.280)	0.004 (0.001-0.011)	1.31 (0.84-1.96)	3602 (130-17000)	155 (111-267.3)	0.34 (0.22-0.56)	0.065 (0.003-0.330)	87 (67-107)	54 (44-74)	9.2 (5.9-15.7)	11.7 (4.2-23.5)	0.441 (0.290-0.590)
18.	Kabatabandha	66 (6-234)	54 (44-72)	9.8 (5.8-18.2)	0.075 (0.056-0.112)	0.004 (0-0.009)	1.28 (0.84-1.68)	4388 (130-16000)	159 (138-184)	0.35 (0.22-0.57)	0.084 (0.003-0.351)	91 (79-104)	56 (44-68)	9.5 (5.9-15.7)	11.8 (5.1-22.5)	0.416 (0.270-0.600)

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 U/s	31 (2-170)	71 (48-96)	9.0 (4.0-12.1)	0.076 (0.056-0.112)	0.005 (0.001-0.009)	1.19 (0.56-1.68)	1053 (78-2200)	180 (135-225)	0.42 (0.21-0.62)	0.096 (0.003-0.604)	103 (77-132)	69 (50-90)	12.8 (5.9-17.6)	7.1 (1.4-14.0)	0.293 (0.110-0.420)
20.	Dharmasala D/s	30 (5-151)	71 (48-92)	11.4 (5.6-18.8)	0.098 (0.056-0.168)	0.007 (0.001-0.017)	1.24 (0.28-1.68)	2048 (78-7000)	185 (130-237)	0.38 (0.21-0.63)	0.118 (0.007-0.713)	107 (71-136)	71 (44-90)	12.0 (5.9-18.6)	9.2 (2.8-14.4)	0.269 (0.120-0.400)
21.	Pottamundai	48 (5-259)	76 (48-100)	10.1 (4.0-19.8)	0.075 (0.056-0.112)	0.005 (0.001-0.014)	1.31 (0.56-1.68)	6832 (490-24000)	210 (147-264)	0.45 (0.36-0.51)	0.080 (0.010-0.232)	120 (85-147)	76 (48-100)	14.8 (10.8-19.6)	11.8 (3.5-17.4)	0.407 (0.250-0.620)
<b>Nandira River</b>																
22.	Nandira river before confluence with river Brahmani	22 (12-38)	139 (104-212)	19.3 (8.2-25.6)	0.075 (0.056-0.224)	0.008 (0.002-0.028)	1.28 (0.56-1.96)	3827 (130-13000)	435 (332-535)	0.60 (0.46-0.72)	0.203 (0.034-0.390)	254 (191-312)	170 (120-208)	28.8 (22.5-34.3)	47.6 (17.9-81.1)	1.924 (0.750-3.000)
<b>KisindaJhor</b>																
23.	Kisindajhor	38 (5-154)	121 (72-172)	12.1 (4.0-18.3)	0.089 (0.056-0.224)	0.008 (0.002-0.018)	1.40 (0.84-2.24)	3278 (78-17000)	431 (213-573)	0.92 (0.47-1.48)	0.160 (0.08-0.228)	247 (124-336)	150 (74-200)	43.3 (15.6-76.3)	40.0 (12.3-59.5)	1.389 (0.230-2.600)
<b>Kharasrota River</b>																
24.	Khanditara	33 (5-158)	53 (42-68)	8.3 (3.9-15.7)	0.084 (0.056-0.280)	0.004 (0.001-0.013)	1.26 (0.84-1.96)	1435 (330-3300)	157 (129-194)	0.37 (0.22-0.68)	0.079 (0.010-0.288)	90 (72-116)	57 (40-78)	10.1 (5.9-19.6)	11.7 (3.8-21.4)	0.389 (0.120-0.790)
25.	Binjharpur	31 (5-142)	59 (42-80)	7.9 (4.0-12.5)	0.061 (0.056-0.112)	0.003 (0.001-0.007)	1.05 (0.56-1.40)	2116 (790-4900)	160 (121-197)	0.37 (0.23-0.67)	0.076 (0.007-0.284)	92 (69-114)	61 (46-82)	10.4 (5.9-16.6)	10.6 (3.6-21.4)	0.271 (0.100-0.460)
26.	Aul	59 (11-203)	63 (48-84)	10.1 (5.4-18.0)	0.084 (0.056-0.336)	0.005 (0-0.033)	1.26 (0.84-1.96)	12216 (790-92000)	187 (133-337)	0.52 (0.31-1.67)	0.107 (0.021-0.485)	108 (77-198)	65 (46-82)	16.1 (8.8-54.8)	12.2 (6.3-22.0)	0.381 (0.240-0.530)
<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)										
		Nitrate as NO <sub>3</sub> <sup>-</sup> (mg/l)	PO <sub>4</sub> <sup>3-</sup> -P	Cr(VI)	T. Cr	Fe	Ni##	Cu##	Zn##	Cd##	Hg	Pb##
<b>SankhaRiver</b>												
1.	Sankha U/s	2.406 (0.704-10.963)	0.144 (0.029-0.430)	0.009 (<0.002-0.028)	0.026 (0.010-0.054)	1.879 (0.050-7.200)	0.009 (0.001-0.052)	0.003 (0.001-0.007)	0.007 (0.001-0.013)	0.0008 (0.0004-0.0021)	0.00013 (<0.00006-0.00057)	0.005 (0.003-0.007)
<b>Koel River</b>												
2.	Koel U/s	5.022 (0.154-20.507)	0.161 (0.018-0.439)	0.008 (<0.002-0.025)	0.030 (0.010-0.071)	2.727 (0.120-7.850)	0.007 (0.003-0.020)	0.005 (0.001-0.012)	0.010 (0.005-0.016)	0.0009 (0.0003-0.0023)	0.00013 (<0.00006-0.00044)	0.007 (0.004-0.009)
<b>Brahmani river</b>												
3.	Panposh U/s	3.266 (1.101-12.200)	0.156 (0.017-0.394)	0.010 (<0.002-0.026)	0.026 (0.008-0.057)	1.900 (0.150-6.700)	0.005 (0.002-0.012)	0.003 (0.001-0.007)	0.008 (0.002-0.018)	0.0008 (0.0003-0.0018)	0.00005 (<0.00006-0.00019)	0.005 (0.003-0.008)
4.	Panposh D/s	12.763 (0.219-42.519)	0.217 (0.002-1.100)	0.015 (0.002-0.028)	0.042 (0.020-0.076)	2.977 (0.260-6.100)	0.010 (0.004-0.020)	0.006 (0.002-0.014)	0.015 (0.004-0.031)	0.0012 (0.0006-0.0019)	0.00027 (0.00012-0.00070)	0.008 (0.006-0.010)
5.	Rourkela D/s	13.099 (2.866-28.884)	0.269 (0.004-1.210)	0.013 (<0.002-0.028)	0.038 (0.018-0.066)	1.638 (0.150-6.800)	0.011 (0.005-0.034)	0.006 (0.001-0.012)	0.015 (0.005-0.026)	0.0011 (0.0004-0.0023)	0.00018 (<0.00006-0.00044)	0.008 (0.004-0.012)
6.	Biritola	7.021 (0.556-18.937)	0.170 (0.004-0.810)	0.010 (<0.002-0.021)	0.030 (0.013-0.054)	1.791 (0.160-7.900)	0.013 (0.002-0.068)	0.004 (0.001-0.009)	0.011 (0.001-0.023)	0.0010 (0.0004-0.0023)	0.00010 (<0.00006-0.00032)	0.006 (0.003-0.011)
7.	Attaghat#	8.222 (1.069-17.006)	0.191 (0.003-0.830)	0.009 (<0.002-0.026)	0.028 (0.015-0.054)	2.486 (0.110-7.000)	0.008 (0.004-0.021)	0.006 (0.002-0.010)	0.013 (0.004-0.022)	0.0009 (0.0004-0.0023)	0.00019 (<0.00006-0.00082)	0.007 (0.004-0.010)
8.	Bonaigarh	6.972 (0.912-16.873)	0.155 (0.020-0.770)	0.008 (<0.002-0.025)	0.023 (0.011-0.047)	1.171 (0.110-6.700)	0.008 (0.004-0.021)	0.004 (0.002-0.008)	0.012 (0.006-0.023)	0.0008 (0.0004-0.0022)	0.00009 (<0.00006-0.00032)	0.006 (0.003-0.011)
9.	Rengali	2.807 (0.700-5.939)	0.132 (0.002-0.324)	0.009 (<0.002-0.018)	0.025 (0.013-0.044)	1.502 (0.110-7.600)	0.011 (0.005-0.021)	0.004 (0.002-0.008)	0.013 (0.006-0.022)	0.0004 (0.0004-0.0021)	0.00010 (<0.00006-0.00038)	0.008 (0.004-0.014)

# Data for the period January-December, 2016 excluding November, 2016

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)								
10.	Samal	9.150 (1.096-44.016)	0.131 (0.003-0.390)	0.009 (<0.002-0.020)	0.026 (0.013-0.059)	2.348 (0.120-8.100)	0.010 (0.004-0.018)	0.004 (0.001-0.007)	0.012 (0.004-0.031)	0.0009 (0.0003-0.0019)	0.00013 (<0.00006-0.00051)	0.008 (0.004-0.013)
11.	Talcher FU/s	2.784 (0.713-13.066)	0.113 (0.011-0.380)	0.007 (<0.002-0.018)	0.024 (0.012-0.040)	0.948 (0.120-3.120)	0.009 (0.002-0.021)	0.003 (0.001-0.005)	0.010 (0.001-0.030)	0.0009 (0.0003-0.0020)	0.00008 (<0.00006-0.00063)	0.005 (0.002-0.008)
12.	Talcher U/s	3.294 (1.036-13.467)	0.117 (0.024-0.340)	0.009 (<0.002-0.018)	0.026 (0.012-0.044)	1.423 (0.060-7.900)	0.008 (0.001-0.014)	0.004 (0.001-0.006)	0.009 (0.001-0.018)	0.0010 (0.0003-0.0023)	0.00003 (<0.00006-0.00013)	0.006 (0.002-0.009)
13.	Talcher D/s	6.096 (1.377-16.036)	0.183 (0.022-0.540)	0.013 (<0.002-0.023)	0.034 (0.025-0.047)	1.296 (0.090-4.700)	0.011 (0.003-0.018)	0.006 (0.003-0.010)	0.016 (0.009-0.025)	0.0014 (0.0004-0.0024)	0.00010 (<0.00006-0.00025)	0.008 (0.005-0.011)
14.	Talcher FD/s	5.019 (0.881-24.400)	0.143 (0.019-0.590)	0.011 (<0.002-0.021)	0.031 (0.022-0.039)	1.725 (0.020-8.000)	0.011 (0.002-0.025)	0.005 (0.001-0.010)	0.010 (0.002-0.017)	0.0011 (0.0003-0.0023)	0.00004 (<0.00006-0.00006)	0.005 (0.003-0.009)
15.	Dhenkanal U/s	3.888 (1.009-14.159)	0.127 (0.025-0.470)	0.009 (<0.002-0.021)	0.027 (0.015-0.042)	2.045 (0.020-9.000)	0.009 (0.002-0.026)	0.004 (0.001-0.008)	0.010 (0.003-0.017)	0.0010 (0.0004-0.0023)	0.00009 (<0.00006-0.00019)	0.007 (0.003-0.012)
16.	Dhenkanal D/s	5.472 (0.895-14.159)	0.133 (0.025-0.370)	0.011 (<0.002-0.028)	0.032 (0.015-0.044)	2.038 (0.040-8.200)	0.011 (0.006-0.023)	0.005 (0.003-0.008)	0.014 (0.003-0.025)	0.0011 (0.0004-0.0023)	0.00014 (<0.00006-0.00032)	0.009 (0.004-0.014)
17.	Bhuban	4.322 (0.607-15.766)	0.147 (0.009-0.500)	0.014 (<0.002-0.035)	0.044 (0.013-0.092)	1.403 (0.080-3.470)	0.007 (0.004-0.012)	0.006 (0.001-0.012)	0.010 (0.005-0.014)	0.0010 (0.0002-0.0023)	0.00017 (<0.00006-0.00025)	0.008 (0.004-0.011)
18.	Kabatabandha	4.532 (0.416-20.696)	0.186 (0.030-0.440)	0.015 (<0.002-0.042)	0.047 (0.018-0.094)	2.117 (0.050-7.400)	0.043 (0.001-0.039)	0.004 (0.001-0.009)	0.009 (0.002-0.015)	0.0010 (0.0003-0.0020)	0.00014 (<0.00006-0.00044)	0.007 (0.002-0.012)
19.	Dharmasala U/s	2.142 (0.394-5.091)	0.097 (0.009-0.320)	0.008 (<0.002-0.015)	0.026 (0.013-0.044)	1.201 (0.080-7.900)	0.008 (0.004-0.013)	0.004 (0.002-0.006)	0.008 (0.002-0.017)	0.0009 (0.0004-0.0025)	0.00006 (<0.00006-0.00025)	0.007 (0.006-0.009)

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##	Cu##	Zn##	Cd##	Hg	Pb##
		(mg/l)		(mg/l)								
20.	Dharmasala D/s	3.233 (0.965-6.429)	0.098 (0.017-0.300)	0.010 (<0.002-0.025)	0.028 (0.012-0.037)	1.121 (0.040-7.200)	0.008 (0.004-0.013)	0.005 (0.003-0.008)	0.012 (0.002-0.022)	0.0009 (0.0004-0.0021)	0.00008 (<0.00006-0.00032)	0.007 (0.005-0.010)
21	Pottamundai	3.956 (0.828-11.806)	0.087 (0.014-0.370)	0.008 (<0.002-0.030)	0.027 (0.008-0.052)	1.468 (0.100-4.450)	0.008 (0.004-0.011)	0.005 (0.001-0.008)	0.012 (0.005-0.036)	0.0009 (0.0002-0.0016)	0.00018 (<0.00006-0.00095)	0.006 (0.002-0.012)
<b>Nandira River</b>												
22.	Nandira river before confluence with river Brahmani	7.131 (0.935-31.738)	0.289 (0.049-1.300)	0.015 (<0.002-0.033)	0.041 (0.015-0.072)	1.092 (0.100-4.100)	0.014 (0.006-0.032)	0.006 (0.003-0.012)	0.027 (0.013-0.050)	0.0013 (0.0005-0.0026)	0.00025 (<0.00006-0.00070)	0.011 (0.006-0.016)
<b>KisindaJhor</b>												
23.	Kisindajhor	4.111 (0.519-8.167)	0.263 (0.021-1.900)	0.015 (<0.002-0.031)	0.040 (0.018-0.064)	0.567 (0.120-2.000)	0.015 (0.005-0.038)	0.007 (0.001-0.014)	0.024 (0.006-0.049)	0.0014 (0.0004-0.0029)	0.00023 (<0.00006-0.00057)	0.011 (0.005-0.021)
<b>KharasrotaRiver</b>												
24.	Khanditara	3.181 (0.519-10.336)	0.133 (0.012-0.790)	0.010 (<0.002-0.023)	0.030 (0.015-0.054)	0.739 (0.130-2.700)	0.008 (0.004-0.014)	0.004 (0.001-0.008)	0.008 (0.004-0.016)	0.0009 (0.0002-0.0023)	0.00011 (<0.00006-0.00044)	0.007 (0.005-0.010)
25.	Binjharpur	1.974 (0.768-7.949)	0.109 (0.017-0.430)	0.011 (<0.002-0.028)	0.034 (0.013-0.064)	0.861 (0.170-2.600)	0.008 (0.002-0.012)	0.003 (0.001-0.006)	0.007 (0.001-0.012)	0.0008 (0.0003-0.0023)	0.00015 (<0.00006-0.00070)	0.006 (0.003-0.009)
26.	Aul	4.439 (1.289-12.564)	0.088 (0.014-0.410)	0.010 (<0.002-0.023)	0.033 (0.013-0.049)	2.196 (0.260-5.800)	0.009 (0.006-0.012)	0.005 (0.002-0.007)	0.013 (0.007-0.041)	0.0008 (0.0002-0.0011)	0.00009 (<0.00006-0.00070)	0.007 (0.003-0.011)
<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 January-December, 2016 excluding May and June, 2016

**(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	163 (3-1279)	109 (64-144)	8.2 (4.2-13.6)	0.056 (0.056-0.056)	0.006 (0.002-0.007)	1.20 (0.84-1.40)	6196 (490-24000)	260 (161-326)	0.33 (0.19-0.48)	0.096 (0.003-0.337)	142 (92-172)	105 (62-130)	12.4 (5.9-17.6)	10.0 (3.8-23.9)	0.374 (0.230-0.510)
<b>Baitarani river</b>																
2.	Joda	163 (6-1200)	46 (28-72)	9.1 (3.6-20.3)	0.070 (0.056-0.112)	0.002 (0.001-0.004)	1.21 (0.56-1.68)	2387 (330-5400)	129 (103-183)	0.35 (0.22-0.71)	0.057 (0.003-0.292)	75 (62-100)	46 (36-60)	7.8 (5.9-10.8)	10.1 (3.1-18.7)	0.323 (0.180-0.450)
3.	Anandpur	65 (5-277)	64 (48-92)	8.9 (4.0-16.9)	0.065 (0.056-0.112)	0.003 (0.001-0.004)	1.10 (0.56-1.68)	4032 (490-24000)	168 (127-300)	0.36 (0.21-1.05)	0.055 (0.003-0.279)	98 (72-168)	62 (40-84)	10.8 (5.9-35.2)	9.6 (3.6-21.0)	0.329 (0.170-0.450)
4.	Jajpur	32 (3-135)	67 (44-76)	13.1 (7.8-19.0)	0.079 (0.056-0.224)	0.004 (0.001-0.009)	1.26 (0.84-1.68)	6308 (1400-17000)	170 (126-230)	0.35 (0.23-0.54)	0.101 (0.007-0.639)	99 (76-124)	65 (40-80)	10.4 (6.9-12.7)	9.1 (1.6-22.4)	0.258 (0.150-0.420)
5.	Chandbali U/s	164 (39-432)	75 (36-112)	18.0 (7.9-30.0)	0.084 (0.056-0.224)	0.003 (0.001-0.011)	1.28 (0.84-1.96)	7399 (490-16000)	11389 (148-58120)	24.13 (0.42-100.66)	0.981 (0.021-4.146)	8502 (84-48240)	1055 (40-5100)	4641 (9.8-26909)	422.7 (3.1-2170.3)	0.382 (0.230-0.670)
6.	Chandbali D/s	235 (31-796)	71 (40-108)	20.1 (9.9-35.0)	0.075 (0.056-0.112)	0.004 (0.001-0.011)	1.31 (0.84-1.68)	25083 (4900-160000)	8635 (149-39160)	21.58 (0.50-80.64)	0.805 (0.062-2.423)	6090 (87-26120)	787 (40-2460)	3308 (11.7-15166.8)	327.4 (2.4-1113.1)	0.335 (0.220-0.470)
<b>Salandiriver</b>																
7.	Bhadrak U/s	16 (3-39)	80 (40-120)	9.4 (6.2-12.7)	0.098 (0.056-0.448)	0.007 (0-0.014)	1.31 (0.84-2.24)	13062 (330-54000)	190 (114-277)	0.38 (0.32-0.51)	0.059 (0.010-0.137)	109 (68-152)	75 (40-104)	12.2 (8.8-14.7)	6.9 (2.4-14.3)	0.273 (0.130-0.380)
8.	Bhadrak D/s	24 (2-76)	85 (36-116)	13.3 (7.9-18.2)	0.079 (0.056-0.168)	0.008 (0.001-0.017)	1.35 (1.12-1.68)	42650 (4900-160000)	212 (125-287)	0.44 (0.28-0.76)	0.066 (0.010-0.154)	123 (72-162)	82 (44-120)	14.7 (7.8-25.4)	9.0 (3.7-24.6)	0.273 (0.130-0.370)



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>Dhamra river</b>																
9.	Dhamra	316 (49-656)	96 (64-164)	35.8 (20.7-49.0)	0.084 (0.056-0.112)	0.002 (0-0.004)	1.38 (1.12-1.68)	9578 (45-16000)	22873 (1698-50910)	45.89 (4.12-98.45)	1.579 (0.021-3.630)	17569 (988-42430)	2694 (350-5400)	9687.1 (293.6-23973.3)	1340.6 (10.4-3905.4)	0.445 (0.170-0.820)
<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>Kuseiriver</b>												
1.	Deogan	2.879 (0.226-6.526)	0.180 (0.022-0.450)	0.009 (<0.002-0.023)	0.027 (0.013-0.039)	2.049 (0.140-7.400)	0.007 (0.003-0.011)	0.004 (0.001-0.010)	0.009 (0.001-0.021)	0.0009 (0.0004-0.0025)	0.00018 (<0.00006-0.00051)	0.007 (0.004-0.011)
<b>Baitarani river</b>												
2.	Joda	4.866 (0.535-22.200)	0.222 (0.038-0.860)	0.012 (<0.002-0.027)	0.039 (0.015-0.070)	1.538 (0.490-5.500)	0.008 (0.002-0.016)	0.004 (0.001-0.013)	0.009 (0.006-0.017)	0.0008 (0.0003-0.0021)	0.00013 (<0.00006-0.00057)	0.006 (0.005-0.009)
3.	Anandpur	4.003 (0.755-25.014)	0.137 (0.012-0.342)	0.009 (<0.002-0.020)	0.032 (0.013-0.044)	1.806 (0.080-6.400)	0.008 (0.003-0.013)	0.004 (0.001-0.006)	0.014 (0.007-0.028)	0.0009 (0.0003-0.0021)	0.00008 (<0.00006-0.00019)	0.007 (0.004-0.011)
4.	Jajpur	2.889 (0.485-8.497)	0.101 (0.012-0.269)	0.006 (<0.002-0.013)	0.024 (0.017-0.032)	1.111 (0.050-3.600)	0.009 (0.004-0.017)	0.005 (0.002-0.010)	0.010 (0.006-0.018)	0.0011 (0.0003-0.0024)	0.00010 (<0.00006-0.00019)	0.007 (0.004-0.010)
5.	Chandbali U/s	3.964 (1.041-11.330)	0.087 (0.011-0.350)	0.014 (0.003-0.025)	0.040 (0.018-0.079)	5.042 (0.870-7.950)	0.007 (0.004-0.013)	0.006 (0.003-0.009)	0.027 (0.007-0.152)	0.0010 (0.0004-0.0017)	0.00014 (<0.00006-0.00044)	0.008 (0.003-0.016)
6.	Chandbali D/s	6.980 (2.591-15.297)	0.125 (0.022-0.330)	0.014 (0.002-0.028)	0.041 (0.018-0.087)	5.148 (0.780-9.870)	0.007 (0.004-0.011)	0.006 (0.003-0.010)	0.018 (0.006-0.041)	0.0011 (0.0004-0.0018)	0.00018 (<0.00006-0.00057)	0.009 (0.002-0.018)
<b>Salandi river</b>												
7.	Bhadrak U/s	1.638 (0.899-2.414)	0.098 (0.002-0.332)	0.010 (<0.002-0.028)	0.028 (0.015-0.044)	0.555 (0.120-1.900)	0.006 (0.001-0.009)	0.002 (0.001-0.005)	0.007 (0.002-0.012)	0.0007 (0.0004-0.0021)	0.00011 (<0.00006-0.00051)	0.005 (0.003-0.008)
8.	Bhadrak D/s	3.722 (0.934-13.693)	0.132 (0.007-0.394)	0.010 (<0.002-0.028)	0.039 (0.018-0.077)	1.410 (0.030-6.220)	0.010 (0.001-0.019)	0.004 (0.001-0.008)	0.010 (0.003-0.016)	0.0010 (0.0003-0.0024)	0.00012 (0.00006-0.00025)	0.007 (0.004-0.012)

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##	Cu##	Zn##	Cd##	Hg	Pb##
		(mg/l)		(mg/l)								
<b>Dhamara river</b>												
9.	Dhamra	6.228 (1.262-14.269)	0.142 (0.022-0.317)	0.014 (0.002-0.026)	0.035 (0.020-0.069)	4.950 (0.340-9.360)	0.010 (0.001-0.023)	0.008 (0.001-0.020)	0.013 (0.002-0.026)	0.0011 (0.0004-0.0023)	0.00008 (<0.00006-0.00025)	0.008 (0.004-0.014)
<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 January-December, 2016 excluding May and June, 2016

**(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	43 (18-133)	107 (68-142)	10.5 (6.8-18.2)	0.061 (0.056-0.112)	0.006 (0.002-0.009)	1.25 (0.84-1.40)	3357 (170-17000)	2564 (246-25070)	5.11 (0.33-52.82)	0.108 (0.039-0.330)	1820 (132-18300)	321 (78-2500)	914.6 (11.7-9785)	117.5 (5.3-1169.1)	0.371 (0.220-0.630)
2.	Potagarh	166 (24-533)	125 (94-200)	28.8 (6.8-45.2)	0.066 (0.056-0.112)	0.003 (0.001-0.004)	1.02 (0.28-1.96)	895 (<1.8-5400)	27904 (308-62730)	56.56 (0.90-128.62)	1.933 (0.070-3.841)	22414 (168-51320)	2577 (96-5600)	12443 (37-29355)	977 (11-2650)	0.514 (0.240-0.880)
<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	6.042 (0.635-24.377)	0.058 (0.003-0.135)	0.010 (<0.002-0.025)	0.031 (0.003-0.071)	1.055 (0.060-2.140)	0.010 (0.006-0.017)	0.003 (0.001-0.005)	0.009 (0.002-0.018)	0.0008 (0.0002-0.0013)	0.00003 (<0.00006-0.00013)	0.007 (0.004-0.013)
2.	Potagarh	6.914 (2.352-30.349)	0.087 (0.003-0.199)	0.013 (<0.002-0.030)	0.039 (0.015-0.081)	2.164 (0.260-5.400)	0.010 (0.006-0.016)	0.005 (0.002-0.009)	0.011 (0.002-0.021)	0.0012 (0.0004-0.0023)	0.00010 (<0.00006-0.00038)	0.009 (0.006-0.011)
<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 January-December, 2016 excluding May and June, 2016**

**(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)				(MPN/100ml)	(µS/cm)	(mg/l)						
<b>Nagavali river</b>																
1.	Penta	55 (6-194)	83 (62-96)	7.9 (3.6-19.6)	0.061 (0.056-0.112)	0.003 (BDL-0.004)	1.24 (0.84-1.96)	5189 (490-17000)	190 (147-214)	0.31 (0.22-0.51)	0.074 (0.003-0.282)	113 (102-126)	79 (66-94)	10.4 (7.8-19.6)	11.3 (2.6-21.8)	0.283 (0.160-0.420)
2.	Jaykaypur D/s	80 (14-213)	96 (68-132)	18.3 (9.7-24.2)	0.065 (0.056-0.112)	0.003 (0.001-0.009)	1.24 (0.84-1.40)	13650 (3300-35000)	259 (199-404)	0.44 (0.31-0.80)	0.081 (0.003-0.297)	149 (114-232)	97 (76-134)	16.2 (10.8-34.2)	19.5 (4.5-35.9)	0.281 (0.180-0.400)
3.	Rayagada D/s	103 (14-330)	110 (80-182)	12.2 (6.3-19.6)	0.065 (0.056-0.112)	0.003 (0.001-0.007)	1.24 (0.84-1.68)	17058 (1300-54000)	301 (210-393)	0.53 (0.30-0.82)	0.087 (0.003-0.309)	169 (125-226)	107 (74-148)	20.5 (10.8-33.3)	17.3 (4.8-28.7)	0.285 (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**

**(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##	Cu##	Zn##	Cd##	Hg	Pb##
		(mg/l)		(mg/l)								
<b>Nagavali river</b>												
1.	Penta	3.304 (0.155-10.137)	0.086 (0.018-0.250)	0.010 (<0.002-0.028)	0.029 (0.013-0.050)	2.433 (0.010-6.660)	0.006 (0.002-0.011)	0.003 (0.001-0.005)	0.007 (0.002-0.012)	0.0014 (0.0003-0.0069)	0.00010 (<0.00006-0.00051)	0.005 (0.003-0.006)
2.	Jaykaypur D/s	6.558 (1.996-15.088)	0.169 (0.012-0.379)	0.015 (<0.002-0.037)	0.038 (0.018-0.069)	2.990 (0.130-6.680)	0.010 (0.004-0.017)	0.005 (0.001-0.008)	0.015 (0.002-0.026)	0.0010 (0.0004-0.0021)	0.00026 (0.00006-0.00044)	0.008 (0.004-0.011)
3.	Rayagada D/s	7.621 (0.667-20.960)	0.189 (0.040-0.349)	0.014 (<0.002-0.035)	0.036 (0.015-0.062)	3.418 (0.120-8.600)	0.008 (0.003-0.014)	0.005 (0.001-0.010)	0.013 (0.005-0.019)	0.0010 (0.0004-0.0024)	0.00017 (0.00006-0.00038)	0.007 (0.002-0.009)
<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 January-December, 2016 excluding May and June, 2016**

**(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	39 (9-197)	80 (46-96)	10.7 (5.6-16.1)	0.056 (0.056-0.056)	0.004 (0.002-0.005)	1.26 (1.12-1.40)	1671 (330-4900)	266 (123-363)	0.76 (0.27-1.45)	0.075 (0.003-0.435)	151 (75-207)	84 (46-100)	26.1 (6.9-48.9)	17.5 (6.2-36.1)	0.513 (0.090-0.910)
<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)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
<b>Subarnarekha river</b>													
1.	Rajghat	2.185 (0.576-4.787)		0.146 (0.004-0.800)	0.011 (<0.002-0.020)	0.030 (0.006-0.052)	1.410 (0.190-5.500)	0.006 (0.003-0.011)	0.004 (0.001-0.011)	0.008 (0.004-0.013)	0.0008 (0.0003-0.0021)	0.00007 (<0.00006-0.00032)	0.007 (0.004-0.014)
<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 January-December, 2016 excluding May and June, 2016

**(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	55 (11-238)	89 (48-116)	13.0 (3.8-22.6)	0.061 (0.056-0.112)	0.004 (0.001-0.007)	1.35 (1.12-1.68)	11434 (2300-35000)	237 (149-328)	0.47 (0.27-1.09)	0.066 (0.003-0.428)	1511 (102-9980)	88 (52-108)	17.1 (9.6-39.1)	13.6 (6.2-24.6)	0.306 (0.100-0.530)
2.	Balasore U/s	52 (7-164)	81 (44-112)	11.2 (3.9-16.1)	0.070 (0.056-0.224)	0.004 (0.001-0.005)	1.21 (0.84-1.68)	6483 (490-24000)	227 (132-371)	0.50 (0.28-1.24)	0.153 (0.007-0.980)	79 (46-100)	16.7 (7.8-45.0)	14.0 (8.0-24.4)	0.348 (0.190-0.510)	0.348 (0.190-0.510)
3.	Balasore D/s	124 (10-293)	95 (64-138)	16.9 (7.1-26.9)	0.065 (0.056-0.112)	0.003 (0.001-0.004)	1.31 (1.12-1.68)	20158 (3300-54000)	2319 (186-16000)	6.96 (0.40-33.43)	0.225 (0.025-1.604)	282 (60-1600)	704.3 (12.7-4941.4)	179.6 (2.2-1170.0)	0.438 (0.070-0.810)	0.438 (0.070-0.810)
<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##	Cu##	Zn##	Cd##	Hg	Pb##
		(mg/l)		(mg/l)								
<b>Budhabalanga river</b>												
1.	Baripada D/s	2.624 (0.062-4.033)	0.121 (0.018-0.281)	0.009 (<0.002-0.018)	0.028 (0.017-0.054)	0.855 (0.100-2.930)	0.008 (0.003-0.012)	0.006 (0.001-0.015)	0.014 (0.002-0.032)	0.0009 (0.0004-0.0021)	0.00018 (<0.00006-0.00063)	0.008 (0.004-0.018)
2.	Balasure U/s	1.802 (0.064-6.355)	0.097 (0.003-0.290)	0.008 (<0.002-0.020)	0.028 (0.008-0.064)	1.888 (0.120-5.700)	0.008 (0.004-0.017)	0.005 (0.001-0.015)	0.018 (0.006-0.064)	0.0009 (0.0003-0.0023)	0.00008 (<0.00006-0.00038)	0.007 (0.002-0.014)
3.	Balasure D/s	5.654 (0.381-13.427)	0.149 (0.006-0.320)	0.016 (0.002-0.026)	0.047 (0.012-0.071)	5.363 (0.490-25.000)	0.010 (0.006-0.016)	0.005 (0.001-0.012)	0.022 (0.004-0.040)	0.0011 (0.0004-0.0024)	0.00023 (0.00006-0.00076)	0.010 (0.004-0.018)
<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 January-December, 2016 excluding May and June, 2016

(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>Kerandiriver</b>																
1.	Sunabeda	89 (9-730)	26 (20-32)	8.8 (5.1-14.5)	0.075 (0.056-0.224)	0.002 (BDL-0.004)	1.33 (0.84-1.68)	8755 (170-54000)	93 (79-116)	0.37 (0.25-0.48)	0.127 (0.003-0.700)	53 (43-68)	29 (24-42)	7.3 (5.9-9.8)	8.7 (2.7-17.7)	0.243 (0.100-0.370)
<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##	Cu##	Zn##	Cd##	Hg	Pb##
		(mg/l)				(mg/l)						
<b>Kerandiriver</b>												
1.	Sunabeda	3.503 (1.089-9.017)	0.114 (0.010-0.212)	0.011 (<0.002-0.025)	0.031 (0.012-0.069)	2.999 (0.460-7.800)	0.006 (0.001-0.012)	0.004 (0.001-0.011)	0.009 (0.002-0.018)	0.0007 (0.0003-0.0022)	0.00006 (<0.00006-0.00044)	0.005 (0.001-0.011)
<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 January-December, 2016 excluding May and June, 2016

(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	42 (9-155)	82 (64-132)	7.4 (4.0-9.5)	0.056 (0.056-0.056)	0.004 (0.001-0.005)	1.10 (0.56-1.40)	1804 (130-4600)	193 (157-293)	0.33 (0.24-0.38)	0.056 (0.014-0.253)	111 (95-168)	76 (58-114)	10.35 (7.82-13.69)	7.6 (3.0-16.3)	0.281 (0.150-0.410)
2.	Gunupur	115 (9-508)	94 (56-140)	8.6 (3.2-14.2)	0.056 (0.056-0.056)	0.003 (0.001-0.007)	1.19 (0.84-1.40)	1676 (330-4600)	226 (133-322)	0.34 (0.23-0.66)	0.087 (0.023-0.288)	126 (78-172)	86 (50-120)	11.82 (6.85-26.42)	9.5 (2.4-19.8)	0.280 (0.170-0.410)
<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##	Cu##	Zn##	Cd##	Hg	Pb##	
		(mg/l)				(mg/l)							
<b>Vansadhara river</b>													
1.	Muniguda	3.334 (0.337-10.093)	0.108 (0.014-0.296)	0.009 (<0.002-0.021)	0.027 (0.013-0.056)	1.787 (0.170-5.970)	0.008 (0.005-0.011)	0.005 (0.002-0.008)	0.015 (0.004-0.036)	0.0009 (0.0003-0.0023)	0.00008 (<0.00006-0.00044)	0.006 (0.004-0.009)	
2.	Gunupur	3.901 (0.376-13.959)	0.116 (0.015-0.330)	0.010 (0.002-0.025)	0.034 (0.018-0.066)	2.581 (0.16-8.19)	0.008 (0.004-0.016)	0.004 (0.001-0.006)	0.011 (0.004-0.018)	0.0009 (0.0003-0.0021)	0.00013 (<0.00006-0.00038)	0.006 (0.004-0.011)	
<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 January-December, 2016 excluding May and June, 2016

