

Water Quality of Taladanda Canal with respect to Criteria parameters during 2016 (January-December)

Sl. No	Sampling Location	No. of Obs.	Annual average values (Range of values)					Frequency of violation (Percent of violation) from designated criteria value				Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters					DO	BOD	TC	FC			
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)	FC (MPN/100 ml)							
1.	Jobra*	4	8.0 (7.8-8.4)	6.9 (6.1-7.6)	0.7 (0.4-1.3)	9525 (3300-22000)	5725 (2300-14000)	0	0	4 ^{\$} (100) 2 ^{\$\$} (50)	3 (75)	Does not conform to Class B,C	TC,FC	Human activities
2.	Ranihat*	4	7.9 (7.6-8.5)	6.8 (6.4-7.3)	1.8 (0.8-3.7)	238000 (92000-540000)	181000 (54000-350000)	0	1 (25)	4 ^{\$} (100) 4 ^{\$\$} (100)	4 (100)	Does not conform to Class B & C	BOD, TC,FC	Human activities and waste water of Cuttack town
3.	Chhatrabazar*	4	7.9 (7.8-8.4)	7.0 (6.1-8.0)	1.4 (0.4-2.8)	503000 (92000 - >1600000)	476500 (54000 - 1600000)	0	0	4 ^{\$} (100) 4 ^{\$\$} (100)	4 (100)		TC,FC	
4.	Nuabazar*	4	7.9 (7.4-8.5)	6.7 (5.9-7.6)	1.7 (1.0-3.1)	162500 (160000-170000)	118500 (92000-160000)	0	1 (25)	4 ^{\$} (100) 4 ^{\$\$} (100)	4 (100)	Does not conform to Class B & C	BOD, TC,FC	Human activities
5.	Biribati*	4	7.9 (7.4-8.4)	6.6 (6.1-7.3)	1.1 (0.9-1.2)	116500 (54000-160000)	85250 (35000-160000)	0	0	4 ^{\$} (100) 4 ^{\$\$} (100)	4 (100)		TC,FC	
6.	Atharabanki**	11	8.0 (7.4-8.5)	6.7 (4.9-9.6)	3.0 (1.4-5.3)	86818 (13000 - >160000)	63900 (7900 - >160000)	1 ^{\$} (9)	4 (36)	4 ^{\$} (100) 4 ^{\$\$} (100)	4 (100)	Does not conform to Class B & C	DO, BOD, TC,FC	Human activities
***Class 'C'			6.5-8.5	4 and above	3 or less	5000 or less	Drinking water source with conventional treatment followed by disinfection							
***Class 'B'			6.5-8.5	5 and above	3 or less	500 or less	Outdoor bathing							
Water quality criteria for bathing water			6.5-8.5	5 and above	3 or less	2500 (Maximum Permissible)	Water use for organised outdoor bathing (MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000)							

* Data for the period August-November, 2016

** Data for the period January-December, 2016 excluding February, 2016

*** Tolerance limits for Inland Surface water bodies (IS-2296-1982) \$ for Class C and \$\$ for Class B

NB : The criteria of non-compliance with respect to TC has been calculated on the following basis: (Ref : IS 2296-1982 foot note)

For Class B : TC values with more than 5% of samples show more than 2000 MPN/100 ml and more than 20% of the samples show more than 500 MPN/ 100 ml.

For Class C : 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.

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Sl. No	Sampling Location	No. of Obs.	Annual average value (Range of values) Parameters				Frequency of violation (Percent of violation) from designated criteria value			Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	EC (microSiemens /cm)	SAR	B (mg/l)	EC	SAR	B			
			1.	Jobra*	4	8.0 (7.8-8.4)	188 (166-235)	0.31 (0.25-0.34)	0.037 (0.025-0.049)			
2.	Ranihat*	4	7.9 (7.6-8.5)	183 (153-234)	0.28 (0.23-0.35)	0.038 (0.014-0.074)	0	0	0			
3.	Chhatrabazar*	4	7.9 (7.8-8.4)	170 (154-184)	0.27 (0.20-0.32)	0.074 (0.026-0.116)	0	0	0			
4.	Nuabazar*	4	7.9 (7.4-8.5)	175 (162-204)	0.29 (0.26-0.33)	0.033 (0.016-0.060)	0	0	0			
5.	Biribati*	4	7.9 (7.4-8.4)	189 (161-235)	0.32 (0.27-0.34)	0.079 (0.021-0.165)	0	0	0			
6.	Atharabanki**	11	8.0 (7.4-8.5)	1585 (174-9548)	5.15 (0.31-34.81)	0.054 (0.021-0.133)	2 (18)	1 (9)	0	Irrigation, Industrial Cooling or controlled waste disposal		
*** Class 'E'			6.5-8.5	2250 or less	26 or less	2 or less						

* Data for the period August-November, 2016

** Data for the period January-December, 2016 excluding February, 2016

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

Water Quality of Taladanda Canal with respect to other parameters during 2016 (January-December)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents				
		Annual average values (Range of values)										
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(mg/l)				
1.	Jobra*	69 (8-177)	75 (56-98)	11.4 (8.04-15.9)	0.070 (0.056-0.112)	0.005 (0.002-0.014)	1.12 (0.84-1.40)	104 (92-130)	72 (64-92)	9.8 (7.8-11.7)	9.9 (4.9-20.5)	0.405 (0.270-0.490)
2.	Ranihat*	70 (6-159)	78 (68-98)	13.8 (10.0-19.4)	0.154 (0.056-0.392)	0.009 (0.001-0.017)	1.47 (1.12-1.96)	108 (95-134)	72 (62-92)	8.3 (7.8-9.8)	9.7 (5.7-16.8)	0.378 (0.270-0.450)
3.	Chhatrabazar*	62 (8-132)	71 (60-78)	13.1 (10.0-17.7)	0.084 (0.056-0.168)	0.004 (0.002-0.007)	1.19 (0.84-1.68)	99 (96-104)	71 (66-80)	7.8 (5.9-9.8)	8.5 (4.1-19.4)	0.373 (0.260-0.430)
4.	Nuabazar*	73 (7-135)	71 (56-80)	12.4 (8.0-19.4)	0.140 (0.056-0.336)	0.008 (0.001-0.017)	1.33 (0.84-1.68)	100 (93-111)	73 (64-88)	8.8 (7.8-9.8)	9.3 (5.1-20.4)	0.385 (0.260-0.480)
5.	Biribati*	63 (10-107)	75 (64-100)	13.0 (8.0-17.7)	0.112 (0.056-0.280)	0.004 (0.002-0.007)	1.26 (0.84-1.68)	105 (98-123)	71 (60-92)	9.8 (9.8-9.8)	9.1 (4.6-19.4)	0.368 (0.250-0.430)
6.	Atharabanki**	40 (14-59)	98 (66-168)	24.9 (16.2-58.5)	0.291 (0.056-0.952)	0.020 (0-0.062)	1.85 (0.84-3.64)	1504 (102-7360)	285 (70-900)	571.2 (9.8-3816.2)	127.3 (5.2-659.2)	0.822 (0.330-1.900)
***Class 'C'		-	-	-	-	-	-	1500	-	600	400	1.5
***Class 'E'		-	-	-	-	-	-	2100	-	600	1000	-

* Data for the period August-November, 2016

** Data for the period January-December, 2016 excluding February, 2016

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

Class 'E' : Irrigation water quality

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Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual average values (Range of values)										
		NO ₃ ⁻	PO ₄ ³⁻ -P	Cr(VI)	T. Cr	Fe	Ni##	Cu##	Zn##	Cd##	Hg	Pb##
		(mg/l)		(mg/l)								
1.	Jobra*	1.636 (0.948-3.067)	0.089 (0.030-0.173)	0.006 (0.003-0.008)	0.027 (0.018-0.045)	0.883 (0.130-2.190)	0.009 (0.006-0.014)	0.005 (0.001-0.011)	0.013 (0.009-0.020)	0.0011 (0.0008-0.0016)	0.00006 (<0.00006-0.00025)	0.008 (0.007-0.009)
2.	Ranihat*	2.650 (1.189-4.728)	0.113 (0.047-0.191)	0.011 (0.003-0.015)	0.032 (0.020-0.053)	1.083 (0.470-1.630)	0.008 (0.003-0.012)	0.007 (0.001-0.021)	0.012 (0.004-0.018)	0.0010 (0.0006-0.0015)	0.00006 (<0.00006-0.00014)	0.007 (0.005-0.009)
3.	Chhatrabazar*	4.587 (0.360-13.857)	0.108 (0.050-0.211)	0.014 (0.002-0.026)	0.041 (0.018-0.064)	1.460 (0.490-2.150)	0.009 (0.006-0.011)	0.002 (0.001-0.003)	0.017 (0.007-0.027)	0.0010 (0.0008-0.0011)	0.00017 (<0.00006-0.00025)	0.008 (0.005-0.012)
4.	Nuabazar*	5.237 (0.498-16.882)	0.152 (0.078-0.221)	0.007 (0.002-0.013)	0.034 (0.025-0.057)	1.030 (0.330-1.800)	0.009 (0.004-0.016)	0.003 (0.001-0.005)	0.009 (0.001-0.012)	0.0009 (0.0007-0.0011)	0.00006 (<0.00006-0.00013)	0.009 (0.005-0.013)
5.	Biribati*	5.220 (0.849-13.772)	0.100 (0.038-0.162)	0.007 (0.002-0.011)	0.037 (0.024-0.057)	0.508 (0.100-1.080)	0.008 (0.005-0.011)	0.003 (0.002-0.006)	0.028 (0.008-0.077)	0.0011 (0.0007-0.0016)	0.00021 (<0.00006-0.00063)	0.010 (0.006-0.016)
6.	Atharabanki**	3.857 (0.049-6.120)	0.684 (0.009-4.649)	0.010 (0.002-0.025)	0.027 (0.013-0.047)	0.683 (0.050-2.100)	0.010 (0.004-0.020)	0.004 (0.002-0.007)	0.015 (0.008-0.033)	0.0009 (0.0003-0.0013)	0.00006 (<0.00006-0.00025)	0.008 (0.002-0.015)
***Class 'C'		50	-	0.05	-	50	-	1.5	15.0	0.01	-	0.10
***Class 'E'		-	-	-	-	-	-	-	-	-	-	-

* Data for the period August-November, 2016

** Data for the period January-December, 2016 excluding February, 2016

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

Data for the period January-December, 2016 excluding May and June, 2016

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

Class 'E' : Irrigation water quality

